

ANALYSES OF SOCIAL MEDIA ENGAGEMENT OF SUSTAINABLE FOOD BRANDS

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Doctor of Philosophy

University of York
Business and Society

September 2023

Abstract

This research investigates how sustainability-related message factors alongside moderating variables (content characteristics and country of operation) leverage engagement on online posts created by brands. It also explores consumer responses to gauge the effectiveness of sustainability messages and their reception by consumers. It addresses five research questions. The first four deal with the factors that influence post engagement, while the last question focuses on how consumers perceive these messages. Informed by the marketing literature on social media, sustainability, and engagement, a theoretical model is developed.

Guided by the model, this research examines the influence of factors on post engagement using quantitative and qualitative content analyses. A dataset of 3,149 posts (of five food brands, two social media platforms, and three countries) was used for investigation. Next, it examines how brands' sustainability messages are perceived by consumers by analysing 5,810 comments.

This research finds that certain sustainability-related message factors (value-driven attribution) generate significantly positive engagement in food brands' posts, whereas some message factors (triple bottom line, informativeness, egoistic-driven and healthfulness) are linked to significantly negative engagement. Country of operation plays a moderating role. On the other hand, content characteristics are only moderated by vividness, not message appeal. Various contextual differences for platform, brand and period also cause positive or negative changes in the engagement relationship. Furthermore, insights from consumers show varying perspectives, including compliance and resistance to sustainability messages across brands, sustainability efforts, and products.

Overall, this research provides a conceptual model based on post engagement to teach brands how to leverage engagement on social media towards their sustainability messages. The model was applied to global food brands. It is found to improve post engagement including a stronger connection between consumers and brands, increased awareness of brands' sustainability efforts, and the potential for a wider reach and influence on consumers.

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Acknowledgement

I would like to start these acknowledgements by thanking my supervisors, Professor Teresa da Silva Lopes, and Dr Snehasish Banerjee. Dear Teresa, I want to express my deepest appreciation for your wisdom, professionalism, and guidance. Working with you has been truly inspiring, and you have been my role model since my master's year. Dear Snehasish, you have always been generous in sharing your knowledge along the way. Thank you for your expertise, insights, support, and willingness to help, and also for your attention to every little detail in my research. I also extend my thanks to Dr Nadina Luca, who has provided me with invaluable guidance and made me feel like I had a third supervisor. Thank you all for helping me to start my academic career, I have learnt a lot from each one of you.

Thanks to the School for Business and Society at the University of York for fully funding my doctoral research, as otherwise I would not have completed a PhD. My gratitude also goes out to the staff at the school for their help and assistance.

I would like to thank all the institutions and individuals who helped me with the collection of data, both for the pilot and the main study. Special thanks to, Christos Mavros and Baran Sezer. Additionally, I want to offer my deepest thanks to my PhD colleague and dear friend, Yujia Luo, for accompanying me through the good and bad days of this journey on an everyday basis.

Above all, I would like to thank my wonderful family. I could not do this without your support and endless love. My sister, thank you for your love, support, and joyous accompany in York. Mom and Dad, your presence is my biggest support. This accomplishment would not have been possible without you. Anne, Baba size sahip olduğum için çok şanslıyım. Sizin varlığınız benim en büyük desteğim. Siz olmadan buralara gelemez ve bunu başaramazdım.

Last, but not least, I would like to thank my husband, Koray. You had to endure my stress and craziness during the final stages of my PhD. I cannot thank you enough for your patience and love. Thank you for your never-ending support, especially during the most demotivating and painful moments. Thank you for lighting the way when I felt lost in my research and comforting me when tears flowed. Our journey in York is coming to an end, new journeys will begin, and we will always share laughs, stories, tears, and hugs.

Author's Declaration

I declare that this thesis is a presentation of original work, and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.



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Abbreviations and Acronyms

CAFE	Coffee and Farmer Equity
CARE	Cooperative for Assistance and Relief Everywhere
CDP	Carbon Disclosure Project
CI	Conservation International
CLUSA	Cooperative League of the United States of America
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
EPA	Environmental Protection Agency
eWOM	Electronic Word of Mouth
FAO UN	FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
FMCG	Fast-Moving Consumer Goods
FWF	Fair Wear Foundation
GATT	General Agreement on Tariffs and Trade
GHG	Greenhouse Gas
GOS	Galacto-Oligosaccharides Synthesis
GRI	Global Reporting Initiative
IIRC	International Integrated Reporting Council
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
KPIs	Key Performance Indicators
NCBA	National Cooperative Business Association
NGO	Non-Governmental Organization
NOx	Nitrogen Oxide
RSPO	Roundtable on Responsible Soy
RTRS	Roundtable Sustainable Palm Oil
SASB	Sustainability Accounting Standards Board
SEDEX	Supplier Ethical Data Exchange
SOx	Sulphur oxides
TBL	Triple Bottom Line
UN	United Nations
UN ECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNEP	United Nations Environment Programme
UNGA	United Nations General Assembly
UNGC	United Nations Global Compact
USAID	United States Agency for International Development
VBEC	Venezuelan Basic Economy Corporation
VOC	Volatile organic compounds
WOM	Word of Mouth
WRC	Worker Rights Consortium
WWF	World Wildlife Fund

Chapter 1 : Introduction

Social media users account for 59.4% of all the people in the world, which is more than half of the total global population (DataReportal, 2023). The continuous rise in social media use has changed how brands and consumers interact. As part of their marketing communication strategies, brands are increasingly keen to leverage social media posts to elicit consumer engagement (Robson and Banerjee, 2022; Gomez et al., 2019). In fact, the strength of social media engagement with consumers, in the form of posts and continuous interaction, contributes to building relationships impacting the consumer's behavioural, cognitive, and emotional engagement with messages (Ma et al., 2022) and brands (Banerjee and Chua, 2019). Social media communication is also known to play an important role in raising consumer awareness of global issues such as sustainability (Fleming-Milici and Harris, 2020; Simeone and Scarpato, 2020).

This chapter introduces the motivations for this study, which focuses on global sustainability factors and outcomes as well as the critical roles of sustainable food firms in sustainable consumption and production patterns within the scope of social media marketing concepts. Additionally, it provides some context, highlighting both the increasing demand for sustainability-focused companies to make better use of digital tools and the strategic significance of maintaining brands in highly competitive environments, particularly in light of the challenging recovery from the COVID-19 recession (Koundouri and Freeman, 2022). Considering these aspects, further research is needed to understand key drivers in the successful implementation of sustainability communication on digital tools, both from consumer and firm perspectives.

Accordingly, Section 1.1 discusses the research motivation and provides some context. It introduces key concepts used in this study, such as the importance of social media marketing in raising awareness, fostering commitment, and promoting engagement with consumers. It also presents the context of the study by exploring sustainability issues and their impact on

the food industry, considering economic, environmental, and societal consequences, while the competitive advantages of sustainable food brands leveraging social media are also discussed. Section 1.2 identifies the research problem and presents research questions. Section 1.3 outlines the research methodology. Section 1.4 highlights the thesis's theoretical and practical contributions. Finally, Section 1.5 overviews the structure of the thesis in the eight subsequent chapters.

1.1 Research Motivation

1.1.1 Social Media Engagement

Social media marketing has transformed what firms communicate to their consumers. Brands no longer use social media marketing only for product promotion. Instead, social media has created space for brands to distribute educational content to consumers. For example, the Iceland supermarket is one of the companies that launched a Christmas TV advert with a sustainability-related message in November 2018. The advert pushed the palm oil issue into public consciousness. Nevertheless, it was considered too political and was banned from television due to breaching advertising rules in the UK. However, it is still available on a global social media platform (Doyle, 2018). On the social media platform, the message generated public consciousness on palm oil and orangutans' habitat and influenced consumer attitudes toward the ingredients in cakes and sweet baked goods (Butler and Sweney, 2018). Tesco, in another example, promoted its new 100% sustainable chocolate on social media and the message was created around ethically certificated products that support farmers and protect rainforests (Tesco, 2019). Similarly, Riverford Organic farmers launched a social media campaign called 'For Flock's Sake' in November 2018 to explain what makes an ethical egg; they did so by supporting the welfare of hens, allowing them more space and outdoor access (Riverford, 2018). Eventually, the campaign became viral. Likewise, in 2019 Ben & Jerry's posted on Black Consciousness Day about racism in order to inform consumers about the issue on its Brazil Instagram account. The post advocated anti-racist societies and reported that "after all, being aware is the first piece of change" (Ben and Jerry's BR, 2019). All of these examples highlight how social media could be a powerful tool for brands to not only promote their products, but also to raise awareness about pressing issues such as sustainability (Shorty Awards, 2021).

Clearly, firms have the power of marketing to generate online engagement with sustainability (Connelly et al., 2011; Crawford, 2020; Legrand et al., 2009). Engagement is associated with the outcome of firm-customer connectedness and interaction (Harmeling et al., 2017). It is acknowledged that social media creates a deep relationship and engagement with the issue of sustainability, even in difficult times such as COVID-19, and reaches out from developing to developed economies (Koundouri and Freeman, 2022). Engagement on social media is defined in literature in various terms, such as customer brand engagement, online engagement, brand post popularity, and social media engagement. This thesis uses the term brand post engagement because it distinctly aligns with the objective of the research and shows where the engagement occurs.

Firstly, brand post engagement is the indication of a brand's recognition on social media by attracting Likes, Comments, and Shares (de Vries et al., 2012). The successful implementation of social media marketing strategies advances brand post engagement as the solution to the research problem. Accordingly, identifying drivers of brand post engagement through social media marketing strategies contributes to: (1) promoting and selling products by commerce strategy; (2) distributing educational or compelling content to attract customers by content strategy; (3) listening to – and learning from – customer responses by monitoring strategy; and (4) understanding and responding to the information obtained from customers through customer relationship management strategy (Li, Larimo, and Leonidou, 2021). These four outcomes are the aim of this thesis – to achieve particular sustainability communication through brand post engagement.

Secondly, within the realm of social media marketing, previous research has explored various content-related factors with the aim of enhancing engagement with brand messages. One widely recognized aspect is "vividness," which pertains to the visual appeal of a post (Cvijikj Pletikosa and Michahelles, 2013). Another frequently studied factor is "message appeal," which focuses on the linguistic framing of messages (Chong and Druckman, 2007; Dolan et al., 2016). Additionally, the impact of a country's context has been identified as an influential element in engagement studies. For instance, differences at the country level can generate varying levels of engagement with brand messages, although many studies primarily concentrate on developed countries and do not explore sustainability-related messages (Khan et al., 2016). Within this thesis, the analysis of the country level is undertaken by distinguishing

between advanced and emerging countries. This categorization facilitates a comparison of the variances induced by the economic development of countries on consumer responsiveness to sustainability (Longworth, 2011). The discussion chapter also incorporates cross-cultural differences due to their capacity to elucidate consumer commitment to sustainability on social media, particularly in the context of specific country disparities (Minton et al., 2012).

These three factors - vividness, message appeal, and country impact - play a vital role in social media marketing across different contexts, such as retail brands (Antoniadis et al., 2019), the tourism industry (Kapoor et al., 2021), or global brand pages (Banerjee and Chua, 2019). Therefore, these tenets are included in this research to investigate by research questions. It is worth noting that there are additional factors in the literature, such as brand name and special days, which are not addressed in this thesis and will be explained in Chapter 2. Furthermore, the exploration of sustainability-related factors in social media engagement research is limited in scope. Existing studies tend to either solely assess the influence of corporate social responsibility (CSR) factors (e.g., Banerjee and Chua, 2019; Khan et al., 2016) or the concept of the triple bottom line (Yuen et al., 2023), without delving comprehensively into the underlying theories that inform sustainability messages.

Yet, how to best use social media for sustainability communication has not been addressed. There is still a gap, and it is crucial to explore integrative approaches to the sustainability communication of firms for leveraging brand post engagement, both from the firm and consumer perspectives. Both angles require strategic improvement and investigation on social media. Because firms' social media marketing strategies can boost brand post engagement, that helps to build sustainability awareness and competitive advantage, and thus enhance business performance (Li, Larimo, and Leonidou, 2021); however, the consumer level of sustainability knowledge can cause ambiguity, while businesses both pursue economic goals and respond to sustainability communication between their core business and consumers (Iivonen, 2018). Thus, learning from consumer responses and evaluating this information is as important as investigating the content of the brand post message. Building on this idea, this thesis uses social media platforms as the medium of research, and in these settings, it offers patterns that are new to the existing theory of engagement integrating social media with sustainability communication.

1.1.2 Sustainability Communication

Of late, the topic of sustainability has been receiving widespread attention in the mass media, academia, social media, and international gatherings such as the World Economic Forum. The 50th gathering of the World Economic Forum – Davos 2020 – was themed around global warming (Elliott, 2020). World business and political leaders highlighted some real changes resulting in climate, health, and environmental crises (Stiglitz, 2020). Ecological issues have been warning world culture to transform into sustainable practices (Assadourian, 2010). However, the COVID-19 pandemic has made it more difficult to build a green, inclusive, fair, and sustainable world, due to its accompanying humanitarian, financial, and economic crises (Koundouri and Freeman, 2022). Nevertheless, the pandemic has accelerated the need for a transition of entire sectors towards a green global economy. This green recovery provides great opportunities to advance economic and climate priorities to be less polluting, more inclusive, and more effective at delivering services, and thus better able to respond to future crises that explained by three main arguments.

Firstly, similar to demonstrations about COVID-19, activists and protesters have been taking a stand on sustainability issues and have advocated huge potential changes globally (Vredenburg et al., 2020). Teen environmental activist Greta Thunberg spoke at the United Nations, accused world leaders of not doing enough, collapsing the entire ecosystem for money and economic growth, and stressed the risks of global warming, poverty, and sustainability. Significantly, the major conclusions emerging from global events such as Davos 2020, COVID-19, and worldwide activism have emphasised investing in creating a world of green economies, equal opportunities, and sustainable development, including the transition of certain sectors in order to deliver concrete results for the world (Hillman, 2020; Koundouri and Freeman, 2022). All these recent developments show the scope of the action plan and establish the urgency of responding to environmental, economic, social, and health inequalities in order to achieve meaningful outcomes at the international level (Koundouri and Freeman, 2022; Stiglitz, 2020). To keep up with the trend, businesses are also striving to adapt their 16 activities towards a greater degree of sustainability.

Secondly, sustainability is a broader term, and it is not only limited to environmental problems, but also includes economic and social issues (Kumar et al., 2013). More details of definitions are discussed in Chapter 2; briefly, however, this research identifies sustainability

as the integration of economic, social, and environmental activities with welfare aspects and value for the present and future generations. It implies looking at how businesses create value, select customers, assign processes, and enter markets while integrating with economic, social, and environmental components, generating sustainable value while reducing negative environmental and social impacts (Long et al., 2018). To achieve that, businesses need to avoid corruption and anti-competitive behaviour, reduce poverty, and help facilitate equal distribution of benefits to all, while at the same time improving their market presence and financial performance (Kemper and Ballantine, 2019). This indicates that sustainability aims to support and achieve economic and social development as well as environmental development. Indeed, the use of marketing practices in sustainability will help change and create more effective communication in managerial and public discourse. This might help create a better awareness among the public of the fact that the environment, the conservation of natural resources, and their enhancement are key concerns for society. Acknowledging the main literature on sustainability, this thesis draws on theories of social media and sustainability communication from both consumer and firm perspectives.

From a consumer perspective, a study by the market research global company Nielsen showed that 81% of global respondents of all ages in a global online survey strongly believed that companies should help to improve the environment (Nielsen, 2018). However, there is a discrepancy between consumer beliefs and behaviour. Current consumer consumption is excessive and conspicuous, and is not sustainable in the long run (Chatzidakis et al., 2006; Whang et al., 2015; Grunert, 2011; Nielsen, 2018; Mintel, 2020). Another research study conducted by Goldman Sachs (2020) on millennials, who were born between 1980 and 1996, showed how this generation's preferences are low regarding sustainable shopping behaviour. Millennials are important consumers, since they have reached their prime years in terms of working, annual spending, and reshaping the economy and the way companies do their business (Goldman Sachs, 2020). Yet only 31% of British younger millennials associate high quality with ethically produced ingredients, 34% of Brazilian millennials prefer to buy from brands who have pledged commitment to help social causes, 16% of American millennials prefer cruelty-free products and 37% of Chinese millennials are interested in innovative marketing ideas that collaborate with charities (Mintel, 2020). Consumers, particularly millennials, embrace brands' purpose and sustainability, but their attitude differs in

consumption (White, Hardisty, and Habib, 2019). This is called the ethical attitude behaviour gap, also referred to as the attitude–behaviour gap, intention–behaviour gap, intention–action gap, or words–deeds gap. This gap is defined as the discrepancy between consumers’ concern and actual purchases, which is caused by a lack of knowledge, planning, and habit in consumers’ daily lives, commitment to ethical sustainable behaviour, and modes of shopping behaviour (Carrington et al., 2014; White, Hardisty, and Habib, 2019).

In this context, social media has the potential to bridge the ethical attitude behaviour gap among millennials. Particularly through an effective message strategy, the possible responses include heightened attention and impression, persuasive modifications in attitudes and beliefs concerning specific attributes, and a positive impact on purchase intention as outlined by Lilien, Kotler, and Moorthy (1992). Expanding on this, effective sustainability-related message strategy would benefit from social media regarding attitude changes (Minton et al., 2012) in terms of inducing attitude changes, generating compliance or fostering a sense of responsibility, aiding in the identification of complex goals, and encouraging active participation in desired behaviours (Kelman, 1958). Reinforcing this perspective, DataReportal (2023) reports that over 9 out of 10 millennials actively use social media. This widespread usage suggests that social media platforms can play a crucial role in catalysing systematic change by encouraging collective action among individuals (Koundouri and Freeman, 2022). By leveraging the power of social media, it is argued that unlocking this collective activism can be achieved, potentially leading to a more significant impact on sustainability efforts. Hence, the engagement of users with social media not only attests to its prevalence but also underscores its potential as a transformative mechanism capable of fostering collective sustainability engagement and shaping behavioural tendencies.

From a firm perspective, multinational companies face increasing pressure to be more sustainable each year (Iivonen, 2018). This pressure is driven by both legal requirements and regulations, such as those set by the European Union and the United Nations Sustainable Development Goals (Hahn and Kühnen, 2013). As a result, companies have made efforts to improve their sustainability practices, and the knowledge of sustainability has been shared among the countries they operate in (Chabowski et al., 2011). This relationship with sustainability has evolved beyond economic, ethical, and legal responsibility, and established a broader social bond between businesses and society (Carroll and Shabana, 2010). Many

companies struggle to achieve sustainability across social, environmental, and economic dimensions due to the complexity of managing sustainability-related issues (Kiron et al., 2013; Carollo and Guerci, 2018). One area that remains relatively unexplored is communication, which creates tension for firms due to a lack of knowledge on the best strategic decision-making to cope with effectively implementing the multiple identities associated with the triple bottom line (Ozanne et al., 2016). However, as previously mentioned, research on effective strategies for utilising social media marketing to enhance sustainability communication is currently lacking. Therefore, this thesis aims to explore this topic from both consumer and firm perspectives in order to fill this research gap.

Lastly, the food industry holds significant importance in the realm of sustainability communication. It is noteworthy that the expanding scope of sustainability-related messages, including poverty, unemployment, migration, extreme climate events, overpopulation, water scarcity, gender-based violence, the rise in violent extremism, and armed conflict (UNGC and Accenture, 2019), has necessitated an industry-specific approach to address complexities in managing these complicated issues. Taking an industry-specific perspective on sustainability communication within the food industry entails deploying a more comprehensive understanding of the subject. This approach helps uncover the underlying factors and determinants that influence communication practices in this sector (Hahn et al., 2014; Carollo and Guerci, 2018). Given the importance of both sustainability messages and the food industry, the sustainability-related messages conveyed by food firms are of particular interest in this context of the study, and the next section discusses the importance of studying sustainability in the food industry.

1.1.3 Context of Study: The Food Industry

The food industry comprises a wide range of sectors, including seafood, fruits and vegetables, meats, dairy products, beverages, and confectionery, among others (Mann et al., 1998; Gordon, 2017). It is one of the main industries that has an impact on sustainability, considering the sizes of footprints, handprints, and their components both from production and consumption (Heinonen and Ottelin, 2021). Hence, it constitutes the focus of this research.

Sustainability is important to study in the food industry because of several key reasons. Firstly, evidence from around the globe suggests that the food industry's implications for

sustainability and climate change have significant health effects on people. For instance, the outbreak of the coronavirus in Wuhan, China, in 2019, was believed to have originated from a wet market, and this highlights the risk of virus transmission from animals to humans in settings with poor hygiene standards (Newey and Gulland, 2020). Similarly, previous outbreaks like Sars and Mers in the Middle East and Africa demonstrate the potential health risks associated with zoonotic diseases (Newey and Gulland, 2020; European Centre for Disease Prevention and Control, 2020). These examples emphasise the need to examine the socio-economic, environmental, and ecological factors that contribute to the emergence and spread of infectious diseases (Jones et al., 2008; Smith et al., 2014).

Secondly, the global food industry faces significant challenges related to unsustainable resource usage and undesirable production and consumption outcomes (Legrand et al., 2009). The United Nations Development Programme (UNDP) (2019) has shed light on the hidden costs associated with the modern food industry, which impact both people and the planet. The Lancet Commission's report (Willet et al., 2019) underscores the importance of transforming the food industry for enhancing human health and environmental sustainability. It highlights two critical aspects that communicate the need for sustainable food production processes and systems and the promotion of consumer carbon balance and healthy diets. Moreover, the entire food supply chain, from distribution to retailing, has wide-ranging environmental impacts and societal implications, including effects on culture, economies, and animal health and welfare (Heinonen and Ottelin, 2021; Kemper and Ballantine, 2019; Willet et al., 2019). Failure to create sustainable food systems can lead to further degradation of the planet and an increase in malnutrition-related diseases (Willet et al., 2019).

Thirdly, the environmental impact of the food industry is substantial across the food supply chain, including carbon dioxide emissions and deforestation. For example, farms alone contribute to food-related greenhouse gas emissions by 61% and deforestation by 81% (Poore and Nemecek, 2018). Furthermore, food waste poses a significant challenge to sustainable food systems, with distribution and retail losses, as well as packaging and retail emissions, contributing to overall environmental degradation (Poore and Nemecek, 2018; Garnett, 2013). Minimising waste through improved inventory management, innovative packaging, and portion size modifications can play a crucial role in achieving sustainability goals (Garnett,

2013). Notably, the reduction of food waste by 25% has the potential to significantly alleviate global hunger (UNDP, 2019).

Fourthly, the food industry has an enormous impact on economies and society. Feiner (2019) has explained food firms' power based on their size and stated that since food is a vital necessity for every human, it has become the world's biggest industry. For example, the global food and beverage industry generated \$3.1 trillion in revenue in 2019 (ATNI, 2020). The substantial financial figures emanate from factors such as consumer demand, product profitability, and effective distribution channels, positioning the food market as a crucial contributor to economic sustainability and a potential facilitator in addressing global challenges (ATNI, 2020). However, it is imperative to acknowledge that significant sustainability transformations are necessary within the food industry, including strong relationships between firms and consumers. In this thesis, communication plays a pivotal role in conceptualising effective strategies to nurture the sustainable firm-consumer relationship. A sustainable food company is defined as an entity that operates within a business system rooted in economic, social, and environmental sustainability. Such companies prioritise the safeguarding of food security and nutrition for both current and future generations (FAO, 2018). This transformative system seeks to reshape existing agricultural and food industry practices, placing a heightened emphasis on profitability while simultaneously extending societal benefits, including fighting hunger and promoting healthy diets. Additionally, sustainable food companies strive to achieve a positive or neutral impact on the natural environment (FAO, 2018). Otherwise, failure would perpetuate the degradation of our planet, expose the population to malnutrition-related diseases, and impede the ability to sustainably feed the projected 10 billion global population by 2050 (UNDP, 2019).

Lastly, from a consumer perspective, understanding sustainable food can be a complex endeavour. Recent studies have highlighted the challenges consumers face in comprehending various aspects of food, including sourcing, production, labour, animal welfare, logistics, and costs (FAO, 2018; Mintel, 2020). In navigating this complexity, consumers expect firms to inform them about food products – from food miles to animal welfare (Mintel, 2020). In considering a sustainable food system, consumers need to understand the interconnectedness between a healthy economy, climate change, a secure social environment, diet, and food products (Legrand et al., 2009; Crawford, 2020). In this context,

effective sustainability communication plays a pivotal role in driving the sustainable development of firms and effectively conveying the message of sustainability to consumers (Crawford, 2020). Consequently, companies must establish robust sustainability communication strategies, fostering a trustworthy and transparent relationship with consumers. This approach not only nurtures a commitment to sustainability but also affords companies competitive advantages in the market (Connelly et al., 2011).

Drawing on existing literature, the effective sustainability communication efforts of food firms on social media platforms are recognised as catalysts for achieving positive outcomes for the environment, economy, and society as a whole. In line with this understanding, the focus of this thesis is to explore the social media marketing strategies from both firm and consumer perspectives, with the aim of enhancing sustainability communication and fostering greater engagement. The next section outlines the identified research problems from the literature and presents the corresponding research questions that will guide the investigation.

1.2 Research Problem and Research Questions

The research problem addressed in this study revolves around the potential advantages associated with the enhancement of consumer sustainability engagement and the development of effective sustainability communication strategies by offering a conceptual framework to elucidate these aspects. As discussed in the previous section, from the consumer perspective there is a notable gap between ethical attitudes and sustainable behaviours, resulting in low consumer engagement with sustainability-related social media posts (Kemper and Ballantine, 2019; Willet et al., 2019). This poses a significant challenge to the adoption of sustainable practices in the food industry (Garnett, 2013; Lang and Barling, 2013). Notwithstanding this, consumer responses have been neglected in social media engagement studies (Robson and Banerjee, 2022), leading to a limited comprehension of how consumers perceive brand messages.

From the brand perspective, it is essential to establish effective sustainability communication in order to foster consumer engagement and convey brand messages convincingly (Li, Larimo, and Leonidou, 2021). Nonetheless, this task presents a challenge due to the presence of ambiguity resulting from varying levels of consumer sustainability knowledge, while businesses endeavour to harmonise their economic goals with sustainability and respond to

sustainability communication between their core business and consumers (Iivonen, 2018). Despite its significance, little attention has been paid to the communication integrating strategic decision-making processes skilfully encompassing the triple bottom line; this lack of attention can lead to a state of tension for organisations (Ozanne et al., 2016). Consequently, brands face the formidable challenge of addressing sustainability communication on social media platforms in order to successfully reach consumers with sustainability-related messages. Therefore, this research aims to explore the relationship between brands' sustainability messages on social media and online consumer engagement, with a particular focus on brand post engagement. Employing a quantitative study complemented by a qualitative study, this research comprehensively incorporates both brand and consumer perspectives along with the respective antecedents. Through this model, the aim is to present an integrative framework that elucidates the interplay between sustainability messages and brand post engagement with a particular focus on the effective utilization of sustainability messaging within this context.

Therefore, the research problems comprise investigating the relationship between message factors and brand post engagement in the context of sustainability communication within the food industry. To address these research problems, the following RQs have been formulated:

- *RQ1: How do sustainability-related message factors drive brand post engagement on social media in the food industry?*
- *RQ2: To what extent does vividness moderate the relationships between sustainability-related message factors and brand post engagement on social media?*
- *RQ3: To what extent does message appeal moderate the relationships between sustainability-related message factors and brand post engagement on social media?*
- *RQ4: To what extent does the country of operation moderate the relationships between sustainability-related message factors and brand post engagement on social media?*
- *RQ5: What insights can be gained from user comments, based on the firm's communication behaviour?*

These research questions aim to uncover the underlying dynamics of sustainability-related message factors and their impact on brand post engagement. The examination of moderating effects, such as vividness and message appeal, as well as the influence of the country of operation, will provide a comprehensive understanding of the complexities involved in sustainability communication on social media platforms. Furthermore, analysing user

comments and consumer responses will offer valuable insights into the effectiveness of sustainability communication strategies employed by firms and how they are perceived by consumers. Figure 1.1 below offers an overview of this research.

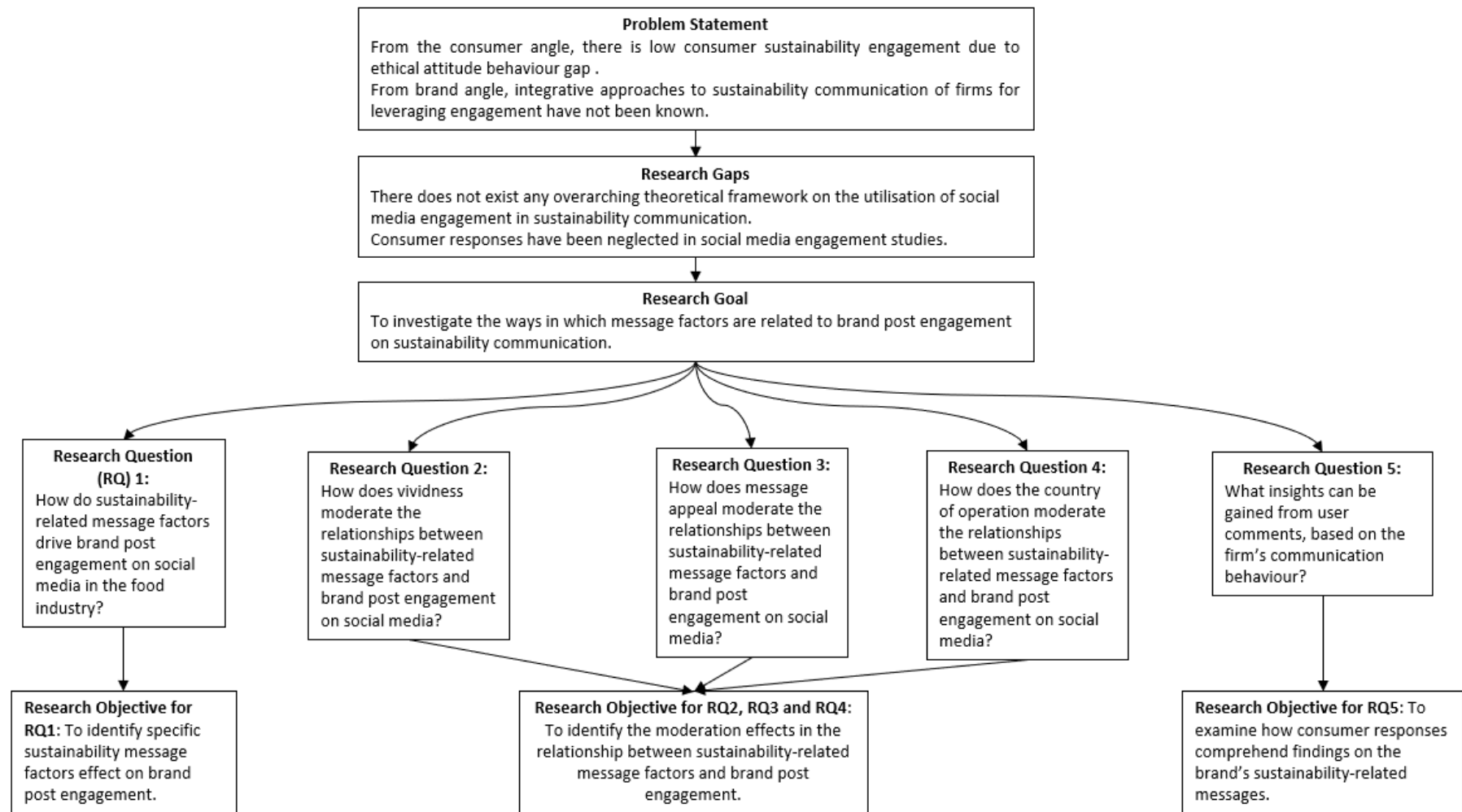


Figure 1.1 Research Overview

Figure 1.1 provides the overview of the research, in which the goals are to identify how message factors are related to brand post engagement in sustainability communication. Aligning with the research questions, the first objective is to identify the sustainability-related message factors that significantly influence brand post engagement on social media. Examination of the post content reveals that it aims to provide insights into the factors that contribute to either positive or negative levels of engagement. The second objective is to analyse the different moderating effects – namely vividness, message appeal, and country of operation – on the relationship between sustainability-related message factors and brand post engagement. This objective aims to identify whether the offered moderating variables can enhance the impact of sustainability communication on engagement. The objective for RQ5 is to assess the impact of the global COVID-19 pandemic on the relationship between sustainability-related message factors and brand post engagement. This objective aims to understand how the pandemic context has influenced consumer perceptions, priorities, and engagement with sustainability messages on social media. Lastly, the final research question aims to understand how consumers interpret and respond to sustainability messages, and whether their responses align with the intended communication objectives of a brand.

These research questions and corresponding objectives aim to provide a comprehensive understanding of the relationship between sustainability-related message factors and brand post engagement in sustainability communication on social media platforms. By examining various moderating factors, this study seeks to assess the effectiveness and contribute to the development of effective sustainability communication strategies by enhancing social media engagement and promoting sustainable behaviours in the food industry. The next section outlines the conducted studies of this thesis.

1.3 Methodological Outline

This research has employed a comprehensive research methodology consisting of two main studies and a pilot study conducted prior to the main research. The pilot study served as an important preliminary step, allowing for a deeper understanding of industry trends and facilitating the refinement of the research questions through a combination of preliminary findings and an extensive literature review. It involved examining the Mintel GNPD database to identify initial patterns and trends related to the sustainability of food brands and their use of social media. The pilot study played a crucial role in supporting the main research on

sustainability-related message factors, as it provided valuable insights and data. The findings from the pilot study contributed to the refinement of RQ5 by uncovering country-specific relationships between sustainability and social media engagement, enhancing the overall robustness and depth of the investigation.

The main research consisted of both quantitative and qualitative analyses to address the research questions. Quantitative content analysis, specifically hierarchical regression, was employed to investigate RQ1, RQ2, RQ3, RQ4, and RQ5. This analytical approach is well-suited for social media analysis, allowing for the comparison of variables within a model (Banerjee and Chua, 2019; Chrysochou and Festila, 2019; Dunn and Harness, 2018).

In addition to the quantitative analysis, an exploratory qualitative analysis was employed to address RQ5. This approach, inspired by related studies (Banerjee and Pal, 2023; Bronstein, 2013), facilitated the analysis of consumer responses to various message content (Kassarjian, 1977). By employing both qualitative and quantitative analyses, a more comprehensive understanding of the research questions and objectives was achieved.

Both the qualitative and quantitative analyses utilised the same dataset, which encompassed a three-year period. This longitudinal approach allowed for a thorough examination of the trends and patterns in sustainability communication on social media platforms over time. By combining these methodological approaches, this research aimed to provide robust and reliable findings to contribute to the existing body of knowledge on sustainability communication in the food industry.

1.4 Potential Contributions

Based on the research aim and objectives developed above, this thesis expects four original contributions to knowledge, with managerial implications. First, this study offers a theoretical contribution by proposing a framework that identifies the effective sustainability-related message drivers impacting brand post engagement as a form of sustainability communication. Notably, sustainability communication still does not have its own theoretical framework (Janouskova et al., 2019; Godemann and Michelsen, 2011), therefore this study is the first to extend existing research on social media engagement to the context of sustainability communication. While various communication frameworks exist, they tend to be limited in scope, focusing on specific content areas such as climate change or tourism (Barkemeyer,

Figge Hoepner, 2017; Tiago et al., 2019), exploring specific aspects of media and communication theory, like agenda-setting or the use of richer channels (Braun et al., 2019; Tölkes, 2018; Witt, 2011), or analysing messages pertaining specifically to the environment, socio-economic factors, and culture (Khan et al., 2016; Line et al., 2016; Villarino and Font, 2015). Consequently, the engagement literature draws upon limited concepts, such as the social dimension of corporate social responsibility or communication theories focusing on channel usage, often rooted in information systems models rather than marketing strategies. In this regard, this thesis provides a new pattern to the existing theoretical and practical knowledge on brand post engagement by conceptualising sustainability communication. In striving for comprehensiveness, the research proposes a conceptual framework that integrates relevant perspectives from intertwined related studies (Banerjee and Chua, 2019; de Vries et al., 2012; Dunn and Harness, 2018; Hollebeek and Chen, 2014; Khan et al., 2016) in relation to marketing perspectives and building from different social science perspectives, including sustainability, branding, food, and information science.

Secondly, this research makes a significant contribution by identifying brand post engagement antecedents from both brand and consumer perspectives. It addresses the need for empirical investigation into the effects of brand-related antecedents on social media strategies for sustainability communication (Hollebeek and Macky, 2019; Lim and Rasul, 2022). The proposed framework incorporates key dimensions such as brand analytics (the volume of Likes, Comments, Shares), brand expressiveness (message), and brand incentives, offering insights into both quantitative and qualitative aspects of engagement. Moreover, the study considers the consumer perspective by analysing consumer comments in order to uncover engagement outcomes and understand the favourable antecedents of social media engagement in sustainability communication (Chae, 2021; Lee and Yoon, 2020). It addresses the need for empirical investigations into the cognitive dimension of consumer engagement, as emphasised by Lim and Rasul (2022). These insights aim to contribute to the existing engagement literature on marketing by clarifying the favourable antecedents, triggering effects, and categorisation of consumer responses to sustainability communication on social media. Importantly, this analysis also contributes methodologically to the literature, which is the third contribution.

Thirdly, this study contributes by employing a qualitative approach to analyse consumer responses and outcomes of engagement, which addresses the call by Robson and Banerjee (2022) for investigations into consumer responses. This thesis is the first study of its type in the context of sustainability to identify uncovered valuable consumer insights as outcomes of engagement. This contribution provides a deeper understanding of consumer engagement outcomes through a more qualitative investigation, and contributes to the advancement of research methodologies in the field.

Fourthly, the contribution of this study lies in its enhancement of generalisability through the incorporation of diverse country contexts and comparative analyses. It expands the understanding of social media engagement and outcomes within the sustainability marketing discipline across advanced and emerging economies. This cross-cultural perspective provides valuable insights into the varying dynamics of engagement and contributes to the broader sustainability marketing literature. Furthermore, by enabling cross-country studies in social media and sustainability marketing, this research fills a gap in the current literature, particularly regarding emerging economies. This analysis emphasises the importance of considering country-specific sustainability-related message factors and paves the way for further exploration in this area.

In addition to addressing conceptual and contextual concerns, this study also aims to contribute to providing valuable implications for brands in terms of their sustainability-related postings and engagement strategies on social media. Firstly, the research aims to offer guidelines for managers on how sustainability-related brand messages can be conceived and disseminated to achieve favourable engagement across multiple antecedents, including sustainability-related factors, social media platforms, country, brand, and period contexts. By identifying specific sustainability aspects of their brands, marketers can enhance brand post engagement and establish stronger brand-consumer relationships in sustainability through the findings of this study. This tailored approach facilitates a brand's promotion of sustainable products and its sustainability practices. Second, by analysing the impact of the COVID-19 pandemic, the study provides insights for managers on how to reinvent their marketing strategies and address sustainability tensions and consumer shifts resulting from crises. Lastly, this study aims to identify key triggers and favourable antecedents that influence social media engagement, which provides valuable guidance for managers in shaping consumer

perceptions of sustainability messages. By leveraging these insights and considering engagement, marketers can customise their sustainability messages on the products and initiatives to align with consumer values and preferences. This guidance provides managers with a deeper understanding of consumer behaviour and offers practical implications for designing engaging sustainability marketing campaigns. Overall, this research offers practical implications for managers and practitioners in terms of sustainability-related postings, engagement strategies, and decision-making processes. It provides valuable guidance for promoting sustainable products, managing crises, and enhancing brand-consumer relationships in the context of social media.

1.5 Overview of the Thesis

This introductory chapter has provided an overview of the research scope, which focuses on brand post engagement in sustainability communication within the context of food firms. It has highlighted the research gap and introduced the research goal along with the corresponding research questions. The methodological outline has also been discussed, together with the approach and techniques used in the study. The potential contributions have been presented.

Moving forward, the thesis is structured as follows, as depicted in Figure 1.2.

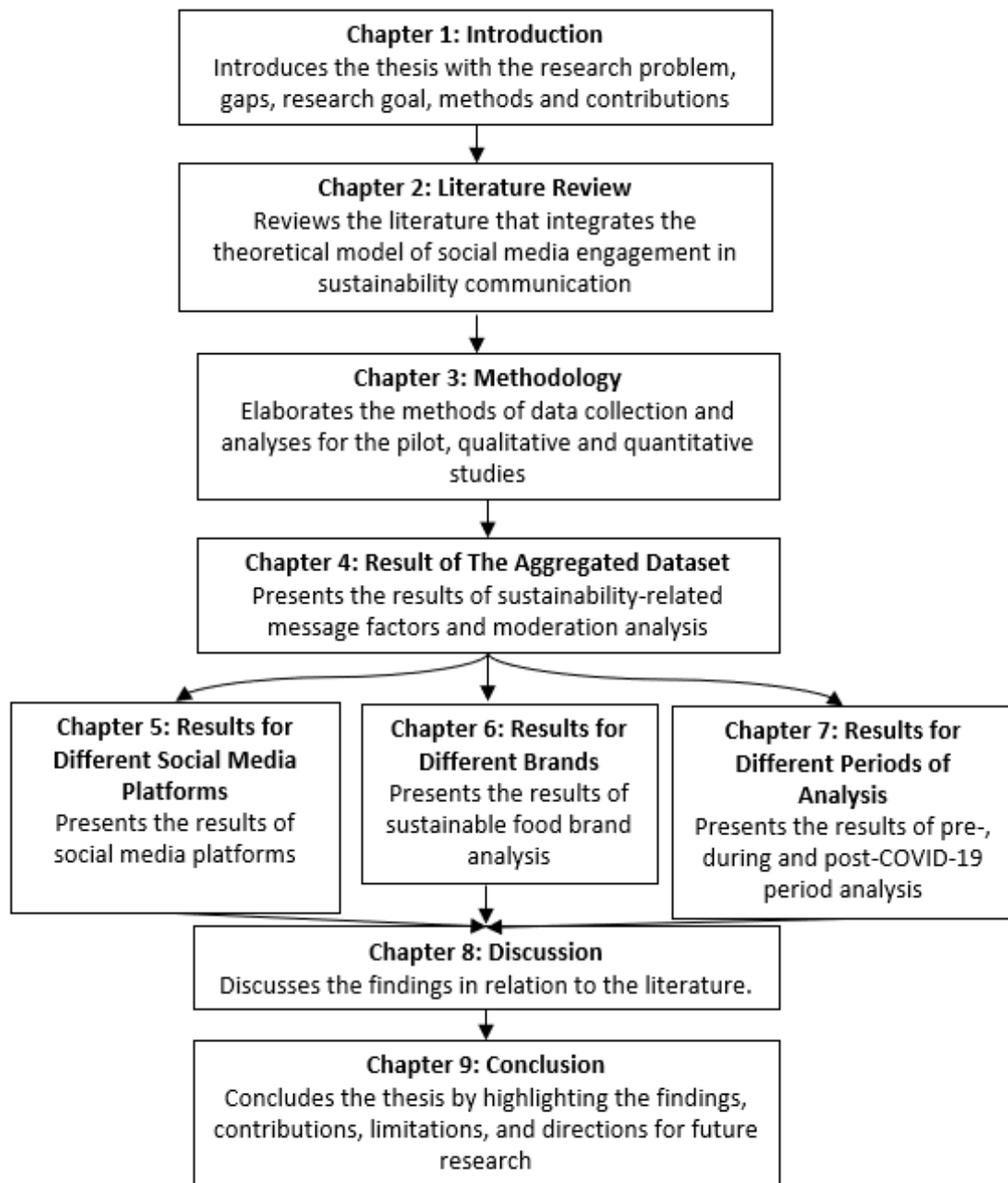


Figure 1.2 Organisation of the chapters

As Figure 1.2 illustrates, Chapter 2 provides a comprehensive literature review of social media marketing in the context of sustainability and communication, specifically focusing on sustainable food brands. It explores the opportunities and challenges of utilising social media as a marketing tool for sustainable food brands and discusses the integration of marketing strategies within the food industry. The chapter defines key concepts related to food

sustainability and identifies significant factors and considerations for effectively reaching consumers through marketing efforts.

In Chapter 3, the sample used in the study is introduced, with a specific focus on sustainable food brands owned by leading multinational enterprises in the food sector. The chapter outlines the selection criteria for these brands and provides an overview of their social media profiles. It also explains the choice of data sources and methods employed for data collection. Additionally, the chapter describes the measurement and analysis methods used in the study. A pilot study is also conducted in Chapter 3 to gain insights into industry trends and establish the conceptual foundations of brand post engagement.

Chapter 4 presents the results of the aggregated dataset analysis, focusing on sustainability-related message factors and the moderation analysis conducted. Chapter 5 delves into the results of the analysis of different social media platforms. In Chapter 6, the analysis shifts towards examining individual sustainable food brands, their performance in terms of brand post engagement, consumer response, and their adaptation to sustainability practices.

Chapter 7 specifically focuses on the analysis of different periods, including the pre-, during, and post-COVID-19 periods, and presents the findings related to brand post engagement during these distinct timeframes.

Chapter 8 discusses the drivers of brand post engagement by synthesising the findings from the qualitative and quantitative analyses. The chapter explores various theoretical perspectives, such as lay theories, attribution theories, framing theories, and media richness, in order to shed light on the factors influencing brand post engagement.

Finally, Chapter 9 summarises the theoretical and managerial relevance of each chapter in the study. It highlights the main findings and implications for both research and practice, offering insights into how the study contributes to the existing literature and provides guidance for managers in the areas of social media, sustainability communication, marketing, and the food industry.

Chapter 2 : Literature Review

2.1 Introduction

The concepts of social media engagement and sustainability communication are the core elements of this study's conceptual development, addressing the research problems and questions. As outlined in Chapter 1, five questions are being asked: How do sustainability-related message factors drive brand post engagement on social media in the food industry? How does vividness moderate the relationships between sustainability-related message factors and brand post engagement on social media? How does message appeal moderate the relationships between sustainability-related message factors and brand post engagement on social media? How does the country of operation moderate the relationships between sustainability-related message factors and brand post engagement on social media? What insights can be gained from user comments, based on the firm's communication behaviour? To answer these questions, the literature on social media, engagement, marketing, and sustainability was reviewed by assessing the relationship between multinationals' marketing strategies and sustainability activities in the light of the relevant theories, including lay, attribution, framing, and media richness.

The aim of this chapter is three-fold: (1) To review the literature on social media marketing and sustainability communication; (2) to identify theoretical roots and the foundation of how brands better use social media for sustainability communication; and (3) to develop a conceptual framework of brand post engagement in sustainability communication. Accordingly, this chapter presents an extensive literature review starting with social media engagement, which is followed by sustainability communication. The chapter is divided into four sections.

Section 2.2 explores the use of social media by brands, highlighting their strategies and approaches, and the use of social media by consumers, focusing on their behaviours and interactions within these platforms. The section also addresses the role of different social

media platforms and examines the impact of the COVID-19 pandemic on social media engagement. Theoretical roots and foundations related to social media-related factors are explored concerning engagement. Section 2.3 conceptualises sustainability communication and sustainability communication within the context of food firms. The section also delves into the theoretical roots and foundations of sustainability-related factors in communication. Section 2.4 develops hypotheses related to brand post engagement with the antecedents of brand post engagement influencing consumers' engagement with brand posts. Section 2.5 introduces the proposed conceptual framework of brand post engagement, which integrates sustainability-related and social media-related factors for brand post engagement. The last section ends with a summary.

2.2 Social Media Engagement

Over the past two decades, the field of marketing has witnessed a major transformation due to the advent of social media (Lamberton and Stephen, 2016). The successful implementation of marketing strategies involving digital tools has been important in reforming companies' and consumers' practices. Thus, companies are increasingly using social media to communicate with their consumers (Durmaz and Efendioğlu, 2016). Digital communication channels have become a significant part of firms' marketing strategies. Corporate websites and social networks such as Instagram, Facebook, Twitter, and LinkedIn allow firms to share a variety of messages in a fast and economic way to their target audiences and stakeholders (Yadav and Pavlou, 2014).

However, there are still few studies discussing what are the best ways to convey sustainability messages, and what are the effects of social media marketing on addressing sustainability in products and activities in different industries. Even though social media has become a powerful tool for sustainable business communication, how online posts created by companies are perceived by Internet users has not been studied. This is important to study because there is much literature highlighting that firms' sustainable communication tends to be received with scepticism (Dunn and Harness, 2018). If users doubt the genuineness of a firm's sustainability communication, they will express disapproval through dislikes and negative comments. But if they trust it, they are likely to express approval through likes and

positive comments. Thus, understanding Internet users' responses (e.g., Likes, Comments, and Shares) to sustainability communication posts on social media is necessary.

2.2.1 Use of Social Media by Brands

At present, the fact that half of the world's population uses social media platforms means that firms are highly interested in using social media, making efforts to be influential and strengthen their relationship with their consumers about their brands (Kircova et al., 2018). The reasons for firms' use of social media are related to their potential to attract attention and prompt consumers to take steps towards their sustainability efforts (Amirmokhtar Radi and Shokouhyar, 2020). This thesis calls for further exploring the significant role of firms' social media in influencing consumers and improving social media engagement on sustainability-related messages.

From the brand perspective, social media engagement holds significant importance, as evidenced by metrics such as Likes, Comments, and Shares. Likes on posts create an affective evaluation of the brand, Comments allow consumers to deliberate over the brand and express their thoughts, while Shares generate viral reach (Quesenberry and Coolson, 2019). Consequently, brands have come to recognise the substantial advantages of social media and the value of receiving Likes, Comments, and Shares on their posts (Quesenberry and Coolson, 2019). However, which types of social media posts on sustainability are best suited to generate engagement through Likes, Comments, and Shares is still understudied. Nevertheless, the types of posts matter, in particular to consumer attitudes towards food sustainability and the real benefits that come from having consumers' active engagement with brand love (Algharabat, 2017; Bergkvist and Bech-Larsen, 2010; Wallace, Buil, and Chernatony, 2014). The positive potential and effective utilisation of social media marketing in influencing sustainability communication represent the central focus and overarching goal of this thesis.

Indeed, sustainable firms are more likely to discuss sustainability on their social media, as opposed to firms with a low ranking on sustainability (Reilly and Hynan, 2014). Studies have indicated that firms are highly involved in social media channels in order to move forward to motivate sustainable product choices (Kapoor et al., 2021), implement CSR campaigns (Richards et al., 2015), take a stand on socio-political issues by brand activist messaging

(Vredenburg et al., 2020), improve people's well-being (Hicks et al., 2016), and create sustainability awareness, societal transformation, and a more responsible lifestyle (Godemann and Michelsen, 2011). Brands' communication on these initiatives builds bonds with stakeholders in terms of awareness, admiration, and advocacy, both for the company and their sustainability initiatives (Tench, Sun, and Jones, 2014). By 2012, firms had been increasingly using social media to highlight their sustainability activities and their sustainability dialogue (Yeomans, 2013). From then on, sustainability topics became increasingly popular on a global scale, because social media provided important insights and greater visibility in regard to sustainability topics such as corporate social responsibility, the environment, recycling, eco-friendly products, human rights, sustainable consumption, and social impact (Amirmokhtar Radi and Shokouhyar, 2020; Stanislavka et al., 2020). Thus, social media has become a part of mainstream business communication and is embedded in sustainability communication.

Social media is used by brands for two distinct purposes, namely product promotion and broader sustainability marketing messages. Firstly, firms communicate about their products on social media and more than 50% of posts are about products (Dwivedi et al., 2021). This is more important than ever before, since consumers require information in order to make sensible choices and purchase sustainable products (Papadas and Avlonitis, 2014). Indeed, social media has become a hotspot for research. Following global trends, consumers' social media behaviours are less focused on sharing their personal information; now, they are more purpose-driven, particularly consumers who look for information about sustainable products (Global Web Index, 2021). Globally, 41% of consumers mainly search social media channels for sustainable products, which is notably higher than the numbers who check out the actual brand or product's website (Global Web Index, 2019; Valentine, 2019). Furthermore, the impact of social media might be spending and consumption habits, consumer preferences for local products, attention to the consumption of organic products, knowledge and concerns about sustainable consumption, awareness of the environmental impact of food production, attention to food waste, purchase of zero-kilometre products and attention to consumer social responsibility (Simeone and Scarpato, 2020). This impact can either negatively or positively affect consumers' behaviour and awareness of sustainable food choices; however, it imparts a better experience for consumers on social media, resulting in willingly purchasing the product they are engaged with (Simeone and Scarpato, 2020; Uzunoglu et al., 2017).

Secondly, it is worth noting that multinational corporations are not only incorporating product-related information in their social media strategies, but they also prominently feature sustainability-related messages, particularly in the form of activist messages. Thus, consumers are also ever more aware and want information about firms' support of these social causes (Reilly and Hynan, 2014). Regarding this demand, firms adopt more messages on social media due to the fact that promoting societal issues has indeed proven effective on social media platforms (Chae, 2021). For example, P & G's Love over Bias campaign about LGBT rights on Twitter became viral, as people shared their own experiences with racial, gender, or class bias with the hashtag #LoveOverBias. The campaign reached 300 million video views, and more than five billion earned media impressions (Zavy, 2019). Firms are also involved in creating activist messages on social media because consumers want brands to engage with socio-political issues. They present a real opportunity and drive societal development and awareness (Burrows, 2015; Vredenburg et al., 2020). For example, Ben & Jerry's, which entered socio-political conversations beyond environmental activism, reacted to important social issues of the moment such as George Floyd's death and the USA presidential election (Vredenburg et al., 2020). The company launched Stop Hate for Profit campaign against Facebook and other social media platforms through 2020 to address hate on the platform in the light of George Floyd's death, and racial justice and equality – referring to the 2020 election. Following this, the company stopped all paid advertising for their products on Facebook, Instagram, and Twitter for the period of these two events, and more than 1200 companies, including Coca-Cola, The North Face, Boeing, Adidas, Patagonia, and Honda, joined the campaign that caused Facebook to be hit by its largest-ever advertiser boycott over racism (Conkling, 2020; Hern, 2020; Kiefer, 2020). By the end of the initial month, the campaign became a worldwide movement, sparked consumer awareness, obtained 12 billion social media impressions with more than 50 A-List celebrities' support, six million engagements for Instagram posts using #StopHateForProfit, 28.2k tweets, and 3.8k new stories per week (Shorty Awards, 2021). Clearly, social media is an important communication tool that conveys the message of sustainability in both product and generic sustainability messages. It has an impact on society with regard to sustainability development, from sexual harassment, systemic racism, LGBTQIA+ rights, and public health, to sustainable products and consumption, the climate crisis, recycling, and sustainable choices.

However, it is worth noting that despite the significant opportunity social media provides for brands to engage with interest groups and promote sustainability, it also presents challenges (Lamberton and Stephen, 2016; Stanislavska et al., 2020). One notable challenge in social media engagement arises from the occurrence of negative engagement. It is crucial to acknowledge that previous research has highlighted the absence of a comprehensive framework for sustainability communication (Janouskova et al., 2019; Godemann and Michelsen, 2011). This deficiency can potentially lead to an insufficient reception of sustainability messages, resulting in negative engagement from consumers.

To better understand the dynamics of social media engagement on sustainability messages, it is crucial to distinguish between positive and negative forms of engagement. Positive engagement, alternatively referred to as positively-valenced engagement, is the outcome of brand interaction in favourable cognitive, emotional, and behavioural aspects. Negative engagement, in contrast, is referred to as negatively-valenced engagement, and represents a contrasting form of consumer engagement characterised by unfavourable thoughts, feelings, and behaviours during interactions with a brand (Hollebeek and Chen, 2014). The differences are caused when firms struggle with the control and use of the multitude of social channels, brand stories, and sustainability in an effective way. Therefore, caution must be exercised when implementing marketing tactics on social media (De Veirman et al., 2019). To address these challenges and foster positive engagement, it is essential to establish an efficient relationship between brands and consumers. Thus, the framework in this study aims to identify the factors that contribute to both positive and negative engagement, enabling brands to navigate these complexities and foster meaningful interactions with their target audience.

2.2.2 Use of Social Media by Consumers

Social media has become an integral aspect of consumers' daily lives, providing them with a digital space for interaction, opinion expression, and experience sharing. Various factors influence consumers' social media usage and motivation. Notably, hedonic values have been identified as a primary driver of consumer motivation, encompassing elements of enjoyment, excitement, pleasantness, and engaging content (Madupu and Cooley, 2010; Jahn and Kunz, 2012). Relatedly, consumers also utilise social media platforms to fulfil their needs for social connection and self-expression (Lin, Lee, and Giang, 2016). The second motivation is based on

utilitarian value, where consumers actively searching for information about a particular brand on social media are more inclined to engage with posts that offer utilitarian benefits (Wagner et al., 2017). Understanding these motivations and tailoring content accordingly enables brands to enhance online brand engagement to posts, build meaningful connections with consumers, and effectively leverage social media as a powerful marketing tool.

Consumer reaction to brand posts as engagement is crucial. Encouraging consumer participation on social media by driving consumers' attitudinal (post likes), cognitive (post comments), and behavioural (post shares) engagement is vital for sustainable development and raising awareness (Chae, 2021). Nevertheless, the types of posts matter, in particular to consumer attitudes towards such issues as food sustainability, and the real benefits that come from having consumers positively engaged with brand posts (Algharabat, 2017; Bergkvist and Bech-Larsen, 2010; Wallace, Buil, and Chernatony, 2014).

Such engagement, particularly Comments, allows consumers to actively contribute to brand conversations, shaping brand perceptions and influencing the purchasing decisions of others (Brodie, Ilic, Juric, and Hollebeek, 2013). Moreover, it enables consumers to share their own content (Chua and Banerjee, 2013) and engage in knowledge sharing (Desouza et al., 2008). However, the potential exists for consumer responses to also impact the perceptions of other customers adversely, through the dissemination of incorrect or biased information about a brand (Zanjani et al., 2008). Surprisingly, consumer responses have been overlooked in studies on social media engagement (Robson and Banerjee, 2022). This is a critical gap in the existing literature that this thesis seeks to address.

In this context, social media emerges as an attractive tool to allow both consumers and brands to foster communication through engagement (Liu and Jin, 2011; Uzunoglu et al., 2017). Recognising the medium's vital role in constructing and delivering messages (McLuhan, 1964), it offers the potential to facilitate sustainability communication between brands and stakeholders across various social channels. However, there remains a limited understanding of the engagement strategies that succeed on one platform but fail on another, as well as the antecedents and consequences of such strategies, which have yet to be fully explored (Robson, Banerjee, and Kaur, 2022). The next section explores this relationship.

2.2.3 The Role of Different Social Media Platforms

This section explores the significant role of social media platforms in how they affect brands and consumers. In the realm of social media, the traditional notion of utilising a single platform for communication is being expanded to embrace a more interconnected approach across multiple social channels. This evolution in social media practices, as suggested by Schultz (2017), recognises the interdependence of various platforms and explores how different themes and content types of brands can influence consumer reactions through specific channels. Table 2.1 presents the role of different social media platforms for consumers and brands.

Table 2.1 Social media platforms in marketing

Platform	Role for Consumers	Role for Brands	Reference
Facebook	Source of information about brands and products	Primary social media network for marketing purposes that facilitates stakeholder-brand dialogue in sustainability communication	Lee et al. (2013), Uzunoglu et al. (2017)
Instagram	Source of visual content on online brand engagement	Powerful platform for visual storytelling and brand engagement	Highfield and Leaver (2014)
Twitter	Limited brand interaction in the sustainability dialogue	Challenges associated with inadequate user reaction	Alboqami et al. (2015), Okazaki et al. (2020), Murthy (2018)
TikTok	Entertainment purposes by short video content	A primary platform for video-centric nature, but not align with sustainability communication objectives	Wahid et al. (2023)
Snapchat	Private relationships among users	Limited adoption among brands, possibly due to niche demographics or functionality limitations	Phua et al., (2017)

Table 2.1 demonstrates the social media roles of consumers and brands. As seen, social media platforms have expanded beyond the realm of Facebook, with platforms such as Instagram, Snapchat, Twitter, and TikTok gaining prominence (Lamberton and Stephen, 2016; Wahid et al., 2023). Facebook continues to maintain its dominant position as the primary social media network utilised by businesses worldwide for marketing purposes, with a substantial user base and extensive reach (StatistaX, 2021). Facebook plays a significant role in various fields of

academic research that investigates the relationship between Facebook usage and its educational outcomes (Vitak, 2018). In terms of attracting marketers, Facebook is closely followed by Instagram (StatistaX, 2021). This is a powerful platform for visual storytelling and brand engagement in the combination of visual imagery with captions, hashtags, and comments, providing researchers with a rich dataset for investigation (Highfield and Leaver, 2014). Conversely, platforms such as Snapchat and Pinterest have not experienced widespread adoption among marketers since 2020 (StatistaX, 2021), possibly due to their niche user demographics or specific functionality limitations. These platforms are popular among individual users for the purposes of personal inspiration and private connections (Phua et al., 2017). As for TikTok, it has emerged as a fresh addition to the social media landscape; it attracts early adopter brands and predominantly has a younger user base (Wahid et al., 2023). TikTok specialises in short video content, which sets it apart from other platforms based on engaging entertainment videos.

Choosing the right social media tools is significant in different marketing activities and allows firms to deliver the sustainability purpose of engaging with consumers (Kaplan and Haenlein, 2010). The literature shows that the relevant academic studies either only focus on communicating sustainable/green products or focalise on communicating CSR messages via websites, blogs, Facebook, Twitter, Pinterest, Instagram, and YouTube (e.g., Amirmokhtar Radi and Shokouhyar, 2021; Bragg et al., 2019; Chae, 2021; Chwialkowska, 2019; Du et al., 2016; Dunlop, Freeman, and Jones, 2016; James et al., 2013; Kapoor et al., 2021; Lee et al., 2013; Kent and Taylor, 2016; Reilly and Larya, 2018; Stanislavska et al., 2020; Uzunoglu et al., 2017). About specific cases such as organic food or philanthropic responsibility, findings show significant differences in social media motives in regard to sustainability. For social commerce transactions, Facebook, Twitter, and Instagram are recorded as the most important and primary tools (Kircova et al., 2018).

These three platforms have been frequently and increasingly used by both food brands and sustainability studies. Indeed, the food industry has experienced an upward trend in terms of social media presence, particularly on platforms such as Instagram, Facebook, and Twitter, with Tumblr and Vine also gaining traction in the US market (Bragg et al., 2019). Within the realm of social media platforms, Facebook, Twitter, and Instagram have emerged as significant channels for facilitating stakeholder-brand dialogue, especially in the context of sustainability

communication (Lee et al., 2013; Uzunoglu et al., 2017). However, for the purposes of this research, the focus has been narrowed down to Facebook and Instagram as the selected mediums. This decision stems from the challenges associated with Twitter research, where certain content may receive rapid reactions but lacks adequate interaction or even elicits zero response from users (Alboqami et al., 2015). Brands often neglect to use Twitter to communicate with consumers in sustainability dialogues (Okazaki, Plangger, West, and Menendez, 2020), which presents sampling issues and limits the collection and analysis of data on this microblogging platform (Murthy, 2018). Consequently, Twitter does not fulfil the sampling requirements of this thesis across brands, countries, and years.

To the best of the author's knowledge, few studies have explored the extent to which social media messages on different topics affect consumers' reflection towards social media corporate messages. For example, in their study, Uzunoglu et al. (2019) aimed to analyse areas of ethical versus economic messages on Twitter to find out the different impacts on consumer outcomes. Their findings indicated that ethical and economic messages together have a higher impact on consumer engagement with purchase intention. These elements are related to this thesis in terms of examining sustainability-related messages; however, this is limited to the scope of ethics messages in their study. Thus, in the context of sustainability communication, there is no research examining the effectiveness of sustainability messages with different content either on product or general sustainability activities across multiple social media channels for engagement intention, more specifically brand post engagement.

In the context of sustainability communication, this thesis explores how different social media channels can be leveraged to cultivate sustainability-related messages, ultimately contributing to engagement with brands' sustainability-related posts in practice. By examining the role of social media in fostering efficient relationships between firms and online communities, this research seeks to uncover the potential benefits and implications of utilising diverse platforms.

2.2.4 The COVID-19 Pandemic Impact

The COVID-19 pandemic has had a profound impact on social media usage and consumer behaviour. Notably, the first COVID-19-themed sharing on social media was posted on 6 March by Coca-Cola on both Facebook and Twitter, followed by other fast food, confectionery,

and snack brands across various social media platforms (Gerritsen et al., 2021). Food multinationals have utilised several prevalent themes in their social media communications during the pandemic, including trading/event updates, home delivery/takeaway services during the lockdown, hygiene practices, community support, appreciation for healthcare staff and essential workers, donations, isolation activities, the role of consumption in coping with COVID-19, support for local businesses, health advice, sanitising products, and updates on product supply chains (Martino et al., 2021; Gerritsen et al., 2021).

Moreover, the COVID-19 pandemic has transformed consumers' relationships with social media, driving them towards increased online activities, and this trend is expected to continue worldwide (Mason et al., 2021). The significant shift in social media usage since the onset of the pandemic is evident numerically, as a majority of respondents (72%) of the survey have reported an increase in their social media usage (Wold, 2020). Additionally, 82% of respondents indicated that social media was their primary source of information about brands and products during the pandemic (Wold, 2020). Consumers increasingly relied on social media to identify product needs, seek product information, compare alternatives, and make purchase decisions in the context of the COVID-19 pandemic (Mason et al., 2021).

The food industry has particularly experienced the repercussions of the COVID-19 pandemic, with significant impacts observed on food firms in terms of social, economic, and environmental objectives. These impacts include declining demand in certain product categories, disruptions to global supply chains, and a growing concern about global health crises (Askew, 2020; Sylvers, 2020; Temple, 2020). However, despite the widespread effects, there is a dearth of research exploring sustainability communication, effective management of various social channels, and brand engagement in the food industry during the pandemic.

Furthermore, it has been globally noted that the COVID-19 pandemic has been exploited for marketing purposes, leading to a phenomenon known as "COVID-washing." This marketing strategy has been particularly prevalent among big food and alcohol brands, where approximately one-third of social media posts during the pandemic were related to COVID-19, often involving the promotion of unhealthy food and beverages, targeting children, and encouraging comfort or binge eating (Martino et al., 2021; Gerritsen et al., 2021). In light of these circumstances, consumers may have felt a heightened need to seek reliable and trustworthy information.

Therefore, there is a need to explore the use of brand posting and consumer reactions on social media platforms for sustainability-related messages, both pre- and post-pandemic. This exploration is particularly critical in the food industry, which has been significantly impacted by the COVID-19 pandemic and the consequent global health crisis (Askew, 2020; Sylvers, 2020; Temple, 2020). Given these circumstances, consumers might feel inclined to research information on social media and seek reliable and trustworthy data. Understanding how brands communicate sustainability and engage with consumers on social media will provide valuable insights into the practice of fostering responsible and effective brand-consumer relationships amidst the challenges posed by crises like this pandemic.

2.2.5 Theories Underpinning Social Media Engagement

The purpose of this research is to understand the nature and role of digital engagement within the scope of social media, empirically examining its antecedents and consequences. Accordingly, this section aims to discover social media-related theoretical frameworks in the engagement literature.

While the marketing literature proposes that engagement is a three-dimensional concept incorporating cognitive, affective, and behavioural responses (Brodie et al., 2011; Hollebeek et al., 2014), within social media, engagement is often considered from the volume of Likes, Comments and Shares (Chua and Banerjee, 2015; de Vries et al., 2012). In the social media engagement context, several theoretical frameworks have been proposed in the extant literature to explain engagement (Tsiotsou, 2023). In particular, the effective use of communication, media richness theory (e.g., Banerjee and Chua, 2019), and framing theory (e.g., Dolan, Conduit, and Fahy, 2018) as the moderating effects (Olsen, Slotegraaf, and Chandukala, 2014) are grounded on social media engagement studies that might work to generate engagement with brands' sustainability-related messages. Table 2.2 introduces the social media-related theories, with key references.

Table 2.2 Works on social media-related theories that support the framework's antecedents

Themes	References
Media richness determines the vividness of communication content achieved by videos, animations or pictures	Banerjee and Chua, 2019; Cvijikj Pletikosa and Michahelles, 2013
Framing is setting a message with appropriate message appeal to be effective on social media	Kapoor, Balaji and Jiang, 2009

Table 2.2 presents a summary of works focused on social media-related theories on engagement. Two distinct themes shed light on important aspects of social media engagement. First, the concept of media richness explores the impact on the vividness of communication content achieved through the utilisation of videos, animations, or pictures. Second, as highlighted in the table, the concept of framing explains the impact of message appeal. It emphasises the significance of setting a message with an appropriate appeal to ensure effectiveness in the context of social media communication.

Media Richness Theory. Media richness theory proposes that increasing communication effectiveness can be achieved by utilising media that aligns with consumers' informational demands (Daft and Lengel, 1986). In the realm of online interactions, media richness serves as a means of enhancing visual captivation offered through posts. In the context of social media engagement, the importance of richness in sustainability content has often been overlooked (Khan et al., 2016; Shahbaznezhad et al., 2021). However, understanding and applying media richness theory in social media can lead to more engaging and impactful sustainability messaging.

According to the media richness theory, the vividness of communication content is determined by the inclusion of images, animations, and videos (Cvijikj Pletikosa and Michahelles, 2013; Trefzger et al., 2016). This theory suggests that effective communication channels can be achieved by matching the richness of the chosen medium (Ishii et al., 2019). In other words, selecting the appropriate media format, such as images, animations, or videos, can significantly enhance the overall vividness and engagement level of the communication.

The degree of vividness, particularly through videos, has the potential to stimulate multiple senses by engaging both sight and sound (Coyle and Thorson, 2001; de Vries et al., 2012;

Steuer, 1992). By incorporating audio-visual elements, communication becomes more immersive and impactful, capturing the attention of the audience on multiple levels. In contrast, text-based content only appeals to the sense of sight. Research indicates that online users are more attracted to content with a higher level of vividness (Coyle and Thorson, 2001; Fortin and Dholakia, 2005). This suggests that leveraging media richness, particularly through videos, can be an effective strategy for increasing user engagement and promoting information retention. Moreover, studies on corporate social responsibility (CSR) communication suggest that richer online tools, such as websites featuring animation and videos, result in more effective communication compared to lean websites (Saat and Selamat, 2014). This highlights the importance of utilising media richness in CSR messaging, therefore this thesis extends to the broader sustainability context to effectively convey broader sustainability messages and engage stakeholders. The difference between CSR and sustainability is discussed in Section 2.3 – Sustainability Communication.

Consequently, media richness is one of the theoretical roots of this study as an antecedent. A more detailed discussion is presented in Section 2.4 under the sub-heading ‘Vividness’.

Framing Theory. The significance of framing theory in sustainability communication lies in its profound impact on how individuals perceive and respond to information, because individuals are highly sensitive to how sustainability information is presented by the choice of the message frame (Kim and Chon, 2022; Van de Velde et al., 2010). Framing theory is a concept that involves setting a message within appropriate contexts to achieve a desired interpretation or perspective (Shome and Marx, 2009). It is important to note that framing is not intended to manipulate consumers but rather to make credible information more accessible to them. In the realm of social media, different types of message framing have been found to impact the courage of users' engagement (Dolan et al., 2016; Rishi and Bandyopadhyay, 2018).

Within framing theory, various types of appeals are juxtaposed for analysis. In the context of this thesis, the focus is on rational and affective appeals. It is noteworthy that other appeals as well are commonly employed in sustainability communication such as gain and loss framing. However, it is essential to underscore that these appeals are primarily situated within the domain of persuasive communication research, particularly when viewed from the consumer's perspective (O’Keefe and Jensen 2009). These types of research offer a predictive

understanding of how people respond to the given information based on their individual's mode of thinking (Kim and Chon, 2022; Meyers-Levy and Maheswaran, 2004; Segev, Fernandes and Wang, 2015).

Whereas, in the context of this thesis, rational and affective appeals are chosen for analysis. These appeals have been extensively examined in the broader context of social media strategy and messaging content characteristics in the brand perspective studies, which specifically examines the message framing on user engagement (Kapoor et al., 2020; Li et al., 2020; Swani and Milne, 2017), and also in a limited context of CSR (Khan et al., 2016; Kollat and Farache, 2017). Understanding and utilising these appeals are important for brands seeking to both engage their audience through social media messages and tailor their communication strategies (Dolan et al., 2018). Implementing the right appeal plays a significant role in the effectiveness of communication in messaging and also enhances stakeholder relationships with the brand (Kordzadeh and Young, 2020). While the context of sustainability has been relatively unexplored within framing theory, it is suggested to extend the understanding of framing, especially in healthy and environmentally friendly food studies (Hoek et al., 2017).

Consequently, framing has become one of the theoretical roots of this study – as an antecedent to provide insights into the power of setting sustainability messages by utilising different appeals to achieve desired interpretations or perspectives. A more detailed discussion is presented in Section 2.4 under the sub-heading 'Message Appeal'.

2.3 Sustainability Communication

Sustainability communication plays a crucial role for brands in raising consumer awareness regarding the economic, social, and environmental aspects of their products, while also meeting consumer needs (Belz and Peattie, 2012). It facilitates dialogue between stakeholders and the brand, allowing for a holistic understanding of the company's values and practices. Therefore, sustainability communication is essential in the business world to convey brands' sustainability-related messages and foster a positive impact on both the market and the stakeholders.

The field of sustainability communication within the food industry has gained significant attention in recent years. Previous research has explored various aspects of food marketing functions, including buying and selling, transportation and storage, standardisation and

grading, market information, and risk elements (Cain, 1975). Cain's study established the relationship between the marketing mix and the food marketing function, highlighting the control of the entire distribution channel, technological advancements, energy consumption, preservation techniques, packaging innovations, and transportation developments. These findings have provided valuable insights into the essential marketing functions within the food industry, laying the foundation for further research and development.

In the context of sustainability marketing, its practices have expanded across different sectors, with notable implications for stakeholders, particularly in industries with high visibility, such as the food sector (Jackson and Apostolakou, 2010; Santos, Rodrigues, and Branco, 2016). The food sector in particular presents a complex landscape due to its multifaceted activities, interactions, and outcomes associated with production, exchange, governance, and consumption (Doherty et al., 2019; Ericksen, 2008; Horton et al., 2017; Maxwell and Slater, 2003; Willet et al., 2019). As a result, studying sustainability communication within the context of sustainable food brands becomes crucial in understanding how these brands effectively convey their sustainability messages. In particular, social media marketing has become critical to revitalising companies' sustainability communication efforts (Baldassarre and Campo, 2016; McDonagh, 1998; Santos et al., 2019).

Therefore, this research aims to delve into the field of sustainable food brands' sustainability communication, exploring the strategies and practices employed by these brands to communicate their sustainability initiatives to various stakeholders. By examining the dynamics of sustainability communication in the food industry, this study seeks to contribute to the existing body of knowledge and provide insights that can inform future sustainability marketing strategies within the sector.

To further understand the role of social media marketing in food sustainability communication and consumers' ethical attitude–behaviour conflict, this thesis aims to explore how brands' sustainability communication in social media is associated with brand post engagement and how it is perceived by consumers, all of which is identified as the gap in the literature.

Consumers are essential stakeholders who have increasingly demanded that food firms adopt sustainable production and marketing standards to address their concerns (Polonsky et al., 2006). Their attitudes have prompted companies to make ethical and sustainable decisions,

such as offering fair-trade goods, organic products, and environmentally friendly options. (For further information, see definitions of these concepts in Appendix A.) Brands, on the other hand, recognise the importance of interacting with consumers through effective communication strategies to generate sustainability awareness and drive sustainable purchasing behaviour. Social media platforms provide an opportunity for brands to engage with consumers through various forms of engagement, including liking, commenting, and sharing brand posts (de Vries et al., 2012)

In fact, the successful implementation of social media marketing reinforces the transformative power of sustainability communication, leading to positive changes in favour of sustainable development (Belz and Peattie, 2012). This transformation requires a radical shift within the market, politics, and society as a whole. In this context, well-established social media marketing strategies are crucial for generating a holistic and credible approach to reaching and shifting consumer values towards sustainability. Additionally, these strategies allow brands to differentiate themselves in the market. Thus, this thesis acknowledges the interconnectedness between social media and sustainability communication, recognising social media as an integral factor in brand post engagement.

In sum, this thesis agrees that social media is an interrelated factor of sustainability communication through brand post engagement. According to Belz and Peattie's (2012) point of view on the objective of sustainability communication, this thesis is underpinned by Banerjee and Chua (2019), Bragg et al. (2019), de Vries et al. (2012), Dunn and Harness (2018), Galati et al. (2019), Gupta et al. (2021), Hollebeek and Chen (2014), Kapoor, Balaji, and Jiang (2021), Khan et al. (2016), and Vredenburg et al.'s (2020) arguments to conceptualise sustainability communication in social media.

2.3.1 Conceptualising Sustainability Communication

In the field of marketing research, sustainability communication has been closely associated with concepts such as CSR or green communication (Dunn and Harness, 2018; Kapoor, Balaji, and Jiang, 2021; Xu and Jeong, 2019). Although these terms have distinct conceptual differences, they are often used interchangeably in the literature. CSR refers to the integration of social and environmental concerns into a company's operations in a voluntary manner (European Commission, 2002). It is not considered a philanthropic activity, but rather assumes

that social and environmental activities are integrated into business operations. Previous studies have indicated that CSR communication positively impacts consumers' knowledge, awareness, trust, engagement, and perceptions of corporate reputation, while also reducing consumer scepticism (Kim and Ferguson, 2016; Kim, 2019; Morsing and Schultz, 2006; Pomeroy and Dolnicar, 2009).

However, CSR studies primarily focus on corporate economic responsibility, social responsibility, and environmental responsibility, with communication primarily concentrated at the corporate level and among stakeholders (Kim, 2019; Tench, Sun, and Jones, 2014). In contrast, sustainability communication extends its emphasis to the product level and recognises the significance of customers as important stakeholders, although they are often overlooked (Belz and Peattie, 2012).

Similarly, green communication research centres on environmental sustainability, exploring topics such as environmental practices, green advertisements, and communication related to ecological systems. The concept of green marketing primarily deals with environmental issues, clean technology, pollution, waste management, environmentally friendly products, minimising harmful impacts on the environment, and promoting environmental sensitivity (Singh and Sanjeev, 2022). In this respect, green communication is limited compared to sustainability communication discipline. Overall, while CSR and green communication have their specific dimensions, they are often conflated with sustainability communication in the literature. Sustainability communication encompasses a broader perspective and recognises the integration of economic, social, and environmental aspects, as well as the importance of customers as stakeholders. It goes beyond the corporate level and integrates communication strategies related to sustainable products and practices.

Thus, this thesis uses sustainability communication as an umbrella term that includes all concepts, as shown in Figure 2.1. In the literature, sustainability communication is often described as the communication of social, economic, and environmental issues by firms to their employees, stakeholders, and managers (Santos, Rodrigues, and Branco, 2016). An other slightly broader definition emphasises the understanding and awareness of the relationship between humans and the environment, incorporating economic, environmental, social and cultural values and norms in order to foster acceptance among different actors in society (Godemann and Michelsen, 2011; Lahtinen et al., 2017). These definitions encompass

sustainability through the triple bottom line elements and highlight the importance of stakeholder relationships in communication. However, the actual sustainability practices of firms and the purposes of such communication are often overlooked in these definitions. Accordingly, this thesis aims to provide a comprehensive understanding and framework relating to sustainability communication. Figure 2.1 illustrates the scope of sustainability communication and its related concepts.

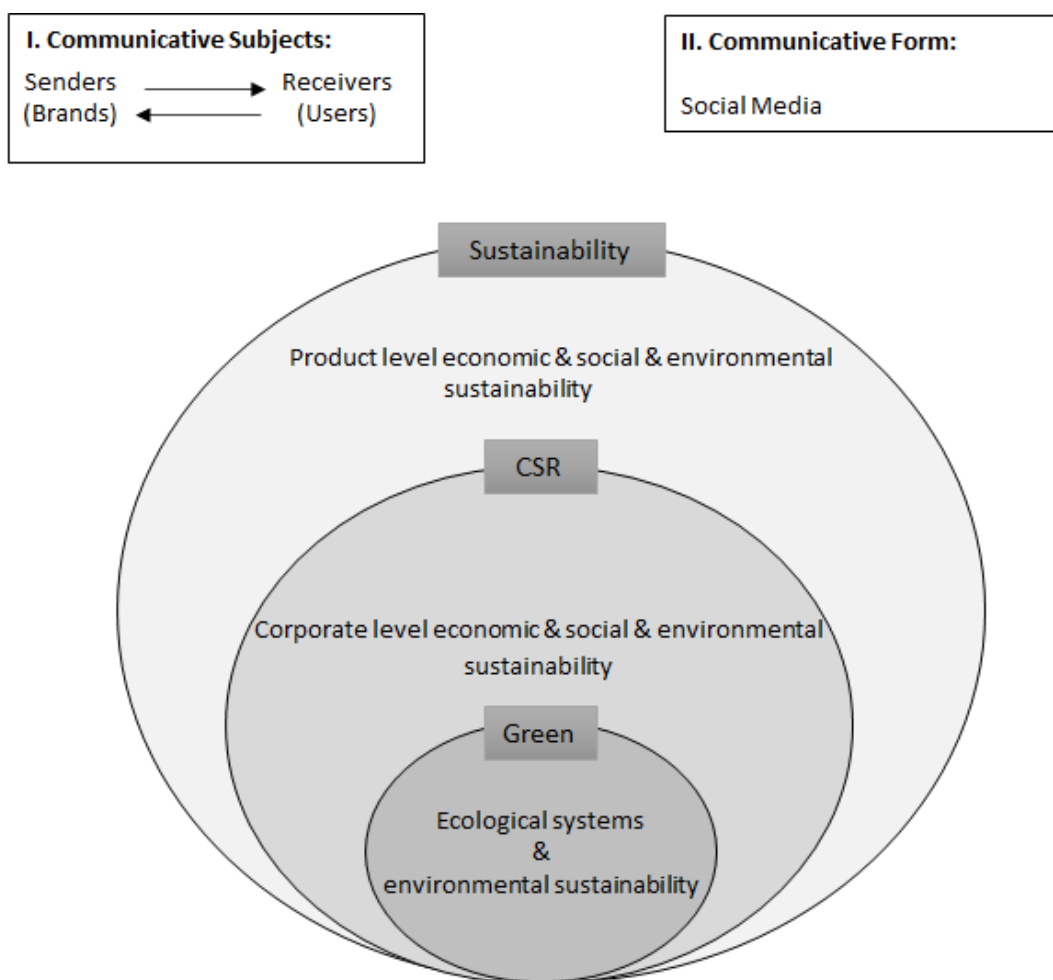


Figure 2.1 Sustainability Communication Framework
Source: The Author

Figure 2.1 depicts that sustainability communication contains CSR and green communication. Brands send their sustainability-related messages to users, including economic, social, and environmental aspects at both the product and corporate levels, which also cover ecological

issues. These messages can be communicated through various forms of media, including offline and online channels. However, this thesis specifically focuses on the communicative form of social media within the realm of sustainability communication.

This thesis defines sustainability communication as “A holistic approach of addressing environmental, social, and economic issues through a dialogue between stakeholders at a product and a corporate level to achieve transformations within markets, within politics, and throughout society as a whole”. This is a more comprehensive and purposeful definition regarding the sustainability practices of firms. Indeed, it relates to the broader social, cultural, economic, and political contexts, with the fundamental purpose of developing methods of interactions in society to support people moving towards sustainable behaviour and lifestyles (Belz and Peattie, 2012; Kruse, 2011). In this research, sustainability communication has comprised all elements (e.g., environment, people, inputs, processes, infrastructures and institutions) and activities that are related to the production, processing, distribution, preparation and consumption of food (UN-HLTF, 2010).

Thereby, sustainability communication will explore a more realistic view of markets in which companies have the power to influence their environment, and in which companies and consumers take some responsibility for the social and environmental impacts of production and consumption, and in which the impact of today’s decisions affects future generations of consumers, citizens, investors, and other stakeholders. Correspondingly, sustainability communication is extensively positioned as sustainability product communication and sustainability corporate communication in this research. Indeed, there is a strong case in this field that needs to be looked at regarding low consumer sustainability engagement due to the ethical attitude behaviour gap from a consumer angle and integrative approaches to sustainability communication of firms for leveraging engagement (Belz and Peattie, 2012; Dunn and Harness, 2018; Gao and Bansal, 2013; Garnett, 2013; Hoek et al., 2017), caused by unexplored communication on the best strategic decision-making to effectively implement the multiple identities associated with the triple bottom line (Ozanne et al., 2016). Accordingly, the next section discusses sustainability product communication and sustainability corporate communication, followed by sustainability communication and food firms.

2.3.1.1 Sustainability Product Communication

Expanding upon the arguments surrounding low consumer engagement in sustainability within the food industry, the promotion of sustainability solutions through effective product communication becomes imperative for companies. This communication activity serves multiple purposes, including raising awareness about sustainable brands and products (Pickett-Baker and Ozaki, 2008), providing consumers with information about product ingredients, sourcing, availability, and special offers (Rose, Dade, and Scott, 2007), encouraging consumers to try new sustainable products, motivating them to adopt sustainable behaviours (Belz and Peattie, 2012), and even prompting them to reconsider excessive consumption through anti-consumption apparel (Hwang, Lee, Diddi, and Karpova, 2016).

A significant portion of academic research on sustainability communication, such as green advertising or environmental communication, has focused on examining the credibility of claims and messages (e.g., Carlson et al., 1993; Iyer and Banerjee, 1993; Liu, 2019; Xu and Jeong, 2018). The proliferation of sustainability promotion has raised concerns about the credibility and reliability of messages, which can lead to consumer scepticism towards sustainable products and brands (Joireman et al., 2018). This attitude and behaviour, in turn, can influence consumer brand engagement (Malthouse, Calder, Kim, and Vandenbosh, 2016) and purchase intentions (Kim and Johnson, 2016). Therefore, it is necessary to further investigate the impact of sustainability messages in social media settings, considering consumer responses such as scepticism (Dunn and Harness, 2018; Rim and Song, 2016). Regarding consumer responses, the conceptual framework will discuss attribution theory in Section 2.3.3.

2.3.1.2 Sustainability Corporate Communication

Sustainability corporate communication is a holistic approach of companies in which all aspects of corporate social and environmental performance become relevant to consumers and liable to influence their behaviour. In this model, the ecological dimension equally applies to societal aspects (McDonagh, 1998). For instance, sustainability corporate communication incorporates claims related to both environmental benefits, such as a low-pollution production process, as well as social benefits, such as fair labour standards in economically

disadvantaged countries. By combining these dimensions, companies aim to communicate their commitment to sustainable practices and their positive impact on society.

However, the association between sustainability corporate communication and various negative perceptions has posed challenges. Consumers have often associated such communication with CSR efforts that are overly promoted, marketing rhetoric, greenwashing, and public relations tactics (Waddock and Googins, 2014). This has resulted in a sense of scepticism among consumers, who may view sustainability claims with caution and exhibit unpredictable responses to such communication efforts (Leonidou and Skarmeas, 2017). The literature highlights the need to address these concerns and establish credibility in sustainability communication.

To effectively counter consumer scepticism and address growing concerns related to greenwashing, companies must adopt a transparent and comprehensive approach. Communicating about the sustainability performance of the entire business, rather than focusing solely on specific initiatives or isolated aspects, is vital for building trust and credibility (Belz and Peattie, 2012). By providing a holistic view of their sustainability practices, companies can demonstrate their genuine commitment to sustainable development and alleviate consumer doubts. This requires engaging in open dialogue, sharing accurate and verifiable information, and being accountable for their actions.

To better understand consumer concerns and beliefs regarding sustainability, lay theory is discussed in Section 2.3.3 as a contribution to the conceptual framework (Reczek, 2018; Soliman and Wilson, 2017). By examining the theory, the framework of this thesis will shed light on the processes that shape consumer responses to sustainability messages. This exploration enables a deeper understanding of consumer attitudes, perceptions, and behaviours, ultimately informing more effective communication strategies in the context of sustainability communication engagement on social media.

2.3.2 Conceptualisation in the Context of Food Brands

Sustainable food system activities encompass various stages, including production, processing and packaging, distribution, and consumption, which collectively contribute to the achievement of sustainable outcomes such as social welfare, environmental security, and the availability of sustainable food products (Ericksen, 2008). To establish a successful

sustainability system within the food market, it is essential to foster brand and consumer engagement. In this regard, firms' sustainability communication plays a pivotal role by offering a comprehensive and credible approach to driving transformation. This transformation entails a revolutionary shift facilitated by companies' marketing efforts towards sustainable development across markets, politics, and society as a whole (Belz and Peattie, 2012). Particularly within the context of food firms, sustainability communication becomes integrated into their marketing strategies, focusing on engaging consumers with sustainability messages that align with their ethical attitudes and behaviours. The strategic significance of sustainability communication for food brands has resulted in significant changes across organisations, markets, politics, and society at large.

As highlighted in Chapter 1, one of the key challenges in the realm of sustainable food is the low engagement of consumers with sustainability (Garnett, 2013; Lang and Barling, 2013). However, the use of social media presents an opportunity to bring people together around common sustainability interests, and also enables multinational corporations to engage with their target groups, strengthening communication efforts in the sustainability domain (Stanislavska et al., 2020). Building upon this understanding, this thesis addresses sustainability communication by social media as a tool to cure the research problem and examines the factors that influence consumer engagement with online sustainability communication.

Firstly, the participatory nature of social media platforms leads consumers to crucial attitudinal and behavioural outcomes, fostering engagement at every stage of the decision-making process and ultimately contributing to the promotion of sustainable products and brands (Uzunoglu et al., 2017). Secondly, the easy accessibility of information through social media platforms plays a significant role in driving substantial changes by increasing consumer responsiveness towards ethical and sustainability issues (Ballew et al., 2015; Whelan, Moon, and Grant, 2013). Sustainable firms exhibit a tendency to engage consumers through ethical and sustainability messages on social media. Therefore, it can be argued that the social media activities of firms related to sustainability have the potential to capture consumer attention and encourage active participation if the content and context of the sustainability messages align appropriately (Uzunoglu et al., 2017). Thirdly, since the primary objective of this thesis is to evaluate the effectiveness of social media as an antecedent to sustainability messages in

engaging consumers with sustainable food brands, encouraging consumer participation on social media platforms and driving attitudinal (e.g., posting Likes) and behavioural (e.g., posting Shares) engagement is crucial because it contributes to sustainable development and the dissemination of awareness (Chae, 2021). By examining the antecedents of social media concerning sustainability messages, this research sheds light on the effective strategies for consumer engagement, ultimately promoting sustainable food brands and raising awareness in this domain.

Within marketing literature, there is a limited exploration of food firms' usage of social media, with a particular focus on health-related issues (Bragg et al., 2019; Dunlop et al., 2016). The connection between product offerings, sustainability initiatives of food firms, the unique characteristics of social media as a marketing communication tool, and the influence of multinational food companies remains largely unexplored. However, this under-researched context demands attention, given the significant promotion of food brands on social media platforms. For instance, a study revealed a 567% increase in the creation of social media accounts across five different platforms by food multinationals from 2007 to 2016 (Bragg et al., 2019). This growth has resulted in an escalating impact on society, both in terms of the products promoted on social media and the sustainability efforts of these firms.

In the domain of communication, food brands' marketing strategies, coupled with their use of social media, have increasingly contributed to advancements in environmental sustainability, socio-economic sustainability, and health sustainability dimensions (Gatto, Wollni, Asnawi, and Qaim, 2017; Ruggeri and Samoggia, 2016; Von Geibler, 2013). However, many food brands still lack a well-established sustainability communication strategy, particularly when it comes to social media platforms, and struggle to generate meaningful engagement on these channels (Neill and Moody, 2015; Ruggeri and Samoggia, 2016; Stelzner, 2016). The literature review on sustainability marketing strategies employed by food firms highlights triple bottom line principles, brand activism, and health as potential antecedents to food firms' engagement with sustainability and brand promotion (Gao et al., 2018; Kollat and Farache, 2017; Ruggeri and Samoggia, 2016; Vredenburg et al., 2020). These key factors are considered and will be discussed in Section 2.4 as variables within the conceptual framework of this study.

Lastly and importantly, food multinationals have appeared to include more sustainability initiatives in their strategies across the environment, consumer responsibility, community,

partnerships, employee relations, indigenouness and diversity (Richards et al., 2015). To illustrate, Figure 2.2 shows initiatives in categories applied by big food companies in the context of Australia.

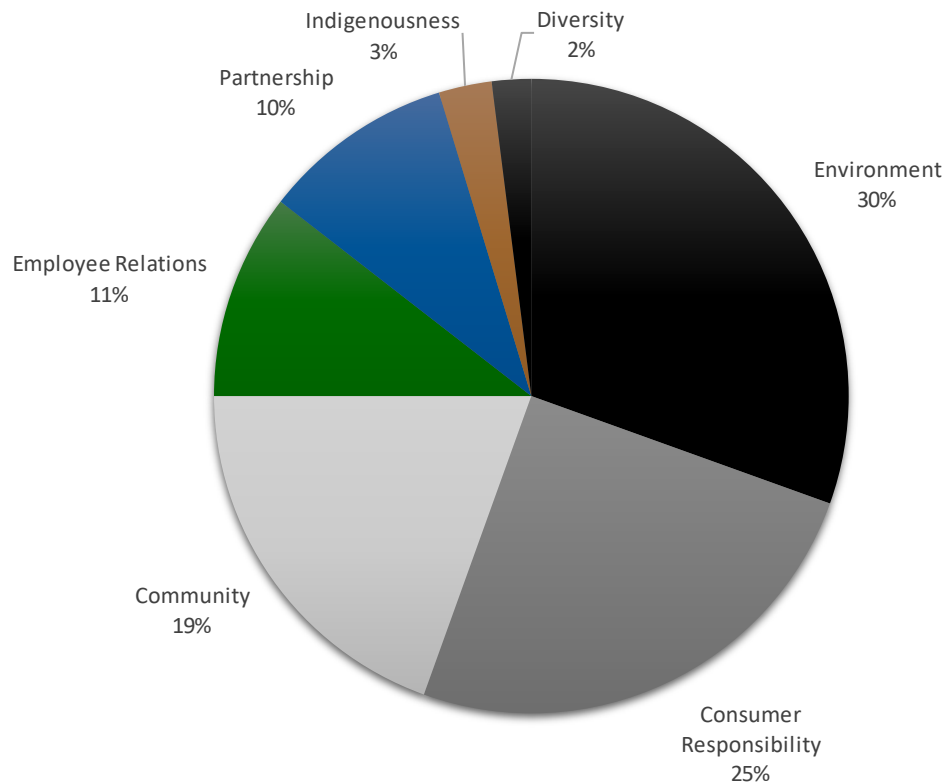


Figure 2.2 CSR initiatives by big food companies (%)

Figure 2.2 highlights that the majority of the sustainability initiatives (30%) identified in the study are related to the environment, followed by responsibility to consumers (25%) and community engagement (19%). This finding underscores the significance of sustainability initiatives within food brands. However, it is important to note that this context is limited to Australia, and further research is needed to explore the differences between countries, particularly in emerging economies. Currently, the majority of sustainability marketing research focuses on advanced economies, leaving a lack of clarity in the understanding of sustainability practices in emerging economies (Ahmad et al., 2021). Consequently, conducting a pilot study becomes essential to investigate these differences and refine the research questions and conceptual framework accordingly.

2.3.3 Theories Underpinning Sustainability-related Factors

The purpose of this sustainability communication research is to explore its antecedents within the scope of social media. Accordingly, this section aims to discover sustainability-related theoretical frameworks and paradigms regarding social media engagement. In the marketing context, several theoretical frameworks have been proposed in the extant literature to explain consumer-brand engagement. In particular reference to consumer responses to sustainability, lay theory (e.g., Soliman and Wilson, 2017) and attribution theory (e.g., Dunn and Harness, 2018) are grounded on sustainability marketing studies that might work to generate engagement on a brand's sustainability-related messages, in particular to considering consumer perspectives. Table 2.3 introduces the sustainability-related theories, with key references.

Table 2.3 Works on sustainability-related theories that support the framework's antecedents

Themes	References
Lay theory determines individuals' beliefs and inferences based on the information given and they possess	Broniarczyk and Alba 1994; Raghunathan, Naylor, and Hoyer 2006
Attribution theory determines organizational CSR motives that explain reasons for the success and failure of individuals.	Ellen, Mohr, and Webb 2000; Dunn and Harness, 2018; Martinko et al., 2011

Table 2.3 presents a summary of works focused on sustainability-related theories on engagement. The table highlights two key themes – lay theory and attribution theory. First, lay theory explores how individuals form beliefs and inferences based on given information. Second, attribution theory, in contrast, is used to explain the impact of organisational CSR motives and reasons for success and failure among consumers. These two theories serve as a valuable resource for understanding consumer social media engagement as a reaction to brands' sustainability initiatives.

Lay Theory. The concept of lay theory has garnered considerable attention in the realm of sustainability marketing, particularly regarding product perception, consumer concerns, and scepticism (Lin and Chang, 2012; Luchs, Naylor, Irwin, and Raghunathan, 2010; Newman, Gorlin, and Dhar, 2014; Soliman and Wilson, 2017). Lay theory delves into the intricate relationship between missing and given information, which significantly influences

consumers' judgments and inferences (Broniarczyk and Alba, 1994; Raghunathan, Naylor, and Hoyer, 2006). Through the lens of lay theory, researchers have discovered that brands' intentions in providing information, especially at the product level, play a pivotal role in shaping consumers' evaluations of sustainable products (Luchs, Naylor, Irwin, and Raghunathan, 2010; Newman, Gorlin, and Dhar, 2014).

For instance, when explicit information about a product is provided, it has the potential to counterbalance the negative effects associated with sustainability, including low awareness, negative perception, and a preference for non-sustainable alternatives (Lin and Chang, 2012). These findings underscore the importance of aligning consumers' evaluations with the characteristics and sustainability aspects of a product, which becomes crucial in addressing potential market failures within the dynamic food industry (Horvat, Granato, Fogliano, and Luning, 2019).

Building upon the significance of informativeness in sustainability communication, the literature acknowledges the potential for consumers to respond with scepticism, which can be understood within the framework of attribution theory (Castillo et al., 2011; Ellen et al., 2006; Groza et al., 2011; Kollat and Farache, 2017). According to Reczek (2018), consumers are more likely to rely on their lay beliefs when they lack expertise or encounter limited information within a specific domain. This reliance on lay beliefs becomes particularly salient when information is not explicitly provided (Luchs et al., 2010).

Within the context of sustainability, these discussions primarily revolve around considerations at the product level, where scholars strive to measure consumer purchase intention and behaviour (Lin and Chang, 2012; Luchs, Naylor, Irwin, and Raghunathan, 2010; Newman, Gorlin, and Dhar, 2014). Thus, the incorporation of lay theory as a theoretical lens in this thesis aims to shed light on how brands' intended communication actions, specifically in terms of informativeness, can influence consumer reactions and drive engagement with sustainability-related messages.

By understanding how consumers perceive and interpret sustainability-related information, researchers can gain valuable insights into the factors that shape consumer responses and engagement levels. This highlights the importance of aligning brand communication with consumer expectations and beliefs, as it can impact not only the effectiveness of sustainability

communication but also the overall perception of a brand's commitment to sustainable practices. Therefore, lay theory serves as a fundamental underpinning of this study, considering consumer responses to sustainability-related messages by incorporating the factor of informativeness within the posts. Further discussion on this topic is provided in Section 2.4 under the sub-heading of 'Informativeness'.

Attribution Theory. Attribution theory, a key framework in understanding the impact of brands' sustainability messages on consumer engagement with social media and their responses to corporate social responsibility (CSR) initiatives, has garnered significant attention (Groza et al., 2011). This theory revolves around individuals attributing reasons for their successes and failures (Heider, 1958; Weiner, 1985) and how these attributions subsequently influence their attitudes and behaviours towards outcomes (Martinko et al., 2011). By exploring how people interpret and explain behaviours, including those of others, attribution theory leads to judgments that can profoundly shape their attitudes and actions (Kelley and Michela, 1980; Ogunfowora et al., 2018). Over time, attribution theory has found application in diverse contexts, including that of CSR attribution (Hassan and Abdelaziz, 2022).

In the context of sustainability communication by brands, attribution theory offers invaluable insights into the factors that contribute to the success or failure of CSR initiatives, and how these attributions impact consumer responses (Hassan and Abdelaziz, 2022; Heider, 1958; Martinko et al., 2011). Moreover, researchers have delved into how attribution theory can be applied to social media research, specifically investigating how social media communication shapes CSR attributions and influences consumers' concerns towards CSR (Dunn and Harness, 2018). This line of research emphasises that attributions play a pivotal role in determining the extent to which consumers interact with online content, potentially influencing their level of scepticism towards sustainability claims. While previous studies have focused on examining CSR communication on social media from the consumer perspective, the perspective of firms in this context has not received equal attention within the social media literature (e.g., Vlachos, 2012; Zasuwa, 2016).

By understanding the significance of brands adopting CSR attribution and effectively expressing their values and CSR practices to consumers, in alignment with their brand-sustainability fit, researchers can gain valuable insights into the factors that shape consumer responses and levels of engagement (Groza et al., 2011). This underscores the importance of

aligning brand motivations with sustainability-related messages, thereby enhancing the effectiveness of CSR communication and fostering positive consumer perceptions of brand commitment to sustainable practices.

Attribution theory serves as a fundamental underpinning in this study, providing a comprehensive understanding of how brands' motivations in conveying sustainability-related messages and incorporating the factor of CSR attributions within the posts can influence consumer social media engagement. Further discussions regarding attribution theory are presented in Section 2.4, specifically under the sub-heading of 'CSR Attribution', to find out the role of theory impact on brands' sustainability messages on social media. This study aims to contribute to the growing body of knowledge on sustainable branding in the digital era by exploring how attribution theory can offer valuable insights into the mechanisms by which brands' sustainability messages on social media influence consumer engagement and perceptions.

2.4 Hypotheses Development

2.4.1 Antecedents of Brand Post Engagement

Prior research (e.g., Banerjee and Chua, 2019; Chae, 2021; de Vries et al., 2012; Lee et al., 2018) has identified that liking, sharing, and commenting on brand posts reflects brand post popularity, and it is measured as the volume of Likes, Comments, and Shares. These metrics are known as major social media drivers that facilitate responses to company posts (Lee et al., 2018). Some studies have proved that post engagement is beyond likes or shares, because individuals are motivated to like, share, and comment to show their support. Thus, this determines user interest by allowing them to express approval of companies, ideas, and events (Kerpen, 2011; Oh et al., 2017). Concerning online sustainability communication, there exist different tenets related to sustainability and social media. This section elaborates on these tenets, each serving as key message factors aiming at effectively communicating messages and generating brand post engagement.

Indeed, firms that advocate their social media for communicating CSR gain positive customer engagement by Comments, Likes, and Shares (Dunn and Harness, 2018). This shows that the communication activities of CSR initiatives on social media can both identify how popular a firm is and evaluate the degree of the organisations' approval among social media users in

terms of the number of likes, followers, comments, and shares (Galati et al., 2018; Lee et al., 2018; Westerman et al., 2012). These studies have proposed models to analyse post engagement in a limited context, based on either sustainability elements or social media post characteristics. Building upon the findings in the literature, antecedents of social media and sustainability communication have been discussed to assess the impact on engagement outcomes which are Likes, Comments, and Shares (Kordzadeh and Young, 2020).

A crucial aspect of understanding the dynamics of social media engagement in relation to sustainability messages lies in distinguishing between positive and negative forms of engagement. Positive engagement, also known as positively-valenced engagement, refers to the favourable cognitive, emotional, and behavioural outcomes of brand interactions. On the other hand, negative engagement, or negatively-valenced engagement, represents a contrasting form of consumer engagement, characterised by unfavourable thoughts, feelings, and behaviours during interactions with a brand (Hollebeek and Chen, 2014). In the previous research, positive versus negative engagement was applied towards cognitive, emotional, and behavioural engagement outcomes; however, this thesis' discussion further explores whether the engagement antecedents lead to positively or negatively-valenced brand post engagement. By presenting this comparison, the thesis offers a more comprehensive theoretical model of engagement, highlighting both the favourable and triggering factors that influence consumers' responses to sustainability messages (Hollebeek and Chen, 2014). For instance, if the given information in sustainability messages triggers unfavourable thoughts or feelings, consumers might be less likely to engage positively with the brand.

Drawing from existing literature on engagement in marketing, as discussed in previous sections regarding the use of social media by brands and consumers (Section 2.2.1 and Section 2.2.2), social media platforms (Section 2.2.3), the COVID-19 pandemic impact (Section 2.2.4), theories on social media-related factors (Section 2.2.5), and sustainability-related factors (Section 2.3.3) and sustainability communication (Section 2.3), the thesis introduces a conceptual framework for brand post engagement in sustainability communication. Accordingly, this thesis conceptualises Likes, Comments, and Shares, and whether post engagement is leveraged by sustainability-related factors or moderated by content characteristics or country of operation. This framework comprises three main dimensions:

sustainability-related message factors, moderators of brand post engagement, and the outcomes of brand post engagement as the number of Likes, Comments, and Shares.

2.4.1.1 Sustainability-related Message Factors

Elements of the triple bottom line. The triple bottom line is the three pillars of economic, environmental, and social elements represents a holistic approach to sustainability as introduced by Elkington (1998). It emphasizes the significance of considering not only economic factors but also social and environmental dimensions in business decision-making. It has emerged as a pivotal tool for sustainability communication in online settings (Capriotti and Moreno, 2007). Effective communication in this context involves articulating how a business is actively contributing to societal well-being and environmental conservation while maintaining financial viability in their brand posts. Social media platforms provide an interactive communication space, where posts that clearly emphasise the economic, social, and environmental dimensions can stimulate interaction (Johansen and Ellerup Nielsen, 2011; Lock and Araujo, 2020). However, it is worth noting that different industries may prioritise distinct elements of the triple bottom line in their social media communications (Lock and Araujo, 2020). This observation highlights an area that remains relatively unexplored in the literature, concerning the strategic decision-making process firms must navigate when implementing the multiple identities associated with the triple bottom line (Ozanne et al., 2016).

In the context of this thesis, the incorporation of the triple bottom line as a tenet in the framework of social media engagement is essential to comprehensively explore the relationship between sustainability communication and engagement. By adopting an approach encompassing economic, social, and environmental aspects, these antecedent aims to provide a holistic understanding of how brands' sustainability messages on the triple bottom line resonate with consumers on social media platforms, emphasising the significance of online settings detailed in the work of Capriotti and Moreno (2007) and investigating the need suggested by the study by Ozanne et al. (2016).

Consequently, this thesis includes elements of the triple bottom line to examine how social media posts by food multinationals highlight their contributions to economic, environmental, or social sustainability. Due to a lack of research on this specific topic, the following hypothesis is formulated for testing:

H1. The elements of the triple bottom line in brand posts are positively related to brand post engagement.

Informativeness. In the context of sustainability on social media, informativeness stands out as one of the most influential factors. Research demonstrates that individuals join social media networks to acquire information, including through brand posts (Lin and Lu, 2011; Muntinga et al., 2011). When a brand's post provides information about the brand or its products, users are more inclined to actively participate or engage with the content (de Vries et al., 2012). Informativeness has been identified as a motivating factor for online engagement, suggesting that informative content should be prioritised when formulating social media post strategies (Khan et al., 2016).

Furthermore, firms encounter communication challenges concerning their sustainability activities, particularly due to concerns about the truthfulness of messages, especially on digital communication platforms (Allen and Spialek, 2018). This ties in with the concept of lay theory, as Reczek (2018) suggests that consumers are more likely to rely on their lay beliefs when they lack expertise or have limited information in a given area, which aligns with the notion presented by Luchs et al. (2010) – that this occurs when the information is not explicit. These discussions primarily pertain to the product level, where scholars assess consumer purchase intentions and buying behaviour in the context of sustainability (Lin and Chang, 2012; Luchs, Naylor, Irwin, and Raghunathan, 2010; Newman, Gorlin, and Dhar, 2014).

Given consumer scepticism and concerns surrounding sustainability, the presence of the informativeness tenet appears crucial in a firm's social media strategy. Research indicates that providing additional sustainability information with facts can reduce scepticism and generate positive sentiments about specific topics or events on social media (Castillo et al., 2011; Kollat and Farache, 2017). Therefore, informativeness is employed as a measure to determine if informative brand sustainability posts attract more engagement than non-informative content on social media, specifically regarding sustainability-related facts. As a result, the following hypothesis is formulated for empirical testing:

H2. Informativeness in brand posts is positively related to brand post popularity.

CSR attributions. Prior studies have established the connection between brand communication and their CSR messages, which sheds light on the influence of firm motivation

on consumer engagement with CSR activities (Becker-Olsen, Cudmore, and Hill, 2006; Becker-Olsen et al., 2011; Ellen, Mohr, and Webb, 2000). The findings from these studies have consistently demonstrated that the motivations behind a firm's CSR initiatives play a significant role in shaping consumers' willingness to engage with and respond to these activities. As mentioned in attribution theory, understanding CSR attribution is crucial to finding success and failure reasons – and subsequently influential factors on consumers' attitudes and behaviours towards outcomes (Heider, 1958; Martinko et al., 2011; Weiner, 1985).

Firm motivation is variously labelled with different CSR attributions and discussed in the literature, such as with public versus firm serving attributions (e.g., Forehand and Grier, 2003), self-centred versus other-centred attributions (e.g., Ellen, Mohr, and Webb, 2006; Zasuwa, 2016), and moral motive versus instrumental motive attributions (e.g., Ogunfowora et al., 2018). Although they are defined by different CSR attribution adjectives, they reflect the same idea (Hassan and Abdel Aziz, 2022). In particular, the components of firm motivation have been identified under four CSR attributions, which are supporting good causes to attract consumers, supporting good causes for the good of the community, interests in making a profit through CSR, and supporting good causes to promote the firm (Becker-Olsen et al., 2011).

This thesis adopts the self- and other-centred typology of Ellen, Mohr, and Webb (2006), which is the most cited research and provides strong support for the attributions about motives behind firm participation in CSR initiatives. Their research proposed that firms engage in CSR to serve themselves (self-centred) or society (other-centred), which influences consumers' attributions on corporate outcomes in response to CSR. Therefore, CSR attributions are related to this study as customers' responses to firms' CSR. According to Ellen, Mohr, and Webb (2006), self-centred attributions can be of two types – egoistic-driven and strategic-driven. Also, other-centred attributions can be of two types – values-driven and stakeholder-driven. Egoistic-driven attributions suggest that an organisation exploits a cause to gain publicity (Dunn and Harness, 2018). An egoistic motivation of firms may be something such as pocketing donations. Importantly, consumers are not likely to be widely accepting when attributions have egoistic connotations, such as by taking advantage of a cause or non-profit efforts (Ellen, Mohr, and Webb, 2006). Strategic-driven attributions develop when CSR

is perceived as a means of reducing costs and generating profits (Green and Peloza, 2014). This involves performance-driven motives such as getting more customers and sales, and firms hope to increase their profits by engaging in such initiatives (Ellen, Mohr, and Webb, 2006; Groza et al., 2011). As Whetten and Mackey (2002) have suggested, this is widely accepted, since attributions are related to typical strategic goals of keeping customers involved in the existence of a firm as a social actor. Values-driven attributions are the engagement of firms in CSR in terms of its ethical, moral, and societal ideals (Dunn and Harness, 2018). The owner and employees believe in initiatives and try to give something back to the community. There is more time needed regarding this CSR effort because customers take time to learn about the company-cause connection of CSR and public relations in order to become effective (Ellen et al., 2006; Varadarajan and Menon, 1988). Lastly, stakeholder-driven attributions suggest that a company engages in CSR through necessity, driven by stakeholder pressure (Vlachos et al., 2009). It is the firm's motivation to engage the support and interest of their customers, stakeholders, and community (Dunn and Harness, 2018). When these initiatives are designed to help others, customers evaluate CSR positively. Otherwise, when they are dictated by stakeholder requirements, customers' responses are more negative (Swanson, 1995).

Furthermore, prior studies have found that industry and country differences may raise consumers' suspicion regarding firm motivation and its relation to communication (Austin and Gaither, 2017; Becker-Olsen et al., 2011; Ellen, Mohr, and Webb, 2006). For instance, comparative research between the US and Mexico discovered that Mexican consumers revealed less suspicious behaviour toward firm CSR motivation, whereas consumers in the US expected more detailed and clear communication (Becker-Olsen et al., 2011). Hence, this finding might show that consumers in different countries are affected differently by firm CSR attribution, due to raising scepticism. On the other hand, several studies assert that CSR initiatives of stigmatised industries, such as a fast-food company's weight loss initiatives or a cola company's anti-obesity campaign, can trigger consumers to be more sceptical, due to the perceived CSR motives of the firm (e.g., Austin and Gaither, 2017; Lee and Cho, 2022). However, it is found that a low-fit condition initiated by a stigmatised industry, such as Home Depot brand's chronic disease fund assistance programme, will be perceived as a value-driven motivation of firms that causes less scepticism and a more favourable attitude towards the company (Austin and Gaither, 2017; Lee and Cho, 2022). Since this thesis sample includes

stigmatised brands such as Coca-Cola, Ben & Jerry's, and Activia, which have received criticism about their sustainability initiatives, CSR attribution of brands has been included to measure brand–motivation differences.

Consequently, CSR attribution and brand post engagement remain unexplored in the existing literature. This thesis seeks to understand the implications of CSR attribution on brand post engagement within the context of sustainable food multinationals' social media strategies. By examining this relationship, the study aims to contribute valuable insights into how CSR attributes influence consumer engagement with brand posts on social media. Consequently, the following hypothesis is formulated for empirical testing:

H3. Firms' CSR attributions in brand posts are positively related to brand post engagement.

Brand activism. As highlighted by the impact of the COVID-19 pandemic, there has been a noticeable surge in global protests and teen activists taking a firm stance on sustainability issues worldwide (Hillman, 2020; Vredenburg et al., 2020). This widespread activism has underscored the importance of investing in tangible outcomes for the betterment of the world (Koundouri and Freeman, 2022). In response, brands are increasingly adopting activist roles in their pursuit of a sustainable and equitable future (Gangadharbatla, 2021). By conveying brand activist messages, they aim to reach and resonate with audiences, particularly millennials and Gen-Z, successfully building awareness, increasing consumer engagement, and inspiring meaningful action (Lee and Yoon, 2020; Vredenburg et al., 2020) that aligns with the problem statement of this thesis concerning the ethical attitude behaviour gap.

Notably, social media has emerged as a powerful platform for brand activism, enabling youths who were previously excluded from traditional activist participation channels to actively engage with activist messages (Hutchinson, 2021; Lee, 2018; Yoo et al., 2021). However, the exploration of brand activist messages on social media remains relatively limited, with only one study examining cognitive (views, comments), affective (likes, dislikes, comments), and behavioural (user-generated videos, comments) forms of participation and finding positive evidence of engagement (Lee and Yoon, 2020). The existing research is confined to a specific social sustainability issue within the context of YouTube videos. Consequently, there is a pressing need for further research to explore and model the antecedents of engaging in brand

activism and consumer perception more comprehensively (Gangadharbatla, 2021; Vredenburg et al., 2020).

Thus, the current literature calls for investigation of the various opportunities and dimensions related to brand activism and social media engagement. To address these gaps, the following hypothesis is formulated for empirical testing:

H4. Brand activism in brand posts is positively related to brand post engagement.

Healthfulness. As Section 2.3.2 conceptualised food brands in sustainability communication, the literature review on sustainability marketing strategies employed by these firms brings to light the crucial role of health as a potential driver for engagement with sustainability and brand promotion (Gao et al., 2018; Kollat and Farache, 2017; Ruggeri and Samoggia, 2016). Considering communication, the strategic use of social media by food brands has proven to be instrumental in advancing not only environmental sustainability and socio-economic sustainability, but also health sustainability dimensions (Gatto, Wollni, Asnawi, and Qaim, 2017; Ruggeri and Samoggia, 2016; Von Geibler, 2013). These empirical findings underscore the significant influence of health-related considerations in shaping consumer perceptions and driving substantive engagement within the context of sustainability practices in the food industry.

Moreover, as explained regarding the COVID-19 pandemic, the global health crisis has critically impacted the food industry (Askew, 2020; Sylvers, 2020; Temple, 2020). In fact, the literature suggests that health is the only tenet expected to negatively influence consumers, due to disruptive claims maintaining the capitalist status quo and being persuasive for promotion-focused outcomes (Higgins, 1997; Sexton, Garnett, and Lorimer, 2022). However, engagement studies on food are limited and have explored specific impacts such as calorie-dense food (Pancer et al., 2022; Pancer, Philip, and Noseworthy, 2022) and vaping (Agnihotri et al., 2022), mediated by psychological perspectives, emotions, and beliefs across cultural differences (Agnihotri et al., 2022).

In the context of sustainability communication and food brands, healthfulness refers to specific claims related to food, such as organic, vegan, "free-from," "less," "reduced," etc. (Horvat et al., 2019). The literature indicates that these claims related to healthiness is negatively associated with consumer perception, impacting how they view products (Chandon

and Wansink, 2007; Lin and Chang, 2012; Raghunathan, Naylor, and Hoyer, 2006). This impact on consumer can extend to greenwashing, where brands may make misleading claims about their sustainability efforts on food products (Czarnezki et al., 2014). Consumers may become sceptical about these claims due to their prior experiences with products that emphasize healthiness, ultimately leading to a negative influence on consumer trust (Sexton, Garnett, and Lorimer, 2022).

Nevertheless, food brands' marketing strategies have increasingly contributed to advancements in the health sustainability dimension through their use of social media (Ruggeri and Samoggia, 2016). However, many food brands still lack a well-established sustainability communication strategy, particularly when it comes to social media platforms, and struggle to generate meaningful engagement on these channels (Neill and Moody, 2015; Ruggeri and Samoggia, 2016; Stelzner, 2016).

Given these considerations, it is posited that healthfulness may significantly influence brand post engagement on social media within the context of sustainability. Consequently, the following hypothesis is formulated for empirical testing:

H5. Healthfulness in brand posts is negatively related to brand post engagement.

2.4.1.2 Moderating Effect: Content Characteristics

This section explains the moderating effect of social media factors, specifically vividness and message appeal, on the relationship between sustainability-related message factors and brand post engagement. The primary objective is to discern whether these selected moderating variables can potentially enhance the impact of sustainability communication on overall engagement. Vividness and message appeal have been selected based on insights from the media richness and framing theories, as discussed in Section 2.2.5. These social media factors are designated as moderators, with the expectation that they will yield a positive influence on brand post engagement within the context of sustainability communication.

Some commonly used social media factors identified from the literature include the brand name, calls to action, and special days of posting (e.g., Christmas). These specific factors are not considered in this thesis. The brand name, referring to the name mentioned in the post (Coursaris, van Osch, and Balogh, 2016), does not apply to this research due to its frequent

inclusion either as a hashtag or within the media of the post in the sample brands. Nevertheless, brand analysis was conducted to discern potential differences between brands. The factor of call to action, which involves encouraging engagement (Zalmanson and Oestreicher-Singer, 2015), also does not apply to this research, as it is typically utilised for competitive purposes in post engagement studies. Given the focus on sustainability-related brand messages, this factor was not identified within the sample and thus is not included as a variable in this study. Similarly, special days or current affairs that pertain to actual events or incidents (Kaplan and Haenlein, 2010), were found to have a limited presence in the sampled posts. For instance, fewer than three posts within a one-year period were observed to be related to events such as World Earth Day, which specifically addresses environmental issues. Consequently, special days were not deemed significant enough to be included as a variable in this research.

Vividness. In the online context, vividness refers to the level of visual captivation offered through posts, and it is closely tied to the media richness theory. According to this theory, the use of images, animations, and videos in communication content determines the vividness of the message (Cvijikj Pletikosa and Michahelles, 2013; Trefzger et al., 2016). Therefore, the media richness theory proposes that an effective communication channel should match the richness of the medium to optimise message delivery (Ishii et al., 2019).

While some studies have found a positive correlation between vividness and brand post engagement (Antoniadis et al., 2019; Khan et al., 2016), previous research has found non-influential findings concerning this relationship (Yuen et al., 2023). Surprisingly, the impact of vividness on the functionality of sustainability-related message components and brand post engagement remains largely unexplored. This is puzzling, considering that vividness is emphasised in engagement literature as one of the key factors likely to influence the extent of social media engagement (Surucu-Balci et al., 2020).

In social media research, vividness is achieved through the use of videos, animations, or pictures (Banerjee and Chua, 2019). The literature showed the degree of vividness regarding this context, which might have different effective results. For example, the degree of vividness, particularly in videos, has the potential to stimulate multiple senses, including sight and sound (Coyle and Thorson, 2001; de Vries et al., 2012; Steuer, 1992). In contrast, text-

based content appeals only to the sense of sight. Research indicates that a higher level of vividness tends to be more appealing to online users (Coyle and Thorson, 2001; Fortin and Dholakia, 2005). Moreover, a study on CSR communication highlights that online tools with richer content, such as websites featuring animations and videos, are more effective in conveying messages compared to lean websites (Saat and Selamat, 2014). Based on the significance of vividness in social media studies, the following hypothesis is formulated for testing:

H6. Vividness moderates the relations between brand post engagement and its antecedents.

Message Appeal. The different types of message framing on social media affect the intensity of users' engagement (Dolan, Conduit, Fahy, and Goodman, 2016; Rishi and Bandyopadhyay, 2018). In this research, the effect of different appeals (affective versus rational) is investigated to measure the intensity of users' engagement with sustainability posts. According to framing theory, appeals frame messages as communication in words or phrases in order to relay information about an issue or event (Chong and Druckman, 2007).

In the context of sustainability, Hoek et al. (2017) suggested framing messages and exploring how the sustainability impact dimension can be communicated to consumers in order to promote healthy and environmentally friendly food products and thus change consumer behaviour. Affective and rational appeals are the most studied message appeals (Kapoor et al., 2021). Affective and rational elements might have a significant role in the effectiveness of sustainability communication, and these two components are also deemed important enough to have become noticeable from a stakeholder perspective (Kollat and Farache, 2017; Kordzadeh and Young, 2020). Therefore, appeals are significant in allowing the exploration of how brands can facilitate engagement through social media messages, and the specific types of affective and rational appeals (Dolan, Conduit, and Fahy, 2018).

An affective appeal on social media is defined as small talk, banter, or attempts to appeal to users' emotions, which can influence behaviour and determine great advertising effectiveness (Brown, 1998; Dolan, Conduit, and Fahy, 2018). Affective appeals with entertaining content focus on the brand and the product, in the form of a teaser or slogan or word play, which increases the number of Likes, Comments, and Shares (Cvijikj and Michahelles, 2013). Likewise, prior studies have found that affective message appeals such as the emotional

elements of social media content have been found to lead to positive attitudinal impacts on user engagement towards a higher number of Likes and Shares (Kapoor et al., 2021; Lee et al., 2013; Lee et al., 2018; Swani et al., 2013). Lee et al. (2018) also noted that if a brand post attempts to appeal to social media users' emotions, they are more likely to notice the post message and generate the most positive impact on the organisations' social media pages. Indeed, this supports the position that when the affective tone of the message becomes positive, the outcome becomes more positive (Rhodes, 2017). Therefore, positive emotional elements are measured as the use of affective appeals that drive interaction on social media (Casalo, Flavian, and Ibanez-Sanchez, 2021). Consequently, the affective appeal elements are determined as entertaining/fun facts, excitement/delight /happiness in a food product or a brand, animals mentioned/discussed, and relaxed/casual language used (Casalo, Flavian, and Ibanez-Sanchez, 2021; Dolan, Conduit, and Fahy, 2018; Lohtia, Donthu, and Hershberger, 2003).

On the other hand, rational messages appeal to facts and reasoning, and are related to utilitarian benefits such as product quality, convenience, reliability, sustainability benefits, and consuming healthy and green food (Dolan, Conduit, and Fahy, 2018; Kamrath et al., 2019; Turley and Kelly, 1997). It has been shown that particularly informative brand posts using rational appeal have a highly significant and positive effect on engagement (Coursaris et al., 2016). On social media, rational message appeals present information on price, availability, location and brand contact details (Lee et al., 2013). Indeed, prior studies have suggested a positive relationship between messages with a rational appeal and more engaged social media behaviour of users (de Vries et al., 2012; Dolan, Conduit, and Fahy, 2018; Lee et al., 2013). Researchers have accepted that the message that uses rational appeal increases consumer trust in CSR messages, contributes to their interest or attention, and drives consumer engagement with social media (Chae, 2021; Kollat and Farache, 2017). Therefore, this thesis explores whether affective or rational appeals contribute more positively to the popularity of brands' sustainability posts. Taking into account affective and rational appeals, the following hypothesis is formulated for testing:

H7. Message appeal moderates the relations between brand post engagement and its antecedents.

2.4.1.3 Moderating Effect: Country of Operation

The food industry operates within a global landscape, where sustainability differences across countries significantly influence companies' behaviours and performance over time. These variations stem from differences in corporate governance systems, regulations, and shifts in consumer preferences (O'Sullivan, 2000). Notably, the literature emphasises the importance of considering the distinction between food brands, particularly stigmatised brands, and the country of their operation, as this may lead to diverse outcomes in consumer responses to corporate social responsibility (CSR) initiatives (Austin and Gaither, 2017; Becker-Olsen et al., 2011; Lee and Cho, 2022). Since the 1980s, clear differences have been observed in sustainability activities, particularly those from advanced economies (O'Sullivan, 2000). Previous studies have demonstrated a positive association between advanced economies and their sustainability efforts. Furthermore, CSR communication through social media has been found to vary between developed and developing countries (Bagozzi et al., 2020; Castro-Gonzales and Bande, 2019); however, the literature displays a lack of clarity in the understanding of sustainability practices in emerging economies (Ahmad et al., 2021).

As Section 2.3.2 ends with the need for a pilot study to investigate country differences, especially emerging versus advanced economies, a pilot study was conducted to explore trends in social media and sustainability across countries. It has identified specific countries, such as Brazil, the UK, and the USA, that deviate from general trends. Consequently, the country of operation is expected to moderate the relationship between sustainability-related messages in brand posts and their engagement. The details of the pilot study are presented in Chapter 3.

While existing literature partly coincides with the pilot study findings, there is still a lack of analysis regarding emerging economies, making it inappropriate to generalise findings from advanced economies to developing ones (Ahmad et al., 2021). Firms tend to pursue alternative strategies in the market depending on country-specific and firm-specific advantages (da Silva Lopes and Tomita, 2021). Additionally, country-specific factors play a significant role in influencing engagement with brands on social media platforms (Bryla, Chatterjee, and Ciabiada-Bryla, 2022; Khan et al., 2016). This relationship is conceptualised in the engagement literature as consumer culture (Lin, Swarna, and Bruning, 2017), as cultural

aspects can influence social media behaviours, particularly concerning health-related messages and its influence on consumer's social media behaviours (Agnihotri et al., 2022).

Cultural differences play a crucial role in shaping social media engagement grounded as moderating effects in the engagement studies (Khan et al., 2016). In the social media and communication studies (e.g., Acar, 2014; Austin and Gaither, 2017), the discourse on country differences is frequently explored through the lens of Hofstede's cultural dimensions, encompassing individualism/collectivism, uncertainty avoidance, power distance, and long-term orientation (Hofstede, Hofstede, & Minkov, 2010). Hofstede helps in understanding how consumers may interpret brand posts differently based on their cultural perspectives, suggesting potential variations in the engagement of certain brand post practices (Lin, Swarna, and Bruning, 2017).

Indeed, understanding the findings related to the country of operation can offer firms the possibility of adopting different strategies for their sustainability communication across cultures. Consequently, the country of operation factor is employed to evaluate how it moderates the relationship between sustainability characteristics in brand posts and their engagement. Correspondingly, the following hypothesis is formulated for testing:

H8. Country of operation moderates the relations between brand post engagement and its antecedents.

2.4.1.4 Control Variables

The control variables for this study include the number of followers and submission frequency. The number of followers is a crucial factor that has been observed to correlate with the volume of Likes, Comments, and Shares on social media posts (Banerjee and Chua, 2019). Brands with a larger fan number are more likely to receive higher engagement rates on their sustainability-related posts. Additionally, submission frequency is considered a control variable due to its impact on the likelihood of posts attracting Likes, Comments, and Shares (Dolan, 2016). This variable refers to the time interval between the submission of the current post and the previous one (Brech et al., 2017). In the general context of social media, researchers have noted a significantly positive relationship between submission frequency and engagement metrics (Likes, Comments, and Shares). However, it is essential to note that under high submission frequency, posts may not always become popular, due to

overwhelming information for users, leading to potential disengagement (Banerjee and Chua, 2019; Dolan, 2016). As such, this thesis takes into account both the number of followers and submission frequency as control variables in order to understand their potential influence on brand sustainability post characteristics and their engagement levels.

2.4.2 Summary of the Antecedents

Overall, the antecedents collectively identified as social media and sustainability-related factors (elements of the triple bottom line, informativeness, CSR attributions, brand activism, healthfulness, vividness, message appeal, and country of operation) could make social media sharing popular by attracting Likes, Comments, and Shares. Figure 2.3, below, summarises the relationship between hypotheses in the model.

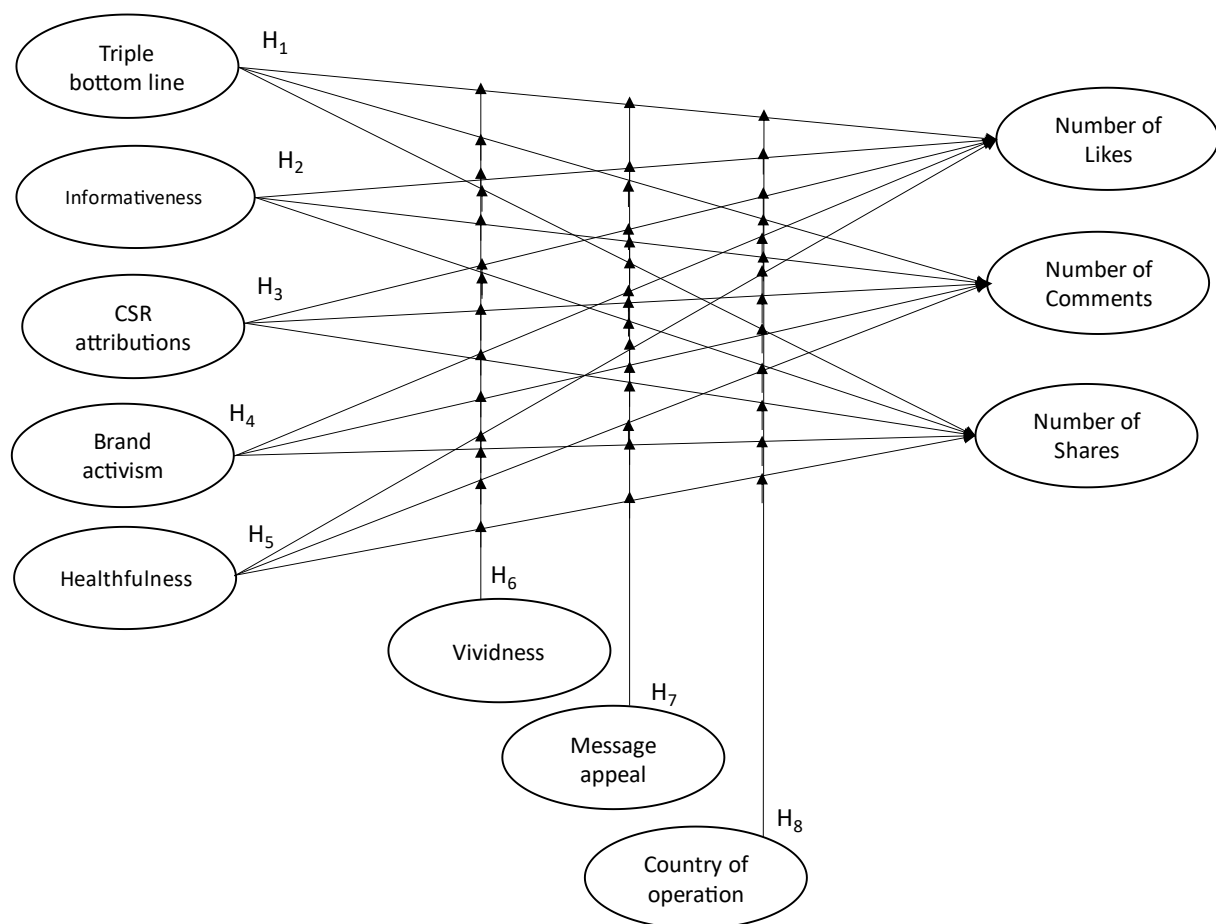


Figure 2.3 The model of hypotheses

The figure visually represents proposed relationships between antecedents of sustainability (triple bottom line, informativeness, CSR attribution, brand activism, and healthfulness) as independent variables, social media (vividness and message appeal) and country of operation as moderating variables, and the engagement outcome (number of Likes, Comments, and Shares) as dependent variables in this research.

Table 2.4 provides a summary of antecedents, with a brief definition and a reference.

Table 2.4 Antecedents that could make sustainability-related posts engaging

Antecedents with dimension	Brief definitions	Reference
<i>Sustainability-related message factors</i>		
Triple bottom line	Economic, social, and environmental issues	Ozanne et al. (2016)
Informativeness	Containing sustainability facts	Newman, Gorlin and Dhar. (2014)
CSR attribution	Motivation for CSR initiatives	Dunn and Harness. (2018)
Brand activism	Activist messages, values, and purpose	Vredenburg et al. (2020)
Healthfulness	Health claims such as organic, "free from", "less", "reduced" etc. of a product	Horvat et. Al, 2019
<i>Content Characteristics</i>		
Vividness	Multimedia elements	de Vries et al. (2012)
Message Appeal (Affective)	A message of positive emotions	Cvijikj and Michahelles. (2013)
Message Appeal (Rational)	Utilitarian benefits	Kamrath et al. (2019)
<i>Country of Operation</i>	Country as location of activities	Khan, Dongping and Wahab. (2016)

This table summarises and illustrates all determinants of sustainability and social media factors that could drive brand post engagement. In terms of brand post engagement, eight main antecedents were identified through the hypotheses. Indeed, this table consists of a fruitful and rich conceptual framework, and the engagement factors cover both sustainability and social media dimensions. Accordingly, eight hypotheses were formulated to contribute to advancing knowledge about the current practice of social media marketing for sustainability communication, specifically social media post engagement.

2.5 Proposed Conceptual Framework of Brand Post Engagement

This section presents a visual representation of the proposed conceptual framework that aims to elucidate how sustainable brands' social media posts drive engagement on the Internet. As previously discussed, sustainability communication involves raising awareness among the target audience about sustainable products and fostering dialogue between stakeholders regarding the company's overall sustainability initiatives (Belz and Peattie, 2012). In this context, social media serves as a platform to unite people around common sustainability subjects and encourages consumer engagement with brand posts to advance sustainability objectives (Kaplan and Haenlein, 2010; Stanislavska et al., 2020). Therefore, the intersection of social media, sustainability communication, and brand post engagement is highly relevant to the research problem addressed in this thesis. The aim is to provide a comprehensive understanding of the factors influencing brand post engagement in the realm of sustainability communication.

Figure 2.4 presents a general framework that analyses the antecedents of brand post engagement in sustainability communication. These tenets are categorised into three groups: sustainability-related message factors, moderating variables, and brand post engagement. Moderating and control variables include social media antecedents, country of operation, submission frequency, and the number of followers. The focus is primarily on the firms' perspective; however, the consumer perspective is also investigated through a supportive qualitative analysis. In the conceptual framework figure, sustainability-related factors pertain to the communication of firms' sustainability performance and initiatives, aiming to raise awareness of sustainability issues and influence consumers' engagement through social media communication (Chu et al., 2020). Social media antecedents play a crucial role in fostering engagement with customers through the exchange of information, ideas, and content, including brand conversations in online networks, where customers can interact with the brand through liking or commenting on brand posts (de Vries et al., 2012). These two dimensions collectively aim to enhance brand post popularity and foster engagement with sustainability communication in social media, ultimately reducing consumer scepticism towards sustainability and enabling companies to engage in meaningful two-way dialogues with stakeholders (Chu et al., 2020; Du and Vieira, 2012). Post engagement is measured by the brand's online presence in terms of the volume of Likes, Comments, and Shares (Banerjee

and Chua, 2019). The arrows in Figure 2.4 represent the hypotheses formulated in the previous section, which aim to test the relationships between the variables.

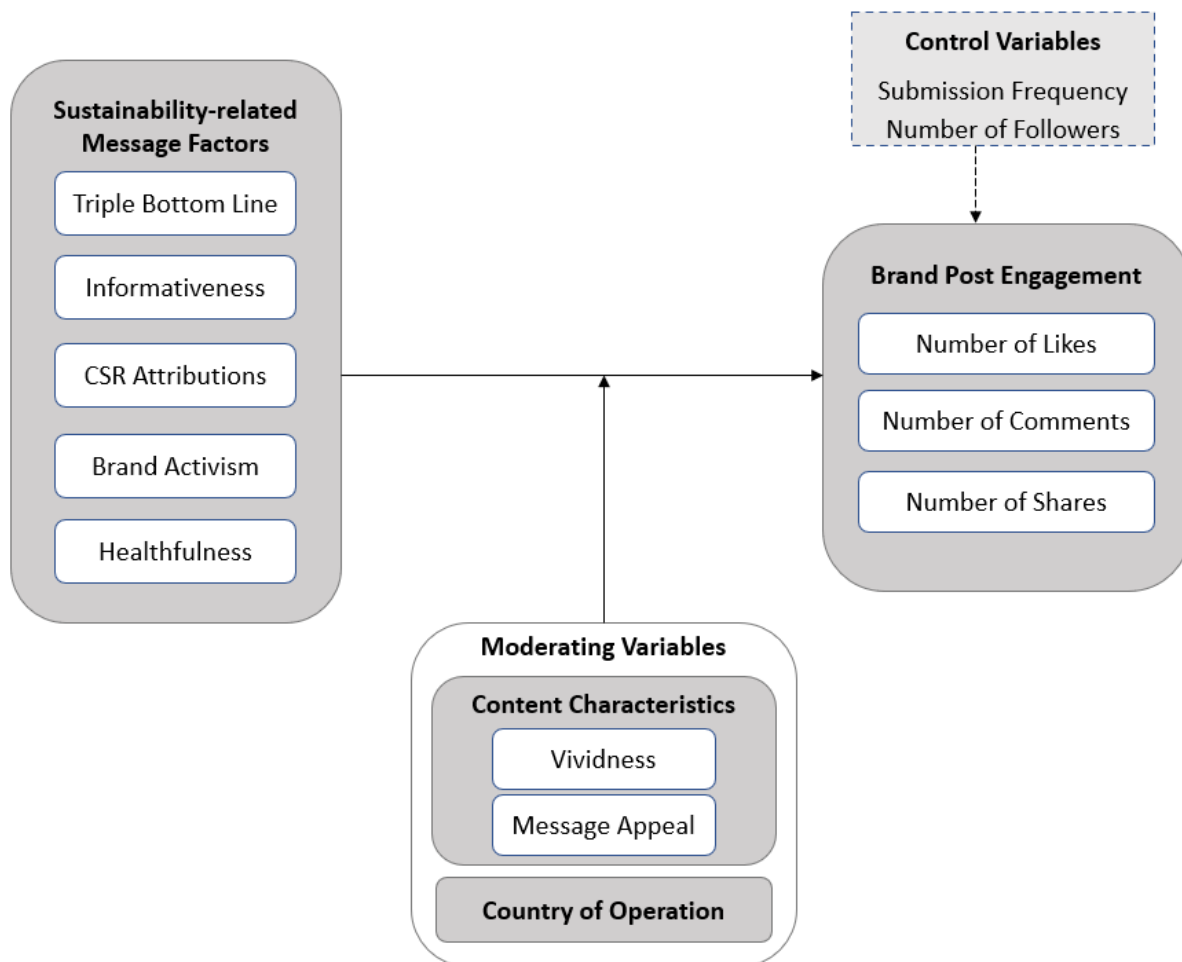


Figure 2.4 Conceptual Framework of brand post engagement on sustainability communication

Accordingly, Figure 2.4 identifies that elements of the triple bottom line, informativeness, CSR attributions, brand activism, healthfulness, vividness, message appeal, and country of operation are related to brand post engagement (the number of Likes, Comments, and Shares). Submission frequency and the number of followers are controlled to observe whether they have a minimal impact on the relationship between the variables.

2.6 Summary

In light of the research problem concerning the role of social media marketing in sustainability communication and consumers' ethical attitude-behaviour conflict, this thesis seeks to

explore the relationship between brands' sustainability communication on social media and brand post engagement, addressing a significant gap in the existing literature.

In this chapter, the concept of brand post engagement was introduced as a potential solution, considering the principles of sustainability communication and the role of social media as a powerful tool for conveying information and delivering firms' sustainability purposes. Social media also serves to unite people around common subjects and elicit responses to sustainability messages. To address the research problem, the concepts of social media, sustainability communication, and brand post engagement have been intricately linked in the proposed conceptual framework.

This research aims to offer patterns new to the existing theory of engagement in the field of sustainability communication with integrating social media, which remains a fundamental gap in the literature. This chapter has provided a comprehensive framework that synthesises various studies from marketing perspectives, including sustainability, branding, food, and information science.

As a result, key determinants of brand post engagement have been identified that shed light on the factors that influence consumers' engagement with brand posts containing sustainability-related messages. The elements of the triple bottom line, informativeness, CSR attributions, brand activism, healthfulness, vividness, message appeal, and country of operation are the main factors under investigation in this model. Understanding how these elements interact, contribute, or moderate post engagement is crucial in developing effective sustainability communication strategies on social media platforms.

Additionally, the model includes two control variables: submission frequency and the number of followers. These control variables are essential in assessing whether they have a significant impact on the relationship between the key factors and brand post engagement. By controlling for submission frequency and the number of followers, the model aims to isolate the effects of the main variables and provide a clearer understanding of their contributions to post engagement.

In conclusion, the conceptual framework presented in this chapter serves as a valuable tool for investigating the dynamics of sustainability communication on social media and its influence on brand post engagement. Through empirical testing, this model aims to offer

valuable insights into the most influential factors that drive consumer interactions with sustainable brand posts, enabling firms to effectively leverage social media platforms for meaningful sustainability communication.

Chapter 3 : Research Methodology, Philosophy, Research Design and Data

3.1 Introduction

Based on the existing literature, this chapter describes the methodology of this research. It first examines the proposed framework empirically through a quantitative study. This is then complemented with a qualitative research analysis of consumer-generated comments.

This thesis adopts a positivist approach to test the formulated hypotheses with the first five research questions. The research utilises highly structured large sample data spanning over three years and encompassing three countries as well as two social media platforms. The study focuses on five brands and employs a hierarchical regression model for analysis. Additionally, the last research question explores consumer comments in an exploratory approach that represents the first investigation into how consumers respond to and engage with sustainability messages, particularly within the bidirectional context of social media. This approach aims to contribute to a deeper understanding of consumer behaviours and adaptations to sustainability communication on social media platforms. The combination of the positivist and exploratory approaches in this research augments and extends the groundwork for a robust and holistic investigation of the intersection between social media engagement and sustainability communication through a provided framework.

This chapter is structured as follows. Section 3.2 explains the philosophical underpinnings of this study with the research approach. Section 3.3 presents the pilot study with the approach, design, data collection, and findings. Section 3.4 discusses the research method and identifies the approach of this study's sample, the data specifically focusing on sampling, data collection, measurement, quantitative and qualitative content analysis, and issues of validity, reliability, and model testing. Justification of the method is provided, and ethics are discussed. Section 3.5 accordingly concludes this chapter.

3.2 Philosophical Approach

3.2.1 Research Philosophy

Philosophical assumptions guide the strategy of inquiry and determine the specific methods and procedures of research that translate the approach into practice (Creswell, 2009). Therefore, this section reviews the related philosophies and relevant assumptions that underpin this research. The research philosophy of this research is formed by the epistemological viewpoint in order to find out what constitutes acceptable knowledge in a field of study (Saunders, M.N.K., 2009). Accordingly, this philosophy of methodology effectively aims to answer these two questions: how possible is it to gain knowledge, and what kind of knowledge exists (Hughes and Sharrock, 1990). By an epistemological way of understanding and explaining how we know and what we know, legitimate and adequate knowledge is obtained about reality.

The research paradigm links to questions regarding the epistemology and methodology of research (Howell, 2013). The epistemological position of a piece of research consists of conscious and unconscious assumptions about human knowledge, which are the epistemological considerations adopted by researchers (Saunders, M.N.K., 2009). According to Crotty (1998), researchers should acknowledge these assumptions at the very early stage, as they shape the direction and nature of the research both in terms of objectives and methods and also in influencing the analysis and findings of the data collected.

There are five main paradigms identified in the social sciences that create the use of theory in reflecting reality, truth, and knowledge. The paradigms are positivism and post-positivism, as well as critical theory, constructivism and participation. Yet, philosophical analysis grounding in sustainability studies mainly appears to adopt positivism, post-positivism, and constructivism (Robson, 2011; Cunliffe, 2010). Positivism features knowledge by gathering evidence about reality and any transcendent knowledge is identified as refuted (Vildasen et al., 2017). Post-positivists acknowledge reality with absolute uncertainty; however, experiments can approach truth (Guba and Lincoln, 1994; Willis and Jost, 2007). An important difference for this thesis is the positivist acknowledgement that collected data are not influenced by the researcher's decisions and values (as post-positivists believe), henceforth the collected data are neutral (Vildasen et al., 2017). Constructivism claims that knowledge is

always relative and context dependent. Importantly, researchers and participants are integrated with constructivist-based studies (Hoiseth et al., 2014; Vildasen et al., 2017).

This study applies a positivist and exploratory approach to establish a relationship between brands' sustainability communication and social media characteristics. Antecedents of social media factors as well as sustainability-related factors are based on the existing literature. Moreover, country of operation is the last antecedent identified from the literature; however, the pilot study has been conducted to specify the countries. The pilot study analysed the sustainable food brands' social media usage, which addressed the call by Ahmad et al. (2021) for investigations into brands' operations in advanced versus emerging economies. The result included three different countries (Brazil, the UK, and the USA) with high sustainability food claims and social media usage; this aimed to establish generalisable findings that aid the food industry in benefiting from sustainability efforts in social media engagement. Due to the nature of this study, ontologically, positivism has helped to see reality as an objective realm, therefore the research is independent of the human mind. Epistemologically, the reality is achieved by observing and collecting data, thus observation of initial patterns and trends was made with a pilot study before collecting data for social media data analysis.

As quantitative research is adopted for a big sample size, where the relationships of different variables are measured and tested statistically, the research stream is attributed towards the positivist notion (Lock and Seele, 2015). This phenomenon provides an objective method for scientific interest by quantitative content analysis (Benoit and Holbert, 2008; Farrell and Cobbin, 2000) and fulfils the aims of the research mentioned earlier. Lock and Seele (2015) indicated that studies rooted in communication science with quantitative content analysis help to understand the latent content of communication regarding a corporation's ethical and sustainable conduct. Herewith, business ethics and sustainability research of study methods are shifting the research paradigm from normative and conceptual to more positivist approaches. As qualitative research has been adopted to address the research question on consumer perspectives, an exploratory qualitative analysis has been employed. This approach, inspired by related studies (Banerjee and Pal, 2023; Bronstein, 2013), facilitated the analysis of consumer responses to various message content (Kassarjian, 1977). As the approach relies on a combination of quantitative and qualitative methodologies, this research will comprehensively offer an understanding of sustainability engagement with social media,

encompassing its complexity across countries, brands, periods, and social media platforms. The positivist perspective recognises theory-building as the process of identifying relationships between abstract ideas and empirical observations, developing the theory through an empiricist view (Howell, 2013). Consequently, this hybrid approach allows for a more holistic exploration of the research questions and enables the examination of both numerical patterns and nuanced consumer perspectives about sustainability communication and post engagement by providing a conceptual framework on sustainability communication on social media.

Since this research was constructed by a highly structured large sample, the positivist stance has adapted credible data for generalisation features of sustainability products and communication. To generate a research strategy, an existing theory was used, developed, and extended after the patterns were observed through the pilot study (Saunders, M.N.K., 2009). Furthermore, the research explains and generalises findings in the context of sustainable food and social media strategy, where the positivist approach provides the appropriate conditions through facilitating the independence of the researcher from the research by excluding the researcher's feelings and attitudes on the data collection process and minimising the researcher's involvement (Saunders, M.N.K., 2009).

Critically, a judgment of positivism argues that the field of business and management is a rich and complex world that causes a reduction of law-like generalisation because all data collected are necessarily incomplete (Popper, 2005). This will be mentioned in the limitations. Nevertheless, this research will provide the largest sample of social media posts relating to sustainable food brands in the related context of sustainability. The procedure and sample design are discussed in Section 3.4.

3.2.2 Research Approach

This research recognises sustainability communication on social media as a limited field in which the practice of companies' sustainability communication and their post popularity on the Internet is contested. Based on this understanding, this research was motivated by two overall aims. The first intention concerns the strategy of the sustainability communication of firms through social media tools – how to obtain an anchored favourable antecedent on brands' social media posts engagement, and how firms do better by embracing sustainability

messages for a higher level of social media engagement. In other words, brands' social media content on sustainability-related messages, such as ethical sustainable food products or sustainability initiatives in strategic decision-making related to sustainability communication with implications for social media, will be tested. The second intention of this research focuses on exploring the consumer perspective in response to brands' sustainability messages conveyed on social media. By delving into how consumers perceive and interact with these sustainability messages, this study seeks to gain valuable insights into the effectiveness and impact of such communication strategies on consumers' attitudes, beliefs, and behaviours. Understanding the consumer perspective is crucial in assessing the success of sustainability communication on social media platforms and in devising strategies that resonate with and engage consumers effectively. These intentions are expressed in eight hypotheses with five main research questions in Chapter 2. From Chapter 4 to Chapter 7, they will be tested by social media data analysis, and the findings of the analysis will be discussed in Chapter 8.

This research has been dedicated to identifying the hypotheses and research questions, which serve as the guiding principles for investigating how sustainable food brands implement their communication strategies through sustainability-related and social media-related antecedents across different countries on social media platforms. For the first four research questions, a deductive approach was adopted, allowing for a data-driven exploration to uncover patterns and themes related to sustainability communication and brand engagement. Through this approach, eight hypotheses have been tested and the research questions have been thoroughly examined, with the aim of qualifying, augmenting, and extending theory, as well as contributing to the existing knowledge base (Creswell, 2009).

The deductive approach was particularly suitable for this research, given the collection of quantitative data and the substantial size of the sample, enabling the generalisation of conclusions (Saunders, M.N.K., 2009). This method facilitated a comprehensive analysis of the relationship between sustainability and social media antecedents and their impact on brand post engagement, providing valuable insights into the drivers of consumer engagement with sustainable brand messages on social media platforms.

On the other hand, the last research question took an inductive approach to explore consumer comments on sustainability messages in depth within the context of sustainability communication on social media. This inductive approach allowed for the emergence of all

possible patterns guiding the exploration from data to theory (Banerjee and Pal, 2023). It helps understand the underlying reasons and perceptions driving consumer responses to sustainability messages on social media, providing valuable and nuanced insights into the intricacies of consumer engagement in the digital landscape.

In terms of the country of operation variable, the existing literature primarily focuses on advanced economies, which leaves a limited exploration of the topic in emerging economies. To address this gap, a pilot study was conducted to examine the patterns and differences across countries in terms of brands' sustainability claims and social media usage.

3.3 Pilot Study: Comparative Country Trends

Multinational sustainable food companies such as Coca-Cola, Danone, and Unilever, as the sample of this research, have a wide range of brand portfolios traversing multiple countries. Starting from the 2000s, these companies widened their sustainability initiatives and claims through new product introductions and business practices – through production, food ingredients, package design, marketing campaigns, and social media. This generated growth in sustainable food by providing products to consumers around the world (Jones, 2017).

This section reports a pilot study that was conducted prior to the main study in order to understand country trends and refine preliminary questions for the main research questions. It examined a Mintel Global New Products Database (GNPD) for initial patterns and trends in the sustainability of food brands that use social media extensively. This database was chosen because it provides content about brands, such as new product launches in the global market, product descriptions, brand information, social media presence, and sustainability claims for products and companies, that are not fully met elsewhere (Solis, 2016).

As a result, the pilot study aimed to understand the institutional and macro context and how this influences sustainability marketing practices and communication across countries. This section aims to ascertain the sustainability commitment of sustainable food firms across different economies, at the firm and product level, based on patterns and trends. The breakdown of economies is also present at the country level, since multinationals have country-specific approaches to meet consumer demand, regulatory requirements and standards, legislations, different sustainability opportunities, and integrity, with environmental performance, fair labour behaviour, and social involvement being different in

each country (Bergquist, 2019; Hahn et al., 2015; Jones, 2017; Steffen et al., 2015, Vachon, 2010; Zuideau, 2007). As discussed previously, communicating sustainability in social media remains hidden, especially in emerging economies, which needs to be identified (Ahmad et al., 2021). Correspondingly, the results of this pilot study reveal patterns and detect differences in sustainability practices and communication strategies among countries.

The pilot study findings, together with the literature, further underpin social media data analysis in Chapter 4 by examining how the country of operation moderates the relationship between brand post engagement and its antecedents. It will shed light on how brands tend to pursue alternative strategies in the market depending on country-specific and brand-specific advantages (da Silva Lopes and Tomita, 2021), and how brands balance sustainability factors in strategic decision-making related to communication, with implications through social media metrics (Iivonen, 2018; Ozanne et al., 2016).

This section is divided into five sub-sections. Section 3.3.1 discusses various sustainability indexes and outlines the sampling methodology. Section 3.3.2 establishes the sample criteria and presents the selected companies for the pilot study. Section 3.3.3 introduces Mintel GNPD, the database from which the data is gathered. Section 3.3.4 presents the pilot study findings, while Section 3.3.5 highlights the key outcomes and offers a concluding summary.

3.3.1 The Sample Approach

Different sustainability indexes (OXFAM, ATNI, and Corporate Knights) were compared, and the Corporate Knights index has been chosen due to its rigorous comprehensive methodology. Each key performance indicator (KPI) relies on United Nations Sustainable Development Goals, so it is a credible and reliable index of sustainable food companies by a detailed criterion. (To further understand the Corporate Knights Sustainability Index methodology, see Appendix B.) It was released at the World Economic Forum in Davos and scores were analysed by journalists, economists, and people in the business world (Corporate Knights, 2019; Kauflin, 2018). Moreover, this research focused on large firms because they can help answer important questions, since food multinationals' enormous influence on economics, society, and the environment makes the food market responsible for sustainability and be part of the solution to the world's challenges (ATNI, 2020). In the list of Global 100 Sustainable Corporations by Corporate Knights, companies are required to be publicly listed, with gross

revenue of a minimum of \$1 billion (Corporate Knights, 2019). Thus, it satisfies the criteria of this research by presenting large sustainable food firms on the list.

This pilot study sample builds on the list of Global 100 Sustainable Corporations by Corporate Knights. The list has been filtered to only include food companies between 2009 and 2019. The period has been chosen to observe the post-2008 economic crisis and find some repair sustainability impact of crises in the food industry until the present day. It is important, since the 2008 economic crisis rolled back the entire sustainable development gains of the past several decades, resulting in fewer resources available and human costs such as millions of job losses, increased poverty, and income insecurity (UN ESCAP, 2008).

Accordingly, multinational food companies that produce packaged food products have been obtained and used in this pilot study. The next section explores and demonstrates sample design.

3.3.2 Sample Design

The empirical setting of this research is food firms. To construct a sample of sustainable food companies, sample firms were identified by Corporate Knight's Global 100 list, and those firms were screened for their sustainability claims by their packaged products.

From the Global 100 Index, 21 companies' details were extracted and analysed at the scope time of 2009 until 2019. They are AAK (Sweden), Aeon (Japan), BRF (Brazil), Campbell's Soup (United States), Chr. Hansen (Denmark), Coca-Cola (United States), Dairy Crest (United Kingdom), Danone (France), Diageo (United Kingdom), General Mills (United States), GPA (Brazil), Sainsbury's (United Kingdom), Kesko (Finland), Kraft Foods (United States), Lawson (Japan), McCormick (United States), Nestle (Switzerland), Orkla (Norway), Unilever (Netherlands and United Kingdom), Ecolab (United States), and Westfarmers (Australia). Westfarmers and Ecolab could not be found in the database. Because Westfarmers was established as a farmers' cooperative in 1914, however, the company does not have any food production or food-related products. Ecolab is a food service company that does not have a physical good. Consequently, Ecolab and Westfarmers were eliminated from the sample as they do not have any physical food products in the market, such as packaged foods.

Consequently, 19 sustainable food companies were included in the research sample. Likewise, in the main research, the brand selection has been made from these 19 sustainable food companies' product lists, which will be discussed in Section 3.4.1.

Table 3.1 illustrates the sustainability ranking of these companies from 2009 to 2019. In the table, *rank* represents the sustainability ranking on the Global 100 list and *overall* shows the average of 21 KPIs by percentage.

Table 3.1 The ranking of sustainable companies index, Corporate Knights, 2009-2019

Company Name	Year 2009		Year 2010		Year 2011		Year 2012		Year 2013		Year 2014		Year 2015		Year 2016		Year 2017		Year 2018		Year 2019	
	Rank	Overall	Rank	Overall	Rank	Overall	Rank	Overall	Rank	Overall	Rank	Overall	Rank	Overall	Rank	Overall	Rank	Overall	Rank	Overall	Rank	Overall
Aeon Co Ltd	✓	✓	--	--	3	62,75%	40	40,03%	--	--	--	--	--	--	--	--	--	--	--	--	--	--
J Sainsbury PLC	✓	✓	49	52,40%	--	--	94	19,37%	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kesko OYJ	✓	✓	33	57,90%	26	62,00%	43	39,10%	50	52,64%	98	45,70%	5	70,02%	15	69,31%	25	62,86%	31	70,21%	88	50,73%
Coca Cola Company	✓	✓	38	56,60%	78	49,44%	--	--	--	--	43	57,30%	--	--	--	--	--	--	--	--	--	--
Danone SA	✓	✓	30	58,90%	68	53,41%	60	32,92%	75	47,76%	97	45,70%	--	--	--	--	--	--	--	--	--	--
Diageo PLC	✓	✓	18	61,90%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Unilever PLC	✓	✓	7	69,90%	84	48,29%	51	35,93%	82	46,73%	93	47,10%	22	65,66%	47	63,26%	--	--	--	--	65	61,89%
Kraft Foods Inc	--	--	--	--	45	56,96%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lawson Inc	--	--	--	--	--	--	93	20,25%	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dairy Crest Group PLC	--	--	--	--	--	--	98	15,86%	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GPA	--	--	--	--	--	--	--	--	74	48,19%	--	--	--	--	--	--	--	--	--	--	--	--
Nestle SA	--	--	--	--	--	--	--	--	94	43,63%	86	49,20%	--	--	89	56,37%	--	--	50	66,61%	--	--
Campbell Soup	--	--	--	--	--	--	--	--	99	41,10%	96	46,50%	77	55,81%	--	--	--	--	--	--	85	54,07%
BRF - Brasil Foods SA	--	--	--	--	--	--	--	--	--	--	95	46,60%	--	--	--	--	--	--	--	--	--	--
General Mills	--	--	--	--	--	--	--	--	--	--	--	--	49	60,80%	69	59,25%	92	52,66%	--	--	--	--
McCormick & Co	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14	66,75%	23	71,52%	13	76,20%
Orkla ASA	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	87	60,38%	--	--
Chr. Hansen Holding	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	82,99%
AAK AB	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75	59,02%

*In 2009, companies were given in no particular order

Source: Corporate Knights 2009-2019 (Created by the Author)

Table 3.1, above, presents the companies yearly figures in terms of their sustainability ranking and overall sustainability performance in percentages. As is shown, only Kesko has been steadily on the list since 2009. Unilever has also been listed every year except for 2017 and 2018. Between 2015 and 2018, the lowest number of food companies was seen on the sustainability index. Besides those years, the number of food companies varied between six and seven companies per year. The firms operate in three segments, which are food production, beverage production, and service, and their operation differs from each other. (For further company information see Appendix C; for the company profile, including the year of foundation, country of origin, and the information of product and service, see Appendix D.)

3.3.3 Methods of Data Collection and Analysis

The method of data collection chosen to obtain data on new product launches of consumer-packaged goods was the Mintel GNPD database. This database was chosen because it provides comprehensive company and product details for the food industry, including new product trends and growing and declining trends in the market. Also, many academic institutions with large marketing programmes, as well as business schools, find Mintel GNPD useful, as it caters more to academic users (Solis, 2016).

Data were analysed by the inductive approach, as according to Braun and Clarke (2006), this method helps to identify, analyse, and report patterns within data. The data were analysed in terms of the sustainability claims of products, social media presence, countries, and firms, entailing a process of moving back and forth between the data collected and the existing literature (Glaser and Strauss, 1967). Table 3.1 illustrates the overview of the preliminary questions for the pilot study. Accordingly, the preliminary question posed is: "What are the country differences in sustainability claims on food products that impact communication activities on social media?"

Correspondingly, this secondary data analysis addresses the preliminary questions via the object of abnormalities or hidden sustainability and social media trends on ethical sustainable food products through sustainability claims, considering country differences. The data analysis was conducted for 122,038 products produced from 2009 to 2019. This method is useful for applications in the area of sustainability claims of food brands and has successfully worked in the sustainability context (Chrysochou and Festila, 2019; Elliott, 2008). The next section

explains the Mintel GNPD database and gives further information about the data analysis. Based on the findings of the pilot study, the main research of the thesis, which is social media data analysis, aims to find out how to embrace sustainability through social media communication and implications for food multinationals, which will be discussed in more detail in Chapter 4 and Chapter 8.

19 companies in the sample have been searched in the database, and the product categories were selected as Food and Drink. Since academics (Mann et al., 1998; Gordon, 2017) and associations (e.g., Corporate Knights) accept that the food industry comprises a wide range of sectors, including seafood, fruits and vegetables, meats, dairy products, beverages, and confectionery, among others, in this research, data collection has started choosing both food and drink criteria on Mintel GNPD to cover all companies and products.

More than 100 unique product claims are available through the database. A *claim* identifies the benefits and risks of a product, and how a particular ingredient or product affects the company or the overall market (Solis, 2016). These claims highlight the benefits and risks of the products and their impact on the companies and the overall market. Due to food firms being at the centre of the research, food and sustainability-related claims with a social media presence were included, informed by related studies (e.g., FAO, 2018; Garnett, 2013; Grunert, 2011; Hawken, 1993; Hoek et al., 2017; Hudson, 2012; Peters and Zelewski, 2013; Van Dooren et al., 2014; Willet et al., 2019). These claims were selected from the *ethical and environmentally friendly* section. This category was chosen to analyse the firm's sustainability practice on a product in terms of economic, environmental, and social sustainability purposes. *Social media presence* on products was also obtained from the database to find out interconnections of the sustainability context of food products with the use of social media by the product. All claims under the relevant category are shown in Table 3.2.

Table 3.2 Overview of Mintel GNPD database claims used in this research

Information	Claims	
Brand-related information	Company name (Nominal)	
	Number of products (Scale)	
	Country of operation(Nominal)	
Sustainability claim	Ethical - environmentally friendly package (Scale)	
	Ethical - recycling (Scale)	
	Ethical - sustainable (habitat / resources) (Scale)	
	Ethical - environmentally friendly product (Scale)	
	Ethical - human (Scale)	
	Ethical – animal (Scale)	
	Ethical - toxins free (Scale)	
	Ethical - charity (Scale)	
	Social media presence	Social media (Scale)

Source: Mintel GNPD Claims (2020) (Created by the Author)

Claim categories are presented in Table 3.2. Product descriptions and the claims of a product are based on the package and the website. The claims make the product stand out from others in the same country and category. *Brand-related information* consists of company name, number of firms’ products, and, importantly, country names that firms operate in. *Ethical sustainable products* is a category comprising products that feature environmentally-friendly or ethical statements for either the product or the packaging. It is usually used for products that claim to have reduced, minimalised or done no harm to ecosystems or the environment. That includes sustainable, biodegradable, and recycling claims, as well as ethical humanness or charity. (See definitions of each claim in Appendix E; Mintel GNPD methodology in Appendix I.) *Social media presence* is based on social media claims used where logos or marketing related to social media are displayed on-pack, such as URLs or contact information for various social media websites. It includes hashtags (#) only or handles (@) with links or logos, for the App Store or Google Play store.

3.3.4 Findings

This study analysed 122,038 products through eight sustainability claims from 2009 to 2019. The results of the pilot study prove that sustainability has become an important factor of differentiation in the food industry, that firms are investing in sustainability claims of

sustainable food products, and that they increasingly use social media presence for their sustainable products. Firstly, Figure 3.1 graphically shows the evolution of the sustainability claims of the brands.

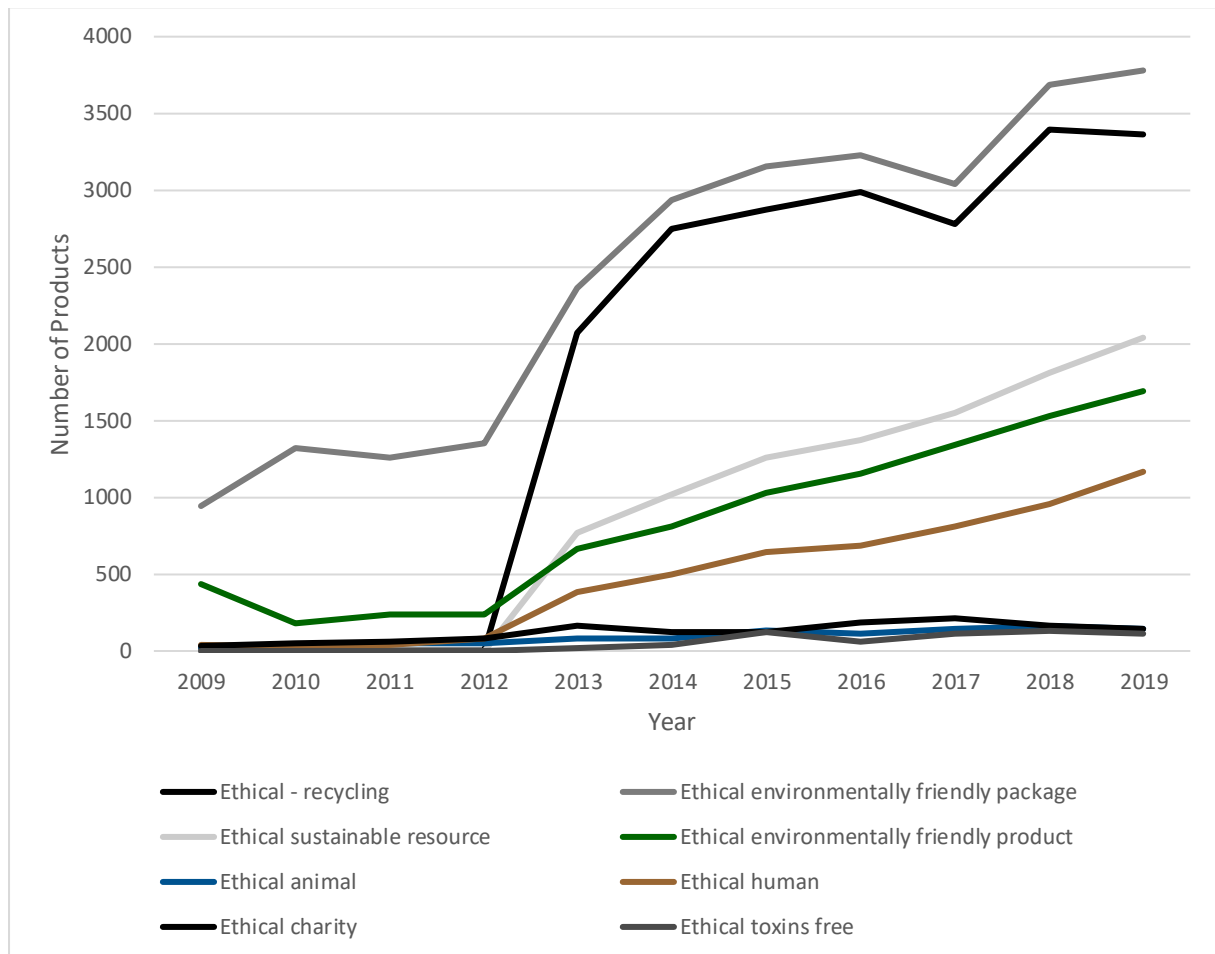


Figure 3.1 Brands' sustainability product claims in products, 2009-2019

Figure 3.1 displays that the highest increases were observed in ethical environmentally friendly packages and recycling. These are the increasing trends of sustainable products in food brands. In the literature, research has suggested that many firms did not realise sustainability advantage to obtain differentiation (Blok et al., 2017; Menon and Menon, 1997; Meulenberg and Viaene, 1998; Tempels et al., 2017). However, the figure demonstrates that ethical sustainable resources, ethical environmentally friendly products, and ethical humanness claims of products have been cumulatively increasing since 2012 (See Appendix F for percentage increases.). This finding shows that the environmental and social sustainability of food products regarding resources, the social ideals of people and fair-trade, and

environmentally friendly products might provide economic competition and competitive advantage for the corporations (Shrivastava, 1995a). Indeed, as the pilot study shows, five of the claims are increasing in the food industry and have become dominant among ethical sustainable products.

Moreover, the evolution of product sustainability claims with a social media presence on their package was depicted in Figure 3.2 to find out the relationship between these claims and social media preferences.

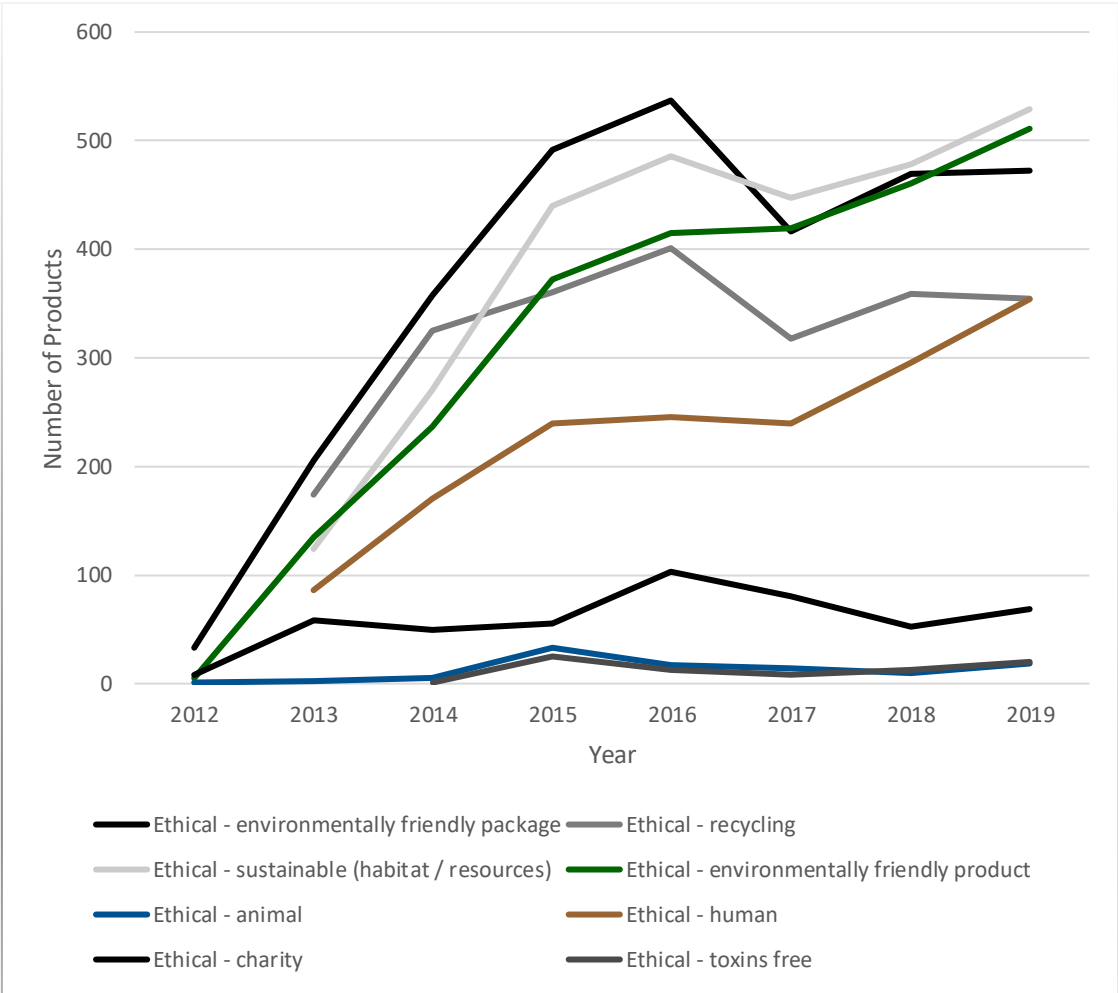


Figure 3.2 Products’ Sustainability Claims with The Use of Social Media, 2012-2019

Figure 3.2 displays the trend of firms’ social media presence relating to their ethical sustainable food products in new product launches. The use of social media was observed in new products after 2012. Figure 3.2 demonstrates that for multinational food brands, the social media presence of food products with sustainability claims has been increasing since

2012. Brands seem to be motivated to engage in sustainability and choose to communicate these sustainability aspects through social media.

In addition to these general findings, understanding the different sustainability parameters in both economies is important for finding out brands’ sustainable food marketing strategies as a differentiation factor. The literature indicates that social media is effective in food marketing and positively disseminates food messages (James et al., 2013). However, it also highlights a need for more clarity and understanding of social media and how firms can leverage each of these different sustainability parameters with their new product development (Du, Yalcinkaya, and Bstieler, 2016). Before moving on to the breakdown of social media presence, Table 3.3 gives an insight into the relationships of social media presence with products and economic markets.

Table 3.3 “Advanced” and “Emerging” market analysis of sustainable food products with social media presence

		Social Media Presence	Total Number of Product
Advanced Economies	<i>N</i>	9988	79716
	(%)	(12.5%)	(100.0%)
Emerging Economies	<i>N</i>	5673	42322
	(%)	(13.4%)	(100.0%)

Table 3.3 shows the influence of emerging and developing economies in comparison to advanced economies by the breakdown of sustainable products with a social media presence in different economies. (See Appendix G for the grouping of economies.) The findings prove that emerging economies have a lower number of ethical environmental products than advanced economies’ markets. (For graphical presentations of each claim, see the figures in Appendix H.) However, Table 3.3 reveals that the social media presence of sustainable food products in emerging economies (13.4%) is higher than in advanced economies (12.5%). Nevertheless, within all markets, advanced economies are dominant by 63.8% as regards having a social media presence for their ethical sustainable food products. Figure 3.3 shows the advanced and emerging economies’ market analysis of ethical sustainable food products’ social media presence.

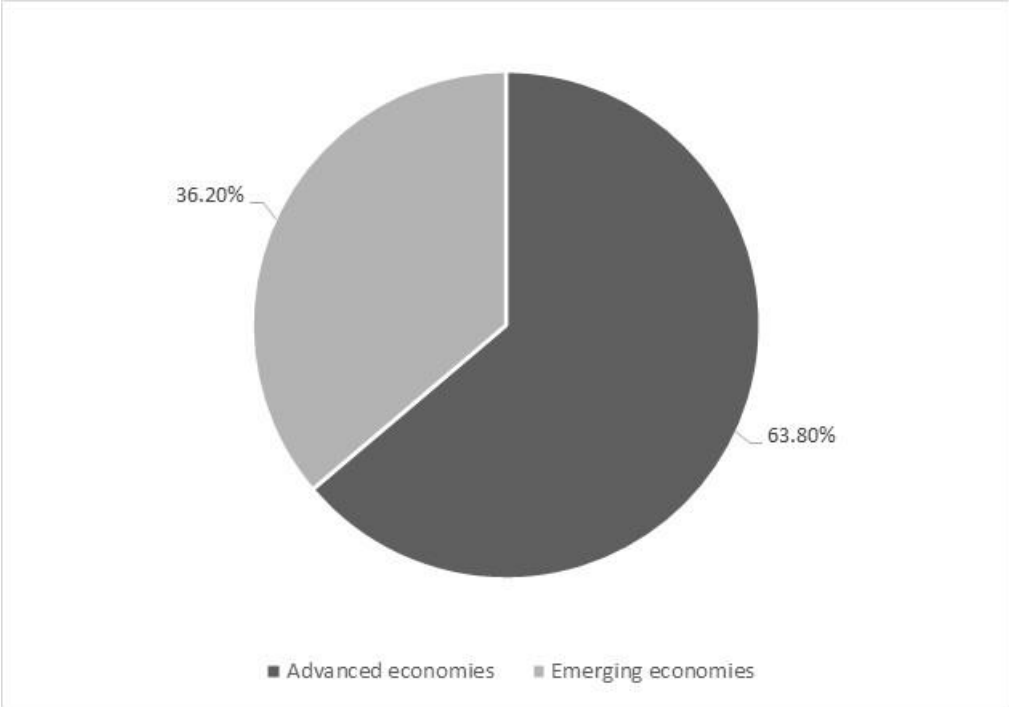


Figure 3.3.3 “Advanced” and “Emerging” market analysis of ethical sustainable food product’s social media presence (%)

However, Brazil, the UK, and the USA emerged as exceptions to this general trend, exhibiting distinct patterns in terms of social media presence and sustainable products. To visually illustrate the differences in social media presence and sustainable products across these countries, Figure 3.4 depicts the top three countries with the highest social media presence on their packaging, distinguishing between emerging and advanced economies.

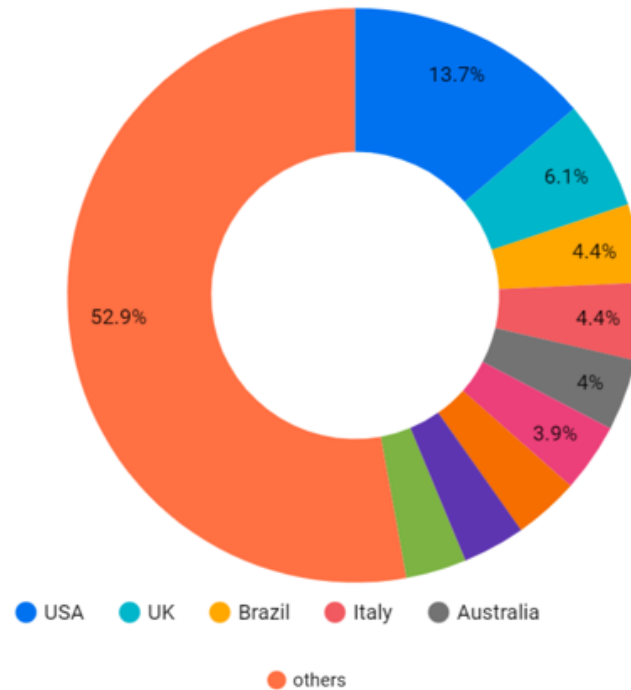


Figure 3.4 Sustainable food products with social media presence across countries (%)

Figure 3.4 presents the social media presence of major countries, which are the USA (13.7%), the UK (6,1%), and Brazil (4.4%). 52.9% of the products represent the sum of all other countries. Importantly, the USA has the biggest contribution to the social media presence of advanced economies. The penetration of social media presence in the US market might be explained by competition between food multinationals and rising marketing costs since the 1980s (Heller and Keoleian, 2003). When three countries are analysed in terms of ethical sustainable food product market share and social media presence, the number of ethical environmental products in Brazil is proportionally higher than in the USA, and the social media presence on products is higher than in the UK. Even though different approaches were suggested to enhance the sustainability of the existing US food system from processing and distribution activities to agricultural production practices (Heller and Keoleian, 2003), the findings above showed that the USA did not make good progress on products, and was even behind emerging and developing countries. Contrary to the suggestions in prior works (Mustunir, 2015), emerging and developing countries like Brazil endorsed more sustainable food products compared to the US market. Moreover, ethical recycling products are important in the USA, having the second largest market share in this market. This might be caused by the

implementation of the Resource Conservation and Recovery Act (Liu et al., 2015). This legislation has likely incentivised firms to prioritise the production and promotion of ethical recycling products in response to environmental concerns. A possible explanation is that developing countries are either having political transitions towards sustainability or that they have firms responding to society's demand for sustainability.

Overall, these results suggest that emerging countries like Brazil are making significant strides in endorsing and promoting sustainable food products through social media. This indicates a potential shift towards sustainability in developing nations, either due to a political transition or a response to growing demands from society for sustainable products. The unique trends observed in Brazil, the USA, and the UK prompt further investigation, leading to their selection for the main research of the thesis. Further insights and comprehensive discussions will be presented in Chapter 8 - Discussion, to provide a deeper understanding of sustainability communication about sustainable products across those countries.

3.3.5 Conclusion and Key Insights from the Pilot Study

By conducting this pilot study, the research design of the main study was validated in terms of country of operation and enhanced the literature regarding emerging versus advanced economies in relation to sustainable products and social media presence. This analysis discovered trends, and together with the literature, helped to refine the scope of Hypothesis 8 regarding Research Question 4 on social media analysis. The research questions engaged with trends associated with the use of social media, as well as other trends such as differences in the country of operation, which have not yet been addressed by the existing sustainability communication literature. The findings of this study have revealed that social media presence and sustainability factors interplay between food brands and products.

From the findings, social media engagement could not be tested in this pilot study because the social media data are not detailed. Whereas the findings support the increasing trend of the use of social media among brands and sustainable food products, the main research aims to find out the effectiveness of social media and sustainability communication in terms of post engagement. Overall, the pilot study guided the researcher in developing a conceptual framework by identifying country of operation as a moderating variable.

Drawing upon insights gained from the pilot study and recognising the importance of a comprehensive examination of sustainability communication and social media engagement, this thesis has introduced a conceptual framework and empirically tested it in the markets of Brazil, the UK, and the USA. This framework aims to identify the antecedents of sustainability-related message factors while considering potential moderating effects that may influence brand post engagement on social media. The engagement levels will be measured by the volume of Likes, Comments, and Shares received by the brand posts. By utilising this conceptual framework, a deeper understanding of the dynamics between sustainability communication and social media engagement can be achieved, shedding light on the factors that drive consumer interactions with sustainable brand messages on online platforms.

3.4 Research Methodology and Data

This research employs both quantitative and qualitative approaches. Firstly, the choice of a quantitative approach is aligned with the philosophical position of positivism and the deductive approach adopted for the study to test hypotheses. The main objective is to analyse the relationship between sustainability-related and social media-related antecedents, the country of operation, and the outcome of brand post engagement. Based on the existing literature and insights from the pilot study, a set of hypotheses and research questions have been formulated to investigate this interplay. The aim is to gain a deeper understanding of how the antecedents influence sustainability communication and engagement with brand posts.

- H1.** The elements of the triple bottom line in brand posts are positively related to brand post engagement.
- H2.** Informativeness in brand posts is positively related to brand post engagement.
- H3.** Firms' CSR attributions in brand posts are positively related to brand post engagement.
- H4.** Brand activism in brand posts is positively related to brand post engagement.
- H5.** Healthfulness in brand posts is negatively related to brand post engagement.
- H6.** Vividness moderates the relations between brand post engagement and its antecedents.
- H7.** Message appeal moderates the relations between brand post engagement and its antecedents.

H8. Country of operation moderates the relations between brand post engagement and its antecedents.

As discussed in Chapter 2, the provided hypotheses aim to answer what principles of sustainability-related and social media-related factors determine a brand's post engagement and what the associations are between the country of operation and post engagement. To answer these questions and investigate the hypotheses, a quantitative method is employed.

In marketing literature, a positivist approach relies on quantitative research, using numerical representations of the issues and research questions that marketing academics are aiming to solve (S. D. Hunt, 2010). Accordingly, to examine how online posts created by companies are perceived by Internet users, social media data analysis is conducted, and hypotheses are tested by a hierarchical regression model. This method is common and beneficial in organisational research on social media analysis (Chrysochou and Festila, 2019). Indeed, the explanatory power of the hierarchical regression model helps to compare findings favourably with that of prior studies such as Banerjee and Chua (2019), de Vries et al. (2012), as well as Dunn and Harness (2018). The details of regression are discussed in Section 3.4.3.1, and the findings are presented from Chapter 4 to Chapter 7.

Secondly, the quantitative approach is supported with qualitative content analysis. In communication science, Lock and Seele (2015) highlighted the significance of quantitative content analysis as a means to comprehend the underlying content of communication concerning a company's ethical and sustainable practices. Drawing inspiration from prior research on social media (Laestadius, 2018; Murthy, 2018; Niu, 2019; Vitak, 2018), this study employs a qualitative content analysis approach to examine brand posts that elicit the most user comments. The content analysis is applied to comments collected from selected social media platforms and sample brands. This systematic technique enables the examination of consumer responses to message content across various media platforms (Kassarjian, 1977).

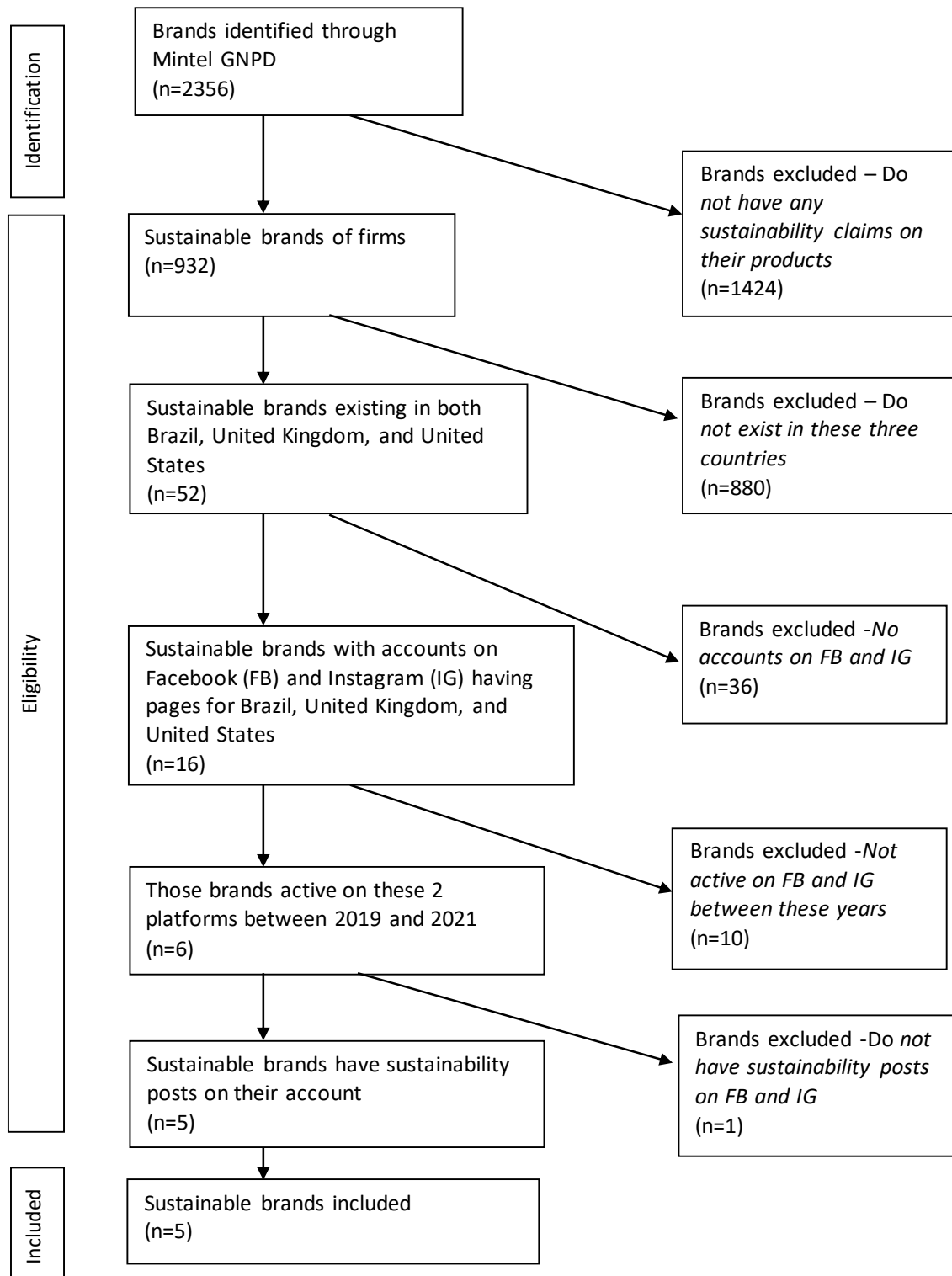
Before moving to the data and measurement discussion, the sample was identified. In line with the research problem, brand- and country-level approaches have been endorsed, rather than the entire industry. The following sections explain the sample approach and design.

3.4.1 Sample Design, and Procedures of Brand Selection

As discussed in the pilot study, this research's sample builds on the list of Global 100 Sustainable Corporations by Corporate Knights, and the list includes food firms between 2009 to 2019. This index has been chosen due to its rigorous comprehensive methodology and credibility among the business and academic world. (For further information, see Appendix B.) As different sustainability indexes (OXFAM, ATNI, and Corporate Knights) have been discussed in Section 3.3.1, these indexes measure sustainability at the firm level, not at the brand level. This research is a brand-centric study. In this research, Mintel GNPD is used to obtain sustainability information at the brand level. As there is no brand-based sustainability index, the Mintel GNPD database became a significant part of this research, as it was used to screen and identify sustainable brands product by product. Accordingly, all listed 19 food firms among the top 100 chosen by Corporate Knights were screened through the Mintel GNPD database during the procedures of sustainable brand selection.

This research tests and investigates brands' social media strategies. Thus, firms' social media motivation was also considered before starting the selection of sustainable brands. Firms' products were checked one by one through Mintel GNPD – whether the products have social media presence on their package. Apart from AAK and Companhia Brasileira de Distribuição, the firms were motivated to use social media presence on their packaged food products. Thus, these latter two firms were removed from the sample. Consequently, 17 food firms were identified through the database and their brands (n=2356) were included in the screening process.

The sample of brands selected for this study relied on several criteria. Figure 3.5 presents sample brand procedures based on the literature review and the pilot study.



* Brands position their products with one or more of the following sustainability claims; ethical – environmentally friendly package, ethical – environmentally friendly product, ethical – human, ethical – recycling, ethical – sustainable (habitat/resources), ethical – charity, ethical – animal, ethical - toxins free.

Figure 3.5 Screening criteria for sustainable brand selection
Source: The Author

Figure 3.5 shows that 2,356 brands were identified through Mintel GNPD from 17 food multinationals. Firstly, sustainable brands were selected, and the others were eliminated. Accordingly, 932 brands that claimed one or more sustainability features on their products were distinguished. Next, specific country operations were checked, and 52 sustainable brands were identified in Brazil, the UK, and the USA. Then, Facebook and Instagram accounts were checked for each brand across these three countries and 16 brands were identified. Lastly, these 16 brands' Facebook and Instagram pages were checked for the three countries as to whether they were active in 2019, 2020, and 2021. Brands were checked regarding if they had sustainability-related posts on their accounts, so one brand has been excluded due to not having sustainability messages on Facebook and Instagram. As a result, five brands, which are Ben & Jerry's, Hellmann's, Activia, Knorr, and Coca-Cola, were obtained and selected for the sample of this research. The finalised sample is presented in Table 3.4, which shows selected brands with social media accounts (Facebook and Instagram) of the country that it belongs to.

Table 3.4 Selected sustainable food brands with their social media accounts

Brand	Parent Company	Logo	Facebook Account Name	Instagram Account Name
Ben & Jerry's	Unilever		benjerrybr (Brazil)	benandjerrysbr (Brazil)
			benandjerrysUS (USA)	benandjerrys (USA)
			benjerryuk (UK)	benandjerrysuk (UK)
Coca-Cola	The Coca-Cola Company		CocaColaBrasil (Brazil)	cocacola_br (Brazil)
			CocaColaUnitedStates(USA)	cocacola (USA)
			cocacolaGB (UK)	cocacolaeu (Great Britain&Ireland)
Hellmann's	Unilever		hellmannsbrasil (Brazil)	hellmannsbr (Brazil)
			hellmannsus (USA)	hellmannsmayonnaise (USA)
			hellmannsuk (UK)	hellmannsuk (UK)
Activia	Danone		activia.brazil (Brazil)	activiabrasil (Brazil)
			activia.usa (USA)	activiaus (USA)
			activia.uki (UK)	activiauk (UK)
Knorr	Unilever		KnorrBrasil (Brazil)	knorrbrasil (Brazil)
			Knorr (USA)	knorr (USA)
			knorruk (UK)	knorruk (UK)

As Table 3.4 shows, Ben & Jerry's, Coca-Cola, Hellmann's, Activia, and Knorr were selected as the sample and their social media data will be collected from the accounts mentioned in the table (See brand information in Appendix J). Accordingly, 30 social media pages will be analysed for the brands' posts from 2019 to 2021.

3.4.2 Data and Data Collection

Related studies on social media have often relied on datasets that are limiting in scope. For example, some datasets were restricted to only the Facebook platform, without considering other social media platforms that are equally important from the point of view of firms' strategies for sustainability (Galati et al., 2019). Some datasets were limited temporally, as they only covered a twelve-month period (Dolan, Conduit, and Fahy, 2018), thereby not allowing a trend analysis over time. Of late, communication and marketing scholars have been particularly vocal in calling for further research involving a wider context of investigation regarding more than one social media channel, a wider time scope, and uncovered determinants in users' intention to Like, Comment, and Share/retweet on social media (Banerjee and Chua, 2019; Uzunoglu et al., 2017).

Guided by the prior research of Banerjee and Chua (2019), visual content (pictures, animations, videos), post captions, submission days, and the number of Likes, Comments, Shares, and users' comments have been archived. An Excel code sheet has been developed to record this information and a Word document has been developed to record comments from the most commented-on posts. As displayed in Table 3.4, data for this study were collected from the Facebook and Instagram pages of Ben & Jerry's, Coca-Cola, Hellmann's, Activia, and Knorr, in accounts of the USA, the UK, and Brazil. All social media data was manually collected online from the official fan pages of these brands. In total, data was gathered from 30 accounts, covering all sustainability-related posts for these brands from 2019 to 2021. To clarify the process of inclusion and exclusion; if a brand post made any reference to elements related to sustainability, it was considered for inclusion in the dataset. Conversely, if a brand post was not relevant to sustainability-related messages, it was excluded from the dataset (Refer to Appendix L for a detailed example).

All posts were posted within a span of one year before and one year after COVID-19: between 2019 and 2021. The first year is the pre-COVID-19 period and the next year the COVID-19 period. Since the first COVID-19-themed sharing on social media was posted on 6 March 2020 by Coca-Cola on both Facebook and Twitter, pre-COVID ended in March 2020 (Gerritsen et al., 2021). Consequently, the pre-COVID period includes brands' posts in 2019, the first COVID-19 outbreak period covers brands' posts in 2020, and the post-COVID outbreak period covers 2021.

3.4.2.1 Research Media: Facebook and Instagram

Facebook and Instagram were selected as the primary platforms for this research due to their acknowledged significance in the realm of business research (Kircova et al., 2018). Section 2.2.3 delved into the other digital platforms including Twitter, TikTok and YouTube. These platforms were found to have their limitations which encompassed a lack of user interaction or even no response (Alboqami et al., 2015), a lack of sustainability-related dialogues by brands (Okazaki, Plangger, West, and Menendez, 2020), and a predominant focus on purposes such as entertainment, particularly in the case of TikTok (Wahid et al., 2023) (Please refer to Table 2.1 for a breakdown of the various purposes served by other social media platforms in marketing.).

Facebook and Instagram, on the other hand, provide a more stable and conducive environment for your research. . As mentioned in Chapter 2, Facebook serves as a vital source of information about brands and products for consumers while acting as the primary social media network for marketing purposes, facilitating stakeholder-brand dialogues in sustainability communication (Lee et al., 2013; Uzunoglu et al., 2017). Instagram, on the other hand, is a powerful platform for visual storytelling and brand engagement, making it a valuable source of visual content for online brand engagement (Highfield and Leaver, 2014). These platforms offer a robust and engaging environment for the study of sustainability communication within the context of your research. Additionally, These platforms have also been frequently used in food industry and sustainability studies (Bragg et al., 2019; Uzunoglu et al., 2017), making them relevant choices for examining sustainability communication and engagement intention. Thus, Facebook and Instagram were chosen for investigation in this thesis. The following paragraph explains Facebook and its data collection with the challenges, then Instagram has discussed.

Firstly, Facebook-related data have been explored through a wide range of theories and methods across studies in different fields in order to evaluate topics from the site's role in accruing social support for the relationship between site use and educational outcomes (Vitak, 2018). Depending on methodological choices upon sampling techniques and data sources, there will be several challenges in using Facebook in the research. Thus, this section discusses these challenges and explains the method of studying Facebook around sampling, data sources, and analysis.

The current literature on Facebook studies maintains that it is noteworthy that multiple data collection and both quantitative and qualitative analysis methods are used within the same study, including content analysis, regression, descriptive and inferential statistics (Niu, 2019). Indeed, regression and inferential statistical methods benefit from comparing brands' post engagement and use qualitative data collected from comments to evaluate users' engagement and scepticism in this thesis. The adoption of multiple data collection provides enriched information sources and the combination of quantitative and qualitative analysis portrays the usage and effectiveness of Facebook more comprehensively from firm and user perspectives (Niu, 2019).

It is a challenge of Facebook research that the data cannot be collected by using automated scripts from particular networks, since this practice has been prohibited by the company's Terms of Service policy (Vitak, 2018). Therefore, in this thesis, data collection from Facebook has been done through a less sophisticated method, which is a manual collection from brands' fan pages. Moreover, the data analysis method selected was quantitative and qualitative content analysis. Correspondingly, the posts from each of the selected brands' fan pages (see Table 3.4, p. 102) have been admitted into the dataset, which will result in a set of five brands uniformly distributed across the three countries within a lifespan of three years (five brands x three countries x three years). The following fields are archived: comments from the most commented-on posts, content, submission date, and the volumes of Likes, Comments, and Shares. This sampling represents a wider context of investigation compared to previous works such as De Vries et al. (2012) and Khan et al. (2016), which analysed 355 posts from 11 fan pages and 1922 posts from 15 fan pages. In their study, Lee et al. (2018) analysed 100,000 posts; however, the scope is limited within the US. Banerjee and Chua (2019) analysed 10,000 posts, but their dataset includes brands' global fan pages on Facebook, which is not country specific and a comparative study. This makes this thesis the first investigation focusing on sustainability communication through brand messages on social media within a wider context.

Secondly, Instagram is other medium of this thesis, due to its rich data combining visual imagery with captions, hashtags, and comments (Highfield and Leaver, 2014). Importantly, previous studies on Instagram have shown that methodological choices on sampling techniques and data analysis might be different depending on the context and the purpose of the research (Kircova, Yaman, and Kose, 2018; Laestadius, 2018).

The data collection involves manually collecting posts from selected brands' fan pages on Instagram, as well as capturing user comments on these posts. The content analysis method is then used to examine the textual content with the vividness of both brand posts and user comments in order to gain insights into sustainability communication and engagement intention. Similar to Facebook analyses in this thesis, Instagram data covers five brands across three countries within a lifespan of three years (five brands x three countries x three years).

Informed by prior studies on Instagram (Bragg et al., 2019; Kircova, Yaman, and Kose, 2018; Laestadius, 2018; Martino et al., 2021), content analysis is extensively employed, due to the fact of making research replicable and having inferences from texts to the other contexts (Krippendorff, 2004). In the light of these studies, the analysis in this thesis is carried out using both quantitative and qualitative content analysis. This approach is conducted for two reasons. First, quantitative methods benefit from focusing on the reactions of consumers (number of likes and comments) to the posts made by brands on their fan pages (Cvijikj and Michahelles, 2013; Mishra and Mishra, 2017; Olczak and Sobczyk, 2013). In parallel with this reason, regression and inferential statistical methods will be used to compare brands' post engagement on Instagram. Second, qualitative methods provide a guide with which to examine consumers' admiration or scepticism related to engagement, based on the personal experiment on Instagram (Clark et al., 2017; Hollebeek et al., 2014; Kircova, Yaman, Kose, 2018; Pongpaew et al., 2017). Correspondingly, qualitative analysis will be used to evaluate users' engagement through the comments collected from the most commented-on posts.

3.4.3 Measurement, Coding and Quantitative Content Analysis

This research compares the content types of posts on social media with the volumes of Likes, Comments, and Shares. Related studies on social media data analysis (Banerjee and Chua, 2019; Bragg et al., 2019; Khan, Dongpin, and Wahab, 2016) have indicated that content analysis is commonly used to identify favourable antecedents in brands' social media posts on Facebook and Instagram. The content analysis relies on a summary of quantitative analysis of messages through a systematic and objective method for comparing the large sample of communication content types and channels (Bronstein, 2013; Luarn et al., 2015; Yun et al., 2008). Therefore, content analysis is appropriate in this research.

Regarding the coding procedure, the coding protocol and the coding schema were developed by the author and inspired by the related studies of Banerjee and Chua (2019) and De Vries et al. (2012). Table 3.5 provides the coding schema for the quantitative content analysis of this thesis. Antecedents with dimensions that refer to the tenets of post engagement of brands in sustainability communication are the independent variables of this research. Remarks reflect coding related to sets of message factors.

Table 3.5 Coding schema for the quantitative content analysis

Antecedents of dimensions	Remarks for coding	Reference
<u>Sustainability-related message factors</u>		
<i>Triple bottom line</i>		
Economic sustainability	1: Posts highlight firms' economic sustainability effort 0: Otherwise	Ozanne et al. (2016)
Environmental sustainability	1: Posts highlight firms' environmental sustainability effort 0: Otherwise	Ozanne et al. (2016)
Social sustainability	1: Posts highlight firms' social sustainability effort 0: Otherwise	Ozanne et al. (2016)
<i>CSR attributions</i>		
Egoistic driven attribution	1: Posts to gain publicity 0: Otherwise	Dunn and Harness. (2018)
Strategic driven attribution	1: Posts with sustainability effort to contribute firms' profit 0: Otherwise	Dunn and Harness. (2018)
Values driven attribution	1: Posts highlight to give back to the community 0: Otherwise	Dunn and Harness. (2018)
Stakeholder driven attribution	1: Posts reflect sustainability effort by stakeholder demand 0: Otherwise	Dunn and Harness. (2018)
Brand Activism	1: Posts contains activist messages 0: Otherwise	Vredenburg et al. (2020)
Informativeness	1: Posts contain sustainability facts 0: Otherwise	Newman, Gorlin and Dhar. (2014)
Healthfulness	1: Posts highlight health claims such as organic, vegan, non-dairy "free from", "less", "reduced", etc. 0: Otherwise	Horvat et. Al, 2019
<u>Content Characteristics</u>		
Vividness	1: Posts contain picture 2: Posts contain animation	de Vries et al. (2012)

Cont'

Antecedents of dimensions	Remarks for coding	Reference
	3: Posts contain video	
Affective Appeal	1: Posts appeal positive emotions such as joy, happiness 0: Otherwise	Cvijikj and Michahelles. (2013)
Rational appeal	1: Posts appeal utilitarian benefits such as hint, alternative solutions 0: Otherwise	Kamrath et al. (2019)
<u>Country of Operation</u>	1: United States of America 2: United Kingdom 3: Brazil	

*When a post meets multiple criteria, it is coded at the highest possible level

All 14 determinants identified in the conceptual framework were discussed in Chapter 2 (Figure 2.4, page 76) and will be measured using quantitative content analysis, as Table 3.5 shows the coding schema of antecedents of sustainability-related messages, social media, and country of operation. The data was manually coded as based on the coding schema above. The illustrative examples of coding were also provided in Appendix M. The reliability of coding will be discussed in Section 3.4.5.1.

For sustainability-related message factors, the triple bottom line is divided into three variables. Accordingly, posts that highlight economic effort or profit are coded as economic sustainability; those that highlight the environment or planet are coded as environmental sustainability; and posts that highlight social issues are coded as social sustainability (Ozanne et al., 2016). CSR attributions are divided into four variables. Accordingly, posts that take advantage of a cause or non-profit efforts are coded as egoistic-driven attributions; those that highlight strategic goals of keeping customers inherent in the existence of a firm as a social actor are coded as strategic-driven attributions; those that highlight CSR as ethical, moral, and societal ideals are coded as values-driven attributions; posts that highlight CSR motivation as customers, stakeholders, and community demand are coded as stakeholder-driven attribution (Dunn and Harness, 2018). Those that convey activist messages are coded as brand activism (Vredenburg et al., 2020). Posts that give sustainability information about the brand or product, or contain sustainability facts, are coded as informativeness (Newman, Gorlin, and

Dhar, 2014). Posts that highlight health claims of food products are coded as healthfulness (Horvat et al., 2019).

For content characteristics, vividness ranges from videos (highest) and animations to images and text-only (lowest) (de Vries et al., 2012). Within the dataset, all brand posts contain either pictures, animations, or videos. Text-only posts were not identified; thus, text was not included as a coding variable. Posts that focus on positive emotions are coded as affective appeal (Cvijikj and Michahelles, 2013), whereas posts that reflect benefits are coded as rational appeal (Kamrath et al., 2019). 'Country of operation' includes the United States of America, the United Kingdom, and Brazil, as obtained by the pilot study. In the coding process, when a post meets multiple criteria it is coded at the highest possible level (See appendix M for the illustrative brand post examples).

3.4.3.1 Data Analysis of Quantitative Content Analysis

Guided by prior research (Banerjee and Chua, 2019; de Vries et al., 2012; Khan, Dongpin, and Wahab, 2016; Zhang and Peng, 2014), hierarchical regression is used for data analysis, with Likes, Comments, and Shares as the three dependent variables. According to Cohen et al. (2013), hierarchical regression analysis is assessed to analyse the unique contribution of blocks of independent variables in the explanation of dependent variables. In this analysis, variables are entered stepwise to test the significant main effect on the relationship between independent and dependent variables. In the first step of regression, controlled variables are entered before the independent and moderator variables, and in the second step independent and moderator variables are entered (Khan, Dongpin, and Wahab, 2016) in order to identify key tenets in the high volume of engagement with sustainability communication on social media platforms. This process helps calculate the main effect of variables on dependent variables.

3.4.4 Measurement, Qualitative Content Analysis, and Data Collection

Taking a cue from studies on social media (Laestadius, 2018; Murthy, 2018; Niu, 2019; Vitak, 2018), qualitative content analysis is conducted to analyse the brand posts that users comment on the most. Content analysis is applied to comments from Facebook and Instagram fan pages of Ben & Jerry's, Hellmann's, Activia, Knorr, and Coca-Cola. This content analysis is

a systematic technique that helps analyse consumer responses to message content across all forms of media (Kassarjian, 1977).

Respectively, a total of 84 posts with comments have been identified and admitted into the dataset. These data have been collected from brands' content of three years (five brands x two fan pages - Facebook and Instagram - x three countries), resulting in 5,810 comments in total. However, there are six missing brand posts in the dataset, as there were no sustainability-related postings from certain brands in specific years and countries. The missing posts include Hellmanns' Brazil on Facebook in 2021 and on Instagram in 2019, Activia UK on Facebook in 2021, Activia Brazil on Facebook in 2020, and Coca-Cola USA on Facebook in 2021 and Coca-Cola Brazil in 2021. These missing posts were excluded from the analysis due to their absence in the data.

All the collected comments were recorded in a Word document. To analyse these comments, the researchers chose to use Computer-Assisted Qualitative Data Analysis Software (CAQDAS), specifically the ATLAS.ti program. The decision to use CAQDAS was based on its efficiency in storing, organising, managing, and reconfiguring data to facilitate human analytic reflection, as highlighted in the literature (Saldana, 2016). Additionally, the software allows for inter-coder reliability tests, ensuring the consistency and accuracy of coding across researchers. Figure 3.6 provides a screenshot from the ATLAS.ti CAQDAS software, illustrating its usage in coding and analysing the comments for this research.

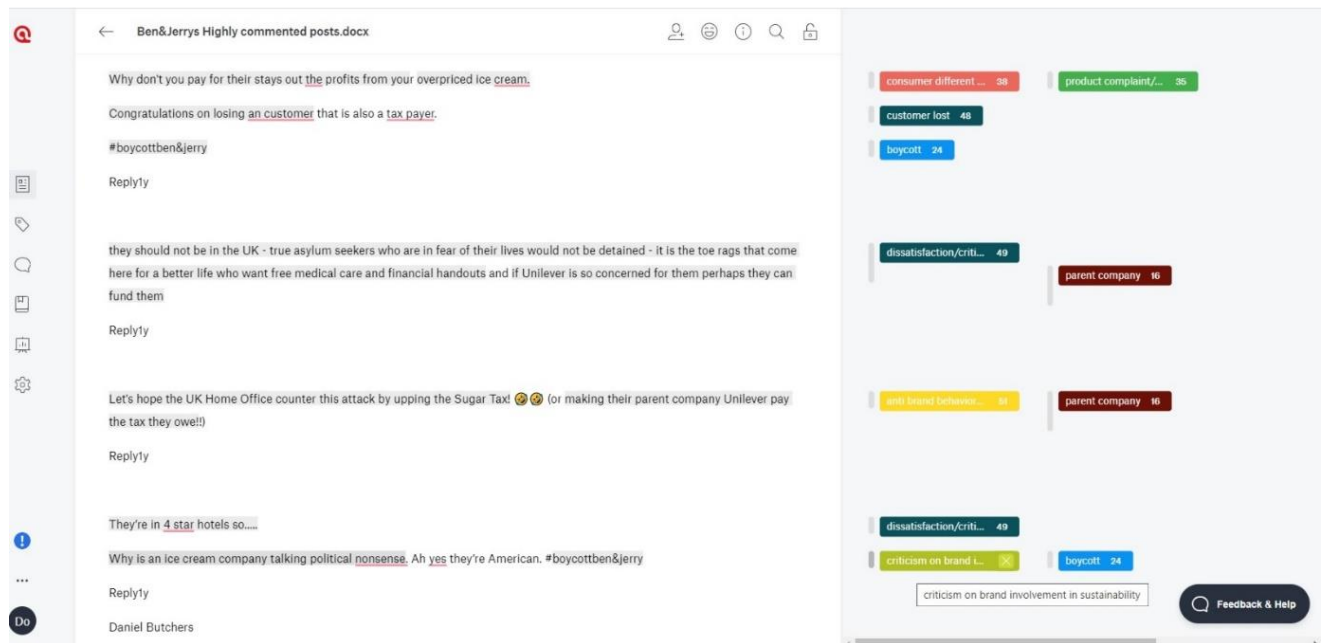


Figure 3.6 A screenshot excerpt from ATLAS.ti for qualitative analysis of Ben&Jerry's

Figure 3.6 presents a snapshot of the coding process applied to a Ben & Jerry's brand post. The same coding procedure was also used for the highly commented-on posts of Hellmann's, Activia, Knorr, and Coca-Cola. The next section of the study provides a detailed explanation of the coding procedure and the data analysis carried out using the coded data. It will delve into how the user comments are categorised and organised based on different themes, and how they draw meaningful insights related to sustainability communication and engagement intention on social media.

3.4.4.1 Data Analysis of Qualitative Content Analysis

The data analysis in this research was developed by the author and was inspired by related studies conducted by Banerjee and Pal (2021) and Bronstein (2013). Consequently, the research employs a qualitative, exploratory, and inductive methodology. The analysis method utilised in this study is called thematic content analysis, which helps in identifying patterns of themes within the data and creating codes accordingly (Boyatzis, 1998). The codes are derived from the patterns found in the data, describing the possible observations and interpretations (Braun and Clarke, 2006). This analysis allows this thesis to provide a deeper understanding of consumer insights into the sustainability communication and engagement intention themes emerging from the user comments on Facebook and Instagram.

Figure 3.7 provides an illustration of the codifying process, showcasing how the data is transformed into assertions or theories through the analysis of themes and patterns within the dataset.

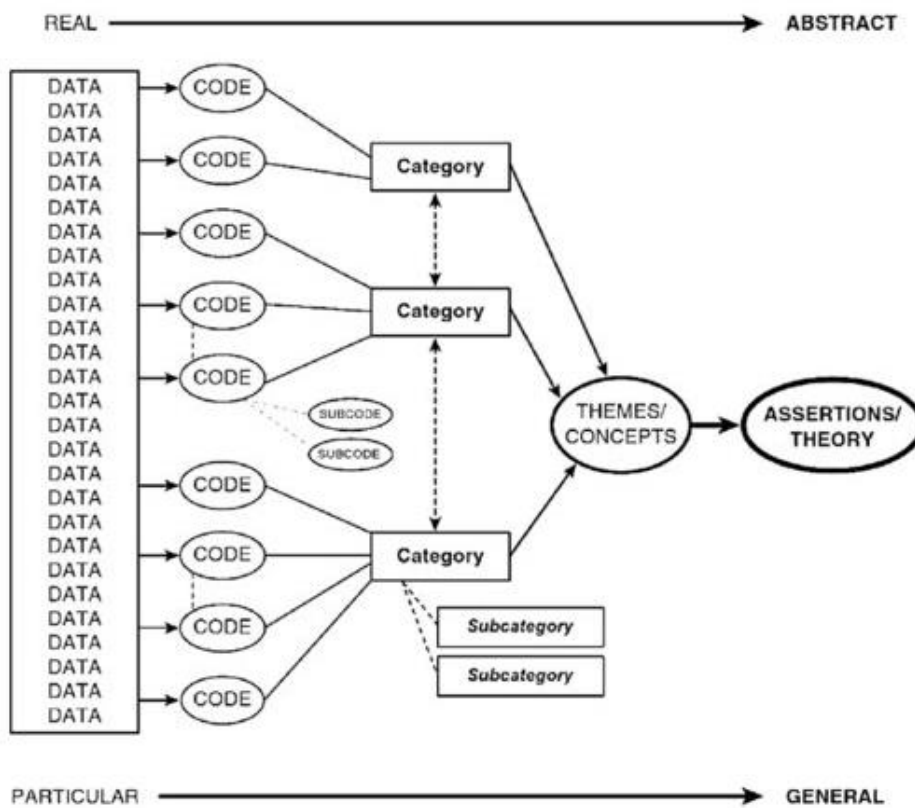


Figure 3.7 A streamlined codes-to-theory model for qualitative inquiry
Source: Saldana (2016)

As depicted in the figure, the development of theory in this research is achieved through the categorisation of the coded data into themes. The systematic analysis of these themes and concepts leads to the formulation of the theory (Corbin and Strauss, 2015). The coding process used in this thesis is termed "open coding," which represents the initial step in the coding cycle (Braun and Clarke, 2006; Saldana, 2016). During open coding, all the comments were read line by line to generate initial "codes" or labels for different aspects of the data. Simultaneously, the encoded data were examined and compared to identify similarities and differences, leading to the discovery of new codes or the assignment of comments to existing codes (Corbin and Strauss, 2015). This approach allows for the emergence of all possible patterns and theoretical directions within the data (Banerjee and Pal, 2023; Charmaz, 2014).

In line with the principle of thematic analysis, all the data, consisting of 84 posts with 5,810 comments, were meticulously identified and coded into their respective categories. The coding process continued until the categories reached a point of saturation, meaning that no new categories or themes were emerging from the data (Bronstein, 2013). At this stage, all the relevant information and insights from the comments had been captured and organised into meaningful categories.

Subsequently, the emergent categories were further examined and consolidated into more general themes based on their logical connections and relationships, as suggested by Banerjee and Pal (2021). This process of theme consolidation helped in grouping related categories, allowing for a coherent and comprehensive representation of the sustainability communication and engagement intention aspects present in the data.

3.4.5 Issues of Validity, Reliability, and Model Testing

A large dataset obtained from social media do not address the long-standing issues of validity, reliability, and model testing (Banerjee and Chua, 2019). Therefore, each of these is discussed in this section.

In terms of quantitative analysis, the research has taken measures to ensure the validity of the variables identified in the conceptual framework by conducting an in-depth review of the relevant literature. This approach is in line with recommendations from previous research by Banerjee and Chua (2019) and Chen et al. (2014). Through this comprehensive literature review, the 14 determinants included in the conceptual framework have been theoretically supported and justified. To test the model, the research utilises hierarchical regression, a commonly used statistical method for examining the relationship between variables. This technique allows for the investigation of how different predictors contribute to the variance in the dependent variable while controlling for other variables. By employing hierarchical regression, this research can assess the relative importance and contribution of each tenet in explaining the effect of sustainability communication on brand post engagement.

Moreover, the research has addressed the issue of multicollinearity, which occurs when two or more predictors are highly correlated with each other. High multicollinearity can affect the stability of the regression coefficients and lead to unreliable results. To mitigate this problem, the research has tested for multicollinearity and reports that all variance inflation factor (VIF)

values were below 10, indicating that multicollinearity is not a significant concern. This research also applied logarithm transformation to address the skewness of several key variables, including the three dependent variables (Likes, Comments, and Shares), the moderating and control variables, as well as the independent variables. This transformation technique, as suggested by previous research (Luarn et al., 2015; Sabate et al., 2014), helps normalise the distribution of these variables, allowing for more accurate and robust statistical analysis. Furthermore, the pairwise correlations among variables were also examined, and no correlation above 0.6 was found, further supporting the validity and reliability of the regression analysis.

To ensure the explanatory power of the conceptual framework, two control variables have been included. The first control variable is the submission frequency for a given social media account. The rationale behind including this control variable is that the frequency of posting on a social media account may influence the chances of a post attracting a higher number of Likes, Comments, and Shares, particularly about general content. By controlling for submission frequency, the research aims to isolate the specific effects of sustainability messages on engagement intention, independent of the posting frequency.

The second control variable is the number of followers for each social media account. The number of followers is a critical metric, as it reflects the size of the audience reached by the brand's posts. Brands with larger followings are likely to have a higher potential for engagement, as their posts can reach a more extensive user base. By including the number of followers as a control variable, the research aims to account for the influence of the brand's social media reach on engagement intention, allowing for a more accurate assessment of the effects of sustainability messages on user engagement.

In terms of qualitative analysis, the initial content analysis findings were shared with an independent researcher for validity purposes (Bronstein, 2013). The validation concept included in the identified themes is collective judgement and whether its measures are valid (Bernard and Ryan, 2010). By involving an external expert, the research aims to obtain an objective perspective on the analysis and ensure that the measures used in the analysis are as precise as reasonably possible (Neuendorf, 2002).

The validation concept employed in this process, as described by Bernard and Ryan (2010), focuses on assessing whether the measures used in the analysis are valid and whether the qualitative analysis accurately reflects the full domain of the concepts being measured. This approach aims to confirm the credibility and authenticity of the themes identified in the analysis.

To carry out the validation procedure, the most commented 27 posts from the dataset (five brands x two fan pages x three countries x one year) were selected, totalling 1,463 comments. These posts and their corresponding comments were presented to the independent researcher for review and feedback. The results of the tests are presented in the following section.

3.4.5.1 Inter-coder Reliability Test

In terms of quantitative analysis, the research established an inter-coder reliability test to ensure the reliability of coding the variables, following the procedure adopted by Shen and Bissel (2013) and Pinto and Yagnik (2016). The goal of this test was to assess the consistency and agreement between two trained coders in their coding judgments.

To conduct the inter-coder reliability test, the initial portion of the sample (300 posts) was coded by one trained coder. Subsequently, fifty-five per cent (165 posts) of these posts were randomly selected and independently coded by a second trained coder. Both coders were provided with clear instructions and definitions to maintain consistency in their coding process. During a training session, both coders independently analysed the posts from the coding sample, compared their results, and discussed any discrepancies to reach a consensus. This iterative process continued until a high level of inter-coder reliability was achieved. Inter-rater reliability test, also known as Cohen's Kappa test, was then performed on all the determinants in the study to calculate the level of agreement between the two coders. The method used to calculate inter-coder reliability followed the approach outlined by Perreault and Leigh (1989). The acceptable range for Cohen's Kappa is typically considered to be between 0.8 to 1.0, indicating substantial agreement.

In this thesis, the overall coefficient of reliability for the 14 determinants in the study was found to be 0.87, which falls within the acceptable range. This indicates that there was sufficient inter-coder reliability between the two coders in their judgments. The high level of

agreement in the coding process enhances the reliability and validity of the quantitative analysis results, ensuring that the data are accurately and consistently interpreted.

In terms of qualitative analysis, an independent coder was involved in an inter-coder reliability test to check the coding was not idiosyncratic (Bernard and Ryan, 2010). As found in content analysis studies, the reliability sample size ranges from 10% to 100% of the full sample (Neuendorf, 2002). Correspondingly, 30 per cent of data was independently coded referring to the full one-year data. Indeed, the sample size represented a high proportion of the data. The reliability sample equalled 1,463 comments from five brands and two fan pages (Facebook and Instagram) across three countries (the USA, the UK, and Brazil) in 2021. During the inter-coder reliability test, the independent coder coded the same set of data independently. The final percentage of agreement for all coding decisions was found to be 95%, which indicates a high level of consistency and reliability in the coding process. Any disagreements that arose during the coding were resolved through discussion and cross-checking, ensuring that the final coding decisions were accurate and aligned with the data.

The high level of agreement in the inter-coder reliability test confirms that the coding classification is reliable (Bronstein, 2013). The involvement of an independent coder and the use of a representative sample for the test adds credibility to the qualitative analysis findings, indicating that the identified themes and interpretations are robust and well-supported by the data. Overall, the inter-coder reliability test enhances the validity and rigour of the qualitative analysis and contributes to the overall credibility of the research outcomes.

3.5 Summary

In this chapter, the research strategy and design employed to test hypotheses and answer the research question have been thoroughly described. The study utilises both quantitative and qualitative methods, making use of a highly structured large sample of brand posts along with user comments. The research conceptual framework, established in Chapter 2, has been integrated with the research designs and approach presented in Section 3.4. This integration helped determine the level of treatments and define the quantitative coding schema, as outlined in Table 3.5.

The research framework serves as a guiding structure for the data analysis process, allowing for the identification and categorisation of key determinants related to sustainability

communication and engagement intention on social media. The quantitative methods employed hierarchical regression to assess the impact of various determinants on user engagement metrics, controlling for submission frequency and the number of followers. The coding schema used for the quantitative analysis was established based on the conceptual framework, ensuring that all relevant variables and factors were appropriately captured and analysed.

Differently, the qualitative methods involved content analysis to identify and explore themes emerging from the user comments and brand posts related to sustainability. The research design for the qualitative analysis, enabling the systematic development and consolidation of themes and concepts that emerged from the data. By integrating the research conceptual framework with the research designs and approach, the study effectively addressed the research question and hypotheses while maintaining a comprehensive and holistic approach to data analysis. This allowed for a nuanced and detailed examination of sustainability communication and engagement intention on social media, generating insightful findings and contributing to the body of knowledge in this area.

Furthermore, it was determined that Facebook and Instagram are the ideal mediums, as they have provided comprehensive understanding and comparison for theory building in this research study. To ensure a wider context of investigation compared to previous studies (Banerjee and Chua, 2019; de Vries et al., 2012; Khan et al., 2016), the dataset includes posts from three different periods: pre-COVID-19 (2019), the first COVID-19 outbreak period (2020), and post-COVID-19 outbreak (2021). This scope allows for a comprehensive analysis of how engagement metrics may have evolved during these distinct phases, offering valuable insights into the engagement behaviour of brands in sustainability communication.

The data were systematically coded for 14 antecedents, as outlined in Table 3.5. These determinants represent the antecedents of post engagement in brands' sustainability communication and serve as the independent variables for this research. By coding and analysing these determinants, valuable insights can be gained into the factors influencing user engagement with sustainability-related content on social media.

In the next chapter, Chapter 4 presents the results of retrieved data analysis from social media, while Chapters 5, 6, and 7 present the results related to social media platforms, brands, and

the impact of the COVID-19 pandemic, respectively. Following this, the discussion chapter (Chapter 8) will provide the reader(s) with a description of themes and concepts that have emerged from the data, which once linked to the relevant literature (Chapter 2), will enable the achievement of this study's aim and the answering of its research questions.

Chapter 4 : Results of The Aggregated Dataset

4.1 Introduction

This chapter presents the results of both quantitative and qualitative analyses of the aggregated dataset that encompasses social media posts from Ben & Jerry's, Coca-Cola, Hellmann's, Activia, and Knorr posted on Facebook and Instagram. The results of quantitative content analysis explore the influence of sustainability-related message factors and moderating effects on brand post engagement that address research questions 1 to 4. Sections 4.1, 4.2, and 4.3 comprehensively explain the findings and assess all hypotheses. Consumer insights are provided to address research question 5 analysing consumer responses. Instead of relying solely on quantitative analysis, qualitative analysis is employed to gauge the impact of the firm's sustainability communication behaviour on consumer responses. The results of how consumers react to the brand's sustainability messages are detailed in the final section of the results chapter.

A summarised representation of the research structure and its corresponding analyses can be found in Table 4.1 below.

Table 4.1 Empirical analysis and research propositions

Antecedents	Method and Statistical Analysis	Treatment	Research Question	Research Proposition
Sustainability-related message factors	Quantitative content analysis with inferential statistics	The volume of Likes, Comments and Shares on FB and IG fan pages	RQ1. How do sustainability-related message factors drive brand post engagement on social media in the food industry?	<p>H1. The elements of triple bottom line in brand posts are positively related to brand post engagement.</p> <p>H2. Informativeness in brand posts is positively related to brand post engagement.</p> <p>H3. Firms CSR attributions in brand posts are positively related to brand post engagement.</p> <p>H4. Brand activism in brand posts is positively related to brand post engagement.</p> <p>H5. Healthfulness in brand posts is negatively related to brand post engagement.</p>
Content characteristics	Quantitative content analysis with inferential statistics	The volume of Likes, Comments and Shares on FB and IG fan pages	<p>RQ2. How does vividness moderate the relationships between sustainability-related message factors and brand post engagement on social media?</p> <p>RQ3. How does message appeal moderate the relationships between sustainability-related message factors and brand post engagement on social media?</p>	<p>H6. Vividness moderates the relations between brand post engagement and its antecedents.</p> <p>H7. Message appeal moderates the relations between brand post engagement and its antecedents.</p>
Country of operation	Quantitative content analysis with inferential statistics	The volume of Likes, Comments and Shares on FB and IG fan pages	RQ4. How does the country of operation moderate the relationships between sustainability-related message factors and the brand post engagement on social media?	H8. Country of operation moderates the relations between brand post engagement and its antecedents.
Consumer response	Qualitative content analysis	Randomly selected 100 comments from highly commented posts per platform	RQ5. What insights can be gained from user comments, based on the firm's communication behaviour?	

As the table shows, this research proposes five main research questions that will be addressed by testing eight hypotheses. The structure of this chapter is as follows, Section 4.2 reports the descriptive statistics of the aggregated dataset and presents the inferential statistics corresponding to the hypotheses H1 through H5. Section 4.3 and section 4.4 compare the moderation effect of content characteristic factors (H6: vividness, H7: message appeal) and country of operation (H8: Brazil, the UK and the USA) respectively. Section 4.5 presents the qualitative analysis of user comments in response to firm's sustainability-related brand posts. The chapter concludes by summarizing the findings and offering a conclusive perspective.

4.2 Quantitative Analysis of The Aggregated Dataset

4.2.1 Descriptive Statistics

Empirically, 3149 posts were analysed from 5 brands' (Ben & Jerry's, Coca-Cola, Hellmann's, Activia and Knorr), social media fan pages (Facebook and Instagram), from three countries (Brazil, the UK, and the USA). These posts were created over a three-year period from January 2019 to December 2021. Table 4.2 summarises the 3149 posts.

Table 4.2 Descriptive statistics of brands' sustainability-related posts across years (N= 3149)

Brand	Country	Platform	Posts in 2019	Posts in 2020	Posts in 2021
Ben & Jerry's	Brazil	Facebook	27	59	57
		Instagram	35	69	63
	UK	Facebook	70	91	69
		Instagram	57	86	83
	USA	Facebook	108	100	99
		Instagram	77	100	102
Hellmann's	Brazil	Facebook	7	13	0
		Instagram	22	52	9
	UK	Facebook	16	30	82
		Instagram	25	38	79
	USA	Facebook	18	16	36
		Instagram	44	20	55
Activia	Brazil	Facebook	2	0	0
		Instagram	30	88	49
	UK	Facebook	1	6	1
		Instagram	3	19	33
	USA	Facebook	13	24	53
		Instagram	16	64	58
Knorr	Brazil	Facebook	2	0	49
		Instagram	5	42	50
	UK	Facebook	19	44	73
		Instagram	27	56	94
	USA	Facebook	10	18	29
		Instagram	8	22	51
Coca-Cola	Brazil	Facebook	7	13	0
		Instagram	2	42	22
	UK	Facebook	6	8	5
		Instagram	7	5	11
	USA	Facebook	1	9	0
		Instagram	16	17	5

Table 4.2 illustrates the posting activity of the five brands, highlighting that Ben & Jerry's exhibited the most extensive posting number, whereas Coca-Cola demonstrated the least active in terms of posts. It is worth noting that the specific reasons for this disparity can vary and be influenced by the brands' strategies and overall business goals. Further insights into brand analysis will be explored in Chapter 6, while the discussion in Section 8.4 will delve into the connection between brand strategies, purposes, and sustainability.

Table 4.3 shows the descriptive statistics of the dataset focusing on the antecedents outlined in the framework, the moderating variables (vividness, message appeal, and country of

operation), as well as the control variables (number of followers on Facebook, number of followers on Instagram, and number of posts per day).

Table 4.3 Descriptive statistics of the dataset (N= 3149)

Variables	Mean	SD	Code Label	Frequency in %
<i>Number of followers</i>				
Facebook	12,406,287.16	19,313,793.97		
Instagram	399,439.03	648,327.74		
<i>Brands</i>				
Ben & Jerry's			1	42.9
Hellmann's			2	17.8
Activia			3	14.6
Knorr			4	19.0
Coca-Cola			5	5.6
<i>Submission frequency in a day</i>	4.3	2.9		
<i>Country of operation</i>				
United States of America			1	37.8
United Kingdom			2	36.3
Brazil			3	25.9
<i>Vividness</i>				
Picture			1	67.7
Animation			2	10.4
Video			3	21.9
<i>Message Appeal</i>				
Affective appeal			1	26.1
Rational appeal			0	73.9
<i>Triple bottom line</i>				
Economic sustainability			1	7.7
Environmental sustainability			2	42.2
Social sustainability			3	50.1
<i>CSR attributions</i>				
Egoistic-driven attribution			1	7.5
Values-driven attribution			2	35.1
Stakeholder-driven attribution			3	16.5
Strategic-driven attribution			4	40.9
Informativeness			1	51.1
			0	48.9
Brand Activism			1	41.1
			0	58.9
Healthfulness			1	46.3
			0	53.7

Table 4.3 demonstrates the degree of mean, standard deviation, and frequency for sustainability-related antecedents, moderating variables and control variables.

4.2.2 Model Development and Inferential Statistics

This section answers RQ1 by using inferential statistics. Inferential statistics provide a systematic way to analyse the relationships and patterns within the sample and then extend those insights to make broader inferences about the entire population of social media posts. This approach ensures that conclusions are statistically valid and applicable beyond the specific sample, making it an appropriate method for addressing RQ1.

First, to answer RQ1 and test 5 hypotheses (H1, H2, H3, H4 and H5) of sustainability-related message factors, hierarchical regression was used for data analysis with Likes, Comments and Shares as the dependent variables. The models are specified as follows:

$$\begin{aligned} \text{Likes} = & \alpha + \beta_1 \text{Economic} + \beta_2 \text{Environmental} + \beta_3 \text{Social} + \beta_4 \text{Informativeness} \\ & + \beta_5 \text{Egoistic} + \beta_6 \text{Strategic} + \beta_7 \text{Values} + \beta_8 \text{Stakeholder} + \beta_9 \text{Brand Activism} \\ & + \beta_{10} \text{Healthfulness} + \varepsilon \end{aligned}$$

$$\begin{aligned} \text{Comments} = & \alpha + \beta_1 \text{Economic} + \beta_2 \text{Environmental} + \beta_3 \text{Social} + \beta_4 \text{Informativeness} \\ & + \beta_5 \text{Egoistic} + \beta_6 \text{Strategic} + \beta_7 \text{Values} + \beta_8 \text{Stakeholder} + \beta_9 \text{Brand Activism} \\ & + \beta_{10} \text{Healthfulness} + \varepsilon \end{aligned}$$

$$\begin{aligned} \text{Shares} = & \alpha + \beta_1 \text{Economic} + \beta_2 \text{Environmental} + \beta_3 \text{Social} + \beta_4 \text{Informativeness} \\ & + \beta_5 \text{Egoistic} + \beta_6 \text{Strategic} + \beta_7 \text{Values} + \beta_8 \text{Stakeholder} + \beta_9 \text{Brand Activism} \\ & + \beta_{10} \text{Healthfulness} + \varepsilon \end{aligned}$$

Each dependent variable (Likes, Comments and Shares) had six hierarchical models of independent variables. Model 1 included the control variables (Number of followers, and Submission frequency in a day) and moderators (Country of operation, Vividness and Message appeal). Model 2 included triple bottom line (Economic, Environmental, Social), Model 3 comprised of Informativeness, Model 4 combined CSR attributions (Egoistic driven attribution, Strategic driven attribution, Values driven attribution, Stakeholder driven attribution), Model 5 had Brand activism and Model 6 included Healthfulness, all of which were explained in section 2.4.

Table 4.4 presents the hierarchical regression results of the final model.

Table 4.4 Standardized regression coefficients of sustainability-related message factors for brand post engagement (N= 3149)

Variables	Likes	Comments	Shares
	Standardized Coefficients β	Standardized Coefficients β	Standardized Coefficients β
Submission frequency in a day	0.03	-0.05**	0.03
Brand	-0.22***	-0.19***	-0.27***
# Followers	-0.09***	0.17***	0.44***
Message appeal	-0.003	-0.016	-0.025
Vividness	-0.01	-0.01	-0.13***
Country of operation	-0.11***	-0.08***	-0.28***
<i>Triple bottom line (H1)</i>			
Economic (1)	-0.04*	-0.05**	-0.09***
Environmental (2)	-0.21***	-0.20***	-0.09**
<i>Informativeness (H2)</i>	-0.08***	-0.07***	-0.03
<i>CSR attributions (H3)</i>			
Egoistic-driven (1)	-0.06***	-0.06***	-0.08**
Values-driven (2)	0.05*	0.03	0.04
Stakeholder-driven (3)	0.03	-0.03	-0.04
<i>Brand activism (H4)</i>	0.01	-0.01	-0.04
<i>Healthfulness (H5)</i>	-0.17***	-0.09***	-0.06
<i>Variance explained</i>			
Model 1 R^2 (ΔR^2)	7.1% (7.1%)***	12.4% (12.4%)***	23.6% (23.6%)***
Model 2 R^2 (ΔR^2)	11.6% (4.5%)***	15.7% (3.3%)***	24.7% (1.2%)***
Model 3 R^2 (ΔR^2)	11.7% (0.1%)	15.9% (0.2%)**	24.8% (0.0%)
Model 4 R^2 (ΔR^2)	13.3% (1.6%)***	16.6% (0.7%)***	26.1% (1.3%)***
Model 5 R^2 (ΔR^2)	13.4% (0.3%)**	16.7% (0.0%)	26.1% (0.1%)
Model 6 R^2 (ΔR^2)	15.4% (2.1%)***	17.2% (0.6%)***	26.3% (0.2%)

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Model 1= Control; Model 2= Triple bottom line; Model 3= Informativeness; Model 4= CSR attribution; Model 5= Brand activism; Model 6= Healthfulness. Bold is used to denote the statistically significant results

Table 4.4 shows that concerning Likes, a statistically significant positive relationship emerged for value-driven CSR attribution ($\beta = 0.05$, $p < 0.05$). In contrast, the number of Likes exhibited statistically significant negative relationships with economic sustainability ($\beta = -0.04$, $p < 0.05$), environmental sustainability ($\beta = -0.21$, $p < 0.001$), informativeness ($\beta = -0.08$, $p < 0.001$), egoistic-driven CSR attribution ($\beta = -0.06$, $p < 0.001$) and healthfulness ($\beta = -0.17$, $p < 0.001$). Among the independent variables, value-driven CSR attribution ($\beta = 0.05$, $p < 0.05$) emerged as

the only determinant of the number of Likes attracted by the sustainability-related brand posts while others turned out to be deterrents. Thus, with respect to Likes in the aggregate dataset, H3 was supported but only in terms of value-driven CSR attribution. H5 also supported. However, H1, H2, and H4 were not supported.

Concerning Comments, no positive relationship emerged. However, number of Comments exhibited a statistically significant negative relationship with the elements of economic sustainability ($\beta = -0.05$, $p < 0.01$) and environmental sustainability ($\beta = -0.20$, $p < 0.001$), informativeness ($\beta = -0.07$, $p < 0.001$), egoistic-driven ($\beta = -0.06$, $p < 0.001$) and healthfulness ($\beta = -0.09$, $p < 0.001$). Thus, with respect to Comments in the aggregated dataset, H5 was supported but the hypotheses H1-H4 were not supported. Interestingly, economic sustainability, environmental sustainability, informativeness, egoistic-driven, and healthfulness factors exhibited negative relationships with Comments. It indicates that these sustainability-related message factors may not resonate as strongly with users in terms of sparking comments. To complement these quantitative findings and gain deeper insights, qualitative content analysis is employed by investigating comments and brand post engagement relationships on sustainability-related messages. The result is presented in Section 4.5.

Concerning Shares, only statistically significant negative relationships emerged for economic sustainability ($\beta = -0.09$, $p < 0.001$) and environmental sustainability ($\beta = -0.09$, $p < 0.01$), and egoistic-driven ($\beta = -0.08$, $p < 0.01$) as determinants of the number of Shares attracted by the sustainability-related brand posts. This result indicates that posts related to economic sustainability, environmental sustainability, and egoistic-driven attributes may not strongly encourage users to share the posts and do not generate behavioural engagement on brands' sustainability posts. Understanding these dynamics can guide brands in crafting more shareable and engaging content related to sustainability-related posts potentially enhancing the reach and impact of their messages.

An inspection of the variance explained by the individual models reveals that the five categories of sustainability-related message factors (triple bottom line, informativeness, CSR attribution, brand activism, healthfulness) do not uniformly contribute to the number of Likes, Comments, and Shares. After accounting for the control and moderating variables (submission frequency in a day, brands, number of followers, message appeal, vividness and country), the largest increment in variance explained was contributed by the elements of triple bottom line

for Likes (from 7.1% to 11.6%, $\Delta R^2 = 4.5\%$), Comments (from 12.4% to 15.7%, $\Delta R^2 = 3.3\%$), and CSR attributions for Shares (from 24.8% to 26.1%, $\Delta R^2 = 1.3\%$). This suggests that the elements of triple bottom line and CSR attributions play a pivotal role in determining engagement with sustainability-related posts. Table 4.5 summarises the findings.

Table 4.5 Summary of findings

Research Question	Hypothesis	Result
RQ1. How do sustainability-related message factors drive brand post engagement on social media in the food industry?	H1	- for Likes, Comments, Shares
	H2	- for Likes, Comments
	H3	- for Likes, Comments, Shares (Egoistic-driven)
		+ for Likes (Values-driven)
	H4	Not supported any relationships
	H5	- for Likes, Comments

Table 4.5 summarises the findings regarding research question 1 and hypotheses 1 to 5. To provide a clearer illustration, Table 4.6 provides examples of social media posts that demonstrate the statistically significant relationships between different sustainability-related message factors and brand post engagement. These examples offer a tangible understanding of how specific factors affect the engagement metrics on the volume of Likes, Comments and Shares. When a relationship is statistically non-significant, no examples provided in the table for those particular combinations.

Table 4.6 Brand post examples on their statistically significant positive and negative predictors of brand post engagement

Result	Likes	Comments	Shares
Statistically significant positive	“values-driven attribution” . Ben & Jerry’s: <i>Did you know that September is bisexual visibility month? At Ben & Jerry’s, we believe that every form of love deserves to be celebrated and respected. Therefore, we support the entire LGBTQIA+ community and its causes. Understand why this group is so important to us, at the link in the bio.</i> (Instagram, Brazil, 2021)	No significant positive relationship was found regarding values-driven attribution with Comments	No significant positive relationship was found regarding values-driven attribution with Shares

Result	Likes	Comments	Shares
Statistically significant negative	<p>“economic”. Coca-Cola: <i>Coca-Cola #ThankYouFund ambassador @petesnossen was in Belfast to visit former Fund recipients @dreamscheme_ni to find out how their grant of €5,000 has helped them support young people disproportionately impacted by the pandemic. €100,000 is once again available to non-profit groups with ideas to inspire and support young people to build better futures for themselves. Apply for grants of €5,000 or €10,000 before 16th July via link in bio. (Instagram, UK, 2021)</i></p> <p>“environmental”. Knorr: <i>The secret is this: Homemade Knorr Seasoning Made with 100% natural ingredients, it gives that chef flavor to your steak and to all grilled and braised. 🍴🍴 Super practical, fresh and very tasty. Plus, our packaging is also recyclable, meaning Knorr Homemade Seasoning is good for you and the planet! ❤️ So, which recipe will you turn into a chef's dish? #knorrbrasil #temperocaseiro #temperoknorr #bife #receitadechef (Facebook, Brazil, 2021).</i></p>	<p>“economic”. Ben & Jerry's: <i>The Fairtrade cocoa in Chocolate Fudge Brownie is sweeter than you may realise. Fairtrade means fair prices for farmers so that they can adapt to the impact of climate change and invest back into their communities. Pretty sweet, hey! (Facebook, UK, 2021)</i></p> <p>“environmental”. Activia: <i>Wasting nothing, tasting everything. When you can't hit the grocery as much as usual, you get creative! Here are just a few delicious ways to incorporate our probiotics into your meal plan: - An Activia smoothie made with a few those fruits on the counter 🍌 - A perfect parfait 🍓 - A homemade granola bowl topped with your fav yogurt flavor 🍌 *Enjoying Activia twice a day for two weeks as part of a balanced diet and lifestyle may help reduce frequency of minor digestive discomfort, which includes bloating, gas, rumbling, and abdominal discomfort. (Facebook, USA, 2020)</i></p>	<p>“economic”. Ben & Jerry's: <i>Capitalism works great when it comes to, say, selling ice cream. Not so much when it comes to saving the world. That's why we need the Green New Deal.</i></p> <p>BENJERRY.COM The Green New Deal: Saving Capitalism, Saving the Planet (Facebook, USA, 2019)</p> <p>“environmental” Ben & Jerry's: <i>Climate change could lead to the loss of some of the key ingredients in our ice cream. In addition, it more aggressively impacts marginalized and front line communities. In the next few days, COP26, a major meeting of global leaders on climate change, where countries will update their emissions reduction goals. It's important to follow up to ensure that everyone will do their part. Learn more about what we've been doing to reduce our impact and fight for climate justice at: https://www.benandjerry.com.br/.../ben-jerrys-fighting... (Facebook, Brazil, 2021)</i></p>

Result	Likes	Comments	Shares
Statistically significant negative (Cont')	<p>"informativeness". Activia: <i>#DidYouKnow our pots are made from PET plastic which means they don't need to be separated from the banderole to be recycled!?</i> <i>#RecycleWeek @recyclenow_uk</i> (Instagram, UK, 2021)</p>	<p>"informativeness" Knorr: <i>Our food starts long before the moment of consumption. Did you know that just 12 plants and 5 animal species make up 75% of what the entire world population eats? To collaborate with a necessary change of habits, we are already growing our ingredients in a sustainable way and we want to inspire you in small daily changes that will make a big difference. To value a healthier, more nutritious and complete diet is to value small producers, prioritize seasonal foods and reduce meat consumption, or seek to know if it comes from producers committed to the quality and welfare of animals, and above all, to give everyone access to the most complete food possible. Together, let's build a more sustainable food future. ❤️ Discover the Knorr Guidelines for a better world. Access the link in bio! #food day #knorr #knorrbrasil #sustainability #food</i> (Instagram, Brazil, 2021)</p>	<p>"informativeness". Hellmann's: <i>One BILLION pounds of pumpkin are expected to be dumped into landfills in the US this year alone. What most people don't know is almost all of those trashed pumpkins are edible – and tasty. We've got some great pumpkin-inspired recipes in our Stories today for you to enjoy this year! Make sure your pumpkins have been stored, uncarved, in a cool, dry place (and keep an eye out for the smaller pumpkins, they're the most yummy)! Thanks for joining us in helping the planet and have a Happy Halloween!</i> 🌱 <i>#RealTasteLessWaste</i> (Facebook, USA, 2020)</p>
	<p>"egoistic-driven attribution". Knorr: <i>Do you think you could do with tips and training in the kitchen? The @hairybikers made a guest appearance to help families with their cooking skills on our first workshop. To find out more about Master Meat-Free with Knorr, have a look at the link in our bio. #CheatOnMeat .</i> (Instagram, UK , 2019)</p>	<p>"egoistic-driven attribution". Coca-Cola: <i>For One World: #TogetherAtHome. We are standing in solidarity with Global Citizen and many others for WHO's response efforts to support health care workers on the frontlines fighting against #COVID19. Tune in live on April 18th from 7pm BST with all of us, or catch the highlights on April 19th on BBC1. To learn more on what we're doing in GB to ensure the safety and wellbeing of our people and our communities during these tough times: https://bit.ly/2RNcqgp</i> (Instagram, UK, 2020)</p>	<p>No significant negative relationship was found regarding egoistic-driven attribution with Shares</p>

Result	Likes	Comments	Shares
Statistically significant negative (Cont')	<p>"healthfulness" Knorr: <i>Sesame seeds have omega-3, good fat for health, and are a source of magnesium, copper and dietary fiber.</i> They can be consumed raw, toasted and as a paste, the famous tahini. 🌱 Plants produce pods that open when ripe and reveal their tiny golden seeds. Hence the phrase "open sesame". There is also a legend that says that when the gods came together to create the world, they drank wine 🍷 made from sesame seeds. In addition to the crunchiness, the seeds give a brownish flavor to sushi, salads, soups and pasta. It goes well on the bun too. 😊 Sesame is one of the 50 foods of the future because it's healthy for you and sustainable for the planet. 🌍 How about including sesame seed in any recipe today? Try it and tell us how it turned out. #sesame #knorrbrasil #future food #sustainable #healthy food #seeds (Instagram, Brazil, 2021)</p>	<p>"healthfulness" Hellmann's: <i>Hellmann's has just launched a brand-new range of three vegan mayo's, and they're absolutely delicious! My favourite is the Vegan Mayo Baconnaise – it tastes just like bacon and its texture and flavour is incredible, I really couldn't believe that it's 100% vegan!</i> (Facebook, UK, 2021)</p>	No significant negative relationship was found regarding healthfulness with Shares

Note: The parentheses at the end of each example post indicate the platform from where the post was retrieved, the country where the brand was operating, and the year of posting.

There are two findings that are consistent with the literature. First, the findings of CSR attribution are consistent with the existing literature on perceived CSR attribution of brands that may discourage consumers from engaging with them (e.g., Austin and Gaither, 2017; Lee and Cho, 2022). As suggested, a value-driven motivation is less likely to cause scepticism toward the company, whereas egoistic-driven attribution is perceived as gaining publicity (Austin and Gaither, 2017; Dunn and Harness, 2018; Lee and Cho, 2022). To rephrase, when a brand's communication aligns with its core values, mission, and purpose, it generally faces lower levels of consumer scepticism and concern while experiencing a higher degree of engagement. Conversely, when the message appears driven by self-interest, it may be perceived as lacking in sincerity.

This research has revealed that there exists a positive engagement between values-driven attribution in sustainability-related posts and post engagement. This means that when a brand's communication emphasizes values such as social responsibility or environmental

consciousness, it is more likely to elicit favourable engagement from consumers. On the other hand, there is a negative engagement with egoistic-driven attribution which suggests that when the brand's message appears self-serving or focused on gaining publicity, it tends to generate a less favourable response from consumers. For example, the negative perception of brand publicity campaigns, like the instance of Coca-Cola's COVID-19 event on the BBC mentioned in Table 4.6, may lead consumers to view such efforts as self-interested and driven primarily by the brand's desire for positive publicity. This type of association can lead to worry and lower levels of engagement, as consumers may question the purpose of the brand's intentions. Additionally, the literature highlights the distinction between the country of operation and stigmatised food brands may produce different results in CSR attribution (Austin and Gaither, 2017; Becker-Olsen et al., 2011; Lee and Cho, 2022). These analyses are reported in section 4.4 and Chapter 6, respectively.

Second consistent finding is the healthfulness tenet. It is a growing product claim in sustainable food with social media marketing. As a result, healthfulness was investigated as a variable in brand post engagement in sustainable messages. The findings revealed a statistically significant negative influence on brand post engagement, which might be driven by customer scepticism regarding long-term action or trustworthiness as a result of disruptive claims (Sexton, Garnett and Lorimer, 2022; Taufik et al., 2023). Thus, the result agreed with the existing literature. In Section 4.5, more information on how consumers react to healthfulness messages is included. Importantly, the analysis revealed that healthfulness is restricted to product claims but also incorporates well-being messages of mind and body such as Knorr's nutritious post on healthfulness in Table 4.6.

In addition, there are two findings that contradict the literature. They are the results of the triple bottom line, and informativeness. First, previous studies (Johansen & Ellerup Nielsen, 2011; Lock and Araujo, 2020), post prominently emphasises triple bottom line (economic, social, and environmental) concerns that may attract consumers. However, as found in this analysis and exemplified in Table 4.6, a significant negative result was obtained in the environmental and economic dimension regarding brand posts on sustainability communication. As the literature suggests (Lock and Araujo, 2020), it is caused by sectoral differences in the industry such as ice cream, beverages and sauces. Therefore, the brand analysis in Chapter 6 on this subject gives more detailed information.

Second, informativeness contradicts current literature by having a statistically significant negative relationship on brand post engagement because, according to existing studies, informative communication produces a favourable attitude on social media regarding sustainability (Castillo et al., 2011; Kollat and Farache, 2017). Yet, the literature also proposes using alternative media methods, by building an informational approach regarding CSR initiatives to get consumer support and achieve positive comments (Trapp, 2014; Wen and Song, 2017). Thus, the moderation effect of vividness including pictures, animation and video is included in this research.

In the next section, the moderating impact of content characteristics (vividness and message appeal) is examined by using inferential statistics and hierarchical regression analysis.

4.3 The Moderating Effect of Vividness and Message Appeal

Two social media moderators are studied: vividness and message appeal. The moderating effect of vividness and message appeal were tested separately using hierarchical moderation regression. Guided by a similar study of Yuen et al. (2023), to obtain the interaction variables, grand mean centring was performed on the 'vividness', 'message appeal', 'triple bottom line (TBL)', 'informativeness', 'CSR attribution', 'brand activism', and 'healthfulness'. Performing grand mean centric improves the interpretation of the results obtained from subsequent analysis by reducing multicollinearity that is linked with interactions (Cohen, 2013). Accordingly, mean centred variables were multiplied to compute the interaction variables. The highest variance inflation factors in the models are less than 10 that confirms that multicollinearity is not a problem.

In this analysis, controlled and moderator variables were entered before independent variables in the first model of regression. Independent variables were entered in the second model. Lastly, computed interaction variables were entered in the third step. According to Cohen et al. (2013) and Khan et al. (2016), this process calculates the main effect of moderator variables on dependent variables. Model 3 tests these hypotheses with the statistical equation (Likes, Comments and Shares separately), below.

$$\text{Likes, Comments, Shares} = \alpha + \beta_1 \text{TripleBottomLine} + \beta_2 \text{Informativeness} + \beta_3 \text{CSRAttribution} + \beta_4 \text{BrandActivism} + \beta_5 \text{Healthfulness} + \beta_6 \text{VividnessTBL} + \beta_7 \text{VividnessInformativeness} + \beta_8 \text{VividnessCSRAttribution} + \beta_9 \text{VividnessBrandActivism} + \beta_{10} \text{VividnessHealthfulness} + \beta_{11} \text{MessageAppealTBL} + \beta_{12} \text{MessageAppealInformativeness} + \beta_{13}$$

$$\text{MessageAppealCSRAttribution} + \beta_{14} \text{MessageAppealBrandActivism} + \beta_{15} \text{MessageAppealHealthfulness} + \varepsilon$$

By this equation and analysis, the proposed structural conceptual model was tested for social media antecedents in line with RQ2, and RQ3 to test H6 and H7.

Table 4.7 presents a more detailed account of the standardized coefficients using vividness and message appeal as the moderating variables.

Table 4.7 Hierarchal “vividness” and “message appeal” moderation regression analysis for brand post engagement

Variables	Likes			Comments			Shares		
	Model 1: Control variables (β)	Model 2: Control variables and linear effects (β)	Model 3: Control variables, linear effects and linear moderating effects (β)	Model 1: Control variables (β)	Model 2: Control variables and linear effects (β)	Model 3: Control variables, linear effects and linear moderating effects (β)	Model 1: Control variables (β)	Model 2: Control variables and linear effects (β)	Model 3: Control variables, linear effects and linear moderating effects (β)
Submission frequency in a day	0.01	0.01	0.01	-0.07***	-0.06***	-0.06***	0.03	0.04	0.03
Brand	-0.23***	-0.21***	-0.22***	-0.18***	-0.19***	-0.19***	-0.29***	-0.26***	-0.26***
# Followers	-0.06***	-0.10***	-0.10***	0.18***	0.16***	0.16***	0.47***	0.43***	0.45***
Vividness	-0.02	-0.02	-0.03	-0.01	-0.01	-0.02	-0.12***	-0.12***	-0.15***
Message appeal	0.01	0.00	0.00	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03
Country of operation	-0.11***	-0.10***	-0.11***	-0.09***	-0.09	-0.09***	-0.30***	-0.28***	-0.29***
Triple bottom line (TBL)		0.13***	0.13***		0.14***	0.13***		0.10***	0.07**
Informativeness		-0.05**	-0.05**		-0.04**	-0.04**		0.05	-0.02
CSR attributions (CSR)		0.09***	0.09***		0.04*	0.04*		-0.05	0.05***
Brand activism		-0.02	-0.02		-0.04*	-0.03*		-0.02	-0.03
Healthfulness		-0.19***	-0.19***		-0.10***	-0.10***		-0.05	-0.03
Vividness x TBL			0.00			-0.03			-0.16***
Vividness x Informativeness			-0.05**			-0.07***			-0.11***
Vividness x CSR attribution			0.04*			0.05**			0.04
Vividness x Brand activism			0.00			0.01			0.06*
Vividness x Healthfulness			0.01			0.04			0.05
Message appeal x TBL			0.01			-0.02			0.00
Message appeal X Informativeness			-0.02			-0.01			-0.02
Message appeal x CSR attribution			0.02			0.01			-0.01
Message appeal x Brand activism			-0.01			0.00			0.00
Message appeal x Healthfulness			-0.02			0.02			0.00
R2		13.4%	13.9%		15.4%	16.3%		24.9%	29.5%
Δ in R2		6.3%	0.5%		3.0%	0.9%		1.7%	4.6%
Δ F-statistics		45.957***	1.772		22.282***	3.498***		5.831***	8.352***

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

As shown in Table 4.7, Model 3 expands Model 2 by including ten interaction variables (namely Vividness x TBL, Vividness x Informativeness, Vividness x CSR attribution, Vividness x Brand activism, Vividness x Healthfulness, Message appeal x TBL, Message appeal x Informativeness, Message appeal x CSR attribution, Message appeal x Brand Activism and Message appeal x Healthfulness).

When their inclusion the R^2 of brand post engagement in Comments and Shares rose by 0.9% and 4.6%, respectively. F-value changes (F-statistics Comments = 3.498, F-statistics Shares = 8.352) were significant ($p < 0.001$). Model 3 was superior to Model 2. Concerning Likes, however, the result shows that Model 3 is not significant (F -value = 1.772, $p = 0.060$, $R^2 = 0.5\%$). Moreover, all significant moderation effects in Model 3 were supplied solely by vividness interaction variables, suggesting that H6 is partially supported. However, H7 was not supported.

The next part discusses new insights into brand post engagement by explaining the moderation regression analysis of vividness and message appeal.

4.3.1 Vividness

In Table 4.7, the results of Model 3 hierarchical regression show the moderating effect of “vividness” on the relationship between the independent variables and the number of Likes, Comments and Shares separately. Concerning Likes, the vividness of brand posts moderates the relationship between informativeness and CSR attribution, and brand post engagement in Likes. The interactions between vividness and informativeness (β_7 VividnessInformativeness = -0.05, $p < 0.01$) are significant and negative, whereas, vividness and CSR attribution (β_8 VividnessCSRAttribution = 0.04, $p < 0.05$) are significant and positive.

Similarly, concerning Comments, vividness moderates the relationship between informativeness, CSR attribution, and brand post engagement in Comments. The VividnessxInformativeness interaction was significant and negative (β_7 VividnessInformativeness = -0.07, $p < 0.001$), and, the VividnessxCSRAttribution was significant and positive (β_8 VividnessCSRAttribution = 0.05, $p < 0.01$).

Concerning Shares, vividness moderates the relationship between TBL, informativeness, brand activism, and brand post engagement in Shares. The interactions between vividness and TBL (β_6 VividnessTBL = -0.16, $p < 0.001$) and vividness and informativeness (β_7

VividnessInformativeness = -0.11, $p < 0.001$) were significant and negative. The interaction between vividness and brand activism (β_9 , VividnessBrandActivism = 0.06, $p < 0.05$) was significant and positive. In conclusion, it suggests that the vividness of brand posts moderates the relations between brand post engagement and TBL, informativeness, CSR attribution, and brand activism except for healthfulness. Table 4.8 summarises the findings.

Table 4.8 Summary of findings

Research Question	Hypothesis	Result
RQ2. How does vividness moderate the relationships between sustainability-related message factors and brand post engagement on social media?	H6	- for Likes (TBL) - for Likes, Comments, Shares (Informativeness) + for Likes, Comments (CSR attribution) + for Shares (Brand activism)

The findings suggest that the vividness of brand posts plays a moderating role in shaping the relationships between brand post engagement and sustainability-related factors and provides insights into how the presentation style (picture, animation, video) of sustainability messages influences post engagement. Consequently, the role of vividness as a moderator amplifies the impact of CSR attribution and brand activism but diminishes the impact of TBL and informativeness on the level of Likes, Comments, or Shares.

Simple slope analyses were conducted to illustrate the moderating effect of vividness on the relationship between TBL, informativeness, CSR attributions and brand activism alongside brand post engagement. Regression lines were plotted only for significant moderating sustainability-related message factors where they are significant on Likes, Comments, or Shares and for each vividness category (picture, animation, and video).

Figure 4.1 depicts the interaction between sustainability-related variables of TBL with vividness where the moderation is significant on Shares.

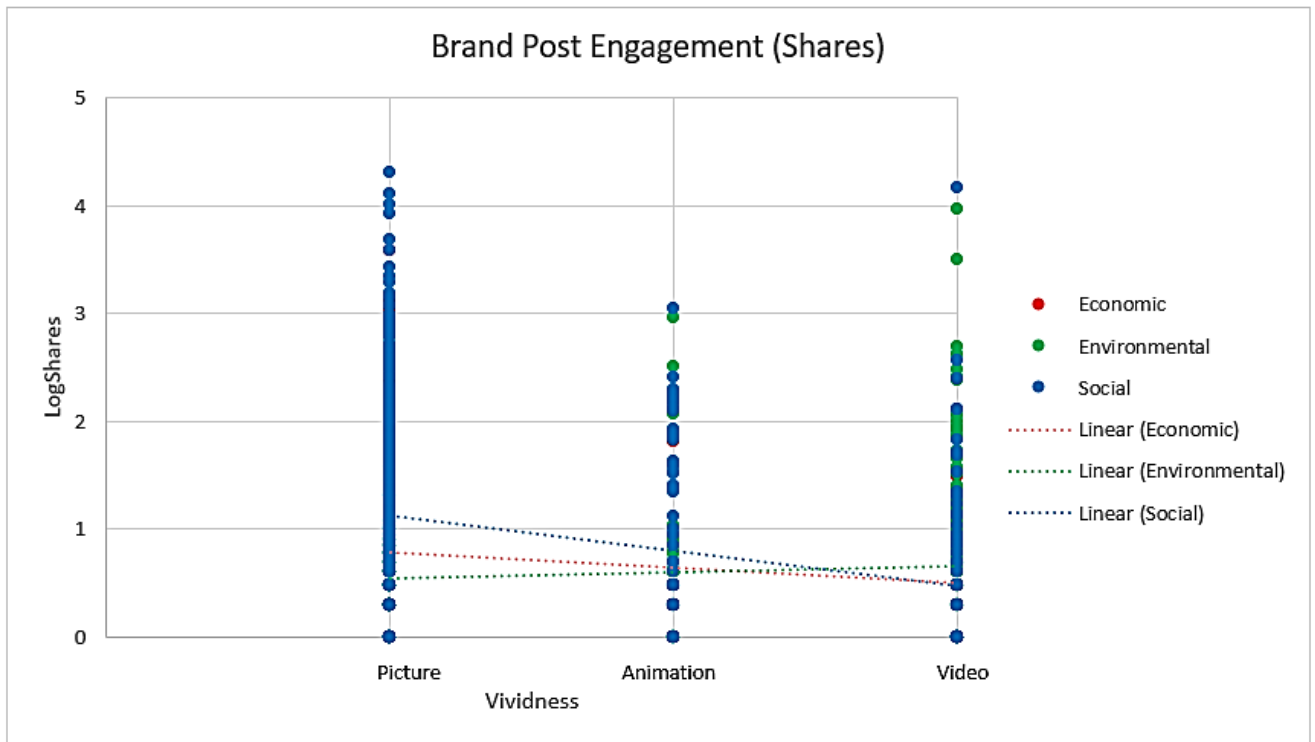


Figure 4.1 Two-way interaction between vividness and TBL on brand posts engagement

According to the result of Figure 4.1, among the interaction variables, video has a higher influence on the element of economic sustainability (For further information, see SPSS results in Appendix K). This could be attributed to the dynamic nature of videos, which allow brands to effectively communicate their economic sustainability initiatives such as contributions to local economies. The picture has a stronger impact on the environment and social sustainability on brand post engagement, specifically the number of Shares. This suggests that pictures can visually capture environmentally friendly practices, eco-friendly products, conservation efforts, and social impact initiatives, community involvement, and inclusivity efforts.

Figure 4.2 shows the interaction between informativeness with vividness where moderation is significant in all types of engagement.

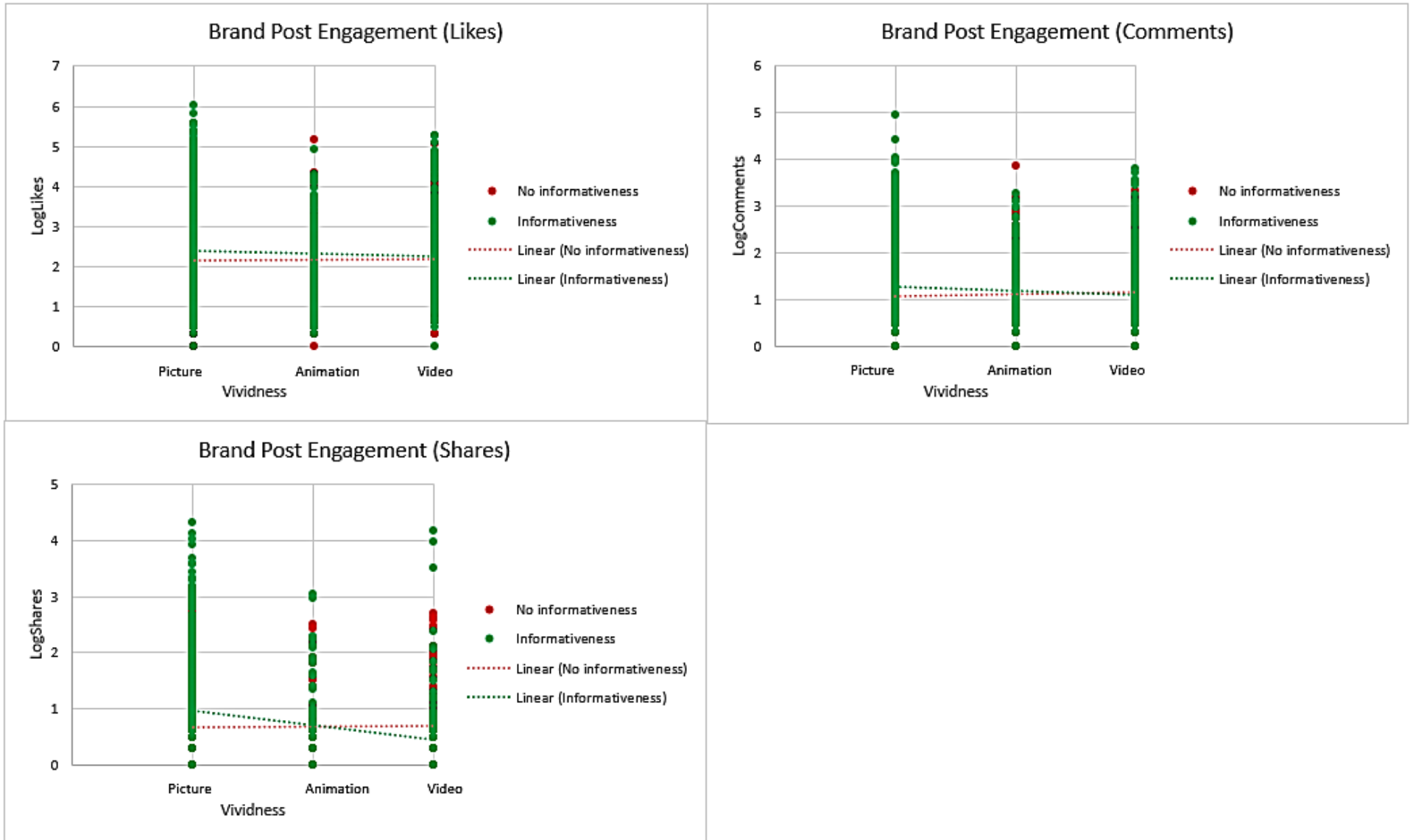


Figure 4.2 Two-way interaction between vividness and informativeness on brand posts engagement

As evident in Figure 4.2, picture has a larger impact on informativeness of brand post engagement. Similarly, picture contributes substantially more to informativeness than other vividness categories on Comments and Shares (For further information, see SPSS results in Appendix K). This finding emphasises the significance of picture in effectively conveying informative messages and contributes to higher engagement in Likes, Comments and Shares.

Furthermore, Figure 4.3 depicts the interaction between CSR attribution with vividness where moderation is significant in Likes and Comments.

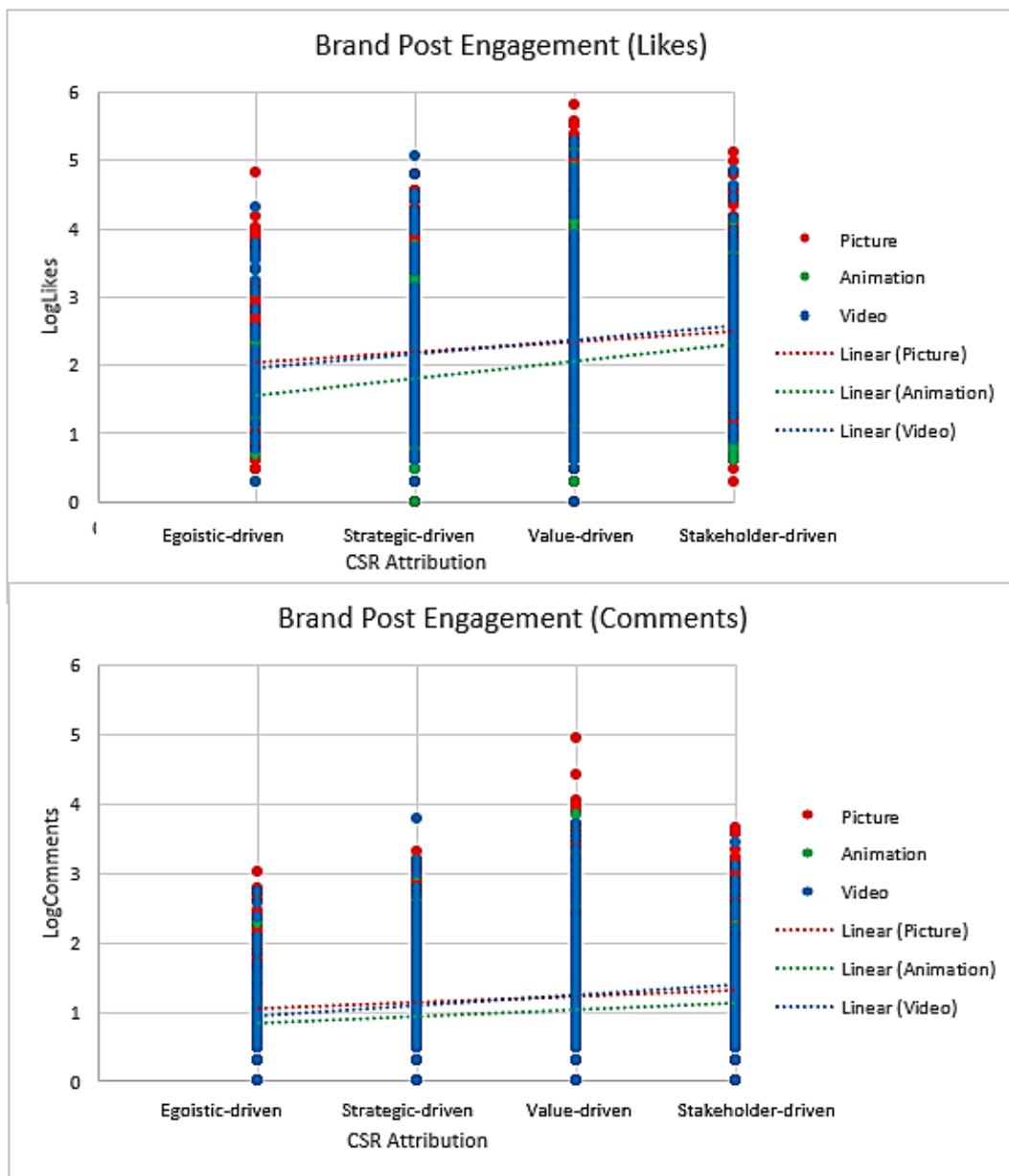


Figure 4.3 Two-way interaction between vividness and CSR attributions on brand posts engagement

Figure 4.3 shows CSR attribution including egoistic-driven, strategic-driven, value-driven and stakeholder-driven interaction between brand post engagement of Likes and Comments.

Concerning Likes, picture was the strongest category in egoistic-driven and strategic-driven attribution, however, video was the major contributor in value-driven and stakeholder-driven attribution. Likewise, concerning Comments, picture was the strongest category in egoistic-driven and strategic-driven attribution, however, video was the major contributor in value-driven and stakeholder-driven attribution. (For further information, see SPSS results in Appendix K).

Lastly, Figure 4.4 illustrates the interaction between brand activism with vividness where moderation is significant on Shares.

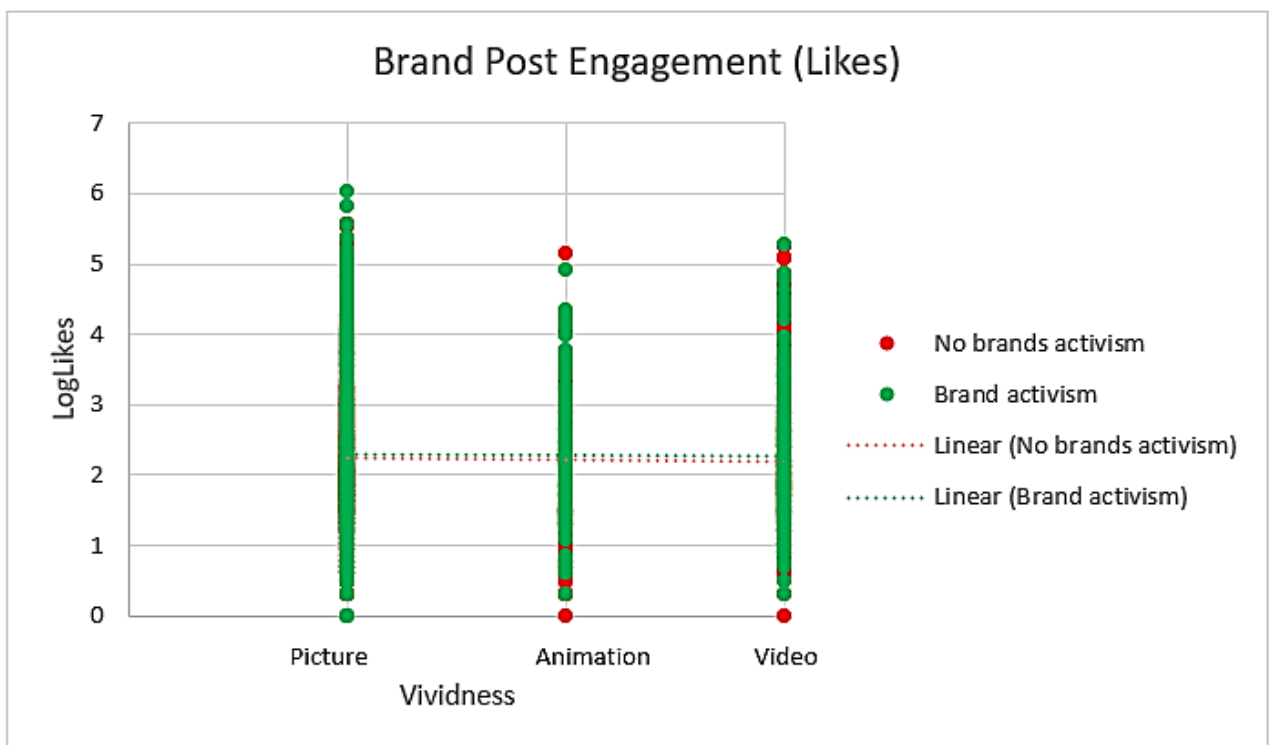


Figure 4.4 Two-way interaction between vividness and brand activism on brand posts engagement

Figure 4.4 demonstrates that in terms of Shares, picture has a larger impact on brand activism for brand post engagement than other vividness categories (For further information, see SPSS results in Appendix K). This dominance of picture content in brand activism within Shares highlights the capability of images to prompt user participation in advocacy-driven interactions through the post.

Message appeal, which refers to how the message is framed, was also analysed as a moderating factor. The findings of the moderating influence of message appeal are reported in the next section.

4.3.2 Message Appeal

As a moderator, message appeal remained consistently non-significant, as shown in Table 4.7 (page 134). Thus, in relation to RQ3, H7 was rejected.

This finding contradicts prior studies which suggested that social media engagement could be enhanced through rational or affective appeal (Dolan, Conduit and Fahy, 2018; Kapoor et al., 2021; Lee et al., 2013). Notably, these studies were carried out for a generic brand post message, rather than for sustainability-related themes. In this thesis, appeals were identified as the tone of utilitarian benefits (rational appeal) versus the tone of entertaining, happiness language (affective appeal) due to firms' communication behaviour on their sustainability message. There are possible reasons for the lack of a significant moderation result for these two appeals. The underrepresentation of affective appeals in social media posts, along with the dominance of rational appeals, suggests that brands may need to find a middle ground in their communication tone to align with consumer preferences for more entertaining and happiness-centric content on social media. Furthermore, the findings underscore the importance of understanding the specific appeals that resonate with consumers in the food industry (Wagner et al., 2017), shedding light on sustainability-related message factors to have a positive moderating effect.

Further details will be explored on framing theory using positive and constructive language such as the linguistic tone of optimism, solution-driven thinking, and the advantages of sustainable practices in sustainability-related messages in Chapter 8.

4.4 The Moderating Effect of Country of Operation

This section analyses the moderating effect of the country of operation. Correspondingly, the brand post engagement data of the USA, the UK and Brazil were utilised. Figure 4.5 displays the shift in brand sustainability-related posts from 2019 to 2021 in those three countries.

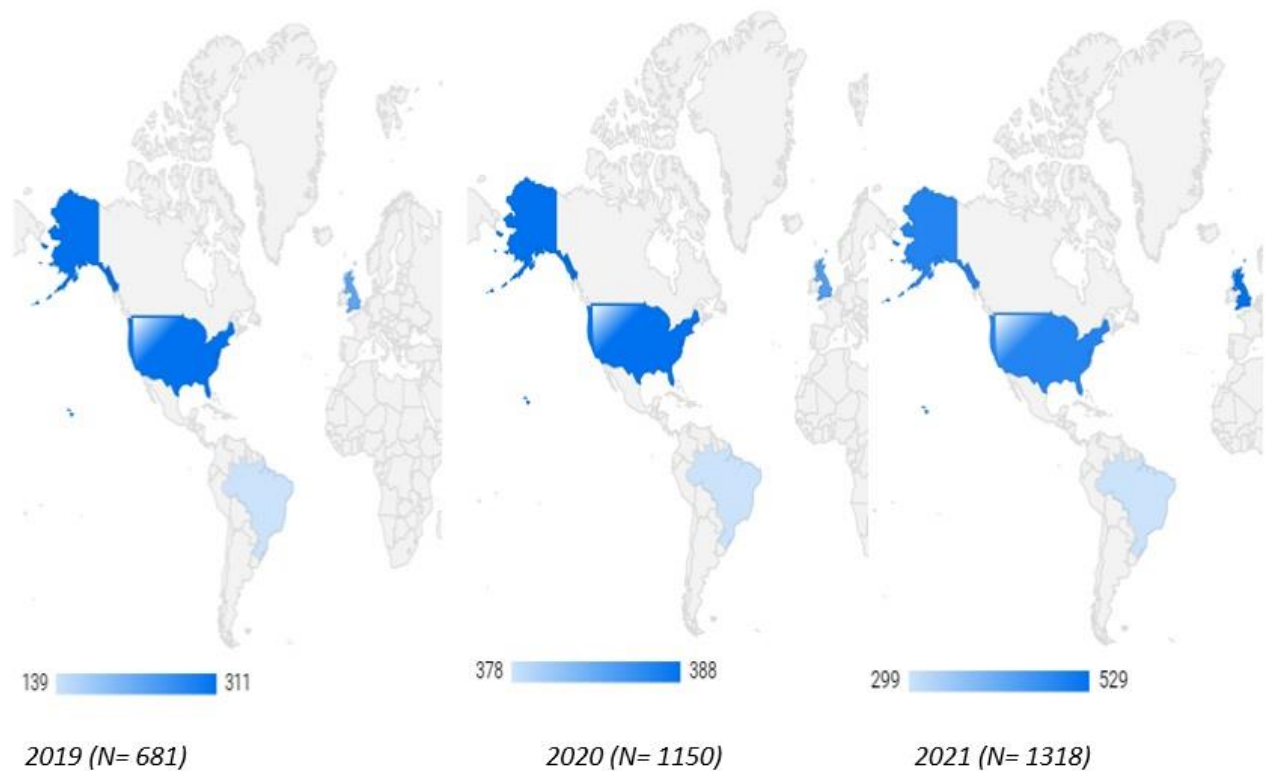


Figure 4.5 The number of brand posts, showing by country, 2019 to 2021

Figure 4.5 demonstrates that the US dominated in sustainability-related brand posts in 2019 and 2020, with 311 and 388 posts, respectively. Nonetheless, the UK had the most postings in 2021, with 529 sustainability-related brand posts. On the other side, Brazil never outperformed the UK or the US in terms of the number of posts throughout these three years. However, the highest number of posts does not imply the significance of the country of operation on the relationship to the brand post engagement. As a result, a moderation analysis was carried out.

The moderation effects of “country of operation” which are identified as the USA, the UK and Brazil were added to the relationship between sustainability-related message factors and brand post engagement. The moderating effect of the country of operation was tested through hierarchal moderation regression.

Similar to the moderation effect of social media antecedent analysis, grand mean centring was performed on the ‘country’, ‘triple bottom line (TBL)’, ‘informativeness’, ‘CSR attribution’,

'brand activism', and 'healthfulness'. Centred variables were multiplied to obtain interaction variables. Like in the previous moderation regression analysis, controlled and moderator variables were entered before independent variables in Model 1. Independent variables were entered in Model 2. Lastly, computed interaction variables were entered in the third step to calculate the main effect of moderator variables on dependent variables. Model 3 tests H8 with the statistical equation (Likes, Comments and Shares separately), below.

$$\text{Likes, Comments, Shares} = \alpha + \beta_1 \text{TripleBottomLine} + \beta_2 \text{Informativeness} + \beta_3 \text{CSRAttribution} + \beta_4 \text{BrandActivism} + \beta_5 \text{Healthfulness} + \beta_6 \text{CountryTBL} + \beta_7 \text{CountryInformativeness} + \beta_8 \text{CountryCSRAttribution} + \beta_9 \text{CountryBrandActivism} + \beta_{10} \text{CountryHealthfulness} + \varepsilon$$

Using this equation and conducting the analysis, the study assessed the proposed structural conceptual model. It aimed to understand how the country of operation influences the relationship between brand post engagement and sustainability-related message factors, which aligns with RQ4 and tests H8. On the next page, Table 4.9 presents a more detailed account of the standardized coefficients using three countries as the moderating variables.

Table 4.9 Hierarchical “country of operation” moderation regression analysis for brand post engagement

Variables	Likes			Comments			Shares		
	Model 1: Control variables (β)	Model 2: Control variables and linear effects (β)	Model 3: Control variables, linear effects and linear moderating effects (β)	Model 1: Control variables (β)	Model 2: Control variables and linear effects (β)	Model 3: Control variables, linear effects and linear moderating effects (β)	Model 1: Control variables (β)	Model 2: Control variables and linear effects (β)	Model 3: Control variables, linear effects and linear moderating effects (β)
Submission frequency	0.01	0.01	0.02	-0.07***	-0.06***	-0.05**	0.03	0.04	0.04
Brand	-0.23***	-0.21***	-0.22***	-0.18***	-0.19***	-0.20***	-0.29***	-0.26***	-0.26***
# Followers	-0.06***	-0.10***	-0.10***	0.18***	0.16***	0.16***	0.47***	0.43***	0.43***
Vividness	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	-0.12***	-0.12***	-0.12***
Message appeal	0.01	0.00	0.00	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03
Country of operation	-0.11***	-0.10***	-0.12***	-0.09***	-0.09	-0.09***	-0.30***	-0.28***	-0.27***
Triple bottom line (TBL)		0.13***	0.12***		0.14***	0.12***		0.10***	0.11***
Informativeness		-0.05**	-0.06***		-0.04**	-0.05**		0.05	0.05
CSR attributions (CSR)		0.09***	0.10***		0.04*	0.05**		-0.05	-0.05
Brand activism		-0.02	-0.03		-0.04*	-0.04*		-0.02	-0.02
Healthfulness		-0.19***	-0.19***		-0.10***	-0.09***		-0.05	-0.04
Country x TBL			-0.01			-0.01			-0.01
Country x Informativeness			-0.06***			-0.08***			-0.03
Country x CSR			0.01			0.03			0.02
Country x Brand Activism			-0.05**			-0.03*			-0.02
Country x Healthfulness			0.11***			0.13***			0.06*
R2		13.4%	16.1%		15.4%	18.7%		24.9%	25.7%
Δ in R2		6.3%	2.8%		3.0%	3.3%		1.7%	0.8%
Δ F-statistics		45.957***	20.578***		22.282***	25.703***		5.831***	2.734*

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

In Table 4.9, Model 3 expands Model 2 by including 5 interaction variables based on the relationship between sustainability-related message factors and country (namely, Country x TBL, Country x Informativeness, Country x CSR attribution, Country x Brand activism, and Country x Healthfulness).

When their inclusion, the R^2 of brand post engagement in Likes, Comments and Shares rose by 2.8%, 3.3% and 0.8% respectively. F-value changes (F-statistics Likes = 20.578, F-statistics Comments = 25.703, F-statistics Shares = 2.734) were significant for Likes and Comments ($p < 0.001$) and for Shares ($p < 0.05$). Model 3 is considered to be stronger than Model 2 since it has superior performance on brand post engagement, suggesting that H8 is supported.

In Table 4.9, the hierarchical regression results of Model 3 show the moderating effect of the variable “country” on the relationship between independent variables and the number of Likes, Comments and Shares separately. Concerning Likes, country of operation of brand posts moderates the relationship between informativeness, brand activism and healthfulness. The interactions between vividness and informativeness (β_7 CountryInformativeness = -0.06, $p < 0.001$) and brand activism (β_9 CountryBrandActivism = -0.05, $p < 0.01$) are significantly negative, however, healthfulness (β_{10} CountryHealthfulness = 0.011, $p < 0.001$) is significantly positive. Similarly, concerning Comments, country of operation of brand posts moderates the relationship between informativeness, brand activism and healthfulness. The interactions between vividness and informativeness (β_7 CountryInformativeness = -0.08, $p < 0.001$) and brand activism (β_9 CountryBrandActivism = -0.03, $p < 0.05$) are significantly negative, however, healthfulness (β_{10} CountryHealthfulness = 0.013, $p < 0.001$) is significantly positive. Concerning Shares, country of operation of the brand post moderates the only relationship between healthfulness (β_{10} CountryHealthfulness = 0.06, $p < 0.05$) is significantly positive.

Consequently, Likes, Comments, and Shares are subject to contextual variations based on the country where the brand operates. The country context might shape how users perceive and respond to different message elements related to informativeness, brand activism, and healthfulness. These findings suggest considering country values and perceptions of sustainability when crafting a brand’s sustainability message for social media engagement.

Nevertheless, the country of operation of the brand post did not affect the relationship between TBL and CSR attributions. This result might be explained by the fact that the

sustainability content of brand messages and the firm's CSR motivation on these posts are global and are not impacted by country differences. As a result, TBL and CSR attribution had no moderating impact. These two parameters concerning the country will be examined in further detail in Chapter 8.

Simple slope analyses were applied to show the moderating effect of the country on the relationship between informativeness, brand activism and healthfulness upon brand post engagement. Regression lines were plotted only for significant moderating sustainability-related message factors where they are significant on Likes, Comments, or Shares and for each country category (USA, UK and Brazil).

Figure 4.6 depicts the interaction between informativeness in the country where moderation is significant in Likes and Comments.

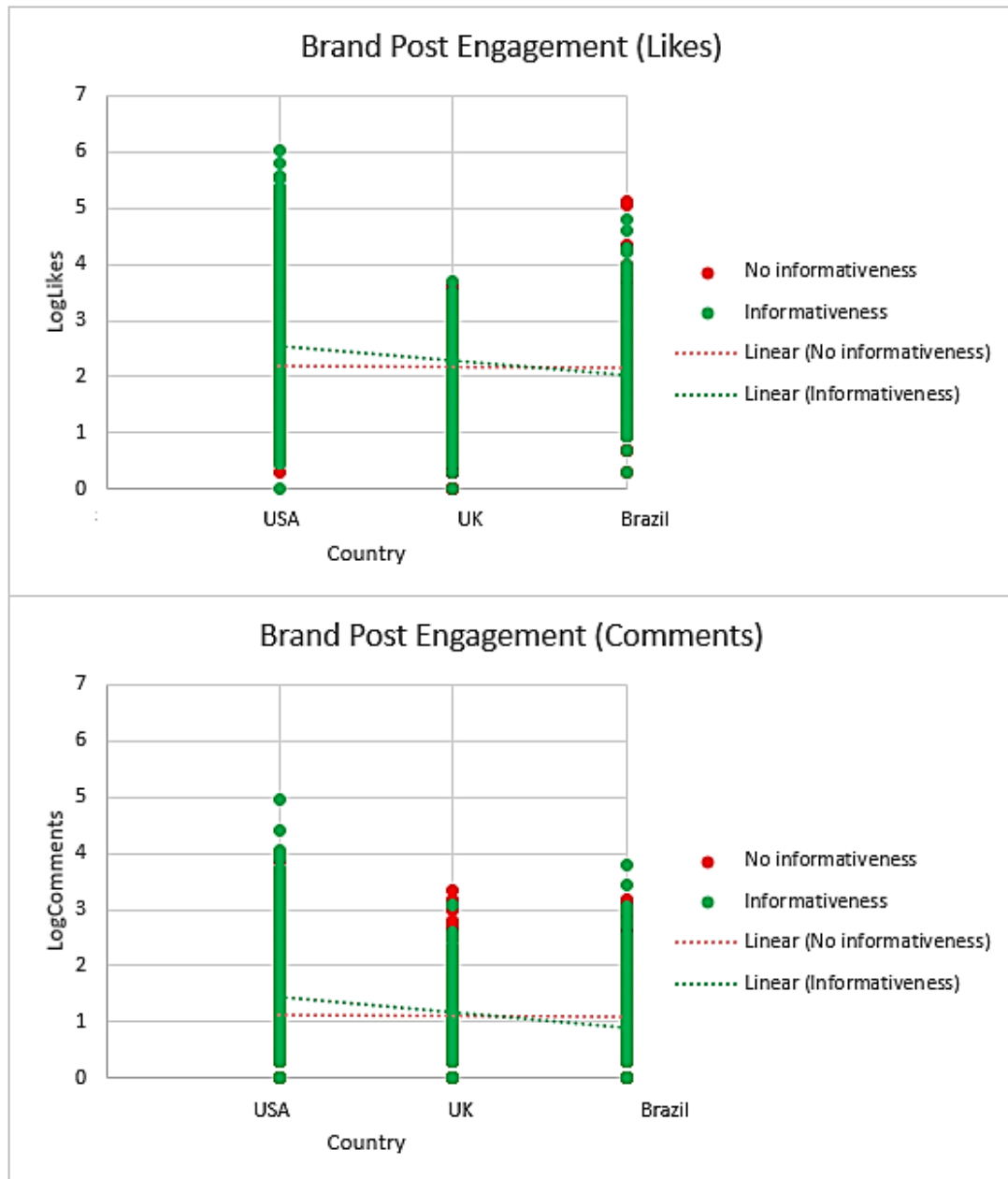


Figure 4.6 Two-way interaction between country of operation and Informativeness on brand posts engagement

As shown in Figure 4.6, in terms of Likes, USA has a larger impact on informativeness brand post engagement, followed by Brazil. Likewise, in terms of Comments, USA is stronger in the category followed by Brazil (For further information, see SPSS results in Appendix K).

Furthermore, Figure 4.7 shows the interaction between brand activism with the country where moderation is significant in Likes and Comments.

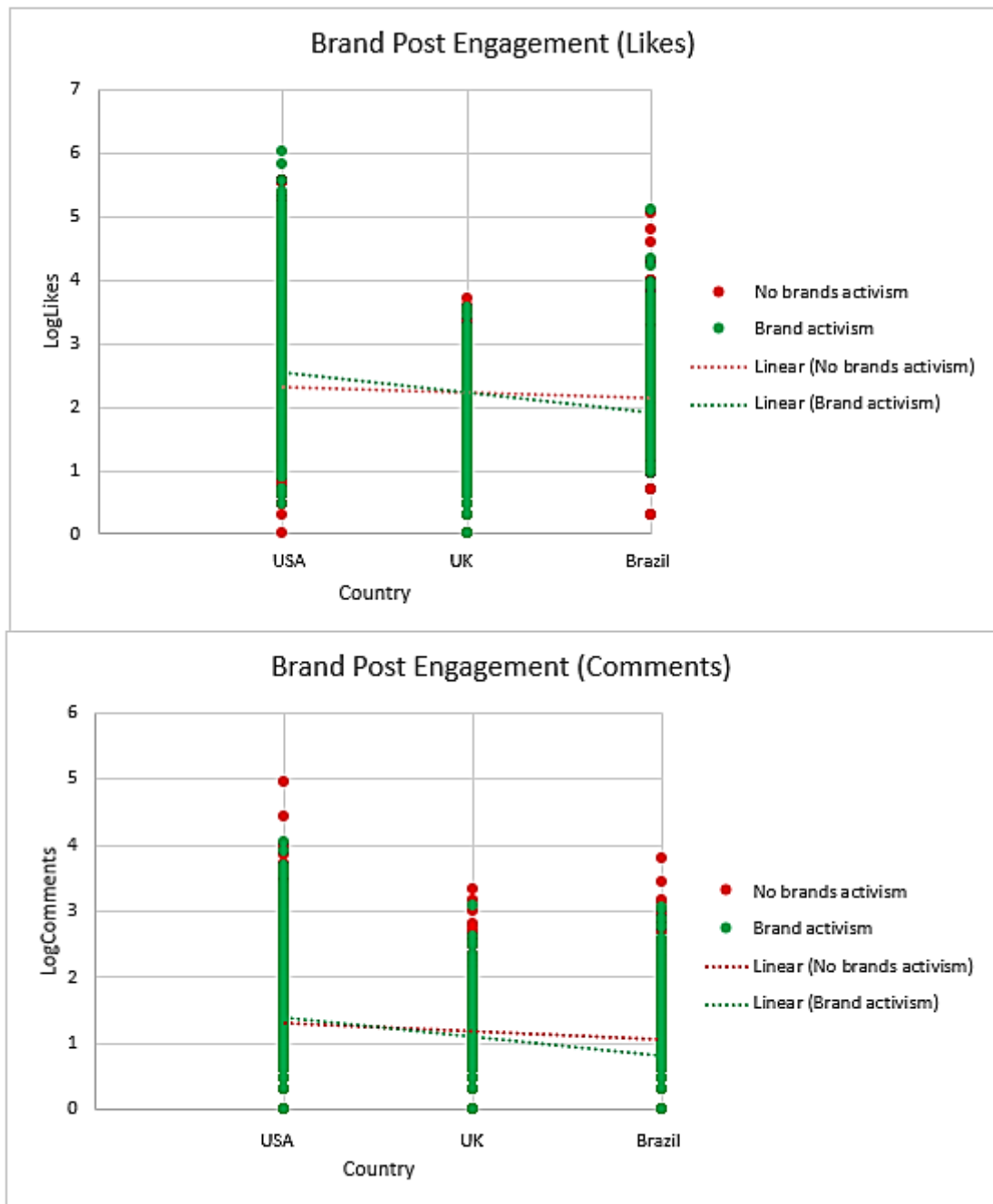


Figure 4.7 Two-way interaction between country of operation and Brand activism on brand posts engagement

As evident in Figure 4.7, concerning Likes, USA has a larger impact on brand post engagement with brand activism and is closely followed by Brazil. Similarly, USA is superior to other countries on Comments (For further information, see SPSS results in Appendix K). Regarding the findings on informativeness and brand activism, a negative moderating effect indicates that the USA is more inclined to engage with brand activist and informative content. In Chapter 8, this will be further discussed within the context of consumer culture. In high

uncertainty avoidance cultures, such as Brazil, consumers tend to be less receptive to activist and informative posts.

Lastly, Figure 4.8 shows the interaction between healthfulness in the country where moderation is significant in all types of engagement.

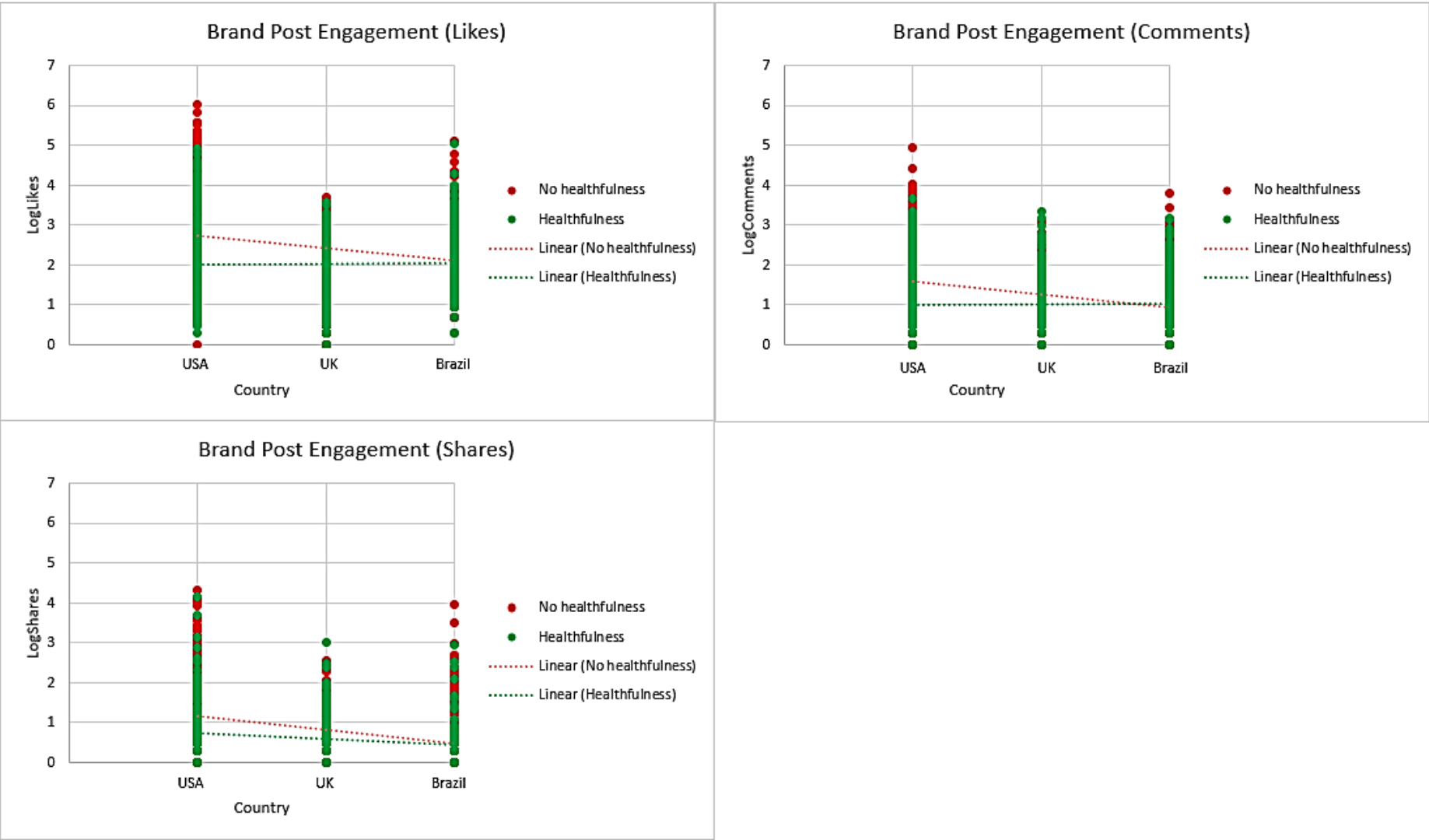


Figure 4.8 Two-way interaction between country of operation and Healthfulness on brand posts engagement

As shown in Figure 4.8, Brazil is the major contributor in Likes and Comments, whereas USA has a larger impact on Shares (For further information, see SPSS results in Appendix K). The results of the moderation study of the country of operation reflect a different perspective and discussion than that found in the literature. Brazil, as an emerging economy, possesses higher engagement in terms of healthfulness. In contrast to the other two countries, the UK, as an advanced economy, did not result in any major moderating effects. This finding on healthfulness as a positive moderating effect indicates that Brazil's cultural factors have a higher significant impact on engaging with healthfulness content than the UK and the USA. Yet, it acknowledges that firms pursue alternative market strategies centred on country and firm-specific advantages (da Silva Lopes and Tomita, 2021; Rugman and Verbeke, 1992). As a result, Chapter 8 will delve into more depth into the findings within consumer culture addressing (I) cross-cultural differences in sustainability communication and (II) the possibility for firms to integrate different strategies for sustainability communication across countries.

Country of operation also plays a significant role in determining the levels of engagement on social media platforms. These insights will be discussed in Chapter 5. Additionally, Table 9.3 will present managerial implications to each platform and within each of the three countries.

The next section shows the qualitative analysis addressing the users' comments on sustainability-related messages as the outcome of brand post engagement.

4.5 Qualitative Analysis

The qualitative data comprises 5,810 comments from 84 posts. The goal was to examine the most commented posts from each of five brands, in each of three countries, on each of the two social media platforms, created across the three-year period from 2019 to 2021. Thus, the anticipated number of posts to be examined was 90 (5 brands x 3 countries x 2 social media platforms x 3 years = 90). However, there were six missing instances. There were no sustainability postings from that Hellmanns' Brazil on Facebook (2021) and on Instagram (2019), Activia UK on Facebook (2021), Activia Brazil on Facebook (2020), and Coca-Cola USA on Facebook (2021) and Coca-Cola Brazil (2021). The qualitative analysis exclusively examined consumer responses through comments under the brand posts. Notably, the post captions were not incorporated in this investigation.

The contents of these posts were identified as sustainable food product promotion, food waste, brand activist issues such as social activism (immigration, and LGBTQIA+), environmental activism (ecosystem health, sustainable food ingredients, meatless recipes), political activism (occupied territory), and legal activism (abortion law) and health and wellbeing. Below, Figure 4.9 illustrates the codes of consumer responses on brands' sustainability posts.

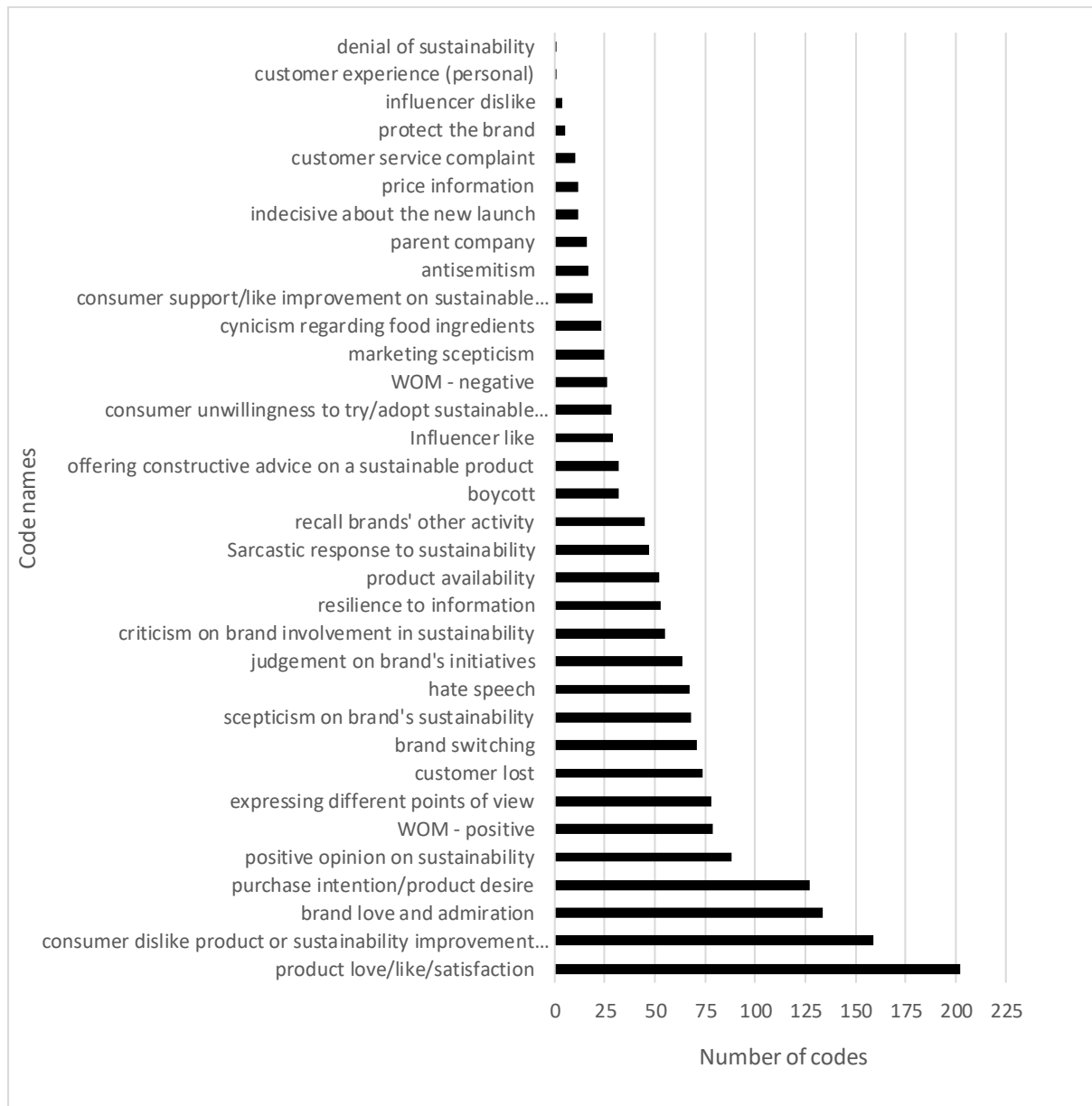


Figure 4.9 Codes of consumer responses on brands' sustainability posts

Figure 4.9 presents the 34 open coding. Product love was the most prevalent customer response to sustainability marketing, followed by consumer product dislike or dislike of sustainability improvement, brand admiration and love, and purchase intention.

Open coding was the initial stage, which entails breaking down the initial data into distinct codes. These codes served as labels for various aspects of the data and the codes were derived from the patterns observed in the data. During this phase, all comments were read line by line, and codes were generated to capture different elements in the data. This step allowed for the identification of similarities and differences regarding consumer responses to sustainability messages, resulting in the discovery of new codes and assigning comments to existing ones. This process involves breaking down initial data into discrete codes, which are then organized into interconnected themes through axial coding, revealing relationships within the data. This process reveals the relationships within the data and the broader categories to themes that emerge from the initial codes. This transition is demonstrated in Table 4.10, which showcases the transition from open coding to axial coding, capturing the evolution from initial data codes to broader thematic categories.

Table 4.10 Coding process

Open Coding	Axial Coding
brand love and admiration	emotional bonds to the brand
protect the brand	
product love/like/satisfaction	enthusiasm for sustainable product
purchase intention/product desire	
consumer support/like improvement on sustainable product	
availability check	
offering constructive advice on a sustainable product	offering constructive feedback
price information	
growing positive opinion on sustainability	connection to sustainability
hate speech	anti-brand (extreme) behaviour
customer lost	
recall brands' other activity	
recall parent company's activities	
boycott	
brand switching	
dissatisfaction with the brand's initiatives	judgement on brand's initiatives
marketing scepticism	criticism of brand involvement in sustainability
scepticism of brand's sustainability	
consumer dislike product or sustainability improvement on the product	product dissatisfaction
customer service complaint	
customer personal experience	
consumer unwillingness to try/adopt sustainable product/alternative	consumer hesitancy
indecisive about the new launch	
cynicism regarding food ingredients	
mistrust of the fact	resistance to information
Sarcastic response to sustainability	
denial of sustainability	
reflecting unusual angle of sustainability	expressing different points of view

The consolidation of 34 open codes into 11 axial codes was presented in Table 4.10. These axial codes were categorized into three groups: brand, product, and sustainability. Corresponding subthemes are organized under these categories. The consumer responses to brands are discussed in brand analysis in Chapter 6. The themes concerning consumer responses to product and sustainability, along with subthemes of conformity and resistance, are presented in Table 4.11.

Table 4.11 Themes of consumer responses to brands' sustainability posts

	<u>Product-focused responses</u>	<u>Sustainability-focused responses</u>
(+)Conformity	* enthusiasm for sustainable product * offering constructive feedback	* connection to sustainability
(-)Resistance	* product dissatisfaction * consumer hesitancy	* resilience to information * expressing different points of view

The findings are presented into two categories in Table 4.11 as the direction of response transfer to product and sustainability. Also, conformity reflects favourable customer responses, whereas resistance shows negative responses across groups. The next section discusses the responses to products followed by sustainability. All themes are explained with example comments from the brand posts.

4.5.1 Product-focused responses

Enthusiasm for sustainable products. Brands' sustainability posts sparked enthusiasm for their sustainable products. Users expressed their product love, purchase intention, support for the improvement recipe of the product, availability check, and even sample requests. For example, consumers adored the product and voiced their passion, "It's just the one I use, I love it ❤️❤️". Likewise, "I can't live without it anymore 🗨️ Gratitude ❤️".

This analysis showed that consumers were excited about the product even before tasting it, "Wow my mouth was watering delicious..." and "Must be delicious ❤️". Consequently, they would like to purchase the product, "I'll look for it in the supermarket!!!! 😊❤️🤔". After tasting the new product, a consumer also shared their opinion about it, such as "Tastes very similar to original coke but without sugar. Personally I love the new formula ❤️" and "I dont get why people hate it? Personally I really enjoy the new taste".

Consumers communicated with the company to check if the product was available in their neighbourhoods, for example, “I hope you come to my city/ Campina Grande Paraíba” and “Until you get here in my city... 😞” or mentioning if the product was available in a specific size “ [...] I can't find the 335g option anymore. The smaller option has very expensive shipping or no delivery to Pernambuco 😞” or even looking for limited editions and specific dietary requirement recipes “[...] Also i saw though a crude search you sell a yellow apple flavour which country is this sold? And will it become available in the UK?” and “I can never find lactose free activia in stores! 😞”.

These results suggest consumers shared their thoughts on the new product, and taste with a sense of involvement and connection. This engagement extended to check for product availability in specific areas or sizes, showing a strong desire to engage with the brand and its products through the brands’ sustainability messages.

Offering constructive feedback. Consumers commented on advice for a more sustainable and healthier product. For example, “Just need to make a refill too. 🙌”, “You just need to reduce the salt”, and “I’ve seen your products before and always wanted to try them, but I can not as I am lactose intolerant. Please come out with some dairy-free products! ❤️❤️❤️”. Those feedback comments were not only about the product but even included social sustainability advice, such as “Make a BML flavour and give profits to charity”.

Since sustainable products have a higher price in the market, many consumers commented on price policy, such as “Now we need the biggest package with the fairest price. 🍏”, “I really wanted to try this novelty, it seems to be very good... But unfortunately, R\$12.00 in a 65gram pot is a very "salty" price... I have no doubt about the quality of the product, it must be very tasty.. . But the price is not at all inviting..”, and “It's just more expensive than other brands (vegan) 🤔😞”.

One comment also demanded changes in the post for better instruction, such as “But you should describe the recipe straight because in the video you can't see all the ingredients right”, while another replied and helped, “Go to the hellman's site and search for recipe”. It was undeniable that consumer feedback is beneficial for more sustainable and healthier products, suggesting refinements in recipes, ingredients, and pricing. These interactions among consumers also fostered a supportive brand community.

Product dissatisfaction. Several consumers sounded dissatisfied with the improved and updated recipe of the product, for example, “Any updates on bringing back the original “Vegan Mayo”? Your web page is loaded with 1-star reviews now. I certainly hope that you listen to your customers, cuz I can't find anything even close to how good your Vegan Mayo was. [...]”. Some comments were exaggerated but very common, such as “I tried to eat, I almost died it was so bad. Lol no one here at home wanted to eat!”. Consumer expressed their dislike for the new formula in an angry mood and believed their comments would be taken care of by the company, such “Don't be sorry, learn from the past and don't change what's not broken” and “BRING BACK THE PREVIOUS VERSION NEW ONE TASTES LIKE TESCO COLA 🤢”.

Some of the comments were irrelevant to the product post’s sustainability message. However, consumers commented complaints about customer service and their personal experience with the company, such as “I have a complaint, could you please check the dm?” and “NO COMPENSATION SENT FOR THE VANILLA. MY BROTHERS COMPLAINT ABOUT % PEACH HAS BEEN IGNORED”.

Consumer hesitancy. Consumers occasionally voiced cynicism regarding food ingredients, particularly in vegan foods and other healthier alternatives. As an example, “Is an egg vegan?”, and “Does the dairy free come in the original flavors?”.

Multiple consumers were reluctant to try the launch of new products and were refusing to embrace more sustainable options. For example, “What do you... eat it with?” and “Wow, I don't know”. These were popular responses to posts on innovative and unique products. As a result, the findings show that consumers require extra details or explanations, particularly about the innovative new products for their concern.

4.5.2 Sustainability-focused responses

Connection to sustainability. Brands’ sustainability posts assisted consumers in building a sense of solidarity such as “Together we must stop the injustice wherever it’s happening”. Posts created positive emotions, opinions and support for sustainability, and such comments were observed, “Sounds great 👍🌈”, “This is amazing 🙌❤️”, and “signed [a petition to reduce food waste] 🙏”. Consumers were also inspired by different sustainability issues such as the food leftover problem, “Truth. Sometimes what you throw away has someone on your side needing it!” and “Wonderful also in macaroni salad, potato salad, even with beetroot”.

Comments exhibited positive emotions, opinions, and endorsement of sustainability efforts. Consumers expressed enthusiasm for the cause and demonstrated their commitment, often signing petitions or sharing personal anecdotes related to sustainability. This positive sentiment was especially evident in responses that aligned with the brand's sustainability messaging, fostering a sense of collective responsibility and support.

Resilience to the given information. Consumers showed a high mistrust feeling of the fact of the sustainability post. For example, their comments were short and expressive, “misinformed”, “This is a misguided”. If a consumer gave another information in the comment, consumers replied and asked each other, such as “[@username tag] would you mind sending those statistics? Thank you!”. It is important to investigate online users’ comments in response. It is because such corrections can play a vital role in gaining public trust back (Majid and Pal, 2020).

To controversial topics such as health, refugees, and veganism, consumers showed more opposition to the given fact. For example, “Doesn't work, the experts reckon that the good bacteria dies before it reaches your gut.”, “Vegan is food waste. As a vegan you have to eat more to meet nutritional requirements [...]” or consumers are against generalization, such as “These instructions do not apply to everyone. With a seriously bad stomach Fibre and fermented food would be the end of me.”.

Moreover, consumers gave sarcastic responses or denied sustainability when they did not believe the fact, such as “didn't know that LGBTQ+ were forbidden to eat ice cream. Hang in there 🗨️🗨️” and “Climate change doesn't exist mate so stop wasting your time”. The result suggests that consumers either challenged the presented facts or provided counterarguments, showcasing their critical thinking and engagement with complex issues on brand posts.

Expressing different points of view. Consumers were not necessarily opposed to brands' sustainability messages, but they were occasionally disappointed because brands only showed one facet of sustainability. Therefore, consumers reflected different angles of sustainability in their comments. For example, “BLACK BABIES MATTER. LATINO BABIES MATTER. ASIAN BABIES MATTER. ALL BABIES OF ALL SHADES AND COLORS MATTER” and “hello social media manager, it's me again :), how about to stop polluting third-world countries and oceans with

plastic where infrastructure to recycle is non-existing? [...]”. This indicates that consumers' expectations for a more comprehensive and inclusive approach to sustainability that encompasses different viewpoints and stakeholders.

To summarise, consumer responses to firms' communication behaviour in sustainability-related brand posts ranged from expressing solidarity and positive emotions to expressing scepticism and a desire for the brand. Moreover, brand posts elicited enthusiasm, purchase intentions, and feedback, but also revealed dissatisfaction, pricing concerns, and hesitation towards embracing new offerings.

4.6 Summary

This chapter analysed and reported the quantitative and qualitative analyses of the social media posts of Ben & Jerry's, Hellmann's, Activia, Knorr, and Coca-Cola. The results tested 8 hypotheses and 5 main research questions on brand post engagement and consumer responses to those messages. Table 4.12 summarises the results of the hypotheses. Based on the literature review, sustainability-related message factors (triple bottom line, informativeness, CSR attribution, brand activism, and healthfulness) on brand posts are likely to influence social media post engagement; and are likely to be moderated by social media antecedents (vividness and message appeal) and country of operations. The findings supported H5, and partially supported H3, H6, and H8 validating the relationship between sustainability-related message factors, moderating variables, and engagement outcomes. The next chapter reports the findings broken down by social media platforms, Facebook and Instagram.

Table 4.12 Summary of results

Research Question	Hypothesis	Result	Findings
RQ1. How do sustainability-related message factors drive brand post engagement on social media in the food industry?	H1	- and significant for Likes, Comments, Shares	Sustainability-related message factors play a significant role in driving brand post engagement on social media within the food industry. Specifically, firms' CSR attribution in the value-driven dimension yields positive engagement in sustainability. Conversely, all other factors, except for brand activism, have a negative impact on brand post engagement, indicating negatively-valenced responses from consumers.
	H2	- and significant for Likes, Comments	
	H3	- and significant for Likes, Comments, Shares (Egoistic-driven) + and significant for Likes (Values-driven)	
	H4	Not supported	
	H5	- and significant for Likes, Comments	
RQ2. How does vividness moderate the relationships between sustainability-related message factors and brand post engagement on social media?	H6	- and significant for Shares (TBL) - and significant for Likes, Comments, Shares (Informativeness) + and significant for Likes, Comments (CSR attribution) + and significant for Shares (Brand activism)	Vividness has a moderating effect, resulting in negatively-valenced engagement for informative and TBL content, while positively influencing brand activism and CSR attribution on engagement. Videos evoke emotions and motivation, drive increased online discussion, while pictures foster brand connection, deliver product information and meaning.
RQ3. How does message appeal moderate the relationships between sustainability-related message factors and brand post engagement on social media?	H7	Non-significant	Message appeal moderation is rejected on affective versus rational appeal. In Chapter 8, the discussion reveals the possible reasons.
RQ4. How does the country of operation moderate the relationships between sustainability-related message factors and the brand post engagement on social media?	H8	- and significant for Likes, Comments (Informativeness, brand activism) + and significant for Likes, Comments, Shares (Healthfulness)	Country of operation plays a significant role in moderating sustainability-related message factors and their impact on brand post popularity resulting in diverse engagement outcomes. To effectively engagement strategy, brands require to adopt their sustainability communication strategies to specific cultural and brand contexts across different countries.
RQ5. What insights can be gained from user comments, based on the firm's communication behaviour?			User comments offer valuable insights into the complex nature of consumer post engagement. In addition to examining five sustainability-related tenants and moderating variables, these comments unveil two significant insights: compliance and resilience concerning the brand, product, and sustainability.

Chapter 5 : Results for Different Social Media Platforms

5.1 Introduction

This chapter presents a nuanced analysis focusing on the social media platforms Facebook and Instagram separately. The aim is to understand how the hypothesised relationship differ between the two platforms. In Section 5.2, the analysis begins with the presentation of descriptive statistics, offering a quantitative overview of engagement trends observed on Facebook and Instagram. Section 5.3 presents inferential statistics. The chapter ends with a summary of the key findings.

5.2 Descriptive Statistics

This section discusses how the relationship between post characteristics and post engagement varies across the two social media platforms (Facebook- FB versus Instagram- IG).

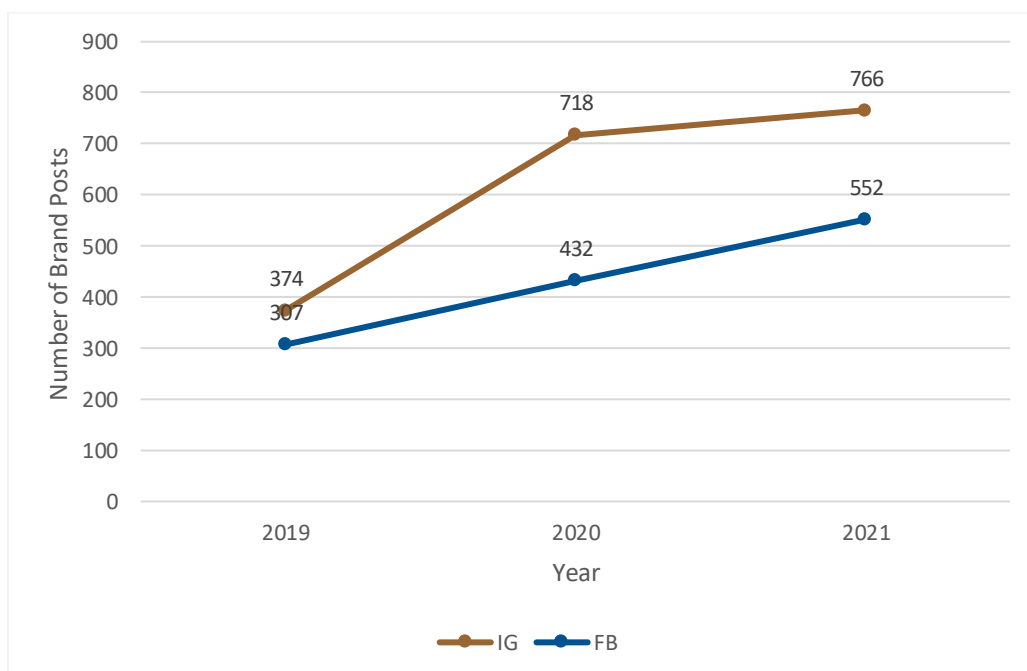


Figure 5.1 The number of brand postings on sustainability has increased by 51.2% on Instagram and 44.4% on Facebook from 2019 to 2021

Source: The Author

As shown in Figure 5.1, brand posts on sustainability constantly increased from 2019 to 2021. Existing literature claimed that the proliferation of social media platforms more importantly Instagram and Facebook have altered consumer interaction with firms on sustainability disclosure and communication (Antoniadis et al., 2019; Dolan et al., 2016; Yuen et al., 2023). Thus, the next section explains Facebook followed by Instagram in further detail.

5.3 Model Development and Inferential Statistics

5.3.1 Facebook

Table 5.1 shows the hierarchal regression results for Facebook, on which 5 brands and 3 countries had an average of 12,406,287.16 followers (SD = 19,313,793.97). Concerning likes, a significantly positive relationship did not emerge for any variables, whereas the number of likes exhibited statistically significant negative relationships in the element of economic sustainability ($\beta = -0.09$, $p < 0.001$) and environmental sustainability ($\beta = -0.11$, $p < 0.001$), egoistic-driven attribution ($\beta = -0.12$, $p < 0.001$), and stakeholder-driven attribution ($\beta = -0.11$, $p < 0.001$).

Table 5.1 Standardized regression coefficients for Facebook (N= 1291)

Variables	Likes (β)	Comments (β)	Shares (β)
Submission frequency in a day	-0.07*	-0.07**	0.03
Brand	-0.40***	-0.50***	-0.28***
# Followers	0.57***	0.59***	0.46***
Message appeal	-0.02	-0.037	-0.022
Vividness	-0.03	-0.02	-0.13***
Country of operation	-0.25***	-0.32***	-0.29***
<i>Triple bottom line (H1)</i>			
Economic (1)	-0.09***	-0.09***	-0.09***
Environmental (2)	-0.11***	-0.07**	-0.09**
<i>Informativeness (H2)</i>	0.03	-0.03	-0.03
<i>CSR attributions (H3)</i>			
Egoistic-driven (1)	-0.12***	-0.11***	-0.08**
Values-driven (2)	-0.04	-0.03	0.04
Stakeholder-driven (3)	-0.11***	-0.13***	-0.05
<i>Brand activism (H4)</i>	0.04	0.01	-0.04
<i>Healthfulness (H5)</i>	-0.04	0.02	-0.05
<i>Variance explained</i>			
Model 1 R^2 (ΔR^2)	32.6% (32.6%)***	36.3% (36.3%)***	23.8% (23.8%)***
Model 2 R^2 (ΔR^2)	33.8% (1.2%)***	36.9% (0.6%)**	25.1% (1.3%)***
Model 3 R^2 (ΔR^2)	33.8% (0.0%)	37.2% (0.3%)*	25.1% (0.0%)
Model 4 R^2 (ΔR^2)	35.5% (1.7%)***	39.4% (2.3%)***	26.4% (1.3%)***
Model 5 R^2 (ΔR^2)	35.7% (0.2%)	39.4% (0.0%)	26.5% (0.1)
Model 6 R^2 (ΔR^2)	35.8% (0.1%)	39.5% (0.0%)	26.7% (0.2)

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Model 1= Control; Model 2= Triple bottom line; Model 3= Informativeness; Model 4= CSR attribution; Model 5= Brand activism; Model 6= Healthfulness. Bold is used to denote the statistically significant results

Concerning comments, statistically significant negative relationships emerged in the element of economic sustainability ($\beta = -0.09$, $p < 0.001$), environmental sustainability ($\beta = -0.07$, $p < 0.01$), egoistic-driven attribution ($\beta = -0.11$, $p < 0.001$), and stakeholder-driven attribution ($\beta = -0.13$, $p < 0.05$). Concerning shares, significantly negative relationships were found for the element of economic sustainability ($\beta = -0.09$, $p < 0.001$), environmental sustainability ($\beta = -0.09$, $p < 0.01$) and egoistic-driven attribution ($\beta = -0.08$, $p < 0.01$). This indicated that sustainability communication on Facebook generated a statistically negative relationship to brand post engagement.

5.3.2 Instagram

Table 5.2 shows the hierarchical regression results for Instagram, on which 5 brands and 3 countries had an average of 399,439.03 followers (SD= 648,327.74). Concerning likes, statistically significant positive relationships were obtained for brand activism ($\beta= 0.04$, $p< 0.01$) and healthfulness ($\beta= 0.04$, $p< 0.01$), and statistically significant negative relationships were detected in the elements of environmental sustainability ($\beta= -0.17$, $p< 0.001$) and stakeholder-driven attribution ($\beta= -0.05$, $p< 0.01$).

Table 5.2 Standardized regression coefficients for Instagram (N= 1858)

Variables	Likes (β)	Comments (β)
Submission frequency in a day	-0.01	0.02
Brand	-0.19***	-0.12***
# Followers	0.75***	0.70***
Message appeal	0.02	0.02
Vividness	-0.04***	-0.01
Country of operation	-0.02	0.06***
<i>Triple bottom line (H1)</i>		
Economic (1)	0.00	-0.01
Environmental (2)	-0.17***	-0.16***
<i>Informativeness (H2)</i>	0.02	0.03
<i>CSR attributions (H3)</i>		
Egoistic-driven (1)	-0.02	-0.04*
Values-driven (2)	0.01	-0.02
Stakeholder-driven (3)	-0.05**	-0.09***
<i>Brand activism (H4)</i>	0.04**	0.02
<i>Healthfulness (H5)</i>	0.04**	0.11***
<i>Variance explained</i>		
Model 1 R^2 (ΔR^2)	67.7% (67.7%)***	46.8% (46.8%)***
Model 2 R^2 (ΔR^2)	70.7% (3.0%)***	48.9% (2.2%)***
Model 3 R^2 (ΔR^2)	70.7% (0.0%)	48.9% (0.0%)
Model 4 R^2 (ΔR^2)	71.1% (0.3%)***	50.1% (1.2%)***
Model 5 R^2 (ΔR^2)	71.1% (0.1%)*	50.1% (0.0%)
Model 6 R^2 (ΔR^2)	71.3% (0.1%)**	50.9% (0.7%)***

Notes: *** $p<0.001$; ** $p<0.01$; * $p<0.05$. Model 1= Control; Model 2= Triple bottom line; Model 3= Informativeness; Model 4= CSR attribution; Model 5= Brand activism; Model 6= Healthfulness. Bold is used to denote the statistically significant results

Concerning comments, statistically significant positive relationships could be found for healthfulness ($\beta = 0.11$, $p < 0.001$). In contrast, the number of comments showed statistically significant negative relationships with the elements of environmental sustainability ($\beta = -0.16$, $p < 0.001$), egoistic-driven attribution ($\beta = -0.04$, $p < 0.05$), and stakeholder-driven attribution ($\beta = -0.09$, $p < 0.001$).

These findings are consistent with the existing literature about brand activism where significant positive results were obtained on social media (Lee and Yoon 2020). In particular, the result was further validated on Instagram. The theoretical significance of these results lies in the platform-specific effectiveness of certain sustainability-related message factors. The observed discrepancies between Facebook and Instagram suggest that the same strategies may not yield identical outcomes across different social media platforms. For instance, Instagram is more visual-centric and may be more receptive to storytelling (Highfield and Leaver, 2014) on "brand activism" and "healthfulness" messages, whereas the dynamics of Facebook are more marketing purposes on brands and products may lead to different outcomes for similar messages (Lee et al., 2013). The results underscore the importance of tailoring message strategies to the unique characteristics of each platform to maximize post engagement with the target audience.

The findings extended brand activism beyond social sustainability and encompassed economic and environmental sustainability messages on brand post engagement as the significant positive variable by driving consumers' attitudinal (post likes) engagement. Moreover, using a hashtag and guiding consumers to action also achieved brand post engagement on sustainability messages (Xiong, Cho and Boatwright, 2019). For example, Ben & Jerry's post on environmental brand activism shows how to use brand activism with hashtag activism. *"Join the battle for climate justice!" urges the statement. Stand in solidarity with the students and young leaders demanding action during the #GlobalClimateStrikes on September 20th and 27th. Learn more by following the link in our profile!"* (2019, Instagram, USA). As previously indicated, environmental advocacy is accomplished through hashtag activism.

Also, as seen in Table 5.2, healthfulness increased social media engagement, which is contrary to the present literature since consumer impression of healthy food is undesirable, and they are sceptical of firms' health promises (e.g., Lin and Chang, 2012; Raghunathan, Sexton, Garnett and Lorimer, 2022; Taufik et al., 2023). The possible reason might be COVID-19

because health worries have grown and firms' health claims on their products have increased. Consequently, healthfulness has created a statistically significant positive brand post engagement. This resulted in affective (post likes) and cognitive (post comments) participation in sustainability messages, which will be covered in further depth in Chapter 8 about sustainability development and raising awareness (Chae, 2021).

In the qualitative analysis, no distinct consumer responses were observed towards the various social media platforms. This could be clarified by considering that social media users are more likely to actively engage on platforms they are enthusiastic about or genuinely enjoy using.

5.4 Summary

In conclusion, this chapter has provided the analysis of brand post engagement on the social media platforms, Facebook and Instagram, with a specific focus on sustainability messages to gain insights into the characteristics of these platforms and their influence on user engagement with brand's posts.

The findings revealed disparities between the two platforms. On Facebook, sustainability-related messages showed statistically significant negative relationships with brand post engagement metrics on the Likes, Comments, and Shares. This suggests that sustainability communication on Facebook generated a negative engagement. In contrast, Instagram, showed statistically significant positive relationships for specific variables such as brand activism and healthfulness, while also finding statistically significant negative relationships for other elements like environmental sustainability, egoistic-driven and stakeholder-driven attribution.

These outcomes underscore the unique characteristics of each platform and the platform-specific effectiveness of certain sustainability-related message factors on the target audience. Section 8.3 offers a discussion concerning the utilisation of social media platforms on sustainability communication focusing on both the antecedents and consumer usage of these platforms.

Chapter 6 : Results for Different Brands

6.1 Introduction

This chapter provides insights into brand-specific analyses on Ben & Jerry's, Hellmann's, Activia, Knorr and Coca-Cola separately. The aim is to understand how the hypothesised relationship differ between the five brands. Section 6.2 commences by presenting descriptive statistics with a quantitative analysis of post engagement across five brands. In 6.3, inferential statistics assess the statistical significance of post engagement for each brand. Section 6.4 employs a qualitative approach to closely examine potential variations from consumer comments to brands. The chapter concludes with a summary of the major findings.

6.2 Descriptive Statistics

Previous studies show that customer online engagement is not only limited to post content but also is affected by a brand including as brand's presence, name, products, and messages (Robson and Banerjee, 2022; Swani and Milne, 2017). Therefore, brands were analysed in this section to see if sustainability-related post engagement in the food industry varies by brand. The division of sustainability posts by brands is depicted in Figure 6.1 below.

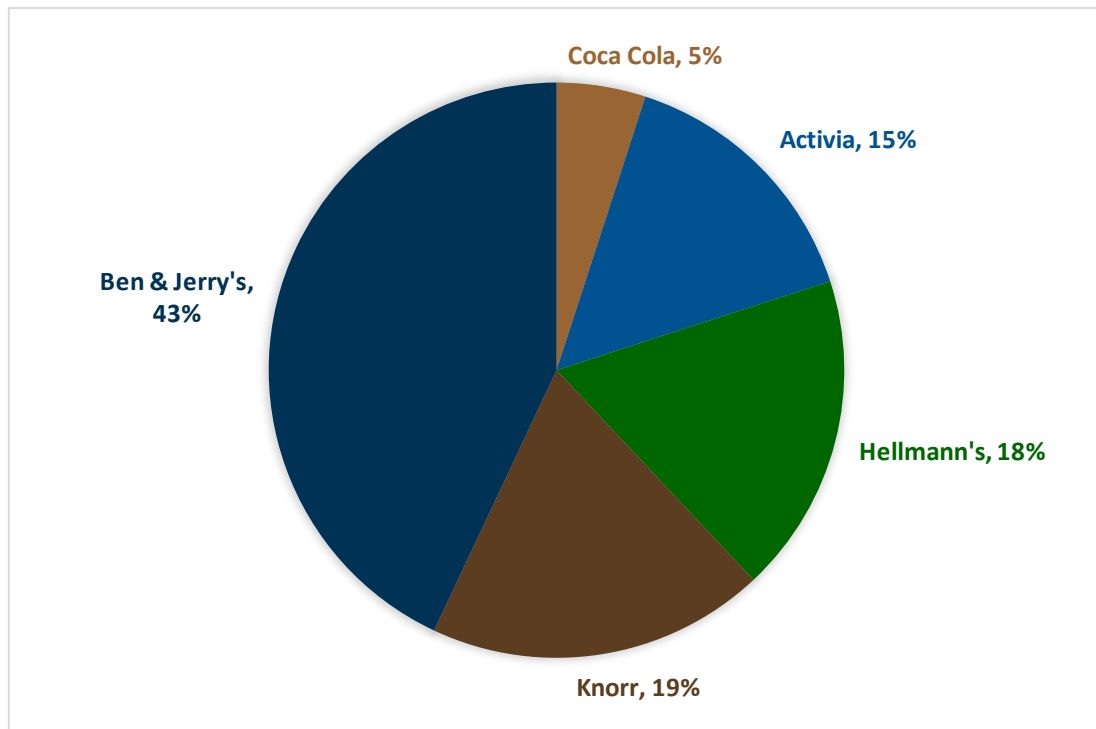


Figure 6.1 Distribution of brands' sustainability posts in the sample (%), 2019-2021
Source: The Author

Figure 6.1 shows that Ben & Jerry's delivered the most sustainability-related posting (43%), followed by Knorr (19%), Hellmann's (18%), Activia (15%), and Coca-Cola (5%). This ratio was reached by examining all social media posts of 5 brands from 2019 to 2021 and including all sustainability posts.

According to the standardised model coefficients in Table 4.4, brand has a strong influence on brand post-engagement in sustainability communication. Therefore, this section empirically tests with a large-scale dataset and compares elements of the framework across 5 multinational food brands that address the further validation of the concept that engagement can take (Dessart, Veloutsou and Morgan-Thomas, 2015). Next, the result of Ben & Jerry's is presented.

6.3 Model Development and Inferential Statistics

6.3.1 Ben & Jerry's

Ben & Jerry's main sustainability messages were identified as fairtrade, political activism, vegan and Non-Dairy food. The brand also provides national messages which are political

activism such as Black Lives Matter for the USA, refugee messages for the UK and LGBT+ for Brazil.

Correspondingly, the sustainability messages of Ben & Jerry's were examined, and the hierarchical regression findings are shown in Table 6.1.

Table 6.1 Standardized regression coefficients for Ben & Jerry's (N = 1352)

Variables	Likes (β)	Comments (β)	Shares (β)
Submission frequency in a day	0.22***	0.13***	0.10**
# Followers	-0.49***	-0.08***	-0.64***
Message appeal	0.03	0.004	-0.02
Vividness	-0.07***	-0.13***	-0.39***
Country of operation	-0.65***	-0.58***	0.18***
<u>Triple bottom line (H1)</u>			
Economic (1)	-0.05**	-0.07**	-0.08*
Environmental (2)	-0.19***	-0.22***	-0.15***
<u>Informativeness (H2)</u>	0.04	0.057*	0.001
<u>CSR attributions (H3)</u>			
Egoistic-driven (1)	-0.11***	-0.16***	-0.06
Values-driven (2)	-0.06	-0.11**	0.02
Stakeholder-driven (3)	-0.10***	-0.19***	-0.02
<u>Brand activism (H4)</u>	-0.02	-0.01	0.00
<u>Healthfulness (H5)</u>	0.06*	0.11***	0.03
<u>Variance explained</u>			
Model 1 R^2 (ΔR^2)	51.3% (51.3%)***	32.9% (32.9%)***	40.4% (40.4%)***
Model 2 R^2 (ΔR^2)	53.2% (1.9%)***	34.6% (1.7%)***	42.2% (1.8%)***
Model 3 R^2 (ΔR^2)	53.3% (0.1%)	34.9% (0.3%)*	42.2% (0.0%)
Model 4 R^2 (ΔR^2)	55.1% (1.9%)***	39.4% (4.6%)***	42.9% (0.6%)
Model 5 R^2 (ΔR^2)	55.2% (0.1%)	39.4% (0.0%)	42.9% (0.0%)
Model 6 R^2 (ΔR^2)	55.4% (0.2%)*	40.0% (0.6%)***	42.9% (0.0%)

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Model 1= Control; Model 2= Triple bottom line; Model 3= Informativeness; Model 4= CSR attribution; Model 5= Brand activism; Model 6= Healthfulness. Bold is used to denote the statistically significant results

Concerning Likes, a statistically significant positive relationship could be found between healthfulness ($\beta = 0.06$, $p < 0.05$). However, the number of likes showed statistically significant negative relationships with the elements of economic sustainability ($\beta = -0.05$, $p < 0.01$), environmental sustainability ($\beta = -0.19$, $p < 0.001$), egoistic-driven attribution ($\beta = -0.11$, $p < 0.001$), stakeholder-driven attribution ($\beta = -0.10$, $p < 0.001$). Concerning Comments, a statistically significant positive relationship emerged between healthfulness ($\beta = 0.11$, $p < 0.001$) and statistically significant negative relationships with the elements of economic sustainability ($\beta = -0.07$, $p < 0.01$), environmental sustainability ($\beta = -0.22$, $p < 0.001$), egoistic-

driven attribution ($\beta = -0.16$, $p < 0.001$), values-driven attribution ($\beta = -0.11$, $p < 0.01$), and stakeholder-driven attribution ($\beta = -0.19$, $p < 0.001$). Concerning Shares, no significant positive relationships were detected, however, the number of shares showed statistically significant negative relationships with the elements of economic sustainability ($\beta = -0.08$, $p < 0.05$), environmental sustainability ($\beta = -0.15$, $p < 0.001$), and egoistic-driven attribution ($\beta = -0.06$, $p < 0.05$). The results indicate that sustainability messages that align with healthfulness and avoid excessive focus on economic or egoistic-driven aspects could lead to higher engagement in terms of Likes and Comments. The negative associations with certain sustainability aspects suggest that such content may not resonate as well with the audience. Sharing behaviour appears to be less influenced by the examined factors.

In Ben & Jerry's social media analysis, the largest increment in variance explained was contributed by CSR attribution for Likes (from 53.3% to 55.1%, $\Delta R^2 = 1.9\%$), and also for Comments (from 34.9% to 39.4%, $\Delta R^2 = 4.6\%$), and the elements of triple bottom line for Shares (from 40.4% to 42.2%, $\Delta R^2 = 1.8\%$). The analysis reveals that CSR attribution and the elements of the triple bottom line significantly impact engagement (Likes, Comments, Shares), but this impact tends to be negative. Brands like Ben & Jerry's should carefully refine their messaging and presentation of these elements to better align with their consumers' preferences and strengthen brand value proposition on sustainability.

6.3.2 Hellmann's

Hellmann's main sustainability message was identified as food waste. The brand has a global sustainability message in vegan food and also provided "Meatless Monday" campaign for the USA, the UK and Brazil. Table 6.2 displays the hierarchical regression findings for Hellmann's brand post engagement to those sustainability posts.

Table 6.2 Standardized regression coefficients for Hellmann's (N = 562)

Variables	Likes (β)	Comments (β)	Shares (β)
Submission frequency in a day	-0.22***	-0.18***	-0.19**
# Followers	-0.41***	-0.03	0.12
Message appeal	-0.02	0.01	0.24
Vividness	0.07	0.13**	0.13
Country of operation	0.12**	0.24***	0.26***
<i>Triple bottom line (H1)</i>			
Economic (1)	-0.03	-0.04	-0.05
Environmental (2)	-0.09*	0.02	-0.14*
<i>Informativeness (H2)</i>	0.04	0.02	0.01
<i>CSR attributions (H3)</i>			
Egoistic-driven (1)	-0.20***	-0.13**	-0.11
Values-driven (2)	-0.09*	-0.06	0.01
Stakeholder-driven (3)	0.06	0.04	-0.06
<i>Brand activism (H4)</i>	-0.02	-0.12**	-0.11
<i>Healthfulness (H5)</i>	0.04	0.20***	0.04
<i>Variance explained</i>			
Model 1 R^2 (ΔR^2)	25.5% (25.5%)***	11.0% (11.0%)***	15.6% (15.6%)***
Model 2 R^2 (ΔR^2)	27.6% (2.1%)***	11.3% (0.3%)	17.8% (2.2%)
Model 3 R^2 (ΔR^2)	27.6% (0.1%)	12.5% (1.2%)**	18.5% (0.7%)
Model 4 R^2 (ΔR^2)	32.6% (4.9%)***	16.0% (3.5%)***	20.6% (2.1%)
Model 5 R^2 (ΔR^2)	32.7% (0.1%)	18.0% (2.0%)***	21.4% (0.9%)
Model 6 R^2 (ΔR^2)	32.8% (0.1%)	20.7% (2.6%)***	21.5% (0.1%)

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Model 1= Control; Model 2= Triple bottom line; Model 3= Informativeness; Model 4= CSR attribution; Model 5= Brand activism; Model 6= Healthfulness. Bold is used to denote the statistically significant results

Concerning Likes, there is not a statistically significant positive relationship and the statistically significant negative relationships established with elements of environmental sustainability ($\beta = -0.09$, $p < 0.05$), egoistic-driven attribution ($\beta = -0.20$, $p < 0.001$), and values-driven attribution ($\beta = -0.09$, $p < 0.05$). Concerning comments, a significantly positive relationship only emerged for healthfulness ($\beta = 0.20$, $p < 0.001$) and statistically significant negative relationships were observed for egoistic-driven attribution ($\beta = -0.13$, $p < 0.01$), and brand activism ($\beta = -0.12$, $p < 0.01$). Concerning shares, a significantly positive relationship could not be found, in contrast, the number of shares exhibited statistically significant negative relationships with the elements of environmental sustainability ($\beta = -0.14$, $p < 0.05$) and egoistic-driven attribution ($\beta = -0.13$, $p < 0.05$). The findings stress the importance of carefully presenting CSR attributions for Hellmann's, particularly on Likes and Comments. Healthfulness can also drive the positively-valenced engagement in Comments.

Similar to Ben & Jerry's, the largest increment in variance explained was contributed by CSR attribution for Likes (from 27.6% to 32.6%, $\Delta R^2 = 4.9\%$), and for Comments (from 12.5% to 16.0%, $\Delta R^2 = 3.5\%$). This suggests that CSR attributions were the most influential variables in Likes and Comments, although there is no significant increment for Shares in the context of Hellmann's sustainability post engagement. The lack of a significant relationship with Shares suggests that other factors not examined in this study might play a more critical role in sharing behaviour.

6.3.3 Activia

Activia's main sustainability message was identified as gut and mental health. The brand has a global sustainability message in health and also has communicated it with influencers, such as well-known influencers Iskra and Nina Dobrev in the USA, very few local influencers in the UK and numerous micro-level local influencers in Brazil. Table 6.3 shows the hierarchical regression results for the brand post engagement to Activia.

Table 6.3 Standardized regression coefficients for Activia (N = 460)

Variables	Likes (β)	Comments (β)	Shares (β)
Submission frequency in a day	0.00	-0.04	0.23*
# Followers	-0.27***	-0.01	0.51***
Message appeal	0.05	0.05	-0.02
Vividness	-0.15***	-0.12**	0.01
Country of operation	0.54***	0.49***	-0.05
<i>Triple bottom line (H1)</i>			
Economic (1)	-0.09*	0.00	-0.05
Environmental (2)	-0.02	-0.01	-0.049
<i>Informativeness (H2)</i>	-0.01	-0.09*	0.121
<i>CSR attributions (H3)</i>			
Egoistic-driven (1)	0.07	0.01	0.10
Values-driven (2)	-0.09*	-0.16***	0.10
Stakeholder-driven (3)	-0.03	-0.04	-0.11
<i>Brand activism (H4)</i>	0.20***	0.16***	0.15
<i>Healthfulness (H5)</i>	0.06	0.04	0.11
<i>Variance explained</i>			
Model 1 R^2 (ΔR^2)	40.5% (40.5%)***	25.9% (25.9%)***	27.8% (27.8%)***
Model 2 R^2 (ΔR^2)	41.8% (1.4%)**	26.0% (0.1%)	29.0% (1.2%)
Model 3 R^2 (ΔR^2)	42.0% (0.2%)	27.4% (1.4%)**	29.9% (0.9%)
Model 4 R^2 (ΔR^2)	44.0% (2.0%)**	30.7% (3.3%)***	32.7% (2.7%)
Model 5 R^2 (ΔR^2)	47.0% (2.9%)***	32.7% (2.0%)***	33.8% (1.1%)
Model 6 R^2 (ΔR^2)	47.2% (0.2%)	32.9% (0.1%)	34.6% (0.8%)

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Model 1= Control; Model 2= Triple bottom line; Model 3= Informativeness; Model 4= CSR attribution; Model 5= Brand activism; Model 6= Healthfulness. Bold is used to denote the statistically significant results

Concerning Likes, brand activism ($\beta = 0.20$, $p < 0.001$) showed significant positive relationships where the element of economic sustainability ($\beta = -0.09$, $p < 0.05$) and value-driven attribution ($\beta = -0.09$, $p < 0.05$) exhibited statistically significant negative relationship. Concerning Comments, brand activism ($\beta = 0.16$, $p < 0.001$) demonstrated a statistically significant positive relationship, whilst informativeness ($\beta = -0.09$, $p < 0.05$) and value-driven attribution ($\beta = -0.16$, $p < 0.001$) demonstrated a statistically significant negative relationship. An either positive or negative relationship was detected concerning Shares.

Different from the previous two brand analyses, the largest increment in variance explained was contributed by brand activism for Likes (from 44.0% to 47.0%, $\Delta R^2 = 2.9\%$). Like Ben & Jerry's and Hellmann's, CSR attribution for Comments generated the greatest increase in variance (from 27.4% to 30.7%, $R^2 = 3.3\%$). This implies that brand activism and CSR attributions were the most influencing variables in Likes and Comments, however, there is no

significant increase in Shares in the context of Activia's engagement sustainability post engagement. The country of operation appears to have a positive engagement with Likes and Comments. Overall, this interplay between country operations, influencer collaboration, and brand activism underscores the importance of sustainability messaging with local audiences, potentially through influencer partnerships that align with Activia's core values and sustainability focus.

6.3.4 Knorr

Knorr's most prevalent sustainability message was discovered as meat-free information via its campaign "Cheat on Meat". The brand has shared national messages which are utilizing leftovers in the USA, new health food products of Knorr such as Zero Salt Veggie Cubes in the UK and seasonal vegetables and fruits promotion in Brazil. Table 6.4 displays the hierarchical regression results for Knorr.

Table 6.4 Standardized regression coefficients for Knorr (N = 599)

Variables	Likes (β)	Comments (β)	Shares (β)
Submission frequency in a day	-0.02	-0.05	-0.04
# Followers	-0.37***	-0.01	-0.33***
Message appeal	-0.06	-0.017	-0.01
Vividness	0.11**	0.20***	0.42***
Country of operation	-0.03	0.09*	-0.05
<i>Triple bottom line (H1)</i>			
Economic (1)	0.01	0.03	-0.09
Environmental (2)	0.03	0.13**	0.02
<i>Informativeness (H2)</i>	-0.09*	-0.15**	-0.19**
<i>CSR attributions (H3)</i>			
Egoistic-driven (1)	-0.04	-0.01	-0.02
Values-driven (2)	-0.04	0.11*	0.16*
Stakeholder-driven (3)	0.03	0.03	0.04
<i>Brand activism (H4)</i>	0.08	-0.08	-0.08
<i>Healthfulness (H5)</i>	0.06	0.02	-0.03
<i>Variance explained</i>			
Model 1 R^2 (ΔR^2)	15.6% (15.6%)***	6.7% (6.7%)***	24.0% (24.0%)***
Model 2 R^2 (ΔR^2)	16.1% (0.5%)	7.7% (1.0%)*	24.8% (0.8%)
Model 3 R^2 (ΔR^2)	16.8% (0.7%)*	9.0% (1.3%)**	26.5% (1.6%)*
Model 4 R^2 (ΔR^2)	17.1% (0.3%)	9.9% (0.9%)	28.3% (1.9%)
Model 5 R^2 (ΔR^2)	17.5% (0.4%)	10.5% (0.5%)	28.6% (0.3%)
Model 6 R^2 (ΔR^2)	17.8% (0.3%)	10.5% (0.0%)	28.7% (0.1%)

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Model 1= Control; Model 2= Triple bottom line; Model 3= Informativeness; Model 4= CSR attribution; Model 5= Brand activism; Model 6= Healthfulness. Bold is used to denote the statistically significant results

Concerning Likes, a statistically significant positive relationship could not be found whereas a statistically significant negative relationship was found for informativeness ($\beta = -0.09, p < 0.05$). Concerning comments, statistically significant positive relationships emerged for the element of environmental sustainability ($\beta = 0.13, p < 0.01$), and value-driven attribution ($\beta = 0.11, p < 0.05$). In contrast, the number of comments exhibited a statistically significant negative relationship with informativeness ($\beta = -0.15, p < 0.01$). It indicates that overly informative posts may discourage Knorr consumers from leaving comments. This brand should focus on creating posts that spark discussions while maintaining value. Concerning Shares, a statistically significant positive relationship merged between value-driven attribution ($\beta = 0.15, p < 0.05$), and a statistically significant negative relationship with informativeness ($\beta = -0.19, p < 0.01$).

Unlike the previous three brand analyses, Ben & Jerry's – Hellmann's – Activia, the triple bottom line contributed the greatest increase in variance explained for Likes (from 16.1% to 16.8%, $\Delta R^2 = 0.7\%$), for Comments (from 7.7% to 9.0%, $\Delta R^2 = 1.3\%$), and for Shares (from 24.8% to 26.5%, $\Delta R^2 = 1.6\%$) in the context of Knorr's sustainability post engagement. The findings suggest that Knorr's triple bottom line elements successfully match with the brand's CSR values and attributions, resulting in positive engagement with the audience.

6.3.5 Coca-Cola

Coca-Cola's most common sustainability message was identified as social sustainability issues in particular LGBT+ through the brand's love messages. The brand has national sustainability messages which are Black Lives Matter in the USA, supporting local communities in the UK and unity and harmony messages of the society in Brazil. Table 6.5 shows the hierarchical regression results for Coca-Cola.

Table 6.5 Standardized regression coefficients for Coca-Cola (N = 176)

Variables	Likes (β)	Comments (β)	Shares (β)
Submission frequency in a day	0.04	-0.05	-0.19
# Followers	-0.24***	0.30***	-0.53*
Message appeal	0.11	-0.10	0.02
Vividness	-0.22**	-0.14*	0.18
Country of operation	-0.22**	-0.17*	0.29
<i>Triple bottom line (H1)</i>			
Economic (1)	-0.02	-0.10	0.06
Environmental (2)	0.11	0.11	0.23
<i>Informativeness (H2)</i>	0.02	0.15*	0.27
<i>CSR attributions (H3)</i>			
Egoistic-driven (1)	-0.28***	-0.29***	-0.02
Values-driven (2)	-0.05	-0.26*	0.29
Stakeholder-driven (3)	-0.30*	-0.50***	-0.20
<i>Brand activism (H4)</i>	-0.13	-0.09	-0.46*
<i>Healthfulness (H5)</i>	-0.28**	-0.15	-0.09
<i>Variance explained</i>			
Model 1 R^2 (ΔR^2)	15.9% (15.9%)***	17.0% (17.0%) ***	34.5% (34.5%)**
Model 2 R^2 (ΔR^2)	17.8% (1.9%)	19.3% (2.3%)	39.8% (5.3%)
Model 3 R^2 (ΔR^2)	18.1% (0.3%)	20.9% (1.6%)	40.9% (1.0%)
Model 4 R^2 (ΔR^2)	28.6% (10.5%)***	31.0% (10.1%)***	50.2% (9.3%)
Model 5 R^2 (ΔR^2)	28.8% (0.2%)	31.2% (0.2%)	57.3% (7.1%)*
Model 6 R^2 (ΔR^2)	33.6% (4.9%)***	32.5% (1.3%)	57.6% (0.4%)

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Model 1= Control; Model 2= Triple bottom line; Model 3= Informativeness; Model 4= CSR attribution; Model 5= Brand activism; Model 6= Healthfulness. Bold is used to denote the statistically significant results

There is no significant positive relationship observed for Likes, Comments and Shares. In terms of statistically significant negative relationships, egoistic-driven ($\beta = -0.28$, $p < 0.001$), stakeholder-driven ($\beta = -0.30$, $p < 0.05$) and healthfulness ($\beta = -0.28$, $p < 0.01$) were detected for Likes, egoistic-driven ($\beta = -0.29$, $p < 0.001$), value-driven ($\beta = -0.26$, $p < 0.05$) and stakeholder-driven ($\beta = -0.50$, $p < 0.001$) were detected for Comments, and brand activism ($\beta = -0.46$, $p < 0.05$) was detected for Shares.

As compared to the other four brands, the greatest increase in variance was observed in Coca-Cola for Likes (from 18.1% to 28.6%, $\Delta R^2 = 10.5\%$), for Comments (from 20.9% to 31.0%, $\Delta R^2 = 10.1\%$), and Shares (from 50.2% to 57.3%, $\Delta R^2 = 7.1\%$). This, however, underscores that Coca-Cola must be more cautious in its sustainability messages on social media than other brands because those greatest increments are a matter of importance due to a negative base. The precise reasons for this outcome might be attributed to the specific nature of the brand's

sustainability message related to social issues (LGBT+ and other societal concerns) or the way these messages are framed and communicated. Further details are discussed in Section 8.4.

The following section reports the qualitative analysis of the responses focusing on the direction in which engagement and perception of the brand.

6.4 Qualitative Analysis: Brand-focused Responses

In this section, the qualitative analysis of consumer responses to brands' sustainability messages focuses on the direction in which engagement and perception of the brand are shaped. These insights provide a deeper understanding of consumer-brand interactions in sustainability communication, revealing the complex interplay between consumer sentiments and brand messaging. The themes of consumer response to brands are summarized in Table 6.6 with subthemes of conformity and resistance.

Table 6.6 Themes of consumer responses to the Brand

Brand-focused responses	
(+) Conformity	* emotional bonds to the brand
	* anti-brand (extreme) behaviour
(-) Resistance	* judgement on brand's initiatives
	*criticism of brand's involvement in sustainability

As Table 6.6 presents two key themes emerge: "conformity," where consumers develop positive emotional bonds to brands due to their sustainability efforts, and "resistance," encompassing various reactions, from critical judgments on brand initiatives to extreme anti-brand behaviour, questioning the brand's sustainability commitment. Examples of comments from the brand posts are used to demonstrate all of them.

Emotional bonds to the brand. Consumers created emotional relationships with the brands after seeing their sustainability messages on social media. Some comments emphasized brand love as in, "I love you more and more ❤️" and "I love this brand 🙌🙌😄😄😄". Others highlighted, "❤️❤️❤️❤️ I didn't expect less from you. Congratulations". Some comments admired brands because of their sustainability initiatives and efforts, "Wonderful! It's about time big companies take a stand! Thank you for doing this!". Comments like "Proud to be part

of this company ❤️” imply that brands' sustainability messages do not only create emotional bonds with the consumers but also with the employees. In a few cases, some consumers protect the brand from harsh users' comments by replying to them, such as “[@username tag] Go back a couple of posts you must've missed it. Black Lives Matter ❤️”, however, their tone is not always kind, such as “[@username tag] the cans do not you conservative sheep. It was an edited pic. Surprised u could read the can but not the article” and “[@username tag] wow they are going to suffer so much without you 😊”. These responses highlight the remarkable affection that consumers exhibit toward the brands. Their expressions of love and admiration often mirror interactions with close friends, suggesting that, for some, the brand has become more than just a business entity—it has become a meaningful part of their lives. This phenomenon bears significant implications for brand-consumer relationships that underscore the emotional resonance that well-crafted sustainability messages can generate.

Anti-brand (extreme) behaviour. Since anonymity and invisibility on social media help Internet users to express extreme feelings and spread hate speech (Brown, 2017; Filibeli and Ertuna, 2021), some consumers attempted to use hate speech for political activist messages, such as “go to hell” and “Supporting terrorism and promoting discrimination. Shame on you!”, “y'all are either stupid or evil”. Intending to encourage others was also common by tagging them in the post, “can you believe this bullshit”.

Having seen a sustainability-related brand post, consumers typically responded in ways such as boycotting, switching brands to competitors, or even quitting the brands that caused customer loss. As evident from comments such as, “Looking at these other comments I think you'll be losing quite a few customers!”, “Guess who's moving on to your rival?” and “Haagen Dazs some potential new customers for you here”. The impact of a brand's post is global and can cause customer loss in another country, such as “No problem ! You have just lost some of your best customers in Zurich”.

Consumers also recall brands' other operations or the actions of parent companies such as “And feel free to boycott other Unilever products (including Breyers ice cream, Lipton tea, PG tips & Hellman's mayonnaise) btw. There are dozens of them in every single supermarket, worldwide. Just check the back of the packaging”. As a result, the effect of a boycott may be even more disruptive for multinationals.

Judgement on brand's sustainability initiatives. Consumers judged brands' sustainability initiatives either they expected more to see from the brand or supported the existing sustainability policies. For example, this consumer would wish to be seen and represented more by the brand, "Your commercial says your on the side of food.....how do you feel about BLACK LIVES MATTER? We buy food too you know." In some cases, consumers were happy with the present regulations and policies, therefore they appreciated them, stating "Love their [the government] new law 🙌🙌🙌🙌😄". This demonstrates that consumers are actively assessing the brand's commitment to sustainability and have clear expectations in this regard. They desire brands to represent diverse voices and address relevant societal issues.

Criticism of the brand's involvement in sustainability. Several consumers struggle to perceive a direct connection between the brand's sustainability initiatives and its primary product offerings. Some users express confusion or scepticism about the brand's involvement in social or environmental matters. For instance, comments like "I thought u were an ice cream company. hmm...," "Are you an ice cream business or a political activist group?!", and "Oh my goodness, just sell your soda and hush" highlight this sentiment. This critique is the significance of clear and coherent communication about the brand's broader purpose and values. It emphasizes the need for brands to bridge the gap between their core identity, product focus, and their commitment to sustainability. This theme serves as a valuable finding for brands to carefully articulate the relevance and authenticity of their sustainability efforts, ensuring that consumers perceive them as integral to the brand's mission, rather than unrelated elements.

6.5 Summary

Brand analysis in this chapter discovered the disparities in the sustainability messages across brands. Table 6.7 summarises how these brands promote post engagement in sustainability-related messages with positive and negative engagement outcomes.

Table 6.7 Findings with antecedents of brand post engagement across brands

Brand	Post Engagement Outcome	Insights from Quantitative Analysis	Insights from Qualitative Analysis
Ben & Jerry's	Positive engagement: Informativeness, Healthfulness Negative engagement: Triple Bottom Line, CSR attributions	Healthful messages generate more engagement. TBL elements may not resonate well with post engagement. Stakeholder-driven messages may lack engagement.	<i>Emotional bonds to the brand</i> by fostering a sense of love, admiration, and even defensive support for the brand.
Hellmann's	Positive engagement: Healthfulness Negative engagement: Triple Bottom Line, CSR attributions, Brand Activism	Healthfulness messages receive positive engagement thanks to product communication. Other sustainability antecedents may not be well-received in terms of Likes, Comments, and Shares.	<i>Anti-brand behaviour</i> by extreme reactions, boycotts, and potential customer loss particularly in controversial or political messages.
Activia	Positive engagement: Healthfulness Negative engagement: Triple Bottom Line, CSR attributions	Consistency in messaging with brand purpose enhances engagement thanks to healthfulness.	<i>Judgments on brand's initiatives</i> by expressing different expectations.
Knorr	Positive engagement: Triple Bottom Line, CSR attributions Negative engagement: Informativeness	Posts containing too much information may receive fewer Likes and Comments. Value-driven messages resonate well with TBL.	<i>Criticism of brand's sustainability involvement</i> due to the gap between the relevance of a brand's core identity, and sustainability commitment.
Coca-Cola	Positive engagement: Informativeness, Negative engagement: CSR attributions, Brand Activism, Healthfulness	Less frequency posting with informativeness generates positive engagement. Negative relationships relate to the brand's nature and sustainability messages and, the need for a more careful and nuanced strategy.	

As indicated in Table 6.7, Ben & Jerry's exhibited high levels of positive relationships with informativeness and healthfulness, along with negative relationships with the elements of the triple bottom line and CSR attributions. Hellmann's showed a positive association with healthfulness, but a negative correlation with the elements of the triple bottom line, CSR attributions, and brand activism. Activia demonstrated a positive link with healthfulness while revealing negative associations with the elements of the triple bottom line and CSR attributions. Knorr displayed positive connections with the elements of the triple bottom line and CSR attributions but revealed a negative association with informativeness. Lastly, Coca-Cola exhibited a positive relationship with informativeness, but negative associations with CSR attributions, brand activism, and healthfulness. The qualitative analysis reveals shared

patterns across all brands' fan social media pages. These broad themes will be explored in more detail in Chapter 8, where brand-specific factors will be discussed in these relationships.

Chapter 7 : Results for Different Periods of Analysis

7.1 Introduction

This chapter provides insights into periods by examining the influence of the COVID-19 pandemic with the analyses of 2019, 2020, and 2021 separately. The aim is to understand how the hypothesised relationship differs between the three years with the impact of a pandemic. Section 7.2 initiates the analysis by presenting descriptive statistics, providing an overview of the changes in engagement during the pre-, during, and post-COVID periods. In Section 7.3, inferential statistics are presented to assess the statistical significance of engagement differences across these periods. Furthermore, in Section 7.4, a qualitative approach is employed to closely examine observed differences between periods, particularly considering the impact of COVID-19. The chapter concludes with a summary of the key findings.

7.2 Descriptive Statistics

As the COVID-19 pandemic caused the recession and reversed the whole sustainable development gains of the last decades, it is critical to analyse its influence on sustainability communication through social media, as social media usage soared throughout the pandemic (Mason et al., 2021). Thus, the years were identified into three categories, 2019 as pre-COVID, 2020 first COVID outbreak and 2021 post-COVID outbreak period.

Figure 7.1 exhibits consumer engagement in brands' sustainability-related posts from 2019 through 2021.

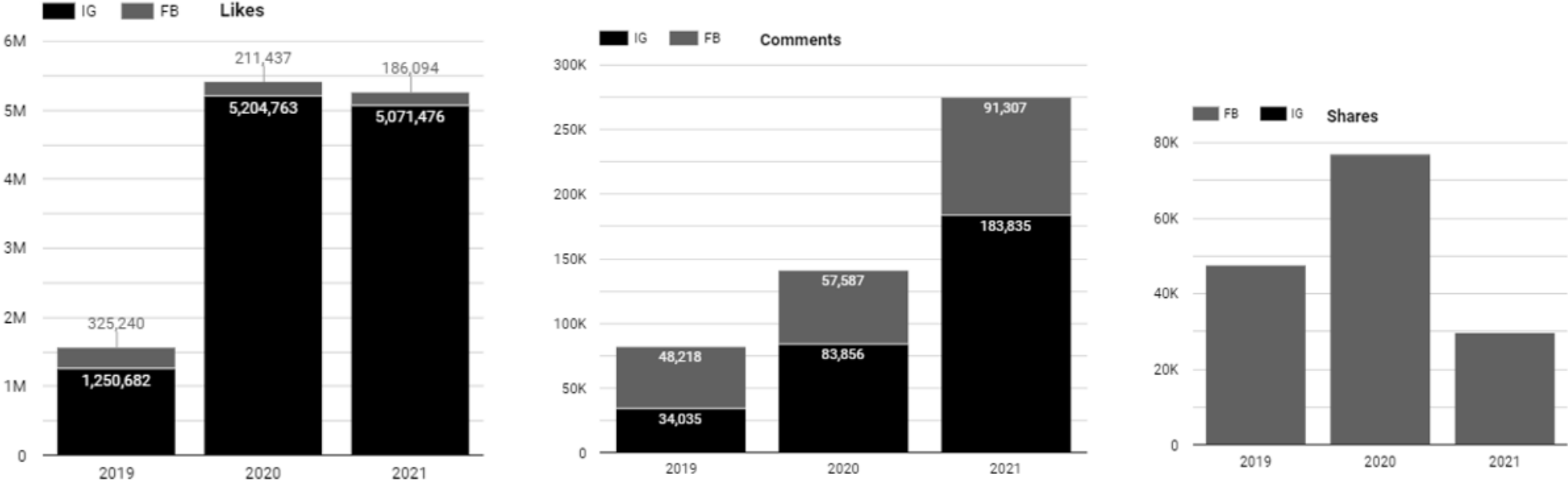


Figure 7.1 The number of Likes, Comments and Shares across Instagram versus Facebook, 2019-2021
Source: The Author

As shown in Figure 7.1, there is a drastic rise in all engagement types including the number of Likes, Comments and Shares from 2019 to 2020. Instagram's rapid growth in terms of Likes and Comments on engagement could be attributed to its visual nature and user-friendly interface, which resonates well with consumers' preferences for visual content and easy interactions. On the other hand, Facebook's decline in engagement in Likes and Shares could be connected to changes in user demographics and preferences, as well as increased competition from other platforms.

Consequently, the findings correspond with the literature regarding growing social media usage, but the result also indicated that brand sustainability messages have gained prominence among consumers. Nevertheless, the number of Likes and Shares has reduced after 2020, or in the post-COVID period. Surprisingly, the number of Comments has climbed faster than in prior years. The explanation has been identified through the examination of customers' responses to these posts in Section 7.4, in summary, consumer scepticism and hesitation to brand on sustainability. messages to that shift in brand post engagement. Most comments suggest consumer enthusiasm for sustainable products, but consumer resilience and concerns about the brand after the epidemic.

7.3 Model Development and Inferential Statistics

Furthermore, period analysis was conducted in this section to see if sustainability-related post engagement in the food industry varies by year. The conceptual framework was tested each year and Table 7.1 demonstrates the standardised model coefficients.

Table 7.1 Standardized regression coefficients for pre-COVID, first and post-COVID outbreak period

Variables	Pre-COVID			First COVID Outbreak			Post-COVID Outbreak		
	Likes (β)	Comments (β)	Shares (β)	Likes (β)	Comments (β)	Shares (β)	Likes (β)	Comments (β)	Shares (β)
Submission frequency in a day	-0.03	-0.08*	0.01	-0.12***	-0.13***	-0.06	0.22***	0.14***	0.10**
# Followers	0.02	0.28***	0.60***	-0.34	-0.03	0.03	-0.48***	-0.06**	-0.62***
Message appeal	-0.02	-0.04	0.01	-0.05	-0.03	-0.02	0.03	0.00	-0.02
Vividness	0.01	0.09**	0.14**	-0.05*	0.04	0.18***	-0.07***	-0.13***	-0.40***
Country of operation	0.15***	0.19***	0.04	0.28***	0.27***	0.10	-0.66***	-0.58***	0.17***
<i>Triple bottom line</i>									
Economic (1)	-0.05	-0.08*	-0.06	-0.05***	-0.03	-0.05	-0.05**	-0.07**	-0.08**
Environmental (2)	-0.22***	-0.24***	0.02	-0.03	0.14***	0.08	-0.19***	-0.22***	-0.14***
Informativeness	-0.04	-0.01	0.04	-0.07***	-0.09**	-0.09	0.04	0.06	0.01
<i>CSR attributions</i>									
Egoistic-driven (1)	-0.06*	-0.01	-0.10	-0.05	-0.05	-0.05	-0.11***	-0.15***	-0.07
Values-driven (2)	0.09*	0.14***	0.02	-0.04	-0.06*	0.09	-0.05	-0.09**	0.02
Stakeholder-driven (3)	0.04	0.05	0.00	0.06*	0.05	0.03	-0.10***	-0.19***	-0.02
Brand activism	-0.04	-0.07	-0.19**	0.06*	0.01	-0.01	-0.02	-0.01	-0.01
Healthfulness	-0.15***	-0.19***	-0.08	-0.02	0.08*	-0.03	0.06*	0.11***	0.02
<i>Variance explained</i>									
Model 1 R^2 (ΔR^2)	35.1% (35.1%)***	17.7% (17.7%)***	56.0% (56.0%)***	25.3% (25.3%)***	9.6% (9.6%)***	5.2% (5.2%)***	51.2% (51.2%)***	33.0% (33.0%)***	40.4% (40.4%)***
Model 2 R^2 (ΔR^2)	39.6% (4.5%)***	25.9% (8.2%)***	56.3% (0.3%)	25.6% (0.3%)	11.6% (2.0%)***	6.5% (1.3%)	53.0% (1.9%)***	34.7% (1.7%)***	42.3% (1.9%)***
Model 3 R^2 (ΔR^2)	39.6% (0.0%)	26.0% (0.1%)	56.6% (0.3%)	26.1% (0.5%)**	13.0% (1.4%)***	6.9% (0.4%)	53.1% (0.1%)	35.0% (0.3%)*	42.3% (0.0%)
Model 4 R^2 (ΔR^2)	40.8% (1.3%)**	28.1% (2.1%)***	57.9% (1.3%)	27.2% (1.1%)**	14.1% (1.1%)**	8.0% (1.1%)	55.0% (1.9%)***	39.6% (4.6%)***	43.0% (0.7%)
Model 5 R^2 (ΔR^2)	40.8% (0.0)	28.1% (0.1%)	59.7% (1.8%)**	27.6% (0.4)*	14.1% (0.0%)	8.0% (0.0%)	55.0% (0.1%)	39.6% (0.0%)	43.0% (0.0%)
Model 6 R^2 (ΔR^2)	42.7% (1.8%)***	31.2% (3.1%)***	60.2% (0.4%)	27.6% (0.0%)	14.5% (0.5)*	8.1% (0.1%)	55.2% (0.2%)*	40.2% (0.6%)***	43.0% (0.0%)

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Model 1= Control; Model 2= Triple bottom line; Model 3= Informativeness; Model 4= CSR attribution; Model 5= Brand activism; Model 6= Healthfulness. Bold is used to denote the statistically significant results.

As demonstrated in the table, values-driven attribution ($\beta=0.09$, $p<0.05$ for Likes and $\beta=0.14$, $p<0.001$ for Comments) on brand posts exhibited a significant positive relationship with engagement in the pre-COVID period. It shows clearly that companies' values, in other words, their sustainability efforts to give back to the community have a favourable influence on customers in normal times, resulting in brand post engagement. Whereas, economic ($\beta=-0.08$, $p<0.05$ for Comments) and environmental sustainability ($\beta=-0.22$, $p<0.001$ for Likes and $\beta=-0.24$, $p<0.001$ for Comments), egoistic-driven attribution ($\beta=-0.06$, $p<0.05$ for Likes) and healthfulness ($\beta=-0.15$, $p<0.001$ for Likes and $\beta=-0.19$, $p<0.001$ for Comments) produced statistically significant negative relationships with brand post engagement. These findings confirm the importance of aligning brand messages with consumer values and concerns. The positive link between values-driven attribution and engagement highlights brands' social responsibility efforts. Conversely, negative correlations with economic, environmental, egoistic-driven, and health-related messages suggest a need for holistic, values-driven approaches for effective sustainability-related message engagement. However, the impact of the COVID-19 pandemic changed the results.

The COVID-19 pandemic produced the greatest number of significant positive correlations when compared to the other periods. In the first COVID outbreak, brand posts on environmental sustainability ($\beta=0.14$, $p<0.001$ for Comments) and healthfulness ($\beta=0.8$, $p<0.05$ for Comments) had a positive significant relationship with engagement. That implies consumers reflect the scarce factor or obscurity of COVID-19 in particular to environmental sustainability and health, therefore, they are positively influenced by those variables on the brand posts. Moreover, stakeholder-driven attribution ($\beta=0.6$, $p<0.05$ for Likes) and brand activism ($\beta=0.6$, $p<0.05$ for Likes) resulted in a positive correlation with brand post engagement. It implies that in unpredictable times such as a pandemic or a crisis, customers require greater unity, collaboration and action for a better outcome than in previous periods. On the contrary, economic sustainability ($\beta=-0.05$, $p<0.001$ for Likes), informativeness ($\beta=-0.07$, $p<0.001$ for Likes and $\beta=-0.09$, $p<0.01$ for Comments) and value-driven attribution ($\beta=-0.6$, $p<0.05$ for Comments) generated statistically significant negative relationship to brand post engagement. This suggests that in the first COVID-19 outbreak, customers were negatively impacted by economic sustainability concerns, excessively informational sustainability content, and company values on sustainability.

In the post-COVID outbreak period, the impact of healthfulness became stronger on engagement. It showed statistically significant positive relationships with Likes ($\beta = 0.06$, $p < 0.05$) and Comments ($\beta = 0.11$, $p < 0.001$). This implies that healthfulness is still a fundamental factor and consumers are responding to brand posts with even more worry now that COVID-19 has heightened consumer fear over worldwide health. On the other hand, there are more negative relationships at this time than in the preceding two periods. Economic sustainability ($\beta = -0.05$, $p < 0.01$ for Likes, $\beta = -0.07$, $p < 0.01$ for Comments and $\beta = -0.08$, $p < 0.01$ for Shares), environmental ($\beta = -0.19$, $p < 0.001$ for Likes, $\beta = -0.22$, $p < 0.001$ for Comments and $\beta = -0.14$, $p < 0.001$ for Shares), egoistic-driven attribution ($\beta = -0.11$, $p < 0.001$ for Likes and $\beta = -0.15$, $p < 0.001$ for Comments), and values-driven attribution ($\beta = -0.09$, $p < 0.01$ for Comments), and stakeholder-driven attribution ($\beta = -0.10$, $p < 0.001$ for Likes and $\beta = -0.19$, $p < 0.001$ for Comments) had a statistically significant negative relationship to brand post engagement. This suggests that consumers are negatively influenced by being exposed to sustainability content and firms' attribution to sustainability in the post-COVID outbreak period.

Above all, the findings will be discussed in depth in detail in Chapter 8 throughout the pre-crisis, during, and post-crisis situations to establish a social media marketing strategy for sustainability communication. The next section explores qualitative analysis to discover consumer responses to brand sustainability posts.

7.4 Qualitative Analysis

Out of 3149 brand posts, only 182 addressed COVID-19 or the pandemic, yet their engagement statistics fall below the average of the most commented posts. For qualitative analysis, only 2 posts were eligible because of their high comment counts. COVID-19 post 1 (Number of comments= 119) utilized an affective appeal to promote the "stay at home" message along with a practical recipe featuring a healthy option of the brand's product. COVID-19 post 2 (Number of comments= 3355) is an informative posting focused on the pandemic's impact on minor groups with racism. Figure 7.2 displays consumer comments related to these COVID-19 posts.

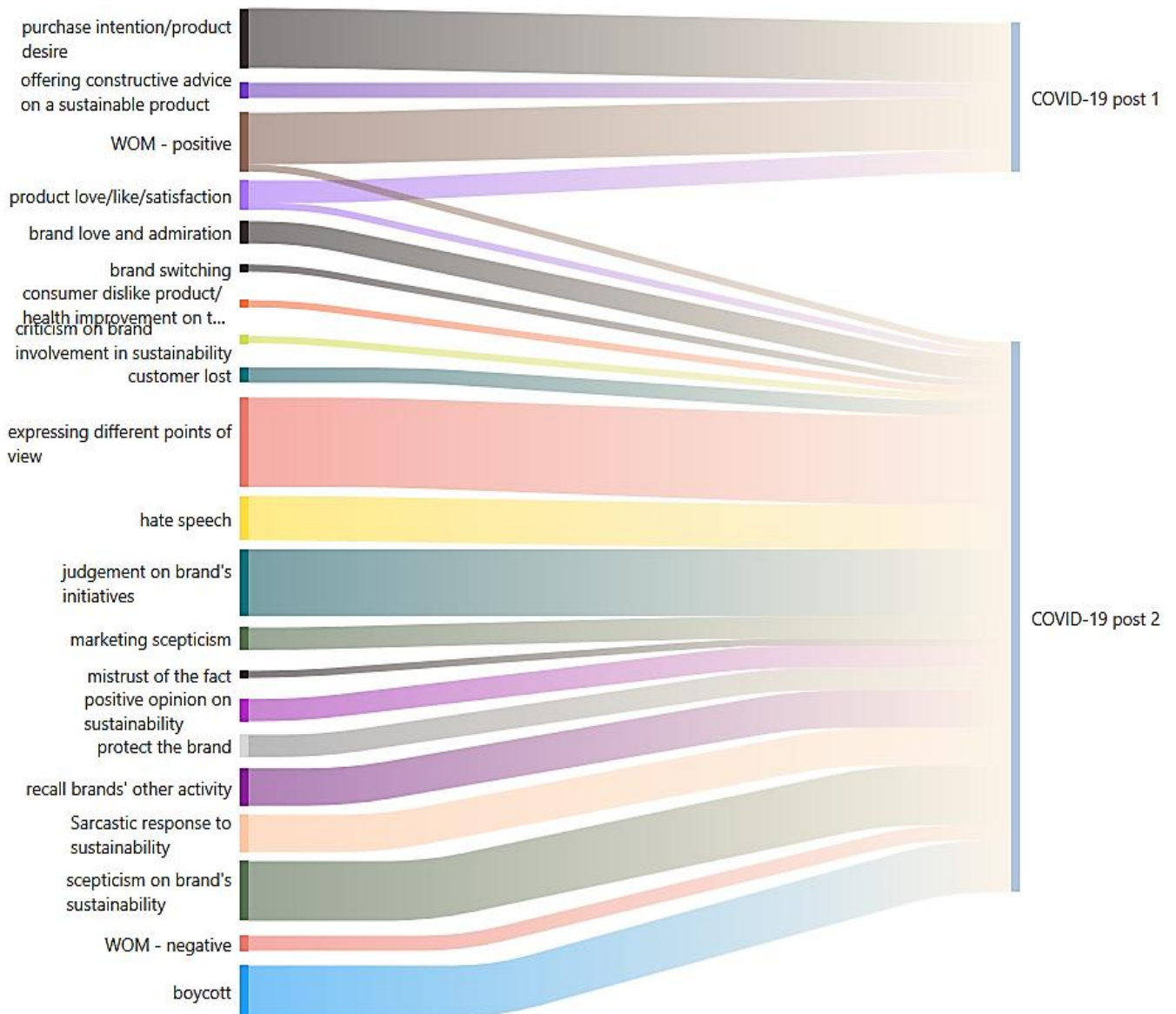


Figure 7.2 Consumer responses to the COVID-19 posts

Figure 7.2 reveals that brands approached COVID-19 messages from different angles, including aspects related to healthy products (post 1) and addressing racism (post 2). The results demonstrate that post 1 garnered more positive comments such as creating desire for the product, positive electronic word-of-mouth (e-WOM), offering advice to the online community, and expressing product satisfaction. In contrast, post 2 which is an informative post, triggered a higher number of negative comments such as hate speech, scepticism towards marketing, and calls for a boycott. This aligns with the quantitative analysis by confirming that during COVID-19, informativeness can generate negative engagement on social media, while those centred around healthfulness tend to elicit positive responses.

This analysis of the two COVID-19-related brand posts sheds light on the diverse reactions and sentiments they evoke from consumers. This suggests that during the pandemic, consumers appreciated content that resonated with their health concerns and provided them with useful solutions. Conversely, the second post, which aimed to inform about the pandemic's impact on marginalized groups and racism, generated a significantly different response. This outcome underscores the sensitivity of topics related to social issues and the potential for such content to polarize opinions and spark controversy, particularly during times of crisis.

7.5 Summary

This chapter explored the impact of the global COVID-19 pandemic on the relationships between sustainability-related message factors and brand post engagement in social media marketing. The period analysis revealed a significant positive effect of the pandemic on these correlations, indicating a higher positive engagement during this period on the Likes, Comments and Shares. However, it is noteworthy that the informativeness factor could potentially lead to negative engagement and comments.

The findings showed that the pandemic shifts dynamics. Environmental and health-related posts see positive engagement, along with stakeholder-driven attribution and brand activism. However, excessive informativeness and economic elements negatively affect engagement due to consumer concerns. In the post-COVID period, healthfulness influence grew, yet other sustainability-related factors showed negative correlations with engagement. This implies nuanced responses to evolved contexts, suggesting that sustainability messaging dynamics have shifted. In conclusion, these findings shed light on the changing engagement behaviours and the complex interaction between sustainability messages and external factors such as the pandemic.

This outcome will be examined in Section 8.5 throughout the pre-crisis, during, and post-crisis circumstances to build a social media marketing strategy for sustainability communication.

Chapter 8 : Discussion of the Finding on Sustainability Communication and Brand Post Engagement

“We’ve learnt over the last ten years that our ability to influence consumer emissions can be limited; we can’t control how long they spend in the shower or how they source their energy. But increasingly, consumers want to align their purchasing power with their values. We want to make it easy for them to choose our trusted brands – knowing that they are made with respect for the planet and people.”

Rebecca Marmot, Chief Sustainability Officer at Unilever (when asked about influencing consumers)

8.1 Introduction

The scope of engagement changed over the last few years, and the inclusion of technology in consumers’ lives has shifted its main attention to social media for brands (Tsiotsou, 2023). Nevertheless, the engagement literature on sustainability communication (e.g., Banerjee and Chua, 2019; Gupta et al., 2021; Okazaki et al., 2020) is simply employed as a "CSR" variable, which provided insufficient understanding and information. Therefore, this thesis advances the notion of brand post engagement as a new approach to measuring consumer engagement in sustainability communication. This is achieved by refining sustainability message factors and establishing the role of social media and therefore draw on insights from two different fields: social media engagement and sustainability communication.

A model was developed to explain how sustainability-related factors could predict social media engagement on brands' sustainability communications on social media. The model was tested empirically through quantitative analysis. A qualitative analysis of consumer responses to sustainability posts was also conducted. The analyses were further broken down by social media platforms (Chapter 5), brands (Chapter 6), and period of analysis (Chapter 7). Correspondingly, this chapter discusses the results and shows how the new conceptual model of brand post engagement on sustainability communication developed in this study deepens the understanding of brand post engagement. To this end, the existing conceptualization of

brand post engagement is critically examined and integrated with the results from the preceding chapter to explain how they are related and to fill in gaps in sustainability communication in the wider literature.

The chapter is structured around the discussion of findings related to the research questions, focusing on the relationship between the tenets and engagement outcome. Each section reminds the research question, hypothesis, and result, and then the implications of each of these findings are discussed in the light of existing literature. It also presents how the proposed four theories (media richness, framing, lay and attribution) derived five core brand post engagement tenets (triple bottom line, informativeness, CSR attributions, brand activism and healthfulness) and offers additional insights on the role of content characteristics, country of operation, platform-specific, brand specific and pandemic crisis explanation regarding engagement.

Next, Section 8.2 offers a discussion of findings on each of the five sustainability-related message factors on brand post engagement. In Section 8.3, the moderating effect of content characteristics and country of operation on engagement is discussed. Section 8.4 and Section 8.5 offer discussions of findings about the effects of platform and brand on engagement. Section 8.6 addresses how COVID-19 influenced sustainability-related message factors and engagement providing a separate discussion on pre-, during and post-crisis periods. Section 8.7 discusses consumer responses as the outcome of engagement to brands' sustainability communication on social media. The chapter ends with a summary of the key findings and their relation to the research questions.

8.2 Findings Addressing Sustainability-related Message Factors

This section discusses the key contribution of this thesis, namely sustainability-related message factors' leveraging influence on brand post engagement for sustainability communication. Correspondingly, the first set of hypotheses concerns the antecedents of sustainability-related messages on engagement. The conceptual framework below models the five factors of sustainability impact on the Likes, Comments and Shares as discussed in Chapter 2.

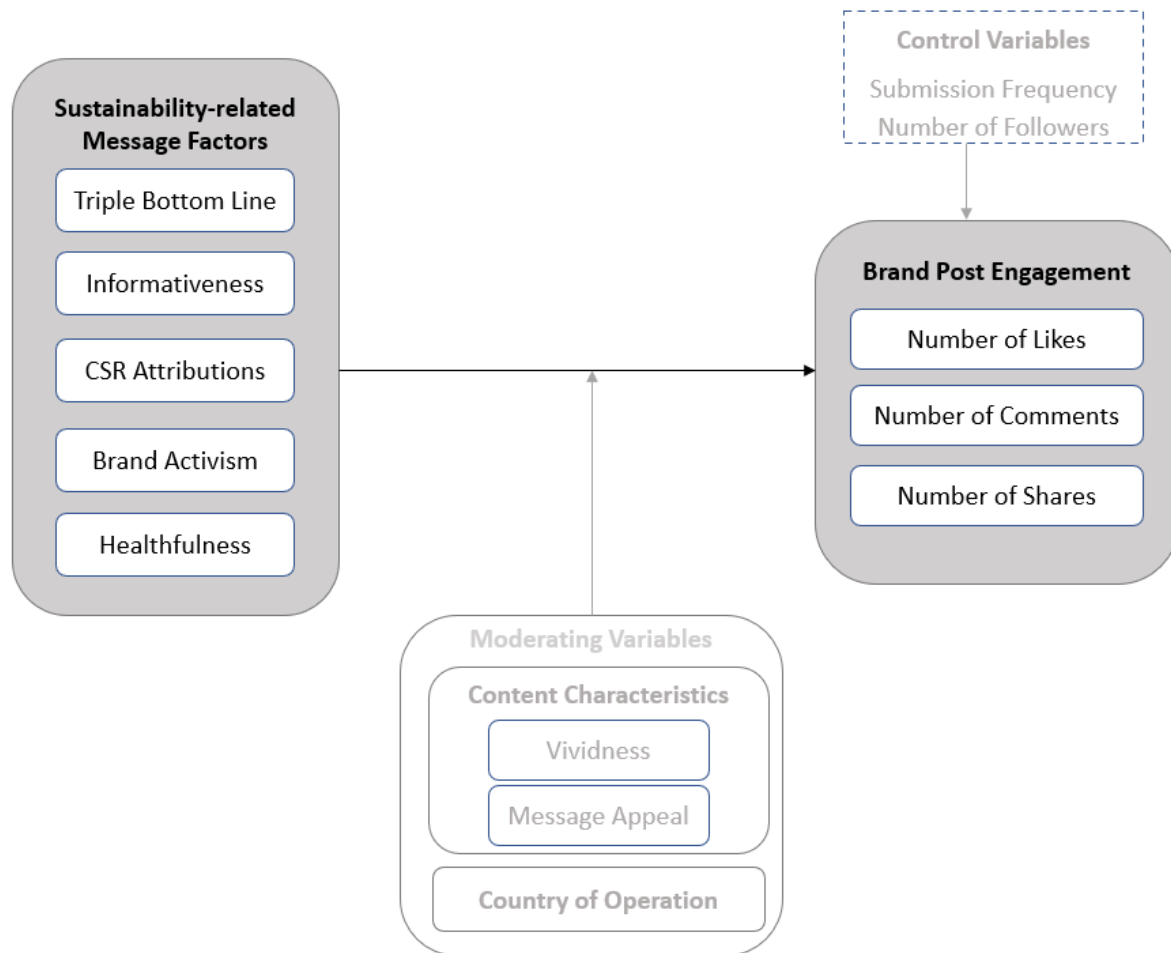


Figure 8.1 Conceptual framework, the influence of sustainability-related message factors

As Figure 8.1 presents, five tenets of sustainability-related message factors on sustainability communication are examined through an empirical analysis of the interplay between the message factors investigating sustainability and engagement. The brand post engagement was verified by the results of a hierarchical regression model carried out in Chapter 4, which also indicated the existence of several significant antecedents. The results provide partial support for the hypotheses. Table 8.1 summarises the hypotheses and their results.

Table 8.1 Summary of the research hypotheses on sustainability-related message factors

Hypotheses	Expected	Result	Brand post engagement
<i>Sustainability-related message factors</i>			
H1: Triple bottom line	+	- for Likes, Comments, Shares	Rejected
H2: Informativeness	+	- for Likes, Comments	Rejected
H3: CSR attribution		- for Likes, Comments, Shares (Egoistic-driven)	
	+	+ for Likes (Values-driven)	Supported
H4: Brand activism	+	Not supported any relationships	Rejected
H5: Healthfulness	-	- for Likes, Comments	Supported

As Table 8.1 shows, the antecedents include triple bottom line, informativeness, CSR attribution, and brand activism which are hypothesised to impact brand post engagement positively. Only healthfulness is expected to generate engagement negatively (Sexton, Garnett and Lorimer, 2022; Taufik et al., 2023). H3 and H5 are supported. Moreover, H4 did not show any significant relationships, however, H1 and H2 produced significantly negative relationships on the brand post engagement. The section below offers a discussion of these findings and their implications for brand post engagement.

8.2.1 Triple Bottom Line and Brand Post Engagement

The findings failed to confirm that triple bottom line elements positively predict post engagement as reported in Table 4.4. There are several potential explanations for this finding. To illustrate, Yuen et al. (2023) established a connection between triple bottom line content and social media engagement. Their research demonstrated that users engaged with the environmental and social efforts of oil and gas sector brands. However, this study failed to replicate their result in the food industry. This suggests that there could be more intermediaries related to TBL influencing consumer triggers and sensitivity towards social media engagement in the food industry (Lock and Araujo, 2020; Yuen et al., 2023). In light of this, it becomes imperative to identify these triggering reasons among consumers with the aim of mitigating negative engagement with brand posts. However, a noteworthy discovery emerges from the findings reported in Table 4.9, indicating that the country of operation of the brand post did not exert an influence on the relationship between TBL. This outcome elucidates that sustainability elements in brand posts can be global and unaffected by country-specific differences. Consequently, this insight suggests to marketers that TBL of brands may be standardized across diverse geographical contexts. Further implementation related to TBL will be discussed in Section 9.4 under the first managerial implications.

In fact, in the context of food industry, TBL was a negative predictor of brand post engagement and explained substantial variances in Table 4.4 by Model 1, particularly for Likes (from 7.1% to 11.6%, $\Delta R^2 = 4.5\%$) and Comments (from 12.4% to 15.7%, $\Delta R^2 = 3.3\%$). The qualitative findings shed greater light on this negative relationship. As provided in the results in Chapters 4 and 6 under the resistance category on Table 4.11 and Table 6.6 respectively, consumers were highly concerned and triggered by brand policies such as fair-trade in terms of the economic element; disbelief in the impact on climate crises such as the impact of food waste,

hesitancy towards sustainable food ingredients, or a lack of innovation in a product in terms of the environmental element; and, finally, a lack of understanding of brand-sustainability fit in terms of the social element. This finding complements Lock and Araujo's (2020) assertion by revealing trigger factors that prompt consumer responses to economic, environmental, and social elements in food brand's communication by enhancing the understanding of how these factors influence social media engagement.

Importantly, as reported in Table 4.3 the economic dimension (7.7%) appears to be underrepresented on social media, whereas environmental (42.2%) and social (50.1%) dimensions are more prominent in this research sample. The unbalanced posting of three dimensions reflects the brands' strategic focus on their business model and social media strategies. That clarifies the underlying issue behind why the economic dimension was deemphasized in sustainability research (Collins et al., 2007), and why sustainability-related post engagement has not advanced towards each TBL element (Collins et al., 2007; Yuen et al., 2023).

The reason for this negative relationship may stem from the content type, which is a key facilitator of engagement (Antoniadis et al., 2019; Hollebeek and Chen, 2014; Hollebeek and Belz, 2021; Hughes et al., 2019). However, sustainability research commonly measures TBL as one "CSR" component in their analysis, so the literature has a lack of understanding of the content of sustainability messages (e.g., Okazaki et al., 2020; Robson, Banerjee and Kaur, 2022). This thesis advances the present state of brand post engagement, where the role of TBL content is currently underplayed. The empirical findings of this thesis reveal a shift in the prominence of traditional sustainability content. Topics like employee and environmental policies have become less emphasized. Instead, brands are increasingly focusing on a broader range of issues that encompass climate justice, ecocide, LGBT rights, systemic racism, veganism, fair trade, healthcare, food security, education, democracy, refugees, and various other areas where brands can contribute to addressing society's most significant challenges.

This thesis defines this content as "hot-button topics" as they usually refer to controversial issues and express strong opinions. For this type of content, consumers might feel unsafe to engage with the brand post in a publicly visible setting and also lack understanding of brand-sustainability fit relationship. This might be due to privacy concerns (Murphy et al., 2014) or a lack of brand effort to justify brand-sustainability fit that causes scepticism (Moreno and Kang,

2020). By investigating social media's bidirectional function, the findings may lend validity to the literature that provides a description of brand implication and how consumers feel and are concerned about brands' sustainability communication on social media (Robson and Banerjee, 2022). A critical distinction needs to be made to discern brand activist messages from hot-button topics. The creation of brand activist messages diverges from the social elements of TBL. Activist messages are designed to address a social movement for a positive change and pressure on organisations, individuals or other institutions to foster participation (Lee and Yoon, 2020; Xiong et al., 2020). In contrast, for hot-button topics within the social TBL elements, there may not always be an associated pressure on users to participate or engage. Clarifying this differentiation is vital for a comprehensive understanding of the dynamics involved.

Another explanation for this negative relationship engagement, the barriers might be linked to the brand fostering hot-button sustainability topics with a high frequency of posting. Since the hot-button content consists of uncustomary societal views, consumers might feel overly exposed and triggered by the shared messages might be related to greenwashing concerns. The result shows that the number of sustainability posts of brands dramatically increased from 2019 to 2021 and the average post submission frequency in a day is 4.3 ($SD= 2.9$) as reported in Table 4.3. Yet, this number might not be ideal depending upon the rigour of the sustainability message. Research however maintains that the frequency of posts is needed to understand the brands to optimize brand post engagement (Banerjee and Chua, 2019). It seems that the frequency effect has been neglected to offer an actual number (e.g., Dolan, 2016; Robson, Banerjee and Kaur, 2022), whereas regarding sustainability communication, frequency per day ($\mu= 4.3$ posts) generates more reluctance to interact with the brand and more negativity to engage with sustainability messages as the findings of this thesis proved. Table 8.2 summarizes the key discussion on TBL.

Table 8.2 Summary of the TBL discussion

Antecedent	Existing literature	New findings
Triple bottom line (TBL)	<p>Understanding the impact of TBL content requires industries specific perspective (Yuen et al., 2023)</p> <p>The economic dimension was deemphasized in sustainability research (Collins et al., 2007)</p> <p>The content type is a key facilitator of social media engagement outcomes (Antoniadis et al., 2019; Hollebeek and Chen, 2014; Hollebeek and Belz, 2021; Hughes et al., 2019)</p> <p>Social media's bidirectional function can cover consumer sentiments about brands' social media messages (Robson and Banerjee, (2022)</p> <p>Limited clarity on the optimal posting frequency on post engagement (Dolan, 2016; Robson, Banerjee and Kaur, 2022)</p>	<p>A negative relationship was observed between the elements of TBL in brand posts and brand post engagement.</p> <p>TBL posting reflects brands' strategic focus on sustainability and explains why sustainability-related post engagement has not advanced towards each TBL element</p> <p>The negative engagement might be related to brands' messages hot-button topics as usually controversial.</p> <p>Consumer insights on sustainability messages were identified as conformity and resistance.</p> <p>Increased posting frequency per day ($M=4.3$, $SD= 2.9$) in the given time scope, particularly for sustainability messages leads to reluctance and negativity in engagement might be related to greenwashing and green scepticism.</p>

8.2.2 Informativeness and Brand Post Engagement

Another interesting finding expands the impact of the relationship between informativeness and brand post engagement on sustainability communication. Previous studies have yielded mixed results regarding the role of informative brand-related posts (Robson, Banerjee and Kaur, 2022). For instance, some research indicated no influence of informational content on the number of Likes, Comments, and Shares (de Vries et al., 2012), while others suggested varying positive effects on engagement, such as only in specific countries (Khan et al., 2016) or only on Comments (Rietveld et al., 2020). Informative content has also been considered alongside entertainment, showing a significant impact, but without detailing informativeness (Mazloom et al., 2016). Additionally, studies found a significant but minimal positive impact that became statistically significant when combined with different appeals (Lee, Hosanagar and Nair, 2018) or with vividness (Antoniadis et al., 2019). However, these debates reflect the general brand messages; even information strategy is the most traditional approach in

sustainability advertising (Wen and Song, 2017). Herein, existing literature led to the hypothesis that informativeness would contribute to brand post engagement in sustainability communication.

Although the finding of the thesis rejects the link between informativeness and sustainability-related brand post engagement as reported in Table 4.4, there is an exception for this finding. Regarding the type of information on the brand posts. Research showed that information about the brands or the product, and informative ads motivate consumers to engage on social media (Taylor, Lewin and Strutton, 2011). Qualitative analysis provides additional support to this finding by confirming the effectiveness of informative messages in building strong brand bonds as Table 4.11 presented under conformity category. It also validated the role of product communication by generating enthusiasm for sustainable food alternatives while prompting consumers to offer constructive feedback about these products. It might be explained by consumer curiosity and concern about ingredients regarding food quality and safety, as well as the importance of sustainability as a driver in food choice (Iriundo-DeHond et al., 2018). However, when the brand information is about educative and transformative on sustainability, consumers might feel triggered by the given information leading the changes in their behaviour (Kollat and Farache, 2017). For example, Knorr UK's post on meatless consumption mentions, "Hard to believe the planet gives us over 50,000 edible plants and we only eat 12 of them! That's why we're asking you to Cheat on Meat and try new recipes packed full of veggies. With some simple swaps, we can change the world by changing what's on our plate 🌍" (Knorr UK Facebook, 2021). Like in this representative post, this type of information content stimulates brand-related learning with transformative information (Brodie, Ilic, Juric and Hollebeek, 2013).

Nevertheless, the qualitative analysis underscores the positive impact of connections with sustainability. These include expressing positive opinions on alternative sustainability ideas, participation in sustainability campaigns and generating positive e-WOM. It is important to note that these affirmative comments appear to be relatively limited in comparison to the overall comment volume.

The rejection of informativeness might be linked to the brand not facilitating the informing process through suitable communication tools such as highly textual material, image or video-based content (Hollebeek and Macky, 2019). Being more exposed higher level of vividness

(e.g., picture, animation or video) can achieve a higher level of engagement (Antoniadis et al., 2019) on informative content; however, consumers can be triggered through wrongly attributed communication tools and negatively-valence engagement might increase across the volume of Likes, Comments and Shares. Engaging with the informative brand post is inevitably going to educate consumers on sustainability, and the correct type of sustainability communication tools on social media is discussed in Section 9.2.

Interestingly, the negative engagement with informativeness on sustainability communication also allows for drawing a broader explanation of the lay theory. This finding shed light on recent advances regarding consumer lay theories, in other words, consumer beliefs, and social media engagement. Reczek (2018) suggests consumers are more likely to rely on their lay beliefs when they lack expertise or have low information in the given area, and Luchs et al. (2010) suggest it occurs when the brand information is not explicit. These discussions relate to the debate only at the product level where scholars measure consumer purchase intention and buying behaviour in the sustainability context (Lin and Chang, 2012; Luchs, Naylor, Irwin and Raghunathan, 2010; Newman, Gorlin and Dhar, 2014).

Related to this topic, Ferrel and Geshan (1985) addressed marketing ethics and the management's ethical/unethical decision process. Their study found that the starting point of ethical decision-making in marketing is based on the organisation's social and cultural environment on ethics, besides individual factors which are knowledge, values, attitudes and intentions. Similarly, Jones (2017) highlighted the persistence of issues like over claiming, greenwashing, unethical practices, and misleading information in the contemporary context. As an example, he demonstrated how the sustainable ice cream brand Ben & Jerry's product with a low-calorie claim, which could be perceived as high-fat food by one consumer and low-calorie by another. This discussion elucidates how informative messages can lead to negative engagement, especially when considering consumers' lay beliefs. Nonetheless, the scope of this thesis does not extend to the examination of the ethical decision-making processes of brands. The focus has been intentionally narrowed to the analysis of existing sustainability-related messages on social media to measure the significance of message factors on the post engagement. Consequently, the ethical marketing perspective has not been incorporated within the present study. This limitation is acknowledged and its consideration for future

research expansions by re-evaluating of the proposed conceptual framework within the field of ethical marketing, is recommended.

In connection to engagement with lay theory, the research noted that brands might establish more engaging relationships by listening to what consumers feel before promoting informative messages (Muk and Chung, 2014; Wen and Song, 2017). Relating to the qualitative analysis, in terms of sustainability-related posts about product information, the findings revealed that consumers have negative feelings about the sustainable product's price, are highly cynical about the new food product ingredients and are indecisive about the sustainability benefit of changes/improvement on the product. However informative posts on product generate more positive belief and desire as compared to the general sustainability information of brand posts.

In terms of sustainability-related posts about brand information, as presented in Table 4.11 under the sustainability-focused responses, consumer belief is highly sceptic, and they show feelings of intrusiveness and dissatisfaction regarding brand sustainability initiatives because of the brand's previous sustainability actions or due to the parent company's initiatives and their greenwashing practices. The irritation might be caused by the attitude toward the brand (Ozcelik and Varnali, 2019), not towards the sustainability post. The findings also provide brand discussion in Section 8.5, the results support the relationship between brand attitude and positive post engagement on sustainability communication. Similarly, in terms of posts on general sustainability information, consumers' belief is highly dissident due to a lack of trust in the presented sustainability facts and the credibility of information shared in brand posts. A general problem tends to be that the production process is not environmentally friendly, even though they claim it is, or the firm is polluting in other areas or with other brands. This scepticism can be attributed to certain multinational brands exploiting sustainability for their benefit, engaging in greenwashing practices by mislabelling, making health claims, and sharing unethical and misleading information (Jones, 2017). However, such actions tend to yield only short-term profits for companies and ultimately erode trust in food corporations over time (Horlings, 2010).

This study builds upon previous research on product-level information and agrees with the idea that providing explicit information can counteract negative consumer responses to a

product (Luchs et al., 2010). The findings on Table 4.11 related to product-focused responses highlight the effectiveness of applying the concept of lay theory in product communication. By offering reliable information with increased corporate transparency, consumers' tendency to speculate or make guesses about the information decreases (Collins et al., 2007; Reczek, 2018). However, this result was not observed in brand-related or sustainability-related information posts. It is important to note that overwhelming consumers with excessive information about corporate-level and general sustainability information can lead to a backfire effect on the brand, product and sustainability. This can make consumers doubt the information and become less interested in engaging with posts from that brand on social media. This situation is similar to what was explained earlier, where consumers have become sceptical of food companies because of instances where they have been misled through practices like mislabelling, false health claims, and misleading information.

Moreover, the informativeness factor contributes to the engagement literature in two key areas. Firstly, it reveals that the outcomes vary across different food brands, indicating that the effectiveness of informative sustainability communication depends on the specific brand context (For brand-specific results, refer to Chapter 6). Previous limitations in addressing product-specific industry findings, especially within the food category, are acknowledged (de Vries et al., 2012). More detailed insights about the food product category, brand impact, and social media engagement on sustainability are discussed in Section 8.5.

Secondly, it highlights the role of changing circumstances in altering consumer beliefs and intentions to engage. For instance, during times of instability and change, such as the COVID-19 pandemic, consumer beliefs can shift, and information can drive engagement intentions (Soliman and Wilson, 2017). This study observes that the initially negatively-valenced engagement discussed in this section transformed into positive engagement during the pandemic (For period analysis results, refer to Chapter 7). A more in-depth discussion of the interplay between lay theory, informativeness, and the influence of COVID-19 is provided in Section 8.6. Table 8.3 summarises the key discussions on informativeness.

Table 8.3 Summary of the informativeness discussion

Antecedent	Existing literature	New findings
Informativeness	<p>Mixed results on the impact of informative brand-related posts (Robson, Banerjee and Kaur, 2022).</p> <p>Lay beliefs influence consumer engagement (Reczek, 2018; Luchs et al., 2010).</p> <p>Information about brands or products with informative ads motivates consumers on social media (Taylor, Lewin and Strutton, 2011).</p> <p>Product-specific industry findings and the impact of changing circumstances are limitations in informativeness (de Vries et al., 2012; Soliman and Wilson, 2017).</p>	<p>The rejected link between informativeness and sustainability-related brand post engagement.</p> <p>Informative posts can lead to negative social media engagement as consumers rely on lay beliefs, including scepticism and mistrust due to greenwashing.</p> <p>Positive responses on product communication posts, limited on brand and sustainability-related posts compared to overall comments.</p> <p>Informativeness generates positive post-engagement across food brands during the COVID-19 period.</p>

8.2.3 CSR Attribution and Brand Post Engagement

The third research hypothesis is that the more a firm's CSR attribution is shown on the post, influences engagement on social media communications (Dunn and Harness, 2018), positively by value-driven CSR attribution and negatively by egoistic-driven CSR attribution as reported in Table 4.4. CSR attribution has previously been conceptualised (Ellen et al., 2006), but CSR attribution in explaining consumer reactions to brand activities towards social media involvement (Leonidou and Skarmeas, 2017) still requires empirical confirmation, which this thesis appears to give. This hypothesis was supported by value-driven CSR attribution which reflects a presentation of brands' ethical, moral, and societal ideals. In this case, this form of CSR attribution displayed a positive association with post engagement. On the other hand, egoistic-driven CSR attribution, linked to efforts geared toward gaining publicity, exhibited a negative correlation with post engagement. Notably, stakeholder and strategic-driven CSR attributions were not found to have a significant influence. These findings are significant as they validate the conceptual framework by empirically confirming the role of CSR attribution in shaping consumer responses to brand activities on social media. This aspect had lacked empirical substantiation in previous studies (Leonidou and Skarmeas, 2017). Of significant note, the influence of CSR attributions within the brand post engagement model significantly

surpasses all other sustainability-related message factors outlined in the conceptual framework by the impact of metrics like the number of Shares (increasing from 24.8% to 26.1%, $\Delta R^2 = 1.3\%$) as reported in Table 4.4 by Model 3. This emphasizes brand attribution to sustainability initiatives as the key factor in social media strategies that lead to increased consumer engagement with brand posts.

From a contextual point of view, these findings can be explained by establishing a fundamental connection between brand-sustainability-fit considering its core identity. This involves highlighting brands' ability-to-do through value-driven attribution leads to positive motivation in consumers (Marin, Cuestas, and Roman, 2016). Consequently, posts with value-driven attributions result in consumers developing a positive relationship with social media engagement. When consumers possess an understanding of the connection between a brand's suitability for sustainability and its capability to contribute, the conveyed message becomes harmonious with the brand's identity. In turn, this factor enhances consumer comprehension and connection within the context of brand posts.

The results of this thesis also imply that egoistic-driven attribution is more important for social media engagement than other attribution factors, but it is not desired since it increases negative relationships in the engagement across the number of Likes, Comments, and Shares. This suggests that by implementing "to look good" brand publicity strategies, a brand may get unfavourable results with a larger level of negative engagement. The explanation might be due to consumers' unfavourable attribution when they associate hypocrisy with brand behaviour (Marin, Cuestas, and Roman, 2016), or it could be due to customer perception of stigmatised food brands that appear to contradict brands' business and sustainability efforts (Austin and Gaither, 2017; Lee and Cho, 2022), or associated with authenticity and trust in brand sustainability marketing communications (Bernyte, 2018).

As explained in Section 4.2.2 by Table 4.4, the findings of this thesis indicate that stakeholder and strategic-driven attribution have little impact on brand post engagement. Stakeholder-driven attribution may be ineffective due to the brand's misinterpretation or disagreement of consumer and societal attitudes towards sustainability, resulting in negative responses from stakeholders who perceive the brand's efforts as insincere or forced (Groza, Pronschinske, & Walker, 2011). On the other hand, strategic-driven attribution, which aims to increase profits through sustainability, has been found to have no significant impact on consumers' motivation

towards sustainability (Austin & Gaither, 2017; Green & Peloza, 2014). As shown in Table 4.3, strategic-driven attribution was overrepresented (40.9%) in the brand posts sample and displayed more than other attribution elements. Relating to this finding, consumers may perceive these posts as overly promotional or become disinterested after repeated exposure to the same strategic message.

The findings of this thesis support the proposition that attribution theory may better explain why brands succeed and fail in sustainability communication, and how brand attribution impacts customer responses (Hassan and Abdelaziz, 2022; Heider, 1958; Martinko et al., 2011). Firstly, it succeeds in sustainability communication by illustrating that value-driven attribution can stimulate positive engagement, leading to an increased affinity towards the brand and heightened purchase intention. This effect is observed even when explicit product information is not overtly displayed in brand posts. This alignment with attribution theory highlights how value-driven attribution enables consumers to recognize a brand's sustainable practices, fostering a sense of optimism and evoking positive brand responses (Gouldner, 1960; Gupta et al., 2021). The thesis contributes to this discourse by emphasizing the role of value-driven attribution in enhancing engagement with brand posts on social media. This underscores the importance of brands adopting value-driven attribution by effectively expressing their values and CSR practices to consumers, by their brand-sustainability alignment. The objective here is to cultivate constructive brand-consumer interactions on digital platforms. Secondly, the theory explains the failure in sustainability communication as an egoistic-driven element, which arises from the concerns regarding the brand's publicity effort. Attribution theory confirms a strong interpretation power of how to form a judgement and respond to CSR attribution (Krystallis and Vlad, 2017; Ogunfowora et al., 2018). In this context, the findings extend the work of Dunn and Harness (2018), illustrating the potential adverse effects of egoistic-driven attribution. This pertains to instances where consumers hold strongly negative opinions about CSR activities, which can be triggered by perceptions of brand hypocrisy (Marin, Cuestas, and Roman, 2016), stigmatized perceptions surrounding food brands (Austin and Gaither, 2017) and the levels of trust in sustainability marketing communications by food brands (Bernyte, 2018). These challenges within the realm of food brands are explored comprehensively in Section 8.5 under brand discussion. Table 8.4 summarises the key discussions on CSR attribution.

Table 8.4 Summary of the CSR attribution discussion

Antecedent	Existing literature	New findings
CSR Attribution	<p>CSR attribution on social media influences customer interaction (Dunn and Harness, 2018).</p> <p>CSR attribution towards social media involvement requires empirical confirmation (Leonidou and Skarmeas, 2017).</p> <p>Value-driven and strategic-driven attributions motivate consumers for CSR; egoistic and stakeholder-driven attributions have a negative impact on CSR motives (Marin, Cuestas, and Roman, 2016).</p> <p>Attribution theory explains brands' success and failure in sustainability communication (Hassan and Abdelaziz, 2022; Heider, 1958; Martinko et al., 2011).</p>	<p>Value-driven CSR attribution confirms a positive association with post engagement, while egoistic-driven CSR attribution exhibits a negative correlation; stakeholder and strategic-driven attributions have a non-significant impact.</p> <p>CSR attribution becomes a pivotal factor in the conceptual framework of social media engagement, impacting Share engagement.</p> <p>Only value-driven attribution positively boosts consumer comprehension and connection with the brand's sustainability initiatives on social media. Only egoistic-driven brand attribution negatively influences consumers in brand hypocrisy and trust in sustainability communication.</p> <p>Emphasizing brand values enhances brand-consumer interactions on social media and successfully generates positive engagement. Exploiting the sustainability cause for brand publicity leads to negative attribution resulting in adverse effects such as perceptions of brand hypocrisy.</p>

8.2.4 Brand Activism and Brand Post Engagement

The findings failed to confirm that brand activism on a message is a driver of brand post engagement as presented in Table 4.4. Brand activism is the only tenet that did not demonstrate engagement with either a positive or negative valence among the sustainability-related messaging factors. Xiong et al. (2020) connected brand activist messaging to online participation (strictly retweets). In their study, the activist message is separate from a brand, and they look at the influence of social movement organisations and use hashtags to measure engagement. Their study revealed no correlation between hashtags and the number of retweets. Nonetheless, the message gains more prominence in the online debate on the activist topic and succeeds in pursuing social change.

Similarly, this thesis' findings indicate that there is a considerably more complex link between activist messages and consumer brand engagement than has previously been thought to exist for profit-driven organisations. For example, some of the most commented posts from the

quantitative analysis reveals that successful brand activist post in terms of engagement as the “More Act” against racism by Ben & Jerry’s, “Make Taste Not Waste” helping fight food waste by Hellmann’s (in Portugal this campaign launched as À Sombra Da Casa), “Your Gut Is Where All Begins” promoting physical health by Activia, “Cheat on Meat” aiming to reduce meat consumption by Knorr, “Stop Asian Hate” against racism by Hellmann’s, Knorr and Coca-Cola. The result of engagement may not be significant, but these findings are consistent with activism research that asserts activism is effective in raising awareness, dominating online discourse, and inspiring to take action (Gotter, 2017; Lee and Yoon, 2020; Xiong et al., 2020).

The qualitative analysis revealed an increasing level of support for the designated sustainability messages. It is important to note that a growing number of multinational food brands are engaging in partnerships with non-governmental organizations (NGOs) to endorse their advocacies within activist messages, such as "More Act" and "Stop Asian Hate." Examination of social media posts underscores that this strategy is particularly directed towards addressing contentious public issues like racism and sustainable sourcing. For instance, the demand for palm oil which is a key ingredient in various food products like ice cream and chocolate prompted significant concern. Before this became a pervasive concern in the food industry, prominent brands like Unilever took proactive measures by collaborating with large NGOs such as the Roundtable Sustainable Palm Oil (RTRS) to yield substantial achievements in terms of sustainability and development (Nikoloyuk et al., 2010). Indeed, greenwashing and consumer trust in communication may prevail in sustainability discussions. However, it is noteworthy that former US Vice President Al Gore (2011) emphasises how certain corporate transformations extend beyond greenwashing. These brands are pioneering leadership in the global landscape by displaying a proactive commitment to substantial progress for society.

Following this as demonstrated by quantitative analysis, the findings also contribute to the literature by showing that the key success factor in brand activist messages in the food industry is the use of socio-political authentic messages as they frame the issue and motivate the public with solution (Vredenburg et al., 2020). Yet, for example, "Cheat on Meat" campaign by Knorr, the environmental pillar of food companies' involvement is rather low. This might be because of problems with transformational learning and adoption challenges in consumers' daily lives (Brodie, Ilic, Juric and Hollebeek, 2013; Hollebeek and Macky, 2019).

Another finding regarding food brands, integrating brand activist messages with food product advertising such as Activia's "Your Gut Is Where All Begins" that might create a promotion impact on consumers and may lower consumer incentive to interact with brand activist messaging (Austin & Gaither, 2017).

An alternative explanation for the lack of significance in this relationship could stem from the specific use of social media platforms. Prior research in the realm of activism has predominantly focused on platforms like Twitter (Liao, 2019; Xiong et al., 2020) and YouTube (Lee and Yoon, 2020). In these studies, these platforms' ease of constructing counter-publics, enhancing democratic participation, and swiftly building issue-based advocacy groups have been noted (Lee, Wood, & Kim, 2021; Liao, 2019; Shim, 2014). In the context of this thesis, the usage of Facebook and Instagram might evoke heightened consumer concerns related to privacy when engaging in activism (Sarkar & Kotler, 2020). This suggests that the specific features of different social media platforms could potentially influence the outcomes and relationships explored in this study. Further discussion is in Section 8.4 addressing the effect of social media platforms on brand post engagement. Table 8.5 summarises key discussions on brand activism.

Table 8.5 Summary of the brand activism discussion

Antecedent	Existing literature	New findings
Brand activism	<p>Brand activism is characterized by activist messages gaining prominence in online discourse and inspiring social change (Gotter, 2017; Lee and Yoon, 2020; Xiong et al., 2020).</p> <p>A key success factor in the food industry's brand activist messages is the authenticity of socio-political content (Vredenburg et al., 2020).</p>	<p>Brand activism is not confirmed as a driver of brand post engagement. Instead, brands use activist messages to raise awareness, and consumer participation increases through comments on such posts.</p> <p>Activist posts with high comments demonstrate brands' collaboration with NGOs in messages like "More Act" and "Stop Asian Hate".</p> <p>Most activist messages align with socio-political themes. Limited emphasis is observed in the environmental pillar of food companies' involvement, attributed to challenges in transformational learning and adoption (Brodie et al., 2013; Hollebeek and Macky, 2019).</p>

8.2.5 Healthfulness and Brand Post Engagement

The findings related to healthfulness on brand post engagement were interesting considering brands claims and products as reported in Table 4.4. Healthfulness refers to the health-related claims made by brands about their food products. It is noteworthy because health is expected to have a negative impact on consumers due to the disruptive claims that support the existing capitalist system and the strong emphasis on promotional aspects, as discussed in Chapter 2 (Higgins, 1997; Sexton, Garnett, Lorimer, 2022). Indeed, the engagement studies on healthy food are limited and explore the specific impact such as calorie-dense food (Pancer et al., 2022; Pancer, Philip and Noseworthy, 2022) and vaping (Agnihotri et al., 2022), as mediated by psychological perspective through emotions and beliefs.

The findings support existing brand engagement studies (Agnihotri et al., 2022; Pancer et al., 2022; Pancer, Philip and Noseworthy, 2022). Health and engagement studies showed that unhealthy food content on social media gets more engagement as compared to healthy food content (Pancer et al., 2022; Pancer, Philip and Noseworthy, 2022). Social media data of brands showed that brands are increasingly promoting healthy foods by integrating their communication strategies on the brand's social media accounts. Figure 8.2 illustrates the increase in healthy product communication posts.

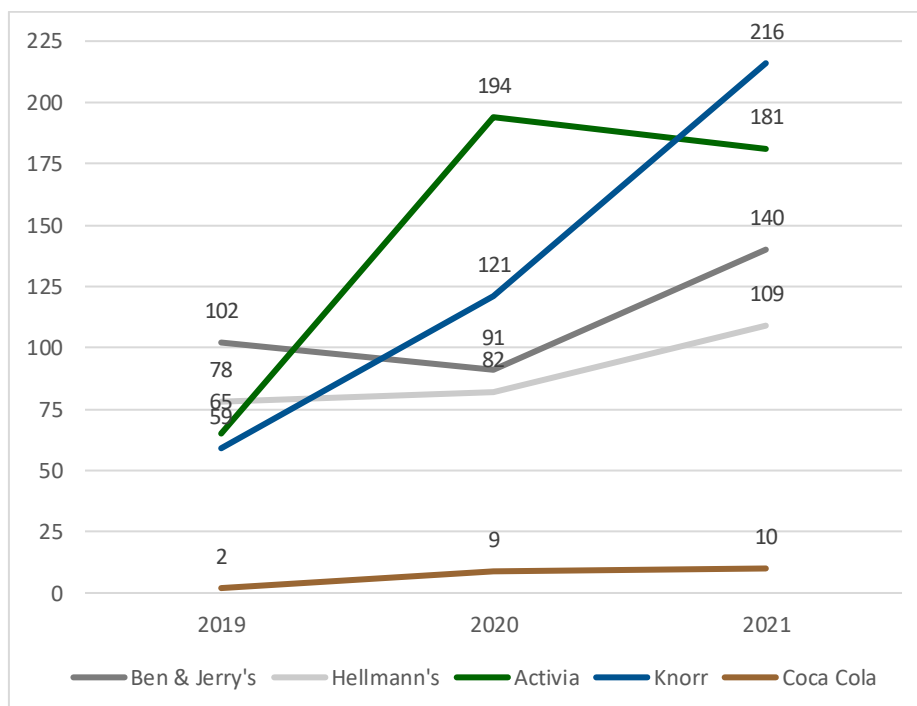


Figure 8.2 The change in brands' health messages on social media, 2019-2021
Source: The Author

Given this substantial increase, brands should consider the negative relationship between the healthfulness message in the post engagement as proved by the quantitative analysis. The qualitative analysis findings make a valuable contribution to the literature by highlighting that emphasising health aspects in food products can lead consumers to have mixed feelings about the benefits. The healthfulness factor on the post can generate product desire and purchase intention but also activate more resilience on health improvement in food product recipes, and lead to ambivalence about the advantages of improved food formulas and food ingredients. However, three exceptions to negative engagement in healthfulness were discovered from the analysis. In fact, the results of this thesis emulate and extend earlier findings on the use of social media for healthy food communication across countries, social media platforms and brands.

Firstly, the country of operation is likely to moderate positive engagement and brand involvement as reported in Table 4.9 and the use of different social media platforms such as Instagram has positive components of brand post engagement as presented in Table 5.2. In terms of country, Agnihotri et al. (2022) linked the cultural aspects of social media engagement to health-related messages. Their study employs vaping communications as the basis for its health content, with consumer belief and message persuasiveness mediating their interaction. In their study, it is found that nationality and message framing lead engagement to in health-related messages however consumers' belief in health-related messages diminishes the positive influence on social media engagement in terms of health messages. Likewise, the findings of this thesis suggest a positively-valenced relationship between food marketing and health messages that is country-moderated. Also, there might be several mediators such as consumer beliefs, as suggested by Agnihotri et al. (2022). The lay theory stated in previous sections may help to understand it, and Section 8.3 discusses the country of operation in greater detail about healthfulness and consumer beliefs.

In terms of social media platforms, the results of this thesis revealed that specific social media platforms produced a positive relationship to engagement such as Instagram as explained in Chapter 5 by Table 5.2. Studies on food marketing on social media revealed that the majority of the unhealthy market and calorie-dense food promotion offerings were chosen for Facebook and YouTube (Fleming-Milici and Harris, 2020). These studies also revealed that these unhealthy ads evoke more positive responses than ads for healthy food due to more

likely recall and recognise unhealthy brands and longer consumer attention on the unhealthy posts (Murphy et al., 2020). While this thesis argues that Instagram may generate affective (post likes) and cognitive (post comments) engagement on health-related messaging, the latter of which may be more appropriate for the development of sustainability and increasing awareness functions (Chae, 2021).

In terms of brand, positive engagement is strongly related to the brand-product relationship with healthfulness. The combined findings from brand analysis presented in Chapter 6 (Tables 6.1, 6.2, 6.3, 6.4 and 6.5) and qualitative analysis (Table 6.6) collectively indicate that consumers are interested in healthier products and desire to adopt/try healthier options in particular types of brands such as Hellmann's, but not Coca-Cola. That might be explained by perceived low-fit social initiatives which are health benefits in more stigmatized food brands (Austin and Gaither, 2017) that negatively influence consumer attitudes towards brands and products causing cynical reactions (Becker-Olsen et al., 2006; Ellen et al., 2006). Referring back to the Coca-Cola example, consumer responses to the healthier new product, which has less sugar and caffeine, revealed that consumers did not seek healthy recipe improvements and that the better formula was not anticipated, which means that consumer incentive to embrace new products is low. This is crucial given those low-fit health initiatives with a brand result in negatively valenced engagement since consumer expectations are negatively impacted by the brand's motive in general and the actual product, which may be viewed with cynicism (Miller and Lellis, 2015). Sections 8.3, 8.4, and 8.5 provide more discussion on the country of operation, social media platforms, and brands. Table 8.6 summarises the key discussions on healthfulness.

Table 8.6 Summary of the healthfulness discussion

Antecedent	Existing literature	New findings
Healthfulness	Unhealthy food content on social media gets more engagement compared to healthy food content (Pancer et al., 2022; Pancer, Philip and Noseworthy, 2022).	Healthfulness exhibits a negative impact on brand post engagement. Consumers show mixed feelings about the benefits of health aspects in food products. Three positive relationships to engagement in healthfulness were discovered; country, brand, and social media platforms.

8.2.6 Summary of Sustainability-Related Message Factors

To conclude the section on the antecedents of sustainability-related message factors, it appears that triple bottom line elements do not drive positive brand post engagement on sustainability-related posts as a result of differences between industries, trigger and sensitivity factors, an unbalanced focus on environmental and social dimensions over the economic dimension, and the type of content on hot-button sustainability. The relationship between informativeness and sustainability-related brand post engagement is negative which is explained by educational and transformative sustainability messages in the light of lay theory. The influence of CSR attribution on social media engagement supports the notion that attribution theory (Heider, 1958; Martinko et al., 2011) can explain brand success and failure in sustainability communication by showing that value-driven CSR attribution leads to positive engagement while egoistic-driven attribution leads to negative engagement. Although brand activism is not a significant driver in brand post engagement, effective brand activist posts may nevertheless assist in spreading awareness. Lastly, healthfulness produced negative engagement, in other words, unhealthy food content on social media receives more engagement than healthy food content, while country of operation, social media platforms, and brand involvement can positively affect brand post engagement.

8.3 Findings Addressing Moderators of Brand Post Engagement

This section discusses the moderation impact of brand post engagement through social media antecedents, namely vividness and message appeal, and country of operation, namely the USA, the UK and Brazil discussed in Chapter 4. Correspondingly, vividness, message appeal and country of operation were generated as hypotheses that test the moderation impact on the engagement. The conceptual framework below models the moderating variables on the Likes, Comments and Shares.

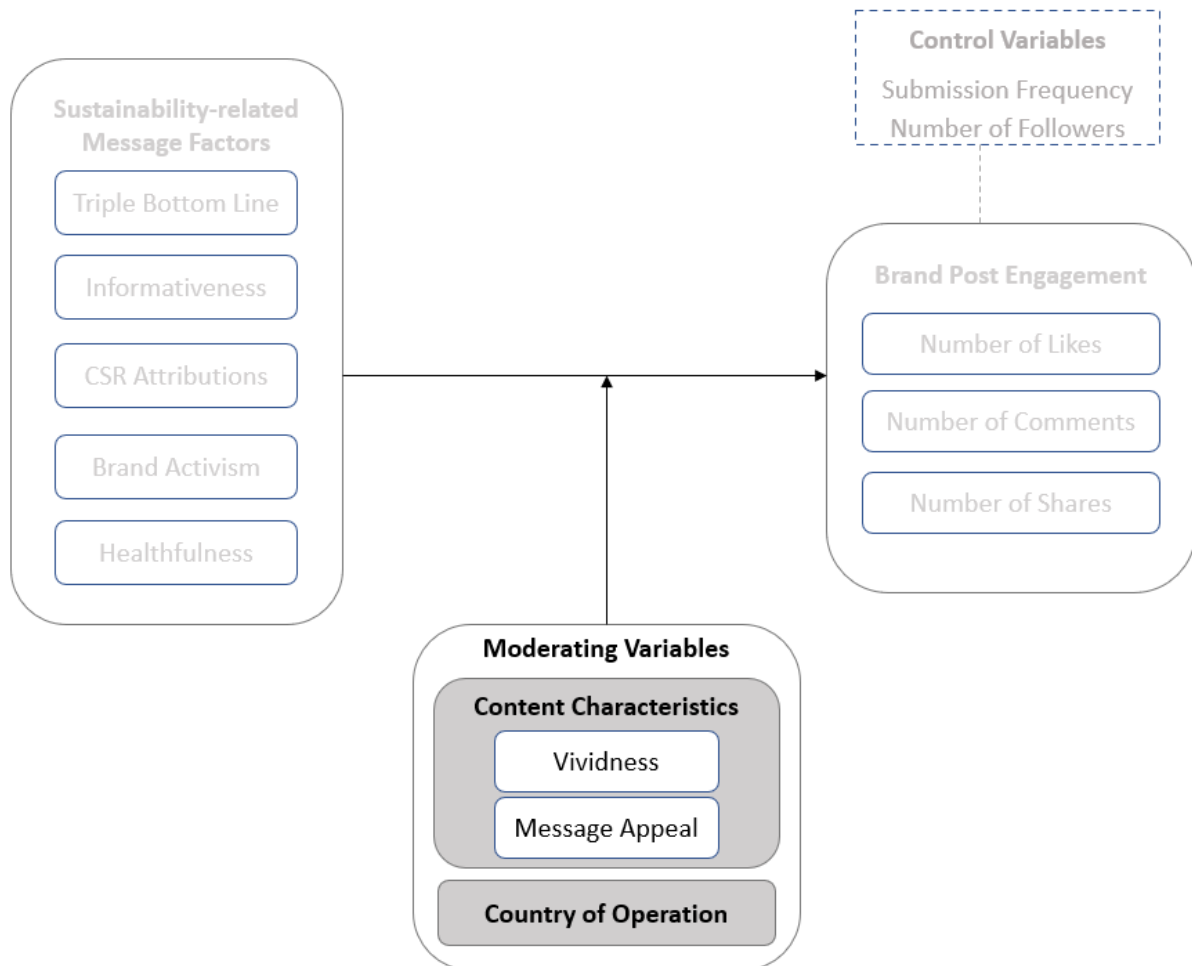


Figure 8.3 Conceptual framework, the moderating effect of social media antecedents and country of operation

As depicted in Figure 8.3, the study examined the potential moderating effects of vividness, message appeal, and country of operation on brand post engagement in sustainability communication. Through the utilization of a hierarchical moderation regression model, both positive and negative engagement outcomes were examined in moderation relationships. As reported in Table 4.7, the findings offer partial support for the proposed hypotheses. A comprehensive overview of the hypotheses and their corresponding outcomes is provided in Table 8.7.

Table 8.7 Summary of the research hypotheses on moderating variables

Hypotheses	Expected	Likes	Comments	Shares	Brand Post Engagement
Moderators of brand post engagement					
H6: Vividness	+	Significantly positive (CSR attribution) Significantly negative (TBL, Informativeness)	Significantly positive (CSR Attribution) Significantly negative (Informativeness)	Significantly positive (Brand activism) Significantly negative (Informativeness)	Supported
H7: Message appeal	+	Non-significant	Non-significant	Non-significant	Rejected
H8: Country of operation	+	Significantly positive (Healthfulness) Significantly negative (Informativeness, brand activism)	Significantly positive (Healthfulness) Significantly negative (Informativeness, brand activism)	Significantly positive (Healthfulness)	Supported

Table 8.7 presents the overview of the confirmed and rejected moderating relationships on the sustainability-related message factors and brand post engagement. The antecedents included vividness, message appeal, and country of operation which are hypothesised to impact positively. H6 is partially supported and H8 is supported, whereas H7 did not show any significant relationship and therefore rejected. The section below offers a discussion of these findings and their implication as the moderators.

8.3.1 Moderating Variable: Content Characteristics

One of the most significant antecedents in the engagement research is post content (de Vries et al., 2012; Robson and Banerjee, 2022). The findings, however, support the moderation impact on the use of media on content such as video, animation and text (Khan et al., 2016), despite the fact that this thesis was unable to demonstrate the significance of moderation in how to appeal to the content through message framing such as emotional and rational (Antoniadis et al., 2019; Khan et al., 2016). This section discusses these two social media antecedents.

8.3.1.1 Vividness and Brand Post Engagement

Numerous studies (e.g., Antoniadis et al., 2019; Banerjee and Chua, 2019; Chu et al., 2022; Cvijikj and Michahelles, 2013; de Vries et al., 2012) examine the impact of vividness on brand post engagement, reaching varying conclusions based on the engagement through a number of Likes, Comments, and Shares (Robson, Banerjee, and Kaur, 2022). It is one potential method of concurrently stimulating several senses in consumers and drawing their attention to branded information through vividness, in other words, media format (Coyle and Thorson,

2001; Steuer, 1992). Few studies have found a positive correlation between vividness and brand post engagement (Antoniadis et al., 2019; Khan et al., 2016), contrary to previous studies' equivocal findings on vividness (Yuen et al., 2023). However, it is not examined how vividness affects the function of sustainability-related message components and brand post engagement. This is an important gap to fill considering that the vividness of a post is emphasised in engagement literature as one of the factors most likely to influence the degree of social media engagement (Surucu-Balci et al., 2020).

As guided by Hair's (2014) work, vividness moderation is established to measure the changes of strength or direction on the relationship between sustainability-related message factors and engagement in the model. As presented in Table 4.8, the results of this thesis reveal that vividness has a moderating effect on the link between brand activism and CSR attribution which is significantly positive along with brand post engagement. Importantly, in affective (post likes) engagement, vividness, in particular, to picture ($R^2= 2.0\%$) over egoistic-driven and strategic-driven attribution are much stronger than other attributions, whereas video ($R^2= 3.5\%$) over value-driven and stakeholder-driven attribution are the most significant moderation relationships in cognitive (post comments) engagement as shown in Figure 4.3 (For the more detail, see Appendix K). It highlights the explanatory power of video over transmitting brand-related messages on the value and stakeholder motivation that lead consumers to engage in online discussion more frequently by appealing to their emotions and feelings through video (Soboleva et al., 2017; Tafesse, 2016); designing messages through pictures on egoistic and strategic motivations to deliver information and meaning about a product and brand might arouse consumers' emotions while also helping them feel connected to the brand. From a marketing perspective, this finding is relevant as it suggests that tailoring content to specific engagement goals can be effective. For instance, utilizing video content has been found to effectively tap into consumers' emotional responses and feelings by visually showcasing impactful narratives or compelling stories that resonate with their values and interests. This understanding of how vividness moderation operates in different contexts can inform marketing strategies aimed at enhancing post engagement and building brand-consumer relationships.

This could be demonstrated through a brand activist message delivered via video, highlighting the social or environmental impact of the brand's initiatives, ultimately evoking empathy and

connection among viewers. Similarly, the use of images in messages associated with egoistic and strategic motivations could leverage visual aesthetics to convey information about a product's benefits or brand values, arousing consumers' emotions and fostering a sense of alignment with the brand's narrative. These examples illustrate how the media richness as video and picture within messages can engage consumers on an emotional level by leading to increased interaction and resonance with the brand's communication efforts.

The second firmly supported moderating impact of vividness is specifically to picture ($R^2=0.1\%$) over brand activism as shown in Figure 4.4, which significantly contributes positively to consumer behaviour (post shares) (For further information, see Appendix K). The moderation result demonstrates how vividness (in particular video) of the link between brand activism and post engagement may be strengthened, even if the interaction between brand activism and brand post engagement was small as reported in Chapter 4 in Table 4.4. The finding contributes to the literature by showing that the key success factor in brand activist messages in the food industry is the use of a high degree of vividness, which is video, where the brand video can tell a story (Ma et al., 2022) of socio-political authentic messages to courage consumer about the issue (Vredenburg et al., 2020). Moreover, it might also enhance consumer behaviour on the brand activist messages to share and spread information on individual's own social media profiles with their friends (Cheng and Ho, 2015; Khan et al., 2016) as proved by the moderation regression result (post shares).

On the other hand, the results indicate that the moderating effect of vividness on the link between TBL and informativeness negatively impacts the brand's post-engagement. Regarding the complexity of TBL and informativeness as discussed in the previous section, this may help to clarify why the moderating role cannot be supported for these two tenets. The complexity of the content, which includes hot-button sustainability topics for TBL and educational and transformative sustainability messages for informativeness, is a major contributing factor. It is interesting to consider that using a high degree of vividness (animations and videos) in a brand post might decrease brand engagement in connection to TBL components over the number of Shares and informativeness over the number of Likes Comments, and Shares. Although vividness increases the visibility for consumer attention (Coyle and Thorson, 2001), this thesis has shown that the moderating effect of vividness on these two tenets might show the complexity of educational content on sustainability that

users might not be interested in watching educative videos (Tafesse, 2015) due to time constraints or interfering with the flow in consumers' social media navigation (Cvijikj and Michahelles, 2013; Hernandez-Ortega et al., 2020). In this context, the fine-grained vividness qualities, such as picture quality and video length, may assist the negative moderation connection by facilitating more positive relationships (Banerjee and Chua, 2019).

These findings not only add to the literature on vividness but also broaden the application of media richness theory to the field of social media engagement, where the importance of richness in sustainability content is still overlooked (Khan et al., 2016; Shahbaznezhad et al., 2021). The theory holds that increasing communication effectiveness may result from media that are better matched to consumers' informational demands (Daft and Lengel, 1986). The findings of this thesis suggest that communicating brands' CSR motivation and activist messages in sustainability-related messages may be best suited to both a higher media richness format (video) and a moderate media richness format (picture), as these two formats convey and moderate a higher level of emotional stimuli on consumer engagement (Shahbaznezhad et al., 2021).

It is interesting to note that vividness has the opposite moderating effect on the tenets of TBL and informativeness that causes negative engagement as presented in Table 4.8. According to Lin, Lee, and Giang (2016), the media richness theory describes how consumers utilise media for hedonic utility-filled consumer motivation on social media. Therefore, if sustainability communication coincides with consumer motivation on social media, the combination of media richness and content strategy may influence engagement (Dolan et al., 2019; Lee et al., 2018). As a result, the moderating effect of vividness on brand post engagement is particularly relevant to consumer social media motivation when accompanied by hedonic utility over these sustainability messages, which can strengthen the Likes (affective), Comments (cognitive), and Shares (behavioural) engagement.

8.3.1.2 Message Appeal and Brand Post Engagement

Message appeal represents the second hypothesised driver of social media antecedents as the moderating variable. The hypothesis has been rejected and the moderating effect of message appeal has not been found on brand post engagement. The possible explanation is the appeal-engagement relationship in the marketing literature which is still questionable

(Wagner et al., 2017). Two predominant appeals in framing theory compare rational versus affective appeals to engagement in social media strategy studies (Li, Larimo and Leonidou, 2020; Swani and Milne, 2017).

While their effectiveness remains controversial in the literature, some research suggests that the use of affective appeal can be more persuasive in conveying eco-friendly messages (Kapoor et al., 2021). It is also established that positive emotions including happiness, joy and excitement, tend to impact consumers more for favourable outcomes (Hollebeek and Belk, 2021). Thus, this thesis focusses on examining the moderating role of message appeal, encompassing both rational and affective appeal, which failed to confirm. The possible explanation might be related to the hedonic motivation of consumers on their social media navigation (Lin, Lee, and Giang, 2016) that can be leveraged by humour or more entertaining content which has become popular on brand posts (Khan et al., 2016). Importantly, as presented in Table 4.3 affective appeal (26.1%) appears to be underrepresented on social media, whereas rational appeal (73.9%) is more prominent in the dataset. The unbalanced posting of two dimensions reflects the brand's communication tone on their sustainability communication and social media strategies especially for product communication. That clarifies the underlying issue behind why the affective appeal was rarely used in brand posts, and why sustainability-related post engagement has not advanced towards the tone of entertainment and happiness.

On the other hand, some studies maintained that rational appeal cannot generate brand post engagement, however, it drives consumers to engage in brand or product-related information (de Vries et al., 2012; Rietveld et al., 2020). The findings of this thesis agree with the literature by rejecting moderating relationships by rational appeal; however qualitative analysis also complements the literature on sustainable products. It reveals that consumers tend to respond more positively and show their support by commenting on product and brand love, purchase intention or desire, and positive e-WOM, whereas negative comments such as dislike of the product are less likely to occur as compared to positive responses.

Another explanation for this lack of support is the impact of different claims in the affective and rational appeals for the food industry. For example, one study on automobile brands showed that effective rational appeals include performance, design, aesthetics, technology, luxury and prestige; and effective emotional appeals include adventure, freedom, nostalgia,

and pride (Wagner et al., 2017). Therefore, investigating the breakdown of appeals to identify favourable sustainability claims in affective and rational appeals in the food industry is necessary to optimize engagement strategy. More in-depth qualitative findings contribute to addressing the breakdown of affective and rational appeals. Pride, mental and emotional support (e.g. body-acceptance, and self-love), happy vibes and a sense of community are favourable appeals in affective; and ease of use, plant-based, food waste, natural ingredients, and human rights appeals get favourable comments in rational appeal. Nevertheless, there are controversial claims to be noted for specific brands causing negative responses such as zero-sugar, non-dairy, and vegan. It is also possible that another factor, unaccounted for in this study, is the number of appeals in the same brand post. For example, framing the message with more than one rational claim on a product decreases the negative relationship between the product and the brand (Olsen, Slotegraaf and Chandukala, 2014). In fact, this means that consumers who seek information about a specific brand on social media will be more likely to interact if the given post has a high number of utilitarian appeals such as performance, design, and technology (Wagner et al., 2017). However, one of the studies investigated the moderating effect of message appeal and found that communicating many sustainability claims of a product in the same message generated a negative outcome between the product and brand attitude (Olsen, Slotegraaf and Chandukala, 2014). The findings may add credence to the literature that consumers will vary even with similar desires such as entertainment or information-seeking (Wagner et al., 2017) across the different industries and sustainability motivations. This thesis thus adds to the literature from the firm's perspective that brands might need to integrate the suggested breakdown of food industry appeals with several combinations and monitor the effectiveness of their target consumers.

8.3.2 Moderating Variable: Country of Operation

The last moderating hypothesis has consisted of the country of operation since the consumer culture plays a significant role in engagement with the brand over social media (Bryla, Chatterjee and Ciabiada-Bryla, 2022; Khan et al., 2016), therefore it is expected to have a moderating role in sustainability communication on social media engagement. The analysis supports the moderating role of the country of operation on the relationship between sustainability-related message factors and brand post engagement as shown in Table 4.9. Importantly, the country moderating effect generates negatively-valenced engagement on

informativeness and brand activism, and positively-valenced moderating engagement on the healthfulness tenet. Whereas TBL and CSR attribution did not obtain any significant engagement by the moderation of the country of operation.

These various country moderation effects can be explained by cultural differences and perspectives (Hofstede, Hofstede and Minkov, 2010), and this relationship related to brand post popularity has been conceptualised in the engagement literature (Lin, Swarna and Bruning, 2017). Although other concepts that have been used in explanation in the engagement literature such as emerging-advanced economies (e.g., Ahmad et al., 2021; Hollebeek, Muniz-Martinez, Clark, Simanaviciute, and Letukyte, 2022), since this thesis explored food brands, culture perspective offers insight of challenges and opportunities regarding consumer food knowledge in connecting sustainability outcomes (Hughes et al., 2021) and explains how individuals give meaning to items and facilitate the understanding of consumption myths, rituals and brand practices (Hollebeek and Belz, 2021). Due to the fact that a cross-cultural perspective on explaining brand post engagement in sustainability communication brings more fruitful discussion to sustainability, marketing and food literature than other concepts.

Previous studies on Hofstede's theory suggest that certain brand posts can be interpreted in different ways due to different cultural perspectives on the characteristics of power, individualism, masculinity, uncertainty avoidance, long-term orientation and indulgence (Khan et al., 2016; Lin, Swarna and Bruning, 2017). However, these studies either selected culturally similar countries or focused on general brand messages. Thus, this thesis provides an evaluation of how culturally different countries have an impact on consumer social media engagement in sustainability communication. Figure 8.4 presents the differences across three cultures that have a moderating effect on brand post engagement towards sustainability communication.

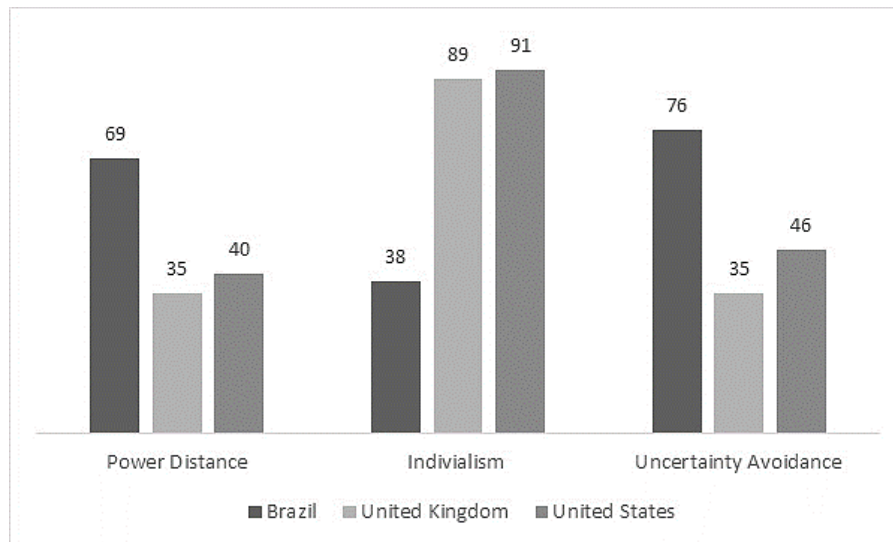


Figure 8.4 A cross-cultural perspective by Hofstede's country comparison presenting Brazil, the United Kingdom, and the United States

Source: Hofstede Insights (2023)

As Figure 8.4 demonstrates that three countries have the most different scores in power distance (BR= 69, UK= 35, USA= 40), individualism (BR= 38, UK= 89, USA= 91) and uncertainty avoidance (BR= 76, UK= 35, USA= 46) dimensions (Hofstede Insights, 2023). Masculinity, long-term orientation and indulgence showed the almost same scores therefore they were not presented in the figure, however, those three dimensions are used to explain the non-significance moderation effect on the TBL and CSR attribution.

The first findings reveal that the country of operation has a moderating effect on the link between informativeness and brand activism which is significantly negative along with the brand post engagement. This implies that the country of operation exhibits the consumer's unfavourable brand-related thoughts, feelings and behaviours on social media. This is evident when posts contain informative and brand activist sustainability messages, as reflected in their liking (affective engagement) and commenting (cognitive engagement) behaviour (Hollebeek and Chen, 2014). Similar to the negative moderation effect of vividness in the previous section, the negative effect might be caused by the adaptation issues of consumers towards transformative sustainability messages regarding informativeness and inadaptability to socio-political content regarding brand activism on the brand post across countries.

Within this context, uncertainty avoidance is the most important cultural dimension acknowledges whether a culture accepts uncertainty as an opportunity or perceives it as a threat (Hofstede, Hofstede and Minkov, 2010). This explains consumer affecting social media

behaviour and usage (Hajli and Lin, 2016; Johnson et al., 2018). Clearly, it shows that in a country where uncertainty avoidance is low, users are more likely to engage with extreme information and improper content on social media (Acar, 2014). The findings of this thesis complement the literature and suggest that a country with low uncertainty avoidance is more likely to be triggered by informative messages, which is the case of the UK as discussed in Chapter 4 presented by Figure 4.6. Concordantly engagement of the UK consumers negatively occurs in all forms including likes, comments and shares on transformative sustainability messages such as human rights, vegan ingredients, refugees and fair-trade.

Qualitative analysis completes the findings on the negative moderation effect by providing UK consumers' triggered thoughts, concentration and reflection on the brand posts. To illustrate the triggered and negatively-valenced engagement of UK consumers, the responses are like "be ashamed of yourselves" on a post of vegan ingredients, and "don't piss me off" on a refugee-related post. Similarly, the USA consumers show the same tendency which is less reactive as compared to the UK. Indeed, the negative engagement occurs in likes, responses are followed by anti-brand behaviour including negative e-WOM, hate speech and boycotts. It shows that formulating similarly high-level informative social media strategies with extreme content can shape consumer engagement behaviour similarly (Khan et al., 2016) and negatively in countries that have similar cultures to the UK and the USA.

Whereas in Brazil with high uncertainty, consumers exhibit negative engagement behaviour towards informativeness in likes and comments. However, a qualitative analysis indicates that although the level of engagement may seem more negative than that of the USA, Brazilian consumer responses differ significantly from those of consumers in the UK and the USA. The result of that analysis highlights that Brazilians' negative responses consist of offering constructive feedback on a sustainable product, criticising the brand's involvement in sustainability, and the most extreme response is negative e-WOM which is far away from anti-brand behaviour as observed in the UK and the USA. Consequently, in cultures with high uncertainty avoidance according to Hofstede terminology like Brazil, brands ought to consider that consumer's response might not be hate speech or supporting boycott however the tone of consumers is less stressed to show their unfavourable brand-related thought, feelings and behaviours through social media engagement as supported by both moderation and qualitative analysis.

Another supported result as presented in 4.9 shows that the moderating impact of the country of operation on healthfulness generates positively-valenced engagement with the brand post on sustainability communication. A discussion on the healthfulness of social media engagement exists and it refers to cross-cultural differences in individualism (Agnihotri et al., 2022). Individualist cultures are expected to be communicated through individual advantage and benefit (Lin, Swarna and Bruning, 2017). Relating back to the brands' CSR attribution, as the result provided in Chapter 4 by Table 4.3, brands are more motivated to communicate their strategic concerns (51.1%) rather than stakeholder concerns (16.5%). Since stakeholder-driven motivation is underrepresented and brands communicate more on profit-purpose content such as the benefit of a product, this strategy generated negative engagement in low-level individualist cultures. In this context, it is interesting to note that individual cultures like the UK and the USA, define themselves as uniquely different than others and be motivated to achieve their goals (Markus & Kitayama, 1991). Therefore, brands' strategic-driven posts on healthfulness create engagement with these cultures. In collectivist cultures like Brazil, consumers are more likely to engage with their close friends or family members and value more being in the group (Lin, Swarna and Bruning, 2017; Markus & Kitayama, 1991). This explains why Brazilian consumers negatively engage across likes, comments and shares and their reaction turns to negative e-WOM but not hate speech to the company or anti-brand behaviour. These findings suggest that when brands are seeking to engage with consumers in a collectivist culture like Brazil, they might consider the importance of social connections in the country's collectivist culture. Rather than attempting to engage directly with individual consumers, brands may benefit from leveraging the social networks of their target audience by designing the sustainability-related message as a wider societal benefit.

Related to consumer culture-brand relationship discussion, power distance explains consumer interaction with brands (Hofstede, Hofstede and Minkov, 2010). As Figure 8.4 demonstrates, Brazil has a higher power distance than the UK and the USA, which suggests that consumers in high-level power distance cultures are less likely to interact directly with brands (Lin, Swarna and Bruning, 2017), whereas, in low-level power distance cultures like the UK and the USA, consumers are voluntarily interacting with brands. For example, the USA has a low power distance culture and according to Austin and Gaither (2017) consumers' perception in the USA is low regarding the health benefits of food brands. This is because they are more sceptic

about sustainable and healthy food ingredients, tend to express their dislike on the health improvement, and their negative reaction is continued upon hateful speech directly to the brand and brand boycott as seen by qualitative analysis. That explains the attitude towards brands and products causing cynical reactions (Becker-Olsen et al., 2006; Ellen et al., 2006).

In Brazil, according to Hughes et al. (2021), sustainable and ethical food consumption does not hold a main role in shaping food practices. However, good food is commonly associated with healthful claims, which generally entails a farmer's production, organic, and traditional diet in Brazil. This positive association with good food, however, is juxtaposed with a negative perception of sustainable food. This finding in Table 4.9 aligns with the lay theory that suggests Brazilian consumers hold certain beliefs on agricultural benefit on sustainability (Sheth, 2011) rather than packaged food, which explain their tendency to negatively engage with healthfulness content on social media platforms especially on branded food context as compared to consumers in other two countries as shown in Figure 4.8. Interestingly, the UK consumer perception of food such as British food is unhealthy and untrustworthy. However, consumer recognizes their purchase decision on the role of supporting the UK economy, thus it is suggested to communicate benefits in this manner (Doherty et al., 2017). Nevertheless, the findings from this study show that communicating healthfulness generates cognitive engagement (post comments) in UK consumers as shown in Figure 4.8, and reports that UK consumers are more likely to love the product and brand, support health initiatives on a product, and check for the availability when the product pull from the market. On the other hand, the negative responses from UK consumers are directly related to the brand including marketing scepticism and negative product reviews, which is the outcome of low-level power distance and might be harmful for the brand. For example, responses are like "come on...", "#wokewashing" on a digestive day celebration post and "fake claim" response on a health tip post. According to Goodrich and de Mooij (2014), the low power distance in the UK and the USA explains why consumers to do more brand research online. Garcia-Gavilanes, Quercia, and Jaimes (2013) consider that in countries with power distance like that consumer feel more comfortable interacting and expressing their opinions on a brand. Overall, these findings deepen past findings in post-engagement by analysing the level of power distance, uncertainty avoidance and individualism. They suggest that the cultural differences in power distance, uncertainty avoidance and individualism play a significant role in consumer attitudes towards

brands and products and should be taken into account by marketers when communicating healthfulness to consumers in different levels of dimensions.

The findings of this thesis expand the notion that communication through social media varies between advanced versus emerging economies (Bagozzi et al., 2020; Castro-Gonzales and Bande, 2019). Numerically, 79.9% of the total population in Brazil, 80.9% of the total population in the US, and 84.3% of the total population in the UK were social media users in January 2022 (Kemp, 2022; Kemp, 2022a; Kemp, 2022b). The UK group is more important in terms of the number of social media users and their commitment to social media usage (Vasalou et al., 2010). The results proved that the consumer tendency to show their unfavourable thought and feelings about brands through post engagement is significant in Brazil on healthfulness related brand messages across likes, comments and shares. Accordingly, the findings expand the advanced economies such as the USA and the UK (O'Sullivan, 2000). They also suggest that formulating a social media strategy relying on healthfulness posts might provide more value to brand in countries that have the same type of culture as Brazil in terms of individualism level and power distance dimensions.

Lastly, the TBL element on the brand messages and the brand's CSR attribution showed the non-significant results in Table 4.9, it might be related to countries' indulgence, long-term orientation and masculinity levels which are at a similar level that did not cause any significant moderation results. Firstly, the engagement might be influenced by how consumers perceive the brand's sustainability messages, particularly in societies that prioritize indulgence, seeking enjoyment and fun, as described by Hofstede, Hofstede, and Minkov (2010). This means that consumers might ignore serious sustainability messages in a fun social media environment. Second, these three cultures' long-term orientations according to Hofstede, are not high and emphasize consumer needs as having identification with their history, roots and interaction with others sharing a similar history (Lin et al., 2017). Thus, receiving functional and practical information from brands does not generate engagement or interaction as it works in high-level long-term orientation cultures. This also adds to the discussions why brands' rational message frame did not obtain significant results on sustainability communication.

Lastly, masculinity is defined as what motivates people which is either achievement and success more material in masculine cultures, or quality of life and caring for others in feminine cultures (Hofstede, 1980). The cultures in this thesis are identified as intermediate or closer

to a high masculinity dimension (Hofstede Insights, 2023). In their study, Bedard and Tolmie (2018), measure the moderation effect of masculinity on the role of social media usage and sustainability. Their study showed that this spectrum plays a significant role in cultures by weakening the relationship due to consumers' material desire to show their achievement. Similarly, this thesis suggests that in the intermediate-high score masculinity cultures sustainability messages might not be encouraging for consumers to engage, however, it can create an inclination for sustainable authentic food products such as local agriculture, luxury food and gastronomy products.

Overall, the findings contribute to the understanding of managing brand post popularity from a cross-cultural perspective, as highlighted by Lin, Swarna, and Bruning (2017). This expansion is twofold: Firstly, it clarifies the relationship between the country of operation and cross-cultural differences in sustainability communication, demonstrating how it can moderate sustainability-related message factors, leading to either positive or negative outcomes. Secondly, it underscores the opportunity for firms to adopt tailored strategies for sustainability communication across various countries, emphasizing the importance of avoiding a one-size-fits-all approach when communicating sustainability messages globally.

8.3.3 Summary of Moderating Variables

To conclude the section on the moderation impact of brand post engagement through vividness and message appeal, and country of operation, firstly, vividness has been discussed as a moderating effect on the link between brand activism and CSR attribution, which has a significantly positive impact on brand post engagement. Furthermore, video content is offered to create more impact in cognitive engagement (post comments) and pictures are more effective in affective engagement (post likes). In addition, the use of a high degree of vividness (video) in brand activist messages is found to be the key success factor in increasing consumer behaviour (post shares).

Vividness is also discussed by its impact on negative engagement with more complex content, such as TBL and informativeness. Second, the hypothesis of message appeal moderation was rejected, and the possible reason for this is the questionable relationship between appeal and engagement in marketing literature. Two predominant appeals in framing theory, rational and emotional, are compared in social media strategy studies, and their effectiveness in

sustainability communication is still controversial. Although affective appeal has been found to be more persuasive in eco-friendly messages, this thesis which failed to confirm the moderating role of message appeal. Qualitative analysis showed that the breakdown of appeals and claims in affective and rational appeals in the food industry is necessary to optimize engagement strategy. Thus, brands might need to integrate the suggested breakdown of food industry appeals with several combinations and monitor the effectiveness of their target consumers. Lastly, the moderating effect of the country of operation on the relationship between sustainability-related message factors and brand post engagement was supported. Hofstede's theory is used to refined differences in consumer engagement across culturally diverse countries, where cultural perspectives influence how brand posts are interpreted and how the culture changes perspectives regarding food sustainability. Table 8.8 summarises the key discussions on moderating variables.

Table 8.8 Summary of moderating variables discussion

Antecedents	Existing Literature	New Findings
Vividness	Mixed outcomes regarding the impact of vividness on brand post engagement. Some found a positive link (Antoniadis et al., 2019; Banerjee and Chua, 2019), while others reported uncertain results (Yuen et al., 2023).	Vividness moderates the relationship between brand activism and CSR attribution, especially through visual formats like pictures and videos. Videos evoke emotions and pictures convey meaningful information in sustainability.
	Media richness theory in sustainability content is still overlooked (Khan et al., 2016; Shahbaznezhad et al., 2021).	Brands' CSR motivation and activist messages may be best suited to both a higher media richness format (video) and a moderate media richness format (picture) and a higher level of emotional stimuli on the engagement.
Message appeal	Existing research offers different perspectives on affective and rational appeals' effect on engagement (Hollebeek and Belk, 2021; Kapoor et al., 2021; Li, Larimo and Leonidou, 2020).	In sustainability communication, the affective versus rational appeal did not moderate post engagement. Rational appeals prompt information-seeking behaviour and emotional appeal enhances sustainability message persuasion, but their impact on engagement is less prominent.
	Identifying industry-based claims in the affective and rational appeals change engagement outcomes (Wagner et al., 2017).	Claims were identified however the engagement might differ by brand. Pride, mental and emotional support (e.g., body acceptance, and self-love), happy vibes and a sense of community are favourable appeals in affective; and ease of use, plant-based, food waste, natural ingredients, and human rights appeals get favourable comments in rational appeal.
Country of operation	Consumer cultural dimensions impact consumer-brand interaction (Hofstede, 2010; Lin, Swarna and Bruning, 2017). Culture offers a perspective on food, consumption, and sustainability knowledge (Hollebeek and Belz, 2021; Hughes et al., 2021).	Consumer cultural contexts significantly impact responses to sustainability communication and social media usage. The country of operation moderates engagement across healthfulness, informativeness, and brand activism. Cultural dimensions like power distance, individualism, and uncertainty avoidance significantly shape the engagement patterns of Brazil, the UK and the USA.

The result chapters (Chapters 4-7) concluded five sustainability-related message tenets are the main effect on the brand post engagement in various ways, including platform, brand, and

period. Thus, the next section discusses the findings regarding the effect of social media platforms.

8.4 Findings for Different Social Media Platforms

This section discusses the results concerning the differences in engagement outcomes on sustainability communication between social media platforms. It is contended that different types of social media platforms can yield superior alignment on engagement than the other, and understanding platform-based antecedents would add “more meat to the bones” to the engagement on social media strategies (Lim and Rasul, 2022, p. 336). There is limited understanding of the engagement strategy that works well on one platform but fails on another and the antecedents with consequences are still underexplored. Robson, Banerjee, and Kaur (2022) have flagged this as a critical gap in the literature. Relating to engagement, the result of this thesis by Tables 5.1 and 5.2 sheds light on the antecedents that drive the success of sustainability-related messages on diverse online platforms, namely Facebook and Instagram.

The difference between the two platforms has been found in the hypotheses linking brand post engagement and sustainability-related message factors as perceived enjoyment, effort expectancy, perceived trust and perceived risk differentiating the two platforms on engagement. These five characteristics of social media platforms were conceptualized in the study of Lim and Rasul (2022) as a systematic review, however still required empirical validation. This thesis's findings contribute to the literature by comparing and contrasting different social media platforms on sustainability-related messages.

In terms of the triple bottom line, both platforms led to negative engagement. This result was found similar to the result of the whole dataset (N= 3149) regression analysis as discussed in Sections 4.2 and moderation analyses in Sections 4.3 and 4.4, but not to the brand and COVID analysis. Accordingly, the general explanation is the perceived enjoyment in the social media environment (De Vries and Carlson, 2014). The major driver of online brand engagement is found as hedonic values (Madupu and Cooley, 2010) including fun, existing, pleasant, and entertaining content (Jahn and Kunz, 2012). Emphasizing the effect of functional value rather than hedonic is the possible reason for negative engagement in brands' educative triple bottom line content. However, brand and period might change the engagement outcome

positively due to the brand's trust and commitment into stages (Sashi, 2012) and consumer positive involvement and attachment in uncertain circumstances (Izquierdo-Yusta et al., 2022). Section 9.4 and Section 9.5 discuss brand and period impact on the brand post engagement in more detail.

In terms of informativeness, both platforms showed non-significant engagement as reported in Tables 5.1 and 5.2. In social media channels research, it might be explained by effort expectancy (Ashley and Tuten, 2015). In the engagement literature, it is one of the platform-related antecedents requiring investment in time and resources to curate content and enrich insights (Lim and Rasul, 2022). Effort expectancy represents the degree of easiness with the use of the system (Venkatesh, Thong and Xu, 2012), but also the awareness of perceived barriers in social media teaching and education function (del Valle et al., 2017). Relating to social media engagement, these platforms are reported as user-friendly and easy to learn and use (Hansen, Saridakis and Benson, 2018). However, consumers require facilitation provided by the brands including an appropriate level of support and resources (Albanna et al., 2022). The moderation analyses revealed that informativeness and use of social media platforms can be supported by affective appeals that might satisfy consumers' hedonic values (Venkatesh, Thong and Xu, 2012) and by integrating messages with the tools such as video on Facebook and Instagram that might meet the criteria of appropriate resources (Albanna et al., 2022), aiming to remove barriers to allow consumers to engage with sustainability communication.

In terms of CSR attribution, the thesis shows that both platforms negatively influence brand post engagement on sustainability-related messages. From a contextual point of view, this supports the idea that consumer perception of food brands may produce different results in CSR attributions (e.g., Austin and Gaither, 2017; Lee and Cho, 2022). Yet, one step before social media engagement, brands are required to establish intimate relationships with trust and commitment in consumer-brand relationships to facilitate consumer engagement on social media (Sashi, 2012). In social media channel research, perceived trust is determined as a platform-related antecedent however it is a brand-related outcome in terms of engagement (Lim and Rasul, 2022). This means that consumers do not perceive any social media platforms as trustworthy and believe in promises and commitments on the posts (Hansen, Saridakis and Benson, 2018) due to the lack of brand investment in trust with consumer relationship in the

previous stage which causes negatively-valenced engagement as the results of thesis demonstrated.

Similarly, considering the outcomes of engagement on social media, healthfulness is explained by perceived trust. In terms of the healthfulness tenet, perceived trust explains generating different engagement outcomes for Facebook which is non-significant and Instagram which is positive engagement. Facebook is identified as disadvantageous by the negative relationship engagement. This is because it is one of the platforms perceived as an outlet to spread rumours in the online community (Friggeri et al., 2014) and fake news (Chua and Banerjee, 2017). Especially, rumours about food and health have been mentioned in studies (e.g., Castillo et al., 2013; Chua and Banerjee, 2018; Kimmel and Audrain-Pontevia, 2010; Pal, Chua and Goh, 2017). That is parallel with the research context of this thesis, and it is the possible explanation of non-significant engagement across Likes, Comments and Shares on Facebook due to its untrustworthy impact on consumer information. In contrast, Instagram generates positively-valenced engagement on health-related sustainability messages. According to the findings of this thesis, healthfulness claims are perceived as more tangible than CSR attribution by consumers. Especially through food products, brands might establish trustworthy and committed relationships with consumers as the qualitative analysis proved, however, CSR attributions might require additional investment in the consumer relationship as discussed in the previous section.

In terms of brand activism, the engagement is positive for Instagram (Table 5.2) and non-significant for Facebook (Table 5.1). The result indicates the perceived risk of specific social media platforms that play a role in consumer intention to engage (Hansen, Saridakis and Benson, 2018). Perceived risk which is a platform-related antecedent depends on the nature of the social media platform causing positive or negative effects (Lim and Rasul, 2022). As discussed previously, the brand activist messages of the sample brands consist of socio-political messages to a great extent on social media where consumers might be concerned about their privacy on reacting to activism (Sarkar and Kotler, 2020) or might feel vulnerable by engaging with sensitive information due to online attacks (Mitra and Ransbotham, 2015). In the context of activist messages, this thesis suggests that Instagram might make consumers more invisible due to the high anonymity degree, for instance, the number of fake accounts on Instagram reached 1.84 million accounts in 2019 while the US and Brazil are at the top list

countries (Balakrishnan, 2019) that might affect consumers engagement on Instagram; or consumer groups on Instagram might be more activist than Facebook (Bossetta and Schmokel, 2020).

Consequently, the findings of this thesis expand the notion that type of social media is less prevalent (Dao et al., 2014) by suggesting that Instagram might generate positively-valenced engagement over healthfulness and activism; and Facebook might generate engagement through altering rumour and improving perceived risk on the health and activist messages. Perceived enjoyment, effort expectancy and perceived trust were identified as the antecedents of the lack of engagement on the triple bottom line, informativeness and CSR attribution tenets on both platforms.

8.5 Findings for Different Brands

This section discusses the findings that are supported by qualitative as well as quantitative analysis of the impact of brands on social media engagement in Tables 6.1, 6.2, 6.3, 6.4, and 6.5. The qualitative research findings suggested that two consumer modes, conformity and resistance, are transferred to brands by brands' sustainability communication on social media in Table 6.6. The literature on consumer-brand engagement defines consumer orientation as conformity where consumers have matching beliefs, attitudes, behaviours and thinking as a group (Cialdini and Goldstein, 2004); whereas resistance is the opposite orientation and rejects offering (Schmitt, Brakus and Biraglia, 2022). For example, if consumers' engagement behaviour is conformity-orientated, consumers might persuade cooperation in the influence of brands' offering more than they planned (Hollebeek et al., 2022). The findings of qualitative analysis add to this stance, that in terms of conformity orientation on sustainability, the direction of consumer response to the brand is related to emotional bonds to brands including expressing brand love, brand admiration, and defending the brand when a negative attitude is presented by other consumers. Nonetheless, in terms of resistance orientation on sustainability, the direction of consumer response to the brand is related to anti-brand behaviour, judgment on the brand's initiatives and criticism of the brand's involvement in sustainability. This classification is important due to demonstrating what values and tenets drive engagement with some brands but cause alienation with others (Shepherd et al., 2015), while some consumer norms address only specific brands (Muniz and O'Guinn, 2001). This

means that social media engagement might derive from the brand itself even if the tenets are the same on the sustainability-related posts.

Interestingly, the quantitative findings expand the assertion that consumers might engage with specific brands while rejecting others (Luedicke et al., 2010). Thus, this thesis reaches several conclusions regarding the effect of brands on post engagement by comparing five brands over sustainability-related messages by the regression analysis of brands. In this context, previous research has highlighted the role of brand purpose in marketing strategies, as it can facilitate affective, cognitive, and behavioural engagement that fosters transformation in consumer practices through education and tools (Hajdas and Kleczek, 2021). Brand purpose serves to establish an understanding of the brand's contribution to the wider public interest and societal goals (The British Academy, 2019), prioritizing social and environmental benefits (Bocken et al., 2014), which is over and above the brand's sales and profits (Williams, Escalas, & Morningstar, 2022). As brands match their purposes with their activities, consumers move up the ladder of engagement to the cause (Sidibe, 2020). Relating to brand post engagement, this thesis adds that positively-valenced engagement is attained through the alignment of the brand purpose with sustainability-related messages.

Ben & Jerry's social media analysis showed that the brand positively engages with informativeness through Comments and healthfulness tenet by Likes and Comments. These findings in Table 6.1 strongly support Ben & Jerry's brand purpose through the informativeness and healthfulness content, which posits brand purpose to be a driver of engagement. Ben & Jerry's purpose is stated on its website and social media accounts as "Peace, Love and Ice-Cream". These purposes are in the core values of the business advancing human rights and dignity, supporting social and economic justice for communities that have been historically marginalised, and preserving and restoring the Earth systems (Ben & Jerry's, 2023). As the thesis findings revealed that the variety of sustainability messages of Ben & Jerry's in their social media strategy is more than other four brands. These posts cover the purposes of the brand on social media including democracy, fair trade, racial justice, climate justice, gender equality, marriage equality, refugees and immigrants, and LGBTQ+ people. In other words, this means that the brand builds any marketing strategies or campaigns based on Ben & Jerry's goals. Importantly, the brand supports the strategy that has a great purpose, spending money on activism around this purpose and communicating it in the latest fashion

advertising style which events, packaging, and in stores (Sarkar and Kotler, 2020). Relating to sustainability-related message factors, Ben & Jerry's uses social media to communicate its purposes on the corporate level with an informativeness tenet by providing facts, numbers and sources. However, since the messages are diverse and multifaced, consumers do not feel overloaded with the given information on different topics and causes. For product-level communication, Ben & Jerry's uses a healthfulness tenet, the brand provides a transparent process about the ingredients such as vegan and non-dairy, and also about the suppliers such as local farms and bakery collaborations, that helps consumers stop consumer guessing information (Collins et al., 2007; Reczek, 2018) and generates affective and cognitive engagement with the brand.

Hellmann's social media engagement analysis showed that the brand positively engages with the healthfulness tenet in the number of Comments in Table 6.2. This finding demonstrates that Hellmann's brand purpose aligns with healthfulness content that drives the consumer to engage with it. Hellmann's brand purpose is phased as fighting food waste. This purpose is mentioned in all social media accounts globally. As the qualitative analysis showed, Hellmann's overly sends food waste messages on the brand post that results in negatively-valenced engagement on environmental tenets and values-driven attribution. However, the brand leverages its purpose by innovating a superior product in the mayonnaise and dressing category with the benefits, for example, using plant-based ingredients for consumer health, 100% recycled plastic packaging and 100% cage-free or free-range eggs for the health of the planet (Unilever PLC, 2023). Relating to sustainability-related message factors, Hellmann's uses the healthfulness tenet successfully for product-level communication combining its innovative product with the purpose brand. The findings show that plant-based ingredients and vegan food are the most common messages in the brand's social media strategy supported by the Meatless Monday campaign and #MakeTasteNotWaste campaign across selected countries in this research. This integrated strategy emerges from the brand's purpose of communicating strong environmental goals with products achieving less environmental footprint but more positive social impact (Sarkar and Kotler, 2020), and results in cognitive engagement with consumers in the social media environment.

It is not surprising that Activia positively generates engagement on brand activist messages in the number of Likes and Comments as reported in Table 6.3. In brand activist tenets,

engagement is the alignment between brand messaging and practices when matching with brand purpose and values (Vredenburg et al., 2020). Indeed, this tenet has appeared to correspond well with Activia's brand purpose. In Activia, the brand purpose is stated as well-being and gut health. Similar to the findings of other brand analyses, the frequently utilised claims which are health-related messaging for Activia have shown non-significant results. Because, for instance, Activia includes the following product health information in its all posts;

“*Activia is a source of calcium that contributes to the normal function of digestive enzymes. It should be enjoyed as part of a balanced diet and healthy lifestyle.

**Live cultures in yoghurt or fermented milk improve lactose digestion of the product in people who have difficulty digesting lactose” (Activia USA Instagram, 2023)

The representative post of Activia's note has been mentioned in all Activia brand posts in three countries accounts. In other words, repeatedly exposing consumers to the same message does not result in positive engagement; rather, it has a reverse impact, depending on whether the product's social value is seen or not (Newman, Gorlin, and Dhar, 2014). In this case, regarding the brand activist tenet, collaborating with well-being and health activist influencers makes a difference and inspires consumers to get engaged. Accordingly, Activia analysis results in affective and cognitive engagement with consumers on social media because the brand purpose strategy promotes a product while addressing the key societal concern and keeping relevant to the core brand mission while engaging consumers (Sidibe, 2020). Consequently, the findings of the thesis imply that if a brand's purpose is heavily tied to the nature of the product, as in the case of Activia's health claims, partnering with opinion leaders may be of great assistance in fostering engagement.

Knorr brand post analysis revealed that the brand positively generates engagement on the environmental element tenet by the number of Comments and value-driven attribution tenet by the number of Comments and Shares as presented in Table 6.4. The findings strongly support Knorr's brand purpose through environmental and value-driven content, which posits brand purpose to be a driver of engagement. Knorr brand purpose is phased differently in each country. However, the main purpose reflects “make a difference”. For example, in the USA the brand's purpose is to make a difference in society by providing nutritious, healthy and affordable food (Knorr USA, 2023). In the UK the brand purpose is to support a sustainable food future for the people and the planet, and #CheatOnMeat campaign is a part of purpose

(Knorr UK, 2023). Lastly in Brazil it is to build a greener and more sustainable food for future (Knorr Brasil, 2023). Different from than other four brands, Knorr incorporates its brand purposes into well-established campaigns and collaborations. In terms of sustainability-related tenets, environmental and value-driven attribution are integrated into several successful campaigns. To illustrate, the findings demonstrate that Cheat on Meat in partnership with The Hairy Bikers helped to raise awareness in the UK, and Knorr Future 50 Foods campaign educated consumers on healthy and sustainable food in Brazil. However in the USA the brand message has not been associated with any campaigns. The brand post includes a message on nutritious and healthy food based on leftover food. The overall Knorr strategy aligns with its brand purposes and communicates environmental purposes with the value attribution together towards making a difference, which drives consumers for cognitive and behavioural engagement.

Lastly, Coca-Cola's social media engagement analysis showed that the brand positively generates engagement on the informativeness tenet by the number of Comments as reported in Table 6.5. This means Coca-Cola's brand purposes are supported with informative content that motivates consumers to engage. Importantly, Coca-Cola has the lowest sustainability posting ($N=176$), on social media presented in Table 4.2 as compared to the other four brands, therefore consumers might be less likely to be triggered by the given information (Hollebeek and Chen, 2014). Furthermore, Coca-Cola's brand purpose is stated across three pillars crafting a meaningful brand with the product, building a more sustainable future for the planet and investing to improve people's lives (Coca-Cola, 2023). The findings of the analysis showed that Coca-Cola's sustainability messages are heavily dominated by two main contents. The first theme is social sustainability issues including LGBTQ+, Black Lives Matter, cooperation with the local community and harmony messages. Even if the messages express socio-political ideas, consumers do not show extreme behaviour against the brand as observed in Ben & Jerry's. The possible explanation might be the frequency of transmitting the message (Xiong et al., 2020), and the results in positively-valenced engagement. The second and more important finding has been found at the product-level communication. As the purpose of the brand, Coca-Cola aims to provide a more meaningful product for a healthier food environment by reducing sugar levels in the recipes innovating low or no-sugar cokes and offering small packs for portion control (Coca-Cola, 2023a). Nevertheless, quantitative analysis revealed that

consumer responses to Coca-Cola's health improvement information are strongly negative which involves the dislike of the new recipe, unwillingness to try the alternative, and indecision about the change. This outcome causes resilience orientation, and the reason might be explained by Coca-Cola's stigmatized perception of consumers. This means the brand responds to the concern of the general society in terms of healthier improvement; however, it is perceived as contradictory to the brand's existing business model (Austin and Gaither, 2017). The findings of Coca-Cola's brand analysis suggests that contradictory brand purpose with business model might drive consumer for cognitive engagement to express their hesitancy.

The brand influence discussion concludes that brand purpose plays a crucial role in fostering positive engagement among consumers, which includes the establishment of emotional bonds with the brand and conformity to the given brand message. The thesis results indicate that sustainability messages that are less frequently repeated but still aligned with the brand's purpose can lead to more significant engagement outcomes across all brands. In cases where there is a mismatch between the brand's purpose its sustainability practices, and consumer perception of the brand, consumers may resist brand messages, leading to negative outcomes such as anti-brand behaviour, criticism of the brand's initiatives, and even boycotts, resulting in the loss of customers. These findings demonstrate that engagement outcomes are not limited to metrics such as Likes, Comments, and Shares, but also encompass broader attitudes and behaviours towards the brand's sustainability involvement.

8.6 Findings for Different Periods of Analysis

The period analysis represents the final impact in this discussion as a determining factor that influences social media users and their positive engagement with brands. As reported in Table 7.1, the results have verified that the COVID-19 period had a strongly positive impact on the tenets of environmental elements, stakeholder-driven attribution, brand activism and healthfulness. Notably, in the pre-COVID period, value-driven attribution was the sole tenet associated with positive social media engagement, whereas, in the post-COVID outbreak period, healthfulness emerged as the only positive tenet. Because the scope of the period consists of a crisis with uncertainty and health emergency circumstances, consumers are more likely to feel stressed and develop a coping mechanism (Hollebeek, Hammedi and Sprött,

2023). The findings of the period analysis are consistent with prior research that emphasized the importance of the external changes on consumers as suggested by Hollebeek, Hammedi and Sprott (2023), as well as offers the favourable antecedents over the sustainability-related brand messages in building affective, cognitive and behavioural engagement with consumers.

For the pre-COVID period, the results of this study indicate that value-driven attribution of what is positively correlated with brand post engagement. In the CSR attribution, consumers may perceive a brand's sustainability as a lower-level benefit concerning the selected brands in the sample due to the stigmatized perception, therefore, consumers' scepticism towards brands did not interrupt their engagement with the brand (Austin and Gaither, 2017). This result is important as it shows that despite the stigmatization of some brands concerning their sustainability initiatives, consumers are still likely to appreciate the value and engage with these brands. This notion is valid only when consumers perceive a brand's CSR motivation is sincere (Yoon et al., 2006). This finding underscores the importance of genuine and trustworthy sustainability communications for building positive relationships with consumers. Because this result also explains the negative impact of value-driven attribution on engagement during the first COVID-19 outbreak and later in the post-COVID outbreak period which may reflect the shifts in consumer concerns and demands that might increase to higher-level benefit from the brands during this period.

During the first COVID-19 outbreak, the results showed that consumers engaged more positively with brand posts on the environmental element, stakeholder-driven attribution, brand activism and healthfulness tenets. Some extent of the reason might be the increased social media usage during the first COVID-19 outbreak to cope with the pandemic (Hootsuite, 2022). However, relating back to the engagement literature, these findings support that the pandemic has changed consumers lay beliefs on their consumption and choices, therefore consumer-brand engagement has been affected positively by the external changes (Hollebeek, Hammedi and Sprott, 2023).

In terms of TBL elements, the finding in Table 7.1 proves that environmental element supports brand post engagement during the first COVID-19 outbreak. Indeed, the finding supports that the current crisis has motivated consumers to become more conscious of resource limitation and survival threats, as reported by He and Harris (2020). Consistent with the lay theory, the changes in the planet might have a psychological impact on consumers and promote pro-

environmental behaviour (Soliman and Wilson, 2017). Because, when individuals face consumption-related stress, it might facilitate their brand-related learning towards the company's sustainability initiatives as a coping mechanism (Hollebeek, Hammedi and Sprott, 2023). This supports the existing literature in terms of consumer perspective and adds that the brand can achieve cognitive engagement through the environmental dimension of TBL while remaining agile and responding to consumer concerns, particularly during times of crisis as evidenced by the thesis results.

In terms of CSR attribution, the results of this thesis indicate that during the COVID-19 crisis period, stakeholder-driven attribution became a positive tenet, whereas value-driven attribution which was positively engaged in the pre-COVID period, became negatively associated with CSR attribution presented in Table 7.1. Considering that consumers may value a brand's CSR efforts to build a relationship with the community and demonstrate care for the community (He and Harris, 2020), the result supports the affective engagement on the stakeholder-driven tenet. This finding highlights the importance for brands to prioritize stakeholder motivation and community involvement in their CSR initiatives to positively influence consumer attitudes and behaviour, especially during crises. A notable divergence between the during and post periods is detected, as the positive engagement of stakeholder-driven attribution during-COVID the period is not sustained in the subsequent period. The shift might be due to increasing scepticism of the industry's negative impact (Miller and Lellis, 2015) and also the negative response towards stakeholder-driven motives in the general context regardless of time (Ellen et al., 2006).

Similar to stakeholder-driven findings, brand activism is another controversial message factor on brand post engagement as reported in Table 7.1. Indeed, the finding of this thesis proves that brand activism supports brand post engagement during the first COVID-19 outbreak. Authentic messages framed by brands transmit the issue and motivate the public with a solution (Vredenburg et al., 2020). Concordantly, this finding of the thesis found that this activist strategy supports consumers in the development of brand-related learning skills during stressful times (Hollebeek, Hammedi and Sprott, 2023). Nonetheless, positive engagement has not been supported in the pre-COVID and post-COVID outbreak periods due to transformational learning and adoption challenges in consumers' daily lives (Brodie, Ilic,

Juric and Hollebeek, 2013; Hollebeek and Macky, 2019), when the stress and uncertainty condition disappeared.

In terms of healthfulness, the finding proves that the healthfulness tenet supports brand post-engagement during the first COVID-19 outbreak cognitively and also for the subsequent period by affective and cognitive engagement. Interestingly, the brands that have been analysed in this thesis offer healthier food options and improve their recipes in a healthier direction as shown by Figure 7.2. However, not all products in their brand portfolio maintain healthy claims such as organic, natural, vegan, low fat and dairy-free creating consumer demands in the food industry (Brunori, 2016), as the product categories include ice-cream, sauces, dairy and soft drink beverages. In this context, the positively-valenced engagement of healthfulness can be explained by consumers' tendency to unhealthy food consumption in the low control situation of their lives (Lunardo et al., 2022). Due to the demand towards these product categories to escape from the stress of self-indulgence, the brand post engagement might be strengthened by the role of perceived lack of control during and post-COVID periods.

Overall, the findings revealed that the COVID-19 pandemic as an external event caused stress over consumers that supported consumer social media engagement. However, this kind of crisis creates temporary motivation until the consumers understand the risk and adopt the new information. Consequently, the post-COVID outbreak period empirically ascertained that consumer engagement has not been sustained, moreover, it is more negative than the pre-COVID period across all tenets except healthfulness. These suggest two results. Firstly, brands might get hurt by the crisis (Yoon et al., 2006), if consumers do not perceive the brand's motivation as sincere and also defensive of the solution resulting in negatively-valenced engagement. Second, as the lay theory explained, for situations that consumers cannot personally control such as pandemics and war, the impact is longer and more persistent due to creating residual fears and social trauma (Tsiotsou, 2023). Consequently, the healthfulness tenet is still valid in the new area and competent in the engagement strategy of brands as the consumption-related stress changed the behaviour (Hollebeek, Hammedi and Sprött, 2023). Table 8.9 summarises the key discussions on the COVID-19 pandemic impact period.

Table 8.9 Summary of COVID-19 pandemic period discussion

Period	Existing Literature	New Findings
Pre-COVID-19	Brands' value-driven attribution positively impacts engagement even amidst brand stigmatization (Austin and Gaither, 2017; Yoon et al., 2006).	Value-driven attribution positively correlates with brand post engagement. Brands are required to ensure a consistent sustainability strategy with their attribution.
First COVID-19 Outbreak	Increased social media use during COVID-19 affects consumer-brand engagement and consumer lay beliefs (Hootsuite, 2022; Hollebeek, Hammedi and Sprott, 2023).	Engagement is positive with environmental elements, stakeholder-driven attribution, brand activism, and healthfulness during COVID-19. The pandemic shifts consumer beliefs towards sustainability messages. The crisis generated temporary motivation in engaging with sustainability communication might be due to consumer concern. Engagement decreased across all tenets except for healthfulness. Health-related messages, possibly stemming from fears and social trauma caused by the COVID-19 pandemic, continue to garner attention.
Post COVID-19 Outbreak	For the situation that consumers cannot personally control such as pandemics and war, the impact is longer (Tsiotsou, 2023).	

8.7 Summary

The purpose of this chapter was to interpret the outcomes of the data analysis presented in Chapters 4, 5, 6, and 7 with the aim of exploring the intricate relationships between sustainability-related message factors, brand post engagement, the role of various moderating factors and consumer insight. The research sample involved social media data from five food brands (Ben & Jerry's, Hellmanns', Activia, Knorr and Coca-Cola), two social media platforms (Facebook and Instagram), and three countries (Brazil, the UK and the USA). To accomplish this, the findings were examined within the framework and literature outlined in Chapter 2, along with its associated research hypotheses. The results were expounded upon, and their significance was explored, taking into consideration recent studies in the fields of sustainability marketing and social media engagement.

The framework of brand post engagement in sustainability communication has been formulated in a manner that expands and enriches the existing dimensions of social media engagement. Engagement encompasses three key dimensions: sustainability-related message factors, moderating variables (content characteristics, country of operation), and engagement outcomes. By embracing these antecedents, the study aims to comprehensively grasp the

multifaceted nature of engagement in the context of sustainability communication. This approach enables a more nuanced understanding of how various factors contribute to and shape engagement dynamics on social media. It also provides a holistic view that captures both the core message elements and the contextual influences. Such an approach not only advances the theoretical understanding but also offers practical insights for enhancing sustainability communication and social media marketing strategies.

About the hypotheses, this investigation provides support for the majority of them, highlighting the pivotal role of sustainability-related message factors within the context of brand post engagement. The findings reveal that triple bottom line elements lead to adverse brand post engagement in connection with sustainability-related posts, owing to disparities in brands, and content nature. A similar pattern is observed with informativeness. Contrarily, the study reveals that the influence of CSR attribution on engagement is mixed, while healthfulness exerts the expected negative impact. The study further reveals that the interplay of vividness and the country of operation significantly modulates the relationship between sustainability-related message factors and brand post engagement. However, message appeal moderation was rejected as its effectiveness in sustainability communication is controversial. These findings are meaningful as they illuminate the nuanced interconnections between diverse message factors and engagement outcomes by shedding light on the complex dynamics shaping brand-consumer interactions in the context of sustainability communication on social media.

Post engagement is further influenced by variances across social media platforms, brands, and temporal periods such as the COVID-19 period. These factors attribute varying levels of engagement, encompassing actions such as Likes, Comments, and Shares—representative of affective, cognitive, and behavioural engagement, as unveiled by the empirical discoveries of this study. Acknowledging these underlying factors becomes crucial for acquiring or maintaining brand post engagement, considering the divergences highlighted. This departure from existing literature rests in engagement studies in the marketing field. While previous research often delved into individual message elements or moderating variables, this study holistically considers the interplay of diverse factors to sustainability and communication, yielding a more comprehensive understanding of engagement both from the brand and consumer perspectives. By examining also, the distinct effects of social media platforms, using

distinct brands, and in different time periods and environmental contexts, this research extends the current literature by revealing the multifaceted nature of engagement drivers and offering insights into the complexity of audience-brand interactions regarding sustainability communication.

These findings enrich the existing body of literature on social media engagement and sustainability marketing, carrying numerous implications for the realm of sustainability communication and strategies employed in social media marketing. These implications will be further explored in the concluding chapter that follows.

Chapter 9 : Conclusions

9.1 Introduction

This study advances the literature on sustainability communication a topic that emerged in academic research in the 2010s with the work of Sustainability Communication – Interdisciplinary Perspectives and Theoretical Foundations by Jasmin Godemann and Gerd Michelsen (2011), fed by theories and concepts from CSR (Dunn and Harness, 2018; Khan et al., 2016), green and sustainability marketing (Belz and Peattie, 2012). However, there is a lack of exploration into how to make strategic decisions in social media marketing for effectively communicating sustainability in implementation (Jha and Verma, 2022; Ozanne et al., 2016). This gap results in low consumer engagement in sustainability efforts due to consumer ethical attitudes behaviour gap and often lack of integrated brand approaches to communicate both brand and sustainability messages to leverage consumer engagement (Janouskova et al., 2019; Godemann and Michelsen, 2011; Garnett, 2013).

This thesis addressed the gap in the literature by measuring the effect of sustainability-related message factors alongside moderating variables (content characteristics and country of operation) and accesses whether they generate positive engagement by consumers with brand posts. This is important for marketing studies, particularly in the sustainability context in the ongoing global economic, environmental, and social recovery of COVID-19. With the increase in consumer demand for brands' sustainability practices and the increase in the use of digital media, but also concern for brands' sustainability initiatives due to greenwashing, understanding how sustainability messages can effectively engage consumers is crucial for businesses to navigate the evolving marketing landscape.

The thesis first explains the importance of social media engagement in the context of sustainability communication. It highlights how encouraging consumer engagement on social media drives a high level of engagement in Likes, Comments, and Shares that achieve engagement to brand and sustainability-related messages. The advantages of this high

engagement include a stronger connection between consumers and brands, increased awareness of sustainability initiatives, and the potential for a broader reach and impact on consumers. In terms of differences between Likes, Comments, and Shares, it is identified that sustainability-related message factors, content characteristics and country of operation generate positive and negative relationships in the engagement.

The findings expand current approaches to measuring engagement in the context of sustainability marketing. For instance, it shows how the work of de Vries et al. (2012) does not consider triple bottom line elements on the brand post engagement. This is because it does not investigate sustainability communication content and the reflection of engagement from the firm's perspective. The review of the literature on engagement highlighted the need for understanding the antecedents of sustainability communication and post engagement as a new comprehensive framework to address the identified gaps in the implementation of strategies for brands and insight of consumers into these communication and marketing strategies.

Building on literature from marketing on this topic of sustainability and communication (Banerjee and Chua, 2019; de Vries et al. 2012; Dunn and Harness, 2018; Hollebeek and Chen, 2014; Khan et al., 2016), the thesis advances the concept of brand engagement through digital media as an important variable that marketing strategies should consider fostering brand post engagement. Based on the existing literature on engagement in marketing and building on other literature related to sustainability, advertising, food and information science, this thesis proposes a framework of brand post engagement on sustainability communication with a conceptual model of its hypothetical antecedents and outcomes. The conceptual model consists of three main dimensions – sustainability-related message factors, moderators of brand post engagement, outcome of brand post engagement – which are broken down into five core sustainability-related engagement tenets (triple bottom line, informativeness, CSR attributions, brand activism and healthfulness), and three sub-dimensions on the moderating effect (vividness, message appeal, and country of operation) with the additional offerings on the platform-specific, brand specific and pandemic crisis explanation regarding engagement.

Chapter 8 presented a discussion of the research findings concerning the existing literature on social media engagement and sustainability marketing. These findings address the 5 main research questions which are integrated with 8 hypotheses. Table 9.1 below presents the RQs

with findings. The hypotheses are tested by a quantitative study and complemented by qualitative research on consumer responses. To test the hypotheses, a positivist methodological approach has been employed on a large dataset of social media posts (N= 3149) from five global brands in food (Ben & Jerry's, Hellmann's, Activia, Knorr and Coca-Cola) over three years (2019, 2020, and 2021) across three countries (Brazil, the UK and the USA) and two social media platforms (Facebook and Instagram). These brands are listed on the sustainability index (Corporate Knights) and platforms were chosen as they provide a diverse and comprehensive representation of the global food industry. This choice makes them ideal for examining the multifaceted aspects of sustainability communication and brand post engagement within the scope of this study.

The dataset was analysed using hierarchical regression (Chen et al., 2014). Regarding the last research question, an exploratory approach was undertaken due to being the first investigation into consumer comments. The findings have contributed to the understanding of how consumers respond to and adapt to sustainability, specifically through the bidirectional aspect of social media. Table 9.1 below summarises the findings of the RQs.

Table 9.1 Summary of findings of the RQs

Research Question	Hypothesis	Result	Findings
RQ1. How do sustainability-related message factors drive brand post engagement on social media in the food industry?	H1 H2 H3 H4 H5	- and significant for Likes, Comments, Shares - and significant for Likes, Comments - and significant for Likes, Comments, Shares (Egoistic-driven) + and significant for Likes (Values-driven) Not supported any relationships - and significant for Likes, Comments	Sustainability-related message factors play a significant role in driving brand post engagement on social media within the food industry. Specifically, firms' CSR attribution in the value-driven dimension yields positive engagement in sustainability. Conversely, all other factors, except for brand activism, have a negative impact on brand post engagement, indicating negative responses from consumers. Yet, the choice of brand and social media platform can positively influence engagement outcomes.
RQ2. How does vividness moderate the relationships between sustainability-related message factors and brand post engagement on social media?	H6	- and significant for Likes (TBL) - and significant for Likes, Comments, Shares (Informativeness) + and significant for Likes, Comments (CSR attribution) + and significant for Shares (Brand activism)	Vividness has a moderating effect, resulting in negative engagement for informative and TBL content, while positively influencing brand activism and CSR attribution on engagement. Videos evoke emotions and motivation, drive increased online discussion, while pictures foster brand connection, deliver product information and meaning as discussed by media richness theory.
RQ3. How does message appeal moderate the relationships between sustainability-related message factors and brand post engagement on social media?	H7	Not supported any relationships	Brands' communication tone on social media lacks emphasis on affective appeal, as message appeal moderation is rejected. Consumers respond positively to sustainable product messages through rational appeal. In relation to framing theory, sustainability content breakdowns of both appeals are identified for the food industry, highlighting the importance for brands to incorporate them into their social media strategies for their target consumers.
RQ4. How does the country of operation moderate the relationships between sustainability-related message factors and the brand post engagement on social media?	H8	- and significant for Likes, Comments (Informativeness, brand activism) + and significant for Likes, Comments, Shares (Healthfulness)	Country of operation plays a significant role in moderating sustainability-related message factors and their impact on brand post popularity resulting in diverse engagement outcomes. For effectively engagement strategy, brands are required to adopt their sustainability communication strategies to specific cultural and brand contexts across different countries, utilizing Hofstede's cultural dimensions as a guide.
RQ5. What insights can be gained from user comments, based on the firm's communication behaviour?			User comments offer valuable insights into the complex nature of consumer engagement. In addition to examining five sustainability-related tenants and moderating variables, these comments unveil two significant insights: compliance and resilience concerning the brand, product, and sustainability.

The analysis of the findings presented in Table 9.1 demonstrates the influence of sustainability-related message factors on post engagement within the food industry, addressing RQ1. The results indicate that these tenets can elicit either positive or negative engagement. Furthermore, the study reveals that vividness (picture, animation, and video) and country of operation (Brazil, the UK, and the USA) play a moderating role in the effectiveness of sustainability messages. Message appeal, on the other hand, does not significantly impact brand post engagement, due to the lack of emphasis on affective appeal compared to rational appeal. These findings contribute to the understanding of RQ2, RQ3, and RQ4. Lastly, consumer responses to brand messages reveal two primary categories: those who embrace and support sustainability (compliance) and those who resist or do not fully embrace it (resistant), shedding light on RQ5 from a consumer perspective on sustainability communication on social media. These findings contribute to the advancement of theory, methodology, and practical implications for business and also teaching of marketing, which will be further discussed in subsequent sections.

9.2 Theoretical Contributions

The findings from this thesis significantly contribute to both sustainability marketing literature and social media engagement research in several aspects. **The first contribution has to do with the comprehensive conceptualisation of sustainability communication through social media.** Sustainability communication literature lacks a theoretical framework (Janouskova et al., 2019; Jha and Verma, 2022; Godemann and Michelsen, 2011) and has not built on research in firms' social media marketing communications. Additionally, the social media engagement literature has drawn upon limited concepts such as the social dimension of corporate social responsibility, or theories including communication theory on channel usage, or approaches rooted in information systems models rather than marketing strategies.

Again, this thesis contributes to the existing theoretical and practical knowledge on sustainability communication by proposing and empirically validating a comprehensive framework for brand post engagement in social media. It takes into account the sustainability-related message factors as antecedents to engagement because the success of message-related antecedents in disseminating messages and fostering consumer engagement is attributed to the development of effective communication strategies (Lim and Rasul, 2022). Indeed, by advancing the concept of social media engagement as a valid representation of

sustainability communication, the multidimensional nature of sustainability communication is acknowledged within a unified construct. By doing so, a significant advance is granted to the brand post engagement literature over message-related antecedents as research by de Vries et al. (2012) and Hollebeek and Chen (2014) research and by extension to sustainability communication to brands (Algharabat, 2017; Quensenberry and Coolsen, 2019).

Relying on a single theory does not inform and support the purported engagement propositions (Hollebeek et al., 2019). This thesis addresses this call to pursue the theoretical integration of multiple theories of engagement for richer insights (Lim and Rasul, 2022). Four theories have been tested as drivers of brand post engagement which were media richness (Daft and Lengel, 1986; Shahbaznezhad et al., 2021), framing (Dolan et al., 2016; Shome and Marx, 2009), lay (Soliman and Wilson, 2017) and attribution (Dunn and Harness, 2018) theories. One additional theory which was Hofstede's (2010) culture dimension was used as the representation of findings in the cross-country discussion. The findings have applied to those theories in the concept of engagement in sustainability communication. Although some hypotheses are not supported, the findings show that brand post engagement on sustainability communication is to a large extent influenced by sustainability-related message factors and moderated by content characteristics and country tenets (namely significant for the triple bottom line, informativeness, CSR attributions, healthfulness, vividness, and country of operation). This contributes to the social media engagement research which addressed previous challenges in achieving theoretical integration, and in particular, provided drivers involved in sustainability communication in the context of social media that foster a higher level of brand post engagement.

For example, previous research has focused solely on one theory, such as media richness, to explain engagement with brand messages (Khan et al., 2016). However, this study considers multiple theories, including media richness and framing, to provide a more comprehensive understanding of how the content characteristics of sustainability-related messages influence brand post engagement on social media; attribution theory to explain the brands' sustainability motivation impact on the post engagement; lay and cross-cultural theories to understand the consumer reaction to the given sustainability-related information consumers.

This approach helps uncover complexities in the post, brand, and consumer dynamics that a single theory might overlook. This leads to a more nuanced and enriched comprehension of

engagement in the context of sustainability communication. Consequently, the abovementioned theories deliver a different discussion and challenge the existing engagement literature on sustainability communication.

The second contribution of this thesis has to do with conceptualisation of brand post engagement, considering both the brand and the consumer perspectives. The proposed conceptual framework incorporates the tenets of brand post engagement from the marketing literature, at the brand and consumer levels. Specifically, from the brand perspective, this research extends the existing knowledge on the impact of brand-related antecedents on social media strategies for sustainability communication. This sheds light on how sustainability communication is conceived, executed, and disseminated to achieve favourable engagement and brand-based outcomes. This answers the call for empirical investigation into the brand-related antecedents and consequences in the understanding of social media engagement (Hollebeek and Macky, 2019; Lim and Rasul, 2022).

Through this investigation, three key dimensions of brand-related antecedents including brand analytics, brand expressiveness, and brand incentives were statistically tested on sustainability communication in the context of social media engagement. Brand analytics serve as a tool to collect data on metrics such as Likes, Comments, and Shares, providing insights into the quantitative aspects of engagement in this thesis (Hollebeek and Macky, 2019). The notion of brand expressiveness relates to the strategic positioning and expression of messages on social media (Algharabat et al., 2020), with this thesis examining how brands frame their messages affective versus rational appeal and visually present the message to effectively engage with consumers in sustainability content. The findings were reported in Table 4.7 and discussed in Section 8.3.1, add a valuable contribution to the literature that visual presentation of sustainability-related message generates more positive engagement than verbal presentation. Finally, brand incentives delve into the motivational factors driving engagement (Quach et al., 2019), so CSR attributions were tested as a variable to explore the effectiveness of firms' varying motivations and their positive impact presented in driving engagement. The findings were presented in Table 4.4 and discussed in Section 8.2.3, add to the literature that firms' CSR attribution is the most significant antecedent that generate the most incremental engagement in the sustainability communication on social media model. This theoretical contribution is instrumental as it provides a structured framework to improve

sustainability communication strategy on social media by generating engagement. It not only enhances the understanding of brand post engagement but also offers actionable insights for brands to optimize their marketing strategies.

From the consumer perspective, consumer comments were analysed to explore consumer insight which is the evidence of engagement not related to posts, as the cognitive outcomes (Brodie et al., 2013; Chae, 2021; Lee and Yoon 2020). This addresses the call for empirical investigations into the cognitive dimension of consumer engagement as emphasized by Lim and Rasul (2022). In previous studies, engagement beyond posts is discussed as brand loyalty and satisfaction, brand awareness, emotional bonds, trust and commitment. In this thesis, the findings of consumer cognitive outcomes were analysed by consumer responses. The findings were presented in Tables 4.11 and 6.6 that supported discussion related to sustainability-related message factors, country of operation, brands and different periods. It revealed the impact of sustainability communication on brand, sustainability, and product-level outcomes were categorized as conformity and resistance. These qualitative findings offered consumer insights as engagement outcomes to the brand's sustainability messages. Such insights constitute a significant addition to the prevailing body of knowledge within the field of marketing. By examining the consumer perspective, these findings shed light on various critical aspects, including the factors that positively influence consumer responses to posts, the potential consequences related to concerns about greenwashing, and the categorization of consumer reactions into conformity and resistance for brand, product and sustainability messages. These factors, identified through the study, have a profound impact on creating engagement towards sustainability messages, making them a crucial contribution to the current understanding of consumer engagement and its implications for sustainability marketing. This enriched understanding can inform brands' strategies and tactics in effectively communicating their sustainability initiatives and building stronger connections with their target audience on social media.

Table 9.2 shows the contribution of this research to the brand post engagement field considering the brand and the consumer perspectives.

Table 9.2 Brand and consumer perspectives in social media studies

Authors	Brand	Post engagement	Consumer	Engagement not related to the post
Antoniadis et al. (2019); Banerjee and Chua (2019); de Vries et al. (2012); Kapoor et al. (2021); Khan et al. (2016); Lee et al. (2013); Lee et al. (2018); Robson and Banerjee (2022); Schultz (2017); Swani and Milne (2017); Quach et al. (2019); Yuen et al. (2023)	X	X		
Algharabat, (2017); Bergkvist and Bech-Larsen (2010); Brodie, Ilic, Juric and Hollebeek (2013); Chae (2021); Hollebeek and Chen (2014); Hollebeek and Macky (2019); Lee and Yoon (2020); Wallace, Buil and Chernatony (2014)			X	X
<i>This research</i>	X	X	X	X

As presented, a comprehensive model of the research provides the brand and consumer perspectives for brand post engagement. From a brand perspective, it encompasses key tenets that drive engagement to the brand sustainability-related messages on social media. From a consumer perspective, it sheds light on the response to those brands' driver factors that positively influence or the factors that trigger negative consumer perceptions towards sustainability messages.

9.3 Methodological Contributions

The methodological contribution concerns the application of brand post engagement involving its conceptualisation and empirical validation within a comparative country context and a qualitative component through a bidirectional function of social media. **Firstly, the generalisability of the study has been significantly enhanced by encompassing diverse country contexts and conducting comparative analyses.** Previously, several studies in this field have had limitations such as focusing solely on one country (Ahmad et al., 2021), or only offering a conceptual framework without empirical testing (Hollebeek, Muniz-Martinez, Clark,

Simanaviciute, and Letukyte, 2022) or exclusively examining advanced economies (Khan et al., 2016) or testing global pages (Banerjee and Chua, 2019). In contrast, this research substantially improves its generalizability and applicability by taking a more comprehensive approach. By incorporating multiple country contexts, specifically the USA, the UK, and Brazil, this study broadens its scope, strengthening the relevance of its findings in both advanced and emerging economies. The inclusion of diverse countries facilitates a more holistic understanding of consumer engagement and reactions, encompassing a wide range of cultural and contextual settings within the field of sustainability marketing discipline. This approach surpasses prior works that had a narrower geographical context in social media platform implication by allowing for the identification of nuanced insights with country comparison. In addition to the conceptualising and empirical validity, this thesis provides new insights on cross-country studies in the social media and sustainability marketing field, which are currently very limited in scope and application, in particular because they do not tend to taking into account emerging economies. Considering the effect of countries with sustainability-related message factors, more studies are needed to further explore these tenets. This research contributes to the broader sustainability marketing literature by offering valuable insights into the cross-cultural aspects of consumer engagement to brand posts and advancing the understanding of consumer behaviour in diverse global markets.

Secondly, the study represents one of the earliest efforts to measure consumer responses by a qualitative study, presenting consumer insights as the outcome of engagement to the brand's sustainability messages. This study was conducted to answer the call by Robson and Banerjee (2022). Other brand post engagement studies have missed out on the bidirectional communication aspect of social media to understand consumer's reactions towards brand messages beyond the volume of Likes, Comments and Shares (e.g., Cvijikj and Michahelles, 2013; de Vries et al., 2012; Khan et al., 2016; Jha and Verma, 2022; Yuen et al., 2023). Also, from the consumer perspective, comments analysis explored insight which is the evidence of engagement related to cognitive outcomes (Brodie et al., 2013; Chae, 2021; Lee and Yoon 2020).

This research employs an interpretivist paradigm to uncover consumer insights as outcomes of engagement in the context of sustainability communication. The research procedure involves analysing qualitative data from user comments on Instagram and Facebook on

sustainability-related brand posts that address a bidirectional function. This attempt significantly contributes to the existing literature on brand post engagement, which has been remarkably limited and particularly underexplored within the sustainability marketing context. The investigation into the bidirectional function of social media notably advances the knowledge on the understanding consumer cognitive engagement. The findings reveal that brand post engagement can be conceptualized as multidimensional outcomes encompassing brand, sustainability, and product-level dimensions each of which can be further dissected into sub-dimensions. Consequently, this offers a compelling explanation of consumers' emotions and concerns towards brands' sustainability communication on social media.

9.4 Managerial Implications

The results of this thesis highlight the significance of utilizing social media engagement to identify consumer responses in the dynamic evolution of industries towards sustainability. This is particularly relevant to industries such as food, where brands cannot rely on the consumers' choice of final food consumption due to concerns regarding high carbon balance and unhealthy diets (Heinonen and Ottelin, 2021; Kemper and Ballantine, 2019; Willet et al., 2019). In this context, digital platforms like Facebook and Instagram offer enhanced flexibility in terms of content, accessibility, and format at a low cost thereby integrating into a comprehensive marketing strategy for brands (Malthouse et al., 2013). By addressing these aspects, the thesis provides new insights on brand strategies in terms of their sustainability-related postings and engagement strategies on social media with the objective of promoting and selling sustainable products, distributing educational sustainability content, learning from consumer social media response, and understanding the information obtained from those responses.

The managerial implications of this thesis are therefore numerous and add to the literature which addresses key issues of sustainability communication through engagement (Janouskova et al., 2019; Godemann and Michelsen, 2011). In other words, the research outcomes provide valuable insights for managers in terms of addressing key issues and challenges related to sustainability communication, thereby providing general guidelines and framework useful for more effective engagement practices in digital platforms.

Firstly, the valuable guidelines for managers concerning how sustainability-related brand messages are conceived and disseminated that achieve favourable engagement by *sustainability-related, content characteristics* and *country* antecedents across brand and platform. Building upon this foundation, several effective strategies can be projected to enhance brand post engagement, requiring marketers to identify their social media user consumer segments and align them with the specific sustainability aspects of their brands. Concerning platform with sustainability-related message factors, for example, a consumer segment that actively uses Instagram can potentially exhibit a positive engagement particularly those centred around brand activism or healthfulness messages. This reasoning is supported by the positive engagement outcomes reported in Table 5.2. In contrast, Facebook, as indicated in Table 5.1, did not exhibit comparable positive engagement concerning sustainability messages. Concentrating strategically on Instagram enables a focused examination of consumer behaviour within a platform is more responsive to sustainability messaging. This emphasis on Instagram is substantiated by its perceived advantages, such as higher effort expectancy, perceived trust, and lower perceived risk in contrast to Facebook, as elaborated in Section 8.4 (Lim and Rasul, 2022). By identifying the brand's sustainability-related messages on social media, marketers can disseminate related messages to suitable digital platforms for effective engagement strategies with brand posts. This tailored approach facilitates the establishment of stronger brand-consumer relationships and fosters the promotion of sustainable products and practices. Consequently, since brands' sustainability posts differ in terms of their messages, the provided sustainability communication framework on the engagement guides managers to achieve favourable engagement. Considering the importance of addressing concerns such as greenwashing, it is crucial for brands to ensure that their sustainability messages are genuine and not misleading, thus further strengthening their engagement strategies across various antecedents, encompassing both brand and platform-specific effects.

Concerning content characteristics role, vividness moderates the effectiveness of brand-related sustainability content across various formats such as pictures, animations, and videos, resulting in distinct forms of engagement. In particular, brands' sustainability messages with video to consumer motivation and stimulate heightened online discussions on social media platforms. On the other hand, pictures evoke emotions, foster brand connection, and

effectively convey product information. By strategically leveraging vividness in various media formats, firm owners of sustainable brands can successfully engage their target consumer segments and achieve their sustainability and marketing objectives as shown in Table 4.8. Considering the link between a greater level of emotional stimuli and a higher media format (Shahbaznezhad et al., 2021), marketing managers should prioritize using video format to tell compelling brand stories, while also utilizing picture format to deliver information-rich and educative content in the sustainability context.

Concerning country role on the sustainability-related message factors, the results of the thesis in Table 4.9 indicate that marketing managers are required to adopt brands' sustainability communication strategies to specific cultural and brand contexts across different countries, however not for the TBL elements and firms' CSR attributions. Concerning informativeness, brand activism and healthfulness, this is supported by the understanding that consumer food knowledge plays a crucial role in connecting sustainability outcomes (Hughes et al., 2021) with healthfulness, as communities attribute meaning to items and facilitate the understanding of consumption, rituals, and brand practices (Hollebeek and Belz, 2021) especially when informed about them. Importantly, the results also indicate that the country of operation negatively moderates sustainability-related message factors to diverse outcomes in brand activist messages within brand post engagement. This influence is particularly evident in the context of country-specific differences related to activist topics. Consequently, brand page managers are advised not to form a standardized marketing strategy for sustainability communication and social media marketing across countries regarding these three sustainability message antecedents. Instead, the discussion offered the inclusion of Hofstede's culture dimension as a valuable tool for managers to assess country differences and align their social media strategies with specific cultural and brand contexts. For example, the number of brand postings is higher in advanced economies however positive relationship tenets were identified for Brazil and the USA but not for the UK. This difference was attributed to cultural dimensions. Given that this research scope is limited to food brands and sustainability, it is important to acknowledge that consumer culture exerts a significant influence on the resulting engagement outcomes in this context (Hollebeek and Belz, 2021; Hughes et al., 2021). Understanding this strategic cultural approach is essential to elicit positive engagement and prevent negative responses towards brands and sustainability efforts. On the other hand, the

implications for marketers lie in the potential to implement standardized strategies for sustainability communication across various countries, particularly concerning brands' TBL elements and CSR attribution. This suggests an opportunity for a cohesive global approach to convey these elements in brand posts. Nevertheless, as outlined in Section 8.2.1, marketers need to closely monitor triggering factors such as a lack of understanding of brand-sustainability fit, frequency of posting and hesitancy towards sustainable food ingredients, to reduce negative engagement with their brands on social media posts.

Secondly, although managers have applied constant *sustainability-related, content characteristics* and *country* antecedents across brands and platforms, the findings of the thesis show that engagement is influenced by the period, particularly during uncertain times such as the COVID-19 pandemic in this case due to external impact on consumers as reported in Table 7.1. This agrees that engagement is a multidimensional construct that requires examination of various aspects (e.g., Dessart, Veloutsou and Morgan-Thomas, 2015; Gummerus et al., 2012). In fact, the thesis suggests that the period itself serves as one of the constructs of engagement. As the thesis results demonstrated the post-COVID-19 period needs marketing strategies to be reinvented by considering the new market environment while addressing sustainability tensions and consumer shifts resulting from the recession. Consequently, this study provides new insights on how to manage brands in social media in a recessionary situation, including economic difficulties and crises arising from the global COVID-19 pandemic. Overall, the findings of this study emphasize the critical importance of adopting a strategic and adaptive approach to social media engagement, particularly during hard times. By demonstrating the multidimensional nature of the period effect, this thesis provides empirical evidence for managers to navigate challenges, mitigate negative consequences associated with the period, and foster enduring brand-consumer relationships both during and after crises. This aligns with the research concerned with understanding the long-term perspective of consumer engagement (Brodie et al., 2011) and highlights the significance of recognizing the influence of time on consumer behaviour and proactively responding to shifting consumer dynamics by the uncertainties, recessions or economic downturns, or other external market factors.

The third managerial implication derived from this study highlights the significance of consumer insights in social media engagement and sustainability, underscoring their resilience

and potential benefits in terms of consumer knowledge management (Chua & Banerjee, 2013). The research findings reveal the profound impact of sustainability communication on various outcomes at the brand-, sustainability-, and product- levels as presented in Tables 4.11 and 6.6. Specifically, the analysis pinpoints key triggers that make consumers respond to sustainability messages more resiliently. It also highlights how favourable antecedents of post engagement generate more conformity adoption to the messages. These findings were identified through qualitative analysis. Managers can benefit from these insights when making strategic decisions about their brand portfolios. They provide valuable guidance for shaping how consumers perceive sustainability messages. Marketers can use these insights to tailor their messages about products, brands, and sustainability to match consumer values, leading to more effective marketing campaigns that take into account country-specific and social media-dependent factors. Table 9.3 summarises the key recommendations for social media managers of sustainable food brands on each of the platforms and in each of the three countries.

Table 9.3 Key findings of relevance for social media managers

Country	Facebook	Instagram
Brazil	<p>Utilize video content for engaging storytelling and discussions.</p> <p>Product and brand criticism can be a consumer's negative reaction to the given message.</p> <p>Use health messages by addressing the value of the group, society, and collectivism.</p> <p>Prioritise improving the perceived trust of Facebook in the brand's CSR attribution.</p> <p>Use affective appeal for informativeness factor with video.</p> <p>Be adaptable to changing consumer behaviours, especially during uncertain times.</p>	<p>Leverage engagement with video for brand activist messages.</p> <p>Mention agricultural benefits in sustainability rather than health claims of a product.</p> <p>Utilize visual content like images to convey product information effectively.</p> <p>Use affective appeal for informative content with video.</p> <p>Adapt to changing market dynamics, especially during crises.</p>
United Kingdom	<p>Informative social sustainability content highly triggers UK consumers.</p> <p>Utilize video content to engage and educate consumers effectively.</p> <p>Use affective appeal for informativeness factor with video.</p> <p>Prioritise improving the perceived trust of Facebook in the brand's CSR attribution.</p>	<p>Prioritize health-related messages for the individual benefit.</p> <p>UK consumers engage with health initiatives with a product post</p> <p>Use picture content to convey sustainability information about a product.</p> <p>Use affective appeal for informativeness factor with video.</p> <p>Consumers are less likely to change their engagement behaviours during uncertain times.</p>
United States	<p>Hate speech and boycotts can be consumer reactions against informativeness.</p> <p>Leverage engagement with video content for healthfulness.</p> <p>Use affective appeal for informativeness factor with video.</p> <p>Prioritise improving the perceived trust of Facebook in the brand's CSR attribution.</p> <p>Stay adaptable to changing consumer behaviours, especially in crises.</p>	<p>Consider brand activist messages.</p> <p>Do not over-emphasise health claims of food products. Focus on consumer cynicism regarding food ingredients.</p> <p>Utilize video for health messages.</p> <p>Use picture content to convey sustainability information about a product.</p> <p>Use affective appeal for informativeness factor with video.</p> <p>Stay adaptable to changing consumer behaviours, especially in crises.</p>

Finally, the findings of this research extend beyond academic contributions and business implications by carrying significant implications for society at large. This research offers valuable insights that can be instrumental for policymakers and social marketers in crafting more effective strategies. For policymakers, understanding the factors that drive online

engagement with sustainability-related messages can help to inform the development of policies. It can encourage and incentivize businesses to adopt sustainable practices thereby contributes to broader societal and environmental goals. Policymakers can leverage their insights by this research to design interventions that promote responsible and sustainable behaviour on social media at the individual level aligning with the societal values by cross-cultural differences.

Social marketers can benefit from the identified antecedents and factors generate brand post engagement into their communication strategies to educate and inform the society. For instance, by recognizing the impact of visual presentation and the significance of CSR attribution, social marketers can tailor their campaigns to leverage these elements effectively. Additionally, this research underscores the importance of considering cultural nuances in message interpretation, providing social marketers with insights to tailor their campaigns for diverse audiences. In this essence, this research equips policymakers and social marketers with actionable insights to foster positive societal change. Policymakers can enact informed policies, and social marketers can design campaigns that resonate with consumers for collectively contributing to a more sustainable and ethically conscious society.

9.5 Limitations and Directions for Future Research

While this thesis makes valuable and new contributions to the literature on sustainability marketing and social media engagement, it is important to acknowledge three limitations that could be addressed in future research.

Firstly, the limitations are related to the type of data collected for both the pilot study and the main research. In terms of the pilot study, it employed a highly structured large sample and utilized a deductive approach for quantitative analysis, guided by Braun and Clarke (2006). The sample is in the domain of food companies across 26 product categories including 122,038 packaged food products. The data encompassed various sustainable food claims, such as packaging, recycling, resources, human and animal welfare, the absence of toxins, and charitable aspects while adopting a positivist perspective. This approach aimed to generalize and explain sustainability trends within the complex food industry. Yet, even obtaining the largest sample of sustainable food products, does have its limitations. Notably, the data does not consider market-related factors, such as market shares and distribution, which can

introduce variations across different food brands. Despite these limitations, the data remains sufficient and valuable for applications within the field of sustainable food products and has been successfully employed in the context of sustainability marketing (Chrysochou and Festila, 2019; Elliott, 2008) and contributed to this thesis by revealing the undiscovered trends and dynamics in the food industry across different countries and food claims.

In terms of the main research data, social media data was collected from brand fan pages in the USA, the UK, and Brazil of the sample brands within a restricted period of analysis on the selected social media platforms. Due to the prohibition of automated data collection from other social media networks as stated in their Terms of Service policy (Vitak, 2018), an Excel code sheet and a Word document were developed to archive various data points, including content, post captions, submission dates, volumes of likes, comments, shares, and comments. This data collection process was guided by prior research conducted by Banerjee and Chua (2019). For the data from Brazil, official brand social media pages were directly translated using the built-in translation function of Facebook and Instagram. It is worth noting that machine-assisted translation is a commonly used tool in research and is designed to be fast and efficient (Sager, 1994). In terms of accuracy, automated web translation has shown impressive advancements, with reported accuracy rates of around 80% (Duarte, Lianso, and Loup, 2017). However, it is important to acknowledge that automated translation on social media platforms can alter the authorship and ownership of language (Androutsopoulos, 2015). Throughout the data collection process, all data was carefully observed during coding, and no sources of item bias, such as inappropriate wording or connotation errors, were found (van de Vijver and Tanzer, 2004). This approach was suitable for the researcher due to access and time constraints of analysing 5810 comments and 3149 brand posts. Despite the clear advantages of such methods, further research might gain access to control for non-English data by team-based translation principles (van de Vijver and Tanzer, 2004).

Second, to enhance the generalizability of the thesis, several avenues can be explored. The focus of this thesis was on engagement with sustainability communication specifically on Facebook and Instagram. The conscious choice to study these two platforms was driven by the aim of reaching particularly larger groups of users due to addressing consumers' knowledge gaps, as well as fostering collective action for systemic sustainability change (Goldman Sachs, 2020; Koundouri and Freeman, 2022). While these platforms are effective in

engaging with a larger user group, it is important to recognize that some consumer groups, such as Gen-Z, may not be adequately represented through these digital tools. As highlighted by Hollebeek et al. (2014), various platforms offer unique interactive functionalities that can impact the engagement of different consumer groups. Thus, future research might consider exploring platforms such as TikTok and BeReal, as they gain popularity among younger generations. It is worth noting that although sustainability messages may be limited on these platforms at present, brands will eventually adopt their sustainability marketing strategies. Therefore, the sample size may be small, and the accounts may be global in scope rather than specific to individual countries.

Moreover, this study acknowledges its limitation in controlling for the effect of food product categories. In the sample, each food brand represents a unique product category, such as desserts & ice cream (Ben & Jerry's), beverages (Coca-Cola), sauces & seasonings (Hellmann's), dairy (Activia), and soup & bouillons (Knorr), was based on specific criteria aimed at representing three countries, two social media platforms, and three years, in line with the research requirements. Although it would have been desirable to collect data on multiple brands within the same category, the sample selection process resulted in only one brand per category due to the fulfilment of criteria in terms of country, year, and platform. Consequently, the sample consists of one brand per category which reduces the law-like generalization of results to food products in specific categories (Popper, 2005). To address this limitation, further research is encouraged to be conducted in larger samples covering a broader range of product categories that allows for statistical tests to examine potential differences in engagement and relationships across different types of product categories. Furthermore, these findings have broader applicability beyond the food industry. Previous research has extended the concept of brand post engagement antecedents to various other industries including automobiles, entertainment, cosmetics, fashion, and technology (e.g., Banerjee and Chua, 2019; de Vries et al., 2012).

A final potential avenue for further expansion of this research is to re-evaluate the conceptual framework proposed. The current thesis has developed a model that focuses on social media engagement from the brand perspective with qualitative findings supporting and complementing the quantitative analysis. Within this framework, three types of engagement behaviours, namely Likes, Comments, and Shares, were selected as indicators to investigate

brand analytics and provide quantitative insights into engagement (Hollebeek and Macky, 2019). However, to gain a more comprehensive understanding of engagement in the context of sustainability marketing, future research should consider incorporating additional dimensions beyond quantitative analysis. For instance, research could explore how consumer attitudes and behaviours regarding sustainable food alter when they encounter sustainability messages on social media. It could also examine other factors that impact engagement, like concerns related to greenwashing, which is not the centre of the RQs and therefore not analysed in this thesis.

Researchers can also identify other relevant constructs that influence engagement in other disciplines such as education, environmental psychology, and ethics. While the sustainability communication framework presented in this thesis offers key antecedents that drive engagement, it is worth mentioning that this thesis does not directly address issues like whitewashing and greenwashing. Brands are increasingly being criticized for making sustainable claims as a form of greenwashing. Future research could explore these critical topics to provide insights into ethical and transparent sustainability communication practices. Lastly, the sustainability communication framework presented in this thesis offers key antecedents that drive engagement, particularly in the context of the pandemic. To further understand the sufficiency and applicability of these antecedents, future research could examine their effectiveness in other crisis situations. For instance, future studies can investigate events like the Ukraine war, the Suez Canal blockade, or the escalating US-China confrontation. By examining data from the affected countries and brands, researchers can gain insights into these events' substantial impacts on the global economy and the necessary adjustments in business strategies.

9.6 Concluding Remarks

Despite these limitations, this research has made valuable contributions to the understanding of social media engagement in the context of sustainability communication, particularly about sustainability-related message factors, social media platforms, and country-specific antecedents. The thesis has theoretically contributed by introducing the concept of social media engagement as an effective approach to sustainability communication. The findings demonstrate that engagement with brand posts on sustainability is influenced by three main dimensions: sustainability-related message factors, moderators of brand post engagement,

and the results of brand post engagement. These dimensions significantly contribute to enhancing engagement towards the brand, its products, and sustainability as a whole model. Additionally, the study highlights the significance of considering platform-specific, brand-specific and period-specific outcomes to engagement.

The results of this thesis underscore the need for further research to explore the various contexts of the sustainability in the social media engagement field. The empirical support provided by this study in testing the relationship between engagement in sustainability communication and the impact of sustainability-related message factors and social media antecedents on brand post engagement calls for additional empirical investigations in this direction. This is important because sustainability communication on social media has become increasingly common for companies (Fleming-Milici and Harris, 2020; Koundouri and Freeman, 2022; Simeone and Scarpato, 2020). I hope that this study will inspire and encourage additional research on the role of social media engagement in sustainability communication.

Throughout this doctoral study, my perspective and understanding of brands' sustainability messages have evolved and shifted my motivations towards a more sustainable approach. I have come to realise that I care more deeply about sustainability than I initially thought, and I recognise that there is more I can do to make a positive impact. I have become more conscious of sustainability issues, and I try to make brands and consumers too by educating and leading with examples. Because the only best thing we can do is *"to strive for a healthier, more just and a peaceful planet"* (Oppenlander, 2013).

Appendices

Appendix A - List of concepts

Note: The list highlights mainly used concepts in the food marketing research that are relevant to the theme of this research. There are many other concepts too.

Ecological food: A product avoids excessive impact on the environment, includes in reducing meat consumption and having seasonal fruits and vegetables.

Fair-trade goods: A product to be sold with the fair-trade label on its packaging, it must have been grown by a producer group or farm that has been certified and traded by exporters and importers who are registered with Fairtrade Labelling Organization. The price paid for fair-trade products must be at or above the fair-trade minimum price (set for each product according to the region from where it comes), and producer groups receive a 'social premium' above and beyond the minimum price that can be invested by producer organizations in ways that will benefit their communities.

Green food: A product based on sustainability production and is usually liked to reduce environmental impacts.

Organic food: A product is without chemicals, or lower pesticide and fertilizer residues, and growth hormones that is natural and not intensively produced. It is home-grown food, being free from food additives.

Appendix B - Corporate Knights Rating Methodology

Corporate Knights is a Canada-based, employee-owned corporation that operates in the segments of a magazine, research and council for clean capitalism (Corporate Knights, 2019). It ranks businesses on societal, economic and ecological practices (Strauss, 2018). The annual list of the Global Sustainable Corporations presents the ranking of corporate sustainability performance is released each January at the World Economic Forum in Davos (Corporate Knights, 2019). It is a reliable resource upon sustainable food companies by a detail criterion. Each KPI relies on United Nations Sustainable Development Goals so it is a credible index, especially for the food firms. Scores are analyzed by journalists, economists and people in the business world (Kauflin, 2018). In this index, the methodology also includes a company's innovation capacity which is determined by measuring the ratio of research and development (R&D) to total revenue averaged over a trailing three-year period. That serves the purpose of this research and matches up with research variables.

For the eligibility, companies are required publicly listed with gross revenue of a minimum \$1 billion (Corporate Knights, 2019). The ranking approach is based on publicly disclosed data

(e.g., financial filings, sustainability reports). As a first step, the companies are screened for *sustainability disclosure practices, financial health, product categories* and lastly *sanctions* (See figure below).

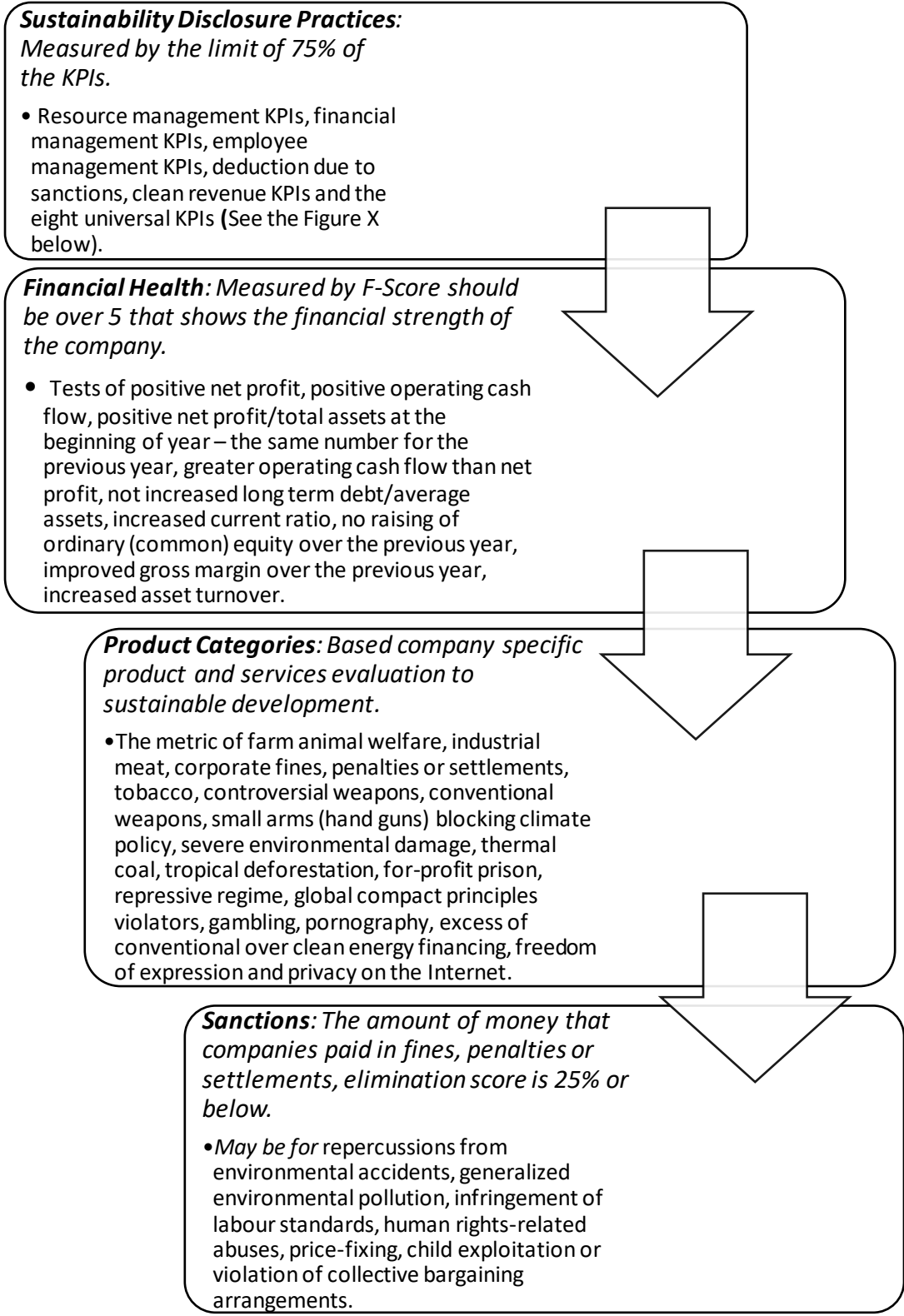


Figure: Screening Criteria for being on the Global 100 Shortlist
 Source: *Corporate Knights (Created by the Author)*

In the next stage, if companies are shortlisted for the Global 100, they are contacted for data verification to project completion. Lastly, they are ranked by their score of 21 key performance indicators (KPIs) covering;

- **Resource Management KPIs** (Energy productivity, GHG emission productivity, water productivity, waste productivity, VOC -NOx – SOx emission productivity, particulate matter emission productivity)
- **Employee Management KPIs** (Injuries, fatalities, employee turnover, women in executive management, women on boards, sustainability pay link)
- **Financial Management KPIs** (Innovative capacity, percentage tax paid, CEO-average employee pay, pension fund status, supplier sustainability score)
- **Clean Revenue** (Percentage of company's total revenue derived from open-source clean revenue is informed sources e.g. green goods and services (US Bureau of Labour Statistics), green bonds principles)
- **Supplier Performance** (Each company's largest suppliers (up to ten) by total spend are identified based on FactSet data. The suppliers are then weighted and scored using the Global 100 methodology (including Resource Management KPIs, Employee Management KPIs, Financial Management KPIs, Clean Revenue, and excluding Supplier Sustainability Score KPI)

Appendix C - Company Information

Aeon Co. Ltd.

Aeon Co. Ltd. was established in 1758, in Japan, as originally named Shinoharaya (name changed to Okadaya in 1887). In 1926, the company restructured as a joint stock company. Until 1989, the group name was Jusco. Later, it renamed to Aeon Group, and presently it is Aeon Co. Ltd. In 2008, a pure holding company structure has been accepted. The company operates general merchandise store, supermarket, discount store, home center, convenience store, specialty store, drugstore, other retail store, shopping center, neighborhood-type shopping center, financial service, service business and Tasmania operated firm through number of stores, consolidated subsidiaries, and equity-method affiliates in Japan, China, South Korea, Malaysia, Thailand, The Philippines, Indonesia, Vietnam, Cambodia, India, Myanmar, Laos, Singapore and Australia. Moreover, besides providing good and services, Aeon collaborates with stakeholders to engage in social issues through adopting the 2030

Agenda for the Sustainable Development Goals by UNGA. Therefore, its business activities and operations merge with environment and society practices by better use of resources, responding the diverse consumer issues, carry out fair business practices, create workplaces that emphasize human rights and diversity, collaborate with the community, realization of a low-carbon society and conservation of biodiversity.

Aeon stated its mission as “Contribute to the local community through business” (Aeon, 2019). Indeed, it has started its sustainable and ethical practice by *donating 1000 cherry trees in 1965*, followed by establishing *Aeon Welfare Fund (1977)*, *Aeon 1% Club (1989)* and *AEON Environmental Foundation (1990)*, launching *the JUSCO Earth-Friendly Committee (1990)* and *Aeon Hometown Forest Program (1991)*, starting *the Aeon Happy Receipt Campaign (2001)*, formulating *the Aeon Manifesto on the Prevention of Global Warming (2008)* and *the Aeon Biodiversity Principle (2010)*, developing *Aeon Sustainability Principle (2011)*, *Aeon Eco Project (2012)*, formulating *the Aeon Sustainability Procurement Policy and Sustainable Procurement Goals for 2020 (2017)*, setting *Aeon Group’s Food Waste Reduction Targets (2017)* and formulating *Aeon Decarbonization Vision 2050 (2018)*.

J Sainsbury PLC

J Sainsbury Plc was established in 1869, in London, United Kingdom. The company operates food sales over supermarkets, convenience stores and online sales; general merchandise and clothing through Argos, Sainsbury’s home and Habitat, in stores and online; financial services are provided by Sainsbury’s Bank and Argos Financial Services. Furthermore, the company’s business values and activities are fully integrated with UN Sustainable Development Goals towards poverty, inequality and climate change by collaborating with the company partners, establishing sustainability activities, helping local and global challenges.

Sainsbury is the largest retailers of the UK, with a global supply chain, therefore, it is believed that its contribution to sustainable development is important in the UK and internationally. Hence, the company has structured its Sustainability Plan around *empowering people to live healthier lives, sourcing with integrity, respecting the environment, making a positive difference to the community and providing the colleagues with great place to work.* (J Sainsbury Plc, 2019).

It is highlighted in the annual report (J Sainsbury Plc 2019) that Sustainability Plan become more aligned with the organizational structure in order to effectively and efficiently discuss the company's sustainability, strategy, and stakeholder engagement, reviewing the approach and receiving updates on key initiatives including human rights approach, sustainability insight sessions for the colleagues across the Group, Sainsbury's Fairly Traded tea pilot, Active Kids scheme and community programme. Evidently, Operating Board which defines the Group strategy, adopts new regulatory requirements and trends, and reviews value progress works under Corporate Responsibility and Sustainability Committee who reviews the sustainability strategy's impact and reports to the J Sainsbury Plc Board that oversees the sustainability strategy. Shortly, by this organizational structure Sainsbury's aims to be more agile for the governance of the Sustainability Plan.

Kesko OYJ

Kesko was founded by the merger of four regional wholesaling companies are Savo-Karjalan Tukku-liike, Keski-Suomen Tukku-kauppa Oy, Kauppiaitten Oy and Maakauppiaitten Oy in October 1940, in Finland. Kesko operates in the grocery trade, the building and technical trade and the car trade by the division and chains cooperation with retailer entrepreneurs and the other partners. The chain operates 1800 stores in Finland, Sweden, Norway, Estonia, Latvia, Lithuania, Belarus and Poland. Also, through online sales and digital services the company achieve a smooth customer experience in all channels. Furthermore, Kesko engages the UN Global Compact initiatives in the business including ten generally accepted principles of human rights, labour standards, the environment and anti-corruption in all its operating countries. Moreover, the company committed to promote UN Sustainability Development Goals that impact on the company's strategic objectives, climate work, human rights, long-term efforts to improve the sustainability in the supply chain (Kesko, 2018).

Kesko's sustainability focus is customers, therefore the company's effort is to provide sustainable lifestyle for them in terms of food, mobility and living (Kesko,2018). Correspondingly, sustainability and corporate responsibility seem as a strategic choice for the K Group therefore it is integrated into the daily business practices by *Kesko's sustainability strategy, responsibility programme, general corporate responsibility principles, the K Code of Conduct, and the ethical purchasing principles.*

Reporting principles are highlighted in the Sustainability Report of the company. It is based on *GRI standards* that covers the key areas of economic, social and environmental responsibility. Furthermore, Kesko has taken into account of *the AA1000 AccountAbility Principles* is for the stakeholder inclusivity, identical of material aspects and responsiveness to stakeholders; and *the ISO 26000 standard* as a source document providing guidelines for corporate responsibility that are basis of *Assurance Reporting, Global Compact Reporting and Integrated Annual Report*.

Coca Cola Company

Coca-Cola was founded in 1886, in Atlanta, United States. The company produces drink forms beverages through more than 500 brands and 4300 products within the category of juice, dairy, and plant based, sparkling soft drinks; tea and coffee, water and sport drinks. Coca-Cola has operating groups in North America, Latin America, Europe, the Middle East and Africa, and Asia Pacific. Moreover, the operations are within a wider context considering inputs of *consumer, customer and stakeholder insights; raw materials (water, ingredients, energy, raw materials); talent (employees, farmers, partners around the world); financial resources (top-line revenue); recycled materials, reuse; and reinvestment*; in order to generate outcome of *consumer and customer demand; increasing transparency and trust; product choices (total beverage portfolio); community impact (local community support, watershed protection, access to safe water and sanitation, recycling, disaster and humanitarian relief, education, arts and culture); economic development (jobs, women's empowerment, taxes paid, community investment, value and revenue for customers, growth opportunities); packages, waste and carbon emission; and financial resources and profit and dividends* (Coca-Cola Company, 2018). Above all, the business and operation activities refer UN Sustainable Development Goals through collaboration with the company partners, industry peers and supplier engagement.

Sustainability goals have been defined and monitored since 2010 as *carbon (reduce the carbon footprint), giving back (give back at least 1% of the company' operation income annually), water (safely return to communities and nature, and improve the water efficiency in manufacturing operations), women (the economic empowerment of 5 million woman across global value chain), human rights (achieve at least 98% compliance with independent franchise bottling partners and 95% with Supplier Guiding Principles among its suppliers), packaging (recover and recycle the equivalent of 75% of the bottles and cans), and agriculture*

(sustainably sourced agricultural ingredients), The Coca-Cola Foundation (invest back into local communities) (Coca-Cola Company, 2018).

Danone SA

Danone was founded by the merger of BSN and Gervais Danone in December 1972, in Paris, France. The company was built on health-focused and fast-growing categories in essential dairy and plant-based products, waters and specialized nutrition. By the aim of healthier and more sustainable eating and drinking practices; Danone stated its mission as 'One Planet. One Health' (Danone, 2018) over 120 markets across the globe. The company set its 2030 Goals that are aligned with nine Sustainable Development Goals of the United Nations.

Correspondingly, Danone committed to improve *health and nutrition performance to bring health through food to as many people as possible; environmental performance by reducing the carbon footprint, a water stewardship strategy, circular economy and regenerative agriculture; and social performance by a safe, inclusive and diverse working environment*, thanks to collaboration with researchers, retailers and business partners, trade unions, employees, communities, farmers, food tech and entrepreneurs, shareholders, suppliers and consumers.

It is highlighted on the annual report that Danone is the first multinational company to be B Corp certificated at global level. This certification demonstrates the long-term commitment to economic success and social progress.

Diageo PLC

Diageo was founded by the merger of alcoholic brands in 1977 however its brands history based on the 17th century. The company operates over 150 production sites through more than 200 brands including Johnnie Walker, Crown Royal, J&B, Buchanan's and Windsor Whiskies, Smirnoff, Ciroc and Ketel One Vodkas, Captain Morgan, Baileys, Don Julio, Tanqueray and Guinness that are sold across over 180 countries. Diageo's sustainability and responsibility priorities are committed to create long term value by promoting positive drinking, building thriving communities, reducing its environmental impact, highest standards of governance and ethics that are aligned with the Sustainable Development Goals of United Nations (Diageo, 2019)

The company's strategy is monitored by corporate governance and transparent reporting. In the S&R Annual Report (Diageo, 2019), it is detailed that reporting is built on GRI Index that transparently presents the economic, social and environmental impacts within universal standards. Furthermore, United Nations Global Compact Index and Sustainability Accounting Standards Boards set out Diageo's Annual Reports and Sustainability & Responsibility Performance Addendum. As based on this, reporting methodologies disclose the following headings; *positive drinking, environment, building thriving communities, people, sustainable supply chains, governance and ethics and food safety and quality.*

Unilever PLC

In 1872, the first factory produced margarine in the Netherlands, however according to the official source, it became a public company in 1894. Unilever is a FMCG company that operates the business under the divisions of Beauty & Personal Care, Foods & Refreshment and Home Care through 400 brands in over 190 countries. Since, Unilever's purpose is to make sustainable living to deliver long-term sustainable growth (Unilever, 2018), the company brands committed to the Unilever Sustainable Living Plan. Consequently, brands meet high standards social and environmental performance, transparency and legal accountability, therefore 26 of Unilever brands were awarded by B-Corp certified.

Furthermore, Unilever Sustainable Living Plan takes aim at improving health and well-being, reducing environmental impact wherethrough greenhouse gases, water, waste, sustainable sourcing, enhancing livelihoods by fairness in the workplace, opportunities for women and inclusive business. Significantly, the company's value that aims to create engages with UN Sustainable Development Goals. The targets are monitored and reported regarding to the United Nations Global Compact (UNGC) Index, CDP Index and GRI Index.

Kraft Foods Inc

The company was founded as Delaware corporation in 1980, however, in March 2012 the name changed from Kraft Foods Global Inc to Kraft Foods Group Inc. In October 2012, Mondelez International spun-off Kraft Foods Group to Mondelez International shareholders. As a result of spin-off, Kraft Foods began operating independent and publicly traded company (Sec.gov, 2013). In 2015, Kraft Foods Group Inc. merged with H.J. Heinz Holding Corporation

therefore, the company changed its name to Kraft Heinz Foods Company (Kraft Heinz Co, 2015).

The company operated in five segments which are beverages, cheese, refrigerated meals, grocery, and International & foodservice (including foodservice and exports businesses, sell primarily branded products including Philadelphia cream cheese, A1 steak sauce, Kraft sauces, dressings and cheeses in approximately 170 countries. Furthermore, Kraft Foods has operations in more than 75 countries and produced their products at 223 manufacturing facilities worldwide (Sec.gov, 2010).

Moreover, Kraft Foods follow the rules and regulations relating to the protection of the environment. Also, its subsidiaries involved in active actions in the US under Superfund legislation. Consequently, Kraft Food does its business under multi-national, national and local environmental laws and regulations in the countries where it operates. Furthermore, company's food products and packing materials are based regulation of the US Food and Drug Administration; and the US Food and Safety and Inspection Service if the products containing meat and poultry. In addition to the laws and regulations above, the Clean Air Act, the Resource Conversation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act are subject to applicable in the company.

Lawson Inc

Lawson was established in April 1975, in Tokyo, Japan. The company operates by franchise chain development to "Lawson", "Lawson Store 100" and "Natural Lawson" in Japan, cities of Shanghai, Chongqing, Dalian, Beijing and Wuhan in China, Indonesia, Hawaii in USA, Thailand, Philippines through over 15588 stores.

Moreover, the corporation philosophy is *"Creating Happiness and Harmony in Our Communities"* (Lawson, Inc., 2018). Consequently, Lawson committed to sustain the blessings of Earth for future generations and consider to environment in its business' every aspect therefore the company aims to achieve sustainable development and collaboration with local communities in order to accomplish a low-carbon society, the development of products and services considering the effect of natural environment and local communities, active participation in social contribution activities, continuous improvements through its environmental management system, observance of laws and regulations related to

environmental preservation activities, and promotion of communication with stakeholders through educating for greater awareness of environmental preservation.

Essentially, Lawson adopted The Sustainable Development Goals by the United Nations Sustainable Development Summit. Accordingly, the company contributes the challenges of communities which defines as global warming, rise in health consciousness, low birth rate and aging population, revitalization of local communities, decreasing number of nearby stores and occurrence of large-scale disasters (Lawson, Inc., 2018). Moreover, referring The Sustainable Development Goals, *Lawson creates better living environments by cooperating with local governments to contribute to communities through stores nationwide; realizes “community health hubs” by supporting health of local community residents; revitalizing communities through products using local food by developing and selling products in collaboration with high school students and local members; procuring domestically-produced agricultural products stably and industrializing agriculture by operating LAWSON Farms nationwide; expanding support with stores serving as a core to prepare for disasters and support community reconstruction; supporting children and a future life by “Happiness in Communities” fund-raising activities; supporting children’s education; introducing effective energy-saving and energy creating measures to all stores by eco-friendly technologies at eco-friendly model stores; effectively utilizing surplus food by a food recycling loop; sustainable agriculture production by making effective use of imperfect vegetables; promoting reduced use of plastic shopping bags and reuse of equipment; and reducing the environmental burden in the supply chain from raw materials procurement to sales activities at stores* (Lawson, Inc., 2018).

Dairy Crest Group PLC

Dairy Crest Group history starts from 1933, upon Milk Marketing Board establishment. The brand of Dairy Crest was born in 1960’s by The Milk Marketing Board and the milk processing operation separated as division and became Dairy Crest in 1980 and it began life as a public company in 1996. In 2019, Dairy Crest acquired by Saputo, which is a Canadian dairy processor. Consequently, Dairy Crest changed its name to Saputo Dairy UK (UK Saputo, 2019). Essentially, Dairy Crest produces cheese, butter and spreads, oils and infant formula. Since the business depends on milk, it is supplied by 360 farms in the South West of England. Also, MH Foods is the subsidiary company.

Besides the business operations, Dairy Crest invests in a sustainable business for both today and tomorrow, and supports to community for a wide range of complex and economic issues. Therefore, Dairy's Crest Corporate Responsibility strategy was implemented in *Climate by responsible stewardship on farm, low carbon manufacturing, water stewardship, reducing waste; Colleagues by commitment to health and safety, well-being, engaging employees, investing in learning, diversity and inclusion, working with trade unions; Consumers by offering healthier choices, innovation and quality, demineralized Whey and GOS, sustainable ethical sourcing, reducing the packing impact; and Community by supporting rural communities by The Prince's Countryside Fund, supporting local communities and employee volunteering* (Dairy Crest, 2017).

Companhia Brasileira de Distribuição (GPA)

GPA was established in 1948, in Brazil as a confectionary store. In 1999, The Casino Group, which is a French leader company in the retail global food market, acquired 25% stake of the company. GPA operates 4 business units that are *Multivarejo* which involves in Pão de Açúcar and Extra, proximity and special formats (Minuto Pão de Açúcar, Mini Extra and Pão de Açúcar Adegá), special formats (gas stations and drugstores) and exclusive brands; *Compre Bem* which is local supermarket; *Assaí Atacadista* which operates the wholesale self-service (cash & carry) segment; *GPA Malls* which is responsible for managing real estate assets and administering commercial spaces operated by the Group's stores (GPA RI, 2019).

Over and above the business operations, GPA committed to sustainable development and the strengthening the shared value with all stakeholders as based on the company's Sustainability Policy with its six cornerstones (GPA, 2018). These pillars are *valuing people* by promoting diversity, inclusion and sustainability among its employees; *conscious consumption and supply* by offering of healthy and sustainable products; *transformation in the value chain* by engaging players for more accountable value chains in terms of the environment, people and animal welfare; *environmental impact management* by minimizing and preventing environmental impacts of GPA's operations; *engagement with society* through the relationship between customers, suppliers, employees and social organizations for transformation of society; and *integrated management and transparency* by integration sustainability in the business model to boost transparency in the relationship with stakeholders (GPA, 2018).

Nestle SA

Nestle's history began in 1866 as the Anglo-Swiss Condensed Milk Company. In 1905, the company transformed to the Nestle Group. Nestle has been operating food and beverage products and services under the categories of powdered and liquid beverages, nutrition and health science, milk products and ice cream, pet care, prepared dishes and cooking aids, confectionery and water. The company sells its products in 190 countries with the mission of 'Good Food, Good Life' (Nestle, 2018). Thus, Nestle aims to enhance quality of life and develop a healthier future through its sustainable financial performance and market leadership.

Moreover, Nestle committed to meet the Creating Shared Value (CSV) for individuals and families, for the communities, and for the planet. CSV is significantly important for Nestle to do its business because the company believes that they will be successful in the long term by creating value for both shareholders and for society (Nestle, 2018). The company's value and actions are aligned themselves with the UN Sustainable Development Goals in order to enable healthier and happier life for individuals and families, to help develop thriving, resilient communities and to steward resources for future generations.

Campbell Soup Company

In 1869, the first plant of Campbell was founded in Camden, New Jersey in the United States. In 1882, the company has started its life with a new form. After the retirement of Joseph Campbell, in 1894, the Campbell family association ended with the company. In 1922, company name officially became Campbell Soup Company. The company produces soups and simple meals, beverages and snacks by the purpose of "Real food that matters for life's moments" (Campbell Soup Company, 2019) and sells them over 100 countries around the world.

Moreover, Campbell uses its rich heritage for the future contribution therefore the company developed its sustainability strategy to lead the food industry in food is ethically and sustainability *grown, sourced, produced and shared* (Campbell Soup Company, 2019). Consequently, Campbell's corporate responsibility commitments include agriculture, packaging, responsible sourcing, climate, water, waste and safety. In particular, these are engaged with the UN Sustainability Development Goals to transform the world in the areas of people, planet, prosperity, peace and partnership.

It is also highlighted in the Campbell Corporate Responsibility Report (2019) that GRI Content Index and UN Global Compact Index are a part of the reporting process that present the most critical and material issues to report.

BRF - Brasil Foods SA

During the early 1930s, Perdigao was founded by two families that is the starting point of the company. Also, in 1940s Sadia was founded that would be adding as SA in to the last three letter later. In 1997, one of the founders of Perdigao passed away therefore the company was no longer family company and the structure was changed to a single open capital company (BRF Global, 2019). BRF is one of the largest food companies in the world, including 30 brands in its portfolio. Moreover, the company operates over 140 countries through 36 manufacturing complexes, 47 distribution centers, 13000 integrated producers, more than 30000 suppliers (BRF Global, 2018; BRF Global, 2019). The company produces frozen food, protein in natura, margarines, sandwiches, desserts, various ingredients and processed margarines, sandwiches, desserts, various ingredients and processed snacks, animal feed and food service.

Furthermore, BRF's business model is based on three fundamental pillars that are *quality* in terms of processes, products and relationships, *safety* in terms of people welfare and risk management, and *integrity* in terms of ethics, compliance and development of leadership. These key responsibilities cover material themes which are the people, society, sustainable partnership, animal-wellbeing, and the environment with the ambition of consistent and sustainable generation and value to shareholders and stakeholders (BRF Global, 2018).

Moreover, in line with BRF's open doors and transparency policy Annual Reports have GRI methodology, Comprehensive Standards version, and the International Integrated Reporting Council (IIRC). Also, the UN Sustainable Development Goals are connected in terms of its 17 objectives to the report and prioritizes information aligned with the demands of transparency in differentiated segments (BRF Global, 2018).

General Mills

General Mills has established in June 1928, in Minnesota, United States, and it became a leading global food company. The company produces and distributes more than 100 brands over 100 countries. Also, General Mills is joint ventured with Cereal Partners Worldwide for

the cereal production and Häagen-Dazs Japan for ice-cream production (General Mills UK, 2019). Moreover, the company supports and operations accordingly UN Sustainability Development Goals with 17 broad and 169 more specific targets. Indeed, the material issues are determined as *zero hunger* regarding food security, food waste, health and nutrition; *good health and well-being* regarding diverse consumer needs, food safety, health and nutrition; *clean water and sanitation* regarding water stewardship; *responsible consumption and production* regarding climate change, food waste; *climate action* regarding climate change, commodity availability, energy use, packaging footprint; and *life on land* biodiversity, deforestation, responsible sourcing (General Mills, 2019).

Furthermore, General Mills business strategy focuses on food, planet, workplace and community and accordingly the actions and outcomes reporting refer GRI Index, the Sustainability Accounting Standards Board's (SASB) Processed Foods Standard, and UN Global Compact index (General Mills, 2019).

The most importantly, General Mills produces Triple Bottom Line Operating Unit report (2019), which presents the operating unit's sustainability strategy and the key performance indicators for the impact of the company's business decisions on the social and environmental issues relating supply chain, external engagement and internal engagement.

McCormick & Co Inc/MD

McCormick started its business in 1889 by selling the products door to door. In 1921, the company began its life in Baltimore which is its landmark building that changed the company's structure and the operations. The acquisition of Schilling of San Francisco in 1947 has made McCormick to the leader of the US industry (McCormick Corporation, 2019). The company manufactures, markets and distributes consumer packaged goods with two segments that are consumer (61% of sales) and flavor solutions (39% of sales) that are spices, seasoning mixes, condiments and other flavor products to the food industry, retail outlet and food service business through the operations in 27 countries in North America, Europe, the Middle East and Asia Pacific and the products are sold around the world to 150 countries.

More than the business, as a company McCormick are committed to produce its products from natural ingredients, maintain the quality, meet the demands for organic flavors and do business through transparency and sustainability efforts. Moreover, in terms supply chain,

McCormick invests in there technically in order to get advantage to embed sustainability in the operations and maintain quality from sourcing to packaging. Consequently, the company creates more sustainability supply chains in its factories therefore it has reputation as a leader in sustainability (McCormick, 2018).

Furthermore, McCormick's principles are engaged with UN Sustainable Development Goals that focus 3 areas which are people, communities and planet. In terms of *people*, equality, education and development of employees and providing better health outcomes are considered by the company. In terms of *communities*, McCormick aims to increase the livelihoods of communities and small farmers, especially women, also increase employee volunteering and corporate charity programs. In terms of *planet*, the company takes responsibility to increase use of branded, sustainable sourced herbs and spices, reduced greenhouse gases, reduce water use, solid waste recycling and reduce packaging carbon footprint through the lifecycle. Nevertheless, McCormick takes actions not alone but with key stakeholders to maximize the impact and create more value for the society. Besides the stakeholders, the company collaborates with external organizations such as World Wildlife Fund (WWF), United Way, Sustainable Spice Initiatives, American Heart Association, Care, Rainforest Alliance Certified and NCBA CLUSA (McCormick, 2017).

It is highlighted (McCormick, 2017) that the approach of the reporting is based on GRI Standards, covers the material issues that are defined as product safety, occupational safety & health, environmental management systems, resource efficiency, sustainable packaging, supplier livelihoods, supplier engagement, supplier resilience, business ethics, diversity & inclusion.

Orkla ASA

Orkla was established in 1654 as a mining company that is one of the oldest business in Norway. In 1705, Norwegian citizens became main partners of the company. Besides the mining activities, the company started first electric railway operation. In 1929, Orkla became a listed company. During 1970s, Orkla expanded as industrial company, however in 1987 mining operations ended. Also, the merger with Nora Industrier enabled Orkla to focus on the Nordic branded consumer goods sectors.

In 1995, by the take over of food manufacturing companies Procordia Food and Abba Seafood in Sweden, Orkla entered the food industry. In today, Orkla's business areas are classified as the Orkla Foods, Orkla Confectionery & Snacks, Orkla Care and Orkla Food Ingredients, the Orkla Consumer & Financial Investments (Orkla, 2019).

Furthermore, Orkla's mission is "Improving everyday life with healthier and more enjoyable local brands". Thus, the company develops products and solutions duly its sustainable work that benefits for people and the environment (Orkla, 2018). Accordingly, Orkla has been affiliated with UN Sustainable Development Goals and supports human and workers' rights, environment, and anti-corruption. Therefore, sustainability actions are declared as mobilizing sustainable growth, nutrition and wellness, safe products, sustainable sourcing, environmental engagement, care for people and society, In particular, the company targets to *double the consumption of products and services that promote a healthier lifestyle, reduce salt and sugar by 15% in its products, inspire people to adopt a healthier lifestyle, 100% food-manufacturing facilities at green level, 100% approved suppliers, continue to ensure that all products are safe, ensure respect for workers' rights, aim for 100% raw materials from sustainable sources, aim for 100% recyclable packaging, promote clean oceans and sustainable fishing, make the transition to low-carbon operations, reduce greenhouse gas emissions by 60%*, reduce energy and water consumption by 30%*, aim to be fossil-fuel free, reduce food waste by 50%*, innovate products and processes, create strong local engagement for sustainability, be a responsible employer, create healthy workplaces with zero injuries, create a culture of integrity everywhere and create local engagement that makes a positive difference* (Orkla, 2018).

Chr. Hansen Holding A/S

The first factory was founded in 1873, in Copenhagen, Denmark. The name of the company came from the founder who was Christian Ditlev Ammentorp Hansen. After his death, in 1916, the company name changed from Chr. Hansen's Teknisk-Kemiske Laboratorium to Chr. Hansen's Laboratorium A/S. In 1979, the starter culture Flora Danica is acquired from Det Danske Syrevækker Laboratorium that was the most important part of the company's portfolio. In 1979, Chr. Hansen's Laboratorium A/S was listed on the Copenhagen stock exchanged, consequently, Chr. Hansen Holding was founded. In the same year, Allergologisk Laboratorium (ALK) and Diagnoselaboratoriet af 1977 are acquired. Between 1994 and 1995,

international business strategy was developed and applied for all Chr. Hansen companies to be global brands and gain corporate worldwide identity. Moreover, Chr. Hansen was acquired by French private equity fund PAI partners and the major business areas are defined as Flavor Division, Color Division and Cultures & Enzymes Division. Also, Dairy Innovation Australia Ltd (DIAL) acquired in Australia in 2015. In the following year, LGG which is the world's best documented probiotic strain is acquired. In addition to acquisitions, Chr. Hansen has subsidiaries in China and India.

Furthermore, the company emphasized that an innovative partnership with CARE has been agreed by Danish Ministry of Foreign Affairs for the natural plant protection in Africa. Not only environmental actions, but also sustainability in general is the target of the company. Consequently, Chr. Hansen's 81% of the revenue supported UN Global Goals by promoting sustainable agriculture, improving global health and reducing food waste in 2017 (Chr-Hansen, 2019). Particularly, the company adopts all 17 goals and 169 targets of UN Sustainable Development Goals in its business. They are classified under 4 categories which are *Commercial Performance* involves in revenue contribution to the UN global goals, better farming, good health and less food waste; *Environmental Performance* covers energy, water, CO₂ footprint, recycling and solid waste, and environmental violations; *Business & Product Integrity* includes product safety and business integrity (participation rate in code of conduct training); lastly *Workplace responsibility* deals with employees, diversity and inclusion and occupational health and safety (Chr. Hansen, 2018). Also, the performance and progress are reported in line with the UN Global Compact principles and shared with customers and investors via global reporting platforms, such as the Carbon Disclosure Project, Eco-Vadis, SEDEX and FTSE4Good.

AAK AB

AAK was established in 1871 in Denmark to process palm kernels under the name of Aarhus Palmekærnefabrik. In the 1960s, Børge Beck-Nielsen acquired the majority of shares of the company. Also, the company Karlshamns was established in 1918, in Sweden, and began export speciality fats to chocolate manufacturers. In 2005 Aarhus and Karlshamns merged and became AarhusKarlshamn, AAK. Today, the company operates customized and sustainable vegetable oils and fats solutions (AAK, 2019), in more than 20 production facilities and plants, and sales production in more than 25 countries (AAK, 2018).

Moreover, AAK's business strategy fundamentally is established on base of sustainable development. Its model covers customers, suppliers, planet, people and neighbours. The company policies and codes are aligned with the United Nations Global Compact (UNGC) and AAK supports 17 UN Sustainability Development Goals to make long lasting progress in sustainability. Accordingly, it is committed to fulfill human rights, labor, environment and anti-corruption. Further, to monitor and drive improvement, GRI and GRI Standards guidelines are used as methodology for reporting. It is emphasized that the success behind the sustainability is Global CSR Team of AAK who organizes sustainability scope and activities, and responsible for reporting to CMO (Chief Marketing Officer).

As the business strategy declared that *customer* is the first component AAK aims to interact with customers to satisfy their desire by offering ethical and high standards of excellence. In terms of *suppliers*, responsible sourcing is the crucial and extremely serious in action for the company. In terms of *planet*, it is aimed to reduce the environmental impact by focusing on energy, air, water and waste. In terms of *people*, AAK agrees that the most important resource is its employees, thus, safety, diversity, investment, anti-corruption and labor right are supported to make noticeable difference in the company. Lastly, *neighbours* has the greatest impact in AAK's sustainability actions which include local, regional, national and international community involvement (AAK, 2018).

Appendix D - Company Profile and Group Activity Information

Company	Foundation	Country of Origin	Food	Drink	Service	Products/Services
Aeon Co Ltd	1758	Japan			X	Department store, discount department store, discount store, drug store/pharmacy, home improvement, hypermarket/supercenter/superstore, other specialty, supermarket
J Sainsbury PLC	1869	United Kingdom			X	Hypermarket/Superstore, supermarket, convenience shop, forecourt shop
Kesko OYJ	1940	Finland			X	Supermarkets and hypermarkets, hardware retail, auto sales, department stores, consumer durables, agricultural supplies
Coca Cola Company	1892	United States		X		Beverages
Danone SA	1955	France	X	X		Baby food, coffee, dairy products, dairy-free products, plant-based products, bottled water, dietary supplements
Diageo PLC	1886	United Kingdom		X		Alcoholic beverages: spirits, beer and wine
Unilever PLC	1894	United Kingdom & Netherla	X	X		Beauty & personal care, food & refreshments, cleaning products
Kraft Foods Inc	2012	United States	X			Beverage, cheese, dairy foods, snack foods, confectionery, and convenience foods.
Lawson Inc	1975	Japan			X	Retail (convenience stores)
Dairy Crest Group PLC	1996	United Kingdom	X			Cheese, butter, yogurt
GPA	1981	Brazil			X	E-commerce, hypermarket, supermarket, e-commerce, gas station and drugstore, local market under Multivarejo and Compre Bem
Nestle SA	1905	Switzerland	X	X	X	Baby food, coffee, dairy products, breakfast cereals, confectionery, bottled water, ice cream, pet foods, frozen food, healthcare nutrition, seasonings, shelf stable, yogurt, Nestle Professionals
Campbell Soup	1922	United States	X	X		Processed food, snacks, beverages
BRF - Brasil Foods SA	1997	Brazil	X			Food producer; meats, processed food, butter, pastas, pizzas, frozen vegetables
General Mills	1920	United States	X			Baking mixes, breakfast cereals, yogurt, refrigerated dough, soup, pizza, snack foods, ice cream, soy products, vegetables, flour, and other food products
McCormick & Co	1915	United States	X			Processed & Packaged goods; spices, seasoning mixes, condiments, and other flavoring products for the industrial, restaurant, institutional, and home markets
Orkla ASA	1988	Norway	X			Food producer; Seafood, salads, soups, rice production, processed food, confectionary, snacks, health products
Chr. Hansen Holding	2004	Denmark	X			Food colorings, microbiological cultures, probiotics, phytonutrients, enzymes
AAK AB	2004	Sweden	X			Vegetable Oils and Fats

Source: The Author

Appendix E - Definition of claims by Mintel GNPD Database

Ethical – Environmentally Friendly Package: For products that claim that the packaging for its product is friendly to the environment. There are many appropriate keywords such as: reduced/reduced weight packaging (where the pack has been made smaller and lighter), recyclable packaging (only when clearly stated on pack – does not include the recyclable symbol), reusable packaging (does not include refills), made from recycled material, low carbon footprint, FSC approved/certified. Also includes packs with claims that for every package made, the manufacturer plants a tree etc. Also flagged for packages making vague references to being environmentally friendly or ethical. Some of the keywords include: upcycle, earth-friendly, eco-friendly, taking care of the planet, reusable packaging, safe for the environment, minimal impact on the environment, and no negative impact to the environment.

Ethical – Environmentally Friendly Product: For products that claim that the actual product is friendly to the environment. Examples include references to biodegradable, made from recycled materials, phosphate-free, ozone-friendly, CFC-free, and sustainable ingredients. Should also be flagged for products free from propellants or propeller gas, microbeads or microplastics; references to being environmentally friendly/ethical such as earth-friendly, eco-friendly, taking care of the planet, safe for the environment, minimal impact on the environment, no negative impact to the environment, ethically-sourced or responsibly sourced; climate-neutral; reference to climate change/global warming; carbon positive; short distribution channels; for ISO certifications in the 14000 group; upcycle; reducing CO2 emissions; low carbon footprint; agroecological farming; or for all mentions of ethically sourced without further explanation.

Ethical – Human: For products that support or adhere to certain moral or social ideals that regard the treatment of people. Keywords include: fair-trade, child friendly (in the terms that they do not work to produce the product), and community trade. Should not be flagged for companies that donate profits to people-based charities or that promote/support local employment.

Ethical – Recycling: This includes all products or packaging that can be recycled, or are made from recycled materials. Should also be flagged for the terms: partly or partially recycled or recyclable, recyclable leaflet, reclaimed paper, check local recycling, recycle where available, pre or post-consumer materials, and pre or post-consumer waste (PCW). This claim will not be selected in the instances where the Terracycle, Redcycle or recyclable logos are on pack but not accompanied by the terms recyclable, recycling, etc.

Ethical – Sustainable (Habitat/Resources): Sustainable items are those providing environmental, social and economic benefits while protecting public health, welfare, and the environment over their full commercial cycle, from the extraction of raw materials to final disposition. This claim should be flagged: if the product is claimed to preserve, protect, sustain or encourage wildlife, species, ecosystems, biodiversity, flora and fauna; if it mentions respect or support to different habitats or habitat preservation; for products or manufacturers that claim to plant trees; when the product prevents or reduces the amount of waste for landfills; for products that use less energy or water, support conservation of natural resources, or promote responsible management of the world's forests, and use less material such as paper, carton, strings, tags, staples, wrappers; and when a product is free from microbeads that harm the ocean (if product is only free from microbeads only the Ethical – Environmentally Friendly Product claim should be selected). Keywords to look out for include: biomass polylactic acid, reduced plastic, solar power, bio-based plastic, plant based plastic, plastic free, no food miles, less food miles, reduced material, pack made from responsible resources, minimal packaging, locally sourced ingredients, no conversion of forest into other utilizations, renewable ingredients, trees thinned from forests, wind power, clean energy, biodynamic farming, agroecological farming, biodynamic agriculture, responsibly managed fisheries, responsibly harvested, plastic made of vegetables, cane sugar or other plants, tree free packaging, short distribution channels, shade-grown coffee; FAD-free (Fish Aggregating Device); fished by pole and line. It should be captured for 'second choice' or 'wonky' vegetables or fruit. Should not

be flagged if it makes a vague reference to the environment or just being earth friendly or for products that are efficient even in short cycles, saving time, money and electricity, cruelty-free/not tested on animal products.

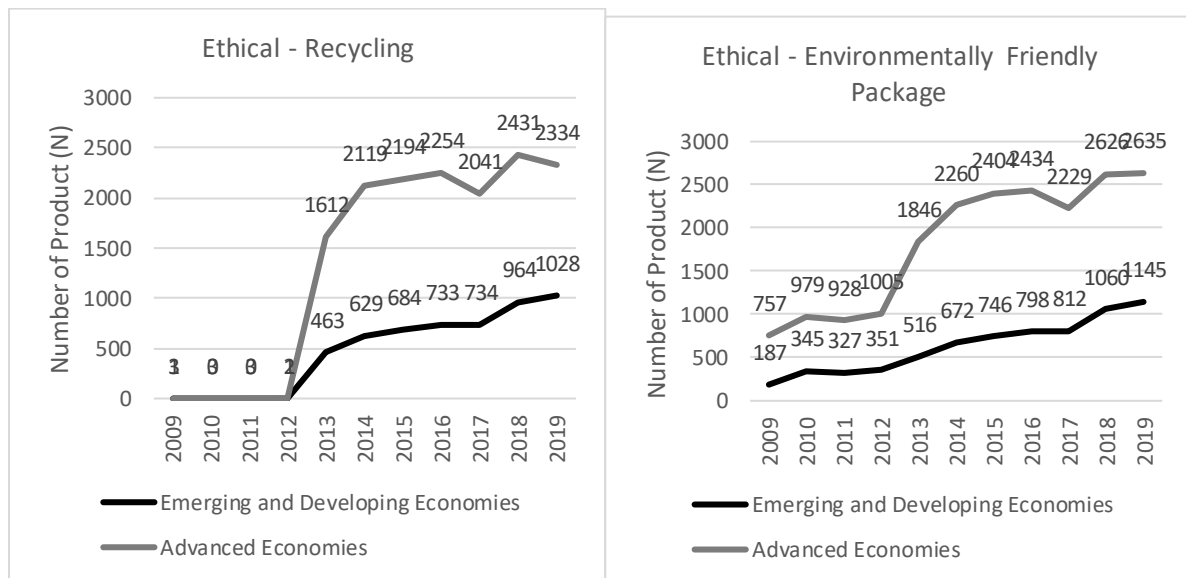
Appendix F - Claims that increased over 0.0%, 2009-2019

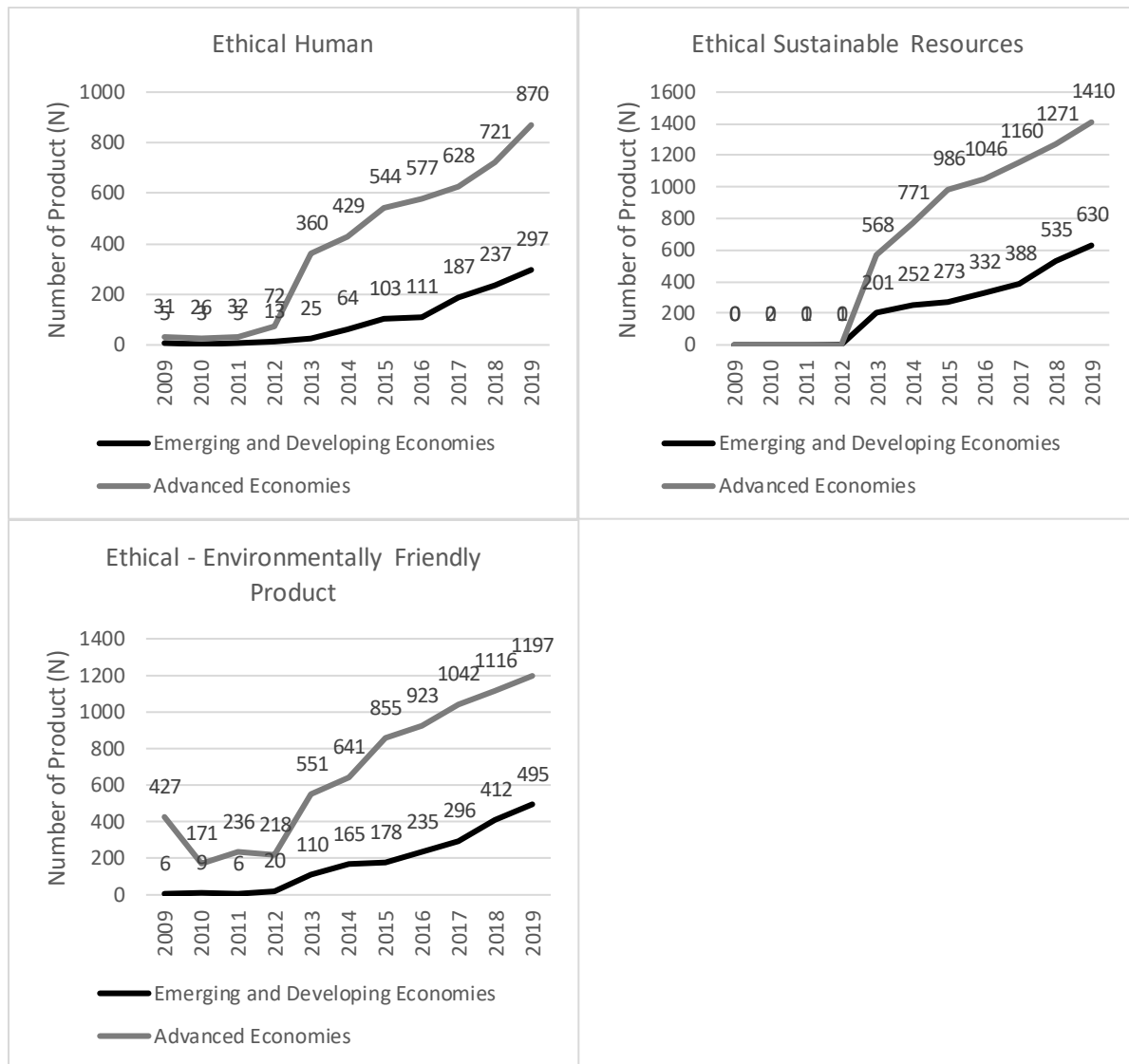
New Product Claims	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ethical - Environmentally Friendly Package	20.9%	28.0%	26.0%	23.8%	28.4%	32.3%	33.7%	34.1%	33.3%	34.0%	36.5%
Ethical - Recycling	0.0%	0.0%	0.0%	0.0%	24.4%	29.7%	31.0%	31.4%	30.4%	31.3%	32.3%
Ethical - Sustainable (Habitat/Resources)	0.0%	0.0%	0.0%	0.0%	8.6%	10.6%	11.9%	14.0%	16.7%	16.8%	20.3%
Ethical - Environmentally Friendly Product	7.7%	3.9%	4.8%	4.1%	7.9%	8.9%	10.3%	11.5%	13.5%	13.9%	16.8%
Ethical - Human	0.8%	0.6%	1.0%	1.4%	4.0%	4.7%	6.3%	7.1%	8.7%	9.4%	12.0%
Ethical - Charity	1.4%	2.0%	2.1%	1.9%	3.2%	2.4%	2.5%	2.7%	2.8%	1.7%	1.5%

Appendix G - Grouping advanced economies and emerging market and developing economies

The main criteria for the advanced economies and emerging market and developing economies are per capita income level, export diversification and degree of integration into the global financial system (IMF, 2020). Accordingly, advanced economies are Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, South Korea, Latvia, Lithuania, Netherlands, New Zealand, Norway, Portugal, Puerto Rico, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, UK and USA; emerging market and developing economies are Algeria, Argentina, Bangladesh, Belarus, Brazil, Bulgaria, Cambodia, Cameroon, Chile, China, Colombia, Costa Rica, Ivory Coast, Croatia, Ecuador, Egypt, Ethiopia, Ghana, Guatemala, Hungary, India, Indonesia, Iran, Kenya, Kuwait, Laos, Lebanon, Malaysia, Mexico, Morocco, Myanmar, Nigeria, Oman, Pakistan, Panama, Peru, Philippines, Poland, Qatar, Romania, Russia, Saudi Arabia, Serbia, South Africa, Sri Lanka, Tanzania, Thailand, Tunisia, Turkey, Ukraine, UAE, Venezuela, and Vietnam.

Appendix H - Figures of trend of ethical sustainable products parameters in emerging vs advanced economies, 2009-2019





Appendix I - Mintel Global New Products Database (GNPD) and Methodology

Mintel GNPD is the industry base database records new product launches in consumer-packaged goods markets offers product descriptions, ingredient and brand information, and highlights trends in products and companies in global markets. Indeed, it provides incomparable content about brands that are not fully met elsewhere (Solis, 2016). Mintel GNPD was launched in the mid-1990s for manufacturers, retailers and suppliers who are in marketing, sales, research or innovation of new products, however, many academic institutions having large marketing programs business schools find it useful that caters more to academic users (Solis, 2016). Essentially, it provides comprehensive company and product details for the food industry including new product trends, growing and declining trends of companies and innovation. More than 100 unique product claims are available through the database. Initially, a *claim* identifies the benefits and risks of a product, and how a particular

ingredient or product affects the company or the overall market (Solis, 2016). Moreover, the data is collected by Mintel GNPD experts who monitor and capture new product launches. Later, data entry is based on the latest packaging information and application. Besides ingredient information, it works cross-category packaging information to understand materials usage, closure types and trends and inform companies of their new developments in the food market.

Appendix J – Brand Information

Activia

Activia, under the umbrella of Danone, might emphasize sustainability in their dairy production. It focuses on responsible dairy farming practices and supporting farmers' livelihoods. Activia also prioritises efforts to reduce greenhouse gas emissions, conserve water, and minimize waste in their operations. As a brand centered around digestive health, it invests in research and development to create sustainable and nutritious products while maintaining a strong emphasis on probiotic benefits.

Ben & Jerry's

Ben & Jerry's emphasises its dedication to social and environmental causes. Its sustainability practices include using Fair Trade-certified ingredients to support small-scale farmers and promote equitable trade. The brand also focuses on reducing their carbon footprint and waste generation, incorporating renewable energy, and adopting eco-friendly packaging materials. Ben & Jerry's often supports various social justice initiatives and advocates for issues like climate change, racial justice, and marriage equality. They might engage in community projects and partner with organizations to create a positive social impact.

Coca-Cola

Coca-Cola, as a global beverage company, is likely to have an extensive sustainability agenda. It focuses on water stewardship, aiming to replenish the water used in their beverages and minimize their overall water consumption. The brand also set targets for reducing their carbon emissions and improving energy efficiency. Coca-Cola engages in community projects worldwide, supporting education, water and sanitation programs, and empowering women and marginalized communities. It actively promotes recycling and contributes to initiatives aimed at tackling plastic waste.

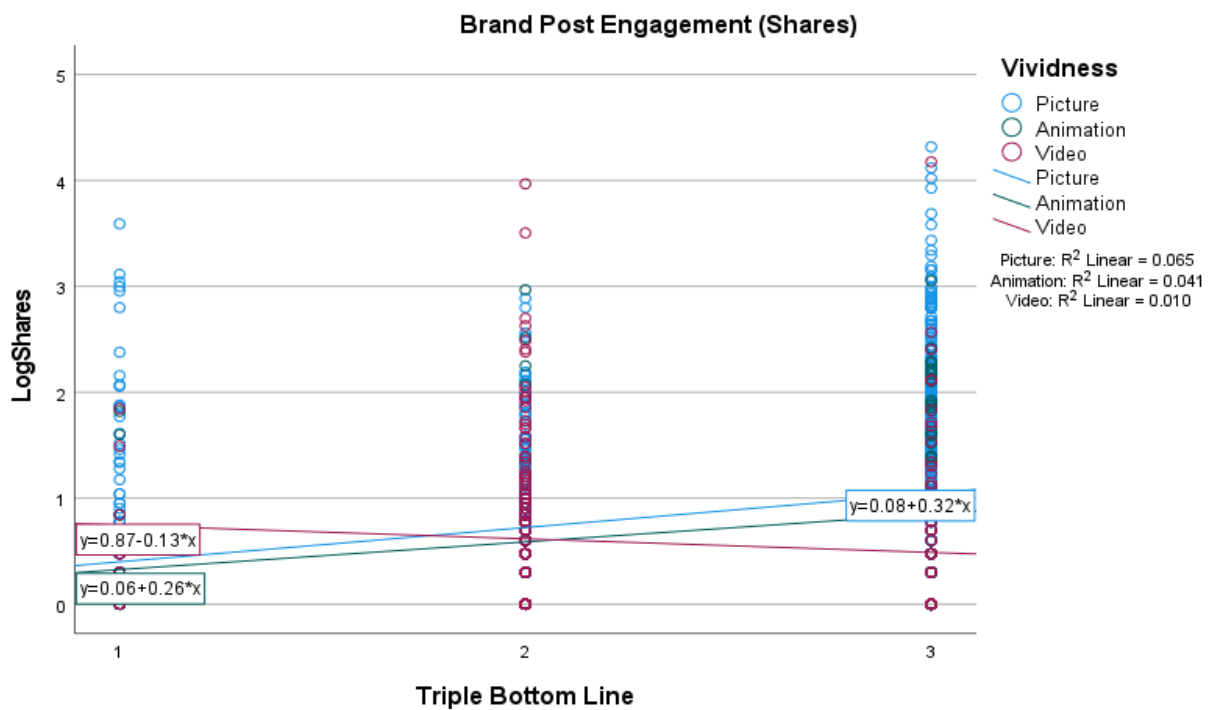
Hellmann's

As part of Unilever, Hellmann's likely shares similar sustainability practices with its parent company. It prioritises responsible sourcing of ingredients, with a focus on sustainable agriculture and reducing deforestation in its supply chain. Hellmann's also works towards reducing food waste and sustainable packaging solutions to minimize their environmental footprint.

Knorr

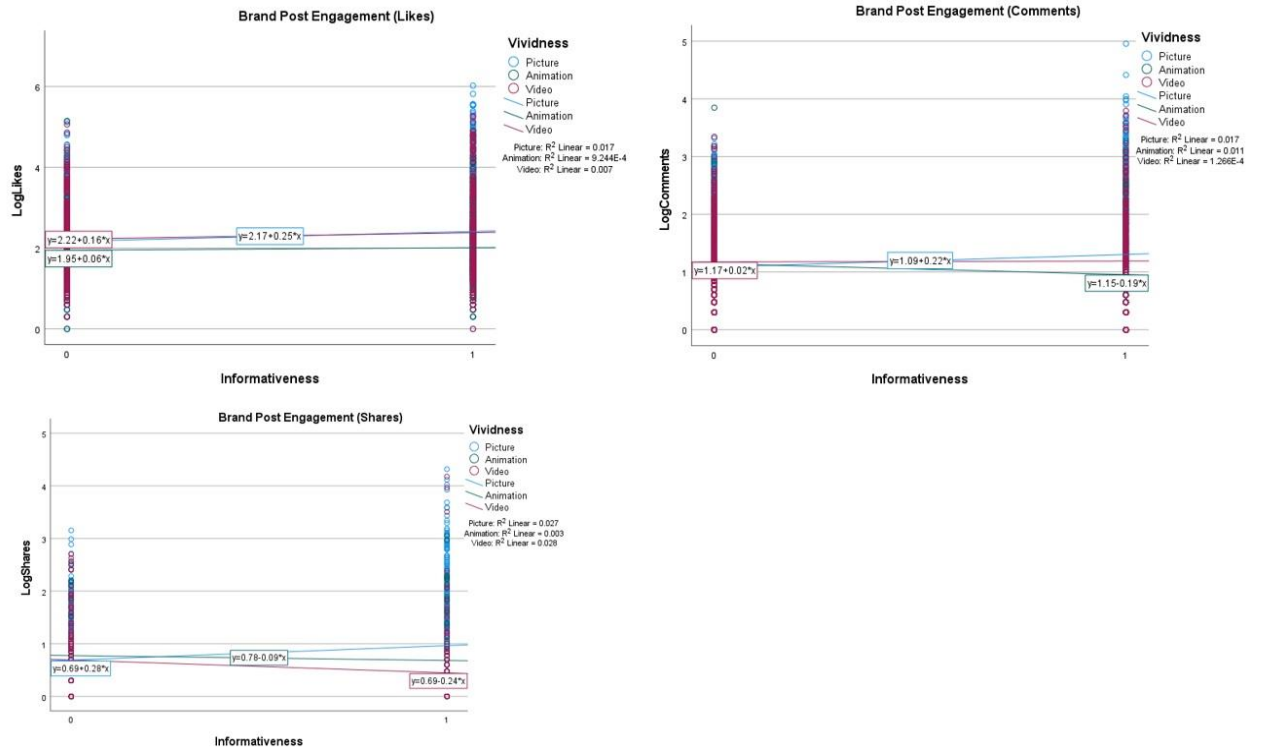
Knorr, being part of the Unilever group, has a strong commitment to sustainability. It focuses on responsible sourcing of agricultural ingredients, aiming to reduce the environmental impact of their supply chain. This includes efforts to support sustainable farming practices, minimize waste, and promote healthfulness. Additionally, Knorr has programs to address food security and nutrition challenges, aligning with the United Nations Sustainable Development Goals (SDGs).

Appendix K – SPSS screenshots of significant relationship correlations



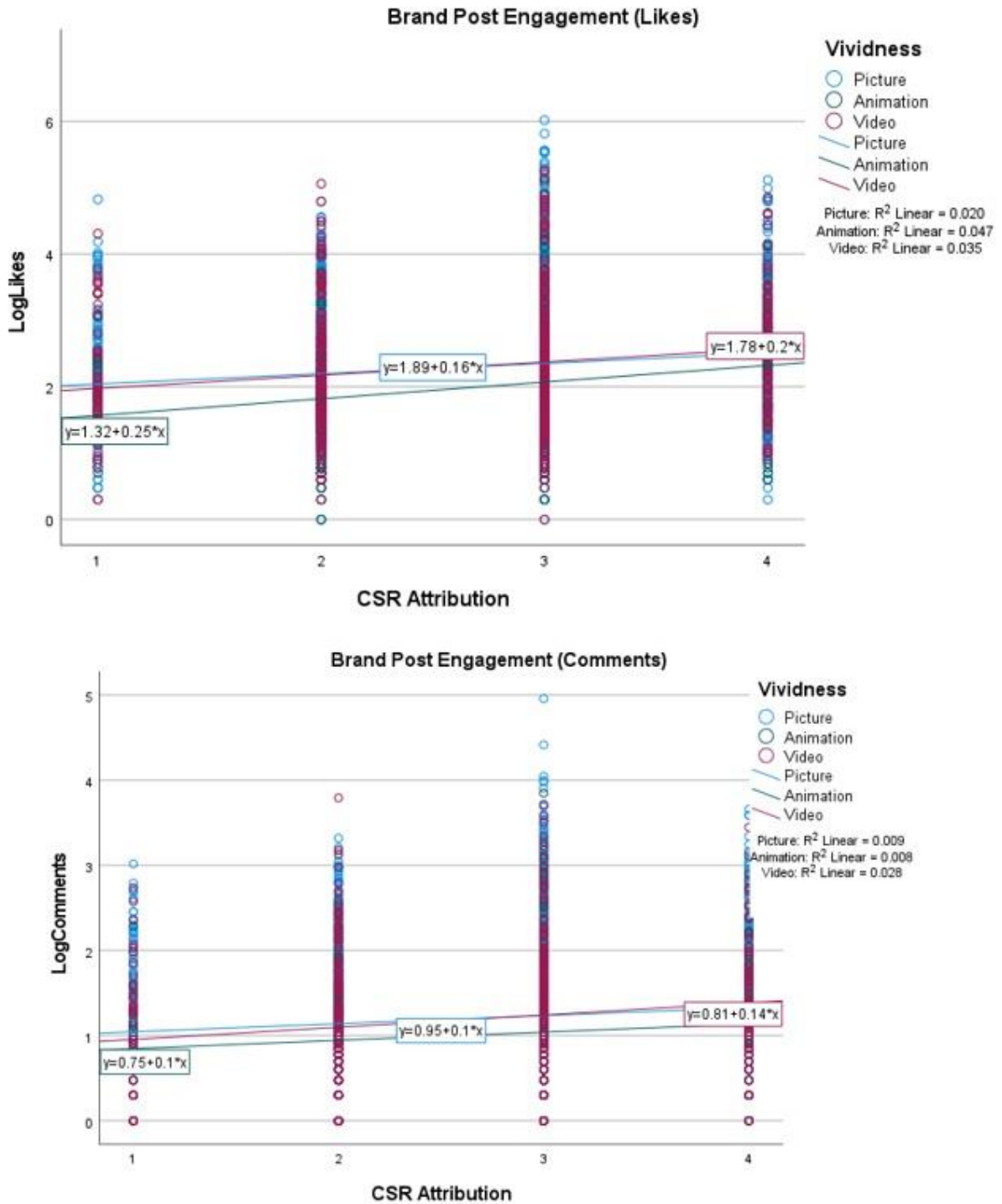
*Notes: 1: Economic Sustainability; 2: Environmental Sustainability; 3: Social Sustainability

Figure 4.1: Two-way interaction between vividness and TBL on brand posts engagement



*Notes: 0: No informativeness; 1: Informativeness

Figure 4.2: Two-way interaction between vividness and informativeness on brand posts engagement



*Notes: 1: Egoistic-driven CSR; 2: Strategic-driven CSR; 3: Value-driven CSR; 4: Stakeholder-driven CSR
 Figure 4.3: Two-way interaction between vividness and CSR attributions on brand posts engagement

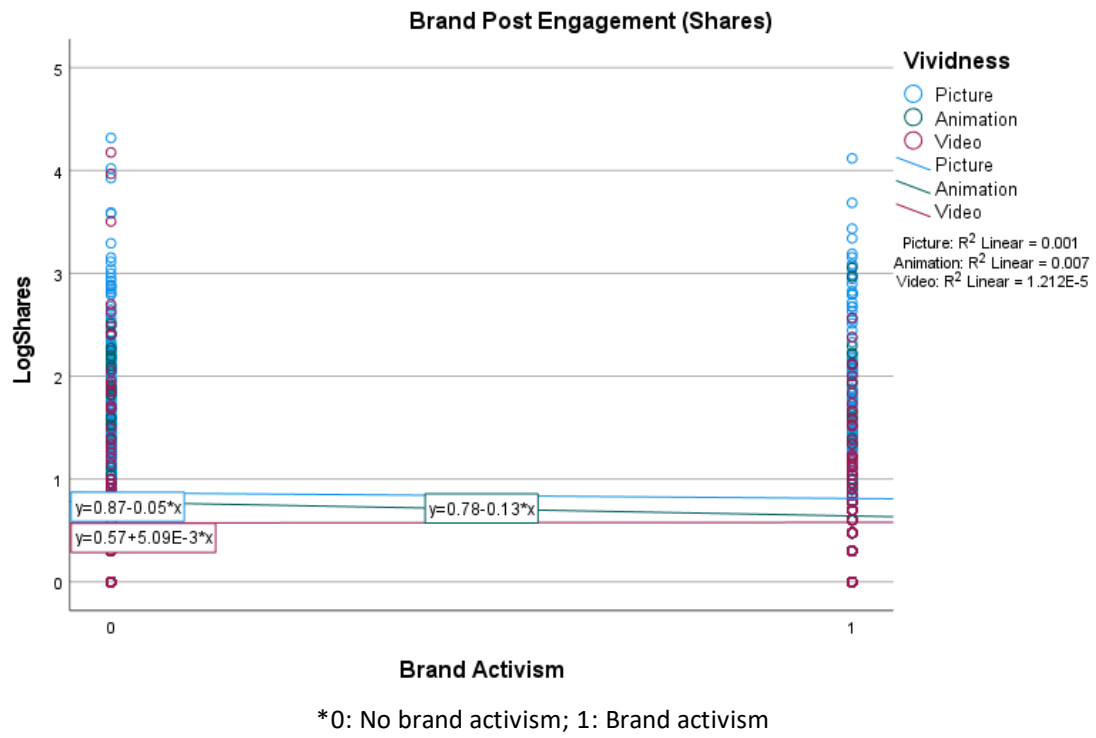
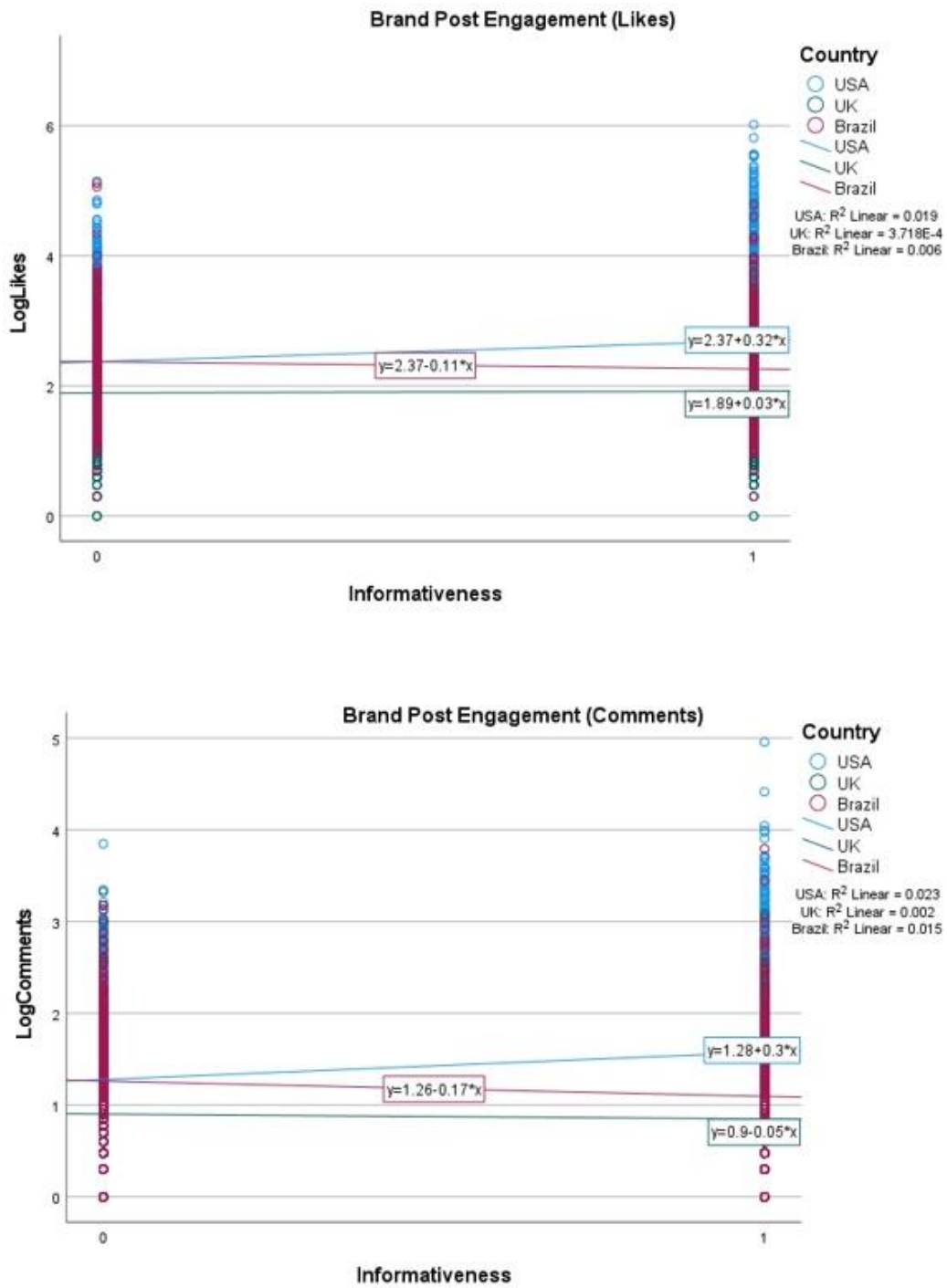
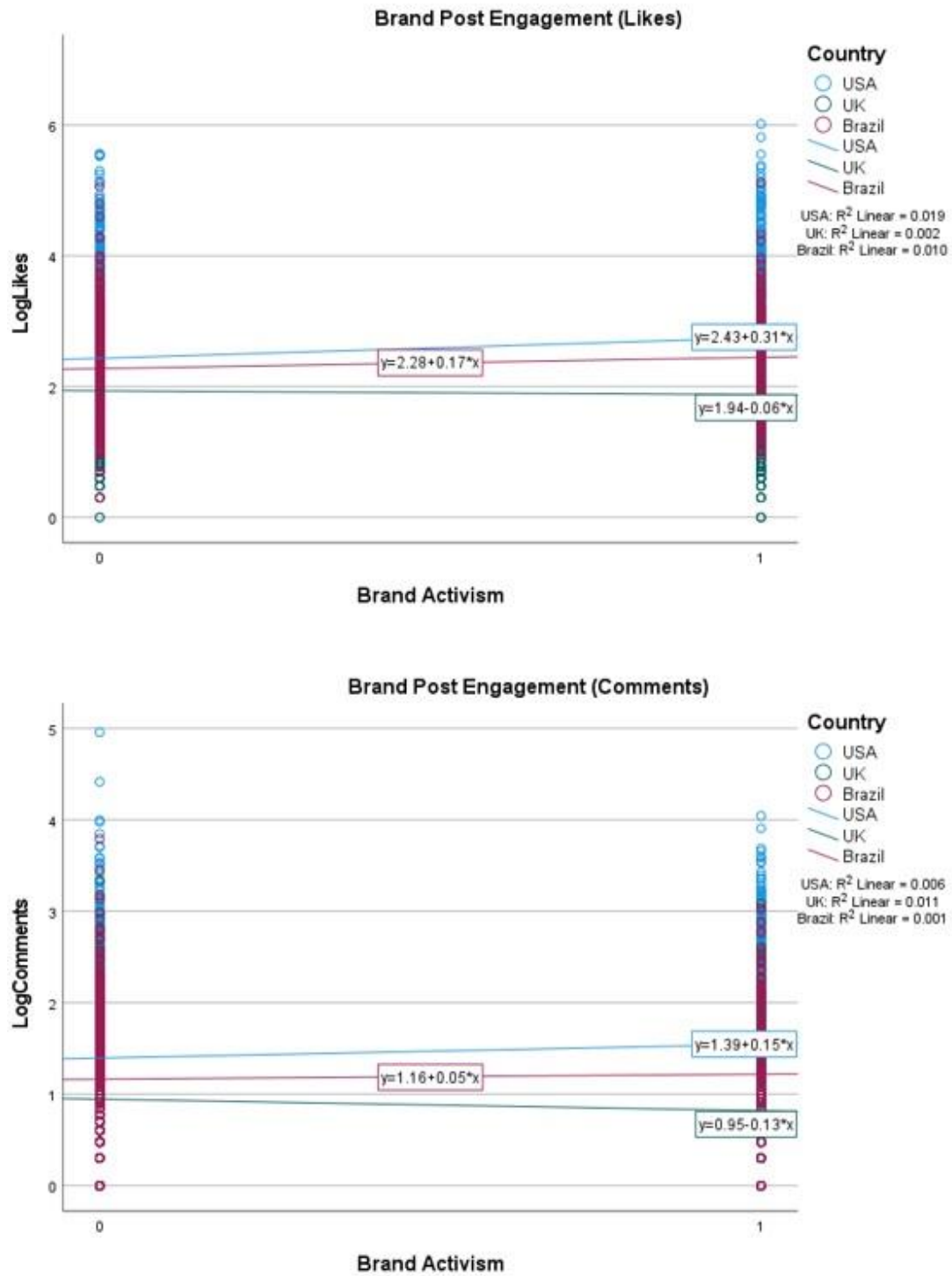


Figure 4.4: Two-way interaction between vividness and brand activism on brand posts engagement



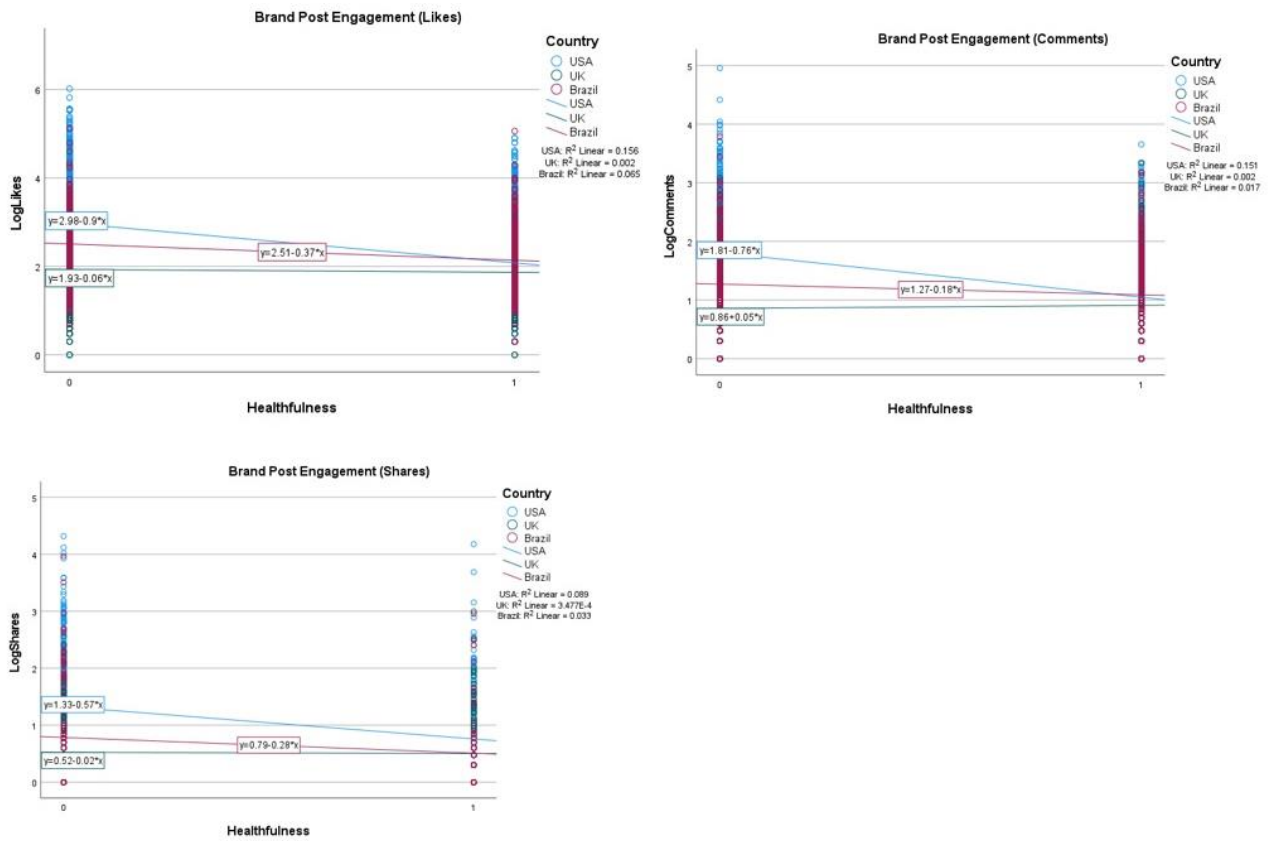
*Notes: 0: No informativeness; 1: Informativeness

Figure 4.6: Two-way interaction between country of operation and Informativeness on brand posts engagement



*Notes: 0: No brand activism; 1: Brand activism

Figure 4.7: Two-way interaction between country of operation and Brand activism on brand posts engagement



* Notes: 0: No healthfulness; 1: Healthfulness

Figure 4.8: Two-way interaction between country of operation and Healthfulness on brand posts engagement

Appendix L – Examples illustrating the inclusion and exclusion criteria applied to brand sustainability-related posts

Included post: It addresses environmental element of sustainability.

Hellmann's: *One BILLION pounds of pumpkin are expected to be dumped into landfills in the US this year alone.* What most people don't know is almost all of those trashed pumpkins are edible – and tasty. We've got some great pumpkin-inspired recipes in our Stories today for you to enjoy this year! Make sure your pumpkins have been stored, uncarved, in a cool, dry place (and keep an eye out for the smaller pumpkins, they're the most yummy)! Thanks for joining us in helping the planet and have a Happy Halloween! 🍁 #RealTasteLessWaste (Facebook, USA, 2020)



Excluded post: This post only promotes the brand's product.

Ben & Jerry's: Autumn essentials checklist: favourite sweater, seasonal hot beverage, and the perfect Ben & Jerry's flavour. (Facebook, UK, 2023).



Appendix M – Examples illustrating brand post regarding the coding of the quantitative study

Antecedents of dimensions	Illustrative post example
Sustainability-related message factors	Ben&Jerry's: The Fairtrade cocoa in Chocolate Fudge Brownie is sweeter than you may realise. Fairtrade means fair prices for farmers so that they can adapt to the impact of climate change and invest back into their communities. Pretty sweet, hey! (Facebook, UK, 2021)
Economic sustainability	

Cont' Antecedents of dimensions	Illustrative post example
Environmental sustainability	<p>Activia: Wasting nothing, tasting everything. When you can't hit the grocery as much as usual, you get creative! Here are just a few delicious ways to incorporate our probiotics into your meal plan: - An Activia smoothie made with a few those fruits on the counter 🍌 - A perfect parfait 🍓 - A homemade granola bowl topped with your fav yogurt flavor 🥄</p> <p>*Enjoying Activia twice a day for two weeks as part of a balanced diet and lifestyle may help reduce frequency of minor digestive discomfort, which includes bloating, gas, rumbling, and abdominal discomfort. (Facebook, USA, 2020)</p>
Social sustainability	<p>Ben&Jerry's: More than half of veterans entangled in the criminal legal system are experiencing mental health challenges like PTSD or substance use disorders. They need help and support, not incarceration.</p> <p>BENJERRY.COM This Veterans Day, Let's Make Sure Veterans Get the Support They Deserve (Facebook, USA, 2021)</p>
Egoistic driven attribution	<p>Coca-Cola: For One World: #TogetherAtHome. We are standing in solidarity with Global Citizen and many others for WHO's response efforts to support health care workers on the frontlines fighting against #COVID19. Tune in live on April 18th from 7pm BST with all of us, or catch the highlights on April 19th on BBC1.</p> <p>To learn more on what we're doing in GB to ensure the safety and wellbeing of our people and our communities during these tough times: https://bit.ly/2RNcqgp (Instagram, UK, 2020)</p>
Strategic driven attribution	<p>Hellmann's: Hellmann's has just launched a brand-new range of three vegan mayo's, and they're absolutely delicious! My favourite is the Vegan Mayo Baconnaise – it tastes just like bacon and its texture and flavour is incredible, I really couldn't believe that it's 100% vegan!</p> <p>Repost 📷 @anuma.kitchen (Facebook, UK, 2021).</p>
Values driven attribution	<p>Ben&Jerry's: Did you know that September is bisexual visibility month? At Ben & Jerry's, we believe that every form of love deserves to be celebrated and respected. Therefore, we support the entire LGBTQIA+ community and its causes. Understand why this group is so important to us, at the link in the bio. (Instagram, Brazil, 2021)</p> <p>Knorr: "If we had closed, this community would have suffered badly."</p>
Stakeholder driven attribution	<p>@arnettwoodall knew his business, West Phillie Produce, was a place his neighborhood relied on for convenient nutritious food, but the pandemic put enormous stress on him and countless small grocers around the country.</p> <p>So proud of the work the @Unilever Knorr team and @thefoodtrust have done to provide mini-grants to help keep these vital businesses going. Read more of Arnett's inspiring story at the link in our bio. (Instagram, USA, 2021)</p>
Brand Activism	<p>Ben&Jerry's: This is the year to get loud for climate action! 🌱 Learn more and join the movement now: https://benjerrys.co/3daQsxE (USA, Facebook, 2021)</p>
Informativeness	<p>Activia: #DidYouKnow our pots are made from PET plastic which means they don't need to be separated from the banderole to be recycled!? #RecycleWeek @recyclenow_uk (Instagram, UK, 2021)</p>

Cont' Antecedents of dimensions	Illustrative post example
Healthfulness	<p>Knorr: Sesame seeds have omega-3, good fat for health, and are a source of magnesium, copper and dietary fiber. They can be consumed raw, toasted and as a paste, the famous tahini. 🌱 Plants produce pods that open when ripe and reveal their tiny golden seeds. Hence the phrase "open sesame". There is also a legend that says that when the gods came together to create the world, they drank wine 🍷 made from sesame seeds. In addition to the crunchiness, the seeds give a brownish flavor to sushi, salads, soups and pasta. It goes well on the bun too. 😊 Sesame is one of the 50 foods of the future because it's healthy for you and sustainable for the planet. 🌍 (Instagram, Brazil, 2021)</p>
<i>Content Characteristics</i>	
Vividness	<p>Picture: https://www.instagram.com/p/CUnGjsyAy0B/ Animation: https://www.facebook.com/watch/?v=121418183223555 Video: https://www.instagram.com/p/CUddcCTFjOR/</p>
Affective Appeal	<p>Ben&Jerry's: In this cold, nothing like a sweet in the middle of the afternoon, right? 😊* #unbelievably vegan (Instagram, Brazil, 2021)</p> <p>Activia: Activia+ is here to help you up your gut health game every day with a convenient bottle you can take on-the-go.</p>
Rational appeal	<p>Activia+ has at least 10% Daily Value more Vitamin C, D, and Zinc per serving than regular Activia Dailies. Activia+: 18 mg Vitamin C (20% DV), 4 mcg Vitamin D (20% DV), 2.2 mg Zinc (20% DV). Activia Dailies: 0 mg (0% DV) Vitamin C, 1.6 mcg (8% DV) Vitamin D, 0 mg (0% DV) Zinc per 3.1 fl oz serving</p> <p>Enjoying Activia twice a day for two weeks as part of a balanced diet and healthy lifestyle may help reduce frequency of minor digestive discomfort, which includes bloating, gas, rumbling, and abdominal discomfort. (Instagram, USA, 2021)</p>

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