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Sustainability in the Finnish Food Industry

A Comparative Analysis of Corporate Communication and Carbon Footprints

Metropolia University of Applied Sciences

Bachelor of Business Administration

European Business Administration

Bachelor's Thesis

28 April 2024

Abstract

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Title: Sustainability in the Finnish Food Industry: A Comparative Analysis of Corporate Communication and Carbon Footprints
Number of Pages: 45 pages
Date: 28 April 2024

Degree: Bachelor of Business Administration
Degree Programme: European Business Administration
Supervisor: Marko Korkeakoski, Senior Lecturer

The food industry is one of the world's largest carbon emitters, emphasizing the importance of examining its approach to this issue. Therefore, it is necessary to explore how companies within the food sector address these challenges and communicate their sustainability strategies to consumers. This thesis investigates three Finnish food companies to understand how they communicate their Corporate Social Responsibility (CSR) and sustainability practices. It also examines how they respond to climate issues, adapt to the growing consumer demand for corporate responsibility and sustainability. The applied methodology is a comparative analysis, which involves contrasting these companies' sustainability communication and carbon footprints. The results offer insights into how different sectors in the food industry communicate their initiatives and whether lower emissions correlate with higher sustainability communication. The findings reveal no direct link between lower emission levels and increased sustainability communication. However, communicating sustainability remains crucial for fostering consumer trust and raising awareness. Understanding environmental issues is instrumental in achieving a carbon-neutral society by 2050. Finally, this thesis presents a set of practical recommendations to enhance the Finnish food industry's sustainability performance and competitiveness in the global market. These recommendations could guide companies in refining their CSR strategies, improving their environmental performance, and effectively communicating their sustainability efforts to consumers and other stakeholders.

Keywords: sustainability communication, food industry, corporate social responsibility

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Glossary

CSDDD	Corporate Sustainability Due Diligence Directive
CSR	Corporate Social Responsibility
ESG	Environmental, Social and Governance
FAO	The Food and Agriculture Organization of the United Nations
FMCG	Fast-Moving Consumer Goods
gha	Global Hectare
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
GWP	Global Warming Potential
INDC	Nationally Determined Contributions
R&D	Research and Development
SDG	Sustainable Development Goals
TBL	Triple Bottom Line

1 Introduction

Food, a fundamental necessity for human life, is primarily provided by the food industry, which comprises a diverse array of enterprises catering to the global population's needs. Considering its vast reach and critical role in sustaining life, it is no surprise that the food industry is among the largest in the world, equaling roughly USD 9.13 trillion in 2024 (Statista, 2024). However, this scale also implies a significant environmental impact, including substantial carbon emissions and waste generation (United Nations, 2024a).

This thesis examines the strategies companies within the Finnish food industry use to promote and communicate their environmental sustainability initiatives to consumers. It also includes a comparative analysis of the carbon footprints of three Finnish food companies, contrasting their performance with that of global food enterprises to assess their relative standing. The findings could also serve as a basis for observing whether a correlation exists between lower carbon emissions and increased sustainability communication.

Moreover, this thesis delves into the topic of Corporate Social Responsibility (CSR), with a primary focus on environmental responsibility. It explores how CSR relates to consumer attitudes, choices, and perceptions. As stated by Stobierski (2021), CSR encompasses four main types: environmental responsibility, ethical responsibility, philanthropic responsibility, and economic responsibility. These aspects reflect a company's commitment to conducting its business operations sustainably, considering the social and environmental impacts of its activities. CSR is gaining significant importance in today's corporate culture. Companies increasingly strive to demonstrate their commitment to responsible practices and project a positive image to the public, fostering a more loyal customer base (Forehand and Grier, 2003). This thesis aims to provide insights into these dynamics within the context of the Finnish food industry.

The topic of CSR and sustainability in the Finnish food industry is timely and relevant, given the growing consumer demand for sustainable and ethically sourced products (Am et al., 2023; Reichheld, 2023). The increase in demand is due to a growing concern about natural resource depletion and the increasing levels of waste generation caused by economic growth, which has led to a rise in sustainable consumption (Ahmad et al., 2023). This thesis offers valuable insights into how large food companies tackle sustainability challenges and communicate their efforts to the public. The findings can inform future research and guide companies in their sustainability endeavors.

The companies examined in this thesis, Fazer, HKScan, and Valio, predominantly focus on fast-moving consumer goods (FMCG). Each represents a significant corporation within the Finnish food industry. Fazer specializes in confectionery and baked goods, HKScan's primary offerings consist of meat products, and Valio leads the Finnish dairy ingredients market. (Fazer, 2024c; HKScan, 2024a; Valio, 2024e).

The primary objective of this thesis is to explore the differences in sustainability communication among these large Finnish food companies and their approaches to sustainability challenges. Considering that these companies operate in distinct sectors within the food industry, it is beneficial to examine whether their specific sector influences their sustainability communication. In addition, this thesis seeks to discern whether a lower level of emissions correlates with increased sustainability communication. For example, the meat industry, the most significant contributor to greenhouse gas emissions within the food industry (Xu et al., 2021), presents an interesting case for understanding how their communication of sustainability efforts contrasts with a company with a comparatively lower carbon footprint.

2 Literature Review and Theoretical Framework

2.1 Shareholder Theory

Numerous literature resources exist for CSR, offering contrasting views that comprehensively understand its advantages and disadvantages. The vast information sources offer diverse perspectives, enabling a more comprehensive topic exploration. In contrast to CSR, Milton Friedman's shareholder theory presents an alternative perspective on business ethics. Friedman (1970) famously stated that the only obligation of business is to maximize its profits while engaging in free competition without deception or fraud. However, the model has been criticized for its short-term outlook and the sole focus on profit maximization, neglecting environmental and social considerations (Auburn University, no date).

2.2 Stakeholder Theory

Fassin (2009) explains that the stakeholder theory focuses on how the interests of various parties are affected by a company's operations and categorizes stakeholders into three groups: real stakeholders, stakewatchers, and stakekeepers. Real stakeholders, such as customers, employees, and shareholders, possess actual stakes, power, and influence over the enterprise, to which the firm bears responsibility. Stakewatchers represent stakeholder interests, including entities such as consumer advocacy groups and environmental organizations. Stakekeepers, including governments and media, exert influence through regulations and shaping public perception. Both stakewatchers and stakekeepers indirectly influence consumer decision-making, while stakeholders influence it directly.

Furthermore, if a corporation disregards or mistreats stakeholders, it may lead to consumer backlash, subsequently affecting their purchasing decisions. Hence, it is in the companies' interest to efficiently manage stakeholder relationships. Stakeholder theory's impact on consumer decision-making is

rooted in how consumers perceive a company's dedication to ethical practices, responsible stakeholder management, and responsiveness to broader societal concerns (Freudenreich et al., 2019). These perceptions can significantly influence consumers' purchasing decisions and brand loyalty.

R. Edward Freeman, who introduced the original stakeholder theory, proposed a broad definition of stakeholders to include all individuals and groups affected in any manner by the activities of a company. He argued that stakeholders encompass those without whose support the company would cease to exist. It includes, but is not limited to, employees, customers, political groups, and activist groups. Consequently, for a company to achieve long-term success and maintain its health, it must consider and strive to satisfy its various stakeholder groups' diverse needs and interests through its actions (Freeman, 1984).

2.3 Triple Bottom Line

In contrast to Friedman's shareholder model, the Triple Bottom Line (TBL) concept, introduced by John Elkington, presents a more comprehensive framework for corporations to measure their performance. Rather than focusing solely on shareholders and profit maximization, the TBL approach considers economic, social, and environmental dimensions, thereby considering a broader group of stakeholders. The dimensions are known as the three P's: profit, people, and the planet. While corporate profit is traditionally referred to as the bottom line, the TBL concept introduces two additional bottom lines: environmental responsibility and social responsibility. Thus, the TBL framework provides a more holistic measure of corporate performance (Miller, 2020).

The measurement of TBL involves several components. Profits, typically straightforward to quantify, represent the economic dimension. The social dimension encompasses financial and non-financial measurements, such as average employee benefits, salaries, and demographics. The environmental dimension includes measurements such as greenhouse gas emissions, waste

generation, and the ethical sourcing of raw materials. Each of these measurements is of equal importance in the TBL framework (Kenton, 2023).

However, Elkington, the creator of TBL, has criticized the concept for being used merely as an accounting tool rather than a catalyst for genuine change. He questions the effectiveness of analyzing TBL reporting data in assisting decision-makers and policymakers. Furthermore, he observes that while company leaders make every effort to achieve profit targets, the same level of commitment is rarely applied to their environmental and social targets. This critique underscores the need for a more balanced approach to corporate performance measurement that genuinely reflects the principles of the TBL (Elkington, 2018).

2.4 Corporate Social Responsibility

CSR faces some challenges as well, some of which are mentioned by Wang et al. (2016), including the difficulty to observe and measure the effectiveness of CSR efforts. Another challenge is that it can be difficult to implement CSR practices, especially in multinational corporations, because of differences in nations' policies. Additionally, CSR involves various stakeholders, yet companies face resource constraints, particularly during financial turbulence. This can lead to conflicts among stakeholders competing for financial resources and managerial focus.

Moreover, Aguinis and Glavas (2012) discuss the significance of leadership in shaping CSR. They highlight that current research primarily concentrates on analyzing CSR at institutional and organizational levels. The authors emphasize the necessity of examining research on individuals' roles in CSR from both the individual and organizational levels of analysis. This means understanding how individuals' characteristics and behaviors influence CSR initiatives on an individual level and how these individuals contribute to the organization's CSR practices.

De Ruitter et al. (2018) underscores the significance of leadership in CSR, shedding light on the individual's role within CSR. This encompasses the influence of a leader's personality, behavior, and leadership style on implementing CSR initiatives within an organization. Understanding the impact of leadership on both individual and organizational levels and its role in shaping values and guiding organizations toward socially responsible practices remains crucial. Moreover, the article highlights how employees' perceptions of CSR and organizational identification affect their involvement in CSR endeavors. Individuals feeling connected to the organization and perceiving it as socially responsible are more inclined to support CSR activities within the company.

Frémeaux and Michelson (2017) explore the relationships between the common good, personal good, and business management approaches. The article delves into the philosophical and ethical underpinnings of Conscious Capitalism and the Economy of Communion, examining how they approach stakeholders, societal needs, and the balance between personal and community good. They state that positioning the common good is more robust and demanding, focusing on real societal good rather than superficial appearances.

These articles provide crucial knowledge and challenges in the realm of CSR, offering valuable perspectives. These perspectives can enrich the discussion on how CSR initiatives impact consumer purchasing decisions, considering challenges in implementation, the role of leadership, employee perceptions, and the alignment of CSR philosophies with consumer values and ethical considerations. Having various perspectives is advantageous when evaluating a theory and its potential to benefit organizations, their stakeholders, and society in the long term.

The literature surrounding CSR is expansive, presenting a vast collection of resources and perspectives on this diverse subject. The abundance of scholarly articles, books, case studies, and research papers offers extensive viewpoints, enriching the observation and understanding of CSR from diverse angles.

2.5 Consumer Attitudes and Choices

Companies can impact consumer attitudes and choices with their communication. This section focuses on what aspects of communication are essential regarding consumer attitudes and choices.

Various studies and articles explore consumer preferences regarding CSR, forming a substantial information pool. This collection serves as a crucial resource for comprehending consumer behavior and values. Using this available data allows for comparing the correlation between companies' CSR efforts and consumer purchasing patterns, providing insights into critical factors in buying behaviors.

2019, Teneo conducted two surveys—one among 1691 Americans and another with 503 investors. These surveys aimed to grasp consumer and investor perceptions of CSR and their expectations regarding the role of large enterprises in tackling social and environmental concerns. Additionally, the surveys sought to determine if consumers and investors would forgive corporations engaging in irresponsible behavior. One of the research findings indicated that 17% of consumers have a zero-tolerance approach, while 40% would tolerate one instance of misconduct from companies. Overall, this study provides valuable perceptions of consumer preferences and attitudes concerning the initiatives undertaken by large corporations in the realm of CSR.

Toussaint et al. (2021) focus on how social sustainability influences consumer purchasing behavior within the food value chain. This research article sheds light on how social responsibility affects consumer's food choices. The findings suggest that consumers prioritize fair treatment of workers but often face challenges in accessing adequate information for informed decision-making. This article offers valuable observations for conducting comparative analyses across industries, illustrating potential differences in how CSR initiatives are implemented within various sectors.

In a survey conducted by Clutch (2019), 420 respondents were questioned to understand the impact of CSR on buying decisions and brand perception. An intriguing discovery was that while 44% prioritize price as a significant company attribute, a higher percentage—71%—consider environmentally friendly business practices crucial. This research offers insights into people's values and how they perceive the influence of CSR efforts on their purchasing choices.

The study conducted by Vermeir and Verbeke (2006) focused on sustainable food consumption among young Belgian consumers aged 19-22. The study identified key factors influencing their behavior, including involvement, perceived availability, certainty, perceived consumer effectiveness, values, and social norms. The results indicated that high involvement, certainty about sustainability claims, and perceived effectiveness significantly impact positive attitudes and intentions toward buying sustainable products (36% of the respondents had a positive attitude and intention). However, inconsistencies were found between attitudes and intentions in two consumer segments: one segment had a high positive attitude but no intention to purchase due to perceived unavailability (9.4% of participants), while the other had a low positive attitude but a high intention to buy sustainable products due to social norms and pressures from peers (17.5% of respondents).

This indicates that positive attitudes do not consistently align with purchasing actions, and conversely, purchasing actions do not always reflect positive attitudes. However, communicating strategies emphasizing personal relevance, availability, and social norms can help bridge these gaps and promote more sustainable consumption practices among consumer segments. It is also necessary to acknowledge that the study was conducted in 2006, and trends and attitudes may have shifted over time. Thus, more recent studies could provide more relevant and updated information.

2.6 Carbon Footprint

The carbon footprint is a measure used to quantify the total amount of greenhouse gases (GHGs), such as carbon dioxide and methane, produced by a particular activity (Plassmann and Edwards-Jones, 2010; The Nature Conservancy, 2024). GHGs are molecules that absorb infrared radiation from the sun, trapping heat and warming the planet. This greenhouse effect is essential for maintaining the Earth's temperature so that life forms can thrive. However, human activities have led to an excessive buildup of GHGs in the Earth's atmosphere, resulting in global warming (British Geological Survey, 2023).

Companies typically categorize their carbon footprint into three categories: scope 1, 2, and 3. Scope 1 emissions are direct emissions originating from company-controlled activities, such as the combustion of fuels, including oil, gasoline, and diesel. Scope 2 consists of indirect emissions from purchased energy, such as electricity and heating. Most of a company's emissions usually fall under scope 3, also referred to as value chain emissions, which stem from activities not owned or controlled by the company. This category encompasses all sources outside scope 1 and 2 (United States Environmental Protection Agency, 2024). Figure 1 gives a clear depiction of how these emissions differ from each other.

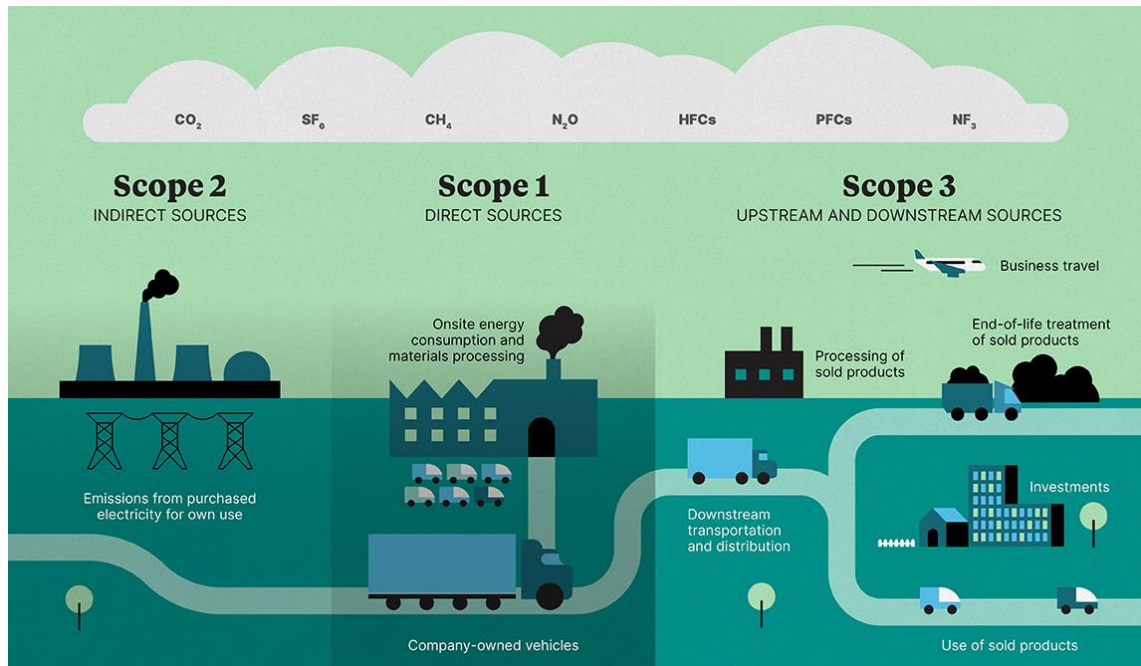


Figure 1. A depiction of different emission scopes. (Oliver Wyman Forum, 2024).

Figure 1 comprehensively illustrates the different scopes of CO₂ emissions, outlining the sources associated with each scope. Scope 1, in the center, encompasses emissions from onsite energy consumption and company-owned vehicles. Scope 2 accounts for emissions derived from energy purchased by the company. Scope 3, on the other hand, represents both upstream and downstream emissions. The upstream emissions include those resulting from the company procuring goods and services. Downstream emissions, conversely, contain those stemming from the operation of investments (Oliver Wyman Forum, 2024). This detailed categorization explains the various sources contributing to a company's overall CO₂ emissions.

Carbon footprint is measured using a standard unit CO₂e, or carbon dioxide equivalent. According to Ritchie et al. (2022), the idea is to express the impact of each GHG in terms of the amount of carbon dioxide (CO₂) that would create the same amount of warming. That way, the carbon footprint of many different GHGs can be expressed as a single number.

Additionally, different GHGs have different global warming potentials (GWPs). For example, methane is a much more potent GHG than CO₂, so it has a higher GWP. For example, 3 tons of CO₂e means that the GHGs emitted have the same warming effect as 3 tons of CO₂ (Ritchie et al., 2022b).

Given the severe impacts of global warming, individuals and organizations are responsible for mitigating these effects by reducing their carbon footprint. This involves identifying high-emission sources within their activities and searching for ways to decrease or offset these carbon emissions. For instance, diets rich in meat, particularly from ruminants, are associated with higher emissions. Conversely, diets with less meat and more vegetables result in lower emissions and are also considered healthier (FAO, 2017). Thus, personal dietary choices can contribute to the broader goal of reducing GHG emissions. Furthermore, large corporations, which are significant contributors to carbon emissions, have a particular responsibility to demonstrate active measures in combating climate change.

Furthermore, the United Nations (2024c) has articulated one of its Sustainable Development Goals (SDG) as achieving a world free from hunger by 2030. Subgoal 2.4 within this framework pledges to promote sustainable food production and discusses the adaptation of agricultural and food systems to climate change. Establishing these goals aids in progressing toward a more sustainable future and freedom from hunger.

2.7 Ecological Footprint

The ecological footprint measures the regenerative land mass required to produce everything for human needs, including food and services. A specific amount of regenerative land area is available each year, but the global ecological footprint currently exceeds the Earth's regenerative abilities. It means that human society is operating in a state of overshoot. In the long run, this phenomenon harms the entire ecosystem and leads to issues such as resource

depletion and climate change worsening, triggering a cascade of other problems (Wackernagel and Kitzes, 2008).

The ecological footprint, quantified in global hectares (gha), measures human environmental impact. In 2022, the average ecological footprint per person was estimated to be 2.6 gha, with carbon emissions accounting for 60% of this figure. Concurrently, the global biocapacity deficit was calculated to be -1.1 gha. Biocapacity refers to the ability of a biologically productive area to generate an ongoing supply of renewable resources (Schaefer et al., 2006). In contrast, Finland's per capita ecological footprint was reported to be 5.4 gha, twice the global average. However, due to Finland's abundant biocapacity, primarily attributed to its forests, the country does not experience a biocapacity deficit (WWF, 2024; Global Footprint Network, 2024).

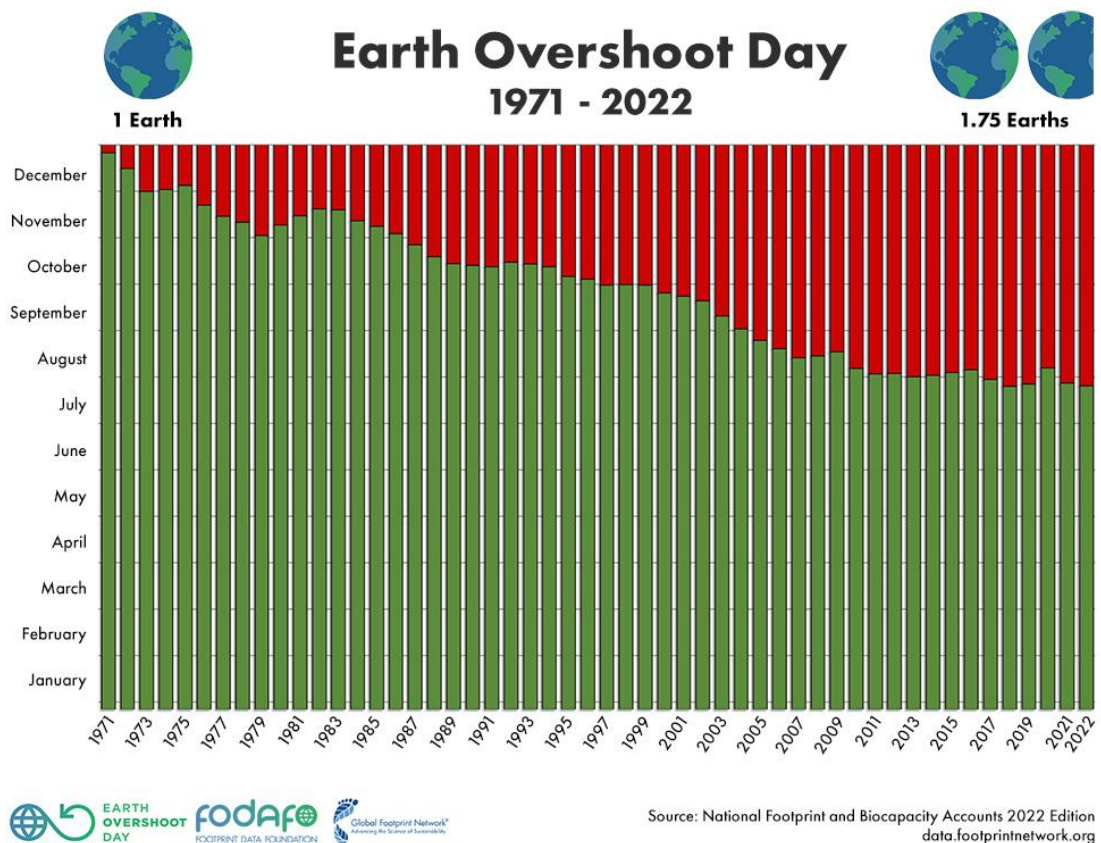


Figure 2. Earth overshoot day by year from 1971 until 2022 (Global Footprint Network, 2024).

As shown in Figure 2, Earth Overshoot Day has been occurring earlier. In 1971, the overshoot occurred at the end of December; however, in 2022, 51 years later, it happened as early as July. This early occurrence leads to various complications for biodiversity and the ecosystem. The food industry is one of the main contributors to the sooner arrival of Earth Overshoot Day, with its production processes and supply chains having a far-reaching impact.

2.8 Marketing and CSR

2.8.1 The Relationship Between Marketing and CSR

Sancllemente-Téllez (2017) explores various theoretical perspectives to examine the interrelationship between CSR and marketing. His analysis suggests that CSR impacts value delivery to stakeholders and influences business performance. However, marketing spending moderates the effects of CSR on stock returns in both the short and long term. The concept of CSR is still evolving, and its relationship with marketing depends on various factors, including marketing expenditures, consumer awareness, and the communication of CSR initiatives.

Marin and Lindgreen (2017) explore the relationship between marketing and CSR and discuss future research directions in this area. They highlight how CSR has evolved into a practical necessity for contemporary businesses and has ascended to the forefront of numerous research agendas. The significance of CSR in today's corporate world and communication cannot be understated. The article also examines the price factor, discussing the extent to which a more responsible product may be more expensive due to CSR. Stakeholders reward responsible companies and, in certain instances, such as skepticism or companies claiming CSR, may face more backlash when they act unethically.

Additionally, CSR can positively influence a company's market value as a moderating variable. The alignment of CSR initiatives with core business operations is crucial for value creation. CSR strategies should be centered around stakeholders and seamlessly integrated into the corporate strategy for

maximum impact. This integration ensures that CSR initiatives are not just peripheral activities but are central to the company's mission and objectives (García-Madariaga and Rodríguez-Rivera, 2017).

In conclusion, the interplay between CSR and marketing is multifaceted and dynamic, with each influencing the other in significant ways. The research by Sanclemente-Téllez (2017) and Marin and Lindgreen (2017) underscores the evolving nature of CSR and its growing importance in today's corporate world. The strategic alignment of CSR initiatives with core business operations, as highlighted by García-Madariaga and Rodríguez-Rivera (2017), is crucial for value creation and positive influence on a company's market value. However, using CSR as a mere marketing tool should be approached cautiously to avoid the risk of greenwashing. As CSR continues to evolve, businesses must stay abreast of these changes and adapt their strategies accordingly, ensuring that their CSR initiatives are not only beneficial for their business performance but also contribute positively to society at large. This balance is the key to successful and sustainable business practices in the modern corporate landscape.

2.8.2 Marketing and Consumer Behavior

Marketing plays a crucial role in shaping consumer attitudes, beliefs, and image and boosting corporate financial performance. Moorman and Rust (1999) concluded that managing the customer-product connection, customer-service quality connection, and customer-financial accountability connection is essential to aiding financial performance. The customer-product connection explains how consumers perceive and interact with a product or service. The customer-service quality connection involves measuring, monitoring, and enhancing customer satisfaction to meet customer expectations. The customer-financial accountability connection includes understanding customer satisfaction's impact on financial performance, such as customer profitability or the impact of marketing initiatives on financial results.

Integrating CSR into these connections would additionally assist corporations in leveraging their position, cultivating a responsible image, and generating higher returns. For instance, companies that exhibit social and environmental responsibility tend to boost customer satisfaction, consequently fostering business growth. Implementing these initiatives enhances customer satisfaction and perceived product, service, and brand quality.

2.8.3 Marketing Mix

Marketing mix explains the four controllable aspects of promoting a product or a brand in a market. The elements include price, product, place, and promotion (Kenton, 2023). With a suitable strategy implemented, these four controllable elements can help corporations appeal to consumers.

It is suggested that companies could incorporate CSR elements into their marketing mix. This could involve crafting products using eco-friendly and ethically sourced sustainable materials, allocating a portion of profits to support a social cause as part of the pricing strategy, and advertising the sustainability aspect of their product or the company's dedication to a particular cause as part of their promotion strategies. Integrating CSR into the marketing mix can help companies cultivate a positive brand image and differentiate themselves from competitors. This is particularly important as consumers tend to positively perceive companies involved in addressing social problems, as Čerkasov et al. (2017) noted.

2.8.4 Branding

Branding is a crucial aspect of marketing. A brand encompasses a name, term, design, symbol, or any distinctive feature distinguishing one seller's goods or services from those of other sellers (American Marketing Association, 2023). Maon et al. (2021) discuss the impact of CSR on branding. They note that socially responsible companies are more appealing to consumers. However, they mention little research revealing the exact factors supporting CSR in shaping a brand image.

Additionally, consumers may lack the motivation to understand CSR for all businesses and services they purchase. Hence, highlighting CSR efforts would benefit enterprises aiming to brand themselves as socially responsible by making their communication more visible and readily accessible. By doing so, they can effectively reach their target audience and garner more consumer favor.

Companies must exercise caution to maintain their intended brand image. Take McDonald's, for instance, which encountered criticism following its announcement of free meal donations to the Israeli army during the Israel-Hamas conflict (Tenbarge, 2023). Generally, it would be safer for corporations to avoid taking stances in international conflicts or controversial events unless directly involved. Despite the saying that "any publicity is good publicity," such actions can clash with a company's goals of CSR and negatively impact public perception.

2.8.5 Consumer Behavior

To explore the link between CSR and consumer behavior, it is crucial to comprehend the factors influencing consumer choices. While the marketing elements stand out as a significant factor, comprehending the weight of other elements is vital for accurately assessing how consumers respond to CSR initiatives.

One factor includes the relationship between environmental and ecological behavior among consumers. Fraj and Martinez (2006) examined the primary factors influencing ecological behavior. They discovered that ecological behavior is better explained by environmental affect (individuals' emotional responses to environmental issues) than environmental attitudes. They also emphasize the importance of government intervention, institutional involvement, and educational campaigns to promote environmentally friendly behavior among consumers.

This presents an opportunity for companies to actively inform consumers about sustainability issues through advertising campaigns and showcase concrete examples of how they are addressing these challenges, promoting a more sustainable environment. In doing so, environmentally responsible corporations can demonstrate their commitment and accountability to sustainability. Educating the public in this manner can assist firms in raising consumer awareness and potentially establishing consumer trust. Which in turn may aid in building a more responsible brand image and garnering new customers.

2.8.6 Consumer Attitudes Towards CSR

Evaluating attitudes and their correlation with actions is crucial for assessing the effectiveness of a given factor. In this context, the factor under consideration is CSR, focusing on how consumers perceive a company's CSR activities. Understanding consumer attitudes toward CSR is beneficial for determining its efficiency.

Forehand and Grier (2003) studied consumer skepticism toward business practices. They concluded that skepticism arises when consumers perceive a company's motives as self-serving rather than aimed at serving the public good. Furthermore, when verifying a company's claims of acting in the public interest becomes challenging, consumers are more likely to harbor skepticism. Moreover, Becker-Olsen et al. (2006) point out that the perceived motivation of a company significantly influences its CSR associations and subsequently impacts an individual's intention to recommend the company. It suggests that when a company's motivations align with CSR principles, it positively affects the public's perception of the company and increases the likelihood of it being recommended by individuals. Therefore, it is crucial for companies implementing CSR activities to communicate their motivations behind these actions to the public effectively.

Therefore, it is imperative for businesses engaging in CSR activities to provide tangible evidence of their efforts. However, as noted by Wang et al. (2016),

observing and measuring these activities can be challenging. It indicates that firms could prioritize more easily measurable and observable actions. For instance, focusing on sustainability, such as reducing carbon emissions, could be a practical approach.

2.8.7 Legislation and Guidelines for CSR Communication

Some ways of communicating environmental sustainability are dishonest and used solely for financial gain. These actions were not as rigorously monitored in the past, and the prominent backlash stemmed from consumer awareness of these deceptive practices. However, in recent times, institutions have implemented various laws that offer more precise guidelines for what is permissible in advertising and promoting sustainability.

This deceptive communication is known as greenwashing and is employed by corporations that falsely claim to be taking more steps to protect the environment than they are. Some tactics include being vague about a company's operations, using misleading, non-standard labels on products that can be easily misinterpreted, and asserting to have a plan to reduce the company's CO₂ emissions when no credible plan is in place (United Nations, 2024b).

In 2022, the European Union approved a new proposal known as the Corporate Sustainability Due Diligence Directive (CSDDD). This directive sets forth regulations that large corporations must adhere to mitigate both existing and potential adverse effects on the environment and human rights that may arise from their operations. These corporations must formulate a strategy to ensure their business model complies with the objectives of the Paris Agreement on climate change (European Commission, 2024).

The Paris Agreement is a legally binding international treaty on climate change. All participating nations must put forward their best effort to reduce their emission levels. The objectives include limiting global warming to 1.5°C by

gradually reducing GHG emissions. However, this goal is attainable if GHG emissions peak before 2025 (UNFCCC, 2024; Lettenmeier et al., 2019).

The corporations impacted by CSDDD include large EU limited liability companies divided into three groups. The first group includes approximately 9,400 corporations with 500 or more employees and 150 million EUR or more net turnover worldwide. The second group comprises around 3,400 businesses in high-impact sectors (e.g., agriculture, extraction of minerals, and textiles) that employ 250 or more people with a net turnover of 40 million EUR or more. The third group comprises third-country companies belonging to both groups one and two. Moreover, the directive does not directly affect small and medium-sized enterprises (European Commission, 2024).

Large companies must be able to substantiate their sustainability claims to avoid penalties. Additionally, increased transparency in operations and supply chains is mandated. Therefore, companies must integrate sustainability into their core business practices. The new directive also aims to make it more challenging to make misleading or unsubstantiated claims about the environmental benefits of a product or service.

However, according to the European Commission (2024), the new directive may pose challenges for companies. For instance, providing supply chain transparency can be difficult for multinational companies with extensive supply chains spanning multiple countries. Moreover, the changes can incur costs for companies, including conducting due diligence, implementing transition plans for climate change mitigation, and potentially terminating relationships with business partners that do not meet sustainability standards. Additionally, there is a risk of legal liability and reputational damage for non-compliance with these obligations.

These changes will likely pose challenges for companies and necessitate adjustment to the new rules. However, the directive aims to raise awareness of

sustainability issues and requires large companies to take action to address the challenges posed by climate change.

However, there are also potential benefits involved. For citizens, this could entail improved labor rights, more transparent information regarding corporate communication, and thus increased trust in businesses. Conversely, for companies, this could indicate greater customer trust, a consistent legal framework for running operations, and higher innovativeness stemming from the need to adapt (European Commission, 2024)

3 Sustainable Food Production

In the global pursuit of sustainable food production, several strategies have been adopted in agriculture. One such strategy is no-till farming, a method that reduces soil erosion and enhances soil health by eliminating the traditional practice of turning the soil between seasons (Spears, 2018). Another widely implemented strategy is crop rotation, which involves alternating the types of crops grown in a particular field each season. This practice helps to prevent the depletion of soil nutrients, manage soil fertility, and control pests and diseases (Rodale Institute, 2020). Additionally, utilizing cover crops between growing seasons is another internationally recognized practice. Cover crops, such as clover or rye, are planted during off-seasons to protect and enrich the soil. They prevent erosion, improve soil structure, and enhance organic content (Gula, 2022). These strategies collectively contribute to the sustainability of food production systems worldwide, ensuring a balance between agricultural productivity and environmental conservation.

The Finnish food system also displays strengths as a sustainable and technologically advanced food production model. The country's abundant water resources, which are crucial in various stages of food production, and the transparency and manageability of the food chain, due to the country's relatively small size, ensure high standards of food safety and quality (Sözer et al., 2021). The food chain has also seen a remarkable transformation by integrating high-

tech solutions and Information and Communications Technology (ICT) expertise, leading to increased efficiency, traceability, and sustainability. Furthermore, Finland's nutrition and food technology knowledge enables the production of safe, high-quality, nutritionally balanced food products (Karhinen, 2019). These combined strengths position Finland well to meet the challenges and opportunities of the global food system in the 21st century (Sözer et al., 2021).

Sözer et al. (2021) also propose several strategic improvement suggestions, including developing a digital platform for managing waste and side streams from the food value chain. Furthermore, they emphasize the necessity of engaging citizens in collaboration with researchers and companies to address potential challenges collectively. In addition, they advocate for a multidisciplinary approach to the systemic transformation of the food system, integrating technology and natural sciences with human-social sciences.

Consumer demand for more sustainable products is rising, compelling companies to adapt to these changing preferences. Products that make claims related to Environmental, Social, and Governance (ESG) have seen an average cumulative growth of 8 percent over the past five years compared to products that made no such claims (Am et al., 2023). This trend suggests that consumers are willing to spend more on sustainable goods. ESG is a framework that provides stakeholders with insights into how a company manages risks and opportunities related to environmental, social, and governance criteria (Gartner, 2024).

3.1 Challenges in Food Production

Food production significantly contributes to carbon emissions. The various production, distribution, processing, preparation, and consumption stages result in substantial CO₂ emissions. Approximately one-third of all human-caused GHG emissions are associated with food. Certain foods, such as red meat, dairy, and farmed shrimp, have exceptionally high GHG emissions. Moreover,

most food-related GHGs come from agriculture and land use, including methane from ruminants, nitrous oxide from fertilizer, and CO₂ from cutting down forests to expand farmland (United Nations, 2024a). Furthermore, in individuals' lives, food, housing, and transportation typically have the most significant impact on the total carbon footprint (Lettenmeier et al., 2019). These areas should be prioritized when considering ways to reduce one's carbon footprint.

In addition to environmental concerns, the food industry also struggles with worker and animal rights issues. Fair treatment of employees, encompassing fair wages, safe working conditions, and the right to organize, is often a challenge, especially in developing countries where labor laws may not be as strict or well-enforced (Lo and Jacobson, 2011). Similarly, the ethical treatment of animals used for food production, including providing adequate living conditions, proper care, and humane treatment, can be challenging due to the pressure to produce food quickly and cheaply (Croney and Anthony 2019).

However, this thesis focuses primarily on the sustainability challenges of food production, including its environmental impact. The food industry is responsible for significant GHG emissions, deforestation, and water pollution. Also, it is a significant contributor to the loss of biodiversity and the depletion of natural resources. The Food and Agriculture Organization of the United Nations (FAO) underscores the need for the food industry to reduce its environmental impact by adopting more sustainable practices, including reducing GHG emissions, improving water management, and promoting sustainable land use practices, such as no-till farming and crop rotation (FAO, 2023a; Spears, 2018).

An additional challenge lies in the hidden costs associated with food production. Frequently, the food industry externalizes its environmental impact costs, resulting in these expenses not being reflected in the food's price. This discrepancy can make unsustainable practices more profitable than their sustainable counterparts (FAO 2023b; FAO 2023c). The FAO (2023d) recommends implementing cost accounting methods that consider the

environmental and social costs associated with food production to correct this issue.

The food industry is also confronted with challenges stemming from the expanding middle class in developing nations. As this demographic grows, their consumption patterns evolve, increasing the demand for goods and services (World Bank, 2013). This surge in demand can pressure the food industry to increase production, potentially resulting in heightened resource use, increased GHG emissions, and other environmental impacts. However, the rising middle class may also demand more sustainable and ethically sourced products due to increasing consumer awareness (Reichheld, 2023), potentially steering the food industry towards adopting more sustainable practices.

Moreover, the United Nations Development Programme (2023) identifies the food industry's problems in reaching sustainable development in the Human Development Report. The report emphasizes the need for a change in food systems to deal with issues such as poverty, hunger, and poor nutrition while decreasing the environmental harm of food production. It suggests that this change needs a move towards more fair and sustainable food systems, focusing on cutting down food waste, supporting sustainable farming, and improving access to healthy food for everyone. The report also highlights the need to tackle the leading causes of food insecurity, such as poverty, inequality, and conflict, to reach sustainable development in the food industry.

The food industry is confronting several challenges, including its environmental impact, the hidden costs of food production, and the shifting consumption patterns of the middle class. The industry needs to address these challenges more transparently and make a concerted effort to adopt more sustainable practices. Such actions would enhance Earth's health and guide humanity toward a more promising future.

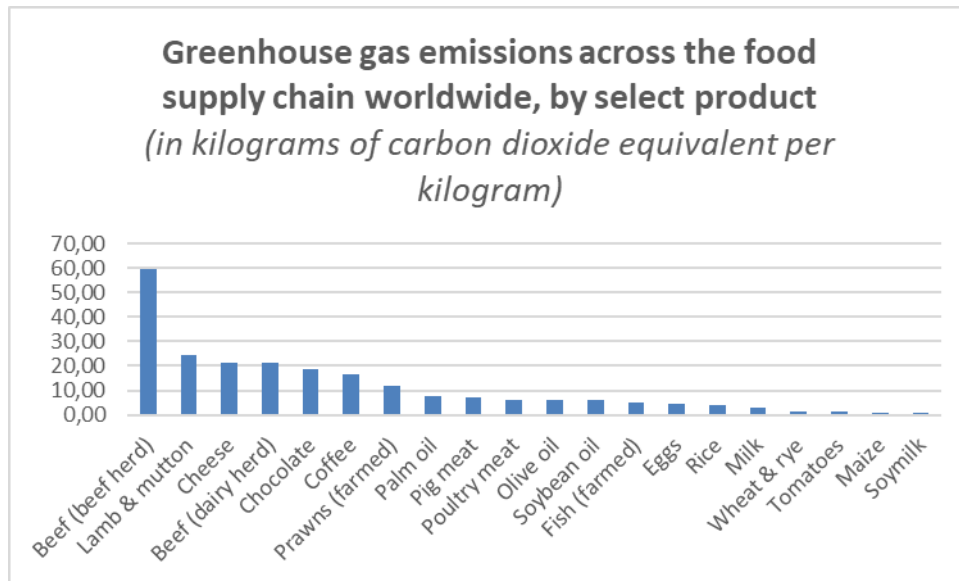


Figure 3. Greenhouse gas emissions worldwide across the food supply chain, by select products (Poore and Nemecek, 2018).

Figure 3 visually represents various food items' GHG emissions impact, underscoring the environmental consequences of dietary choices. It particularly illustrates how meat and dairy production emissions significantly exceed those from vegetables. As depicted in Figure 3, beef has the highest GHG emissions, exceeding 50 KG of CO₂e per KG. Hence, HKScan, a company in the meat industry, may have higher relative emissions than Fazer and Valio.

4 Methodology

The methodologies utilized to procure the requisite information and data for analyzing sustainability communication and comparing carbon footprints within the Finnish food industry encompass secondary data analysis, content analysis, and comparative analysis.

The primary method of information gathering is secondary data analysis. It involves evaluating existing industry reports, academic papers, and market research. The significant advantage of this approach is the wide availability of data (Boslaugh, 2007). The focus is on understanding companies and their sustainability efforts and how they are communicated to the public. This method

provides a broad overview of the existing knowledge and trends in the field, particularly in sustainability communication.

Content analysis is another significant method used in this research. It is a method to determine certain concepts' presence within data (Columbia University Irving Medical Center, 2024). It could include examining, for example, Finnish food companies' marketing materials, social media posts, and public relations campaigns. The objective is comprehending how these companies articulate their sustainability initiatives to their customers. This method offers valuable insights into these companies' strategies in sustainability communication. It allows for a deeper understanding of the narrative around sustainability within the Finnish food industry.

According to Pickvance (2001), comparative analysis is a tool for examining and contrasting data between multiple entities. In this thesis, the data and performance of the corporations within the Finnish food industry are compared. This technique is beneficial in detecting discrepancies in how these corporations convey their sustainability initiatives. It explains the correlation between a corporation's emissions and its communication of sustainability initiatives. More specifically, it enables comprehension of whether corporations with high emissions communicate less about their sustainability efforts or exhibit less transparency in the information they disclose to divert attention away from their increased emissions. This analysis contributes to uncovering the subtleties of sustainability communication and carbon footprints within the Finnish food industry.

Fazer, HKScan, and Valio are significant entities within the Finnish food industry. Therefore, it would be insightful to examine their relative performance and contrast this with the performance of large international food corporations. The primary objective is to identify potential variations between sectors within the food industry and evaluate Finnish companies' performance against global industry leaders. This analysis would yield insights into the ranking of the Finnish food industry on a global scale. The data could serve as a reference for

how these companies might enhance their performance within their respective sectors. Alternatively, these companies could exemplify sustainable operations within the industry.

The limitations and reliability of secondary data analysis are associated with the potential irrelevance of the information about the specific research objectives (Ross and Zaidi, 2019). Furthermore, content analysis may not accurately represent companies' approaches and values toward sustainability issues. Nevertheless, it offers a general perspective on the quantity of social media posts, which can be utilized to draw broad conclusions about the prevalence of social media communication of sustainability initiatives. On the other hand, comparative analysis does not consider the different sustainability strategies of companies. Despite this, it provides a general measure for companies regarding their emissions and net sales. These figures are employed to conclude the companies' environmental efficiency with the support of secondary data analysis.

The validity of the methodologies employed in this thesis relies on the accuracy of the data provided by Fazer, HKScan, and Valio in their annual reports. It also depends on the reliability of various information sources that provide insights into the theories and concepts used in this thesis. Ethical considerations have been addressed by applying appropriate referencing practices for source materials. Furthermore, the comparative analysis strives to objectively examine company performance, adopting a simplified perspective that compares carbon footprints with net sales.

Secondary data analysis, content analysis, and comparative analysis not only facilitate the collection of diverse information but also support the provision of valuable data for a comprehensive examination of the subject. Consequently, this enhances understanding of the subject matter and interpretation of the results. Ultimately, this prepares for drawing more informed conclusions based on the provided data.

5 Sustainability Comparison of Finnish Food Companies

This section presents a comparative analysis of three sizeable Finnish food companies - Fazer, HKScan, and Valio. The main aim is to analyze the correlation between their sustainability communications, commitments, and actual CO₂ emissions. Furthermore, this comparison will present their net sales figures and investigate their relationship with total emissions. The data utilized for this analysis is sourced from the companies' 2022 annual reports. The objective is to comprehend the differences among these companies, thereby providing valuable insights into their sustainability practices.

A critical aspect of this analysis is determining whether companies with higher emissions are making strides to counterbalance their environmental impact. This could be through initiatives to achieve net-zero emissions, downplaying current emission levels, or specific emission-intensive actions. Therefore, it is essential to identify the primary sources of CO₂ emissions within these companies, quantify them, and evaluate the measures they are implementing to reduce their CO₂ footprint.

Additionally, this section will explore how each company communicates its sustainability strategies and initiatives. The goal is to assess the extent of variability in total emissions and to identify any differences in how these corporations communicate their sustainability efforts. This analysis will provide a comprehensive understanding of their sustainability practices and environmental impact.

5.1 Fazer

The Fazer, a large player in the Finnish and Nordic food industry, comprises Fazer Confectionery, Fazer Bakeries, and Fazer Food Services. The company's primary offerings include confectionery and baked goods, and it has been progressively diversifying its product range to incorporate various plant-based foods. Fazer operates in eight countries and exports to over 40, demonstrating

its extensive global reach. The company employs approximately 6,000 individuals, further strengthening its presence in the food industry. In 2022, Fazer reported net sales of 1.1 billion EUR. The company's commitment to innovation is reflected in its allocation of 10.1 million EUR, equivalent to 1% of net sales, to Research and Development (R&D). Furthermore, Fazer invested 33.1 million EUR in marketing efforts, underscoring its dedication to growth and customer engagement (Fazer, 2022).

Fazer's offering comprises bakery, confectionery, biscuits, plant-based goods, and non-dairy products. Its products include confectionery brands such as Karl Fazer, Dumle, and Froosh smoothies (Fazer, 2024d). Grains and non-dairy products are not usually associated with high CO₂ emissions, which could indicate that Fazer has lower emissions than companies operating in the meat and dairy sectors, known for high emissions (Poore and Nemecek, 2018).

5.1.1 Communication

Fazer publishes annual reports with detailed insights into its sustainability performance, climate accountability, and other aspects of corporate responsibility. These documents encompass four critical areas of its responsibility program: Climate and Circularity, Sustainable Products and Innovations, Sustainable Sourcing, and People and Wellbeing (Fazer, 2024e).

A section on its website is dedicated to sustainability, providing information about its commitments and progress towards sustainability goals. One example is an article about its collaboration with UPM Specialty Papers to develop a new recyclable, plastic-free packaging. This innovation reduces plastic waste from bakeries by 1000 KG and has earned the companies the ScanStar 2023 packaging award, a competition for packaging industry operators in Finland, Sweden, Norway, and Denmark (Fazer, 2023).

Fazer is committed to maintaining high-quality and transparent communications in dialogue with its stakeholders. It employs the Global Reporting Initiative (GRI) Standards to facilitate comparisons of its sustainability performance with other

companies and organizations (Fazer, 2024e). Applying these standards in its reporting makes it easier for stakeholders to access the information (GRI, 2024), which may foster stakeholder trust.

Fazer has identified several of the United Nations' SDGs that align most closely with its work. These goals encompass a range of issues, including ending hunger, ensuring healthy lives, achieving gender equality, promoting economic growth, ensuring sustainable consumption and production patterns, combating climate change, conserving marine resources, and protecting terrestrial ecosystems (Fazer, 2024b). For example, to reduce food waste, Fazer donates surplus bread to charities (Fazer, 2022).

The content Fazer publishes on its social media accounts focuses mainly on promoting its new products and recipes (Fazer, 2024a). For example, its Instagram posts seldom contain information about the sustainability of its products. This could be a deliberate decision to limit the promotion of sustainability. One possible reason is that it prefers to focus on other promotional angles on its social media platforms, reserving the most strategically important information for its official websites.

5.1.2 Carbon Footprint

Fazer's annual report comprehensively details the various sources of its carbon emissions. The majority of its carbon footprint is attributed to three main scopes. Scope 1 emissions, primarily from the combustion of fuels for generating electricity, heat, or steam, amounted to 18,481 tCO₂e in 2022. Scope 2 emissions, mainly due to steam, totaled 20,683 tCO₂e. The most substantial were the scope three emissions, at 686,152 tCO₂e, with purchased goods and services, such as food raw materials and packaging, being the predominant contributors. In total, Fazer's emissions in 2022 were 725,316 tCO₂e. By providing this breakdown, Fazer offers a transparent view of its environmental impact (Fazer, 2022).

5.2 HKScan

HKScan is a large food company in Finland and the Nordic region, focusing primarily on meat products. However, the company is strategizing to diversify its food production to encompass a broader range of offerings. The company's portfolio includes brands such as HK, Kariniemen, Via, and Rose. Notably, Via and Rose cater to the vegetarian market. As of 2022, HKScan employed approximately 3,600 professionals and reported net sales of 1.8 billion EUR. The company allocated 5.3 million EUR, equivalent to 0.3% of its net sales, for R&D in the same year. Additionally, HKScan invested a total of 16.5 million EUR in advertising, marketing, and entertainment costs. (Report of the Board of Directors for the financial year 2022).

5.2.1 Communication

HKScan publishes annual reports, including a responsibility report, offering extensive details for its stakeholders about its sustainability performance and objectives.

A dedicated section on its website elucidates its sustainability plans, particularly emphasizing its ambition to achieve zero emissions by 2050. Its responsibility program encompasses emission goals, sustainable packaging, a pledge to enhance biodiversity within its food chain, and objectives related to internal stakeholders, such as safety and the continuous improvement of employee wellbeing (HKScan, 2024c).

HKScan plans to expand its product offerings in response to evolving consumer demands. Factors influencing this decision include shifts in consumer behavior, increasing sustainability requirements, and the transformation of sales channels (HKScan, 2022).

By 2030, HKScan will utilize 100% recyclable packaging and incorporate 80% renewable or recycled packaging materials. Currently, 73% of its packaging is

recyclable, and 59% comprises renewable or recycled materials (HKScan, 2022).

For its sustainability reporting, HKScan employs the GRI Standards, facilitating an easy comparison of its sustainability performance with that of other companies (HKScan, 2022). However, its annual responsibility report needs to differentiate between its scope 1 and 2 emissions, which hampers comparison with other companies and indicates a potential lack of transparency.

On its Instagram account, HKScan primarily promotes various meat products (HKScan, 2024b). There is a noticeable absence of content related to the sustainability of its products. This could be due to the high emissions associated with meat production (United Nations, 2024a) or a strategic decision to concentrate on promoting other aspects of its products on social media.

5.2.2 Carbon Footprint

Its annual report clearly states its ambition to achieve carbon-neutral production by 2025 and a carbon-neutral food chain by 2040. As a reference point for these goals, it discloses the emissions from its own production and the entire food chain for 2022. While it did not differentiate between its scope 1 and 2 emissions, it did report the total climate impact of its own production, which includes both scopes, as 34,900 tCO₂e. Considering the entire food chain, encompassing scopes 1-3, the climate impact rises dramatically to 2.22 MtCO₂e. As stated in the HKScan Annual Report, the most significant contributor to this figure is meat raw materials (HKScan, 2022).

5.3 Valio

Valio, the leading entity in the Finnish dairy ingredients market, is also Finland's most prominent food exporter, reaching approximately 50 countries. The company boasts over 300 patents across these nations. Valio's ownership structure is unique, with approximately 3,700 dairy farms through cooperatives holding the company's stakes. The company's primary objective is to yield the

highest possible returns for its owners. In 2022, Valio employed around 4,000 individuals and indirectly employed an additional 25,000 people through dairy farms. The company reported net sales of 2.2 billion EUR in the same year. Valio allocated 30 million EUR, equivalent to 1.3% of its net sales, towards R&D and quality control. Furthermore, the company invested a total of 50.5 million EUR in marketing expenses (Valio, 2022; Valio, 2024e).

Valio's offering mainly consists of dairy products but also includes a variety of plant-based options. Its brands include Valio butter, milk, and a plant-based brand called Oddlygood (Valio, 2024a). Dairy is often associated with higher CO₂ emissions (Poore and Nemecek, 2018), which may reflect its relative performance to other food companies.

5.3.1 Communication

Valio publishes a sustainability report and an annual report, offering comprehensive insights into its initiatives to enhance the well-being of people, animals, and the environment, demonstrating its corporate responsibility. These reports also serve as detailed records of its sustainability efforts, outlining its accomplishments, objectives, and developmental targets. Moreover, they use GRI standards in their sustainability reporting (Valio, 2022)

The sustainability report highlights its collaboration with ST1, known as Suomen Lantakaasu Oy, which develops hybrid production biogas plants. These biogas plants aim to produce 120 GWh of renewable liquefied biogas suitable for heavy traffic by 2026. In terms of energy, this is equivalent to 12 million liters of fossil diesel (Valio, 2022).

Valio communicates its commitment to social responsibility on its website, focusing on sustainable milk production. The site offers current information about the progress of its climate program, biodiversity initiatives, energy efficiency measures at its plants, and efforts towards human and animal welfare. Additionally, it articulates its goal of achieving carbon neutrality by 2035 (Valio, 2024b).

Valio ensures the safety and high quality of its products through responsible sourcing. It knows the origin of the raw materials it utilizes and requires its suppliers to adhere to its responsible practices (Valio, 2024b). Moreover, it promotes its packaging as sustainable, recyclable, and composed of recycled materials. For instance, its gabled milk, sour milk, cream, and yogurt cartons are manufactured from 100% recycled materials, including the cap (Valio, 2024c).

Valio's social media content consists of promotional articles, product showcases, and recipes (Valio, 2024d). Posts on platforms such as Instagram infrequently contain information about the sustainability of its products. This could be a deliberate strategy to limit the promotion of sustainability. One possible reason could be its preference to focus on other promotional aspects on its social media platforms, reserving the most strategically significant information for its official websites.

5.3.2 Carbon Footprint

Its Responsibility Report outlines critical focus areas for its future activities, which include climate, nature, and the environment. It has set ambitious goals, such as achieving a carbon-neutral milk value chain by 2035. For 2022, its total CO₂ emissions across all operations amounted to 2.48 MtCO₂e. Scope 1 emissions, primarily from heating, contributed 43,600 tCO₂e. Scope 2 emissions, mainly from electricity, were 59,000 tCO₂e. Scope 3 emissions were the highest at 2.38 MtCO₂e, with raw milk being the most significant contributor at 1.90 MtCO₂e (Valio, 2022).

6 Comparative Analysis

This section presents a comparative analysis of Fazer, HKScan, and Valio's sustainability communication. Comparing the results reveals their environmental efficiency and environmental responsibility, providing a clear picture of their commitment to sustainable practices. This analysis provides a relative

performance assessment of these companies. Moreover, the comparative study can serve as a resource for stakeholders interested in understanding the sustainability landscape within these companies and the industry as a whole.

6.1 Comparison of Communication

Each of the three companies publishes an annual review, providing a comprehensive overview of their operations, including their strategies, financial performance, and notable highlights. In addition, they each release an annual responsibility report outlining their sustainability objectives and ongoing efforts to foster a more sustainable future. These reports also detail the various contributors to their carbon footprint. For instance, Fazer's most significant emissions resulted from food raw materials and packaging procurement. HKScan's primary emissions source was the acquisition of meat raw materials, while Valio's was raw milk.

It is noteworthy that HKScan's annual and responsibility report did not adequately analyze its emissions sources. In particular, it failed to differentiate between scope 1 and 2 emissions. This omission led to a less comprehensive understanding of their environmental impact. It would be in HKScan's best interest to publish its annual information with as much transparency as possible. Marin and Lindgreen (2017) noted that stakeholders reward responsible companies. However, in certain instances, such as skepticism or companies claiming CSR, these companies may face more backlash when they act unethically. Therefore, transparency with stakeholders is crucial to avoid potential negative impacts. Nonetheless, HKScan's failure to specify its scope 1 and 2 emissions may not be sufficient to cause a significant impact on stakeholder attitudes and choices.

Each company also communicates its sustainability goals and promises on its websites, providing broad information about sustainability goals, current projects, and other aspects such as packaging materials. However, the visibility of sustainability communication on their social media accounts is not as

prominent. It could indicate that these companies prefer to focus on other promotional angles on their social media platforms, reserving the most strategically important information for their official websites.

All the companies under consideration incorporate CSR and sustainability into their strategic planning, recognizing their significance in operational activities. Fazer, for instance, emphasizes sustainable sourcing, thereby endorsing fair trade practices and enhancing the livelihoods of farmers in developing nations (Fazer, 2022). HKScan commits to ensuring workplace safety and implementing sustainable packaging solutions (HKScan, 2024c). Valio focuses on a broad spectrum of sustainability aspects, including animal welfare and sustainable sourcing (Valio, 2024b).

6.2 Comparison of Emissions

This section analyzes the GHG emissions of the Fazer, HKScan, and Valio. The objective is to evaluate their environmental efficiency and compare their performance with several large, global food companies. This comparison aims to ascertain their relative standing on a global scale. Figure 4 compares the Finnish companies' performance in 2022, contrasting their emissions with their net sales.

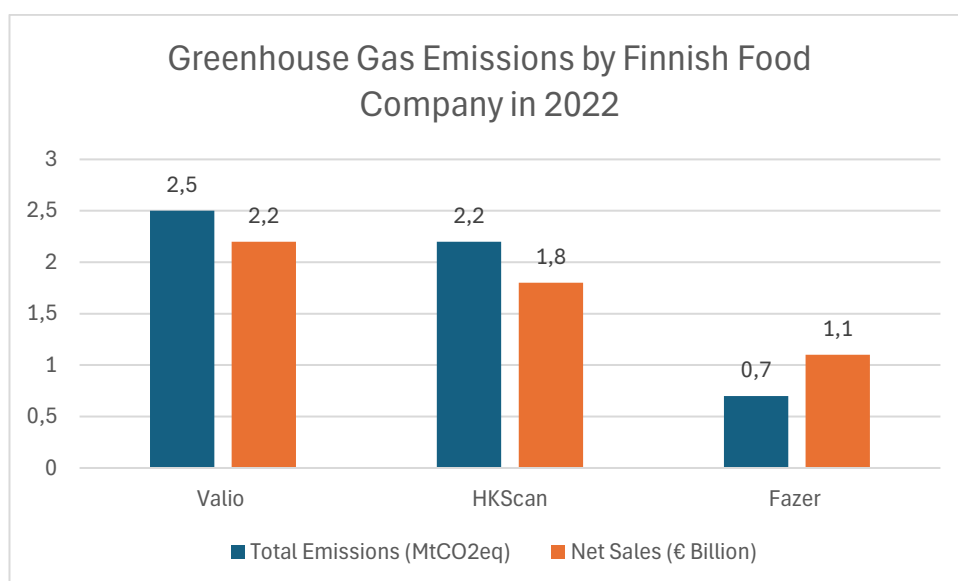


Figure 4. Comparison of greenhouse gas emissions and net sales by Finnish food company in 2022 (Fazer, 2022; HKScan, 2022; Valio, 2022).

Figure 4 illustrates each company's environmental impact in correlation with its net sales. In 2022, the total emissions for each corporation were as follows: Fazer emitted 725,316 tCO₂e, HKScan's emissions totaled 2.22 MtCO₂e, and Valio's CO₂ emissions across all operations amounted to 2.48 MtCO₂e. Regarding net sales, Fazer reported 1.1 billion EUR, HKScan reported 1.8 billion EUR, and Valio reported 2.2 billion EUR in 2022.

While Valio leads the market in net sales, it also bears the most significant carbon footprint. The results from Valio and HKScan are somewhat similar, which could be attributed to the comparable scale of their operations. Both companies are prominent players in the dairy and meat sectors, notorious for their high emission levels. It is primarily due to their association with ruminants, animals that release methane gas, a significant contributor to the carbon footprint (University of Oxford, 2022).

Another metric utilized to compare these companies is the emissions-to-sales ratio. This ratio signifies the amount of CO₂e generated per sale. For example, as illustrated in Figure 6, Valio emitted approximately 1.14 MtCO₂e for each EUR billion it generated. This ratio is a valuable tool for gauging the companies' environmental efficiency. Lower emissions per revenue indicate higher efficiency, implying that the company can generate a more considerable turnover with fewer emissions.

All three companies have undertaken efforts to publicize their sustainability performance and objectives. However, their carbon footprints and net sales exhibit significant variations. As demonstrated in Figure 6, Fazer has the lowest emissions-to-sales ratio among Finnish companies, with a ratio of approximately 0.64 MtCO₂e/EUR billion. It suggests that Fazer can generate more revenue while producing fewer emissions, indicating high environmental efficiency.

Furthermore, examining food companies' environmental impact can yield insightful comparisons between the emissions and net sales of Finnish food companies and international industry giants. This section examines the emissions profiles of Nestlé S.A., Mondelez International Inc., General Mills Inc., The Hershey Co., Tyson Foods, and Danone S.A. for 2022, as depicted in Figure 5. By contrasting their emissions figures with their respective net sales, it is possible to obtain valuable insights into these industry leaders' sustainability initiatives and economic performance.

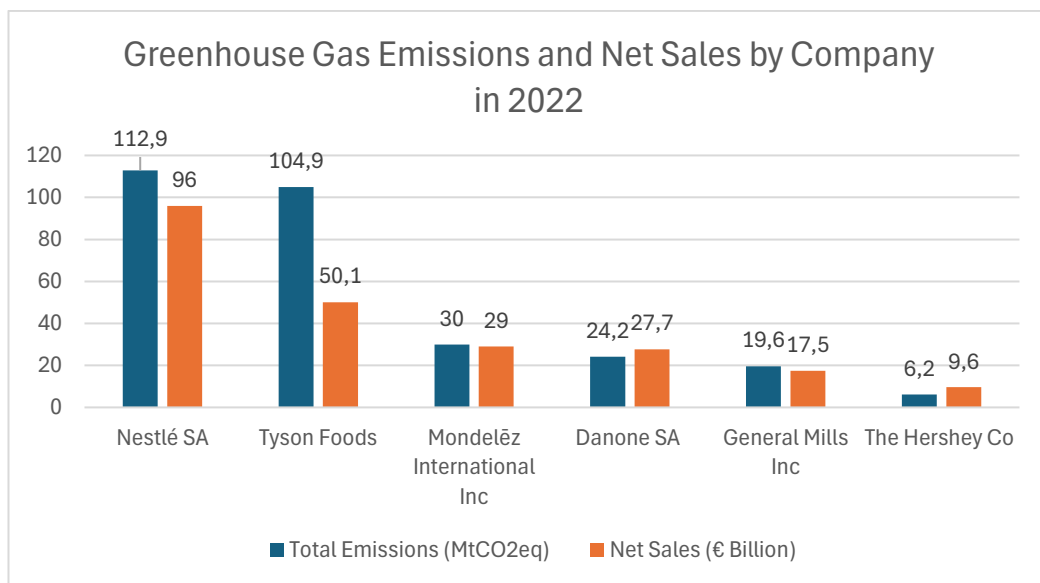


Figure 5. A comparison of total greenhouse gas emissions and net sales by a food company in 2022 (Danone, 2022; General Mills, 2022; General Mills, 2023; Hershey, 2022; Mondelez International, 2022a; Mondelez International, 2022b; Nestlé, 2022; Tyson Foods, 2022a).

Figure 5 illustrates the differences between the total emissions and net sales of Nestlé S.A., Tyson Foods, Mondelez International Inc., General Mills Inc., The Hershey Co., and Danone S.A..

Nestlé S.A. offers diverse products, including well-known brands such as KitKat and Nespresso (Nestlé, 2024). Tyson Foods is a major meat producer, accounting for 20% of the beef, pork, and chicken production in the United States (Tyson Foods, 2022b). Mondelez International Inc. also has a diverse product portfolio featuring brands such as Oreo, Milka, and L.U. (Mondelez

International, 2024). General Mills Inc. is recognized for its extensive brand portfolio, particularly cereal products (General Mills, 2024). The Hershey Co. is a renowned confectionery company (Hershey, 2024), while Danone S.A. offers a wide range of dairy products (Danone, 2024).

In 2022, Nestlé S.A. reported total emissions of 112.9 MtCO₂e and net sales amounting to CHF 94.42 billion, approximately equivalent to EUR 96.14 billion (Nestlé, 2022). As depicted in Figure 5, Nestlé S.A. has the highest GHG emissions at 112.9 MtCO₂e, significantly surpassing the other companies. However, it also boasts the highest net sales at EUR 96 billion, suggesting a correlation between the company's size (in terms of sales) and its carbon footprint.

The Hershey Co. reported total emissions of 6.19 MtCO₂e and net sales of USD 10.42 billion, approximately EUR 9.58 billion (Hershey, 2022). Despite having the lowest emissions at 6.2 MtCO₂e, which could be attributed to a smaller scale of operations, more efficient processes, or a greater focus on sustainability, its net sales are not the lowest among the companies. This indicates a relatively high emissions-to-sales ratio.

Tyson Foods reported total emissions of 104.93 MtCO₂e and net sales of USD 53.28 billion, approximately EUR 50.05 billion (Tyson Foods, 2022a). It indicates a low emissions-to-sales ratio due to its high emissions relative to its sales among the compared companies. The high emissions are likely due to the corporation's operations in the meat industry (Xu et al., 2021).

Mondelēz International Inc. reported total emissions of 29.93 MtCO₂e and net sales of USD 31.5 billion, approximately EUR 29 billion (Mondelēz International, 2022a; Mondelēz International, 2022b). Its GHG emissions and net sales are comparable to those of Danone S.A. (24.21 MtCO₂e total emissions and EUR 27.66 billion net sales) and General Mills Inc. (19.63 MtCO₂e total emissions and net sales of USD 18.99 billion, approximately EUR 17.48 billion) (Danone, 2022; General Mills, 2022; General Mills, 2023). These results suggest similar

scales of operations and possibly similar strategies for managing their carbon footprints.

While a general trend suggests that companies with higher net sales also have higher GHG emissions, Tyson Foods stands out as a significant anomaly, with notably higher emissions relative to its net sales, as depicted in Figure 6.

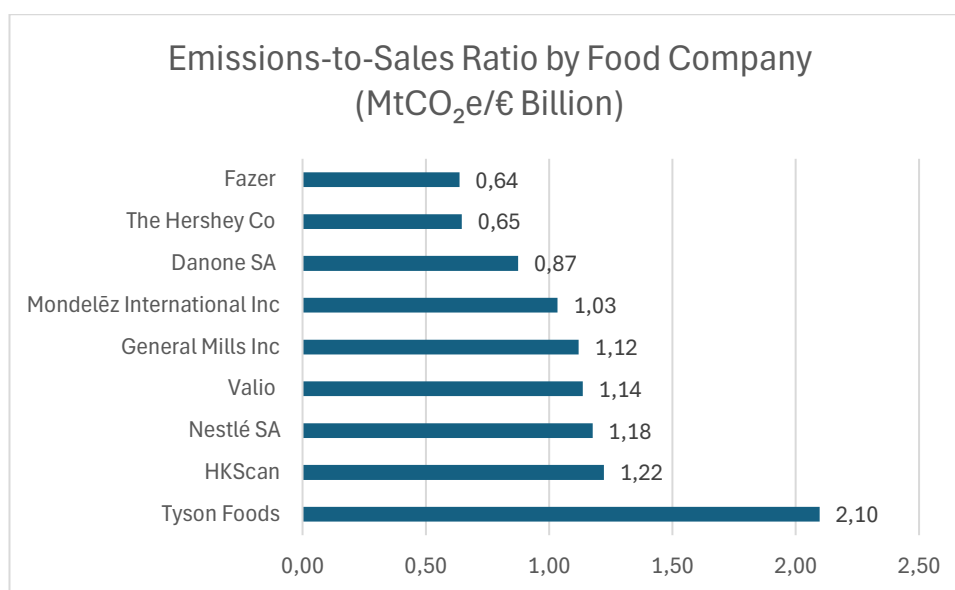


Figure 6. Emissions-to-sales ratio for food companies based on data from 2022 (Danone, 2022; Fazer, 2022; General Mills, 2022; General Mills, 2023; Hershey, 2022; HKScan, 2022; Mondelez International, 2022a; Mondelez International, 2022b; Nestlé, 2022; Tyson Foods, 2022a; Valio, 2022).

Nestlé S.A. exhibits the highest emissions but boasts the highest sales.

Conversely, Fazer demonstrates the lowest ratio of emissions to sales at 0.64 MtCO₂e per EUR billion, as illustrated in Figure 6, signifying it has the highest environmental efficiency among the compared companies.

Among the Finnish corporations, Fazer outperforms in comparison to the large global entities, as depicted in Figure 6. It performs slightly better than Hershey Co. at 0.65 MtCO₂e per EUR billion, a company concentrating on confectionery production. The excellent performance of Hershey Co. and Fazer could be attributed to the fact that neither company primarily operates in the meat or

dairy sectors, which are characterized by high emissions (Fazer, 2024c; Hershey, 2024; Poore and Nemecek, 2018).

However, HKScan has the second-lowest emissions-to-sales ratio among all the companies. Despite this, it performs significantly better than Tyson Foods, a company in the meat sector. The performance differences suggest that HKScan has superior environmental efficiency to Tyson Foods. From a global perspective, HKScan, a Finnish meat company, operates more efficiently, exhibiting fewer emissions relative to its sales.

7 Discussion and Recommendations

Reduced emissions do not necessarily lead to enhanced sustainability communication among companies. All the companies in question, namely Fazer, HKScan, and Valio, adhere to GRI standards for disclosing their sustainability efforts and have shared information about their respective sustainability strategies and plans (Fazer, 2024e; HKScan, 2022; Valio, 2022). Reasons for these companies' efficient communication of sustainability include the increasing consumer preference for responsible businesses and institutional regulations (Clutch, 2019; European Commission, 2024). However, it is worth noting that not all companies provide the same level of detail in their sustainability reports. For instance, HKScan's description of its CO₂e emissions was notably less detailed, mainly due to its failure to differentiate between its scope 1 and 2 emissions.

All the companies have integrated sustainability strategies into their business operations to reduce CO₂ emissions further. However, to maintain global warming below 2 degrees Celsius, global emissions must be restricted to 40 gigatons by 2030 (UNFCCC, 2015). Moreover, according to the Intended Nationally Determined Contributions (INDC), this goal seems unattainable. An INDC represents each participating country's planned efforts under the Paris Agreement to reduce GHG emissions (UNFCCC, 2024). With the current rate of progress, global emissions are projected to reach 55 gigatons by 2030

(UNFCCC, 2015). The current rate of progress indicates that companies need to limit their emissions further to align with the objective of achieving a carbon-neutral society by 2050.

Moreover, Finnish food companies have the potential to enhance their sustainability performance and competitiveness in the global market through various strategies. One such strategy is establishing a Finnish food research forum, as suggested by Sözer et al. (2021). This forum would serve as a platform for communication between research, government, and business actors, thereby influencing food system transformation through visibility in national and international forums.

In addition to the research forum, Sözer et al. (2021) propose initiating a governmental food network. This network would facilitate the coordinated communication of EU and Finnish policies, foster collaboration among Nordic countries for a typical food systems agenda, and initiate dialogues for a new funding mechanism. This mechanism would secure resources for addressing critical challenges in the Finnish food system.

Furthermore, Sözer et al. (2021) recommend the establishment of a network of business ecosystems. This network would aim to develop existing ecosystems into a nationally coordinated activity for generating innovations and new businesses. It would also organize match-making events and utilize these ecosystems to spark industry interest in new research topics, thereby fostering the growth of start-up companies.

Companies should also adopt a focus on genuine societal benefits rather than pursuing selfish motives. This approach fosters consumer trust and mitigates consumer skepticism (Frémeaux and Michelson, 2017; Forek and Grier, 2003). A recommended course of action for companies is to strive for greater sustainability. By doing so, they can significantly mitigate the adverse effects of global warming. For instance, it is imperative that companies attempt to reduce their carbon footprint as quickly as possible. This urgent action is necessary to

ensure that global warming remains below the critical threshold of 2 degrees Celsius (Lettenmeier et al. 2019).

Several avenues are available to companies for reducing their CO₂ emissions. Governmental measures, such as increased taxation on emissions and enforcement of limitations, can drive these efforts. Additionally, incentives such as tax cuts could be offered to companies that successfully lower their emissions. These strategies, combined with adopting sustainable technologies and practices, can significantly contribute to a company's environmental responsibility and overall sustainability goals.

Lastly, it is crucial for companies to inform consumers transparently and visibly about their CSR initiatives, including their sustainability goals and performance. It allows consumers to make more informed decisions (Toussaint et al., 2021). By doing so, companies can enhance their brand image and reputation, foster customer loyalty, and attract new customers. This transparency can also lead to a competitive advantage, as consumers are increasingly valuing and supporting companies that are socially and environmentally responsible (Reichheld, 2023). Additionally, responsible companies must avoid engaging in unethical activities to prevent consumer backlash (Marin and Lindgreen, 2017).

8 Conclusion

This thesis investigates the sustainability communication and carbon footprints of three major Finnish food companies: Fazer, HKScan, and Valio. It reveals some challenges the food industry encounters, including high carbon emissions and evolving consumption patterns. Furthermore, it investigates whether a correlation exists between lower carbon emissions and increased sustainability communication across various company channels, including websites and social media platforms.

The findings reveal no direct correlation between lower carbon emissions and increased sustainability communication. However, notable differences were

observed in how these companies communicated their sustainability efforts. For instance, HKScan did not distinguish between scope 1 and 2 emissions. Nevertheless, this omission cannot be conclusively linked to its high emissions-to-sales ratio due to insufficient supporting evidence. The analysis concluded that Finnish companies performed commendably compared to the global benchmark. Specifically, Fazer exhibited the lowest emissions-to-sales ratio among all the companies in the comparative analysis. Additionally, within the meat sector, HKScan significantly outperformed Tyson Foods.

The thesis also proposes recommendations for enhancing the Finnish food industry's sustainability performance and global competitiveness. These recommendations include establishing a network of business ecosystems, a governmental food network, and a Finnish food research forum. By implementing these recommendations and focusing on tangible societal benefits, Finnish food companies can enhance their brand image, foster customer loyalty, and attract new customers, all while contributing to a more sustainable future. Moreover, transparency in communication is essential to inform and educate consumers about company strategies and sustainability initiatives. Such an approach would strengthen consumer trust and enhance awareness.

Despite the inherent challenge of quantifying an abstract concept such as communication and transforming it into comparable data, this thesis has effectively examined the Finnish food industry's standing on a global scale by contrasting carbon emissions and net sales. It has comprehensively responded to the research question by comparing the emissions-to-sales ratio to the quality and transparency of sustainability communication. The application of the methodology was suitable and conducted with due consideration of the potential disadvantages of each research method. Overall, the examination provided unbiased information about the food industry and companies, enabling a relevant analysis and reliable conclusions.

Potential future studies could delve deeper into comparing companies' strategic outlooks on sustainability. It could involve comparing the emissions and scale of operations (e.g., net sales) and aligning those numbers with their sustainability plans. Furthermore, it is often easier for a company to be sustainable when it does not operate in a sector associated with high emissions. Therefore, future studies should consider sector-specific studies to provide a more accurate depiction of company performance.

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