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Sustainability and environmental management practices from consumer perspective

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ABSTRACT:

Sustainability is something that cannot be avoided nowadays and discussions around it can be fierce. Companies are implementing different types of environmental managements systems to improve the sustainability of their operations. Consumers are being informed by variety of sustainability information sources and the reliability of that information is not always as it seems. This thesis studies how consumers perceive those sustainability and environmental management practices that companies are doing. It is also helping to identify how sustainability influences consumer behavior and how consumers see the sustainability communication. This thesis is also aiming to explain how sustainability and environmental management practices are used. The aim of this research is to find out how consumer sees the sustainability and environmental management actions. Popularity of research around sustainability is increasing, but as the area of sustainability constantly changes, there is need for continuous research. Usually researches about sustainability have been about the environmental impacts of different aspects that have effect on sustainability.

This research is based on quantitative data that was received from the questionnaire, which was conducted by third-party company. There were 500 valid respondents for the questionnaire, which represent Finnish consumer base. The questionnaire was constructed around the theoretical framework from the literature review. Literature review includes three main parts, which are sustainability, environmental management and consumer behavior. In addition to the literature review, this study includes short introduction of the case company Eckes-Granini Finland Oy Ab and its sustainability and environmental practices. The questionnaire results were analyzed by descriptive statistic and statistical analysis, which includes Pearson Chi-Square test and two-tailed test of significance. Those statistical tests measure association between two different factors.

The results of this study identified consumer perceptions of sustainability and environmental management practices. The results revealed that those perceptions differ based on the gender, age and region of consumers. Results identified how sustainability affects the consumer behavior and how consumers experience the sustainability communication. Those are also differing based on gender, age and region of consumers. The findings from the literature illustrate that Finnish food industry companies are continuously working towards being more sustainable. Results of this study can be used to improve the knowledge of consumers about sustainability and environmental management. Based on the findings of this study, different types of sustainability information can be better directed to identified groups of consumers. These results are also helping companies to predict the effect of sustainability to consumer behavior.

KEYWORDS: sustainable development, environmental management, food industry, greenwashing and consumer behavior

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TIIVISTELMÄ:

Vastuullisuudesta on tullut asia, jolta ei voi välttyä nykypäivänä ja keskustelut sen ympärillä voivat olla usein kiihkeitäkin. Yritykset ottavat ja ovat ottaneet käyttöön erilaisia ympäristöjohtamisen järjestelmiä parantaakseen toimiensa vastuullisuutta. Kuluttajille tuotetaan vaihtelevalla kirjolla tietoa vastuullisuudesta erilaisista lähteistä, joiden luotettavuutta ei pystytä takamaan. Tämä tutkielma tutkii kuinka kuluttajat näkevät yrityksien vastuullisuuden ja ympäristöjohtamisen käytännöt. Tutkielma auttaa myös tunnistamaan miten vastuullisuus vaikuttaa kuluttajakäyttäytymiseen ja miten kuluttajat näkevät vastuullisuusviestinnän. Lisäksi tutkielma pyrkii selvittämään miten vastuullisuuden ja ympäristöjohtamisen keinoja käytetään. Tämän tutkimuksen tavoitteena on selvittää, kuinka kuluttajat käsittävät vastuullisen ja ympäristöjohtamisen käytännöt. Vastuullisuuteen liittyvien tutkimusten suosio tulee kasvamaan, ja koska vastuullisuus kehittyy jatkuvasti, uusille tutkimuksille on jatkuva tarve. Useimmiten vastuullisuustutkimukset liittyvät ympäristövaikutuksiin ja eri tekijöiden vaikutuksiin.

Tutkimus perustuu kvantitatiiviseen dataan, joka saatiin kolmannen osapuolen toteuttamasta kyselystä. Aineistoin koko oli 500 tutkimukseen sopivaa vastaajaa, jotka edustivat Suomen kuluttajia. Kysely tehtiin kirjallisuuskatsaukseen teoriaan perustuen, joka sisältää kolme pääteemaa: vastuullisuuden, ympäristöjohtamisen ja kuluttajakäyttäytymisen. Kirjallisuuskatsauksen lisäksi tutkimus sisältää lyhyen esittelyn case-yrityksestä Eckes-Granini Finland Oy Ab ja sen vastuullisuudesta ja ympäristöjohtamisen käytännöistä. Kyselyn tulokset analysoitiin tilastollisen kuvailun ja tilastollisen analyysin keinoja käyttäen, johon kuuluvat Khiin neliön –riippumattomuustesti ja kaksisuuntainen riippumattomuustesti. Kyseiset testit mittaavat kahden tekijän välistä tilastollista riippuvuutta.

Tutkimuksen tulokset tunnistavat kuluttajien käsityksiä yrityksien vastuullisuudesta ja ympäristöjohtamisen käytännöistä. Tulokset paljastavat, että kyseisiin käsityksiin vaikuttavat kuluttajien sukupuoli, ikä ja asuinalue. Tulokset tunnistavat kuinka vastuullisuus vaikuttaa kuluttajakäyttäytymiseen ja miten kuluttajat kokevat vastuullisuuteen liittyvän viestinnän. Kuluttajien sukupuoli, ikä ja asuinalue vaikuttavat myös näihin vastauksiin. Kirjallisuuskatsauksessa käytiin läpi lisäksi Suomen elintarviketeollisuuden yritysten jatkuvaa työtä vastuullisuuden parantamiseksi. Tutkimuksen tuloksia voidaan käyttää kuluttajien tietoisuuden lisäämiseen vastuullisuudesta ja ympäristöjohtamisesta. Perustuen tutkimuksessa esiin tulleisiin asioihin, erityyppiset vastuullisuudesta kertovat tiedot voidaan paremmin kohdentaa tunnistettuihin kohderyhmiin. Nämä tulokset auttavat yrityksiä myös ennustamaan vastuullisuuden vaikutusta kuluttajakäyttäytymiseen.

AVAINSANAT: kestävä kehitys, ympäristöjohtaminen, elintarviketeollisuus, viherpesu ja kuluttajakäyttäytyminen

Contents

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Abbreviations

BAT	Best available techniques
BREF	BAT Reference Documents
CE	Circular Economy
CP	Cleaner Production
CSR	Corporate Social Responsibility
EGF	Eckes-Granini Finland Oy Ab
EMAS	The Eco-Management and Audit Scheme
EMS	Environmental Management System
GWP	Global warming potential
IR	Information retrieval
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PDCA-cycle	Plan-Do-Check-Act –cycle
PET	Polyethylene terephthalate
SUP	Single use plastics
UN	United Nations

1   Introduction

This chapter consists of the background of the study, which includes how the subject of this study was selected and what was the motivation behind that. This chapter introduces research gap, questions and objectives. Definitions and limitations of this research are also discussed within this chapter. At the end of this chapter, the structure of this study is presented.

1.1   Background of the study

Sustainability cannot be avoided in today's business world. It is something that can be seen everywhere and discussions about the sustainability are topical day-to-day. Nowadays consumers are very aware of the sustainability and people value sustainability in their everyday life more and more. That has created a need for companies to start paying attention to sustainable and responsible way of doing business. Sustainability has become a factor, that has impact on companies' reputations (Curado & Mota, 2021). This is something that raises the importance for developing of sustainability inside the companies. There is also a lot of different regulations that companies need to follow to make their business activities more sustainable and environmentally responsible. For some companies sustainability is not just following the new regulations that they are required to follow. They want to lead the way when it comes to sustainability and responsible way of doing business. It means that every aspect of the business must be taken into consideration and optimized to be as sustainable and responsible as possible.

Some companies are trying to achieve competitive advantage by "greening" their business (Kuncoro & Suriani, 2018). Increasing interest towards sustainability has led to phenomenon called greenwashing, where people are misled to believe that the products or business itself are sustainable and responsible, while there are not really any verified facts that would support those claims. Due to greenwashing consumers might be unsure of their buying decisions and that is why the claims of sustainability and responsibility

needs to be verified properly (European Commission, 2021a). It is important to understand that sustainability is not just associated with the environment. Sustainability consists of factors that interact also with people and society. Naturally, that means there is much more things to consider, when it comes to achieving greater level of sustainability when running business. (Curado & Mota, 2021)

1.2 Research gap, questions and objectives

Research gap was found when the case company identified that there is need to study and find base for their claim and supposition, which is that they are the most sustainable and responsible juice manufacturer in the Finnish markets. The case company also wants to get the latest information on how consumers perceive the sustainability and environmental management practices that companies are utilizing in their businesses.

The objective of this thesis is to establish how sustainability and environmental management practices are used. The other objective is to figure what role sustainability has in consumer behavior. The last objective of this research is to find out how consumers view sustainability communication.

To achieve those research objectives, case study will be performed on a company within food and juice industry. The company and its current sustainability and environmental management practices will be evaluated and analyzed together with other company examples. Empirical survey will be performed to gather information about consumer perspective on sustainability and environmental management practices and consumer behavior. The survey will also gather information about consumers trust and preferences for the sustainability information.

The research question for this study is:
How consumers perceive the sustainability and environmental practices?

1.3 Definitions and limitations

The scope of this research is limited to food and juice industry companies in Finland since the case company operates in Finland. This study investigates the sustainability and environmental management practices in that particular industry. The focus of this research will be on how consumers see the actions many companies have taken with their environmental management. The literature is limited to consider the environmental activities of sustainability. It will leave out other aspects of sustainability, which are the economic and social impacts. The data collection phase is limited to consumers that are living in Finland and have consumed or bought juice products within the last three months.

To better understands the scope of this study, the keywords need to be defined briefly. The keywords for this study are the following: sustainable development, environmental management, food industry, greenwashing and consumer behavior.

Sustainable development means that present development should not compromise future generations' ability to meet their needs. It consists of three different dimensions, economic, social and environmental dimensions, which are all part of the sustainable development. Sustainable development underlines the fact about world's limited amount of resources. (United Nations, 2021a)

Environmental management means all the management actions that are associated with maintaining and improving the environmental resources, which are threatened and damaged by human activities. Environmental management tries to preserve, balance and maintain the ecosystem and natural resources. (Potrich et al., 2019)

Food industry is industry which consists of companies that produce food products and beverages (Hyrylä, 2019). Food industry is also vital for providing food for people.

Greenwashing can be defined as misleading of consumers about the real environmental effects of the product, service or company itself. Greenwashing can be classified as false advertising that leads to situation where the company and product are over positioned because of the false claims. That leaves companies that are doing correct efforts towards sustainability without the competitive advantage they should have got with their efforts. Greenwashing can be intentionally misleading or advertising without proper piece of evidence that would properly support the claims of being green. (European Commission, 2021; Sun & Zhang, 2019)

Last definition, consumer behavior, includes all the research that is done of groups, individuals and organizations about how they choose products and services. Consumer behavior research also weights in experiences and innovations that might satisfy the requirements of the consumer. (Zhao et al., 2021)

1.4   Structure of the study

This study will start with an introduction chapter where the background of the study is discussed. Within the introductory chapter the subject and aim of this study are presented, followed by defining the limitations of this study. The second chapter will cover the literature review, which consist of three theoretical frameworks and the summary of the literature in the end of the second chapter. These three theoretical frameworks consist of sustainability, environmental management and consumer behavior. All these frameworks will be covered carefully within the limitations of this study. The third chapter presents the research methodology and how the research and data collection are conducted in this study. It justifies why these methods were chosen and how the process of data collection is carried out. This chapter also evaluates and argues the validity and reliability of data that is used in this research. This is followed by fourth chapter, which presents the results of the data that was collected during the data collection phase. In this chapter the collected data is analyzed. This chapter reveals how consumers currently see different aspects of sustainability and environmental management. It also describes

what sustainability and environmental management means to consumers and its impact on their behavior. Finally, this thesis will discuss the conclusions and results that were made from this research. The research results are evaluated and the needs for future research are suggested in this chapter. This last chapter also summarizes the findings of this research.

2 Literature review

This literature review part of thesis will cover three main theoretical frameworks of this master's thesis. Those three frameworks are sustainability, environmental management and consumer behavior. Each framework will be covered thoroughly within the limitations that has been set for this thesis project. Each framework will be also defined and explained by the literature. The goal for this literature review is to get good understanding of the main theoretical frameworks of this thesis work. The literature review will be summarized briefly at the end of this part.

2.1 Sustainability

It is important to define sustainability properly before it is possible to gain deeper knowledge in the area of sustainability. The idea of sustainability comes initially from forest management, where it means that the amount of harvesting should not exceed the amount of new growth. Sustainability can be defined as operations that are used for economic growth, which are done in a way that makes no harm for the environment. Sustainability also means that natural resources are not handled poorly when trying to achieve economic growth. Basic idea of sustainability is that the organizations need to understand that their actions have an effect to the environment and actors in that area. Current sustainability actions should be aimed in a way that future needs are not at risk. The target for the sustainability actions is to obtain welfare and well-being, minimizing harm for the environment and shortages of ecosystems. The need for sustainability actions has risen from increasing world population, standards of living and ongoing exploitation of raw materials and natural resources. Due to rapidly increasing trend of globalization and increased competition within the markets has led to businesses to concentrate more on ethical procedures and long-term goals. Sustainability is something that should be considered in very long term, even as an endless time period. (Curado & Mota, 2021; Kuhlman & Farrington, 2010).

Many businesses have aligned their operations with the business environment so that there is a balance. That aligning procedure of business operations is called sustainable business strategy. Those sustainability strategies need to be done by companies in order to retain competitive advantage. Companies that have major focus on sustainability can have much greater competitive advantage. Companies have based their sustainability strategies to standard called Triple Bottom Line. The Triple Bottom Line has existed for many decades but only recently it has caught attention due to increasing trend of sustainability. That standard is based on three P's, which are people, planet and profits. Those three aspects concentrate on economic, social and environmental perspectives of sustainability. Social factor is about the people that the company has impact on. The economic factor is about company's financial aspect, like company's profit and revenue numbers. The third, environmental factor, has focus on environment, which considers company's impact on natural resources and the protection of the company's environment. These three different sections, economic, social and environmental, include some things that are considered and measured from the sustainability perspective. Economic side includes cost, quality, life cycle and time. Social side includes health & safety, working conditions and employee satisfaction. Lastly, environmental sector observes energy and material consumption, emissions, usage of water and the amount of waste. For this master's thesis work, the main focus will be on the environmental side of sustainability. That means that social and economic sections cannot be covered thoroughly within this work. (Bastas, 2021; Curado & Mota, 2021)
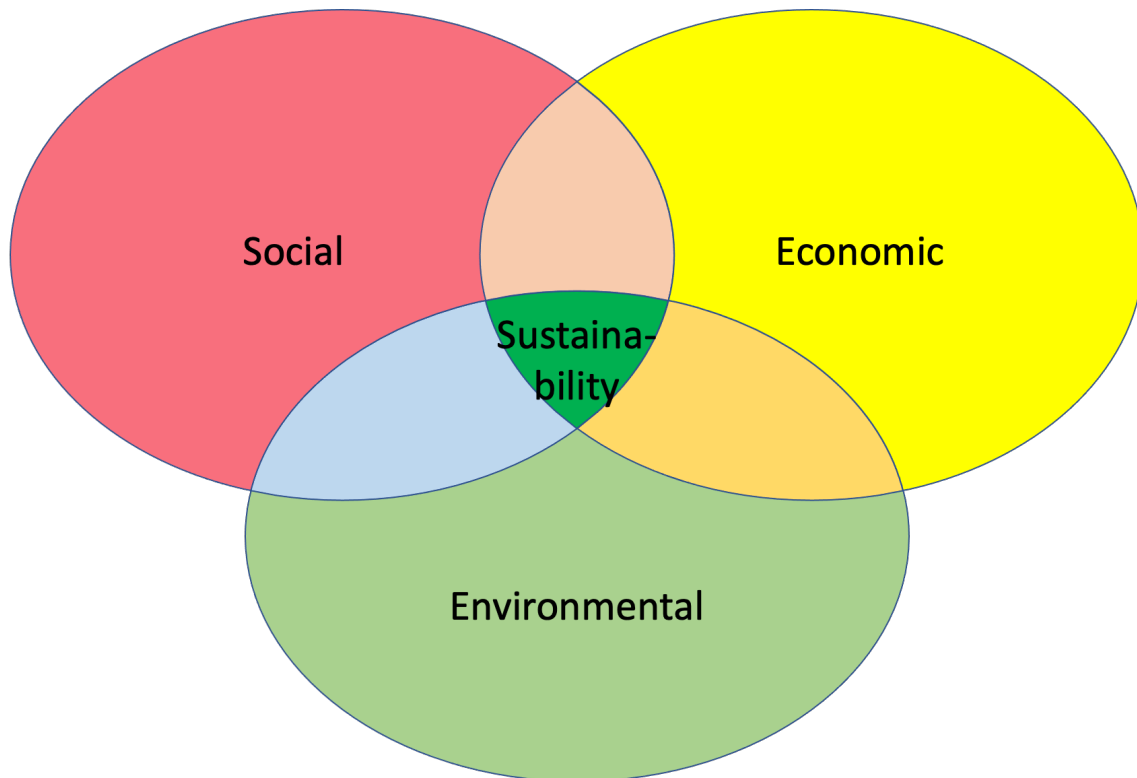
Figure 1 The three spheres of sustainability (Andrady & Andrady, 2015; Rodriguez et al., 2002)

Figure 1 describes how sustainability is formed from three different areas, environmental, social and economic. Environmental side includes better and efficient use of resources, both material and energy resources. It includes also reuse of resources, proper handling of used materials, designing to be reusable and minimizing of any pollution or hazards to environment. In the environmental side it is important to try to retain the biodiversity. Social side includes things such as developing the community, helping with education and career training, following all human rights and giving workers proper wage. It is also important to respect the rights of the workers, giving them safe working environment, to follow ethical guidelines and be fair and respect each other. Economic area of the sustainability consists of being profitable in the long term, having competitive advantage and having well performing processes. Creativity and innovations are very important within the economic area of the sustainability. Economic part consists also of expansions that are done globally, having multinational cooperation and being attractive investment opportunity to others. There are three areas pictured in Figure 1, which are

colored as light blue (environmental and social), light red (social and economic) and light orange (economic and environmental). Those areas consist of the crossing points that are linked between two areas. Light blue consists of environmental and social areas, and it includes for example different environmental laws, involving the public and all the reporting that is done about the environment. Light red, which is social and economic areas, consists for example of having fair taxes, being ethical while doing business and respecting worker's rights and monitoring. Lastly, light orange that considers environmental and economic areas, considers for example of being energy efficient, different kinds of supporting mechanisms and carbon credit system. (Andrady & Andrady, 2015; Rodriguez et al., 2002)

The German term, Nachhaltigkeit, for sustainability was introduced in 1713 for the first time. At the time it meant that forests should not be harvested more than they produce new growth. After that there have been beliefs and concerns for preserving and maintaining of the nature and natural resources and it was in 1972, when the prediction about limitedness of natural resources was brought up. After that the term Sustainable Development was first introduced by the World Commission on Environment and Development in 1987. Sustainable development consists of three dimensions which are environmental, economic and social. Those three dimensions include the quality of economic growth, well-being of people and the environment. When trying to achieve sustainable development it is important to understand the fact that the world has limited resources. That also means a need to maintain and respect natural capital, which consist of both non-renewable and renewable natural resources that are limited and have a strengthening effect on human welfare and development. United Nations (UN) have set 17 goals for the sustainable development. Those goals are set with global challenges in mind. UN aims to achieve each goal by 2030. Global challenges include poverty, inequality, climate change, environmental degradation, peace and justice. (Govindan, 2018; Kuhlman & Farrington, 2010; United Nations, 2021)

Picture 1 Environmentally related United Nations Sustainable Development Goals (United Nations, 2021b)

This master's thesis focuses on the environmental side of the sustainability so for this thesis it is important to consider Sustainable Development Goals that are associated with the environment. Environmentally related UN Sustainable Development Goals are: Clean Water and Sanitation, Affordable and Clean Energy, Industry, Innovation and Infrastructure, Sustainable Cities and Communities, Responsible Consumption and Production, Climate Action, Life Below Water and Life on Land. Clean Water and Sanitation means that water should not be wasted, since there are shortages of clean water. Any pollution to the water systems should be avoided. Affordable and Clean Energy means that sustainable and renewable energy sources should be utilized widely, because energy production is causing approximately 60 percent of all greenhouse gases. Industry, Innovation and Infrastructure goal works towards more efficient use of resources by introducing new technologies. This goal is also providing more sustainable infrastructure for wider areas. Sustainable Cities and Communities is working towards more sustainable and safe living conditions. Sustainability of cities can be improved by more efficient waste collection, water and sanitation systems and making more sustainable roads and transporting options. Responsible Consumption and Production is about making consumption and production more responsible so that harm for the environment and use of resources could be minimized by recycling and reusing. Climate Action goal fights against climate change

by trying to decrease the amount of greenhouse gases. Life Below Water and Life on Land are about carefully managing land and water and not causing any harm to them. (United Nations, 2021)

Many companies have implemented sustainability practices that they are required to have to provide information and transparency about their actions within the area of sustainability. Some companies have adopted more sustainability practices, which are voluntary and go past companies own interest of sustainability. That is called Corporate Social Responsibility (CSR). By including CSR in company's strategy, many have gained more profits from the positive effects that CSR has generated for the company. There is also pressure to take sustainability actions from the legislation and consumers. That has led to situation where companies need to make their internal and external operations more environmentally friendly and company's ability to do so acts as a critical success factor. (Curado & Mota, 2021)

One way to approach sustainability is model of Circular Economy (CE). Concept of circular economy has been developed due to earlier trend of massive use of resources. Circular economy was developed to change that habit into much more environmentally friendly way of using resources. Lahti et. al. (2018) writes that CE has three principles that start with R, reduce, reuse and recycle. This means that companies should adopt those principles into use and base their operations and business on reusing, recycling or repairing materials and products. The main idea is to have closed material loops, which means continuous reusage of materials. Reuse and remanufacturing are considered to be more preferred than recycling because of the economic value that has been added to the original parts. Because of that, circular economy as a business model is laid out to create and capture the value while optimizing the use of resources. The most famous model of CE is 4R framework, which includes reduce, reuse, recycle and recover. 4R framework adds recover to Lahti et.al. (2018) definition, which was explained earlier. Recover means that if materials cannot be utilized anywhere else, those should end up in energy production. Figure 2, which is located below, graphically illustrates the 4R framework and how it

works. Konietzko et. al (2020) defined that CE includes five different strategies, which include narrow, slow, close, regenerate and inform. Narrow means that companies should use less material and energy. Slow refers to using of products and components longer and close is for using materials again. Regenerate stands for not using any toxic materials or methods and using of energy from renewable sources. Lastly, inform refers to using of information technology for trying to achieve circularity. All these actions work towards minimizing environmental effects. (Kirchherr et al., 2017; Konietzko et al., 2020; Lahti et al., 2018)
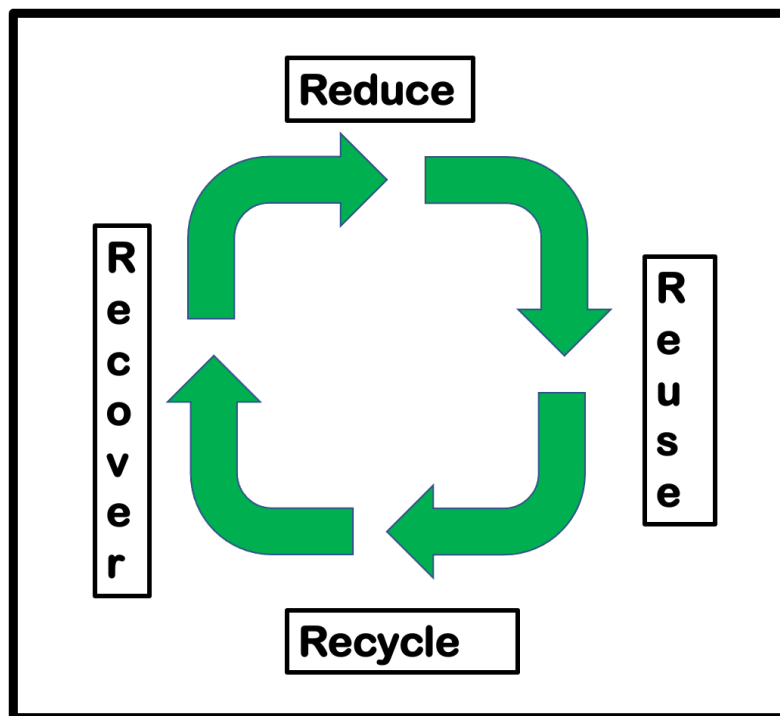
Figure 2 4R Framework (Kirchherr et al., 2017)

Sustainability can act as a competitive advantage for companies that want to seek for higher profits. That is not always the case for companies that already have a competitive advantage with their existing product or service. This creates a situation where company might not be motivated to pursue competitive advantage again by sifting to sustainable offering. Sustainable competitive advantage is something that others cannot copy or it costs very much to create something similar. Literature has suggested recently that

business owners are willing to seek competitive advantage with sustainability if they can get profits that are good enough for them. There are different ways to achieve the sustainable competitive advantage. One approach is to manage resources and generated waste for more sustainable direction by the use of circular economy. This can lead to decrease in expenses of the business and smaller environmental impact. Sustainable competitive advantage can be achieved by use of sustainable practices. That can be for example use of environmentally friendly materials or production methods, which creates more value for consumers. In some cases there might be need for completely new business model so that the competitive advantage can be achieved. Other factors that might lead to sustainability and competitive advantage include: new design, team that strives for sustainability, continuous observation of market developments, pressure from the customers and ability to think strategically. Very important factor is the willingness to change, because that might be major factor that is interfering efforts towards sustainability. Different kinds of product innovations work also towards sustainable competitive advantage. Market driving, which is known as company's capabilities to create, move and educate people with the product that they are offering, is supported by product innovations. That is why market brings positive impact on the sustainable competitive advantage. (Kahupi et al., 2021; Kuncoro & Suriani, 2018)

2.1.1 Sustainable Sourcing and Purchasing

Nowadays, using sustainable purchasing practices has become a way for minimizing damage for the businesses from economic, operational or reputational damage. It can be said that usage of sustainable purchasing is not all about sustainability, but it is also reducing of risks in general. Research has shown that there is clearly a connection between sustainability and risk that are associated with brand and image of the business. Sustainable purchasing is also important thing when considering the supply chains performance measures; quality, reliability and flexibility. Especially in global markets selecting right supplier can be critical factor and it could lead to possible losses for the company. Sustainable purchasing can be defined as consideration of environmental, social, ethical and economic issues when managing company's external resources in a way that

produced value for the company itself and also to the society and economy (Miemczyk et al., 2012). Sustainable purchasing practices can be defined to be activities that help businesses to achieve goals that they have set in a way that is sustainable and profitable for the company, but still taking environmental, social and economic sustainability into consideration (Hallikas et al., 2020). Hallikas et al. (2020) stated that sustainable sourcing and purchasing increase the visibility of the supply chains. The requirements for process and product quality have also increased due to development of sustainable sourcing and purchasing operations. Sustainable sourcing and purchasing have reached a point where new suppliers are researched from new locations worldwide. This is done in both raw material and end product supplier selection, so that customer's required goals for cost, quality, speed and flexibility can be met in the best possible way. Businesses face some pressure for being more sustainable due to different regulations but some sustainability actions are taken from businesses' own desire. Companies are responsible for both their own sustainability actions and actions that are done by the partnership companies. That has led to situation, where sustainability has to be implemented to the entire supply chain, into the sourcing as well. Companies need to consider not only the economic factor, but environmental and social factors as well. There are two motivating factors for sustainable sourcing. First is that companies are responsible for the actions of their suppliers which has impact on environmental and social aspects. The other motivating factor is that suppliers contribute more to the value creation than in the past. Sustainable purchasing practices are also a factor that affects company's reputation and brand image positively or negatively, depending on how company has handled those practices. As the overall sustainability includes the suppliers of a company, it is important to implement and improve sustainability of the entire supply chain of the company to prevent complications and risks for happening. (Ambekar et al., 2019; Hallikas et al., 2020)

There are several ways for achieving sustainable sourcing. The processes include for example: specification definition, supplier assessment systems, supplier management processes, contracting and licensing. Sustainable buying strategies, communication processes, trust and culture, code of conduct, buying sustainable products, stakeholder

cooperation and life cycle assessment (LCA) can be also used when trying to achieve sustainable sourcing. When trying to achieve sustainable sourcing, companies use variety of different methods. Probably the most common method is usage of supplier relationship management. It means closely working collaboration between the buying company and the supplier. Companies work together for example on selecting manufactured product, processes that will be used, changes that need to be made current systems and selecting the objectives and goals that are made. Supplier collaboration includes supplier development, supplier involvement, supplier certification, training and education provided for suppliers and development of products and processes. Different methods for achieving sustainable sourcing also include monitoring, auditing and support of suppliers, cooperating with other companies, reducing of supplier's risk and evaluating of purchasing departments performance. Some companies are looking for collaboration with other companies that share same sustainability actions and targets. It is important that those companies share similar sustainability criteria. That is one of the most used practices of sustainable purchasing. Another more used method for sustainable purchasing is using of code of conduct. Code of conduct means company's own standard that are used for management of sustainability and all the actions in that field. Code of conduct usually applies to suppliers of the company, which means that they have to meet the requirements that are set by the company. Many companies also use different type of certification and standardization systems, which happens to be significant and widely used tool for identifying supplier's sustainability by a third-party auditing. The most used certification and standardization system for environmental management is ISO 14001, which will be covered later in this thesis. Some companies might use some of these methods for achieving of sustainability within sourcing: local sourcing, lean supply, e-purchasing, batch sizing, multi-sourcing, global sourcing and buy back contract. (Ambekar et al., 2019; Hallikas et al., 2020)

When sustainable sourcing and purchasing are utilized, there are variety of different certifications and labels associated with raw and packaging materials. Each country has also some own national certification and labels that are being used alongside international

certification and labels. In the recent decades, the amount of third-party sustainability certifications has grown exponentially. There have been some concerns regarding the amount of sustainability certifications, due to overload of information, confused consumers and mistrust towards certificates. This raises the need for critical observation of different certifications, because unfortunately there are cases of greenwashing, in which the label is misleading consumer to believe that there is real environmental benefits. However, trustworthy sustainability certificates reduce the possibility of greenwashing, because of the verification by third-party. The sustainability certifications have two important purposes, certification itself proves the following of certain standards that the certificate requires and other is to communicate the information that the certification includes. Using sustainability certification ensures that the best practices are used. Usage of sustainability certification improves company's reputation, loyalty of customers and relief in regulatory. Companies can also have higher prices for products and their market shares can grow. Sustainability certification might lead to better performance of a company. Use of sustainability certification harmonizes the requirements of sourcing and helps to achieve economies of scale in production. Those benefits will be obtained by companies who engage in certification. That means third-party verification and monitoring of company's operations and processes. (Chkanikova & Sroufe, 2021; Delmas & Gergaud, 2021)

2.1.2 Sustainable Packaging and Production

Sustainability has become very important factor in production and more and more companies are developing their businesses to fit better with sustainability targets. Sustainable production can be divided into three parts: choosing the right measures for sustainability of production, identifying the areas that are not sustainable and lastly the changes that are done in order to increase sustainability of the manufacturing process. Basically sustainable production is a lot about developing resource minimizing solutions that are also safer for lower price than the alternative options. It is also about reducing waste and consumption of resources. It can be said that the main focuses of sustainable production are execution of environmentally friendly practices and saving energy and

natural resources. That can be listed to three vital parts of sustainable production: identifying all the critical indicators of sustainability, having an assessment method to recognize weak areas and the third is to make adjustments so that sustainability of manufacturing could be improved. Sustainable manufacturing requires good communication between different parties that are participating into the manufacturing process. (Hashim et al., 2021)

Sustainable production has some principles that are important when trying to achieve more sustainable production. There are nine different principles that concern for example resource use, product and waste management. The first principle is about designing products, services and packaging safe and ecological through their entire life cycle. The second principle tells that all waste and unsuitable materials that come from the production should be reduced, eliminated or recycled. The third principle tells to cut back energy and material usage and that it is very important to select sustainable form of materials and energy. The fourth principle instructs that all the hazardous substances and materials should be eliminated so any harm for the human health or environment could be avoided. The fifth principle tells that workplaces and technologies should be made in a way that minimizes chemical, ergonomic and physical hazards. The sixth principle is about management being committed to process of making company more sustainable and management should use continuous evaluation and improvement methods and have focus on the long-term achievements. The seventh principle concerns the employees to be allowed to be more efficient and creative. The principle number eight underlines the wellbeing of employees and constantly improving their skillset. The ninth and last principle of sustainable production focuses on communities around workplaces. Companies should have respect towards those communities and they can support them in many ways. (Alayón et al., 2017) For this thesis, principles from one to four are the most interesting, since this work has focus on the environmental side of the sustainability.

Sustainable manufacturing practices have been researched more and more as the years have gone by. Previous studies have been mostly about environmental practices,

sustainability's impact on company performance and sustainability practices across different countries and sectors. Earlier studies have shown the fact that recycling, waste reduction, remanufacturing, design for the environment and monitoring of the market's environmental problems are sustainability practices that have the biggest influence on organization's performance. For the bigger companies, the most usual environmental sustainability habits are environmental design, using of renewable energy sources, optimization of energy and material usage, recycling, waste minimization, product life cycle and management of that life cycle. Sustainable manufacturing practices are usually defined from an environmental point of view, which means that companies are aiming to minimize the impact of manufacturing on the environment and they are also trying to optimize the efficiency of company itself. Sustainable manufacturing practices can be also seen as actions, initiatives and techniques that have positive effect on company performance on environmental, social and economic level. Naturally, there are some challenges concerning the implementation of sustainable manufacturing practices. For example, lack of knowledge is major obstacle for achieving sustainability targets. The cost of implementing sustainability practices acts also as a barrier for sustainable manufacturing. When switching to sustainable production, it requires a lot of training and development for the company and employees. It also takes time to change existing culture and habits within the company and society. Company size, for both small and bigger organizations, is also causing move towards sustainable manufacturing. (Alayón et al., 2017; Hashim et al., 2021)

Circular economy strategies can help to achieve goal for sustainable production. Earlier introduced strategies included five elements: narrow, slow, close, regenerate and inform. Narrow means using less. It starts from the designing, where there should be multiple functions for the product. Less material should be used and production waste should be minimized. Narrow includes also allowing and encouraging of consumers to start using less. Supply should be optimized to as local as possible, but still making sure that it remains appropriate. Slow stands for using longer. That also starts right from the design, which should concentrate on durability, quality, attachment and trust. Naturally the

design should be for longer life and it should be designed to be repaired and maintained. Remanufacturing should be made possible from existing products and components. Slow includes extending of warranty and offering the product as service. Close means using again. Design is also part of this element, where the product should be designed for easy disassembly and some recycled materials could be designed into the product. Some components and materials could be used again or those can be sold instead of ending up as waste. Product returns should be allowed and some encouraging actions could be taken to support that. An excellent example of product returns is deposit system in PET-bottles, cans and other form of packaging. Rate of recycling is high in Nordic countries and especially high in Finland. According to Palpa (2020) in year 2020 94 % of cans, 92 % of PET-bottles and 87 % of glass bottles were recycled in Finland. Recycling of those packages is extremely important since they can be used to produce new packaging or products. For example if aluminum can, which is made from recycled material needs only 5 % of the energy that would have been the total energy consumption if the can was made from non-recycled raw materials (Palpa, 2020). Last part of slow element is engaging with the other companies which can result to increase of using again. Fourth element, regenerate stands for making clean and it is also a lot about design. Design should utilize available renewable and non-harmful materials. Products could be designed to operate with renewable energy sources. Production phase of the products should be done by using of renewable energy. Last element, inform is about using data. Traceability of products should be encouraged and supported. Product and material data can be harvested during the usage-phase and then used for creation of stronger circular design. Lastly, all the products, components and materials that support the idea of circularity should be marketed on various online platforms for raised awareness. (Konietzko et al., 2020; Kristensen et al., 2021; Palpa, 2020)

Cleaner production (CP) is a concept that was designed around the principles of pollution prevention. Basic idea of cleaner production includes using of cleaner technologies, prevention of any pollution and waste, using of low-and non-waste technologies and minimizing the amount of produced waste. The concept of CP is defined to be preventive

form of environmental protection and for businesses that are aiming to minimize the amount emissions and waste, while still aiming to maximize production levels. The concept of cleaner production is considered to be preventive method that tries to manage environmental effects that are caused from business products and processes. Cleaner production is aiming to optimize the use of resources and energy by adopting different technological changes, resources, processes or practices that can decrease environmental risk, waste and health-related risks. When considering economic side of cleaner production, it can increase the company's competitiveness and profits, while increasing the efficiency of production. Cleaner production techniques can be used in production processes, products or services. Those techniques include for example changing of materials, technology, practices within operation of business, design of the product, using of waste, packaging and maintenance. By implementing and using of cleaner production methods, it is possible for the companies and organizations to enhance their performance on both environmental and operational side, while naturally that should lead to improvement on financial performance as well. For this thesis, improvement on environmental performance is the most interesting one and it will be now explained more deeply. It has been seen that companies have become more competitive, since the amount of innovation capacity has been higher, and the usage of continuous improvement culture has started. That has led to higher level of sustainability in both environmental and social aspects. Some studies have identified that use of CP can reduce the use of raw materials and formation of carbon dioxide emissions that come from processing of raw materials. It has also been identified that recycling rate has increased, while naturally decreasing the amount of waste and environmental impacts. (Maama et al., 2021)

European Parliament and of the Council have released directive 2010/75/EU in 2010, which sets rules for preventing and controlling of pollution that comes from activities done by different industries. The main goal is the overall protection of the environment. That is done by preventing or reducing of emissions into air, water or land and by avoiding generation of any unnecessary waste. This can be achieved by the use of Best Available Techniques (BAT). BAT can be defined as the most efficient and advanced techniques

that are best for preventing or minimizing emissions and environmental impacts. Best available techniques are both economically and technically feasible. Those techniques also include the technology and how the whole installation is designed, built, maintained, operated and decommissioned. The European Commission is organizing the information that comes from exchange between the industry and public authorities on best available techniques. That exchange of information is then published as BAT Reference documents (BREFs) and BAT conclusions, which oblige the Member states of European Union. Installations that are covered by this directive have to generate BAT statement. Some companies have done BAT statement voluntarily. The European Commission has produced BREFs for different industries and each industry follows their own conclusions of best available techniques. (European Commission, 2010)

Clearly, one very important factor of sustainable production is that the packaging process and package itself are sustainable. It has become a growing trend to start using sustainable packaging solutions. The main function of packaging is to protect the contents from any influences and damages that it might go through. The packaging should protect the content and maintain safety and quality during transport, distribution and storage. The packaging should minimize food loss and waste. Packaging has also one very important role since it acts as source of information and as a tool that persuades consumers to buy the product. When considering those things, it is clearly very important to select right design and material that work best for that particular case. The most common packaging materials include glass, metal, paper, cardboard and different plastics. When selecting right material for the occasion, there is need for evaluation of sustainability of packaging. There is some fairly simple measures that are utilized for this: Climate change/Global warming potential (GWP), Recycling rate, Reuse rate and biological degradation/decomposition and lifetime. It is also important to consider both direct and indirect impacts that each packaging material causes to the environment. (Otto et al., 2021)

Laws and regulations have an influence on how companies do their production and packaging. A good example of that is SUP (single use plastics) -directive, which was taken into

use in Finland. SUP-directive banned all directive covered single use plastic products from hitting the market starting from August 2021. Single use plastics include products that are not meant for reuse without compromising some of the features. When identifying single use plastic products, it is important to consider how consumers feel about the reusability of product and if they are using the product in reusable manner. (Tukes, 2021) For instance, when this directive was taken into use, all plastic straws were banned and companies have replaced them with straws that are made from paper.

2.1.3 Greenwashing

In many cases, increased inputs to sustainability can lead to competitive advantage over companies that are not implementing any sustainability actions. Some companies even pursue sustainability just in hope of increased profits. Competitive advantage can be defined to be gaining of value within the market. Increasing trend of sustainability has led to situation where some companies falsely advertise their product as sustainable without certainty of the claim. This is done by not verifying any information that is provided for the customers and potential buyers. The term greenwashing was introduced in 1986 because of all the false claims about environmental protection that were made by companies. Companies are greenwashing because they want to set good and responsible image to the public, but they are not prepared or willing to take any or enough actions that would make them green. It can be very difficult for consumers to identify whether product or service is green or not. There are huge variety of different environmental labels, which makes it also difficult to recognize the reliable ones. (European Commission, 2021; Sun & Zhang, 2019)

There are mainly two types of greenwashing, first can be considered as deception and other as intentional secrecy. Deception can be considered in situation where company provides products or services that are claiming to be green. Intentional secrecy is situation where companies are not producing any green products but they are trying to hide that fact. For the consumers, greenwashing is very harmful because it creates skepticism and negativity. Negativity can be seen as lower green brand equity and purchasing

intensions. Companies might face difficulties with their credibility and performance because of greenwashing. The market value of the company that does greenwashing might decrease. Because of companies that do greenwashing, it might affect truly green companies and they might lose their competitive advantage, which they have got from being green with real proof and actions. For society, greenwashing creates negative effect on public engagement with environment and environmental issues. Therefore, greenwashing is affecting customers, companies and society, which means that actions against greenwashing need to be taken. (Sun & Zhang, 2019)

European Union has started actions against greenwashing in their 2020 Circular Economy action plan. That includes proposal of companies starting to use Product and Organization Environmental Footprint methods. The idea of that would simply be that claims of environmental performance of company could be reliable, comparable and verifiable all around European Union. This strategy aims to allow more greener decisions to be made by the consumers, companies and investors, because of the more reliable information that could be provided. The new action plan includes for example the following aims such as making the sustainable products the norm in the EU, giving motivation to buyers and consumers, focusing mostly on the most resource consuming sectors that would benefit from circularity and making sure the amount of waste can be minimized. Circularity can also offer new form of employment for many people and the EU can be the leader for increasing circularity actions globally. Action plan is working towards cleaner and more competitive Europe. All these actions work towards making Europe climate neutral and stop the loss of biodiversity by 2050. (European Commission, 2021; European Commission, 2021b)

2.1.4 Sustainability practices in Finnish food industry

Sustainability is nowadays present continuously in Finnish food industry. There is also a lot of regulations that are aimed for companies that operate in food industry. Some companies are doing voluntary improvements on their sustainability in addition to required minimum. For example at this moment, there is no unified source of information, which

would show the current level of decarbonization. That is why it is not easy to evaluate the overall decarbonization level of whole Finnish food industry. Food industry generates both direct and indirect emissions. Direct emissions come from energy production and food production. Indirect emissions, on the other hand, come from logistics and packaging materials. Food waste from consumers also generates emissions. Finnish food industry companies have developed some methods that make their existing operations more sustainable. Those companies have measured their efficiency of energy usage, which might get better by implementing heat recovery and cutting down the use of energy. Several companies have also started to use energy production methods that are producing less carbon dioxide. Those technologies include for example bio steam plants and use of biogas. (Paloneva & Takamäki, 2021)

Paloneva and Takamäki (2021) state in their report that Finnish food industry has adapted best sustainability practices and technologies widely. Report suggest that is due to Finland's national legislation, financing and incentive systems and high level of technology. Responsibility and sustainability have been seen as competitive advantages in Finland for a while and that has also been a factor when many companies have started to put more sustainable technologies into practice. Statutory requirements of conformity have created good base for smaller companies to implement sustainable technologies in general. Usage of energy and materials efficient solutions are widely in use in Finland and particularly in large food industry companies. (Paloneva & Takamäki, 2021)

There has been variety of different sustainability goals set for Finnish food industry. Those goals have been set by different authorities, which include European Union, Finnish Government, Business Finland, Sitra and Finnish Food Authority. First target is to halve the food waste by 2030 and this is set by EU and then agreed in Finland. The next target is to have carbon-neutral Finland by 2035 and Finnish food industry is also taking part to this target set by Finnish Government. Finnish Government has also set a target for producing 16 % less greenhouse gas emissions compared to levels in 2005. Business Finland has set target on doubling the value of Finnish food exports by 2025 to 3 billion

euros. Sitra has set a target for decreasing the carbon footprint of a person from 2,5 (tCO2e) in 2030, to 1,4 by 2040 and to 0,7 by 2050. The last target is set by Finnish Food Authority, and it includes new and more healthy dietary requirements. Those requirements include for example eating more vegetables, fruits and berries and less salt, saturated fats, added sugar, red and processed meat. (Sözer et al., 2021)

To get good understanding of the sustainability practices in Finnish food industry in general, there needs to be evaluation done based on sustainability reports of large Finnish companies that operate in food industry. For the general analysis I chose four companies, the case company Eckes-Granini Finland Oy Ab, Valio Oy, Atria Suomi Oy, and Snellman Oy Ab. The analysis was done based on the information those companies shared on their websites. Each company had the information about sustainability clearly on their website, so the availability of the information is good. All four companies shared mostly the same type of sustainability goals, but both Valio and EGF had their sustainability strategy put into circle, which offered clear visual presentation of their sustainability compared to Snellman and Atria. Every company shared the target for more sustainable packaging and environmental protection to minimize the impact for the environment. Valio, Atria and Snellman have well-being of animals in their sustainability program as they use animal-based products. Every company have social responsibility clearly stated in their sustainability goals in different forms. EGF and Valio have health and nutritionally beneficial products listed in their sustainability program. One noticeable thing in every company's sustainability program is the using of proper raw materials. This means that the sourcing of raw materials is done in transparent and sustainable way. Atria and Snellman are for example using only Finnish meat in their products. To summarize the overall sustainability practices of large Finnish food industry companies, it is clearly prominent that each company shared some same goals and aims, but the presentation of sustainability differs. EGF and Valio have more visually appealing and informative presentation of their sustainability practices than the other two companies. (Atria, 2021; Eckes-Granini Finland, 2021c; Snellman, 2021; Valio, 2021)

2.2 Environmental management

Earlier companies may have done only the minimum environmental management actions so that the mandatory levels of environmental performance are matched. For many years some companies have taken an approach which considers environmental issues in much greater manner. Some companies have done much more than the required minimum and by that they might have achieved competitive advantage. For some time, the best environmental management practices have been standardized so that it makes it easier for larger number of organizations to adopt those practices. Increasing amount of environmental awareness has led to situation where almost every company needs to consider environmental questions in their operations. It seems that for many companies, doing more than is required, might be a way for seeking competitive advantage. (Potrich et al., 2019)

Environmental management includes the management actions of environmental threats. Environmental risks include many sides, which ranges from control of the pollution to more foreseeable measures and practices that are usually technology related. In other words, environmental management works towards reducing of costs and pollution, by management of raw materials, decreasing or eliminating all the contamination, improving the efficiency of operations, recycling and reusing, and by doing self-adjustments to operation of the company. By taking those actions companies can be more environmentally sustainable and produce more environmentally friendly products or services. It is also important that companies adopt environmental factors as a part of their decision-making criteria and company culture. Company level activities can be approached from three different views, which are: organizational, operational and communicational. Organizational view illustrates change in company's environmental actions and policies that also allocates environmental responsibilities within the company. Operational view is about the changes made to production and operations of the company and this perspective is therefore related to products or processes. Lastly, the communicational view goes over the company's border and it includes the communication of environmental actions taken to people around the company. The main point of communicational view

is to create trustworthy relationship between the company and stakeholders. (Potrich et al., 2019)

2.2.1 Environmental Management Systems

Environmental management systems (EMS) are urging companies for doing more than the requirements are for the environment. EMS is also urging companies to achieve continuous improvement of their environmental performance by implementation of PDCA (plan-do-check-act) cycle on their operations and processes. The PDCA cycle can be seen below in Figure 3, which gives presentation on how the cycle works. One reason for implementation of EMS can be creation of better image of the company in the eyes of others. EMS can also be used for simply making the operations of the company simpler and more effective. EMS is helping companies to identify, manage, monitor and control all their environmental issues and actions. (ISO, 2015; Johnstone & Hallberg, 2020; Kristensen et al., 2021)
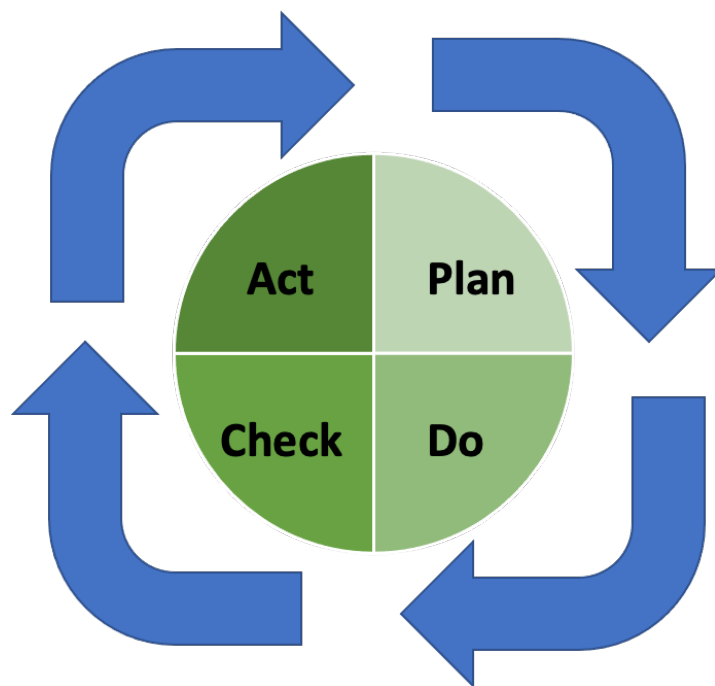
Figure 3 PDCA-cycle (Kristensen et al., 2021)

The most common environmental management standard is ISO 14000 family of standards. ISO stands for the International Organization for Standardization, which is organization based in Geneva, Switzerland. ISO 14000 family of standards is for companies and organizations who want to manage their environmental responsibilities. First version of ISO 14001 was released in 1996, but it has been updated in 2004 and later in 2015. The standard was updated so that it meets the latest trends, it is in line with other management system standards and it remains relevant. Updated standard responds to increasing need for factoring both internal and external factors that have influence on environment. ISO 14001 is the only auditable standard of ISO 14000 family and all different sizes of companies and organizations can use those standards. ISO 14001 standard defines the criteria for an environmental management system, which can be then certified. That standard is used as a framework, which can be followed to create an effective EMS. ISO 14001 standard defines all the resources, processes and practices that are used to achieve all the requirements and goals of environmental preservation and protection. Using ISO 14001 standard assures that environmental impact of a company is measured and improved. ISO 14001 standard includes all the requirements and guidance for environmental management systems. If company wants to start implementation of ISO 14001 standard, it needs to consider every possible environmental issue that might be relevant to its operations. Things that should be considered include air pollution, water and sewage issues, management of waste, contamination of soil, mitigating and adapting to climate change and efficiency in operations and in the use of resources. ISO 14001 is used to improve companies' environmental performance and it creates a need for continuous improvement of companies' environmental systems and actions. That can be achieved by more efficient resource usage and reduction of waste creation. Companies can also achieve competitive advantage and the trust of stakeholders from the use of ISO 14001 standardization. (ISO, 2015; ISO, 2021a; Neves et al., 2017)

Users of ISO 14001 have identified that standard creates some benefits for companies. ISO 14001 helps companies to implement an internal EMS, which is used in hope of improving both environmental and economic performance of the company. Reasons for

adopting this standard are both internal and external. Internal factors include for example cost efficiency, welfare of the employees and goals and agenda of the management. Employee engagement and involvement in leaderships are increasing. Internal factors can also include personal reasons, commitment to environment, and individual values and style of management. External factors can include meeting of customer requirements, international trade, environmental laws and pressure from the outside. Environmental laws include also Environmental Protection Act, which has several different purposes. Environmental Protection Act is trying to prevent any risks and pollution to environment and minimize the damage that pollution causes to the environment. The act works toward providing healthy, safe, sustainable and diverse environment, which also supports sustainable development and fights against climate change. The act supports the responsible use of natural resources and minimizing of waste and the harms that are caused by created waste. The Environmental Protection Act works towards more effective use of different assessments and consideration of environmental impacts and pollution. The final purpose of Environmental Protection Act is to provide better chances for people to participate to decision making process for situation that concern environment. Companies can benefit from the use of ISO 14001, when their reputation is improving from the use of standard. Companies can also increase their suppliers' environmental performance, when they integrate suppliers into their environmental management system. (ISO, 2015; Johnstone & Hallberg, 2020; Ministry of the Environment, 2019)

ISO 14001 standard is audited and certified by a third-party organization to avoid conflicts of interests. That is why ISO does not perform any certifications itself. During audition, company practices opposed to requirements of the ISO 14001 standard are inspected. Certification can be seen as a sign for others, like buyers, customers, suppliers and other stakeholders, that the standards are used in a correct way. For some organizations certification can act as a requirement for contracts that they need to fulfil. (ISO, 2015)

2.2.2 Environmental Management practices in Finnish food industry

Popularity for using of environmental management tools and standards have increased at even rate. The amount of ISO 14001 certificates were 470 in 1999, which then has raised to 1122 in 2010. In year 2017 the number of ISO 14001 certificates were 1480, which shows the increase from the numbers at the turn of the century. Latest information is from the year 2020, when there were 1549 ISO 14001 certificates overall in Finland. Globally the number of ISO 14001 certificates increased by two percent from the year 2018 to 2020, which shows the ongoing trend for use of this environmental certificate. When considering Finnish food industry and how widely the ISO 14001 standard is used, same data reveals some increasing numbers within the sector of food products, beverage and tobacco. That sector includes the food industry. In year 2010 the number of ISO 14001 certificates were 6. In 2015 the number of certificates were 27, which shows real increase. In the year 2020 the number of ISO 14001 certificates were 39, which has increased from 2015. Based on those amounts of certification, it has clearly been growing trend in Finnish food industry to get the company certified to ISO 14001 standard. The number of standards is limited because companies need real ambition to work towards achieving and maintaining those requirements that are set in the standard. (ISO, 2021b; SFS ry, 2020)

2.3 Consumer behavior

Significance of consumer behavior lies in understanding of customer preferences and buying behavior, which are utilized by the advertisers. Consumer behavior analyses focuses on how consumer preferences are influenced by different factors. Resulting from the analysis, market gaps can be identified and then filled up. Analysis can also identify suitable or out-of-date products. Basic idea of consumer behavior is that it studies different groups, individuals and organizations. Consumer behavior studies all the processes they use to choose products, services, experiences or innovations, so that all of their requirements are met. Consumer behavior also studies how all things that are done

affect consumers and society. Consumer behavior tries to analyze decision making process of buyer, in both individual and group levels. Researched variables include family, friends, groups of reference and society in general. There is also grouping between consumer, payer and buyer. (Zhao et al., 2021)

Consumer behavior can be influenced by different activities and things. Consumer behavior has become very important part of fighting against climate change, because people needs to adapt to different kinds of environmentally friendly products and solutions. Consumer behavior can be analyzed by using SHIFT framework. SHIFT comes from five psychological factors: social influence, habit, individual self, feelings and cognition and tangibility. It has been researched that social influence, feelings and cognition and individual self are the strongest factors that have an effect on change towards environmentally friendly behavior. Social influence is about different expectations, attitudes and actions of other people, which usually have an effect on how people behave. Social influence sources include family, organizations, social media influencers and other people. Habit is known as automated behavior that is fairly uncontrollable, but very easy to execute. Individual self means the fact that many people are willing to keep positive image of themselves. Feelings and cognition can be divided in two parts. Feelings means that all the different emotions have an effect on consumer behavior. Both positive and negative emotions can have significant effect on how consumers behave. Cognition is about trusting to consumer's cognitive system. It is important that consumers have enough information that can be trusted. Lastly, tangibility is about making outcomes of different actions clearer and tangible. (Habib et al., 2021)

One question raises when sustainability and consumer behavior are considered together. Companies want to know if consumers are willing to pay more for products and services that are categorized as sustainable. There is also discrepancy as what categorizes as green product or service. Consumers view what is sustainable and what is not. Other consumers might then decide that the same product is not sustainable in their opinion. Consumers perspective on whether the product is green or not, is determined mostly

from consumer's motivation towards environmental concerns and ability to understand environmental subjects. Environmental concern part includes consumer's attitude and motivation towards environmental preservation actions. Ability means consumer's capabilities to understand issues within the environment and environmentally friendly products. Ability also means consumer's overall understanding of sustainability related issues. Both factors have an effect on how the consumer behaves and makes decisions. When determining whether the consumers are willing to pay more for sustainable products, those factors can help to assess that situation. The study done by Wei et al. (2018) indicates that the consumers who have higher understanding of sustainability and environment, will be more likely to pay more for sustainable products. Study shows that consumers who feel negative about sustainability will not likely pay more for sustainable products. This is supported by fairly new research by Francis & Sarangi (Francis & Sarangi, 2022), which presented that women have greater environmental consciousness and awareness of different environmental consequences. According to this study, giving more information and knowledge to people that are less aware of sustainability and environmental issues, does not give them feeling that their actions matter when trying to solve environmental problems. On the other hand, more understanding consumers feel that their actions will matter and make a difference on environmental issues. However, those consumer's actions are coming from concerns on environment itself. (Wei et al., 2018)

Consumer behavior on sustainable products and services can be shifted to be more positive towards them. Changing consumer behavior is not very easy. Engagement can be increased by creating more involvement already in designing and delivery stages, and that can lead to more positive attitude towards sustainable products. For the consumers who have negative feelings about environmental preservation, their actions should be supported to make them co-creators of the product. Also, when consumer does not have greater knowledge of sustainability, actions should be towards making consumer feel more competent and efficient about sustainable products. There can also be used

actions where consumer gets the feeling about getting more value from the sustainable product. (Wei et al., 2018)

2.4   Summary of the literature review

To summarize the literature review, there were a lot of interesting articles and theories in the subject area of sustainability, environmental management and consumer behavior. The following theory from the literature are highlighted from the entire literature review, which includes much deeper information about the subject this thesis has dealt with.

Sustainability comes originally from the forest management, where it meant that harvesting should not exceed the amount of new growth. Sustainability is about operating in a way that leaves future generations same opportunities and resources as we have had. Sustainability takes into account three important factors, environmental, economic and social, which each have important role in the sustainability. There are different approaches to sustainability. Circular economy aims for continuous reusage of materials. CE includes 4R framework, where the R letters stand for reduce, reuse, recycle and recover. Sustainability can be also a competitive advantage for companies, which can be obtained by the use of sustainable practices, product innovations, willingness to chance and other factors like new designs, customer pressure and strategic thinking. (Andrady & Andrady, 2015; Curado & Mota, 2021; Kahupi et al., 2021; Kirchherr et al., 2017; Kuhlman & Farrington, 2010; Kuncoro & Suriani, 2018; Rodriguez et al., 2002)

Sustainable sourcing works at minimizing risk and damages for the business. Sustainable sourcing is also important when supply chain performance is measured. Sustainable sourcing and purchasing takes into consideration environmental, social and economic sustainability, while still trying to achieve goals that have been set. It is extremely important to implement sustainable sourcing and purchasing to the entire supply chain of the company to maximize the value creation and minimize the chances of risks and complications for happening. Sustainable sourcing and purchasing can be supported by the

use of different certifications that have been verified by a third-party. (Ambekar et al., 2019; Chkanikova & Sroufe, 2021; Delmas & Gergaud, 2021; Hallikas et al., 2020; Miemczyk et al., 2012)

Sustainable production includes choosing of right measures for sustainability in production, identifying the areas that need sustainability improvements and the changes that are done in order to improve the level of sustainability in the production. Basic idea of sustainable production is to develop resource minimizing solutions, which are also safer and lower priced than the alternative options. Three vital parts of sustainable production include the identification of all critical signs of sustainability, using of some assessment method to recognize the weak areas within production and the last part is to make chances to manufacturing to improve the sustainability. It is important to consider things within the use of resources, product and waste management. Sustainability in production can be achieved by the use of different approaches like Circular economy, Cleaner production and BAT. Cleaner production aims to prevent the pollution that occurs during production. BAT means usage of best available techniques for preventing or minimizing environmental impacts, which are both economically and technically feasible. The fact that the packaging is also being sustainable is very important, but the packaging should still handle its main function to protect the contents from any influences and damages that it might go through. From the sustainability perspective it is important that the packaging tries to minimize the amount of packaging materials and waste. (Alayón et al., 2017; European Commission, 2010; Hashim et al., 2021; Maama et al., 2021; Otto et al., 2021)

Greenwashing can be considered as an everyday occurrence nowadays. Greenwashing is making of false claims about the sustainability and environmental protections without any real verified information. Companies either do greenwashing as a deception or as intentional secrecy. Deception means that products are claiming to be green and intentional secrecy is situation where company is trying to hide the fact that they are not producing any green products. Greenwashing creates a lot of negativity, skepticism and

confusion around the credibility of sustainability information and consumers. (Sun & Zhang, 2019)

Environmental management manages environmental threats and risks that range from pollution control to other measures and practices that are usually technology related. Environmental management is working to reduce costs and pollution by management of raw materials, decreasing or eliminating all the contamination, increasing the efficiency of operations, recycling and reusing and by doing adjustments to company's operations. Environmental management systems encourage companies to do more than the required minimum is. EMS helps companies to identify, manage, monitor and control all their environmental issues and actions. EMS is urging companies to achieve continuous improvement to their environmental performance by implementation of PDCA cycle in their operations and processes. The most common environmental management standard is ISO 14001. (ISO, 2015; Kristensen et al., 2021; Potrich et al., 2019)

Consumer behavior studies different groups, individuals and organizations. Analyses focus on how consumer preferences are influenced by different factors. Consumer behavior tries to understand customer preferences and buying behavior. Consumer behavior can be analyzed by the use SHIFT framework, which includes five psychological factors: social influence, habit, individual self, feelings and cognition and tangibility. Researches have shown that social influence, feelings and cognition and individual self are the strongest factors that have an effect on sustainable behavior. Study done by Wei, et al. (2018) indicates that consumers who have higher understanding of sustainability and environment are more like to pay more for sustainable products than consumers who feel negative about sustainability and environmental issues. (Habib et al., 2021; Wei et al., 2018; Zhao et al., 2021)

3 Methodology

Research methodology is defined as systematic way for solving the research problem that has been set. Research methods can be seen as a part of research methodology, which means all the methods that are used in that particular research to get the results. (Kothari, 2004)

This chapter includes explanation on how research problem was decided to be approached. It also includes description of how the data was collected for this study and how it was analyzed. This chapter justifies the reasons why this research was performed with chosen methods and what was the target of the data collection by using of these methods that were chosen for this study.

3.1 Research strategy

This study is conducted to solve the research problem that was set earlier in this thesis. When trying to find solution for research problem, mainly quantitative data was used. Qualitative methods were minor part of this research as there was two open questions within the questionnaire, where respondents could give their own answers. Quantitative research method was used because this research wanted to target wider group of people. Therefore, it would not have been reasonable to use qualitative research methods as the main source of information for this research. By the use of quantitative research method it was possible to gain an audience which would represent Finnish consumer base in a reasonable way, which was possible given the limited time and resources that were available for the data collection phase of this research project. Together with the case company, we decided that around 500 valid respondents would represent Finnish consumer base. The aim of this research was to get an overview on how consumers see sustainability in general and sustainability and environmental practices that have been put into operation by companies. This research targeted to get insight especially on juice industry companies and how consumers see their actions within the field of sustainability, since

the case company operates within that industry. It is important to notice that this research focuses on Finland, but in theory this research can be done in other countries as well.

The survey results will be first evaluated with methods of descriptive statistics, by looking into answer frequencies. Results are also described by different tables and graphs. Method of crosstabulation is used to see whether there are some interesting findings between different factors. Findings within crosstabulation are presented in tabular form and by highlighting values that stand out. Statistical testing is done by using of Pearson Chi-Square test and two-tailed test of significance to see if there is statistical association between the two analyzed factors. Pearson's Chi-Square test compares the difference between the observed and expected values in different cells of crosstabulation. Test requires that the data is simple and random, sample sizes for each cell are adequate so that the expected cell counts are sufficient and lastly that the data is independent. It is important that when using Pearson Chi-Square test, the minimum expected cell count should be over 5. (Hess & Hess, 2017)

As this research began, it was decided that there would be questionary for consumers that are using and buying juice products and who are living in Finland. The questionary was conducted by a third-party company, who specializes in market research and opinion polls. Using services of third-party company was selected because there was need for most relevant information as possible and that gave an opportunity to get much wider group of people to answer the questionnaire, because they have already existing base of respondents to whom the questionary could be sent. The target was to get around 500 valid respondents for the questionary from variety of different people that would represent Finnish consumer base. Those respondents were selected randomly and they were divided based on their habits of using juice products, which was an condition on whether the respondent would be eligible or not for the data that was collected for the study. Questions for the questionnaire were created together with the case company of this study, so that it would also give them some valuable information and their personal

and company interests about the studied subject would be satisfied. There were change of thoughts between the third-party company about the questions to get them more fluent and professional. There were also some rewording and rephrasing of questions and answer alternatives based on the received feedback.

3.2   Data collection and analysis

The third-party company was in charge of programming, conducting and reporting the results of the questionnaire. The received data from the third-party company, was delivered in SPSS Statistics format. This data included all the valid data for this research that was gathered from respondents during execution stage of the questionary. All the gathered data was received anonymously so that no one that had answered would not be possible to identify from the results that were delivered by the company which was in charge of the questionnaire.

The data was received in SPSS Statistics format from the third-party company. It was then analyzed more deeply with SPSS Statistics software. The data provided all the valid answers that the respondents had given as an answer to this questionnaire. The received data was in raw format and naturally it needed some further analyzing to get real look of the overall results of questionnaire. The amount of valid respondents for this research were 500 persons, while respondents who were not consuming or buying juice products regularly were screened out of the results. The amount of respondents who participated in the questionnaire were 700, which was disclosed by the third-party company. This means that the IR (Information retrieval) value for the valid respondents were 72,0 % as there were 500 valid respondents.

The questionary was conducted in September 2021 by the third-party company. The questionary included seven questions about the respondent's background and those were spread on the beginning and in the end of the questionnaire. Questionnaire included eighteen main questions which were roughly divided in three themes. Those

themes included sustainability, knowledge and communication and consumer behavior. Each respondent received same questions in the same orders, which they then answered. The list of questions will be as an appendix in the end of this thesis in Appendix 1. The background questions included the gender, age, education, situation in life, size of household and where the respondent lives. The main questions started off with a question about respondents' juice product consuming and buying habits. That was also a screen out question, because this research was not interested in respondents who are not using or buying juice products in somewhat regular manner. The next question was about how the respondents sees and values environmental, social and economic side of sustainability. The respondents were also asked to select the five most important things in sustainability within the list of 14 different things. The next two questions were about how respondents sees companies' acts towards sustainability in general and their work towards better sustainability. Then respondents were asked if they have identified some sustainability acts by companies from juice industry. That was followed by a question on how juice industry companies' sustainability acts compare to other food industry companies.

After that the questions shifted more to respondents itself and their habits and actions within the responsibility and sustainability scheme. The respondents were asked whether they make and prefer sustainable choices or not when they are buying something. Then they were asked what they considered to be the most important source of sustainability information and from which sources they would like to get more information. Respondents were also asked do they get enough information on sustainability and if they think that the available information is relevant or not. The next question was if the respondents were aware of different sustainability strategies that has been made by some juice industry companies. The next questions were about consumer's buying behavior. The respondents were introduced three different things about sustainability and they were asked how much those things influence their buying decision. That was followed by questions on how consumer sees sustainability's role when they make buying decision, compared to before. They were also asked if they are willing to pay a little

more for products that are sustainable. The last question of this questionary was about communication of sustainability and whether it helps when making buying decision.

3.3 Validity and reliability

Validity and reliability of this study and its results are currently accurate. This study and the received results are considered to be valid at this moment, but as the area of sustainability, environmental management and consumer behavior changes over time, the results could differ from the results that were provided in this study. That means that studies that are done earlier and after this study might give and have given different results than this exact study. The use of adequate amount of respondents for this study also supports the validity and reliability of the results that are provided in this research. Using the same questionnaire with different group of people might give some alterations to results, but as the amount of respondents is adequate, the overall results could have same pattern as with this group of respondents.

4 Case company: Eckes-Granini Finland Oy Ab

The case company for this master's thesis was Eckes-Granini Finland Oy Ab (EGF). The topic for this work was constructed together with the company and the data and the results will hopefully benefit company in some ways.

Eckes-Granini Finland Oy Ab is part of German based Eckes-Granini Group, which is Europe's leading group in juice industry business. Eckes-Granini Group has operations in 12 different countries. Eckes-Granini Group bought Finnish Marli Oy in 2001 and from the year 2009 the Finnish business has operated under the name Eckes-Granini Finland Oy Ab. The Finnish company was originally founded in 1867 and the production has been located in Turku through the entire lifecycle of the company. Eckes-Granini Finland's factory in Turku started its operations at the current location in 1975. EGF had annual revenue of 80 million euros in 2020 and the company's market share was 32 % in Finland. EGF employs 125 people, from which about 75 people prepare and package juice products. The production is done five days per week in a discontinuous three-shift work. (Eckes-Granini Finland, 2021a; Eckes-Granini Finland, 2021d)

Picture 2 Eckes-Granini Finland (Eckes-Granini Finland, 2021b)

EGF produces liquid non-alcoholic beverages and snacks. Products are made from fruits, berries, vegetables and other plant products. In 2020 Eckes-Granini Finland Oy Ab had 210 different juice products in their product range. The best-known brands include Marli and Mehukatti, which are shown in the Picture 3. Other Eckes-Granini Finland's brands include God Morgon, Brazil, Tropic, My Cup of Tea, Rynkeby, Granini and Brämhults. One

of the best known products in Finland, TRIP-juice drinks were brought into markets in 1962. Marli was also first company in Nordic countries to start using brick shaped aseptic tetra packaging, which preserved juices without any preservatives. In 1977 other very known Finnish brand, Mehukatti, was brought into markets. (Eckes-Granini Finland & Pernod Ricard Finland, 2017; Eckes-Granini Finland, 2021)

Picture 3 Best known local brands of EGF (Eckes-Granini Finland, 2021)

Eckes-Granini Finland Oy Ab has large interest towards sustainability and the importance has increased through the years. They have goal to be the most sustainable juice industry company in Finland. Their sustainability includes six categories: sustainable juice, climate protection, packaging, social responsibility, employees and nutrition. Those divide into two main categories, first three to Planet & Environment and last three to People & Society. Sustainable juice includes a goal for using only sustainably produced raw materials in their products by 2030. Climate protection contains of reduction, controlling and compensation of emissions, which has led to situation where EGF have become climate neutral company from the year 2021. The factor of packaging includes aims to develop packaging, which reduces the weight of packaging and allows reusing and recycling. The company wants to minimize environmental impacts by selecting durable and as carbon neutral materials as possible. Social responsibility is about increasing consumer's environmental awareness by continuous communication and participation in charities, like Team Rynkeby God Morgon charity cycling, which donates funds directly to seriously ill children and their families. Next sustainability factor being the employees, which consists of that EGF provides safe working environment and conditions. This makes sure that employees wellbeing is measured and different precautions are taken from health and

safety perspective. The last factor of sustainability, nutrition, is about the improvement of nutritional values of company's products to promote health of consumers. It is also about making products that are tasty, healthy, versatile and are made from natural and authentic materials. The entire sustainability program of EGF is made into circle, which is shown in Picture 4. (Eckes-Granini Finland, 2021)

Picture 4 Sustainability program of Eckes-Granini Finland Oy Ab (Eckes-Granini Finland, 2021)

Those sustainability values are implemented by the voluntary use and commitment to EMAS (the Eco-Management and Audit Scheme) and the ISO 14001 certificate. EMAS is voluntary environmental management system, in which Eckes-Granini Finland Oy Ab got first certified in 2015 and it was renewed in 2018 for new EMAS requirements. EGF is the only food industry company, at this moment, that has the EMAS certificate in Finland. EMAS consists of environmental management system that fulfills the requirements of

ISO 14001 and environmental statement. Environmental management system needs to be verified and environmental statement validated by licensed environmental verifier before the EMAS can be registered. EMAS certificate requires that environmental statement is published once every three years, but yearly updates of the statement data are required for retaining of the certificate. (Eckes-Granini Finland, 2021; Environment.fi, 2019)

Eckes-Granini Finland Oy Ab communicates sustainability also by using of different labels. EGF uses the FSC certified carton in 98 % of their packaging. FSC is label for responsible forestry. Company's products that are in PET bottles and some products that are in glass bottles use Palpa deposit-based recycling system, which promotes recycling. For fruit and berry raw material procurement actions, company tries to focus their purchases to suppliers who has SGF (Sure-Global-Fair)/ IRMA quality and authenticity certification. That system aims to have secure and fair business of real fruit and vegetable juices. Factory and product check-ups are also part of this organization's activities. EGF uses EcoVadis audits on all their raw material suppliers, which gives assessment of 21 different criteria. Those criteria include environment, socially responsible corporate behavior, ethics and value chains, from which EGF suggests areas of development to their suppliers. EGF has been part of Sustainable Juice Covenant, which is global project that aims to increase the share of sustainably produced juice raw materials to 100 % by 2030. Eckes-Granini Finland Oy Ab uses sustainably produced orange juice concentrate on many of their products and their aim is to start using sustainably produced apples and pineapples in the near future. (Eckes-Granini Finland, 2021)

5 Results

Within this chapter, results of this study are presented and discussed. This chapter defines the results that were gained from the questionnaire. The intention is to get good overview on what can be learned from the answers that the respondents have submitted. It is important to gain knowledge on how consumers see sustainability and environmental management so that case company and other businesses can make improvements in the future and develop their operations.

5.1 Overall description of the results

5.1.1 Background question results

There were 500 valid respondents to the questionnaire that was conducted by the third-party company. Company accumulated total of 700 respondents, which means that the target groups IR value was 72,0 %. Respondents were chosen randomly and they represent Finnish consumer base in this study. The amount of respondents can be considered to be at good level to get more reliable results for this research. Of those 500 people, 257 (51,4 %) were women and 242 (48,4 %) were men, when one (0,2 %) respondent was not willing to be identified, and that respondent was later filtered out of the data, because that one differing category created some problems with statistical analysis and testing. From the gender perspective the received data is equal which supports the idea of this data representing Finnish consumer base. From the age perspective, the mean age was 45,38, while the youngest respondent was 18 and oldest 75. To get better view of the distribution of ages, age groups are analyzed. As seen from Table 1, the age distribution is quite even. Age groups from 18 to 29 and 60 to 75 are the largest with 24,1 % and 24,8 % share of the total. Other three groups, 30 to 39, 40 to 49 and 50 to 59 have lower shares than the two largest age groups, but they still represent each group in a way that supports the overall presentation of Finnish consumer base.

Age group: How old are you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18–29 years	120	24.1	24.1	24.1
	30–39 years	87	17.4	17.4	41.5
	40–49 years	72	14.3	14.3	55.8
	50–59 years	97	19.3	19.3	75.2
	60–75 years	124	24.8	24.8	100.0
	Total	500	100.0	100.0	

Table 1 Age group

The next descriptive factor is place of residence. Within this data, the place of residence can be sorted out by postal code, county or area. County and area are suitable options for this study since postal code information is too detailed. As shown in Table 2, the majority, 78,2 %, of respondents were from Southern and Western part of Finland. This leaves Eastern Finland with 10,1 % and Northern Finland with 11,7 % of total respondents. With county-based dividing of respondents, there comes problem since there were not enough respondents in each individual county so that those counties would be reasonable to use in the analysis.

Area: Which area do you live in?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Eastern province	50	10.1	10.1	10.1
	Southern province	230	46.0	46.0	56.1
	Western province	161	32.2	32.2	88.3
	Northern province– Oulu and Lapland	59	11.7	11.7	100.0
	Total	500	100.0	100.0	

Table 2 Area/Region

The group of respondents were described based on their position in working life. 53,2 % of the respondents were working, when 9,3 % were unemployed who were searching for a job. 9,6 % of the respondents were students and 6,1 % were doing something else. About fifth of the respondents (21,8 %) were retired. This type of grouping could represent Finnish consumer base. The descriptive factor of respondents' situation in life shows

that 31,2 % live alone and 38,3 % live together with their partner. 22,4 % live with their partner and children, while 3,6 % of the respondents were single parents. 3,0 % of the respondents were living with their parents and 1,5 % were living in some other form of family. Continuum for that is the size of respondents' household. As Graph 1 shows, the largest group of respondents (40,3 %) live in household that has two persons, while the second largest group (32,4 %) were living alone. Household with three persons had the share of 12,6 % and households with four persons were 8,9 % of the total amount of respondents. 4,0 % of the respondents lived in household with five members, while the rest 1,7 % lived in household of six or more.
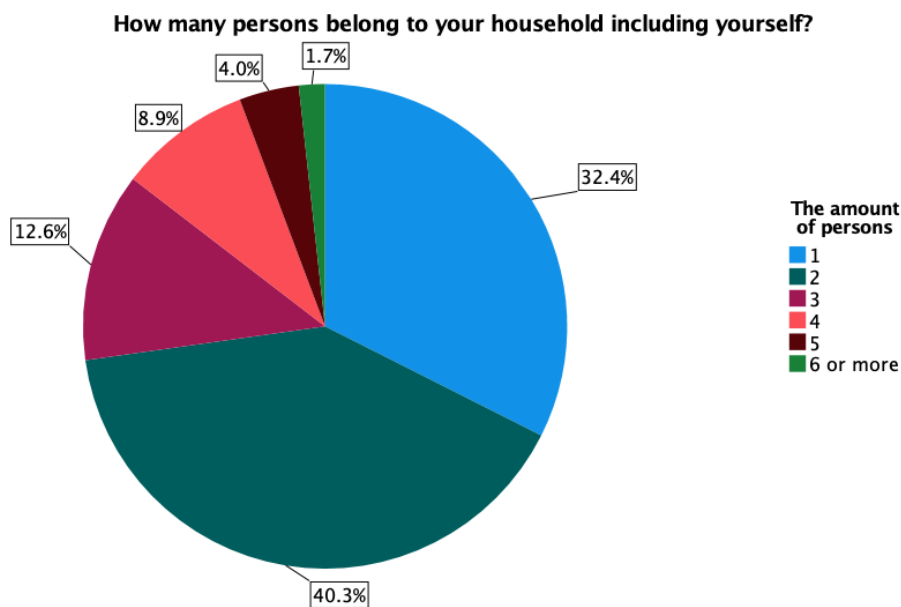
Graph 1 Breakdown of respondents' household sizes

The last background question of this survey was selecting an option that best describes respondents' place of residence. Around fourth (26,1 %) of the respondents lived in Greater Helsinki. The share of the respondents who lived in Turku, Tampere or Oulu were 17,2 %, while respondents that lived in other city with population over 50 000 had the share of 21,8 %. The rest of respondents lived in cities that had population less than 50 000 (22,3 %) and rural communes (12,5 %).

5.1.2 The main questionnaire results

(Survey question 1 a & b) This survey was aimed to consumers who use and buy juice products frequently. Consumers who have not used or bought juice products within the last three months, were screened out of this survey. 500 out of 700 were eligible for this survey. Respondents' juice consuming habit can be seen from Graph 2. As the Graph 2 shows, 29,4 % of the respondents consumed juice products daily or almost daily. Percentage of consumers who use juice products three or four times per week was 19,6 %. One or two times per week users were 23,8 % of valid respondents. The share of respondents who consumed juice products one to three times per month were 21,6 %, while consumers who drink juices about every two or three months had the percentage of 5,7 %, which clearly is the smallest group of this category. Other factor to juice consuming was how often respondents buy juice products. 54,8 % of the valid respondents had bought juice products within the last seven days, while 26,6 % had bought juice products one or two weeks ago. Those two groups represent the majority of valid respondents, when 14,1 % of the consumers had bought juice products about month ago. The smallest share was with respondents who had bought juice products within the last two or three months.
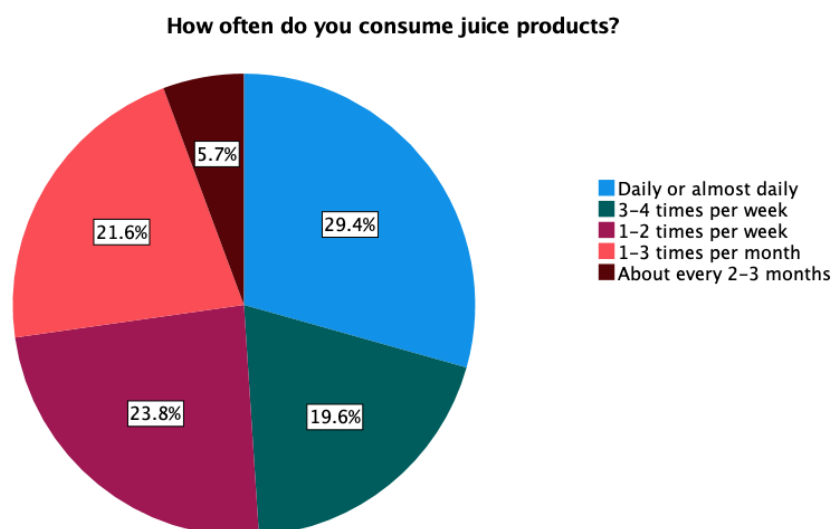
Graph 2 Juice consuming habits (Survey question 1a)

(Survey question 2) Next question was about the importance of the three sustainability themes. First was the importance of taking care of environment, which 49,5 % of the respondents found very important. 42,3 % responded that it is quite important, while 6,2 % thought that taking care of environment is not so important to them. Two percent of the respondents thought that environment was not important at all. The second theme was social sustainability, which 50,4 % considered as very important. 43,2 % considered social sustainability as quite important in sustainability. 4,8 % answered that social sustainability is not so important to them, while 1,6 % thought that it is not important at all. The third theme of sustainability, economic sustainability had the highest share of very important with 55,3 % of respondents. 39,4 % considered it as quite important, when 4,2 % answered not so important. Only 1,1 % did feel that economic sustainability is not important at all.

(Survey question 3) The survey continued with the question where respondents selected five most important parts of sustainability in their opinion. As seen from the Graph 3, there are five factors of sustainability that stand out from consumers importance. The highest percentage was 11,7 % for taking care of employees and 11,6 % for following laws and regulations. Factor of made in Finland and using of renewable energy sources had importance of 10,2 %. The fifth important part of sustainability was protection of nature. The least important part of sustainability for the respondents was charity with 1,6 %.
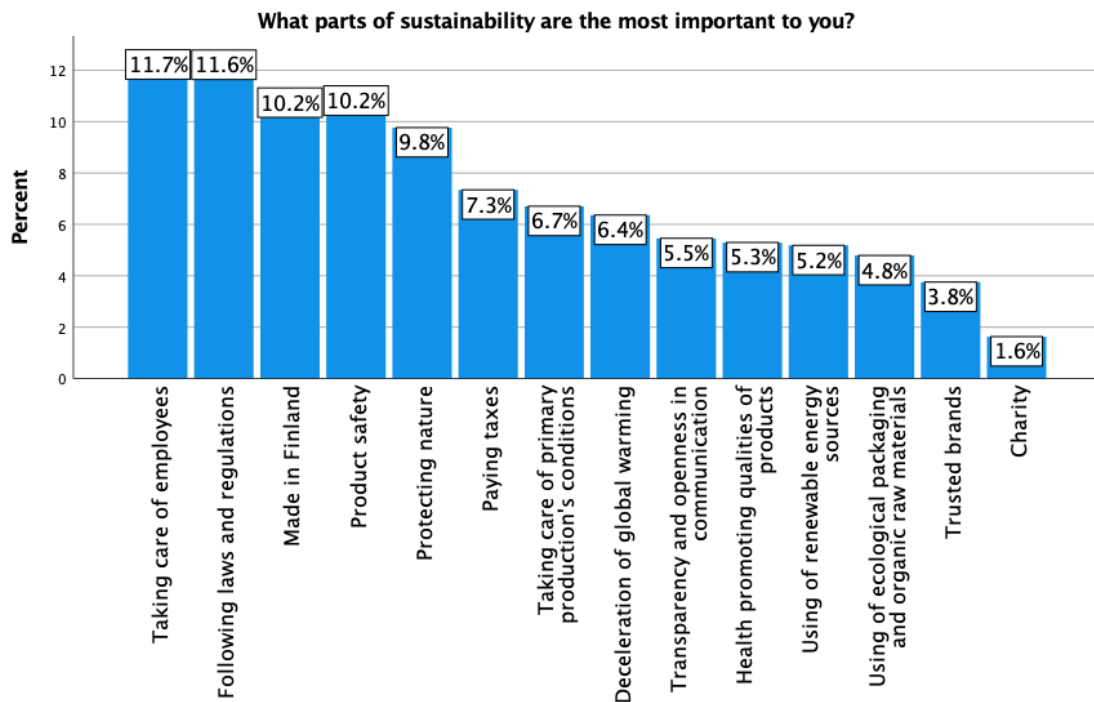
Graph 3 Importance of sustainability aspects from consumer perspective (Survey question 3)

(Survey question 4) Moving on to respondents' experiences on companies' sustainability actions on general level, which can also be seen from the Graph 4. Only 5,2 % felt that companies' sustainability actions are completely adequate, while majority, 44,7 %, answered that actions are somewhat adequate, which is clearly the highest pillar in Graph 4. 19,0 % of the respondents thought that companies' sustainability actions are somewhat inadequate and 4,7 % felt that they are completely inadequate. About third (26,4 %), did not have an opinion on the general level of companies' sustainability actions. (Survey question 5) This was followed by consumers' thoughts on how important is the companies' work towards sustainability. Majority of respondents felt that work towards sustainability is important, since 36,8 % answered very important and 47,2 % quite important. Only 2,5 % thought that sustainability work was not so important to them, while 1,0 % felt that it is not important at all. 12,4 % of the respondents did not have an opinion.

Do you feel that companies' sustainability actions in general are...?
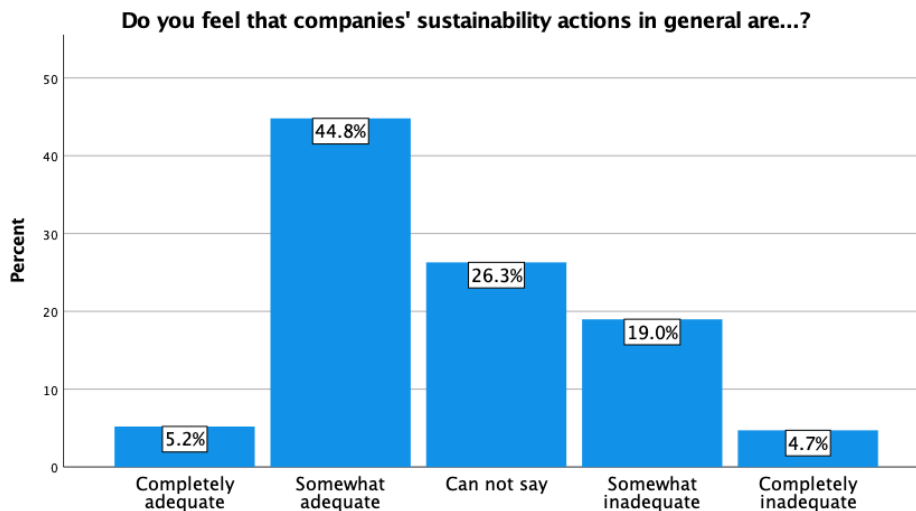
Graph 4 Respondents' opinion of companies' sustainability actions in general (Survey question 4)

(Survey question 6) Over half (55,3 %) had not noticed any sustainability actions that are done by the juice industry companies, and 30,3 % were not sure if they had noticed any actions or not. 14,4 % of the respondents had noticed some sustainability actions by the juice industry companies. Respondents had the chance to describe those actions and those answers included for example the improvements to primary production, ecological packaging, organic production, reducing of waste, use of renewable energy in production, using less or none additives. Respondents also recognized the use of different certificates, improving the working conditions of the employees, use of recyclable or refundable packaging, reducing the use of plastic, reducing of overall emissions and giving away more open information.

(Survey question 7) When considering how juice industry companies' sustainability actions compare to other industries, majority (89,7 %) of the respondents thought that juice industry companies are on the same level with their sustainability as other industries. This can be also seen clearly from the Graph 5. The share of respondents who felt that juice industry companies have higher sustainability than other industries were 3,2 %. Those who felt that it is lower, had the share of 7,1 %. (Survey question 8) Most of the

respondents (79,4 %) try to make sustainable choices in general, while the rest 20,6 % are not trying to make sustainable choices.

How do you experience the level of sustainability actions done by juice industry companies compared to other food industry companies?
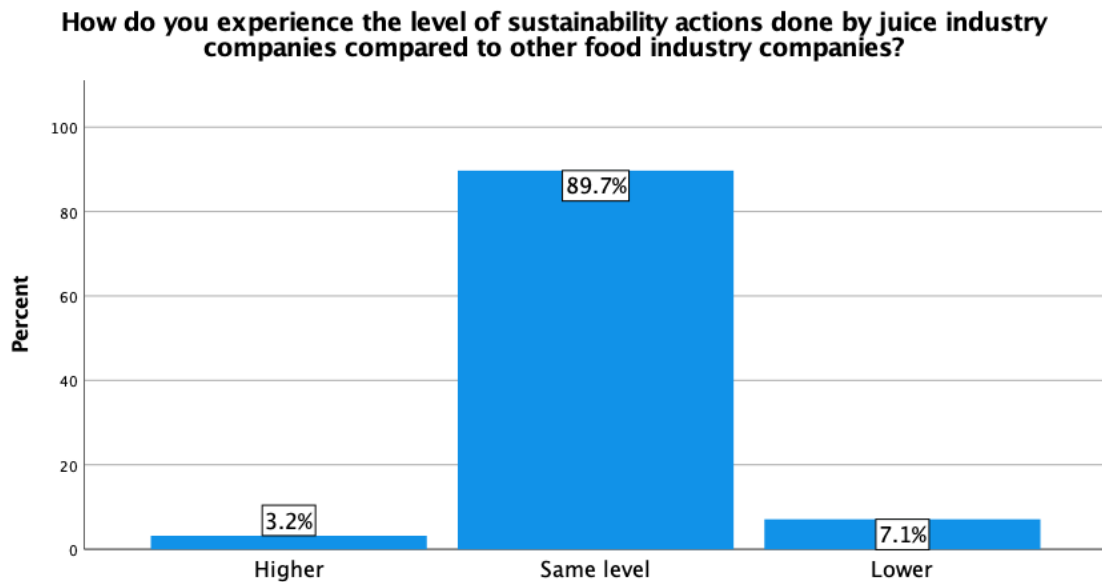
Graph 5 Respondents' view of the level of sustainability actions done by juice industry companies compared to other food industry companies (Survey question 7)

(Survey question 9) The next theme was sustainability information and what was the most important source of sustainability information for the respondents. Clearly the packaging was the most important source of information, as 45,8 % selected it. Graph 6 shows that the rest of the sources are quite even, with social media at 15,6 %. Company websites, tv/radio and newspapers and magazines were all between 10,7 % to 12,3 % as the Graph 6 shows. Other sources of information had the share of 4,5 % and respondents answered that as an open question. To highlight some of the responses to this open question, sources such as internet, science and scientifical publications, investigative journalism, media and public authorities and reports published by them were named.

What is the most important source of sustainability information?
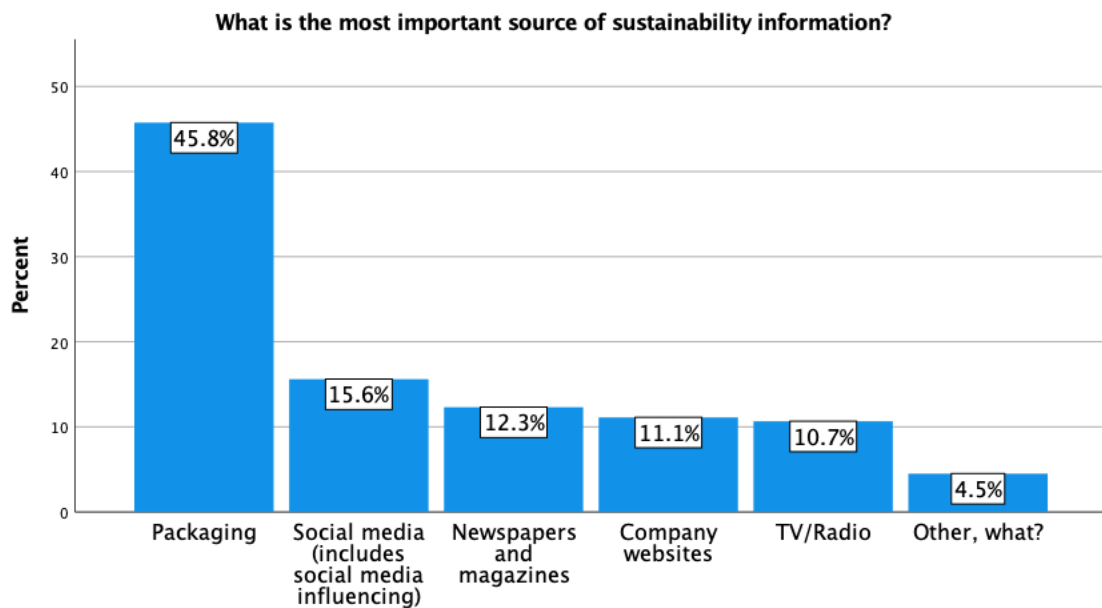
Graph 6 Importance of sustainability information sources (Survey question 9)

(Survey question 10) Consumers wanted to get more information about food products' sustainability especially from the packaging, as 54,6 % had chosen that as a preferred source of sustainability information. The rates for social media, tv/radio, company websites and newspaper and magazines were all quite similar and did not stand out like packaging did. The responses for other option included same type of answers as in the previous question.

(Survey question 11) The results for next question tell that 55,1 % feel that food industry companies provide enough information about their sustainability. Only 2,4 % thought that those companies provide too much information, when 42,5 % considered the amount of information to be not enough, which clearly is significant amount of respondents. (Survey question 12) The question about the credibility of sustainability information brought up that only 4,0 % is very reliable, which all can be seen below in Graph 7. About half (53,2 %) of the respondents consider sustainability information to be quite reliable, while 16,2 % considered it as not so reliable. The share of respondents who did not trust to sustainability information at all were 3,0 %, which is the smallest slice of

Graph 7. The amount of people who did not have an opinion was 23,6 % of all responses. (Survey question 13) Over half, 57,0 %, of the respondents were not aware of different sustainability goals that juice industry companies have set. Only 5,9 % were aware of the goals, while 37,1 % could not say whether they are aware or not.

How reliable do you consider information about sustainability?
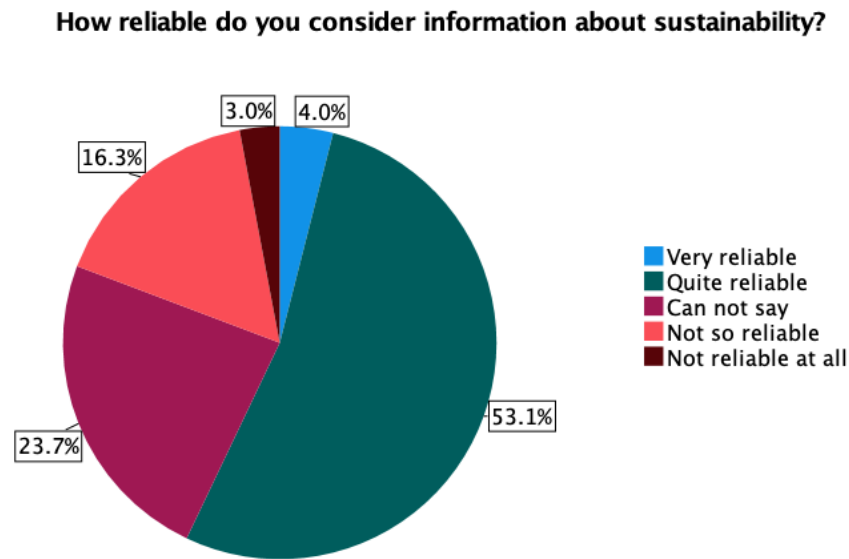
Graph 7 Reliability of sustainability information from respondent perspective (Survey question 12)

(Survey question 14) From this question the main theme of this survey shifts to consumer and buying behavior. This question is about how different factors affect the buying behavior of consumers. First factor being sustainability actions of food industry companies. The percentage of 20,2 % felt that sustainability actions of food industry companies have significant impact on their buying decision, when 53,0 % felt that it has some impact. The share of 22,3 % thought that sustainability actions of food industry has hardly any impact on their buying decision and 4,5 % felt that it does not affect their decision at all. Product's sustainability labels have significant impact on their buying decision on 21,2 % of respondents. A little over half (55,0 %) felt that product labels have some impact on their buying decision. The percentage of respondents who are hardly impacted by the product labels were 19,1 %, while 4,6 % thought that it has no impact. Third factor

being that the food product is produced in home country, which in this case is Finland. The results show that it had significant impact on 44,0 % of respondents and 45,2 % of respondents thought that it had some impact on their buying decision. Only 7,9 % thought that it has hardly any impact and even less, 4,6 %, thought that it has no impact at all on their buying decision.

(Survey question 15) When comparing sustainability's importance before, which can be also seen from Graph 8, roughly half, 49,3 %, of the respondents felt that sustainability affects their buying decision more than before. 18,4 % answered that it does not affect more than before, when 32,4 % could not say their opinion. (Survey question 16) Over half (58,4 %) of the consumers believed that they are willing to pay more for sustainable product, while the rest 41,6 % were not willing to do that.
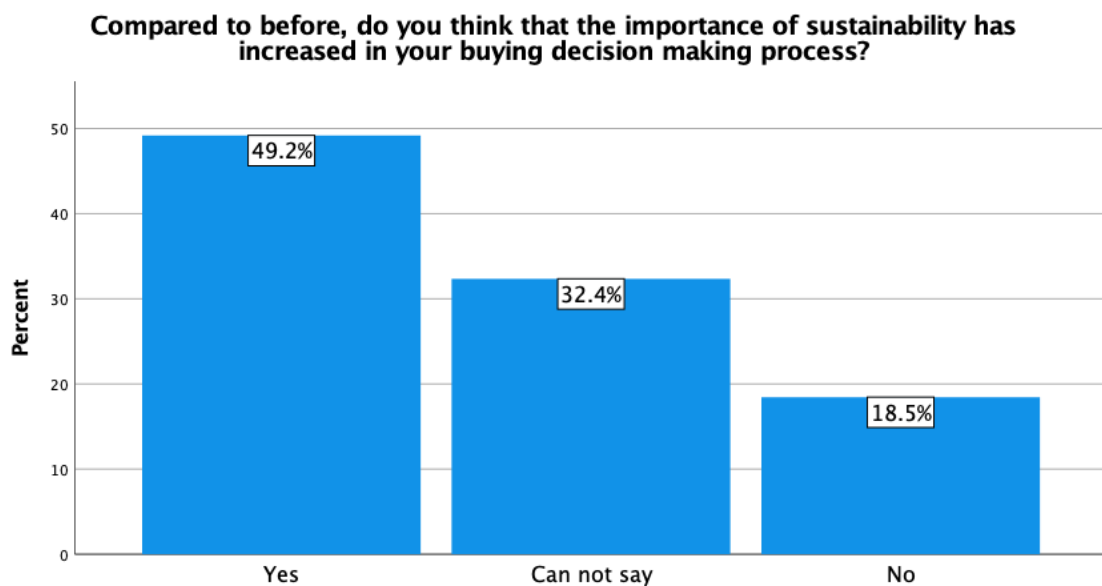
Graph 8 Importance of sustainability in making of buying decision (Survey question 15)

(Survey questions 17 &18) The last multiple-choice question for this survey asked if communication about sustainability helps to make buying decision. 55,2 % thought that it helps, when 19,0 % did not consider it helpful. The rest 25,8 % could not say whether

that helps or not. This was followed by open question for those who did not find sustainability communication helpful. Some of the respondents felt that they cannot trust the sustainability communication that comes from the companies, which in some cases might be considered as greenwashing. The need for unbiased information and research, confusing labels in packaging and contradictions in communications affect the helpfulness of sustainability communication.

5.2   Statistical analysis

Statistical analysis was performed by the use of crosstabulations, which included also some statistical testing with the use of Pearson Chi Square test. Pearson Chi Square test has two conditions that apply for each frequency to get trustful results: every value needs to be over one and at the highest, 20 % of the frequencies can be lower than five. The two-tailed test of significance was also tested for each crosstabulation to see whether different factors are dependent on each other or not. The chosen level of significance for this study was $\alpha = 0.05$. The value also reveals when differences between factors occur because of sampling error or coincidence. It was decided that crosstabulation would be done based on gender, age group and region. Crosstabulation shows whether there are some differences on results based on those background variables. Statistical testing reveals the significance of those results that come from the crosstabulation. Within this chapter, the results will not be analyzed again completely, but very thoroughly, by highlighting most important statistical dependencies and other observations from the statistical analysis.

5.2.1   Gender

First analyzed background variable is gender. Before using gender as a variable, decision was made to leave out the one respondent who had not stated gender to simplify the analysis, which caused the total amount of respondents to be 499.

Table 3 shows that men consume juice products more often than women. Since the p-value was 0.01, which is lower than our selected level of significance (0.05), it reveals association between gender and juice product consuming.

How often do you use juice products?			
	Men	Women	Total
Daily or almost daily	31,8 %	26,8 %	29,3 %
3-4 times per week	24,0 %	15,6 %	19,6 %
1-2 times per week	21,9 %	25,7 %	23,9 %
1-3 times per month	16,1 %	26,8 %	21,6 %
About every 2-3 months	6,2 %	5,1 %	5,6 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi2(4) = 13.202$, p = 0.010		

Table 3 Juice product consuming from gender perspective (Survey question 1a)

It can be seen on Table 4 that men consider sustainability actions in general more adequate than women. However, there was more women that did not state their opinion than men. There is association (p = 0.005) between gender and how general sustainability actions are seen.

Sustainability actions by companies are generally..?			
	Men	Women	Total
Completely adequate	6,6 %	3,9 %	5,2 %
Somewhat adequate	49,8 %	40,1 %	44,8 %
Can not say	18,9 %	33,1 %	26,2 %
Somewhat inadequate	18,9 %	19,1 %	19,0 %
Completely inadequate	5,8 %	3,9 %	4,8 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi2(4) = 14.823$, p = 0.005		

Table 4 Sustainability actions from gender perspective (Survey question 4)

As the Table 5 reveals, women consider companies' work towards sustainability more important than men do. However, half of the men consider work towards sustainability quite important. There is statistical dependency between gender and importance of sustainability work, since the p-value is 0.039.

How important is the companies' work towards sustainability?			
	Men	**Women**	**Total**
Very important	30,7 %	42,4 %	36,8 %
Quite important	50,2 %	44,7 %	47,4 %
Can not say	14,1 %	10,9 %	12,5 %
Not so important	3,3 %	1,6 %	2,4 %
Not important at all	1,7 %	0,4 %	1,0 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi2(4) = 10.057$, p = 0.039		

Table 5 Importance of sustainability work from gender perspective (Survey question 5)

Do you make mostly sustainable choices?			
	Men	**Women**	**Total**
Yes	72,2 %	86,0 %	79,3 %
No	27,8 %	14,0 %	20,7 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi2(1) = 14.423$, p < 0.001		

Table 6 Sustainable behavior from gender perspective (Survey question 8)

When looking into Table 6, which is located above, there can be seen that women make sustainable choices more often than men do. There is also significant association between gender and sustainable behavior, since the p-value is < 0.001.

Table 7 reveals, that women prefer social media, packaging and company websites more as a source of sustainability information than men do. Men prefer more traditional

sources. Gender has real association to importance of different sources of sustainability information, as the p-value is 0.006.

What is the most important source of sustainability information for you?			
	Men	**Women**	**Total**
Social media (+influencers)	14,0 %	17,1 %	15,6 %
Packaging	43,8 %	47,9 %	45,9 %
Company websites	7,4 %	14,4 %	11,0 %
TV/Radio	14,5 %	7,0 %	10,6 %
Newspapers and magazines	14,9 %	10,1 %	12,4 %
Other, what?	5,4 %	3,5 %	4,4 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi2(5) = 16.465$, p = 0.006		

Table 7 Preferred sustainability information sources from gender perspective (Survey question 9)

Do food industry companies provide enough information about their sustainability?			
	Men	**Women**	**Total**
Too much	5,0 %	0,0 %	2,4 %
Enough	62,7 %	48,2 %	55,2 %
Not enough	32,4 %	51,8 %	42,4 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi2(2) = 28.503$, p < 0.001		

Table 8 Gender perspective on the amount of sustainability information (Survey question 11)

There is significant association between gender and the amount of sustainability information that is provided by the companies, since the p-value is <0.001. Like the Table 8 shows, men are more satisfied with the current amount of sustainability information, some think that companies provide too much information about their sustainability. About half of the women think that companies do not give enough information.

How much "Made in Finland" influences your buying decision?			
	Men	Women	Total
Significant influence	42,0 %	45,9 %	44,0 %
Some influence	43,6 %	46,3 %	45,0 %
Hardly any influence	10,3 %	5,8 %	8,0 %
No influence at all	4,1 %	2,0 %	3,0 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(3) = 5.694, p = 0.127		

Table 9 Influence of "Made in Finland" to buying decision based on gender (Survey question 14)

Part of the survey question 14 was about how much domestically manufactured product influences the buying decision of consumers. As seen on the Table 9, "Made in Finland" influences women more than men, who have higher share with less influencing responses. However, those results are not statistically significant as the p-value is 0.127, which means that there is no association between gender and influence of domestically made product.

Compared to before, do you believe that sustainability has bigger influence to your buying decision?			
	Men	Women	Total
Yes	44,2 %	53,7 %	49,1 %
Can not say	31,8 %	32,7 %	32,3 %
No	24,0 %	13,6 %	18,6 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(2) = 9.473, p = 0.009		

Table 10 Sustainability's influence on different genders' buying decision (Survey question 15)

Gender has also dependency on how sustainability influences buying decisions, since the result of Pearson Chi-Square test is statistically significant (p = 0.009). Women has stronger believe that sustainability has now bigger influence on their buying decision

than before. As seen above on Table 10, men have higher share of respondents who do not believe that the sustainability's influence on their buying decision has increased from before. Same type of trend can be observed from the Table 11, which shows that women are more willing to pay more for sustainable products than men. There is also significant association between gender and willingness to pay more as the p-value is <0.001.

Are you willing to pay a little more for sustainable product?			
	Men	Women	Total
Yes	50,4 %	65,8 %	58,3 %
No	49,6 %	34,2 %	41,7 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(1) = 12.074, p < 0.001		

Table 11 Different genders' willingness to pay more for sustainable product (Survey question 16)

Table 12 shows gender's dependency on experience of helpfulness of sustainability communication when making buying decision. Crosstabulation and Pearson Chi-Square test reveals that those two factors have statistical dependency as the p-value is 0.004. It can be seen in Table 12 that women consider sustainability communication helping them more when making buying decision.

Do you think that sustainability communication helps in buying decision making?			
	Men	Women	Total
Yes	49,2 %	60,7 %	55,1 %
Can not say	26,0 %	25,7 %	25,9 %
No	24,8 %	13,6 %	19,0 %
Total	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(2) = 11.186, p = 0.004		

Table 12 Gender perspective of helpfulness of sustainability information in buying decision making (Survey question 17)

5.2.2 Age group

When using age group in crosstabulation, it was seen that there were too many groups within the original grouping, which made statistical testing unreliable. Three new age groups were comprised from the original five groups. New groups were 18-35 years old, 36-55 years old and 56-75 years old respondents. The distribution of each different age group can be seen from the Table 13 which shows that those groups are quite even.

New age grouping for the statistical analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18–35 years old	166	33.2	33.2	33.2
	36–55 years old	179	35.9	35.9	69.1
	56–75 years old	154	30.9	30.9	100.0
	Total	499	100.0	100.0	

Table 13 New age grouping

Table 14 shows that the oldest age group, 56-75 year old respondents, uses juice products more often than others. This results level of significance to be 0.016, which shows that there is association between age and juice product consuming habits.

	How often do you use juice products?			
	18-35 years old	36-55 years old	56-75 years old	Total
Daily or almost daily	22,3 %	26,8 %	40,0 %	29,4 %
3-4 times per week	21,1 %	18,4 %	19,3 %	19,6 %
1-2 times per week	27,1 %	25,1 %	18,1 %	23,6 %
1-3 times per month	25,9 %	22,9 %	15,5 %	21,6 %
About every 2-3 months	3,6 %	6,7 %	7,1 %	5,8 %
Total	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi^2(8) = 18.876$, p = 0.016			

Table 14 Juice product consuming by age group (Survey question 1a)

It can be seen that younger age groups are more aware of sustainability actions that are done by the juice industry companies, which is clearly visible in Table 15. Table 15 shows that the amount of respondents who have noticed sustainability actions decrease as the age increases. Result shows that there is association between age and awareness of sustainability actions, since p-value is 0.001.

Have you noticed sustainability actions done by juice industry companies?				
	18-35 years old	36-55 years old	56-75 years old	Total
Yes	18,8 %	15,6 %	7,8 %	14,3 %
No	49,1 %	62,6 %	53,9 %	55,4 %
Can not say	32,1 %	21,8 %	38,3 %	30,3 %
Total	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi2(4) = 17.757, p = 0.001$			

Table 15 Noticing of sustainability actions by different age groups (Survey question 6)

The importance of different sources of sustainability information varies between age groups and the general trend is that younger respondents prefer more modern sources of sustainability information and older respondents rely on more traditional sources of information. Table 16 highlights that youngest age group, 18-35 years old, has the biggest share in social media. Oldest age group, 56-75 years old, has the biggest share in packaging, TV/Radio and newspapers and magazines. The middle age group settles between the other two groups. The association between importance of sustainability information sources and age is significant as the p-value is <0.001.

What is the most important source of sustainability information for you?			
	18-35 years old	36-55 years old	56-75 years old	Total
Social media (+influencers)	29,7 %	10,1 %	6,5 %	15,4 %
Packaging	36,4 %	48,6 %	52,3 %	45,7 %
Company websites	14,5 %	14,0 %	3,9 %	11,0 %
TV/Radio	5,5 %	12,9 %	14,2 %	10,8 %
Newspapers and magazines	9,1 %	10,1 %	18,7 %	12,4 %
Other, what?	4,8 %	4,5 %	4,5 %	4,6 %
Total	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(10) = 62.551, p < 0.001			

Table 16 The most important source of sustainability information by different age groups (Survey question 9)

How reliable do you consider information about sustainability?			
	18-35 years old	36-55 years old	56-75 years old	Total
Very reliable	7,2 %	2,8 %	2,0 %	4,0 %
Quite reliable	56,0 %	52,8 %	50,7 %	53,2 %
Can not say	21,1 %	28,7 %	20,1 %	23,5 %
Not so reliable	10,8 %	14,6 %	24,0 %	16,3 %
Not reliable at all	4,8 %	1,1 %	3,3 %	3,0 %
Total	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(8) = 23.102, p = 0.003			

Table 17 Reliability of sustainability information from age perspective (Survey question 12)

Table 17 shows that younger respondents trust more to sustainability information than older respondents. There is association between age and how reliable sustainability information is considered, since the p-value is 0.003.

Younger people are more aware of different sustainability goals that are made by juice industry companies than older people as seen on the Table 18 below. The statistical dependency between age and awareness of sustainability goals is proved by the p-value (0.050), which is same as the selected significance level.

Are you aware of different sustainability goals made by some juice industry companies?			
	18-35 years old	36-55 years old	56-75 years old	Total
Yes	8,4 %	4,4 %	5,2 %	6,0 %
Can not say	42,8 %	31,1 %	38,3 %	37,2 %
No	48,8 %	64,4 %	56,5 %	56,8 %
Total	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(4) = 9.488, p = 0.050		

Table 18 Awareness of sustainability goals by different age groups (Survey question 13)

How much "Made in Finland" influences your buying decision?			
	18-35 years old	36-55 years old	56-75 years old	Total
Significant influence	31,9 %	46,9 %	54,2 %	44,2 %
Some influence	56,6 %	43,6 %	34,2 %	45,0 %
Hardly any influence	6,6 %	8,9 %	7,7 %	7,8 %
No influence at all	4,8 %	0,6 %	3,9 %	3,0 %
Total	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(6) = 24.920, p < 0.001		

Table 19 Influence of "Made in Finland" in buying decision making from age perspective (Survey question 14)

Table 19 reveals that domestically manufactured product has significant influence on older age group's buying decision. With younger age groups, the share of significant influence is lower. As the p-value is lower than 0.001, there is significant statistical association between age and influence of domestically manufactured product in buying decision making.

Table 20 shows that younger respondents believe that sustainability has now bigger influence on their buying decision than before and older age groups believe that sustainability has a little smaller influence to their buying behavior. However, those results are not statistically significant, since the p-value is 0.586. This shows that there is no statistical association between age and sustainability's influence to buying decision.

Compared to before, do you believe that sustainability has bigger influence to your buying decision?			
	18-35 years old	36-55 years old	56-75 years old	Total
Yes	53,6 %	49,2 %	44,8 %	49,3 %
Can not say	30,1 %	33,0 %	33,8 %	32,3 %
No	16,3 %	17,9 %	21,4 %	18,4 %
Total	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(4) = 2.832, p = 0.586			

Table 20 Sustainability's influence on buying decision making by different age groups (Survey question 15)

It can be clearly seen from Table 21 that age is associated with willingness to pay more for sustainable product. In fact, the association is significant as the p-value is <0.001. The older the respondent, less willing they are to pay more for sustainable product.

Are you willing to pay a little more for sustainable product?			
	18-35 years old	36-55 years old	56-75 years old	Total
Yes	69,1 %	56,4 %	48,7 %	58,2 %
No	30,9 %	43,6 %	51,3 %	41,8 %
Total	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(2) = 13.991, p < 0.001			

Table 21 Willingness to pay more for sustainable product by age group (Survey question 16)

As Table 22 below shows, younger consumer considered sustainability communication more helpful than older consumers. Since the p-value was at 0.293, there were not any statistical association between age and helpfulness of sustainability communication.

Do you think that sustainability communication helps in buying decision making?				
	18-35 years old	36-55 years old	56-75 years old	Total
Yes	58,4 %	56,4 %	50,0 %	55,1 %
Can not say	25,3 %	26,8 %	25,3 %	25,9 %
No	16,3 %	16,8 %	24,7 %	19,0 %
Total	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi2(4) = 4.948$, p = 0.293			

Table 22 Age perspective on helpfulness of sustainability communication in buying decision making (Survey question 17)

5.2.3   Region

While doing crosstabulations with the region factor, there were not many statistically significant results. Respondents who live in eastern part of Finland experienced companies' sustainability actions completely adequate more than respondents from other regions. On the other end, respondents from northern Finland had the highest share of completely inadequate answers as seen from the Table 23. However, those results are not statistically significant since the p-value is 0.138.

	Sustainability actions by companies are generally..?				
	East	South	West	North	Total
Completely adequate	11,8 %	5,7 %	4,4 %	0,0 %	5,2 %
Somewhat adequate	47,1 %	40,0 %	47,8 %	54,2 %	44,9 %
Can not say	23,5 %	26,1 %	26,4 %	27,1 %	26,1 %
Somewhat inadequate	17,6 %	22,6 %	17,0 %	11,9 %	19,0 %
Completely inadequate	0,0 %	5,7 %	4,4 %	6,8 %	4,8 %
Total	100,0 %	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	$\chi2(12) = 17.313$, p = 0.138				

Table 23 Sustainability actions in general by different regions (Survey question 4)

Table 24 shows that respondents located in southern and northern parts of Finland make more sustainable choices than people from other regions. The test of significance shows

that there is no association between region and making of sustainable choices as the p-value is 0.205.

Do you make mostly sustainable choices?					
	East	South	West	North	Total
Yes	76,5 %	82,5 %	74,4 %	83,1 %	79,4 %
No	23,5 %	17,5 %	25,6 %	16,9 %	20,6 %
Total	100,0 %	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(3) = 4.585, p = 0.205				

Table 24 Making of sustainable choices by different region (Survey question 8)

Are you aware of different sustainability goals that some juice industry companies have?					
	East	South	West	North	Total
Yes	2,0 %	7,0 %	6,9 %	3,5 %	6,0 %
Can not say	58,0 %	39,6 %	30,0 %	29,3 %	37,2 %
No	40,0 %	53,5 %	63,1 %	67,2 %	56,8 %
Total	100,0 %	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(6) = 17.050, p = 0.009				

Table 25 Awareness of different sustainability goals from region perspective (Survey question 13)

Respondents from south and west are more aware of different sustainability goals than respondents from other regions. It can be seen as highlighted cell in Table 25, that northern region respondents are less aware of different sustainability goals that juice industry companies have. P-value (0.009) reveals that there is association between region and awareness of juice industry sustainability goals.

Table 26, which is located below, shows that sustainability has the biggest influence on southern region respondents, while the sustainability's influence has not increased in western Finland compared to time before. However, there is no statistical association between region and sustainability's influence to buying decision, because p-value is 0.147.

Compared to before, do you believe that sustainability has bigger influence to your buying decision?					
	East	South	West	North	Total
Yes	42,0 %	55,2 %	43,8 %	45,8 %	49,1 %
Can not say	40,0 %	30,0 %	31,9 %	35,6 %	32,3 %
No	18,0 %	14,8 %	24,4 %	18,6 %	18,6 %
Total	100,0 %	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(6) = 9.507, p = 0.147				

Table 26 Sustainability's influence to buying decision by region (Survey question 15)

As highlighted in Table 27, people from northern region of Finland are the least willing to pay more for sustainable products, while responses from other regions have fairly even shares. As the Table 27 shows, there is no association between region and willingness to pay more for sustainable product with p-value being 0.498, which is way over the chosen level of significance.

Are you willing to pay a little more for sustainable product?					
	East	South	West	North	Total
Yes	58,0 %	59,6 %	60,0 %	49,2 %	58,3 %
No	42,0 %	40,4 %	40,0 %	50,8 %	41,7 %
Total	100,0 %	100,0 %	100,0 %	100,0 %	100,0 %
Pearson Chi-Square:	χ2(3) = 2.374, p = 0.498				

Table 27 Willingness to pay more for sustainable product by each region (Survey question 16)

6 Conclusions

This final chapter summarizes all the findings and results that were gained from this study. This chapter evaluates and goes deeper into the whole process and results of this study, while reflecting to theoretical background of chosen topic and arguments that the writer of this thesis has come up with. This chapter gives suggestions for further research that could be relevant and important in future. It also gives suggestion on what research opportunities this topic offers that could be researched in the future.

6.1 Conclusions and results

Based on the literature review and analysis of questionnaire results, it should be possible to give an answer to the research question and objectives that were defined for this study. The main research question was: How consumers perceive the sustainability and environmental practices? The objectives for this research were decided as follows: Which role sustainability has in consumer behavior?, How consumers view sustainability communication? and How sustainability and environmental management practices are used?

6.1.1 Consumer perception of the sustainability and environmental practices

To answer the main research question: How consumers perceive the sustainability and environmental practices?, there was need for analysis of questionnaire results and collected literature. To get proper answer for this question, survey questions 2, 3, 4, 5, 6 and 7 were analyzed.

The results showed up that consumers think that economic side of the sustainability is the most important of the three, while environmental and social factors of sustainability are equally little behind in importance. Surprisingly, environmental side of the sustainability had the highest share of not important answers of the three factors. From the

consumers point of view, the most important parts of the sustainability include taking care of employees, following laws and regulations, product safety, Made in Finland and protecting nature. This supports the earlier results about the importance of sustainability factors.

Consumers felt that companies' sustainability in general was mostly somewhat adequate (44,8 %). Men answered that the level of sustainability in general was more adequate than what women consider it to be. Statistical testing proved that there is association between gender and how sustainability in general is seen. Respondents from eastern Finland were the most adequate to the sustainability in general, while respondents from northern Finland were the most inadequate about the sustainability. Consumers thought that work towards sustainability is important, since majority (83,9 %) had answered very important or quite important. In this case also, statistical association between gender and importance of work towards sustainability was found, as women consider it more important than men do.

Over half of the respondents were not aware of different sustainability acts that have been done by juice industry companies. From the statistical testing, it was identified that younger consumer are more aware of different sustainability acts than older people, which means that there is association between age and awareness of sustainability acts. Results showed also that consumers are more aware of sustainability acts in south of Finland than other regions. Respondents described seen for example actions that improve primary production, ecological packaging, reducing of waste and use of renewable energy in production. There were also described use of different certificates, improvements in working conditions of employees, reducing the use of plastics and overall emissions and producing of more open information. Those mentioned sustainability actions can be gathered from sustainability literature and are similar to what for example Alayón et al. (2017) and Hashim et al. (2017) have stated, which proves that consumers have knowledge about the sustainability and environmental management practices. When looking into level of sustainability in juice industry companies compared to other food

industry companies, it is clear that most of the respondent (89,7 %) think that they are on the same level. From the rest of the respondents, more considered the level to be lower (7,1 %) than higher (3,2 %) compared to other food industry companies.

To gather up the research results to some conclusion, economic side of the sustainability was valued to be most important of the three factors of sustainability. As a some sort of surprise, environment was considered to be the least important factor. From different parts of the sustainability, consumers valued most taking care of employees, following laws and regulations, product safety, Made in Finland and protecting nature. Consumers felt that sustainability in general is mostly somewhat adequate. Men thought sustainability more adequate than the women did. Majority of the respondents considered work towards sustainability very important or quite important, and women considered it more important than men did. Earlier research by Francis & Sarangi (2022) supports the fact that women are more environmentally conscious. Awareness of sustainability actions by juice industry is somewhat low as over half of the respondents were not aware of sustainability actions done by the juice industry companies. However, younger consumers were more aware of those sustainability actions than older consumers. Responses revealed that consumers have knowledge about different sustainability actions. Most of the respondents considered sustainability of juice industry to be on the same level as other food industry companies.

6.1.2 Role of sustainability in consumer behavior

To found out answer to research objective about what role sustainability has in consumer behavior, survey questions 8,14,15 and 16 were analyzed.

About four out of five respondents make mostly sustainable choices. The share of women who make mostly sustainable choices is greater than what men have. From the statistical testing, it was proven that there is significant association between gender and making sustainable choices. The results also showed that consumer make more sustainable choices in southern and northern parts of Finland.

When looking into how different factors affect in buying decision making, it was identified that it means most that the product is manufactured domestically, which in this case means Finland. Answer frequencies showed that it had the most answers in significant impact (44,1 %) and some impact (45,1 %) compared to other two factors. The other two factor were products sustainability labels and sustainability actions of food industry companies. Those two had quite even impact to buying decision making.

Compared to before, importance of sustainability in buying decision making has increased for about half of the respondents. About fifth of the respondents did not believe that importance of sustainability has increased. Young respondents believe that importance of sustainability has grown more than for other respondents. Respondents in south also believe that importance of sustainability has grown more than in other regions, while the western part of Finland has the highest share of people who do not believe that importance of sustainability has increased in their buying decision making process. From the statistical standpoint, there were found association between gender and increased importance of sustainability, as women believe that importance of sustainability has increased for them more than men do.

When looking into whether consumer is willing to pay a little more for sustainable product, it can be seen that over half (58,3 %) of the respondents are willing to do that. There is statistically significant association for two factors, gender and age, for willing to pay more for sustainable product. Younger people are more willing to pay more for sustainable product than older people. Women are also more willing to pay more for sustainable product than men are. Results from the questionnaire show that respondents from north are not as willing to pay more for sustainable product as respondents from other regions. Results support the study done by Wei, et al. (2018), which indicated that consumers who have higher understanding of sustainability and environment are more like to pay little more for sustainable product than consumers who feel negative about sustainability and environmental issues. This is also supported by the research of Francis &

Sarangi (2022), which indicated that women have higher awareness of different environmental consequences.

To summarize, majority of the consumers make sustainable choices, but women make greater amount of sustainable choices than men do. Results clearly identified that the product is Made in Finland is very important factor for consumers, which was also among the highly valued parts of sustainability in the Graph 3. Sustainability actions and labels also have importance in buying decision making, but not as great as domestically manufactured product has. Sustainability's importance in buying decision making has increased for over half of the consumers. Sustainability's importance has increased more for women than for men. Over half are willing to pay more for sustainable product, and younger consumers and women are more willing to pay more for sustainable product than older customers and men.

6.1.3 Sustainability communication from consumer viewpoint

When considering the objective how consumers view sustainability communication, insights from survey questions 9, 10, 11, 12, 13, 17 and 18 were used together with the literature.

Results revealed that the packaging (45,8 %) is the most important source of sustainability information for consumers. Social media (15,6 %), newspapers and magazines (12,3 %), company websites (11,1 %) and TV/radio (10,7 %) were quite even in importance as sustainability source. Respondents had a chance to give their own preferred source of sustainability information and that included internet, science and scientical publications, investigative journalism, media and public authorities and reports published by them. Statistical analysis showed that women prefer packaging, social media and company websites, while men had higher share than women with TV/radio and newspapers and magazines. There was identified association between gender and the most important source of sustainability information. Younger respondents preferred more modern sources of information, like social media and company websites, when

older respondents favored more traditional sources of sustainability information. Statistical testing brought up the significant statistical association between age and the preferred source of sustainability information. Results show that over half of the respondents want to get more information about sustainability from packaging, while the rest of the sources had quite even share and they did not stand out like packaging did.

Over half of the respondents felt that food industry companies provide enough information about their sustainability, while about two out of five felt that the amount of information is not enough. Especially women felt the amount of information is too little, while men were more satisfied and some of them even considered the amount of provided information excessive. Statistical testing proved that there is significant association between gender and how the amount of sustainability information is experienced.

A little over half felt that the sustainability information is quite reliable, when about fifth thought that it is not reliable. Crosstabulation showed that younger people trust more to sustainability information than older people and statistical testing proved that there is association between age and how reliable the sustainability information is considered. Awareness of juice industry companies' sustainability goals were not high (5,9 %), as a little over half were not aware of those sustainability goals. Results showed that younger people are more aware of sustainability goals than older people. There is statistical association between age and awareness of sustainability goals. South and west of Finland are more aware of the sustainability goals than eastern and northern parts of Finland. Especially in north of Finland, the awareness of sustainability goals is lower than in other regions. There is statistical association between region and awareness of sustainability goals.

When considering the helpfulness of sustainability information in buying decision making, over half (55,1 %) of the respondents considered it to be helpful, while about fifth considered it to be not helpful. Younger respondents considered it to be more helpful than older respondents. Respondents from south felt that sustainability helps them

more than in other regions, while respondents located in north had the highest share of answer for not being helpful. Statistical testing identified that there is significant association between gender and helpfulness of sustainability information, as women considered it more helpful than men did.

Based on those research results, it can be said that younger consumers prefer more modern sources of sustainability information than older consumers, who prefer more traditional sources of information. It can be said that women prefer more packaging, social media and company websites as a source of sustainability information than men do, while men prefer traditional sources more than women do. Questionnaire results revealed that it is clear that packaging is the most wanted source of sustainability information. The amount of sustainability information was considered to be enough or not enough by majority of the respondents, but over half of the women considered the amount of provided information not enough. It can be seen that younger people trust more to sustainability information than older do. Younger people are also more aware of sustainability goals than older people. As a continuum, younger people consider sustainability information more helpful in buying decision making than older people do. Women also considered sustainability information more helpful than men did.

6.1.4 Using of sustainability and environmental management practices

To get answer to this research objective about how sustainability and environmental management practices are used, the literature review was utilized. This answers the question from the perspective of Finnish food industry.

There are existing regulations concerning sustainability in Finnish food industry. There are also some companies that are doing voluntary improvements on their sustainability. Finnish food industry has adapted some of the best sustainability practices and technologies widely. One major practice of sustainability is the efficient use of energy and the use of less polluting energy sources. Efficient use of materials and resources has been implemented widely on Finnish food industry. (Paloneva & Takamäki, 2021)

Different parties have listed sustainability goals for Finnish food industry. Those goals include halving the amount of food waste by 2030, having carbon-neutral Finland by 2035, producing 16 % less greenhouse gas emissions compared to level of 2005 and reducing individual's carbon footprint step by step from 2,5 (tCO2e) in 2030, to 1,4 by 2040 and to 0,7 by 2050. Goals also include doubling the value of Finnish food exports by 2025 and adding new and more healthy dietary requirements. (Sözer et al., 2021)

Presentation of the sustainability information within investigated Finnish food industry companies had some differences as Valio and Eckes-Granini Finland used clear visual presentation of their sustainability strategy in the form of circle, while Atria and Snellman trusted to more simple presentation. Finnish food industry companies have significantly concentrated on making more sustainable packaging. They also have environmental protection practices which they use to minimize the impact for the environment. Companies that use animal products have well-being of animals listed in their sustainability programs. Social responsibility is also something that each studied company had listed in their sustainability program. Valio and EGF offer products that are health and nutritionally beneficial. Each company uses sustainably sourced and proper raw materials. (Atria, 2021; Eckes-Granini Finland, 2021; Snellman, 2021; Valio, 2021)

Companies have implemented environmental management systems for more standardized operations and continuous improvement of their environmental performance. EMS are used to identify, manage, monitor and control their environmental impacts and actions. ISO 14001, the most common environmental management standard, is also used in Finnish food industry. The amount of certification has raised from 6 in 2010 to 39 in 2020. Finnish food industry companies have also other, less known than ISO 14001, certification systems in use that promote and improve sustainability and environmental management of the companies. (ISO, 2021; Kristensen et al., 2021)

6.2 Evaluation of research results

To evaluate the success of this research, it is important to consider whether this research provided an answer to research question and objectives or not.

From the research standpoint, research question and each objective got a thorough answer during this research. The answers were provided based on the findings from questionnaire results and the literature during the literature review. This study showed how wide the topic around the sustainability is and that it is constantly changing. There are also very much new solutions and ways of doing things around the area of sustainability, which affect the consumers and their behavior. Research results give description of the current circumstances, perspectives and behavior of consumers.

One thing to consider, when evaluating the research results is social acceptability. Social acceptability is about conforming to other's expectations to avoid disapproval and to receive moral acceptance. It is also about doing something that is considered to be right and how people should be acting. (Burchell et al., 2013) This is something that might have to do with low answer frequencies in some of the answer alternatives, for example on questions that had answer option "not so important" and "not important at all". Some people might not want to state their real opinion, because they want to have social acceptance. On the other hand, the questionnaire was done anonymously, so the influence of social acceptability is lower than what it would be on for instance during face to face -interviews, as people can answer more freely. However, it is clear that social acceptability has some type of influence to the answers of the questionnaire, which might have minor influences on the results of this study.

6.3 Future research

This study revealed that the area of sustainability needs some further and deeper research as it is considered a hot topic in present day. Existing research had some findings

that offered similar results that this research found out. Being that the area of sustainability changes constantly, there is need for continuous research of sustainability and consumer behavior. Especially consumer behavior is something that changes over time, in today's world the changes can be fast, due to influence that social media sources have on consumers.

Future research direction could be around the sustainability information. It could be about the sustainability information and how it can be better directed to different audiences and target groups. There are general studies about the area, but there is clearly need for research especially on sustainability information and how it can be delivered better to consumers. This type of research would allow companies and other parties to deliver the sustainability information better and raise awareness of sustainability. Future research could also be studying more about what kind of sustainability and environmental management practices companies have by doing survey or interviews directly to selected companies.

Future research could be done in other countries by using the same questionnaire as in this research to get insight on how consumers from different countries see the sustainability and environmental practices and what role sustainability has in their behavior. This research could be done later in Finland to see whether there have been some changes over time. That could be some type of follow up research, which would show for instance if consumers value different things than in the past. Future research can also be more specific and focused to some more detailed part of sustainability and consumer behavior. This could give some deeper insights on focused area, which could reveal interesting results. Future research could potentially be expanded from this to get wider and deeper perspective on sustainability, environmental management and consumer behavior. Naturally to complete this type of research, more time and other resources would be needed.

Another way for future research would be completely changing research method. That could mean for example using of qualitative interviews instead of quantitative questionnaire. That would give deeper view on consumer's behavior and perspective on sustainability and environmental management. Another completely different perspective for future research, would be to measure and study case company's products and business after they have done chances to their operations and products based on the original research. For example, if the case company highlights that their products are made in Finland, it would be interesting to see how it would affect their operations overall. This could also be measured on product level, which would simplify the analysis and lower the threshold for applying consumer valued methods to one product at a time.

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Appendices

Appendix 1 The survey questions

T1. Sukupuoli

1.   Mies

2.   Nainen

3.   Muu/En halua kertoa

T2. Ikä:

Ikäryhmä:

o   18-29

o   30-39

o   40-49

o   50-59

o   60-75

Postinumero:

T3. Alue

o   Itä - Östra län

o   Etelä - Södra län

o   Länsi - Västra län

o   Oulun - Lapin - Uleåborgs län

Maakunta:

o   Uusimaa

o   Varsinais-Suomi

o   Satakunta

o   Kanta-Häme

o Pirkanmaa

o Päijät-Häme

o Kymenlaakso

o Etelä-Karjala

o Etelä-Savo

o Pohjois-Savo

o Pohjois-Karjala

o Keski-Suomi

o Etelä-Pohjanmaa

o Pohjanmaa

o Keski-Pohjanmaa

o Pohjois-Pohjanmaa

o Kainuu

o Lappi

o Ahvenanmaa

1a. Kuinka usein käytät mehutuotteita?

1. Päivittäin tai lähes päivittäin

2. 3-4 kertaa viikossa

3. 1-2 kertaa viikossa

4. 1-3 kertaa kuukaudessa

5. Noin 2-3 kuukauden välein

6. Harvemmin

7. En lainkaan

1b. Milloin viimeksi ostit mehutuotteen?

1. Viimeisen 7 päivän aikana

2. Viikko – kaksi viikkoa sitten

3. Noin kuukausi sitten

4. 2-3 kuukautta sitten

5 Aiemmin kuin 2-3 kuukautta sitten

2. Millainen on mielestäsi seuraavien vastuullisuusteemojen tärkeys?

1. Erittäin tärkeä

2. Melko tärkeä

3. Ei kovin tärkeä

4. Ei lainkaan tärkeä

Ympäristöstä huolehtiminen (esimerkiksi: luonnon suojeleminen, ekologisten pakkausten ja luomuraaka-aineiden käyttäminen, uusiutuvien energiamuotojen käyttäminen, ilmaston lämpenemisen hidastaminen)

Sosiaalisten vaikutusten huomiointi (esimerkiksi: työntekijöistä huolehtiminen, tuotteiden terveyttä edistävät ominaisuudet, tuoteturvallisuus, alkutuotannon olosuhteista huolehtiminen, hyväntekeväisyys, valmistettu Suomessa)

Taloudellisten vaikutusten huomiointi (verojen maksaminen, lakien noudattaminen, läpinäkyvyys ja avoimuus viestinnässä, luotettavat tuotemerkit)

3. Mitä osa-alueita pidät itsellesi tärkeimpinä vastuullisuudessa?

Valitse alla olevista vaihtoehdoista viisi itsellesi tärkeintä asiaa vastuullisuudesta.

1. Tuotteiden terveyttä edistävät ominaisuudet

2. Työntekijöistä huolehtiminen

3. Luonnon suojeleminen

4. Luotettavat tuotemerkit

5. Valmistettu Suomessa

6. Tuoteturvallisuus

7. Uusiutuvien energiamuotojen käyttäminen

8. Verojen maksaminen

9. Ekologisten pakkausten ja luomuraaka-aineiden käyttäminen

10. Ilmaston lämpenemisen hidastaminen

11. Lakien noudattaminen

12. Alkutuotannon olosuhteista huolehtiminen

13. Hyväntekeväisyys

14. Läpinäkyvyys ja avoimuus viestinnässä

4. Koetko yritysten vastuullisuusteot yleisesti...?

1. Täysin riittävinä

2. Jokseenkin riittävinä

3. En osaa sanoa

4. Jokseenkin riittämättöminä

5. Riittämättöminä

5. Kuinka tärkeänä pidät yritysten tekemää vastuullisuustyötä?

1. Erittäin tärkeänä

2. Melko tärkeänä

3. En osaa sanoa

4. En kovin tärkeänä

5. Ei lainkaan tärkeänä

6. Oletko havainnut mehuteollisuusyritysten tekemiä vastuullisuustekoja?

1. Kyllä

2. En

3. En osaa sanoa

6b. Jos vastasit kyllä, millaisia havaitsemasi teot ovat?

7. Miten koet mehuteollisuusyritysten vastuullisuusteot muihin elintarviketeollisuu-den yrityksiin verrattuna?

1.   Korkeampi

2.   Samalla tasolla

3.   Alhaisempi

8. Pyritkö tekemään pääsääntöisesti vastuullisia valintoja?

1.   Kyllä

2.   En

9. Mikä on itsellesi tärkein lähde vastuullisuustiedolle?

1.   Sosiaalinen media (sisältää sosiaalisen median vaikuttajat)

2.   Pakkauksissa oleva viestintä

3.   Yrityksen verkkosivut

4.   TV/Radio

5.   Sanoma- ja aikakauslehdet

6.   Muu, mikä?

10. Mitä kautta haluat saada enemmän tietoa elintarvikkeiden vastuullisuudesta?

1.   Sosiaalinen media (sisältää sosiaalisen median vaikuttajat)

2.   Pakkauksessa oleva viestintä

3.   Yrityksen verkkosivut

4.   TV/Radio

5.   Sanoma- ja aikakauslehdet

6.   Muu, mikä?

11. Tarjoavatko elintarvikeyritykset riittävästi tietoa vastuullisuudestaan?

1.   Liian paljon

2.   Sopivasti

3.   Liian vähän

12. Pidätkö vastuullisuudesta saatavaa tietoa luotettavana?

1. Erittäin luotettavana

2. Melko luotettavana

3. En osaa sanoa

4. En kovin luotettavana

5. En lainkaan luotettavana

13. Oletko tietoinen joidenkin mehuyritysten laatimista erilaisista vastuullisuustavoitteista?

1. Kyllä

2. En osaa sanoa

3. En

14. Kuinka merkittävästi seuraavat seikat vaikuttavat ostopäätöksiisi.

1. Vaikuttaa merkittävästi

2. Vaikuttaa jonkin verran

3. Ei juurikaan vaikuta

4. Ei vaikuta lainkaan

    1. Elintarvikeyritysten vastuullisuusteot

    2. Tuotteen vastuullisuusmerkit

    3. Elintarvike on kotimaassa valmistettu

15. Aiempaan verrattuna, uskotko vastuullisuuden merkityksen kasvaneen ostopäätöksesi muodostumisessa?

1. Kyllä

2. En osaa sanoa

3. En

16. Oletko valmis maksamaan vastuullisesta tuotteesta hieman enemmän?

1. Kyllä

2. En

17. Helpottaako vastuullisuusviestintä ostopäätöksesi tekemisessä?

1. Kyllä

2. En osaa sanoa

3. Ei

18. Osaatko sanoa, mikset koe viestinnän helpottavan ostopäätöstä?

T4. Mikä seuraavista vastaa asemaasi työelämässä?

1. Työtön työnhakija

2. Opiskelija

3. Työelämässä

4. Eläkkeellä

5. Jokin muu

T5. Mikä seuraavista vastaa parhaiten elämäntilannettasi?

1. Asun kotona vanhempien kanssa

2. Asun yksin

3. Asun kaksin puolison kanssa

4. Asun puolison ja lasten kanssa

5. Olen yksinhuoltaja

6. Muu perhemuoto

T6. Kuinka monta henkilöä talouteesi kuuluu itsesi mukaan lukien?

1. 1

2. 2

3. 3

4. 4

5. 5

6. 6 tai enemmän

T7. Mikä seuraavista vastaa parhaiten asuinpaikkakuntaasi?

1. Pääkaupunkiseutu

2. Turku/Tampere/Oulu

3. Muu yli 50 000 asukkaan kaupunki

4. Alle 50 000 asukkaan kaupunki

5. Maalaiskunta