Sustainable innovations in the Food and Beverage industry during a Covid-19 crisis

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This thesis is a research-based study that aims to understand which innovations will improve the sustainability of the food and beverage industry. The industry has many issues concerning sustainability. Moreover, Covid leads to social distancing, which can cause individuals to contribute to a more environmentally friendly way of life.

This research investigates the impact of sustainable innovations in the food industry on customers, whether they are willing to pay more when buying a sustainable product, and whether they are aware of sustainable consequences. In addition, the study will look at which sustainable improvement innovations already exist, which can be used within the food industry and which innovations could potentially be used in its operations. Moreover, the awareness of sustainable consequences will be shown in the food and beverage industry, both from a customer's perspective and a business's point of view. It will also explore the issue of sustainability at a time of scarcity or a crisis. This component includes the impact of the pandemic on sustainable behaviour in the food industry.

To meet the objectives, quantitative and qualitative methodologies are used. Firstly, secondary research is used; this theoretical section utilises secondary analysis in the thesis, which will consist of chapters better to understand sustainability and sustainable innovations in the industry. Secondly, six interviews with various types of restaurants were conducted. The aim is to get a deeper understanding of which sustainability initiatives they use. Moreover, qualitative data will be gained from the observation of different types of businesses in the food and beverage industry. The last methodology used is a questionnaire. The data collected is used to determine the opinions and knowledge of consumers regarding sustainable food services. The research was done between March and April 2021.

The data collected is both from quantitative and qualitative methods. The research findings demonstrate the importance of sustainable initiatives in the industry. Businesses should look to sustainability as a whole. Moreover, restaurants should be more transparent about sustainability since most consumers are not aware, and this makes it easier to consider the level of sustainability with their dining out decisions. There are various initiatives restaurants can use within a sustainable concept, at first source local, and consider using ingredients to avoid unnecessary waste. The study showed that keeping the supply chain small gives businesses more control over their sustainability level. Restaurants should also use more plant-based products since meat is producing 60% of all greenhouse gas emissions. Packaging is another essential product that needs to be considered in the industry. Some applications can help to reduce food waste which allows business to sell.

The study is relevant for companies in the food and beverage industry. The various Methodologies used will generally describe the perception that customers have of sustainable businesses and the current sustainability efforts of different restaurants.

Keywords
Sustainability; Food and Beverage Industry; Waste management; Triple Bottom Line; Sustainable initiatives, Improvements; Sustainable Development Goals.

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1   Introduction

The global pandemic has a severe impact on the hospitality industry. Restaurants, hotels, casinos, and sports facilities have been closed for months since governments and public health authorities are taking action to control the spread of the coronavirus. (Deloitte, 2020).The unexpected crisis affected the food and beverage industry among all the hardest due to the covid 19 crisis. Restaurants were either forced to close or operate with many restrictions, or only takeaways and delivery services were allowed. (Madeira, Palrão and Mendes, 2021.). However, with the opening of the restaurants and hotels, some behavioural changes are happening. Those changes mean that some organisations have to adapt to the customers' desires. (Deloitte, 2020.). Liese and Monley (2021) explain that social distancing results in the increased eagerness of individuals to contribute towards a more environmentally friendly way of life. Sovacool, Furszyfer Del Rio and Griffiths (2020) argue that the pandemic, the overall concern of the environment is increasing. The matter is rising at different levels in the society towards the economic, social and environmental issues towards Sustainability. (Sovacool, Furszyfer Del Rio and Griffiths, 2020).

This thesis gives more insights into what innovations would work in the food industry to be more sustainable. It is an industry where there are many problems concerning Sustainability. The thesis is based on a research-oriented style, and the Harvard referencing style is used throughout the thesis. In this study, research will be done on which level consumers are willing to sacrifice for a sustainable product. This outcome will help business to be more attracted to a sustainable solution. Currently, during the pandemic, small restaurants are trying to stay open with the delivery. This research will investigate how restaurants operate now and how they can manage the businesses more sustainably.

The interest in this subject emerged due to various factors. In previous years at Breda University, two semesters with sustainability courses were followed in the first and second year. Furthermore, in the third year, a project Sustainable Strategic Business Design was followed. In this project, a sustainable experience had to be designed in 4 months, where we discussed various topics concerning Sustainability. Furthermore, Sustainability is a big issue for every company, especially in the food and beverage industry. This thesis will help to understand the term sustainability. Traditionally Sustainability is explained as the middle of three pillars existing of society, ecology and economy. It is also described with the triple bottom line, which combines people, planet and profit. The goal is to combine the three pillars, and it is impossible to reach Sustainability with only one or two of the cornerstones. (Thiele, 2016.)

The main objectives and sub-objectives that will be covered are:
- What is the customer perspective on a sustainable concept?
    - Are customers willing to sacrifice something for a sustainable vision?
- What innovations regarding sustainable improvement are existing and can be used within the food industry and possible innovations that can be used in its operations.
- What kind of consequences does the pandemic have on sustainable actions in the food industry.

In this thesis, research will be conducted to get more insights into the objectives mentioned above. The study is about how sustainable innovations in the food industry will affect the customers. It will invest if consumers will be willing to pay more for a sustainable product and the awareness of sustainable consequences. A questionnaire will be used to explore the opinion and knowledge of the people about sustainable food services. In addition, secondary research, interviews and observations will discover which innovations about the improvement of Sustainability already exist, which can be used within the food industry and possible innovations that can be used in its operations. Examples are Artificial Intelligence in the kitchen and food water system, also regarding packaging for delivery. This research will be done using secondary research and possible interviews with restaurants that use a sustainable concept. The theoretical part with the use of secondary analysis of the thesis will exist out of 3 main chapters. The first chapter will explain Sustainability and Sustainability in the hospitality industry and food and beverage industry. The second chapter will touch upon innovations in the hospitality industry regarding Sustainability. The third chapter will describe the theory behind the methods used during the research.
Moreover, research will be done on Sustainability in a time of scarcity or a crisis. This part includes what kind of consequences the pandemic has on sustainable actions in the food industry. Many restaurants offer delivery services and use packaging that is not sustainable, besides the emissions associated with food delivery.

This research is relevant for different businesses in the food and beverage industry. This research is primarily based on restaurants. The other forms of methodologies used will give a general description of how customers think about sustainable businesses and what is currently done by various restaurants in terms of Sustainability.

2   Theoretical framework

In the following chapters, different topics about Sustainability and innovations will be discussed. Firstly, the central issue of Sustainability will be described and connected to the hospitality industry, food and beverage industry and the pandemic. Furthermore, innovations that would improve Sustainability within the sector are pointed at.

2.1   Sustainability

The term sustainability is interpreted in various ways by different people and is therefore often misused. Melissen and Sauer (2019) identify sustainable development as one that provides for the needs of the present without affecting the ability of future generations to meet their own needs. Reaching a state that would classify our societies as development is challenging. Particularly if one realises that currently, humanity consumes already more resources than the earth can provide in the long run. If you combine this awareness with the forecast increase in our world population and the fact that significant portions of the people are currently living their lives in circumstances that do not meet the standards for a decent quality of life, not to mention an enhanced quality of life. (Melissen and Sauer, 2019). Roorda (2017) interprets sustainable development as involving the sharing of wealth among the various parts of the world today and the distribution of that prosperity among the people of today and the people of tomorrow. Belyeava et al. (2020) define sustainability business models in terms of models which helps to describe, organise, analyse, manage, and communicate a firm's value proposition to its customers and all other stakeholders. Consider how sustainable value will be created or delivered and how economic value is captured while preserving or generating the natural, social and economic assets outside of its organisational boundaries. Belyeava et al. (2020) indicate principles that are the base of such a sustainable business model. The base includes resource efficiency, social relevance, localisation and engagement, longevity, ethical sourcing and work enrichment. There is a growing awareness that the drive for Sustainability and ongoing development demands incorporating all economic, social, cultural, political and environmental factors. It requires connecting the top-down views of development with the bottom-up in a positive way. It demands taking into account both the local and the global dimensions and how they interact. (Gallopín, 2003). According to Matthies et al. (2019), there is still little cross-disciplinary research about Sustainability. However, it is necessary to understand the complexity of Sustainability fully. Therefore, they claim that today's ongoing societal challenges demand a transformation of social systems' structure, culture, and practices. Besides, the core research on sustainability transformation's ambition is to understand that society's significant challenges may only be overcome by fundamental systems shift through ecosystems, economies and social systems. (Matthies *et al.*, 2019).

Rogers and Hudson (2011) explain that recently, Sustainability has become a term revolving to the theory of the Triple Bottom Line (TBL), meaning the social, environmental and economic elements of sustainable practices. There are two essential aspects of the triple bottom line framework adding importance to the discussion. Firstly, helping the focus shift the attention towards criteria specific for progress on each of these three areas of Sustainability helps bring all three elements in the TBL to company accountability. The second is by highlighting relationships between the three core components of the TBL framework. The ideal would be to operate at the Intersection where all three objectives are satisfied. When we arrive at concrete programmes and policies, often a triple-win confluence of synergies is discovered. However, TBL often reveals several conflicts or trade-offs among opposing objectives, requiring choices towards higher standards of system thinking and business practices made from a broader perspective. (Rogers and Hudson, 2011).

2.1.1   Sustainable development goals

In 2016, the Sustainable Development Goals (SDGs) were defined, built on the MDGs, established in 2000. These targets focus on the planet perspective and represent a change in thinking about sustainable development in general. Since all U.N. members signed the SDGs, many local and global initiatives have arisen to achieve these goals. Some of the initiatives focusing purely on the tourism and travel industry, including the hospitality industry. (Melissen and Sauer, 2019). Matthies et al. (2019) explain that the SDGs not only reflect on the potential for the effective implementation of the U.N. Sustainable Development Goals. They also underline the importance of bottom-up innovations. The transition to Sustainability requires the engagement and involvement within new agencies outside of the top-down efforts of the government. (Matthies et al., 2019).

2.1.2   Sustainability in the hospitality industry

Growing awareness of environmental issues among society in response to the degradation of the environment and global warming caused the hospitality industry to focus more on environmental concerns. Because of strict regulations on the environment and increasing consumer attention to ecological problems, the hospitality sector is increasingly aware of environmental issues. (Gürlek and Tuna, 2018).
Restaurants and hotels are commonly considered the two major sectors of the hospitality industry. Nevertheless, hospitality is often used as an overall terminology for both sectors and entertainment and leisure-related firms and professionals, including theme parks and casinos, travel services and meeting and event management. The hospitality sector, in

turn, is a part of the wider tourism sector. From the perspective of Sustainability, several environmental impacts can be associated with tourism. One of them is the associated greenhouse gas emissions. The majority of these emissions of greenhouse gasses are linked to travel, as most travellers use a car or plane to travel to their destination. Since an increasing number of people choose and afford the final form of transport, air travel is already overgrowing. It will keep on doing so in the coming years, resulting in a corresponding rise in emissions of such particles and gases as carbon dioxide, hydrocarbons, nitrogen oxides, or lead. (Roorda, 2017).

Salzberg, Gough and Suen (2019) discuss that restaurants are encouraged to reduce the negative impacts of their operations by implementing improvements in food purchasing, service delivery, waste management and energy and water conservation. This is since the hospitality sector, according to Chou, Chen and Wang (2012), is continuing to expand in importance. The industry remains a responsible and growing sector that contributes to climate change and environmental pollution. Salzberg, Gough and Suen (2019) explain that most energy used in restaurants is consumed on food preparation, air conditioning, hygiene, lighting and refrigeration. Innovative energy solutions may help restaurants minimise their polluting outputs and reduce their operational costs. Innovations in renewable energy and efficiency can help restaurants reduce their pollution emissions. (Salzberg, Gough and Suen, 2019). Other sources explain that restaurants use almost five times as much energy per square metre as different commercial building types. According to the EPA's latest Carbon Footprint Equivalents, which translates into 490 tonnes of carbon dioxide produced per year per restaurant. (Chou, Chen and Wang, 2012). Salzberg, Gough and Suen (2019) also consider the use of water. They discuss that water should be regarded as sustainable innovation within restaurants since water is heavily used in the kitchen, bathrooms, landscape, and cooling and heating applications. Many water efficiency conservation innovations are available which can help restaurants to reduce overall water use. In 2018, the NRA also found that many restaurants had introduced various kinds of sustainability innovations in bathrooms and motion-activated toilets or taps, and waterless urinals. (Salzberg, Gough and Suen, 2019).

By taking environmental responsibilities, restaurant managers will be expected to be responsive to several ecological trends, including seasonal menu, and focus on enhancing the "lifestyle of happiness and sustainability" and encouraging local food, environmental, and low-carbon food movements. (Chou, Chen and Wang, 2012). According to Chou, Chen and Wang (2019), green innovation refers to the environmental performance built into company practices to guide the products, production process, and management. Gürlek and Tuna (2017) address that Ecological innovation provides a solution regarding the conflict concerned while still maintaining the environmentally

friendly practice of the hotel without misleading the public. Green innovation offers an opportunity for hotels both to protect the climate and to improve financial performance. They define green innovation as innovations of products or production procedures to reach the environmental objectives and decrease the ecological footprint over the life-cycle of a product. (Gürlek and Tuna, 2018).

In the hospitality sector, consumers are more selective, and instead of providing standard services and compete on price, innovative services are suggested. Moreover, the innovative approach appears to be a foundation for the persistence of firms due to its benefits, including improved quality of the service, higher performance, reduced costs, and diversification of services and products. For example, in the hospitality and tourism sector, roughly a third of the expenditure is on food. Furthermore, the production and consumption of food have several implications for Sustainability. (Ozturkoglu, Sari and Saygili, 2019).

2.1.3 Sustainability in the food and beverage industry

The food and beverage industry is dominated by social and environmental sustainability issues that have concerned the public and media for many decades. Belyeava et al. (2020) indicate that the globalisation of food markets has increased the critical observation of the origin of food, its quality, health value and the ethicality and sustainability of food production among an increasing body of consumers stakeholders in the food chain. Understanding this sector seems especially important since it accounts for about 15–30 per cent of all environmental pressures. Assuming that by 2050, the world population might increase up to 9.8 billion people, the demand for resources, especially for food products, will increase and set up new standards for the whole industry. (Belyaeva et al., 2020). The food and beverage sector is well known for its high consumption of both energy and water. Likewise, it is known to generate vast amounts of waste. Various businesses in this industry aim to provide guests with comfort and luxury, often reflected in the level of care they provide. In recent years, the food industry has attracted more public attention than many other sectors. (Roorda, 2017). Pullmann, Malonu and Carter (2009) explain that several quality issues have been exposed together with the fast-rising price of food from the weaknesses of supply chain management. It referred to as "the new oil". Besides problems of quality and cost, concerns about environmental and social Sustainability are widely expressed in the media and the public for several decades connected to the food industry. Several growing businesses and researchers have started to broaden sustainability objectives to long-term social, environmental and economic stabilisation concerns in the supply chain. These various sustainability aspects can create a competitive advantage for a business. More precisely, sustainability practices are a part of a business's capabilities. (Pullman, Maloni and Carter,

2009). Weber and Hogberg-Saunders (2018) discuss a critical demand for water within the food and beverage industry along with the entire value and supply chain. Therefore, this industry has a relatively high-water footprint that cannot be easily reduced. The use of water is essential for agricultural production and growth and the production of final consumer goods. In addition, there is an increasing amount of water trading as a virtual water element of products, including agricultural products and the challenges faced by industry due to wastewater generated by food processing plants. (Weber and Hogberg-Saunders, 2018).

2.1.4 Sustainability in a pandemic

While both the coronavirus pandemic and the climate change are on different timelines, they show a similar problem and reaction dynamics. As such, both the Coronavirus Pandemic and Climate Change show signs of what is known as 'super wicked problems. In detail, these traits include that time is essential, that the people who created the problem are also attempting to solve it, that there exists no or very weak core authorities to handle the issue, and that players assess future events irrationally. The governments have turned to strategies based on climate change adaptation and reduction. The environmental and social-economic consequences of climate change are as complex and increasing progressively in space and time. The governments have switched to control and response strategies. The ecological and socio-economic impacts of climate change are similarly more complex and progressive in time and space. Like the coronavirus pandemic, the responses to the climate change challenges must be decisive and innovative. In particular, global leaders must collaborate instead of overstepping their bounds. For both climate change and the coronavirus, there must be efforts at crisis prevention, even though the results or the effectiveness of those efforts are not yet completely understood. Any interventions based on established frameworks or institutions have been insufficient for both, indicating a need for new initiatives, including setting institutions and a radical change in governance and lifestyles. (Engler, Abson and Von Wehrden, 2021).

2.2 Innovations in the food and beverage industry

The following paragraphs explain the innovations in the industry divided into different topics. The sections are the most critical factors that need to be improved looking at the food and beverage industry.

2.2.1 Food waste

The biggest problem in the food and beverage industry is food waste. A considerable amount of waste is edible and is often used for animal food or energy regeneration. This food waste can be prevented because all edible waste could be reused to help local communities. The waste of food that will end up in dumps is a significant source of greenhouse gas emissions. Therefore, in a highly resource-constrained world, reducing food waste is crucial to achieving worldwide food security by decreasing the dependence on vital resources and enhancing the eco-efficiency of the supply chain. Key players in the Food Supply Chains (FSC), including food producers, retailers and distributors, are investing significant efforts in reducing food waste. Therefore, FSCs must introduce food waste reduction techniques, including waste tracking, production line optimisation and inventory management. (Grekova et al., 2016). Like the Internet of Things, new methods may play a more impolitically in minimising food waste from farm to retailer. The IoT represents a concept where objects interact and exchange data over wired or wireless networks, offering stakeholders intelligent solutions that facilitate better decision making. It has enabled the sensing, actuation, collection, storage and processing of information by linking objects to the internet. Some of these IoT technologies have found their way into FSCs and are now being used for food quality control, tracking and logistics management. Nevertheless, since IoT is considered an emerging technology, applications focus more on developing smart homes, intelligent cars, smart cities, and smart meters. Using RFID to enhance the traceability of food movement through the supply chain is being applied by food industries to meet legal requirements and improve the public image of their products. They discuss Wireless sensor networks (WSN) and RFID technology in the food sector and their applications to environmental monitoring, precise agriculture and farming, and monitoring and tracking the cold supply chain. (Grekova et al., 2016). Jagtap and Rahimifard (2019) illustrated ways to increase the efficiency of F.W. management by introducing an IoT-based Smart Garbage System. The digitised F.W. monitoring system makes use of an Intelligent Scale. This digitised F.W. tracking system uses an intelligent scale to determine the weight of the food waste and enter it into a specially developed software application. The following step is to identify and categorise the waste type (Jagtap and Rahimifard, 2019). Grekova et al. (2016) examined how environmental collaboration with suppliers induces improvements in the ecological Sustainability of internal processes, such as increased adoption of clean technologies, processes with

lower energy burden and material reuse, recycling and remanufacturing. (Grekova et al., 2016).

2.2.2 Food packaging

Han et al. (2018) explain that packaging for food products protects them from environmental conditions and influences such as smells, bumps, dust, temperatures, physical damage, light, microorganisms and humidity. It is essential for ensuring food quality and safety while extending the shelf life and reducing food waste (Han et al.,2018). Siracusa et al. (2008) explain that with increasing environmental concerns and regulations, reducing the environmental impact of food packaging is one of the main driving forces of innovation in food packaging materials and satisfying the growing consumer desire for safe yet high-quality food. It is beyond question all types of food packaging have a variable impact on the environment throughout their life-cycle. In particular, these environmental impacts result from how raw packaging products are produced and processed, together with their end-of-life stage, including recycling, incineration or waste disposal in waste dumps. (Siracusa et al., 2008). Han et al. (2018) discuss that with increased packaging consumption, an increasing impact of food packaging materials on the environment becomes a significant issue worldwide, particularly for businesses and producers. Williams et al. (2012) identified that 20-25% of household food waste is related to food ageing. Thus, innovations in the packaging may reduce the impact of environmental impact from food waste through extended shelf life and waste reduction throughout the distribution chain and household level. Several studies have been conducted to achieve Sustainability of food packaging, encourage recycling of packaging material and reduce environmental pollution, to create new renewable resource-based packaging innovations that are environmentally friendly, biodegradable or compostable. (Williams et al., 2012). Nevertheless, Han et al. (2018) argue that providing sustainable, environmentally friendly alternative packaging without compromise includes a barrier. The critical packaging characteristics include mechanical characteristics and extended product shelf life, requiring further development and implementation of new and sustainable food packaging solutions in the decades to come. However, some innovations in food packaging exist since the 20th century, significant advances have been made in packaging technology, including intelligent or smart packaging. Examples include IOPS, time-temperature indicators (TTIs), radio frequency identification (RFID) and active packaging (A.P.). These innovations have further improved food quality, food safety and shelf life. (Han et al., 2018). Williams et al. (2012) explain that the extension of the secondary shelf life after opening the package needs further study since it is helpful in the reduction of food waste in households. Han et al. (2018) argue that the shelf-lives of many food products are very sensitive to temperature

variation, which is a major cause of deterioration and economic loss in these perishable goods during transportation, handling, distribution, storage, and consumption.

To evaluate balancing between technological innovation with environmental concerns, any environmental effects of innovations in food packaging and food waste would also need to be assessed through the use of life cycle assessment (LCA) methodology (covering extracting raw ingredients and the processing of raw materials, packaging manufacture, transport and retail, handling and disposal of food and packaging, also at household level), besides evaluating impacts on food shelf life and packaging features, including visual, technical, physical, thermal, and mechanical characteristics. (Williams et al., 2012). Han et al. (2018) argue that innovations in food packaging have increasingly resulted in the rapid development of intelligent packaging, potentially providing in-depth information on the status of a packed food or its surroundings along a supply chain and providing the food manufacturer with an early warning to the consumer. The intelligent ageing technologies available today can perform various functions, including monitoring, identification, processing, recording, tracking and communication information. This promotes decision-making efficiency, extends shelf life, and provides information about product condition and quality throughout their supply chain. Han et al. (2018) explain the innovation, IOPS, which can control the state of packaged food or its surroundings by using sensors or indicators. IOPS be used to track, detect, register, trace and transmit quality information of food. It may be used for decision-making concerning shelf-life, food safety and quality, and alerting possible food problems. IOPS includes small labels or tags attached to the food package designed to be printed or attached to the food packaging materials to obtain, store, and transmit food quality to the stakeholders. Another innovation called Temperature Time Indications (TTIs) is limiting microorganisms' growths and toxins in most perishable products. The FDA defined time and temperature control to ensure food safety. Monitoring the temperature is critical for providing the necessary control data on food quality and safety to consumers throughout the process of the food movement. TTIs are usually an indirect indication and are widely adopted in the food industry. They are relatively small, cost-effective and easy to use compared to other temperature monitoring devices. Typically, TTIs are placed on individual consumer packages or transport containers. Next, is the innovation that uses Radio Frequency Identification (RFID) based on wireless communication to provide information on temperature, humidity, and nutrition. This was the supplier has all the information as the product is moving along the supply chain, thus increasing the traceability and ensuring the safety and quality of the food. (Han et al., 2018). Furthermore, Active Packaging (A.P.) is emerging today as a new and promising food packaging technique designed to meet today's needs of society and consumers.

A.P. is intended to encourage selective food interactions by incorporating an active substance to be released into the food or absorbed either into or from the packaged food

or surrounding environment. (Siracusa et al., 2018). Siracusa et al. (2018) discuss a more environmentally friendly design, SOGP, which has become the focus of researchers aiming to reduce the environmental impact of the whole product-packaging process and improve the Sustainability of food packaging systems. SOGP may be achieved at three levels. First, regarding raw materials, using recycled materials with renewable resources lowers CO_2 emissions and decreases the dependence on fossil resources. Second, SOGP utilises smaller, lighter and thinner packages produced utilising relatively energy-efficient processes on the production process level. Thirdly, regarding waste management, reusing or recycling or biodegradable and compostable packaging can reduce the municipal waste problem. (Siracusa et al., 2008).

Nevertheless, several essential restrictions limit the essentiality of biodegradable plastics in food packaging products. They include high costs compared to traditional plastics, fragility, heat instability, weak melt strength, poor heat saleability, increased water vapour, high sensitivity increased to oxygen, low sensitivity, and poor resistance to impact. The performance expectation for bioplastic materials used for food packaging is to contain and protect food from the environment and maintain the food quality. (Siracusa et al., 2008).

2.2.3   Green organisational culture and ecolabelling

Within the field of environmental innovation, the hotel businesses are implementing the pollution prevention programmes such as recycling, water treatment, energy-saving systems, including automatic regulators, sensors, thermally efficient windows, compact fluorescent lamps, and electronic room cards, as well as towel and linen reuse programmes, and a green building project for an eco-friendly hotel. These programmes not only increase hotel customer attention but also increase the efficiency of resources. The strong growth of green movements over the last years and increasing awareness of environmental concerns have included environmentally friendly hotel management plans. The organisation gains a competitive advantage through developing an ecological strategy that is hardly replicable through green innovation supported with green organisational culture. (Gürlek and Tuna, 2018).

Currently, various restaurants can stand out if they are certificated with a Green Label. In the Nordic countries, this is done by Nordic ecolabelling. The Nordic Ecolabel (2013) explains that The Nordic Ecolabel certified hotel, restaurant or conference centre has taken a life-cycle approach to its work on the environment and has fulfilled the strict requirements of the Nordic Ecolabel. Through the Nordic Ecolabel, hotel, restaurant or conference centre strives towards a sustainable society. In many areas, the staff is working to reduce environmental impacts. To get the Nordic Ecolabel, a company must meet specific target values. As one of the target values, energy consumption represents an important area for these companies concerning environmental impact. Companies

work actively towards the reduction of the amount of waste and water consumption. Companies with the Nordic Ecolabel are also taking steps to minimise chemical use in their operations. Eco labelled products constitute an essential part of the used products. The restaurants certified with the Nordic Ecolabel fulfil high requirements regarding purchased and used ingredients. Restaurants with the Nordic Ecolabel utilise a high proportion of organic food sources as well. A Nordic Eco label business will always maintain procedures for core operations. That means that guidelines and regulations exist regarding what produce must and must not be purchased, among other things, and a commitment on the part of the staff to improve the environment. (Nordic Ecolabelling, 2013).

2.2.4 Energy and water consumption

Food and water consumption is a big issue for restaurants since this is often required to serve the guests. Rosa et al. (2021) explain that the Feed-for-Waste nexus can support efficient water management, energy production, and food production through environmental innovations. FEW nexus is determined by integration and the function of water, air, energy and food systems. The purpose would be to optimise efficiency, reduce the cost to the minimum, increase the efficiency of using resources, and integrate the social and environmental impacts. It is often used to address issues within the framework of the Feed-for-Waste nexus, which seeks to solve the dilemma of producing food on such a vast scale. At the same time, maintaining the availability of potable waters and energy, for instance, by preventing the waste of food, by using renewable energy sources and taking into account the water footprint. (Rosa *et al.*, 2021).

Particularly in the food industry, environmental innovations concern new and improved services and processes that minimise the consumption of environmental goods. It can be accomplished by encouraging businesses and governments to apply sustainable green innovations to decrease water use and energy production, delivery, and distribution and supply processes. (Rosa *et al.*, 2021).

2.2.5 Sustainable initiatives in the food industry

OLIO provides a digital platform allowing users to inform neighbours regarding leftover food and ingredients, bringing communities together and helping to prevent food waste. By reducing households' food waste, OLIO's unique digital platform positively impacts the environment and social well-being. OLIO began when the founders found it necessary to throw away food even though they hated doing so. Research, testing and pilots are at the heart of the solution, focusing on ensuring food safety. Engagement of consumers, companies, community and municipalities have also been key to ensuring mobilisation around this issue. (SITRA, 2020b; OLIO, 2021).

The ResQ- club application offers the logistics platform to help companies engage with local businesses and their communities to save food from being wasted. Their simple platform addresses three big crises: waste, climate change and food security. ResQ Club is a non-profit organisation committed to directing surplus, healthy food towards those in need. Despite the efforts of ResQ Club, leftover food that remained in the supply chain was still being lost. The management of ResQ Club recognised a digital pick up platform that could capture up to small quantities of surplus food and expand the initiative. (ResQ Club, 2019).

2.3 Methodology

In this chapter, different methodologies are discussed that are used in the research of this bachelor thesis.

2.3.1 Secondary research

Martin and Hanington (2012) point out that secondary research is another crucial part of any project, by determining what has been done before and what has not, collecting data for comparison, and helping to propose a direction of research and methods to be used in the current research. A secondary research approach is often referred to as desk research, in contrast to primary research conducted as field research or an empirical re-examination. The value of secondary research is time-consuming. Secondary research sources can include books, research papers, journal articles or conference papers, government records, statistics, nongovernmental organisations (NGOs), or any other resources or documents as needed. A secondary study is a valuable method for identifying the definitive borders of the design project because it indicates existing research methods and where gaps may exist. As a part of exploratory research, secondary research will provide a crucial resource to help in understanding the research design process and the field of use that is being investigated. (Martin and Hanington, 2012)

2.3.2 Semi-structured interview

In addition, interviews constitute one out of the two methodologies of survey research. Interviews are usually part of research strategies that utilise complementary methods, like questionnaires or observations, to verify and humanise data gathered by other means. An Interview can be either structured with a script or questions to follow, or it can be relatively unstructured, enabling flexibility in conversation format. While unstructured interviews benefit from being more conversational and convenient for the participants, they rely on the interviewer to keep the session on track and collect the necessary information within the allotted time. While structured interviews can feel formal and impersonal, they are more controllable in terms of questions and time and are easier to analyse. (Martin and Hanington, 2012).

2.3.3 Observation / content analysis

The methodology observations are an essential qualitative exploration skill, and observation requires careful watching and a structured way of registering events, including the people, objects, surroundings, occurrences, attitudes, and interactions. The observation method can be characterised by their level of formality based on how well-

structured they are for the observations and recordings and their intended use. It is necessary for this method to know and understand the objectives that need to be observed. The observation method is there to collect data and to understand how the business or people behave. When doing the observation method, the observer can be guided by a set of questions. However, observation is primarily made with an open mind. Variations are allowed in reaction to any unexpected incident during the observation. Whereas information gathered through semi-structured observations is typically used to provide input for design inspiration, the more specific types for qualitative assessment, like content analysis, may be used to identify shared issues or patterns. Content analysis refers to a systematic approach to describing the contents of written, oral or visual material in terms of the themes, the designs and the counted numbers of words, sentences, images or concepts. (Martin and Hanington, 2012).

2.3.4   Questionnaires

Questionnaires provide an efficient tool for collecting large amounts of data, although they are affected by the weaknesses of self-reporting and therefore need to be complemented by other methods. Questionnaires on their own can be used, although more frequently, they will be triangulated with others. They can be applied as an integrated research component at various research stages for different purposes. (Martin and Hanington, 2012).

3   Empirical part

This chapter will explain the methodologies used and their purpose. The methods used are an interview, questionnaires and an observation.

3.1   Interview

The semi-structured interview will be conducted with different restaurants to see how they implement a sustainable food concept. The interview questions are formed to get a better understanding of the sustainable concept of the restaurants. The interview will help understand the current initiatives the restaurants are applying and if they are familiar with the secondary research conducted in this study. The interview is divided into three different aspects, the concept of the restaurant, Sustainability and innovations. The first part is to understand their concept towards Sustainability and their clientele. The second part is there to understand their view on Sustainability and understand how the chosen restaurants receive a sustainable concept. The third part will discuss the innovations that were discussed in the theoretical framework. This part will investigate the opinion about the retrieved innovations.

The interviews help to answer the objectives. The objectives of this thesis are:
- What is the customer perspective on a sustainable concept?
    - Are customers willing to sacrifice something for a sustainable vision?
- What innovations regarding sustainable improvement are existing and can be used within the food industry and possible innovations that can be used in its operations.
- What kind of consequences does the pandemic have on sustainable actions in the food industry.

By conducting interviews with the different restaurant, objectives 3 and 4 will be answered. This is since the interview will give more insights into how restaurant invest in Sustainability and how they coop with the matter during the pandemic. Moreover, the discussions will be used to understand how restaurants implement Sustainability in the current situation and what is sustainable in their eyes. Besides, an understanding will be drawn of how vital Sustainability is in their opinion and how they maintain a sustainable concept.

The interview questions were created at the end of March. The questions were designed to facilitate the interview process and for the participants to understand the research that is being done. With the help of the interview protocol, it was easier to understand how the objective should be answered and to keep structure in the conversation. The first five

restaurants were emailed for an interview request in the first week of April, including the suggestive interview questions. This would help to set a date for the actual interview. The interview protocol can be found in *Appendix 1*. The first restaurants that were emailed existed out of restaurants with a current sustainable concept. This is since this would help investigate sustainable innovations that would be applied to other less sustainable concepts. Restaurants that were emailed were Nola, Ora, Pihka, Loop and Grön. Two responses were received, and after this, 22 more restaurants operating in Helsinki were emailed. They are different types of restaurants, from fine dining to fast-food chains. At this stage, the quantity was essential to understand what kind of restaurants are applying sustainable initiatives. And if there is a significant difference concerning types of restaurants.

The intention was to have interviews with 5/10 restaurants. In the end, four interviews were conducted;
- KotiPizza on the 14th of April at 11.00
- Ora on the 15th of April at 12.00
- Friends & Burgers on the 15th of April at 17.00
- Naughty Brgr on the 20th of April at 16.30

Furthermore, Nolla restaurant gave additional information about their sustainable concept. YesYesYes answered the questions of the interview via email. All the interviews were conducted using the same interview protocol. All the interviews were conducted via Zoom, and they were recorded and after this transcribed. For privacy reasons, the names of the interviewees are not mentioned in this thesis.

The next step is analysing the transcribed interviews. The researcher will summarize the interviews, and different topics will be created to help the readers understand and to make a better conclusion of the various issues. The cases are the concept, their sustainable practices and future goals. Using content analysis, the researcher will assess and analyse the existence, the meaning or the relationships of particular terms, subjects or concepts. Data collected is also compared with the previous theory, creating a mixture of methodology from induction and deduction, which provides consistent and justifiable research.

3.1.1 Results interviews

In the following paragraphs, the results of the interviews are discussed with the different interviewees. The products exist out of the most important findings of the discussions.

Nolla restaurant

Nolla was the first restaurant to respond. They were not able to conduct a virtual interview. However, the chef of Nolla was able to give information sheets that answer most of the questions. It explains the concept and their opinion about Sustainability.

Concept

Nolla is the first zero-waste restaurant in the Nordic countries. The idea consists of not producing or cooking any waste. They have direct contact with the suppliers, and they use local and organic products, which explain their primary approach. In their beliefs, Sustainability goes far beyond food. That is why they work closely with designers, engineers and architect to rethink waste. The goal of Nolla is to encourage and inspire communities and other restaurants to be more involved in Sustainability. During the lockdown, Nolla is offering the restaurant experience at home. There is a Nolla to go menu, a three-course dinner. They also provide catering for private dinners.

Sustainability

Looking to sustainability, they consider waste the biggest issue for the whole industry. Especially with the mise-en-place, there is a significant waste consumption, mainly food waste and packaging materials. Nolla does not have any trash bin and no single-use plastic, cling film, vacuum bags or foil. Every item is thought of in the restaurant, from clothes to tableware, and even the gift cards are made of poppy seeds.

About sourcing, Nolla created a box system for their products that they order at local producers. Those boxes travel back and forth to prevent any packaging waste.

They work closely with their producers for their menu, and the producers determine which will be on the menu since they know their products the best. Moreover, while planning the menu, the chefs are thinking about innovative ways to use every product. They use different methods, cure, pickle, ferment and dry every possible part of the products. Like eggshells or small bones, parts that cannot be used on their composter are used on their composter, which will give them a fertiliser that they give back to their farmers or guests. However, Nolla does not have as much waste. They still weigh it and analyse it with their waste management software. Here it states how much, where it is from, why, and who caused the waste. It is essential to understand where the waste comes from before it ends up in the composter.

The beliefs of Nolla are about keeping things of the past that are known to serve us still today and focusing on the future by utilising modern technology to improve.

Nolla's reason to open the restaurant is to create a model to show that Sustainability can be profitable. They claim that their approach is cost-effective since they maximise all the products, however sourcing ingredients and the menu planning will take more time and effort. Moreover, everything in the restaurant must be thought through and aligned with

the same criteria. Looking to the price of the products, this will be higher than not organic or not local however the quality of the products are way better. Also, since they use seasonality, they work cost-effectively.

Future

In the future, Nolla hopes to be seen as a restaurant and not a waste-free restaurant but just an ordinary restaurant. Moreover, they wish to inspire other chefs to have more thought about waste and encourage customers to live more sustainable.

YesYesYes

The interview questions for the restaurant YesYesYes were answered via email.

Concept

Their concept is about vegetarian food, avoiding processed and pre-made meat alternatives. They make everything from scratch, which helps to minimise waste. Their clientele is quite diverse, and there are many returning guests from the area. And a lot of mid-'20s and '30s, mostly woman.

When looking at the offers during the lockdown of the restaurant, they offered to share menus for takeaway. The consumers needed to fulfil some small steps, and a playlist was included to create an experience with a personal touch.

Sustainability

Looking at the Sustainability of the restaurant, they mainly look at how to minimise waste. They claim to make small changes to keep it more progressive. Implementations they already made is compostable plastic for takeaway packaging and reusable bags. They also utilise as much as possible of the ingredient they use. They use items that are efficiently utilised in infusions, pickling and garnish. Here also, seasonality comes in place. YesYesYes is looking at seasonal products and often use one or two ingredients as the main ingredient in different variations on the menu. Sourcing is also an essential factor of Sustainability. YesYesYes is sourcing their products from small local farms and suppliers.

Future

Improvements that YesYesYes still can implement, according to YesYesYes, is about food waste. They use Nolla as an example, they do not have any waste, and they want to achieve this in the future. They are not using the ResQ app, but they will investigate this because, in their opinion, this is an excellent option to reduce more waste. When talking about technology, he believes that it will help when looking to minimising food waste. Currently, they are using excel spreadsheets and inventories, which is not foolproof. Technology will help with getting a better overview of the actual waste they have as a restaurant. They are seeking innovations that can help them improving Sustainability.

KotiPizza

This interview was conducted with the Chief Communications and Corporate Responsibility Officer.

Concept

KotiPizza is a pizza chain all over Finland that focuses mainly on takeaway and delivery services. Every restaurant offers a place to sit, but the size variates. Therefore, they mostly concentrate on takeaway and delivery. Since most of the inhabitants of Finland know KotiPizza, there is a strong brand awareness which makes the clientele quite wide. The biggest target group is families with children.

Sustainability

In the eyes of the corporate responsibility officer, the whole package is essential regarding Sustainability. So, everything of their strategy is adjusted towards Sustainability as much as they can. They believe people must see it as something that will affect the whole company and not separate. Since the main product is the food in a restaurant, the most important thing to look at is the ingredients. The customers have the right to know what they eat, and you must be transparent about this. He believes that the Sustainability of the elements is the most important since this is the beginning of the journey towards Sustainability. After considering this, there are other things to consider, food waste, how chefs use the products, energy consumption and waste management. He believes that for KotiPizza, there is still much work to be done towards waste management. However, what is important too, is how the restaurant treats its employees. Everything is connected in the end. He believes that young people are currently looking for sustainable and meaningful companies to work at since this is the future.

KotiPizza is sourcing 78% domestic, and they are seeking to increase this amount. KotiPizza has its own wholesale operation, which helps them to have control over their suppliers. They also try to work on their seasonality, to have a pizza with seasonal vegetables.

He explains how vital procurement, packaging and delivery is of the delivery. Therefore, they are busy automating the food orders and inventory. Within three years, they want to have everything automatic. The trick is to contain inventory and know in which region they need which products. Also, KotiPizza is working closely to have efficient packaging so the food will not get bad. KotiPizza uses the ResQ app since it helps with an amount of food waste, and it helps with the food stock.

When looking to other sustainable investments, they use clothing from recycled materials, even chairs made of recycled coke bottles. Furthermore energy, they plan to use renewable energy in all the locations by the end of the year. The chain's packaging is made of recycled materials, and it is made to be recyclable.

Future

For the future, they claim to study for even more sustainable packaging. KotiPizza is looking into the international market for innovations and technology to be able to improve their Sustainability. Also, in the future, they want domestic souring to lower the carbon footprint.

Ora

The interview with Ora was conducted with the founder and creator of the restaurant Ora.

Concept

The concept is all about using every part of the ingredients and only use local and organic products. He explains that using everything of the ingredients will also help towards making money. Since if restaurants throw away 40% of the ingredients, they lose 40%, whereas if they use 100%, it is more efficient. It is a whole business idea that he is following. Ora is selling two different boxes during the lockdown, a two-course lunch and a five-course dinner, looking to the lockdown. All the products used are compostable and recyclable. With the package are instructions on how to recycle the products.

Sustainability

He believes making money is done with maximising the products. For him, Sustainability is about ethics and morels the chef uses in their concept of the restaurant. The founder knows his farmers, so he knows where the products originate.

He claims that people are creating waste because people are just used to using the best products, and we do not know how to use different parts of the products; people are lazy in this regard.

An essential factor is that he knows his suppliers, and he does not dictate what he is going to order, but he will let nature and the farmers decide on the best products. This limitation on what is available is an inspiration and a challenge for him. Typically, chefs tell wholesalers what they want, and it is not about what people want but what is the best. It is about the cycle of the products, nowadays people think everything is available, but if closely looked at it, it is not. Moreover, when people know more about treating the products, that are more Sustainability. He explains that his way of cooking creates a way of life instead of just a business idea. When something is leftovers, he will find ideas to use it, such as fermenting, drying, freezing. With Sustainability, restaurants need to make choices to keep and not because it is trendy. As a chef or restaurant owner, it is crucial to carry the responsibility to care about products. It costs more effort and time for this concept, but it is worth it in the end.

ORA uses clothes that can last long and are made of sustainable materials. They also take into consideration the washing of the clothes, where they use sustainable products. He explains that there is always a certain amount of water and electricity use for restaurants that cannot be dismissed. He claims that using 100% of the products is more

valuable than saving a little bit of water and electricity. Since food is the product the restaurants sell to the customers, he puts most of the effort there.

About recycling, Ora is reusing everything and is not using any plastic. The wine they get is from the only carbon-neutral wine agency, and when there is wine left, they make their vinegar.

When he goes to the farm, he will decide what he is taking from the product, since farmers also make much waste since other restaurants only want what they know about the product. This way, he uses the products and is minimising waste in the kitchen and the farm.

Future

Ora hopes not to be one of the only restaurants with such a waste-free concept in the future. He thinks technology will be a big part of bigger businesses to be able to operate more sustainably. This is since they can track waste and food quality on a bigger scale, which is unnecessary for a small concept like Ora. He also claims that domestic sourcing will grow, and more alternatives for packaging will come.

Friends and burgers

The interview was conducted with the operations manager of Friends and Burgers.

Concept

The concept of Friends and Burgers is to make fries and burgers from scratch with fresh products. The ingredients that they use come 95% from Finland. Transparency for the restaurant is crucial since it needs to be clear for the customers what they eat. It starts in the restaurants since there is an open kitchen.

During the lockdown, Friends & Burgers focussed on takeaway and delivery services. They were able to keep the restaurants running. However, there was a drop of 50% in sales. Moreover, they opened five new locations during the lockdown. The most prominent clientele is families with small children and customers between 20-40.

Sustainability

Being sustainable for Friends & Burgers means using Finnish products from suppliers that they know and trust. Furthermore, since they are making burgers on order, the locations do not have much waste. They try to prepare everything as efficient as possible. They claim to have a good understanding of the amounts they must prepare and use as much as possible of the ingredients. Their main products, potatoes, come from a supplier with whom they have close contacts. The meat and dairy products come from more prominent Finnish suppliers.

Friends & Burgers is not working with seasonal products, they have a burger of the month, but this does not reflect on seasonality. Looking to the clothing, they use Marimekko, which is a local brand. Friends & Burgers claims to investigate their energy and water use for a sustainable and economic aspect.

Future

Something that Friends & Burgers is looking into is the carbon footprint for the restaurants. They want to improve to offer less meat since this is the item with the most prominent emission of CO_2. Moreover, they try to get every takeaway article biodegradable. However, this is not available for every item at the moment.

When looking to innovations, currently, Friends & Burgers uses some tools and mostly spreadsheets to make models on the amount they need for the restaurants. It Is not all automated, but they see many advantages for this in the future. Moreover, the technology for food waste is interesting to know where the waste comes from; however, Friends & Burgers claim not to waste much. There are other priorities to improve regarding Sustainability.

Naughty Brgr

The last interview was conducted with the development director of Naughty Brgr.

Concept

Naughty Brgr is a fast-casual concept, where customers can enjoy burgers in a nice ambience. He explains that three years ago, they decided to use 100% biodegradable packaging. Currently, 98% is biodegradable, and this is all the packaging possibilities available on the market now; for the other 2%, there is no replacement. Packaging is essential since this is a big part of the sales, especially in the lockdown. He explains that the clientele is between 25 and 45 years old and spend around 22-24 euros.

Sustainability

Naughty Brgr looks at Sustainability with the essential aspect for saving nature. Therefore, they want to have everything biodegradable, and they recycle everything.

Naughty Brgr is continuously improving its packaging. They use natural products like a sugar-based foil to keep the burgers warm. Concerning sourcing, around 80-85% of the products are sourced from Finland.

Considering the menu, there is no consideration of the season. Only in autumn, there is the mushroom burger and the reindeer or goose burger. The products used are 100% local, and they offer local drinks.

The supply of the products controls the food waste of Naughty Brgr. They buy products that are already handled to some extent. This helps the restaurant to have less waste. However, the waste still exists in the supply chain. This way, they only decrease the preparation waste of the restaurant. The most significant waste for the restaurants is the consumers when they order the wrong Burger or order too much. They claim to reduce waste by having a reasonable pricing scale since the price covers the amount of waste. However, money cannot cover the amount of waste. Another method for them to reduce waste is the standardised recipes. Other places sustainability is visible in the restaurants is with the different digital systems they apply. They do not have any paperwork, and there

is a supervision plan where they can measure temperature and orders. They have everything digitalised, and they use a lot of the Internet of Things systems to monitor and pay. The clothing the employees use are green and made sustainable. They are not using the ResQ app since they prepare the Burger when ordered, but he believes the app helps decrease food waste and do extra business. Furthermore, Naughty Brgr believes that delivery and procurement is also crucial to the products. That is why they try to extend the shelf life of food with protection gas.

Future

Naughty Brgr is doing a good job looking to digitalisation and implementing innovations. They use Chefstein, developed by Fredman, which is a digitalised waste tracking system. They will, for example, track temperatures of products. Naughty Brgr is innovative, and they are analysing everything to get a more efficient chain which helps to be more sustainable.

3.1.2 Conclusion interviews

A conclusion is made by comparing the different restaurants and concepts. The most critical aspect for most restaurants is to supply locally. This is to support local communities and to have a lower carbon footprint per product. What different restaurants explain is that looking at Sustainability, it is essential to see it as a whole and implement it in all the aspects of the business. It is not about saving a little bit of water or serving more meat substitutes, but restaurants should think about how the food comes to the restaurants, how the food is treated at the farm, and the waste of the products.

Another essential factor from the interviews is that a smaller supply chain is convenient for the restaurant since there will be more direct contact with the suppliers. A good example is Nolla and Ora restaurant. They both have direct contact with their suppliers and ask them for a specific product to reduce waste.

Another important aspect is the restaurant's carbon footprint, where the main product that causes a high carbon footprint is meat. An improvement for the restaurants would be to offer less or no meat dishes because animals need food and water what increases the environmental effects, same as other products of animal origin.

Another aspect restaurants were pointing out is the automatization of delivery and process within the restaurant. Automatization will help the restaurant to use less paper and to have a better knowledge of what to order at which location.

An essential aspect of restaurants is the ingredients and the sourcing of those products. As a restaurant, it is crucial to be transparent about sourcing the raw ingredients and how

they are being processed. They do this in Ora and Nolla, and a bit in YesYesYes, where they use the ingredients 100%, which means no waste of the dishes' elements. The restaurant chains have standardised recipes to reduce food waste, so every chef knows how much for which parts. Using the ingredients 100% and standardised recipes are two aspects of lowering food waste since this is the biggest problem regarding Sustainability.

Another waste that restaurants have is the packaging. Packaging for takeaway and delivery as well as packaging in which the products are being delivered. For the takeaway and delivery packaging, most restaurants use biodegradable and compostable packaging. However, for the packing for the ingredients, this is a bit more sensitive. Since the products are on the move, restaurants and suppliers do not risk losing the products' freshness.

Another option to reduce food waste for restaurants is applications like ResQ or Togoodtogo. Those applications are an opportunity for the restaurant to have a little more business with their leftovers. However, this is mainly done for restaurants making pre-made food and not making food on order. However, these restaurants would still be able to use it for ingredients that will go bad within the next few days, so they do not have to throw it away.

Some chains are looking into using renewable energy to use on their locations. However, for small scale, fine-dining restaurants, this is harder since it is a significant investment.

3.2   Observation

The observation method is used to analyse different food and beverage companies. With the help of the visual content and written statements on social media and websites, an observation can be made on how other restaurants market their Sustainability. The visual observation is there to support the interviews on how and what they communicate towards their customers.

The observation will help to find more initiatives that restaurants and other food and beverage businesses are implementing. Moreover, which goals they aim to improve for their sustainable actions. For the observation, three different companies are being used within the food and beverage industry. Restaurant Grön in Helsinki, Fazer group and McDonalds. They are chosen since they are different kinds of companies and both international and national. This is done to be able to compare different types of operations and influence the companies to have. The observations were done at the end of April, beginning of May.

The observation will be done using content analyses of the website, social media, and publications of the businesses. The method helps to collect more data and to understand how the businesses behave with Sustainability. During the observation, questions were asked to guide the methodology. Questions were asked on how the company market itself, what they publish about the use of Sustainability, goals they have for the future and initiatives they take. However, the observation was done with an open mind. The observation is done to identify shared, or opposite patterns and ideas regard Sustainability.

Analysing the data is done similar to the interviews since it is both qualitative data. The researcher will summarize the findings and divide them into the same topics of the interview results to conclude the results more effectively. The subjects consist of the concept, their sustainable practices and future goals. Using content analysis, the researchers will assess and analyse the existence, the meaning or the relationships of particular terms, subjects or concepts.

3.2.1 Results observation

In the following paragraphs, the results of the observation method are given for restaurant Grön, Fazer Group and McDonald's.

Restaurant Grön

Concept

Restaurant Grön is a concept based on plant-based and high-quality food. They offer two menu options, and the food is seasonal, organic, and Scandinavian. Observing the social media and the website, it is spotless and focus on nature, which is something they want to market. (Grön, 2021).

Sustainability

The website of Grön is explaining different ways how they use Sustainability in their concept and what their values are. They have various vital actions. Examples are local and organic products, seasonality, trained staff, written sustainability policy and follow-ups, no use of single-use plastic, the well-being of the team, reducing meat, follow up on energy consumption, and be truthful towards its customers.

The restaurant is transparent about reaching this sustainable concept by explaining what they do for every aspect. The restaurant has a sustainability plan, and they explain that restaurants cannot see Sustainability as a trend. They explain on their website that every ingredient is from Scandinavia and mainly from Finland. They follow the season, and they have their unique way of preserving the ingredients when they are in season to use them when they are out of season. They meet the producers regularly to share knowledge and educate their staff members. Before working with the producers, they check if they share

and respect the values of Grön. Grön is using their own produced vegan products, and they are continuing to develop their vegan produce. They use mainly oat-based vegan products from Finland, and they are creating vegan cheese.

They use energy produced by wind power and bioenergy since they do not want to use hydropower energy since they believe running rivers are the way of the future. They also do not use greenhouses in the winter months since that costs a lot of energy and water. All the staff in the restaurants are getting training on the values of the company yearly. Because they believe the team is the key ingredient. They claim that the work environment is somewhere where everyone needs to feel safe and relaxed.

They are looking to the waste of the restaurant. They minimise food waste to use the products for 100%, and what cannot be used will be recycled. They recycle everything, and in the future, they are looking to have their compost since currently there is no space available. Moreover, in the front of the house, everything is thought of looking to Sustainability. The cutlery, the tables and the wine. They have their own natural wine importing company, called LetMeWine. (Grön, 2021).

Future

Grön believes that Sustainability should not be a marketing trick but something every restaurant should build on. They are committed to increasing the awareness of Sustainability.

The restaurant's challenge is that organic food production needs to keep track of its demand since this is increasing. Furthermore, they are looking for a way to connect the Finnish government with promoting Sustainability. (Grön, 2021).

Fazer

Concept

Observing the website of Fazer, a sustainability page can be found since Fazer is a well-known Nordic food company that claims to make a difference in the world regarding sustainability. (Fazer, 2021).

Sustainability

An essential factor they want to improve is their food waste since they state that it is the most effective way to reduce environmental issues with food. They explain that the whole production chain should be looked at. It is essential to get an understanding of what is causing the food waste and why to be able to reduce the waste. They claim to reduce waste in their factories, and they apply the circular economy. They also train their staff to be familiar with reducing food waste. An example is that in 2019 98% of the water used was recycled. Fazer is also taking into consideration the SDG's since they set goals for 2030.

Fazer also looks towards the products they use and makes them as sustainable choices as possible. They try to use more plant-based products since animal-based has more

greenhouse gasses and more environmental issues. These ecological issues are why Fazer is getting more plant-based product on the market; already, 49% is planted based. Fazer is sourcing their products responsible which means getting the raw product from ethically accountable farmers. They look for transparency, good governance, and morally correct suppliers. They also do this towards their employees.

Moreover, the packaging is 99% sued for recycling or reused for energy production. However, it is the consumers that need to help with recycling and sorting the waste. The packing Fazer is using is often recycled or can be used to be recycled, for example, newspapers or toilet roles. Fazer is looking for innovations to reduce the amount of packaging they need. They also take into consideration packaging from the suppliers. According to Fazer, what is essential is how the product is being transported to get less food waste. How it is packed affect the duration of the product, which can again reduce food waste. (Fazer, 2021).

Future

Fazer is an excellent example of a company that influences all the phases in food production. They can afford to apply the circular economy. Since they have waste that will always be created, they found a solution to use this waste to make biodiesel. Fazer sets goals to become more sustainable and combat climate change. The goals they set are 50% fewer emissions, 50% less food waste, 100% sustainable sources and more plant-based products. They explain for each plan how they will bring it into action. (Fazer, 2021).

McDonald's

Concept

McDonald's is a global fast-food chain with suppliers, franchisers, distribution centres worldwide that influence to make an impact. (McDonalds, 2021).

Sustainability

When observing McDonald's, they explain that they constantly seek innovations to reduce emission and preserve natural resources. McDonald's is offering much information about their initiatives towards Sustainability. They are investing in renewable energy and minimising the harmful effect of their packaging, reducing waste and more.

McDonald's is taking action to cut its carbon footprint and greenhouse gasses. First of all, they are investing in renewable energy and energy-efficient kitchen equipment. Moreover, McDonald's is using a circular economy within their strategy for their packaging and waste strategy.

Looking at the ingredients, McDonald's is one of the biggest beef buyers globally and the most significant contributor to the carbon footprint. McDonald is developing more sustainable agricultural practices, which they do by partnering up with different universities in the U.S.

Looking to the supply chain, they explain that they work closely with suppliers and producers, which helps them better understand the environmental impacts on the businesses. McDonald is looking into farm management, logistics network, rebuilding soils, conserving forest and post-farm efficiency. This all to decrease the greenhouse emissions and supporting the ecosystems.

McDonald is a partner with various suppliers and participates in different projects to develop new practices. Examples are Global Roundtable for Sustainable Beef (GRSB), Project in Nebraska for regenerative soil health practices, Carbon sequestration in life-cycle analysis (LCA), GHG Protocol Land-Based Technical Working Group, cool farm alliance and Gold standard.

Moreover, McDonald's goal is to support the U.N. and their SGD's. They focus on first ensuring access to affordable, reliable, sustainable, and modern energy for all. Then to take urgent action to combat climate change and its impacts and strengthen the means of implementation and revitalise the global partnerships for sustainable development.

This they will do by generating energy with wind and solar projects. Currently, 6500 restaurants in Europe are close to having 100% energy from renewable sources. Moreover, the restaurant buildings and equipment on a global level are reviewed every year, including energy efficiency. Also, to train the staff to be able for them to engage with the initiatives. Within their supply chain, they created different strategies to decrease emissions and waste. 80% of the packaging is fibre-based, and they are busy converting diesel to alternative fuels. An example is recycling used cooking oil into biodiesel for the trucks. (McDonalds, 2021).

Future

McDonald's name a lot of goals and initiatives, and then the result is a 0,9% decrease in emissions intensity since 2015. Furthermore, 16% of the energy is now from renewable sources. Moreover, McDonald's goal is to support the U.N. and their SGD's. They focus on first ensuring access to affordable, reliable, sustainable, and modern energy for all. Then to take urgent action to combat climate change and its impacts and strengthen the means of implementation and revitalise the global partnerships for sustainable development. McDonald's is a big company and can have a significant impact when they lower their emissions. (McDonalds, 2021)

3.2.2   Conclusion observation

Different restaurants and food companies have been observed, a local, sustainable restaurants, a food processing company and a big fast-food chain. To conclude, they all have their initiatives to work toward a more sustainable future. Smaller-scale companies can implement more sustainable initiatives at a faster pace, compared to more prominent companies like McDonald's. However, bigger companies have more influence when applying the initiatives since their emission is also more pronounced. Shown is that

companies consider sustainability level in different areas, from waste and sourcing to the staff. An important indicator for more prominent companies should be to take into consideration the Sustainable Development Goals from the UN, since the big companies have a lot of influence on the production of the raw materials, with McDonald's being one of the biggest meat buyers. They also impact how people are treated within restaurants and the farmers; they have a big responsibility towards sustainability for environmental issues and social problems. Small companies should be responsible for sourcing local, reducing waste, not using single-use plastic.

3.3   Questionnaire

After and during the interviews with the restaurant, questions for restaurant users are made. This survey is there to understand the opinion about the users and their consumer behaviour.

The questionnaire helps to answer the first objective. The objectives of this thesis are:
- What is the customer perspective on a sustainable concept?
  - Are customers willing to sacrifice something for a sustainable vision?
- What innovations regarding sustainable improvement are existing and can be used within the food industry and possible innovations that can be used in its operations.
- What kind of consequences does the pandemic have on sustainable actions in the food industry.

The survey is conducted to understand the customers perspective of Sustainability, how they currently use Sustainability in their daily routine, which aspects in the industry the most concerned lay towards environmental issues, and which elements should be implemented in the industry. Furthermore, it will help to understand the decision-making process when going to a restaurant and determine the most important aspects when using the facilities of a restaurant. This is important to understand how a sustainable concept will influence customers and understand the restaurant's most critical factor to implement.

Numerical data is collected with the help of the questionnaire. The questionnaire presents 17 questions, with two open questions, since this is harder to analyse. All the other questions are closed questions. The Likert scale questions result in ordinal data suitable for the research to rank different values. Multiple-choice questions provided different options, where respondents can specify which ones they preferred or considered appropriate. The purpose of the multiple-choice questions is to stimulate a particular perception and critical thinking of the respondent. The questionnaire can be found in

Appendix 2.

The survey is divided into four different parts. The first part is there to understand the level of participation in various sustainable initiatives. This part will help understand the participants' behaviour towards Sustainability and if this reflects the customers' perspective and choice for sustainable concepts in the restaurant and food and beverage industry. The second part is about the opinions and concerns on the sustainable issues of the restaurants' issues. This part is to understand the customers perspective on which degree the industry is harmful and what, in their opinion, concerns them the most. In the third part, questions are asked to consider which extend sustainability concerns the participants in using the facilities of a restaurant and a food and beverages business. The last part of the survey is demographical questions to gain background information of the participants.

The survey was shared on social media, Facebook and LinkedIn, on the 27th of April. The link was also sent to various WhatsApp groups. After a week, 61 responses were gathered. The intention was to get between 50 and 100 responses. The survey was opened 175 times, and 68 people started responding to the study.

The dataset was made and analysed with Webropol. Webropol is used to visualise the data into tables and graphics. The statistics methods show the median, the mean, confidence interval, correlation and standard deviation. With the help of the statistic, the reliability of the questionnaire is established. The confidence level adjusts to the respondents and looks to the range of the mean with a 95% confidence. Besides, the standard deviation measures the range of the values around the mean.

3.3.1 Results questionnaire

From the analysis of the questionnaire, some results can be derived. First, the customers' concerns about the environment in the food and beverage industry are examined. 80% of the respondents are concerned about environmental issues, and 47% is worried about the food and beverage industry concerning sustainable matters. Looking to which elements the respondent is most concerned about is waste (93%), the sourcing of the products (49%) and the packaging (43%). Moreover, most respondents agree that the food and beverage industry is not doing enough to address sustainable issues. The question is asked about which initiatives should be applied by restaurants and food and beverage companies. The four initiatives that the respondents choose are;

- The use of recyclable or compostable take away packaging,
- No use of single plastic,

- Serving local food,
- A seasonal menu.

Moreover, the question was asked if people consider Sustainability a weighting factor in their dining out decision. Most of the respondents answered no, explaining that it is hard to see when a restaurant is sustainable and that people are not aware and that the price and atmosphere are more critical for them than Sustainability. That also explains the results of the question regarding customers' most vital aspect when looking at choosing a restaurant. 61% find the type of cuisine a critical factor, 62% the atmosphere, 56% the variety of the menu and 57% the price level, and 39% the location and only 10% the level of Sustainability. Then the question was asked of how the respondents determine if a restaurant is sustainable. The four most chosen options are to serve local food (57%), use recycled or biodegradable packaging (54%), do not use single-use plastic (46%) and the transparency (43%).

Moreover, the respondents were asked if they would dine at a certified green restaurant if all factors were the same (price, type of food). Most of the respondents (80%) answered yes since they want to try to be more sustainable; however, the green certificate needs to be legitimate. The respondent that answered no, explained that the certificates are not always telling the truth.

When analysing the demographic questions, the majority is female (79%), 83% is between 18-25 and 10% is between 36-55. Most of the respondents are students (77%), and 21% is employed. Looking at the current living situation, most of the respondents came from The Netherlands, Finland and Germany.

During analysing the quantitative research, reliability was taken into consideration. Since the range of confidence interval is small with most of the questions, the mean of the results is reliable. The confidence level adjusts to the respondents and looks to the range of the mean with a 95% confidence. Besides, the standard deviation measures the range of the values around the mean. All the graphics and results can be found in *Appendix 4.*

3.3.2 Conclusion questionnaire

Analysing the questionnaire, the objectives that need to be answered need to be considered. The first objective concerns the customer perspective on a sustainable concept and the customer willingness to sacrifice for a more sustainable idea. With the use of the survey, a better understanding of the decision-making process for a restaurant is clearer. Currently, the minority is considering the sustainability level as a weighting factor in their dining our decision. People consider it influential, but it is not always easy to consider sustainability actions because it is not explicit. Most people don't consider the environmental issues when dining out and visit restaurants for the type of cuisine and atmosphere. And when consumers consider the environmental issues, they mostly go for a vegan or vegetarian dish or do not order fish since they know it is hard to get

sustainable fish. However, when ordering food, people consider it more. This is since they know how they deliver the food, either with bike, motor or car and which kind of packaging they use to provide the food. In this situation, it is easier to choose the more sustainable option, where delivery is via bike and recycled packaging.

When going to a restaurant, the sustainability level is the last thing consumers consider. More important is the type of cuisine, the atmosphere and the price. This is since the dining out experience is an occasion where people do not think about the restaurant's waste or what is happening in the kitchen, or the origin of the different products used. This is not visible to the customers since this is happening in the back of the house. Moreover, green labels are not something that customers trust or look at since every label means something else. It is hard to know which label includes what. However, customers are willing to pay a little more for a more sustainable concept. Nevertheless, restaurants should offer what the customers desire.

Looking at the questionnaire results, most of the respondents are concerned about the environmental issues of the food and beverage industry. The main factors are food waste, the sourcing of the food and the packaging of the delivery and takeaway services. These are the most prominent aspects the restaurants are focused on to change and improve, looking at the results of the interviews and observation. Most restaurants are concentrated on biodegradable packaging, source local, and try to reduce their waste. And the customers do not know how much restaurants are doing behind the scenes on certain aspects regarding Sustainability since most of the respondents do not believe the industry is doing enough towards sustainable issues.

4   Findings

In this chapter, an overall conclusion is given of the used methodologies concerning the different objectives of the thesis. The objectives will be answered using secondary research, interviews, observation and the questionnaire. The three main objectives are;

- What is the customer perspective on a sustainable concept?
- What innovations regarding sustainable improvement are existing and can be used within the food industry and possible innovations that can be used in its operations.
- What kind of consequences does the pandemic have on sustainable actions in the food industry.

What is the customer perspective on a sustainable concept?
With the help of the interview, a brief perceptive of customers is understood. However, with a higher number of respondents, the outcome would have been more reliable. Looking at the results gained, a customer's perspective is made. Most food and beverage industry customers do not consider the sustainability level because other aspects are more important. Besides, knowing whether a restaurant is using sustainable concepts or initiatives may not always be clear, making it difficult for customers to assess the level of sustainability. Also, respondent explains they not always trust the certificate used in food and beverage industry. Moreover, certifications are used by restaurants, however, it is not clear what they include; it would be easier to get a more approachable and more frequently used label system. Labels will make it easier for customers to consider the sustainable level of restaurants.

The customers' perception about the most concerning aspects of the food and beverage industries is the packaging, waste and sourcing of products. Also, meat is a significant issue regarding the respondents of the interview. This concern is why companies offer more meat substitutes and plant-based products. Currently, the minority is considering the sustainability level as a weighting factor in dining our decision. People believe the sustainability level is influential; however, it is not always easy to consider sustainability actions since it is not clear enough. Most people do not think about the environmental issues when dining out, and they go there for the type of cuisine and atmosphere. The atmosphere, price, and location are the most critical aspects for the customers when dining out. Customers are not likely to sacrifice those elements since this is more important than the sustainability level.

What innovations regarding sustainable improvement are existing and can be used within the food industry and possible innovations that can be used in its operations.

With the help of secondary research, interviews and the observation method, possible innovations were discussed and understood. With the interviews and observations, a clear understanding could be made of which innovations are used in the food and beverage industry. With the use of secondary research, more innovations in the direction of technology were discussed.

An important technological innovation used by some bigger businesses in the food and beverage industry is the Internet of Things (IoT). With the help of the Internet of things, food waste can be reduced. The IoT helps with food quality control, tracking, traceability and logistics management. This will help to get more knowledge about the food wellbeing, which is essential to extend the shelf life of the products. Another technology innovation that uses IoT-based technology is an intelligent garbage system, which uses an intelligent scale to determine food waste weight and identify and categorise the waste type. In the interviews, interviewees explain that it is crucial to understand where waste comes from to reduce food waste, making this innovation relevant for all food and beverage businesses. Another issue where the industry is looking into is the packaging of the food delivery and takeaway services. Packaging is vital since they protect the products from external conditions and influences. Packaging is therefore essential in ensuring the food's quality and safety. There are various substitutes for plastic packaging since this is something that is causing environmental issues. There are different biodegradable options for restaurants and packaging that is made out of recycled materials. The conclusion was made that looking to deliver and take away packaging biodegradable and recycled packaging is used in most businesses when conducting the interview. Another aspect concerning packaging is the packaging of transportation towards the company in the industry. A technological innovation used is intelligent packaging which can increase the shelf life of food with various features. Temperature Time Indications (TTIs), Radio Frequency Identification (RFID) and active packaging are examples that can be included in the packaging for more significant business in the food and beverage industry to have more control over the food quality and the shelf life.

Various restaurants like Ora, Nolla and YesYesYes implement a transparent green organisational culture, using ingredients for 100%, no waste, using local and organic products and even furniture made from recycled materials. Those initiatives are helping sustainable initiates and awareness of environmental issues, which is essential at this stage. More and more business concepts are marketing with their green concept, and in the future, this will rise. However, this can only be done with small scale restaurants since for bigger (international) chains, and it is hard to get every ingredient local. Nevertheless, larger companies in the sector can make a more significant effort to save energy and water. They are using renewable energy sources to reduce their carbon footprint.

Moreover, food sourcing is an essential aspect for most restaurants and from the customers' perspective. Restaurants should take into consideration where their product comes from and how this affects the environment. Furthermore, restaurants should offer plant-based product, which causes fewer greenhouse gasses. Researchers are estimating that they account for 60% of all the greenhouse gas emissions generated by agriculture. Nevertheless, meat and dairy supplies only exist out of 18% of the world's calories and about 37% of the world's protein. Therefore, the introduction of more plant-based foods is included as one of the main goals of sustainability work.

What kind of consequences does the pandemic have on sustainable actions in the food industry.

During the pandemic, restaurants realise that it is essential to emphasise transparency and sustainability in their business operations. The emphasis is on transparency since the focus on wellbeing and health increases from the customers' perspective (Viliani, 2020). This change concludes that it is essential for businesses to show their sustainability strategy. During the interviews, the interviewees explain that there was more time to consider some sustainable issues during the pandemic in Finland. Nevertheless, this was mainly about the packaging and food waste solutions. The observation and interviews were done with companies in Finland. There were some weeks of lockdown in Finland where companies mainly focused on delivery and take-away services since this is the only business opportunity. The researched companies explained they are using recycled or biodegradable packing for their delivery and pick up services.

5 Discussion

In this chapter, a reflection will be made on the research results, thesis process, and learning.

5.1 Results

First, the results of the study will be presented. This chapter will include an evaluation of the different methodologies and their limitations. Furthermore, the validity and reliability of the study will be discussed. Finally, the thesis process, the own learning process and recommendations for future research will be reflected upon.

5.1.1 Evaluations and limitations

The different methodologies used in this study lead to the conclusion. However, throughout the use of the methods, there were some limitations.

Firstly, reflecting on the secondary research, this was time-consuming. However, it helped to gain a better understanding of various aspects of the thesis topic. It helped to gain innovations that could soon be used in the food and beverage industry. Moreover, the information obtained was used to conduct the interviews with the restaurants and to obtain additional information from the customers' perspective using the questionnaire.

Secondly, looking back on the interviews, more interviews would have been more reliable for the research. However, from the 27 restaurants that were emailed, only six interviews were conducted. Four other restaurants replied and asked when the results were needed; however, they never responded to the email afterwards. Without the pandemic, interviews would have gone slightly more accessible since visiting the restaurant would have been an opportunity. The interview was the most effective tool since getting insights into different restaurants helped to understand their perspective and current actions towards sustainability. The limitation was that more questions should have been asked about the pandemic. Since objective 3, "How does the pandemic affect sustainable actions in the food industry", is not as reliable using the interview responses. This is because there is more focus on the initiatives during the pandemic and less on the thought process of the companies during the pandemic.
Moreover, the interviews were conducted with companies only located in Finland. The pandemic in Finland was different and less strict than in other European countries, and the interviews and observations were only conducted with Finnish companies or companies situated in Finland. Considering that restaurants were closed when the interviews were conducted, restaurants have other concerns than explaining their

concept. However, the issue is essential for them to consider, especially during the pandemic, since they have more time to think about the matter.

Thirdly, the observation method was not easy since most Finnish restaurants do not offer an English website or explain their concept in English. The limitation here was the language barrier and the amount of what was available about the sustainable implementation of the company. However, big companies like Fazer offer everything in English, and they are transparent about what they do and what they want to achieve. The observation was a suitable methodology to extend the information provided by the interview method. The observations were used to understand better what restaurants and businesses in the sector are currently doing towards sustainability. A limitation of the observations is that the companies only show what they want to show to their customers and clients; this can be made more positive and one-sided.

The survey conducted did not get as many replies as expected. The cause of the low respondents' rate and the high rate of openings is because of the first question of the questionnaire. The question appeared wrong on the mobile version. However, this is how the software shows the type of question. The fault can cause people to open the survey and not answer the questions since they think the questionnaire is incorrect. This is shown in *Appendix 3*. Therefore, the number of openings of the survey is high (175) compared to the finalized numbers (61). Another limitation is the target group since most of the responders were between 18-25 years of age; this only shows one target group. One reason for this limitation is that since the COVID-19 virus, it was impossible to distribute the questionnaire in public places. It was only possible to circulate it online. So, the questionnaire was then distributed through different social media channels, Facebook, LinkedIn and WhatsApp. Since the questionnaires had been circulated through the author networks, this constitutes the largest segment for 18-25. However, this is an important target group to consider while doing this research. Since they are future customers, it is essential to understand their sustainability perspective within the food and beverage industry. The results would have been different if the target audience had been older. For instance, the price would be less of a critical issue in deciding where to dine out, making it easier to consider the level of sustainability.

Furthermore, since the questionnaire was only available for online distribution, people over 60 were not as well reached as those who use the online platforms. This may be because of the platform that was used to distribute the questionnaire. However, overall, the questionnaire was a helpful tool to get an understanding of another viewpoint. Since the interviews and observation were the companies' perspective, the survey was to understand the view of the customers, which is also crucial for this thesis process.

5.1.2 Validity and reliability

The reliability of the study and adherence to ethical principles are assessed competently from various perspectives concerning the whole thesis process. Reliability refers to consistency and to whether the findings can be reproduced when the study is repeated under the same conditions. The validity refers to accuracy and the degree to which outcomes genuinely measure what they are supposed to measure. It is achieved by assessing how effects are consistent with well-established theory and other standards of the same concept. (Heale and Twycross, 2015).

The research demonstrated a level of validity and reliability. As far as validity is concerned, the objective was examined using the three methodologies. This means that there is homogeneity and convergence for the objectives. Indeed, the measurements and results of the different methods used are comparable. Moreover, there is theoretical evidence to support the innovations mentioned by the interviewees.

The questionnaire did not have as many respondents in terms of reliability, so the survey is not the most reliable source of this research. However, it does help to give direction to the customers' perspective and experience of sustainable concepts. Moreover, there was a specific target group of respondents. However, this is an important group to focus on since this is the next generation that will start working and be the main customers of restaurants. Moreover, the answers were able to be generalized, which means the respondents had a similar opinion. This shows in the confidence interval where most of the questions had a small range, which can be found in *Appendix 5*. The interviews were reliable since it is homogeny with means there is a consistency with the answers of the various interviewees. Moreover, with the interviews, a conversation was held to get a deeper understanding, and it was able to compare with the literature review.

5.2 Thesis process

The strengths of this thesis were the mix of methodologies that were used. With the help of 3 different methods, the findings of the methods are strengthened. Moreover, various academic sources support the conclusions, which could give a better understanding of the problem. The weaknesses were the number of respondents on the questionnaire, and many restaurants did not reply to the interview request. Threats existed out of that during corona restaurants had to invest time in their business and had less time to consider the question to participate in an interview. There were 27 restaurants emailed, only six replied. Since there was a lockdown during this time, restaurants were busy dealing with their business. However, the six interviews were the most practical method for this research. Another threat was that customer did not fill in the survey; it is hard to influence

this. Next time, a reward can be given to one of the survey participants to create more interest in completing the survey. The chances are that this research is an essential aspect for both companies and clients. This research can be studied more thoroughly to obtain more information on the social and economic factors. More research for technology within the industry is also an opportunity.

When this process would have been done again by the author, some changes would have been made. One example is more follow up emails to different restaurants, so at least ten interviews could have been conducted. Since the interviews were the primary methodology to understand the thinking process of the restaurants regarding sustainability. Moreover, considering the questionnaire, it would have been more effective when sharing it in more groups from Breda University of Applied Sciences and Haaga-Helia University of Applied Sciences to get a more relevant target group and more results. Another aspect that can change is to focus more on the social and economic aspect of sustainability. However, since this is such an extensive topic, it was easier to focus on the environmental part of sustainability since, for this matter, more innovations will increase sustainability. For the economic and social impact, there are fewer innovations. In the end, more time could have been invested in the analysing part of the different methodologies. Since the topic was extensive, it was hard to conclude since there are many factors to consider for sustainability in the food and beverage industry.

5.2.1 Reflecting on own learning

Considering that this chapter represents the author's process and learning, it would be best to write it from her perspective, in an informal way.

The timetable is relatively narrow since there were only three months to finalize the thesis process. The initial timetable plan was delayed since the goal was to start with the interviews and questionnaire at the beginning of April. However, in the end, the interviews were conducted on the 15th of April, and the questionnaire was shared on the 27th of April. This slight delay was due to the work of the literature review and the transcribing of the interviews. Since the questionnaire would bring more value if the questionnaires were finalized, I waited for the restaurants, and they were not as fast with responding. The longer waiting time made me decide to do a different methodology, the observation method. In the end, the belated interviews did not reflect on the other part of the research since I had enough time to use another method next to the predefined techniques used. Looking back on the thesis process, I found it challenging but inspiring. There were some limitations because of the pandemic and the time. However, I'm proud of the research I did in the timeframe I had since I had three months to finish this bachelor thesis.

My learnings did most derive from reading articles about sustainability and sustainable innovations and conducting the interviews. Listening to different interviewees taught me more about how it works in the back of the house concerning the supply chain, delivery, preparing food using the ingredients 100% and more. It was inspiring to listen to them and to understand their vision and concept they want to show to their customers.

This thesis brought me more knowledge and awareness for the topic of sustainability for the future. I also learned how to use a different kind of methodologies. Next time doing a questionnaire, I know where to focus on and that it is essential to share it on as many platforms as possible to get a broad target group. As well as the interviews, since not every restaurant will reply as fast, you need to plan the interviews.

In the end, I learned a lot regarding writing skills, research skills and communication skill. I had meetings every week or every two weeks with my supervisor, who guided me through the process of writing the thesis. I would like to thank my thesis supervisor for the support and help during the thesis process.

5.2.2 Future recommendations

In the future, a product-based thesis with a green label system should be investigated. This could give each company in the sector a certificate or label, and the certificates could consist of different colours for different types of sustainability.

An example is one overall label system with different kind of levels:
- Gold - no waste, using ingredients 100%, have organic and local products.
    - Restaurants having this are Nolla, Ora and Grön.
- Green - For more prominent companies like McDonald's and Fazer. Companies that take into consideration Fair Trade, Rainforest Alliance, Carbon Footprint, and Animal Welfare.
    - Fazer, Koti Pizza, McDonalds
- Purple – Companies that focus on seasonality and local products still have waste and improvement to make.
    - Restaurants like YesYesYes and Naughty brgr

A more used and know label system will make it easier for the customers to understand sustainability, and it would be easier to consider this in eating out decisions. For this research, the consumer point of view about green labelling should be looked into more thoroughly. This research will help customers make more sustainable choices since it is currently hard to understand which restaurant is sustainable and which business is applying sustainable initiatives. By creating this, a more precise and transparent image is designed for the customers. A customer would make more sustainable choices when

dining out. This product will also be more social and economic related than only environmental.

The packaging for transporting the products to the companies is another possibility for further research. Considering that here plastic is mostly used to preserve the products. A good example is what Ora and Nolla are doing with their box system-using the same boxes for a longer period of time to transport the food from A to B. For this research there should be looked into sustainable restaurants and there supply chain.

6 Conclusion

The industry is making a good start by implementing various initiatives to increase its sustainability level. The industry knows the importance of the matter, as well as its consumers. As far as the customers' perspective is concerned, the main sample group, students between 18-25, is currently concerned about sustainability when eating out. Most of the time, customers do not know when or what business do about sustainability, and it is more complicated for the customers to understand the concept of sustainability. Moreover, respondents agree that food waste and packaging is the primary concern concerning sustainability in the food and beverage industry. Furthermore, the atmosphere, price, and location are the most critical aspects for the customers when dining out. Customers are not likely to sacrifice those elements since this is more important than the sustainability level.

Then for the businesses, there are various innovations and initiates they are applying and what they can apply in the future. An important innovation is the Internet of Things that helps in the traceability and logistics of the food, which increases shelf life. As well as the automation of orders is an advantage for businesses since this reduces effort, time and waste. Analysing the interviews, restaurants explain that keeping the supply chain short is more efficient to source more local. Moreover, restaurants try to work efficiently with their products; Ora and Nolla do not have any food waste since they use their ingredients 100%. More restaurants also offer more meat substitutes since meat is the biggest polluter looking to the carbon footprint.

Looking to the business point of view, they know the importance of sustainability, and it is essential to be transparent about their sustainable activities. Since the emphasis on wellbeing and health increased during the pandemic, sustainability is a more critical aspect.

To conclude, the different methodologies helped to understand the customers perspective and business point of view of sustainability in the food and beverage industry.

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8   Appendices

Appendix 1

Interview questions for the restaurants

Concept

1. Can you tell me about the concept of the restaurant?
2. What are you offering during the lockdown? Do you offer take away or something similar to your customers?
3. How does your clientele look like?

Sustainability

4. What is important for you when you think about sustainability?
5. What do you do in particular to be sustainable?
6. Where do you source your products?
7. Is your cuisine based on seasonality, and how do you form your menu and how do you sustain this?
8. How are you minimizing food waste in your restaurant?
9. How do you see sustainability back other items then food waste, think about the clothing and energy consumption?
10. What should people look for when trying to look for a restaurant that values sustainability?
11. Do you use the ResQ app and do you think this has a positive influence on food waste?
12. Do you think you can improve the sustainability in your restaurant?
13. Back to the takeaway, how do you offer this to your customers? Do you use any form of sustainable packaging?

Innovations

I'm doing my thesis about sustainable innovations in the food and beverage industry, and I did some research about various innovations. An example is technology with help of the IoT (Internet of things) which represents a concept where objects interact and exchange data over wired or wireless networks, this offers restaurants to facilitate in better decision making. It helps to monitor the waste of a restaurant

14. Do you see this working in your restaurant?
15. Do you think this will only be helpful for a big scale restaurant/ chain?
16. Do you use any technology to track your waste or to help to be more sustainable?

Appendix 2

Questionnaire

Sustainability in the restaurant and Food & Beverage industry

Dear all!

Thank you for participating in this research.

I am currently doing research for my bachelor thesis on sustainable innovations and how the Food and Beverage industry may become more sustainable.

Do you enjoy visiting restaurants or ordering food, then you could help me by participating in this 5-7-minute survey consisting of 17 questions. You can complete the survey at once, but it is possible to go back between questions with your answers. All questions must be answered and the survey is completely anonymous.

Thank you in advance!

The first part of this survey consists of statements regarding behavior towards sustainability.

1. Indicate to what extent you implement initiatives into your daily routine

	Never	Sometimes	About half of the time	Most of the time	Always
Recycle and separate waste	○	○	○	○	○
Vegetarian lifestyle	○	○	○	○	○
Vegan lifestyle	○	○	○	○	○
No single use plastic	○	○	○	○	○
Use of renewable energy	○	○	○	○	○
Use of public transportation instead of a car	○	○	○	○	○
Use an electric car	○	○	○	○	○
Use less water (close tap when not needed, not showering too long etc)	○	○	○	○	○
Grow own vegetables, herbs and fruits	○	○	○	○	○
Choose your food conscientiously based on its impacts (for example Fair Trade Certified)	○	○	○	○	○
Other _____	○	○	○	○	○

2. How concerned are you about environmental issues?

○ Not concerned at all

○ A little bit concerned

○ Concerned

○ I don't know

This section is about your opinions and concerns on the sustainable issues of the restaurant industry.

3. Are you concerned about the impact of restaurant and the food & beverage industry towards environmental issues?

○ Not concerned at all

○ A little bit concerned

○ Concerned

○ I don't know

4. Which 3 sustainable aspects of the restaurant and the food & beverage industry concerns you the most?

☐ Energy use

☐ Water conservation

☐ Harmful packaging

☐ Waste (food, packaging, plastic etc)

☐ Where the food comes from (internatinal sourcing)

☐ The way staff is treated

☐ Carbon footprint

☐ Other (please specify) [   ]

5. In your opinion do you think the industry is doing enough to address sustainable issues?

○ Yes

○ No

○ I don't know

6. What do you think should be sustainable initiatives that every restaurant or food & beverage company should implement?

- [ ] Serving local food
- [ ] Use of organic products
- [ ] More meat substitutes
- [ ] Have a green certification of a third party organization
- [ ] The use of recyclable or compostable take away packaging
- [ ] Serving sustainable seafood
- [ ] Using renewable energy
- [ ] Seasonal menu
- [ ] Vegan or vegetarian menu
- [ ] Grow own vegetables, herbs and fruits
- [ ] Not using single use plastic
- [ ] Being transparent about products that are used
- [ ] Use 100% of the ingredients
- [ ] Other _____

7. Have you gone to a restaurant or ordered from one in the last month?

- ( ) Yes
- ( ) No

In the next section, questions will be asked on which extend you consider sustainability during the use of the facilities of a restaurant.

8. Do you consider the level of sustainability to be an important factor weighing in on your dining out decisions? Please specify.

- ( ) Yes _____
- ( ) No _____
- ( ) I don't know

9. Which of the following statements are most important for you to consider when going to a restaurant?

- [ ] The variety of the menu
- [ ] The atmosphere
- [ ] The price
- [ ] Sustainability level
- [ ] The location
- [ ] The type of cuisine of the restaurant (Indian, Italian, French, Chinees, etc)
- [ ] Other _____

10. How do you determine if a restaurant is sustainable?

- [ ] They serve local food
- [ ] They serve organic food
- [ ] They offer a variety of meat substitutes
- [ ] They claim they are "green"
- [ ] They have a certification of a third party organization
- [ ] They use recyclable or compostable take away packaging
- [ ] They serve sustainable seafood
- [ ] They use renewable energy
- [ ] They don't use single use plastic
- [ ] They are transparent about the products they use
- [ ] They offer a seasonal menu
- [ ] They don't have any waste
- [ ] Other _____

11. If all factors are similar to a less sustainable restaurant (price, type of food etc), are you more likely to dine at a certified green restaurant than a non-certified restaurant? Please specify.

- ( ) Yes _____
- ( ) No _____
- ( ) I don't know

12. Do you know a good example of sustainable innovations or initiatives in the food and beverage industry? Think about applications and technology to reduce waste for restaurants.

_____
_____
_____
_____

The survey is almost over. The last part of this survey is a couple of demographic questions.

13. What is your gender?

○ Male

○ Female

○ Prefer not to say

14. What is your age?

○ Under 18

○ 18 to 25

○ 26 to 35

○ 36 to 55

○ Over 55

15. What is your occupation

○ Student

○ Employed

○ Unemployed

○ Retired

○ Other

16. Where do you currently live?

17. Do you have any feedback or recommendations?

Appendix 3

Fault Question 1

**1. Indicate to what extent you im
ment initiatives into your daily r**

Recycle and separate waste

○ Never

○ Sometimes

○ About half of the time

○ Most of the time

○ Always

**1. Indicate to what extent you im
ment initiatives into your daily r**

Vegetarian lifestyle

○ Never

○ Sometimes

○ About half of the time

○ Most of the time

○ Always

**1. Indicate to what extent you im
ment initiatives into your daily r**

Vegan lifestyle

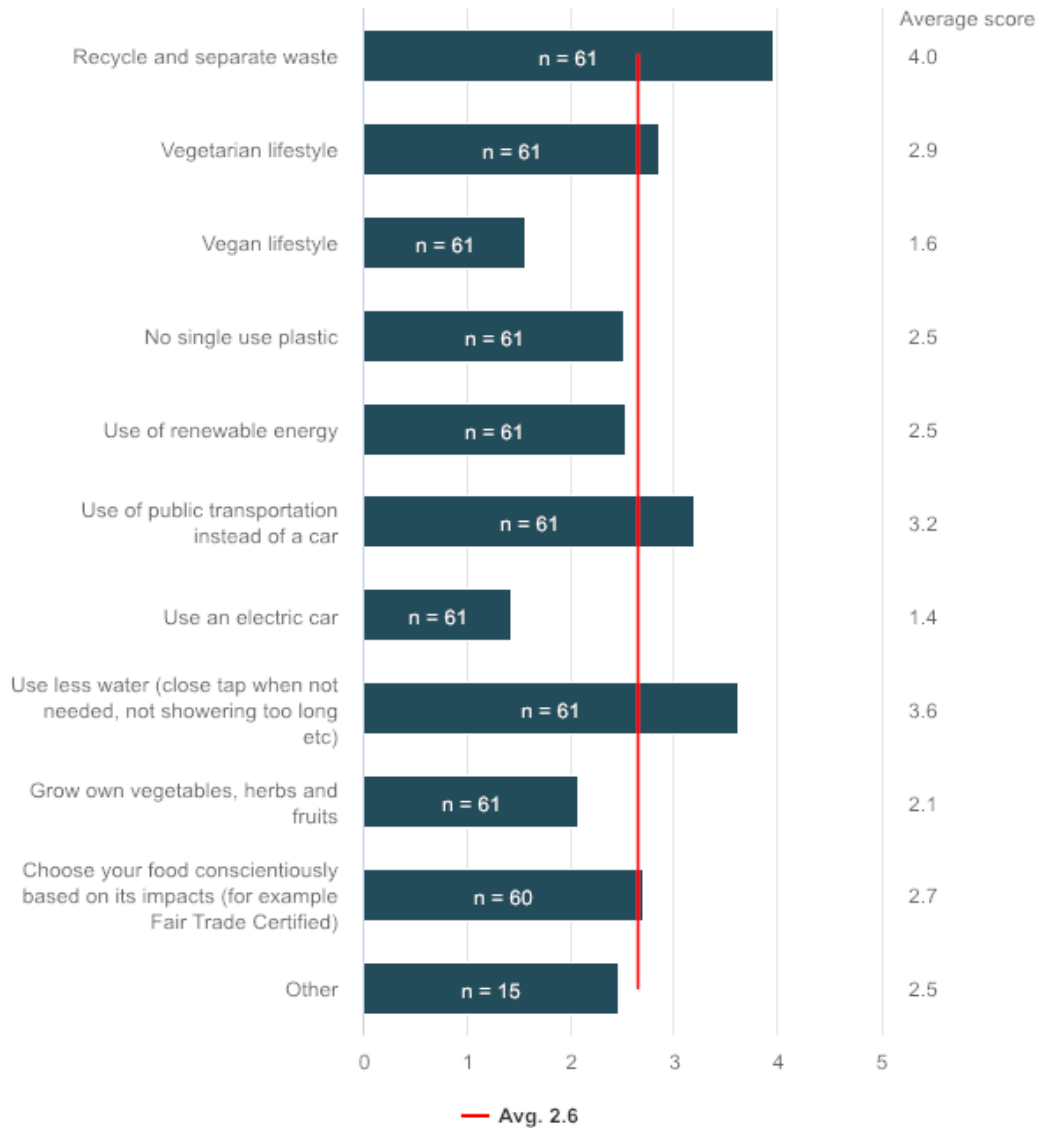○ Never

Appendix 4

Results Survey

Basic report

Sustainability in the restaurant and Food & Beverage industry

Total number of respondents: 61

1. Indicate to what extent you implement initiatives into your daily routine

Number of respondents: 61

— Avg. 2.6

	Never	Sometimes	About half of the time	Most of the time	Always	Average	Median
Recycle and separate waste	1.6%	6.6%	13.1%	50.8%	27.9%	4	4
Vegetarian lifestyle	4.9%	45.9%	18%	21.3%	9.9%	2.9	2
Vegan lifestyle	54.1%	39.3%	3.3%	3.3%	0%	1.6	1
No single use plastic	16.4%	39.3%	19.7%	24.6%	0%	2.5	2
Use of renewable energy	16.4%	42.6%	18%	16.4%	6.6%	2.5	2

Use of public transportation instead of a car	11.5%	21.3%	18%	34.4%	14.8%	3.2	3
Use an electric car	75.4%	14.8%	4.9%	1.6%	3.3%	1.4	1
Use less water (close tap when not needed, not showering too long etc)	0%	16.4%	18%	52.5%	13.1%	3.6	4
Grow own vegetables, herbs and fruits	34.4%	37.7%	13.1%	14.8%	0%	2.1	2
Choose your food conscientiously based on its impacts (for example Fair Trade Certified)	11.7%	30%	40%	13.3%	5%	2.7	3
Other	40%	13.3%	13.3%	26.7%	6.7%	2.5	2

Answers given into free text field

Option names	Text
Other	Use the whole fruit or vegetable in dishes (reduce waste)
Other	Not trowing any form of garbage (paper, plastic, gum etc.) into nature
Other	Choose fresh food delivered in paper bags
Other	Washing at low temperature
Other	Reduce energy use
Other	I use eco soap for dishes and clothes, hair shampoo also, no chemicals added

2. How concerned are you about environmental issues?

Number of respondents: 60
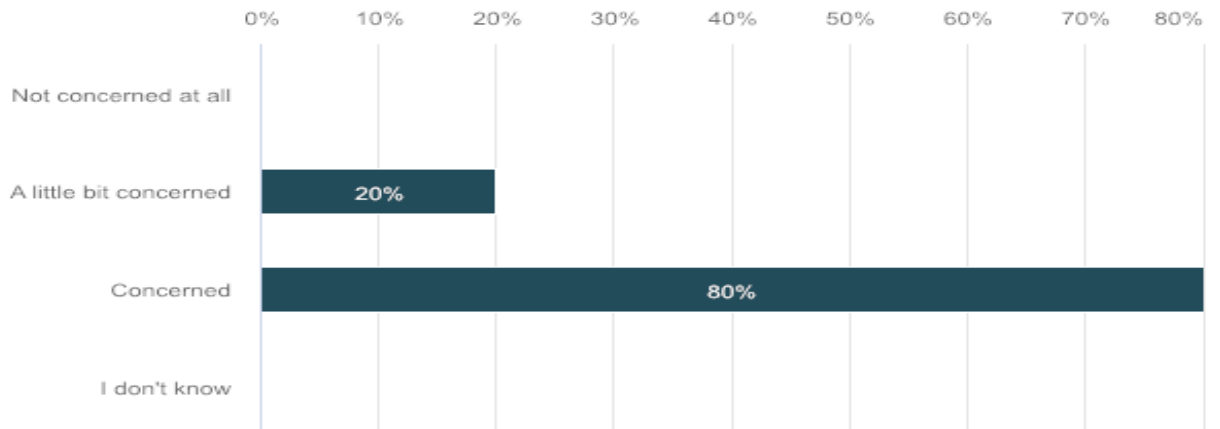
	n	Percent
Not concerned at all	0	0%
A little bit concerned	12	20%
Concerned	48	80%
I don't know	0	0%

3. Are you concerned about the impact of restaurant and the food & beverage industry towards environmental issues?
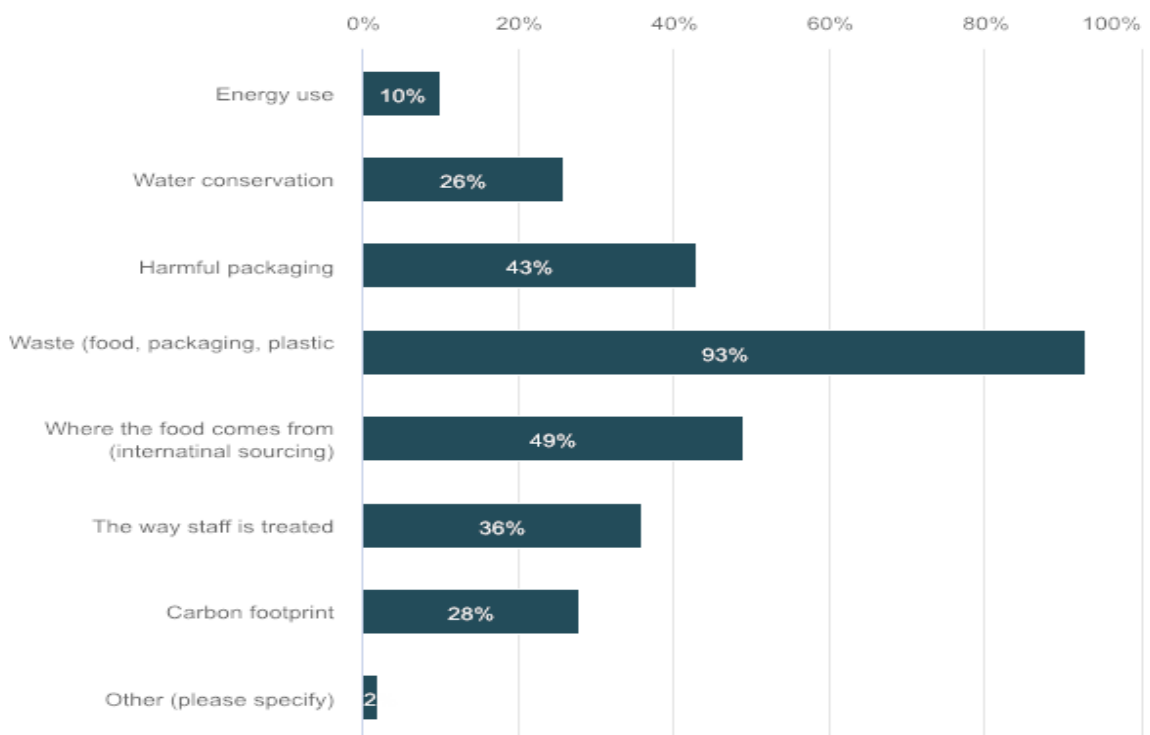
Number of respondents: 61
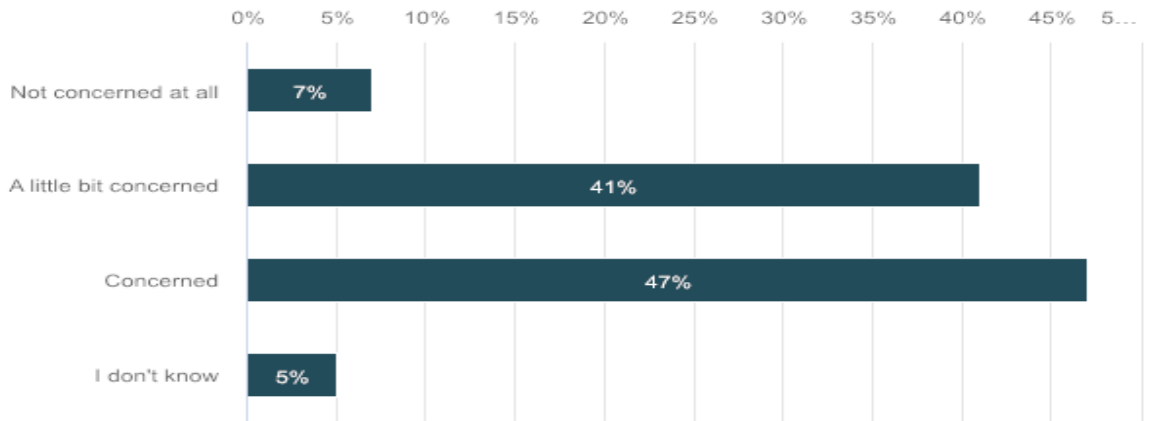
	n	Percent
Not concerned at all	4	6.6%
A little bit concerned	25	41%
Concerned	29	47.5%
I don't know	3	4.9%

4. Which 3 sustainable aspects of the restaurant and the food & beverage industry concerns you the most?

Number of respondents: 61, selected answers: 175

	n	Percent
Energy use	6	9.8%
Water conservation	16	26.2%
Harmful packaging	26	42.6%
Waste (food, packaging, plastic etc)	57	93.4%
Where the food comes from (international sourcing)	30	49.2%
The way staff is treated	22	36.1%

Carbon footprint	17	27.9%
Other (please specify)	1	1.6%

Answers given into free text field

Option names	Text
Other (please specify)	The amount of food that is thrown away

5. In your opinion do you think the industry is doing enough to address sustainable issues?

Number of respondents: 61
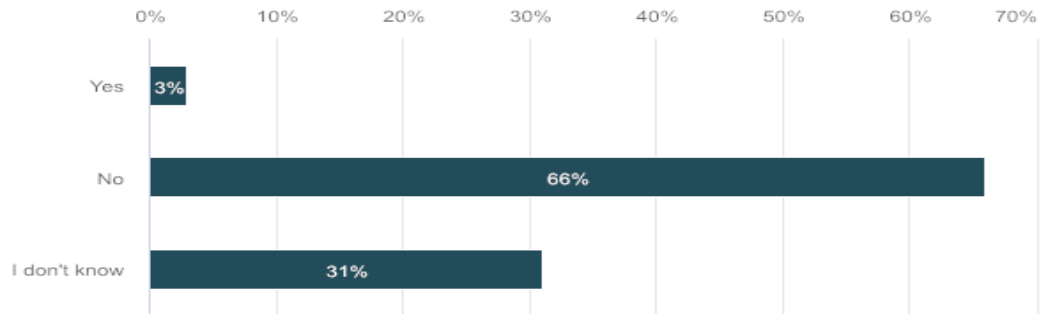
	n	Percent
Yes	2	3.3%
No	40	65.6%
I don't know	19	31.1%

6. What do you think should be sustainable initiatives that every restaurant or food & beverage company should implement?

Number of respondents: 61, selected answers: 275

58
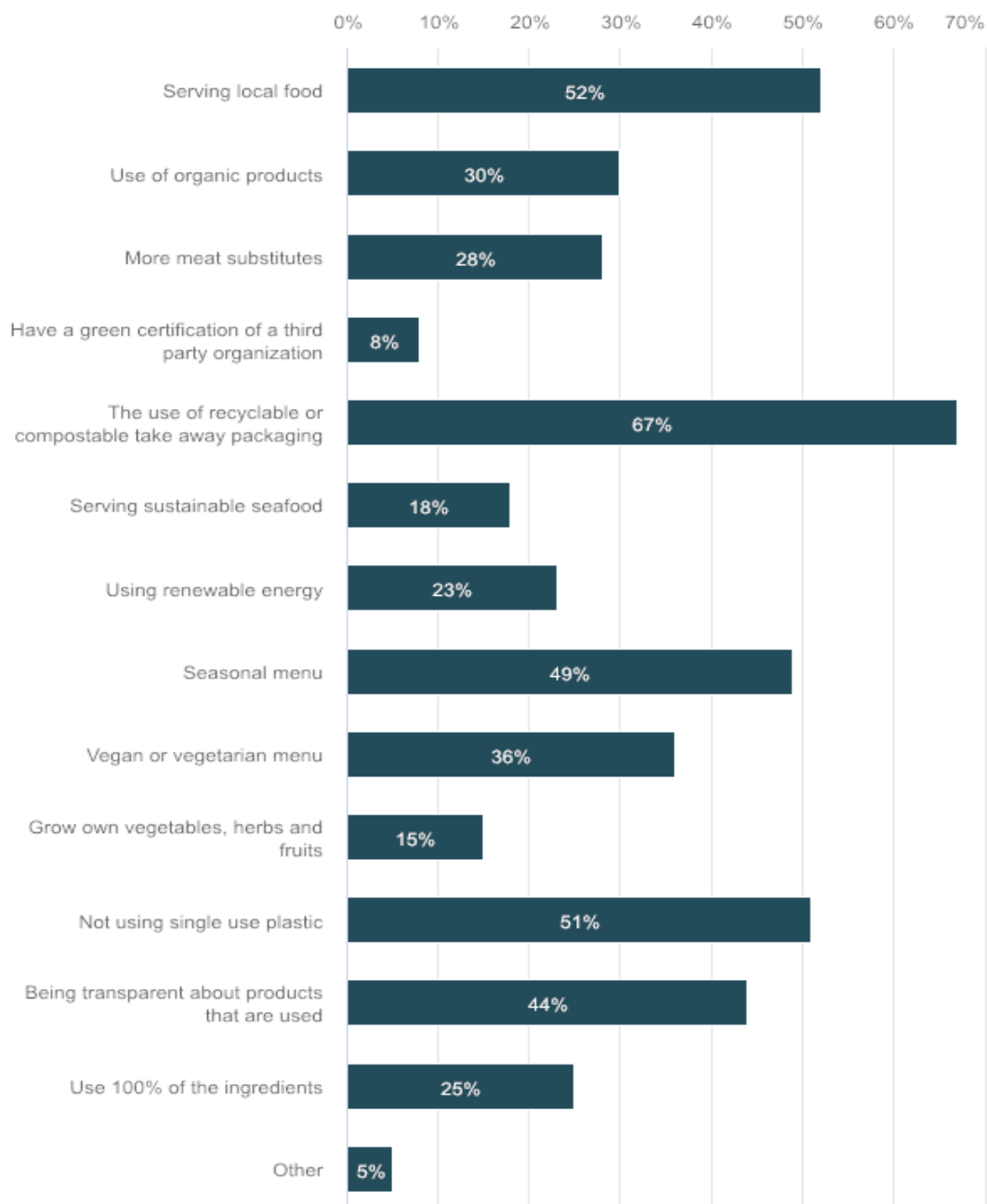
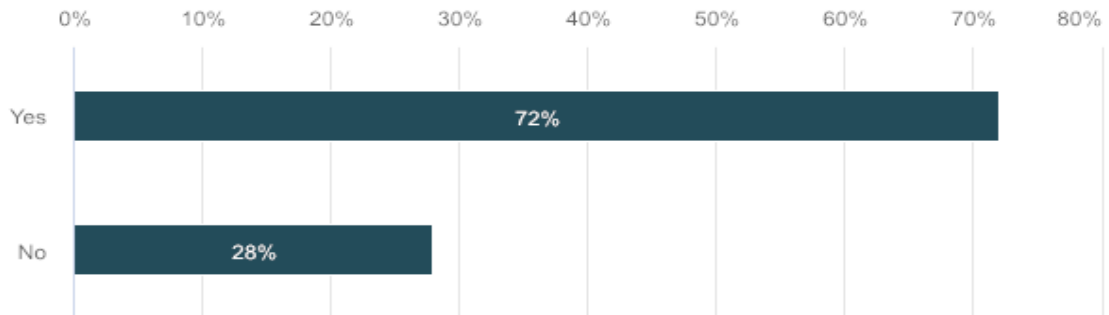|	n	Percent
Serving local food	32	52.5%
Use of organic products	18	29.5%
More meat substitutes	17	27.9%
Have a green certification of a third-party organization	5	8.2%
The use of recyclable or compostable take away packaging	41	67.2%
Serving sustainable seafood	11	18%
Using renewable energy	14	23%
Seasonal menu	30	49.2%
Vegan or vegetarian menu	22	36.1%
Grow own vegetables, herbs and fruits	9	14.8%
Not using single use plastic	31	50.8%
Being transparent about products that are used	27	44.3%
Use 100% of the ingredients	15	24.6%

Other		3	4.9%

Answers given into free text field

Option names	Text
Other	Goal: Zero waste (meals, etc.)
Other	Contributing in waste saving programs that give away food from the day before that would otherwise go to waste.
Other	Use local ingredients, have certified international suppliers

7. Have you gone to a restaurant or ordered from one in the last month?

Number of respondents: 61

	n	Percent
Yes	44	72.1%
No	17	27.9%

8. Do you consider the level of sustainability to be an important factor weighing in on your dining out decisions? Please specify.

Number of respondents: 61
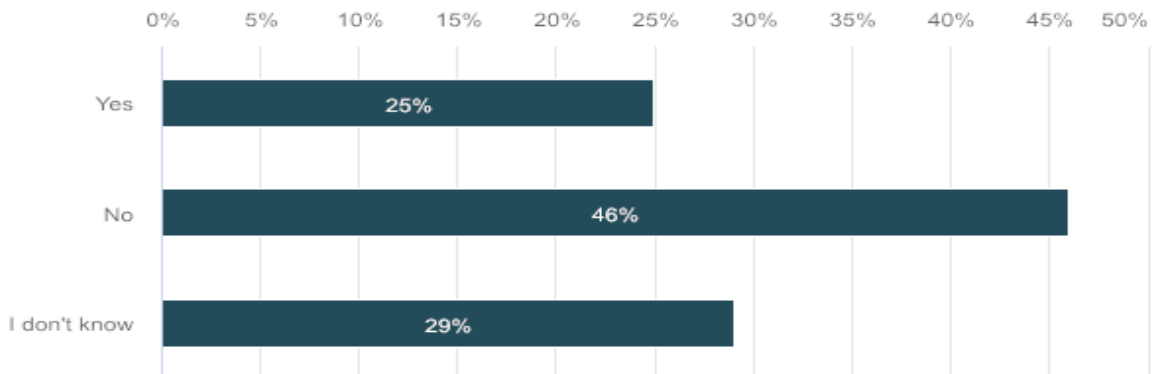
	n	Percent
Yes	15	24.6%
No	28	45.9%
I don't know	18	29.5%

Answers given into free text field

Option names	Text
Yes	No fast food, because of packaging.
Yes	Depending on the sustainability I choose the restaurant or my dish

Yes	If I know that a restaurant serves in plastic packaging for takeaway, I'll ask for another one
Yes	Vegetarian
Yes	I don't order fish anymore, there is no 'sustainable' fishing
Yes	Good for the planet
Yes	There should be a few vegan and vegetarian options.
Yes	It's important
Yes	I try choosing restaurants where meatless options are available and where the food comes in a plastic free package
No	I don't have the knowledge as to how sustainable the restaurants are
No	Is difficult to determine this
No	Bij het uit eten gaan laat ik het gaan. Wel irriteer ik me mateloos aan al het plastic gebruikt voor het verpakken van take away.
No	I go where I want to
No	I've to admit I don't look up the sustainability of a restaurant before I go there
No	Before you order you don't know how it is Boeing delivered
No	Uiteten niet zo zeer, zelf eten maken let ik er wel heel erg op
No	I didn't really think about it before doing this survey.
No	Not always
No	Whenever I'm willing to have dinner somewhere I'm not comparing the restaurants about their level of sustainability but more caring about price and the design of the restaurant
No	I can't really tell for sure in what way they work on/with sustainable solutions
No	When ordering take away, it is impossible to determine which restaurant is more sustainable.
No	I don't think about that
No	To be honest, most of the time I do not pay attention if restaurants are sustainable.
No	There's often not enough information about sustainability in restaurants' webpages to make an informed decision
No	Never looked at it when choosing a restaurant
No	Never looked at any requirements taken regarding the environment

9. Which of the following statements are most important for you to consider when going to a restaurant?

Number of respondents: 61, selected answers: 174
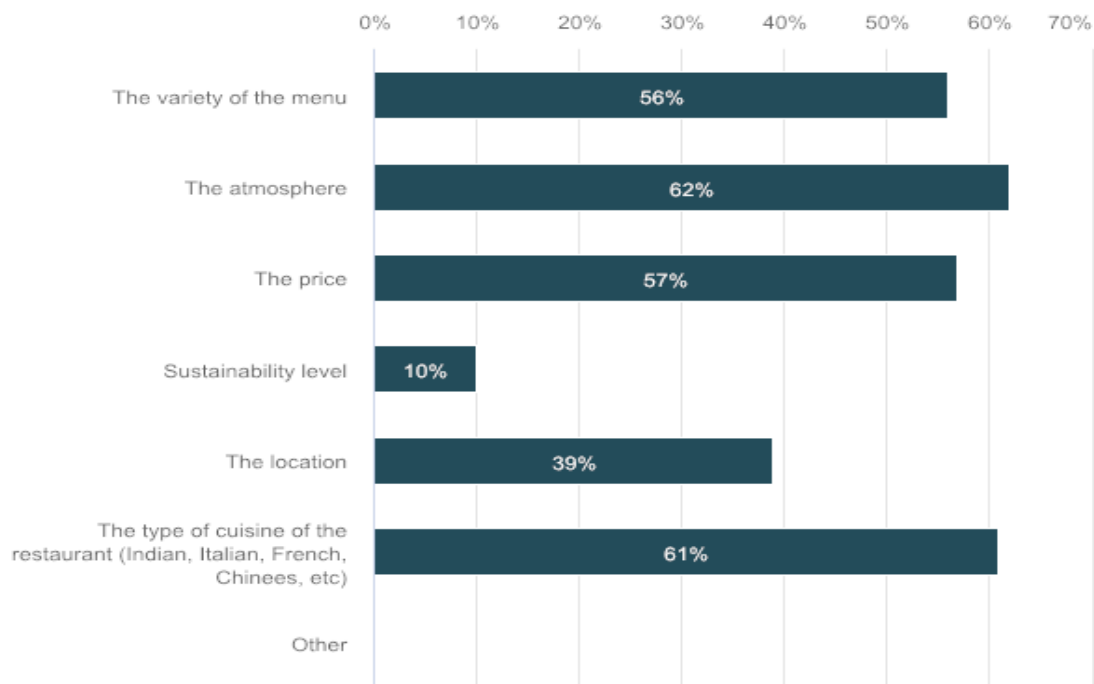
	n	Percent
The variety of the menu	34	55.7%
The atmosphere	38	62.3%
The price	35	57.4%
Sustainability level	6	9.8%
The location	24	39.3%
The type of cuisine of the restaurant (Indian, Italian, French, Chinees, etc)	37	60.7%
Other	0	0%

10. How do you determine if a restaurant is sustainable?

Number of respondents: 61, selected answers: 255
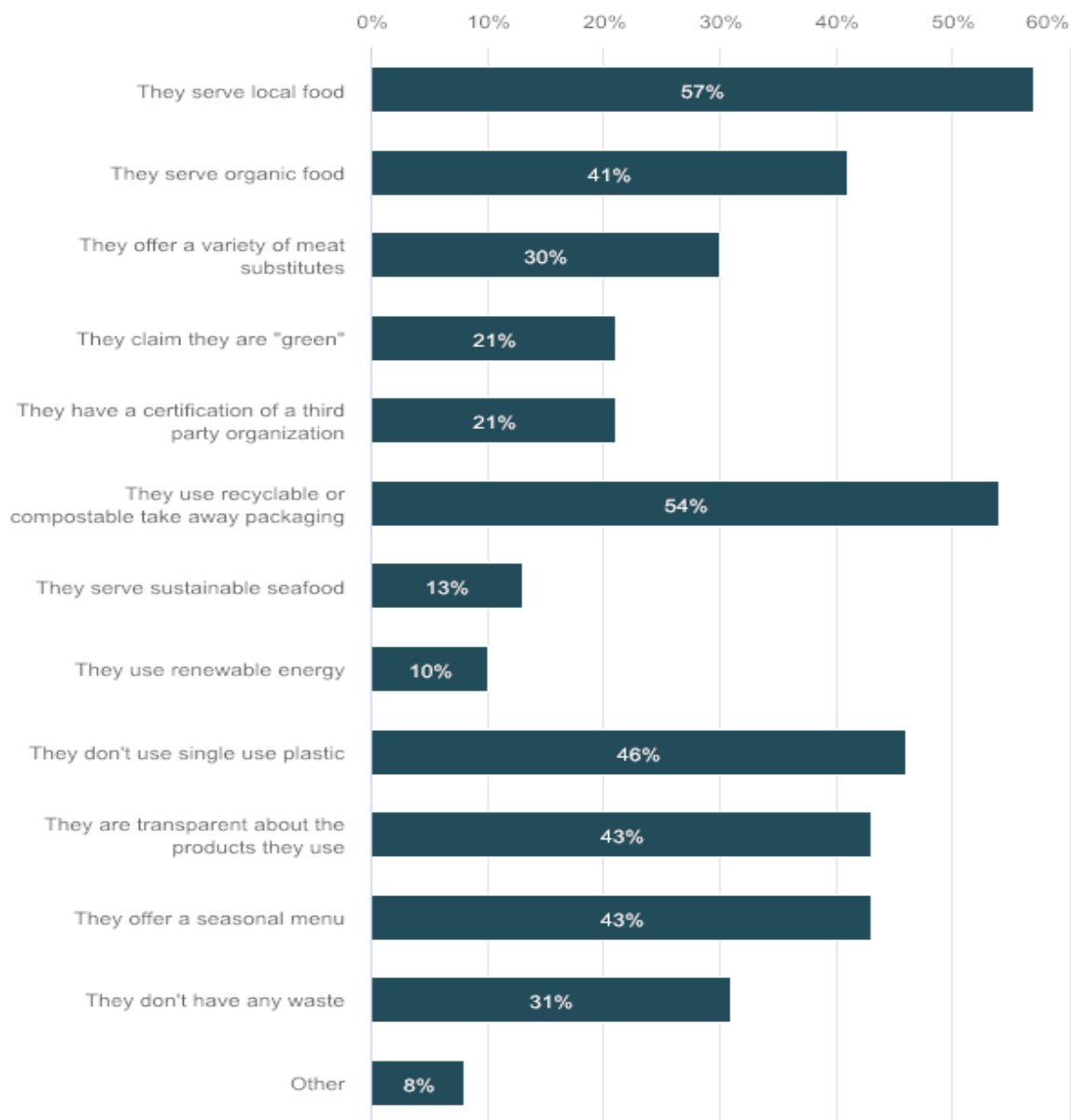
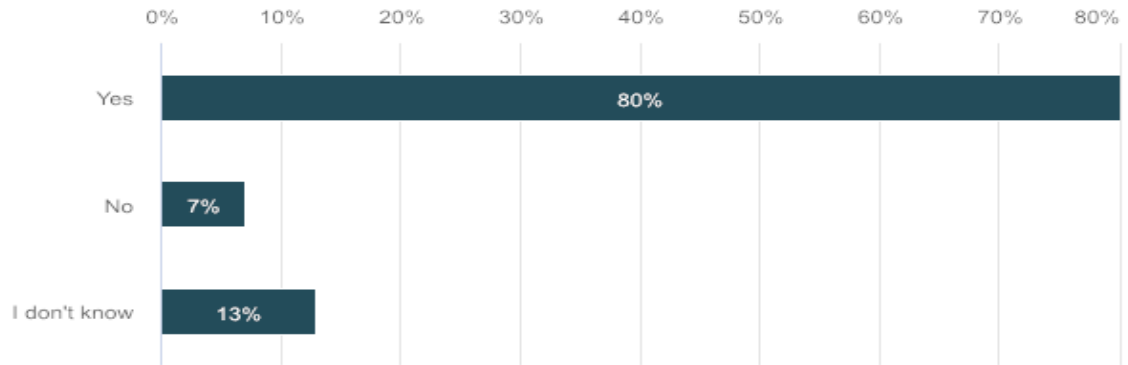|	n	Percent
They serve local food	35	57.4%
They serve organic food	25	41%
They offer a variety of meat substitutes	18	29.5%
They claim they are "green"	13	21.3%
They have a certification of a third-party organization	13	21.3%
They use recyclable or compostable take away packaging	33	54.1%
They serve sustainable seafood	8	13.1%
They use renewable energy	6	9.8%
They don't use single use plastic	28	45.9%
They are transparent about the products they use	26	42.6%
They offer a seasonal menu	26	42.6%
They don't have any waste	19	31.1%
Other	5	8.2%

Answers given into free text field

Option names	Text

Other	they have equality intern laws and objectives
Other	Not aware of it
Other	Don't know
Other	They 're not some franchise of big companies
Other	I find it hard to determine

11. If all factors are similar to a less sustainable restaurant (price, type of food etc), are you more likely to dine at a certified green restaurant than a non-certified restaurant? Please specify.

Number of respondents: 59

	n	Percent
Yes	47	79.7%
No	4	6.8%
I don't know	8	13.5%

Answers given into free text field

Option names	Text
Yes	I'd like to support restaurants that engage in sustainability and care about it
Yes	Better for the environment
Yes	The certification gives security
Yes	I will choice the sustainable restaurant
Yes	It is worth it
Yes	I would do that
Yes	Because it is the same but better in that case
Yes	Bur I need to for sure That the green certificates are legitimate
Yes	Als het niet uitmaakt dan kies ik voor wat het beste voor het milieu is
Yes	earth first
Yes	Yes, beter for the world
Yes	I would pick the green restaurant
Yes	Not taking into consideration the quality and atmosphere, I would dine at a more sustainable restaurant probably.
Yes	If the restaurant is certified green, then that gives more certainty about the way the restaurant operates.
Yes	Guarantee
Yes	Although certifications don't tell you everything, there's a higher chance of a certified restaurant to be more sustainable
Yes	If the price is almost the same for the same amount of food, I might as well spend my money at a sustainable restaurant

Yes	Definitely
No	Certifications don't always show the truth.
No	Certificates can be fake

12. Do you know a good example of sustainable innovations or initiatives in the food and beverage industry? Think about applications and technology to reduce waste for restaurants.

Number of respondents: 33

| Responses |
|---|
| Food waste analysis system. One can identify too large food portions and therefore adapt the menu according to the data. |
| ResQ and Toogoodtogo |
| Recup |
| There are apps in several countries that fight against waste such as the ResQ app |
| No |
| Virtual menus instead of paper menus |
| You can use Substitute Material for cellophane on Basis of Corn starch |
| Too Good to go app |
| Cafés where you can borrow a reusable takeaway cup, in case you forgot your own and then bring it back later and the café will clean it professionally |
| No |
| Ik app je even! |
| ResQ, biodegradable plastic |
| / |
| The use of whole products and not throwing anything away that can be used. Lighting that doesn't take up that much energy |
| Reusable straws, carboard take away disposables, tap water |
| Weet de naam niet, maar een app waar restaurants aan het eind van een dag producten opzetten die anders weggegooid zouden worden. Die kan je dan voor een paar euro afhalen om verspilling te voorkomen. |
| Too good to go, they have discounts for food that if you don't buy is going to go to waste |
| Too Good To Go |
| No, I don't |
| Waste heat recovery |
| Giving wood cutlery instead of plastic when taking away food but I don't think that's innovative at all |
| Using old bread or esp. Croissants which went dry to create breakfast cereals out of it by baking it and adding e.g., honey, fruits, seeds etc. = Less waste |
| For example, the ResQ club app where you can order food that otherwise will be thrown away as waste. |
| A soup with all the vegetable waste. |
| For example, the app ResQ that gives restaurants the possibility to sell food with less quality (from the day before) for a lower price to reduce waste. |
| Some restaurants use paper bags or recycled materials for take away food. Most restaurants offer vegetarian and vegan food. |
| Restaurant Nolla in Helsinki |
| Yes, for instance restaurants that use eco-friendly equipment, that use a zero-waste program |
| Solar panels |
| Sadly no, I don't really go to restaurants |

Trying to make everything plastic free is a good start, I think. For smaller restaurants it is way easier to be sustainable than for big ones (franchise, etc) and I think there are already some good ones who don't use plastic and also use local food. I can't really think of any technology that would help making this industry more sustainable since I don't have a great knowledge in that particular area.
Customers specifying more on how much they want to eat instead just making big plates and throwing half away
Donate remaining food to homeless shelters

13. What is your gender?

Number of respondents: 61
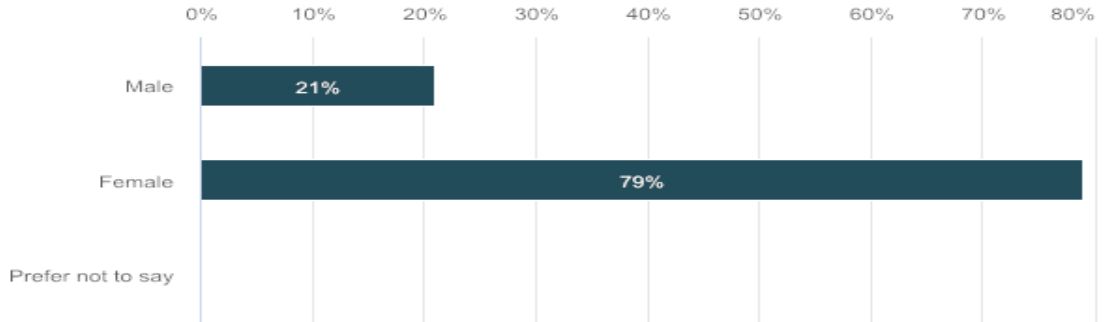
	n	Percent
Male	13	21.3%
Female	48	78.7%
Prefer not to say	0	0%

14. What is your age?

Number of respondents: 61
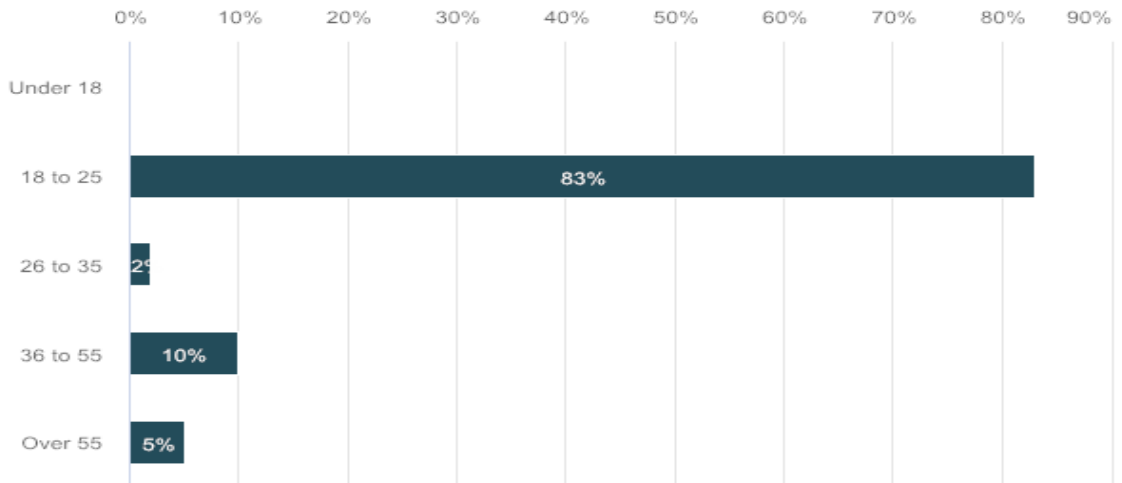
	n	Percent
Under 18	0	0%
18 to 25	51	83.6%
26 to 35	1	1.7%
36 to 55	6	9.8%
Over 55	3	4.9%

15. What is your occupation

Number of respondents: 61
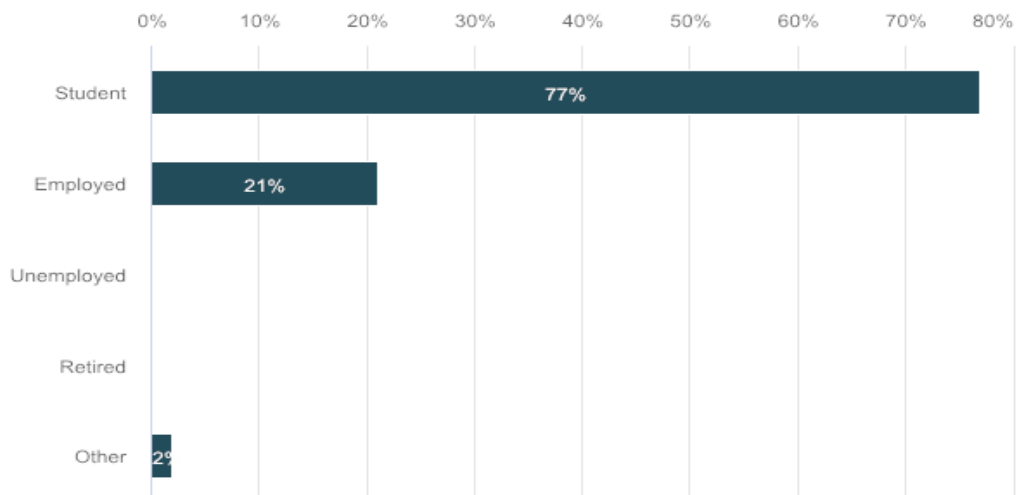
	n	Percent
Student	47	77.1%
Employed	13	21.3%
Unemployed	0	0%
Retired	0	0%
Other	1	1.6%

Answers given into free text field

Option names	Text
Other	Student and employed

16. Where do you currently live?

Number of respondents: 61

Responses	
France	Germany
Finland	Germany
Pasila, Helsinki, Finland	Germany
Finland, Helsinki	Austria
Helsinki, Finland	Barcelona, Spain
Netherlands, Eerbeek	Netherlands
The Netherlands	Nijmegen, the Netherlands
Germany	NL
The Netherlands	The Netherlands, Enschede
Eerbeek, The Netherlands	The Netherlands, Amersfoort
United Kingdom	Wiesbaden, Germany
Germany	HELSINKI
Finland	Helsinki
Finland, Helsinki	Helsinki
Wageningen	Finland
Austria	Vantaa
Finland	Helsinki
/	Finland

The Netherlands	Helsinki
The Netherlands	Helsinki
Belgium	Helsinki
Nederland, Eerbeek (dorp)	Finland
Barcelona	Germany
Belgium	Den Bosch
Netherlands	Netherlands
Amstelveen, Netherlands	Breda
The Netherlands / LOENEN	Amsterdam
Germany	
Netherlands	
De Bilt, the Netherlands	
Finland.	
Austria	
Germany	
Netherlands	

17. Do you have any feedback or recommendations?

Number of respondents: 21

Responses
Good luck with the analysis
No.
You're doing great sweetie :*
Good job!
No
/
No!
Heel interessant onderwerp! Zeker de moeite waard om te onderzoeken.
I really hope I helped, it was really easy and nice to think about how restaurants have to be sustainable as well as other things (restaurants are the last thing we think about when talking about sustainability)
Succes!!
No
Good luck with your thesis :)
FI🛁
Have a look at the books of Prof. Dr. Willy Legrand;)
Good luck suus!
.
No
Good luck for your thesis!

Check out restaurant Nolla in Helsinki, they have sustainable way of working
No, but good luck and have a nice life 😊
In the one question where it said "...please specifi.yes/no/I don't know. "I think there should be a "sometimes/depends/maybe" option.

Appendix 5

Statistics questionnaire

Question	Count	Average	Confidence interval	Median	Standard deviation
1. Indicate to what extent you implement initiatives into your daily routine: Recycle and separate waste	58	4,051724	3.84 – 4.26	4	0,80399
2. Indicate to what extent you implement initiatives into your daily routine: Vegetarian lifestyle	58	2,87931	2.59 – 3.17	2,5	1,1406
3. Indicate to what extent you implement initiatives into your daily routine: Vegan lifestyle	58	1,568966	1.38 – 1.76	1	0,728181
4. Indicate to what extent you implement initiatives into your daily routine: No single use plastic	58	2,568966	2.3 – 2.83	2	1,027893
5. Indicate to what extent you implement initiatives into your daily routine: Use of renewable energy	58	2,568966	2.27 – 2.87	2	1,171475
6. Indicate to what extent you implement initiatives into your daily routine: Use of public transportation instead of a car	58	3,206897	2.89 – 3.53	3,5	1,239109
7. Indicate to what extent you implement initiatives into your daily routine: Use an electric car	58	1,431034	1.19 – 1.67	1	0,938683
8. Indicate to what extent you implement initiatives into your daily routine: Use less water (close tap when not needed, not showering too long etc)	58	3,637931	3.4 – 3.87	4	0,911876
9. Indicate to what extent you implement initiatives into your daily routine: Grow own vegetables, herbs and fruits	58	2,12069	1.85 – 2.39	2	1,044242
10. Indicate to what extent you implement initiatives into your daily routine: Choose your food conscientiously based on its impacts (for example Fair Trade Certified)	57	2,754386	2.5 – 3.01	3	0,987072
11. Indicate to what extent you implement initiatives into your daily routine: Other	13	2,692308	1.91 – 3.47	3	1,436698
12. How concerned are you about environmental issues?	57	2,824561	2.72 – 2.92	3	0,383723
13. Are you concerned about the impact of restaurant and the food & beverage industry towards environmental issues?	58	2,5	2.32 – 2.68	3	0,707107
14. Which 3 sustainable aspects of the restaurant and the food & beverage industry concerns you the most?	166	4,253012	4.02 – 4.48	4	1,520314
15. In your opinion do you think the industry is doing enough to address sustainable issues?	58	2,275862	2.14 – 2.41	2	0,522917
16. What do you think should be sustainable initiatives that every restaurant or food & beverage company should implement?	264	7,079545	6.61 – 7.55	8	3,904433
17. Have you gone to a restaurant or ordered from one in the last month?	58	1,293103	1.17 – 1.41	1	0,459161
18. Do you consider the level of sustainability to be an important factor weighing in on your dining out decisions? Please specify.	58	2,051724	1.86 – 2.25	2	0,759095
19. Which of the following statements are most important for you to consider when going to a restaurant?	165	3,393939	3.11 – 3.68	3	1,856751
20. How do you determine if a restaurant is sustainable?	246	6,398374	5.92 – 6.88	6	3,829509
21. If all factors are similar to a less sustainable restaurant (price, type of food etc), are you more likely to dine at a certified green restaurant than a non-certified restaurant? Please	56	1,339286	1.15 – 1.53	1	0,720525
23. What is your gender?	58	1,793103	1.69 – 1.9	2	0,408619
24. What is your age?	58	2,37931	2.15 – 2.6	2	0,875146
25. What is your occupation	58	1,293103	1.13 – 1.46	1	0,649119