

**Master's Degree Program at FH Wien der WKW in  
Executive Management**

**Consumers' Influence on the Success of a Circular Economy  
within the Food Retail Industry**

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## **Abstract**

The global material footprint is rising, and the impact of climate change is becoming visible, so the urge to change consumption patterns and adapt industry practices is evident. A circular economy [CE] optimises processes within the product's lifetime by minimising raw material input and eliminating waste. Prior research provides limited knowledge on the impact consumers have on the development of CE within food retail. Therefore, this study investigates the possibilities and restrictions of consumer influence on the success of CE by conducting primary qualitative data acquisition. Ten in-depth interviews with household shoppers of Generation Z showed a high interrelation between household practices and the shopping behaviour of young adults, mainly guided by childhood routines. Consumers are not solely responsible for the success of CE within the food retail industry; thus, their buying and consumption behaviour highly influences the supply and, thereby, the development of CE within the industry. To support CE, consumers need to buy, consume and dispose of goods according to CE. This desired behaviour includes switching to sustainable alternatives, avoiding packaging waste, active consumption, proper food processing and self-education about appropriate waste disposal. The study shows that CE requires cooperation and collective actions between all stakeholders. Therefore, producers, groceries and the government are also responsible for implementing sustainable standards, minimising waste production, and implementing incentives to push consumers towards CE practices. Future research suggests further analyses of the individual capacities of the different stakeholders within the food retail industry as well as in-depth investigations on the Austrian waste system and the impact of national and local governmental initiatives on the success of CE.

**Keywords:** Circular Economy, Sustainable Consumption, Sustainability, Consumer behaviour



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## **List of Abbreviations**

AI – Artificial Intelligence

C2C – Cradle to Cradle

CE – Circular Economy

CO<sub>2</sub> – Carbon Dioxide

EEA – European Environment Agency

EMAF – Ellen MacArthur Foundation

EU – European Union

FAO – Food and Agriculture Organization

NASA – National Aeronautics and Space Administration

R&D – Research and Development

SDGs – Sustainable Development Goals

UN – United Nations

UNEP – United Nations Environment Programme

WECD – World Commission on Environment and Development



# 1 Introduction

The world's development towards a sustainable ecosystem has gained importance over the last decade and has become part of many business strategies. Thus, the process was slowed down by severe challenges and setbacks in the previous few years (United Nations [UN], 2022a, p. 3). The outbreak of Covid-19 set worldwide constraints on climate change issues and conflict predominance (UN, 2022a, p.3). Nevertheless, energy-related CO<sub>2</sub> emissions increased by 6% in 2021, which led to rising temperatures causing heatwaves, floods, and wildfires (UN, 2022a, pp. 20, 52). Unsustainable consumption and production patterns majorly impact climate change and global warming. Domestic material consumption raised over 65% from 2000 to 2019 (UN, 2022a, p. 50). According to publications from the United Nations, the global world population will grow to 9.7 billion people by 2050 (UN, 2019, p. 5). This increase will require new housing facilities, jobs, extended health care facilities, and, most importantly, expanded natural resources. The urgent call to re-think consumption patterns pushes corporates as well as consumers to find sustainable alternatives since “[s]ustainability transitions are long-term, multi-dimensional, and fundamental transformation processes” (Markard, Raven, & Truffer, 2012, p. 956).

By addressing the problem of increased demand for natural resources, the switch from linear to circular models has become popular among scholars and pioneers (Kirchherr, Reike, & Hekkert, 2017, p. 221). One solution to this is the implementation of a circular economy, which aims to eliminate waste and pollution, circulate products and materials, and regenerate nature (Ellen MacArthur Foundation [EMAF], 2015, p. 3; Maitre-Ekern & Dalhammar, 2019, p. 395). Innovation and changes along the whole supply chain are required to achieve circularity within an industry (Potting, Hekkert, Worrell, & Hanemaaijer, 2017, p. 5). Consumer demand plays an essential role here since it controls supply and leads producers, suppliers, and other players in the industry to adapt to consumers' needs (Piila et al., 2022, p. 536). Therefore, consumer decisions considerably influence the development of green initiatives within the industry (Camacho-Otero, Boks, & Pettersen, 2018, p. 2; European Environment Agency [EEA], 2016, p. 28). Regarding nutrition, 17% of wasted food is lost during consumption (UN, 2022a, p. 19). Research shows that, especially at the stage of consumption, already small changes can lead to significant improvements towards a sustainable future (UN, 2020, p. 48). Thus, the question arises: How can consumers influence the success of a circular economy within the food industry?

## 1.1 Problem Statement

“The global material footprint is increasing faster than population growth and economic output.” (UN, 2020, p. 48). 70-80% of the environmental impacts of society are caused by energy use, mobility, and food (Tukker et al., 2008, p. 1219). Energy-related CO<sub>2</sub> emissions increased by 6% from 2020 to 2021, even though the global economy has come to a hold due to the outbreak of Covid-19 (Shrestha et al., 2020, p. 5; UN, 2022a, p. 20). Current lifestyle developments in consumption also tremendously impact the world’s evolution towards a sustainable future (UN, 2020, p. 48). When looking at nutrition, the Food and Agriculture Organization [FAO] estimated that one-third of all food produced was wasted or lost in 2011, which means about 1.3 billion tons of unused food per year (Gustavsson, Cederberg, Sonesson, Van Otterdijk, & Meybeck, 2011, p. 4). Besides lost nutrition, food waste significantly impacts land, water, and energy (Priefer, Jörissen, & Bräutigam, 2016, p. 156). According to the FAO, the production, processing, and distribution of the global amount of food waste use 306 km<sup>3</sup> of water and 0.9 million hectares of land per year (Scialabba, Müller, Schader, & Schwegler, 2014, p. 6). Consequently, 8% of total global greenhouse gas emissions account for food waste, which could be avoided by sustainable consumption patterns (Hegensholt, Unnikrishnan, Pollmann-Larsen, Askelsdottir, & Gerard, 2018, p. 1).

Pioneers and researchers developed the concept of circular economy [CE] mainly to counteract climate change (Kirchherr et al., 2017, p. 221). The core elements of this framework are regeneration, sharing, optimising, looping, virtualising, and exchanging (EMF, 2015, p. 9). The system focuses on looping all processes and products to optimise product usage, increase productivity, and eliminate contaminated materials (EMF, 2015, p. 8). It shifts production and consumption processes from a linear to a circular economy (Kirchherr et al., 2017, p. 224). Consequently, the closer the economy is to the circular system, the fewer natural resources are needed, and waste can be eliminated (Potting et al., 2017, p. 5). Circular systems are part of the circular economy and represent the processes required for the success of a circular economy (Koeijer, Wever, & Henseler, 2017, pp. 447-448). Once corporates adopt traditional business objectives to CE, increasing revenue, reducing costs, and managing risk will be added to the ecological benefits of implementing circular practices (Corvellec, Stowell, & Johansson, 2021, p. 421). These economic advantages are also provided for consumers since 17% of food is wasted at consumption (UN, 2022a, p. 19). According to McKinsey and Company (2016, p. 5), an average European household can reduce food costs by 25 to 40 per cent simply by switching to sustainable approaches. This change in consumption patterns seems complicated in the current

economy and people's lifestyle habits (Maitre-Ekern & Dalhammar, 2019, p. 394). Thus, the end consumer's choices influence the circular system's success. Thereby, the attitude of the end consumer plays a significant role since the decision to buy, process, and consume, is a human choice (Jonkute & Staniskis, 2016, p. 171).

Consequently, the efficient implementation of a circular economy relies on more than just business decisions. There is a gap in research regarding consumer choices' impact on the circular economy (Camacho-Otero et al., 2018, p. 1; Mylan, Holmes, & Paddock, 2016, p. 3). The success of CE requires concrete interrelation of actions and practices to reduce the number of natural resources used for food production and packaging, optimise processes within the whole supply chain, eliminate waste and close the loops within food production and consumption (EMAF, 2015, p. 8; Fassio & Tecco, 2019, p. 2). The missing indicators for measuring the outcome of CE models make it difficult to track the progress, especially from a consumer's perspective (EEA, 2016, p. 28). Camacho-Otero et al. (2018, p. 1) emphasise the significant change in people's life needed for a circular economy, Corvellec et al. (2021, p. 421) define this change as "a shift from consumer to user". The question is to what extent consumers can influence the success of CE. Are there restrictions that reduce circular consumer choices? How important are consumer choices for the circular economy, and what can be improved to support the system at the consumption stage? Prior research does not provide concrete information on these topics, and little is known about consumers' influence on the success of the CE. Thus, new insights in this field do not only provide customers with new perspectives on how to consume sustainably; this research also offers valuable insights into the consumption stage for corporate decision-makers and future development strategies within firms and economies.

## **1.2 Research Objective**

This research aims to investigate the influence consumers have on the success of a circular economy. Food provision is one of the most resource-consuming divisions besides mobility and energy (Mylan et al., 2016, p. 3). Therefore, the focus is set on the food retail industry and household consumption practices since research shows a high potential for immediate improvement when adapting consumption habits (UN, 2022a, p. 50). Thus, sustainable consumption patterns are not yet efficiently developed. Therefore, this research analyses the consumption stage in detail and provides answers to the following research questions:

RQ How can consumers of Generation Z influence the success of circular economy within the food retail industry?

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SubRQ1 How are household practices interrelated with people's food shopping behaviour?

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SubRQ2 What are restrictions for shoppers to better support CE within food consumption?

This paper analyses consumer choices' influence on the success of circular economy. The overall research question of this thesis focuses on consumer behaviour towards CE within the food retail industry. Hence, the literature review provides a solid baseline for further investigation, followed by primary data acquisition through in-depth interviews with consumers from Generation Z. The two sub-research questions highlight additional factors within the consumption stage. First, the interrelation between shopper behaviour and household practices is analysed. Since the shopping behaviour is not necessarily decisive enough to provide conclusions on consumer behaviour, investigating household practices is crucial to understanding underlying consumption beliefs and actions. This section also offers insights for sub-research question two, which focuses on current restrictions of the development of CE within the food consumption stage. The conditions for CE consumer behaviour are analysed, and the industry's harmful practices are discussed.

Consequently, the outcome presents solutions for necessary changes and better practices to ensure the success of CE within the food retail industry. Therefore, this thesis shows new insights into consumer behaviour towards CE and elaborates new ideas and ways to support the system better. The study provides practical implications and contributes new insights into the field of research for further academic investigation towards the most efficient way to implement CE. The outcome helps decision-makers in future strategic planning and adaptation to sustainable practices necessary to support CE within their industries.

### **1.3 Research Design**

This Master thesis consists of primary as well as secondary data. The latter is mainly represented in the first part of the research, formed by a detailed literature review to analyse, and discuss previous findings. Thus, according to Veal (2018, p. 182), secondary data acquisition is an ongoing process within the research period. Therefore, it is part of all chapters of this thesis. This approach ensures a constant adaptation of new findings based on prior explorations. The corresponding data is retrieved from online libraries and online publications. Additionally,

the credibility of the research increases by including academic journals and papers of previous research.

Primary data refers to qualitative data acquisition through in-depth interviews in this study. Prior studies on household food waste and sustainable consumption patterns focus on numeric outcomes and proportionate behaviour of a particular group of people (Haque, Karunasena, & Pearson, 2021, pp. 3789-3792; Skourides, Smith, & Loizides, 2008, pp. 190-193). Since this approach only provides limited knowledge about people's motivations, other researchers like Ojala (2008, pp. 784-787) combined qualitative and quantitative data to analyse behavioural patterns. Thus, in this study, the focus is set on the influence of people's behaviour on the success of CE. So, it is crucial to discover underlying beliefs and intentions for food purchases of young adults by understanding how consumers' "expectations and behaviours are shaped" (Hennink, Hutter, & Bailey, 2011, p. 16). Hence, a qualitative research approach provides a better understanding of people's awareness of their shopping actions than quantitative research and shows participants' natural behaviour by discussing their daily routines. One study by Munro (2021, pp. 1517, 1524) focuses as well on the verbal outcome of the study, which outlines practical examples from daily life and showed at the same time people's emotions and underlying concerns. Consequently, further qualitative research is necessary to understand people's emotions better and influence circular consumption practices.

The one-to-one interviews conducted for this research are informal and semi-structured. The intention is to combine structure with flexibility and let the interviewer adapt questions according to the interviewee's responses. This approach encourages verbal exchange and leads to a more detailed outcome than quantitative data since it consists of words and sounds rather than numbers (Veal, 2018, p. 278). Acquired data from quantitative approaches would lack depth and miss the underlying beliefs and intentions of consumer decisions. Other qualitative methods like focus groups would not fit this study since the verbal exchange of consumers would influence each other's opinions and modify answers on individual practices and habits. The interviews were conducted with participants of Generation Z, who are responsible for food shopping within their households. These characteristics are essential since the focus of this research is set on the shopping behaviour in the supermarket and the consumption practices at home. According to Kola-Olusanya (2012, p. 210), young people play an essential role in addressing sustainable change in the future. Additionally, routines and behaviour patterns are established at this age, which tends to be challenging to change afterwards in the flow of life (Ojala, 2008, p. 778). Therefore, the study focuses on young adults from Generation Z.

A non-probability sampling is conducted to select interview participants and determine a homogeneous group of people. This thesis includes primary data from ten interviews, which lasted 20 to 40 minutes, depending on the participant's engagement with the topic. All discussions were tape-recorded and transcribed. The transcripts were summarised for the data analysis to divide data input into thematic categories. Finally, the gathered primary data was analysed with existing data, and conclusions were drawn to answer the pre-set research questions.

## **1.4 Chapter Outline**

This Master thesis consists of seven primary chapters. The introduction forms the first chapter, including the research gap, the resulting objective of the study, the research design and thesis structure. Chapter two represents the detailed literature review focusing on sustainable development, circular economy, consumers' influence on CE and shopping behaviour in food retail. This chapter aims to provide a theoretical base for primary data acquisition. The third part elaborates on the detailed empirical research approach and covers the justification of the selected method, the sampling approach, data collection, and analysis. The fourth chapter combines all findings of the primary data collection. Thus, secondary data is also included in this section to investigate the following topics: consumer behaviour towards CE, consumer challenges to support CE, possibilities for consumers to support CE and responsibilities of different parties within the economy. This chapter combines all insights and provides answers to the pre-set research questions. Chapter five summarises the results and recommendations of this research. Chapter six draws a conclusion that aims to give a short overview of the research outcome. Finally, the Master thesis is closed with a critical reflection and outlook for future follow-up research opportunities.

## **2 Literature Review**

This part of the Master thesis examines existing data and findings. It provides a base for the subsequent primary data acquisition and supports exploring “Consumers’ Influence on the Development of a Circular Food Economy”. This section critically analyses secondary data and puts it into context regarding the research questions. Thereby, the sub-chapters provide insights into sustainable development, the circular economy system, examining generation differences in consumption, and the importance of consumption within CE.

### **2.1 Sustainable Development**

The beginning of sustainability dates back 300 years to Hans Carl von Carlowitz, son of a German forester (Schmithüsen, 2013, p. 5). He was responsible for the mining industry at the court of Saxony in 1711 and discovered the connection between forest overuse and the lack of wood supply (Schmithüsen, 2013, p. 4). His publication *Silvicultura oeconomica* of 1713 emphasises preserving natural resources to ensure long-term stability for future generations and hold economic sustainability (Carlowitz, 1713). Even though the term “Sustainability” was already used in this publication, it was not yet related to climate change issues (Schmithüsen, 2013, pp. 5-6). Only a century later, around 1900, researchers like Svante Arrhenius (1896, p. 237) and William J.S. Lockyer (1910, p. 178) realised the first correlations between CO<sub>2</sub> emissions and climate change. Thus, they still could not come up with a proper explanation of the relation (Lockyer, 1910, p. 178). Nevertheless, scientists started to raise awareness of the changing temperatures. In 1970, George S. Benton emphasised in his publication, “[s]ome years from now, man will control his climate, inadvertently or advertently. Before that day arrives, it is essential that scientists understand thoroughly the dynamics of climate” (Benton, 1970, p. 899).

Researchers worldwide started analysing the phenomena of rising temperatures and published similar findings. Thus, scholars needed help communicating their findings to the public to raise awareness since their research was too complex for the population (Moser, 2010, p. 33). One additional complication was the need for more visibility of the impact of climate change (Moser, 2010, p. 33). Already back in time, the *Homo Sapiens*’ brain initially only focused on the present moment by surviving immediate danger without thinking about future challenges (Moser, 2010, p. 34). Therefore, it is hard for people to realise the importance of a topic without seeing any direct effect on their daily lives. Even though scientists found the first proof in remote areas like the Arctic, people did not see an immediate impact in urban areas and their

hometowns (Moser, 2010, p. 34). Scientists focused on that topic and started the first initiatives to counteract this temperature change. Thus, the complexity and uncertainty of the phenomena made it challenging to indicate concrete countermeasures at that time (Hallegatte, 2009, p. 241; Moser, 2010, p. 35; Walker et al., 2003, p. 7).

### **2.1.1 Definition and Delimitation of Sustainability**

Although the term sustainability was already used in 1713 by Hans Carl von Carlowitz, researchers struggled to find an exact definition for the term over centuries (Brown, Hanson, Liverman, & Merideth, 1987, p. 714; Carlowitz, 1713). International organisations like the National Aeronautics and Space Administration (NASA) or the United Nations Environment Programme (UNEP) started coming up with their definitions, including terminologies like ecology, appropriate technology, and environmental quality (Brown et al., 1987, p. 713). In 1983, the World Commission on Environment and Development (WCED) was founded by the United Nations, among other things, to establish strategies for environmental progress (WCED, 1987, p. 6). The WCED published the first official definition in 1987, stating that sustainable development means meeting „the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, p.37). This terminology was reframed several times afterwards and evolved to over 300 definitions nowadays (Johnston, Everard, Santillo, & Robèrt, 2007, p. 60). However, the initial framework remained the same and is still among the most popular definitions for sustainability (Johnston et al., 2007, p. 60; WCED, 1987, p.37). However, this terminology did not define the term sustainability itself and created a rather country-level oriented and broader definition, according to Urdan and Luoma (2020, p. 797). Ienciu and Popa (2013, p. 255) came to a similar conclusion by stating that “Sustainable Development” is used at the macro-economic level and seen as the process of human activity for sustainability. Whereas “Sustainability” is visualised as an entity’s final objective at a microeconomic level (Ienciu & Popa, 2013, p. 255). When looking at translations for the word “Sustainability”, it can be understood as “sustain” to support something and “able” to be capable of something (Ienciu & Popa, 2013, p. 254). Therefore, the original meaning of sustainability describes the term as the “capacity to sustain or self-sustain” our environment, including ecological, social, and economic factors (Ienciu & Popa, 2013, p. 255).

Another terminology popping up in many research is “Social Responsibility”, which describes the “social dimension within the concept of sustainable development” and focuses on the “communion between individuals and entities” (Ienciu & Popa, 2013, p. 257). Like “Sustainability”,



it operated on an entity level, thus in a narrower concept and relatively short-term focused (Ienciu & Popa, 2013, p. 258). Consequently, different definitions for sustainability are popping up in research depending on the topic and investigations. Thus, all descriptions combine the desire to sustain long-term life on earth by including ecologic, economic, and social factors (Ienciu & Popa, 2013, p. 253; Urdan & Luoma, 2020, pp. 797-798).

### **2.1.2 Frameworks for Sustainable Development**

The United Nations, a non-profit organisation founded in 1945, initiated several global organisations and frameworks to counteract climate change (UN, 2022b). After launching the WCED in 1983, the Intergovernmental Panel on Climate Change was initiated in 1988 to analyse human-induced climate activities and report the progression (Tonn, 2007, p. 614; WCED, 1987, p. 6). They regularly published updates for researchers, activists, and corporates, but it barely got any attention or recognition from the industries since the problem still needed to be simplified for most people (IPCC, 2020, n.a.; Tonn, 2007, p. 615). At the Earth Summit in Rio 1992, the United Nations Conference of Environment and Development introduced the first international action plan for sustainable development (Barrutia, Echebarria, Paredes, Hartmann, & Apaolaza, 2015, p. 594). The so-called Agenda 21 was structured into 40 chapters covering poverty, health, environmental protection, and international cooperation to save the planet (UN, 1992, n.a.). Even though the issue still seemed abstract to most people, the framework helped to understand the urgency of climate change (Corbière-Nicollier, Ferrari, Jemelin, & Jolliet, 2003, p. 236). It provided an overview of the topic and led corporates and individuals to start the first initiatives towards sustainable processes (Corbière-Nicollier et al., 2003, p. 236). To further facilitate the understanding of sustainable development, several forms of indicators like the Human Development Index or the Happy Planet Index have been established over the years (Moldan, Janousková, & Hák, 2012, p. 7). These performance measures visualise the topic for consumers and provide insights for researchers to compare different areas over a specific time to conclude future development (Warhurst, 2002, pp. 10-11).

Building on Agenda 21, the United Nations published the Millennium Development Goals (MDGs) in 2000, including eight set goals for sustainable development (UN, 2015a, pp. 4-7). This framework aimed to improve all areas within 15 years by covering poverty, education, gender equality, health, environment, and global partnerships (UN, 2015a, pp. 4-7). The following mobilisation of industries supported the framework to become the “most successful anti-poverty movement in history” (UN, 2015a, p. 3). In 2015, the 2030 Agenda for Sustainable

Development by the United Nations introduced the Sustainable Development Goals (SDGs) set for the following 15 years (UN, 2020, p. 2). The new agenda consists of 17 goals in different aspects, including 169 targets focusing on improving people, the planet, prosperity, peace, and partnerships worldwide (UN, 2015b, pp. 5-6). It encourages developing and developed countries worldwide to cooperate on sustainability and form “Partnerships for the Goals”, as emphasised in goal number 17 (UN, 2015b, p. 28).

To ensure transnational commitment to climate change and envision a low-carbon future, the United Nations initiated the “Paris Agreement” in 2016 (UN, 2015c, pp. 3-4). The deal aims to stabilise greenhouse gas emissions by implementing measures to reduce global warming to under two degrees and establish efforts to limit the warming to 1.5 degrees over the next century (Liu, McKibbin, Morris, & Wilcoxon, 2020, p. 1). 197 member states signed the contract, presenting a “milestone in human history” regarding international cooperation towards sustainability (Liu et al., 2020, p. 1; Rasiah, Kari, Sadoi, & Mintz-Habib, 2018, p. 189).

### **2.1.3 Current Status of Sustainable Development**

Looking at the SDG report 2020, recent developments show uneven improvements in all segments, mainly caused by Covid-19, climate change issues, and conflict predominance (UN, 2020, p. 3). The outbreak of Covid-19 in Wuhan in December 2019 spread throughout the world within a few months and caused immense restrictions on economic activities and people’s daily lives (Severo, Ferro De Guimaraes, & Dellarmelin, 2021, p. 1). This global health, economic and social crisis “abruptly disrupted implementation towards many of the SDGs and, in some cases, turned back decades of progress” (UN, 2020, p. 3). Unfortunately, due to many short-term discharges and reduced supply chain capacities, „tens of millions of people are being pushed back into extreme poverty and hunger, erasing the modest progress made in recent years” (UN, 2020, p. 2). Thus, some effects of the global slowdown of economies were also positive, like better air quality, cleaner beaches, and noise reduction (Zambrano-Monserrate, Ruano, & Sanchez-Alcalde, 2020a, p. 1). Sarkis, Cohen, Dewick, and Schröder (2020, p. 1) recognised a change in society towards a more supportive and unite oriented community, even though most social interactions switched to a digital setting. For Sofo and Sofo (2020, p. 131), the outbreak of the pandemic led to increased curiosity for domestic plants and gardens since people needed to stay at home and, thereby, change old habits. This behaviour change opens new opportunities to bring more sustainable practices into people’s daily life (Severo et al., 2021, p. 4). Especially gardening provides economic and environmental benefits and supports

physical and mental health (Sofa & Sofa, 2020, p. 138). Examples like this could lead to a significant transformation in human behaviour and open a window for future developments towards a more sustainable and collective environment (Sarkis et al., 2020, p. 4; Severo et al., 2021, p. 4).

## **2.2 Circular Economy**

Current development in the global economy is highly influenced by the rising population, changing consumer behaviour, and external forces like the effects of climate change (EEA, 2016, p. 8). Therefore, researchers and pioneers constantly look for new ways and guidelines to support the progress towards a sustainable future. One framework towards a more sustainable and self-sustaining environment is the concept of circular economy (EEA, 2016, p. 8; Sariatli, 2017, p. 32). It aims to secure access to natural resources and reduce environmental impacts by looping processes within an economy (EMAF, 2015, p. 3; Maitre-Ekern & Dalhammar, 2019, p. 395). It provides opportunities for innovation, job creation, and growth by being applied in different industries and economies (EEA, 2016, p. 9). Thereby, the focus is not only set on eliminating waste but also on changing the whole design, production process, and use of products towards an efficient and sustainable life cycle (EEA, 2016, p. 9).

### **2.2.1 Development of the Concept of Circular Economy**

When looking into the economy's past, profit maximisation was always the main goal in businesses to keep the firm alive (Koch, 2010, p. 270). Later, business owners realised the importance of human capital within an organisation and started supporting their employee's performance with training, education, and medical support (Subramanian, Alexiou, Nellis J, Steele, & Tolani, 2019, p. 33). Even though customer satisfaction became important after a certain amount of time, supply chain processes remained linear, and the exploitation of natural resources was not yet considered an issue (Andrews, 2015, p. 307). A linear economy focuses mainly on producing and selling goods without considering the product life or the environment (Andrews, 2015, p. 307; Pearce & Turner, 1989, p. 35). This approach causes extensive use of materials, which leads to international trade, importation of cheaper materials, and increased economisation of human labour (Sariatli, 2017, p. 31; EMAF, 2013, p. 14). The consequence is higher waste production and lower quality leading to lower product lives and, in some cases, even human exploitation (Sariatli, 2017, p. 31).

A great influence on these linear processes has planned obsolescence, which refers to the intended end of the lifetime of a particular product set by producers and manufacturers (Andrews, 2015, p. 307; Iizuka, 2007, p. 191). This planned obsolescence helps to increase sales from newly introduced product models by “killing off” the used units (Iizuka, 2007, p. 194). Consequently, the products stay within a linear process and follow the “take-make-use-dispose” model (Andrews, 2015, p. 305; Sariatli, 2017, p. 32). This model dates back to the Industrial Revolution when producing and selling as many products as possible created the most value for corporates (Elisha, 2020, p. 500). This method included inefficient use of raw materials and significant waste production along the supply chain, so this was no long-term solution (Elisha, 2020, p. 500; Adam, Bucker, Desguin, Vaage, & Saebi, 2017, p. 2). Later, this terminology evolved to “take-make-use”, which aimed a more circular approach to the closed loop system by diminishing value loss within the product cycle and setting system thinking at the core of activities (Elisha, 2020, p. 500).

After World War two, a short switch to practices within reusing, repairing, and recycling could be noticed (Andrews, 2015, p. 307). Only this had little to do with environmental protection but was a forced behaviour due to restricted and limited resources (Andrews, 2015, p. 307). Shortly after, people’s attitudes switched back to a linear system, which was highly successful regarding material wealth before the 20<sup>th</sup> century (Sariatli, 2017, p. 32). The growing global market in the 1960s was further pushing consumers to buy new products instead of repairing old ones (Andrews, 2015, p. 307). This attitude entitled designers, manufacturers, and retailers to generate higher profit through higher sales units, thus still not considering the environment (Andrews, 2015, p. 307).

The first steps towards sustainable supply chains outside of research did not occur until the late 1990s when the term “Biomimicry” became popular among pioneers (Andrews, 2015, p. 309). The essence of this project is to protect, preserve, restore, and conserve nature on our planet (Mathews, 2011, p. 364). Andrews (2015, p. 309) describes biomimicry as the “innovation inspired by nature” which seeks sustainable solutions in all different areas. The terminology became part of the movement towards circular systems. It covers concepts supporting sustainable development like conservation, preservation, and bio-inclusivity and the circular economy itself (Mathews, 2011, pp. 365-366).

Over the last few years, research shows that the linear economy “has met its limits” (Sariatli, 2017, p. 34). The Ellen MacArthur Foundation talks about “a potential consumption time bomb” (EMAF, 2013, p.14), emphasising the exponential rise of consumption driven by a rising population and increasing middle class leading to higher material intensity and consumption.

The extended resource exploitation and growing shortage of natural resources due to global conflicts, and the extended consumption behaviour of the rising population force businesses to change to circular systems to ensure the future of humanity (Sariatli, 2017, p. 34).

### **2.2.2 Definition and Delimitation of Circular Economy**

The term “Circular Economy” was initially introduced by Pearce and Turner (1989, pp. 35-36). However, the development of the concept dates back to the 1960s and is nowadays used in different global contexts (Hopkinson, Zils, Hawkins, & Roper, 2018, p. 71; Sariatli, 2017, p. 32). This circular system aims to eliminate waste and pollution, circulate products and materials, and regenerate nature (EMAF, 2015, p. 3; Maitre-Ekern & Dalhammar, 2019, p. 395). Over time several researchers came up with similar definitions of circular economy, all “aiming to create closed-loop processes [by including] both the local and global natural and social environments” (Sariatli, 2017, p. 32). According to Andrews (2015, p. 309), the system aims to mirror natural life cycles, like a plant, where the organic waste forms nutrition for the next generation of plants. It focuses on reducing resources and re-utilising products and materials (Maitre-Ekern & Dalhammar, 2019, p. 394). Another definition by Hopkinson et al. (2018, p. 91) states, “products circulate at their highest value for the longest period”. Some say it is closing the loop and eliminating waste within a product life cycle or economic system (Andrews, 2015, p. 309). The product life cycle represents the lifetime a product stays in the economy formed by four stages: raw material processing, manufacturing, usage, and end-of-life disposal (Andrews, 2015, p. 309). By only focusing on one product or product group, the product life cycle distinguishes itself from the concept of a circular economy since the latter focuses on a whole system, including several manufacturers, retailers, pioneers, and consumers (Andrews, 2015, p. 309; Maitre-Ekern & Dalhammar, 2019, p. 395). Like CE, the concept of “Cradle to Cradle [C2C]” is used to circular biological and technical resources within the production of goods (Drabe & Herstatt, 2016, p. 1). This method presents a “new way of designing human systems to eliminate conflicts between economic growth and environmental health resulting from poor design and market structure” (McDonough, Braungart, Anastas, & Zimmerman, 2003, p. 436). It focuses on the product’s design and development within a specific firm or organisation (Drabe & Herstatt, 2016, p. 1). Since this thesis examines consumers’ influence on the development of a circular system, it concentrates on the consumption stage within the circular economy concept. Other mentioned concepts focus too much on the production and product design section within a circular system and are, therefore, unsuitable for this research.

### 2.2.3 Principles and Characteristics of the Circular Economy

Focusing on the concept of CE, the aim is to “maximise utility of products” by circulating processes to reduce material flows and decrease waste production (Kunz, Mayers, & Van Wassenhove, 2018, p. 49; Mylan et al., 2016, p. 1). To better assess the opportunities for circular processes within an economy, the Ellen MacArthur Foundation identified six actions towards a circular economy: regeneration, sharing, optimising, looping, visualising, and exchanging – as well known as the ReSOLVE framework (EMAF, 2015, p. 9). The framework focuses on looping all processes to optimise product usage, increase productivity, and eliminate contaminated materials (EMAF, 2015, p. 8).

A typical product life cycle includes raw materials, processing, manufacturing or production, usage, and end-of-life (Andrews, 2015, p. 309). Within a linear system, the product is treated as waste at the end of the cycle. In contrast, the concept of the circular economy keeps the product within the process or uses components in different cycles through reuse and recycling (Andrews, 2015, pp. 309-310). Consequently, it reduces material input and energy consumption and diminishes the dependence on international supply (Sariatli, 2017, p. 34). For proper implementation of a circular economy, innovation and changes are needed along the whole supply chain (Potting et al., 2017, p. 5).

According to the Ellen MacArthur Foundation (2015, p. 8), there are four primary sources of value creation: the power of the inner circle, prolonging the process, cascading the usage, and seeking pure inputs. The system drives value creation along all steps within a product circle by constantly reusing and repairing components within the process (Ahmed, Islam, Ahmed, & Amin, 2022, p. 3; Lehtimäki, Piispanen, & Henttonen, 2020, p. 404). By starting with a product in its internal life cycle, additional value can be achieved by repairing and maintaining it. If that is not possible, the remaining components should be reused or remanufactured in a different context (EMAF, 2015, p. 8). The manufacturing firm has an immense influence on the capability of recycling a product since they control possible obsolescence, level of difficulty for recycling, and service updates throughout a product’s life cycle (Andrews, 2015, p. 310). Prolonging the circle starts with the initial product design aiming for a long product life, which reduces the use of natural resources as well as labour and energy utilisation (Andrews et al., 2015, p. 311; EMAF, 2015, p.8). Andrews et al. (2015, pp. 311-312) state that designers can lead the economy towards closed loops and influence business and consumer behaviour along the way. The so-called “Design Thinking” process, which converts people’s needs into demand (Brown, 2009, pp. 39-40), helped develop new sustainable design methods. Thereby, guidelines like

“doing more with less” or the focus on “dematerialization” lead innovation and design towards a more sustainable future (Andrews et al., 2015, p. 311).

Apart from design, materials and energy input play an essential role in production within closed systems (Lehtimäki et al., 2020, p. 403; Hobson, 2016, p. 92). A distinction between biological and technical inputs helps to understand each set of inputs separately and create circles within their industries (EMAF, 2013, p. 26). Natural components should be easily reused by composting and digestion, whereas technical materials need to be designed for recovery, reuse, and recyclability (EMAF, 2013, p. 26). Therefore, material input for production should also include renewable, recyclable, reused, or biodegradable components of initial production and consumption (Esposito, Tse, & Soufani, 2018, p. 11; Hobson, 2016, p. 92). At the production stage, initial energy from antimony, lead, and indium should be replaced by renewable energy, not only for sustainable practices but also to secure a long-term energy supply (Ahmed et al., 2022, p. 2). Additionally, the aim is to ensure people’s health and safety for human labour in production facilities and end consumers (Esposito et al., 2018, p. 11). Toxic materials should be eliminated and switched to natural and renewable inputs within the system to ensure the long-term usage of components cascaded within the product cycles (Esposito et al., 2018, p. 11). Here suppliers play an essential role in reprocessing and recycling since the diversified use of components helps to keep the materials within circles without generating waste (Andrews, 2015, p. 310; EMAF, 2015, p. 8). All in all, every part of a product life cycle influences the implementation of a circular economy and requires, therefore, good partnerships and cooperation within the different industries.

#### **2.2.4 Challenges of Circular Economy**

Since the circular economy aims to loop all processes and interact with material reuse, recycling, and remanufacturing, close cooperation among all stakeholders of an entity is needed for success (Hopkinson et al., 2018, p. 84). That leads to challenges and restrictions within the different steps of a product cycle and the lifetime of a specific material (Piila et al., 2022, p. 524). The challenges occurring in the development of circular systems are summarised in three sub-chapters: external support and demand, limited resources, and limited growth.

#### ***2.2.4.1 Lack of external Support and Demand***

When looking at the economic environment nowadays, the first green initiatives can be recognised by businesses of different sectors. Thus, corporates seem hesitant to implement sustainable processes, mainly caused by the additional challenge of integrating the topic into strategic planning (Sroufe, 2017, pp. 315-316). A publication by Piila et al. (2022, p. 536) also recognises the missing intentions for pioneering or making the first move within a particular industry. Field research shows that businesses are still unsure if the world is ready for such an impactful change in behaviour and consumption (Piila et al., 2022, p. 536).

Even though a rapid increase of awareness for green initiatives can be recognised globally, there are still some consumer-related challenges regarding the adaptation towards circular systems (Chen, Ngniatedema, & Li, 2018, p. 1009; Piila et al., 2022, p. 536). According to Hopkinson et al. (2018, p. 91), a fundamental change in consumers' culture is needed since the population still prefers ownership over-borrowing and affordability over sustainability (Hopkinson et al., 2018, p. 91; Piila et al., 2022, p. 536). Some claim a lack of consumer interest in climate change and green offerings (Corvellec et al., 2021, p. 425). Therefore, new frameworks and incentives for consumers to adopt green practices would help encourage the population to change (UN, 2018, p. 4). After all, consumer demand is still one of the main drivers for implementing a circular economy. Yet, society seems to have unrealistically high expectations when it comes to sustainable alternatives (Piila et al., 2022, p. 536). This factor makes the involvement of communities even more important in the success of circular systems (Winans, Kendall, & Deng, 2017, p. 830).

#### ***2.2.4.2 Limited Resources and Infrastructure***

One main restriction of implementation claimed by corporates is the missing knowledge of circular practices within their business sectors (Piila et al., 2022, p. 537; Winans et al., 2017, p. 830). Although organisations like the UN and the Ellen MacArthur Foundation took great initiatives to demonstrate the implementation of a circular system, corporates seem to fail to adapt those guidelines to their businesses (UN, 2018, pp. 1-9; EMAF, 2013, pp. 6-12). Hopkinson et al. (2018, p. 91) state that a “[s]hift to CE is not straightforward”. The already established collaborations along the supply chain make it even more challenging to fulfil the required changes within the different segments since most industries do not deeply understand the topic (Piila et al., 2022, p. 537). Additionally, manufacturers claim higher prices of CE materials for production and missing suppliers to support CE (Piila et al., 2022, p. 537). There is also a risk of



reusing certain materials like plastics and electronics due to decreasing quality over time (Winans et al., 2017, p. 830). Once the components cannot be used anymore, CE demands to recycle and remanufacture material that otherwise would become waste (Andrews, 2015, p. 310). Thus, Piila et al. (2022, p. 537) claim the missing infrastructure and service providers to recycle components according to CE. Kunz et al. (2018, p. 46) emphasise the urgent need for “increased and improved material recycling” when working on the circular economy since there needs to be a way for cheap recycling of products that cannot get back into the loop again.

Another main restriction within the economy is regulations on material reuse and recycling opportunities. The strict EU safety requirements, intense bureaucracy, and specified industry rules make it even harder for corporates to switch to sustainable practices (Piila et al., 2022, p. 537). Hence, Winans et al. (2017, p. 830) highlight the importance of policies encouraging a change towards CE. Especially agile decision-making is required from policymakers and corporates to ensure long-term decisions towards sustainability (Hopkinson et al., 2018, pp. 88-89).

#### ***2.2.4.3 Limited Growth Opportunities***

Regarding growth, research shows a missing ecosystem of circular economy members and co-operations (Piila et al., 2022, p. 537). In a limited market, scaling up a business and expanding geographically is difficult (Piila et al., 2022, p. 537). When implementing CE, the interdependence within the whole supply chain requires cooperation throughout different value chains and stakeholders, making it challenging to align processes in the right direction (Piila et al., 2022, p. 537; UN, 2018, p. 5). Additionally, the “lack of evidence that the benefits exceed the costs” is causing hesitations in financial planning (Chen et al., 2018, p. 1027). Chen et al. (2018, p. 1026) prove that even though green initiatives might harm finances at the beginning, positive performance will develop over time. The transition to circular processes will bring additional costs at the beginning due to R&D and asset investments (UN, 2018, p. 5). So, the essential part is focusing on long-term planning and positively impacting green performance (Chen et al., 2018, p. 1027).

Another restriction in specific industries is the limited options for adaptation (Piila et al., 2022, p. 536). Especially regarding food and health care, strict requirements make it impossible to follow circular standards (Piila et al., 2022, p. 536). One example is the health sector since the production of medical aid products would require a combination of biodegradable materials

with antibacterial security (Piila et al., 2022, p. 536). Thus, research shows that less green industries are more reactive to adopting sustainable processes than sectors that already declare themselves “green” (Chen et al., 2018, p. 1027).

### **2.2.5 Benefits arising from Circular Economy**

Current developments in the world economy force corporates to push prices up due to increased production costs and lack of supply (Keppen, 2022, p. 6). This problem can be avoided by integrating a circular system, whereby materials and resources stay within the different production circles (Andrews, 2015, p. 310). Besides benefits from resource efficiency, the concept of CE also brings economic, environmental, and social benefits (EEA, 2016, p. 12). Thus, a strict division of benefits according to the categories is complex due to the required interconnectivity of actions within CE (EEA, 2016, pp. 12-13; UN, 2018, pp. 3-4).

The main benefit arising from a circular economy is the support of environmentally friendly practices in corporate businesses, organisations, and societies (Drabe & Herstatt, 2016, p. 1; EEA, 2016, p. 13). By applying circular systems, the supply of raw materials can be reduced with improved resource efficiency (Andrews, 2015, p. 310; UN, 2018, p. 3). This step requires systematic changes in supply chains by aiming to regenerate processes like with organic farming and aims to close all the loops (EEA, 2016, p. 13). These adaptations reduce the risk of supply in times of crisis and diminish shortcomings of raw materials (EMAF, 2013, p. 84; UN, 2018, p. 3). A few advantages directly contribute to the financials, beginning with the potential of saving about 20% on net material input, which has a global worth of USD 700 billion per year (EEA, 2016, p. 13; UN, 2018, p. 3). Since circularity pushes competition up, companies are less exposed to price volatility within global rivalry (EEA, 2016, p.12; EMAF, 2013, p. 85). The economy also benefits from job creation since innovation and entrepreneurship are essential for implementing CE, leading to economic and social benefits (EMAF, 2013, p. 82; UN, 2018, p. 3). Some state that implementing circular systems offers a “defining competitive advantage” (EMAF, 2013, p. 98). Another important social benefit within CE is the possible elimination of corrupt and unethical practices thanks to accurate supply chain audits and changes to ethical suppliers (Andrews, 2015, p. 310).

The circular economy supports society to develop in a sustainable direction, which pushes not only corporates to rethink their strategies and business models but also leads consumers to a more responsible consumption behaviour (EEA, 2016, p. 13). Another practice that increasingly developed over the last few years in consumerism is the concept of a sharing economy (Esposito

et al., 2018, p. 12). The focus is set on multiple uses of a certain product by different people. It is a consumer-to-consumer approach which directly supports the concept of a circular economy within the consumption stage (Esposito et al., 2018, p. 12). Some researchers define it as a “Product-as-a-Service” model by building a more service-based economy (Esposito et al., 2018, p. 12; UN, 2018, p. 3). All those directions lead to the life-extension of products and are thereby part of CE (Esposito et al., 2018, pp. 11-12).

## **2.3 Circular Economy in the Food Industry**

Looking at the development of natural life cycles, researchers state that the origin of circular economies traces back to the development of food systems (Fassio & Tecco, 2019, p. 2). The complexity within the industry requires close interactions and cooperation among corporates, which is also needed for the implementation of CE (Fassio & Tecco, 2019, p. 2; Piila et al., 2022, p. 537). The development of food production in the last decade showed increased exploration of natural resources, high loss of biodiversity, and caused the creation of monocultures within the food sector (Fassio & Tecco, 2019, p. 2). Research shows that agriculture production immensely impacts the environment since 30% of greenhouse gas emissions are directly connected to the industry (Fassio & Tecco, 2019, p. 3). Regarding food production and consumption, one-third of globally produced food is wasted or lost along the supply chain, whereby 22% is lost at the consumption stage (Fassio & Tecco, 2019, p. 3; Gustavsson et al., 2011, p. 4). The whole waste loss is worth 2600 billion dollars per year, which could eliminate global hunger with 267 billion dollars per year simply by producing and consuming more efficiently and eliminating waste (Fassio & Tecco, 2019, p. 3). Focusing on resource efficiency will reduce food waste and diminish economic, ecological, and social impacts through production (Lehtokunnas, Mattila, Närvänen, & Mesiranta, 2022, p. 228). Therefore, the urgency to change current practices within the food industry is indispensable for future sustainable development (EMAF, 2013, p. 43; Fassio & Tecco, 2019, p. 3; Lehtokunnas et al., 2022, p. 228).

### **2.3.1 Sustainable Consumption according to SDG12**

In 2015, the United Nations published the 2030 Agenda, including 17 Sustainable Development Goals (SDGs), to change the world towards a more sustainable future (UN, 2020, p. 2). Goal number 12, “Responsible Consumption and Production”, includes eleven targets covering different sections within the topic (UN, 2015b, p. 26). The goal combines the efficient use of

natural resources, reducing waste along the value chain, creating waste life cycles, and increasing people's awareness of sustainable consumption (UN, 2015b, pp. 26-27). A rising population will lead to a growth in consumption, and further exploitation of resources will increase dramatically (Alexander et al., 2017, p. 190). Therefore, target 12.3 of SDG12 focuses directly on food consumption and states, “[b]y 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses” (UN, 2015b, p. 27). Target 12.5 aims to reduce waste by regenerating products (UN, 2015b, p. 27). One additional target relevant within CE is target number 12.2, which demands to „achieve the sustainable management and efficient use of natural resources“ (UN, 2015b, p. 26). These formulations show that the development of circular economies is crucial to achieving the targets of SDG12 (UN, 2018, p. 4). Therefore, individuals need to adapt to sustainable consumption patterns and support the development of circular systems (UN, 2020, p. 49; Anderson & Brodin, 2005, pp. 78-79).

### **2.3.2 Development of Food Consumption**

Recent developments along the supply chain show increased production efficiency that helped minimise the amount of waste at the pre-consumption stages (EMAF, 2013, pp. 94-95; Jonkute & Staniskis, 2016, p. 171). Technological innovations are helping to track food losses within certain processes and support corporate managers to take the right initiatives towards improved processes (EMAF, 2013, pp. 94-95). Thus, regarding the consumption stage, technology can not necessarily change consumers' behaviour (Parfitt, Barthel, & Macnaughton, 2010, p. 3069). The attitude of the end consumer plays a significant role in the development of sustainable consumption since buying, processing, and consuming food is a human choice (Jonkute & Staniskis, 2016, p. 171). Even though, people are more aware of environmental issues nowadays, excessive consumption patterns still use more resources than the planet can recover (Jonkute & Staniskis, 2016, p. 171; Urry, 2010, pp. 192-193). Several different factors influence this phenomenon of overconsumption; thus, it is mainly guided by buying and eating habits (Aydin & Yildirim, 2021, pp. 2-3).

#### **2.3.2.1 Buying Behaviour**

Consumer shopping behaviour is one of the core problems of post-consumption waste. Nowadays, people expect a high level of choices, always fresh products, and year-round availability of goods (Priefer et al., 2016, p. 156). This demand requires international importation, pushing

greenhouse gas emissions up due to long transport (Parfitt et al., 2010, p. 3078; Priefer et al., 2016, p. 156). Unfortunately, food purchasing has become a routine activity whereby many people do not think in detail anymore about what they need (Aydin & Yildirim, 2021, p. 2). Promotions and marketing further push that unconscious buying behaviour and leads to consumers buying more than they planned by taking more food home than they can eat before the food spoils (Aydin & Yildirim, 2021, p. 3). In the past, those marketing activities have been criticised for wrong consumer persuasion and extended promotion of over-consumption (Aschemann-Witzel, Hooge, & Almi, 2021, p. 1). Consequently, the first companies started to adapt their marketing strategies by adapting their product portfolio, changing promotion cycles, and implementing sustainable packaging (Aschemann-Witzel et al., 2021, p. 2). Even though shoppers nowadays are more aware of green initiatives and responsible buying, research shows that consumers still need guidance from suppliers and companies to achieve the required change (Aydin & Yildirim, 2021, p. 3).

Recent world developments and crises have led to a change in consumers' buying behaviour (Marinkovic & Lazarevic, 2021, p. 3972). According to Marinkovic and Lazarevic (2021, pp. 3972, 3982), nowadays the population seeks healthier and preferably domestic products. The increased demand for online shopping correlates to the perceived concern about safety measures of in-store shopping during Covid-19 (Marinkovic & Lazarevic, 2021, p. 3972; Basu & Swaminathan, 2021, p. 33). Additionally, the risk of supply shortages leads to increased private stocking of consumption goods (Hunter, Gerritsen, & Egli, 2022, p. 364; Marinkovic & Lazarevic, 2021, p. 3982). Gupta and Mukherjee (2022, p. 1527) state that the changes in shopping behaviour due to Covid-19 might persist in post-crisis behaviour and will have a „long-term impact on [consumer's] lifestyle, consumption patterns and retail channel preferences“.

### ***2.3.2.2 Eating Behaviour***

When looking at society's eating habits, a huge surplus of uneaten food can be recognised (Zambrano-Monserrate, Ruano, Ormeno-Candelario, & Sanchez-Loor, 2020b, pp. 1-2). People tend to buy more than they need, which leads to a high amount of food waste that could be avoided (Zambrano-Monserrate et al., 2020b, pp. 1-2). One of the driving forces for over-consumption is take-out meals, prepared meals offered by restaurants for to-go consumption (Du, Yin, Wang, & Li, 2020, p. 1). Although the term is not new, it has evolved dramatically in recent years (Grumett, Bretherton, & Holmes, 2011, p. 376). The beginning of fast-food dates back to the post-World War II period, when companies started to develop the franchise concept

(Mattsson & Helmersson, 2007, p. 117). Takeaway meals are faster and cheaper than visiting traditional restaurants, so instead of the family-centred eating approach, people are now used to a more individual eating habit (Grumett et al., 2011, p. 375). Thus, it generates additional packaging waste and often leads to over-consumption due to the low prices (Qazi, Cova, Hussain, & Khoso, 2022, p. 260). The instant satisfaction of low price and high quantity often overrules the negative post-consumption effects on health and well-being and the environmental impact (Qazi et al., 2022, p. 260).

A counteract to the fast food evolution named „Slow Food“ was initiated by Carlo Petrini in Italy in 1986 to „cultivate common cultural and gastronomic interests“ (Altuna, Dell’Era, Landoni, & Verganti, 2017, p. 270; Jones, Shears, Hillier, Comfort, & Lowell, 2003, p. 298). Nowadays, Slow Food is an international non-profit organisation that envisions a quality food system to achieve good, clean, and fair food for all (Jones et al, 2003, p. 298; Slow Food USA, 2022). It encourages people to „slow down and appreciate food“ and counteract the hectic eating habits of current circumstances (Altuna et al., 2017, p. 271). These topics have gained importance over the last few years due to the movement towards a more sustainable economy (Slow Food USA, 2022). When it comes to changed eating habits, Hunter et al. (2022, p. 377) outline the significance crises have on people’s eating behaviour. The development of the Covid-19 pandemic in the past years led people to higher consumption, increased home cooking, and more sharing among households and consumers than before the pandemic (Hunter et al., 2022, p. 374; Marinkovic & Lazarevic, 2021, p. 3982).

### **2.3.3 Circular Economy within Food Retail**

Crucial for sustainable practices within supply chains is the correct handling of supply and demand, which causes some challenges in the food retail industry (Batista, Dora, Garza-Reyes, & Kumar, 2021, p. 760). Dora (2022, p. 783) claims that different company goals within the industry hinder successful cooperation on the topic of sustainability within food retail. Food retailers tend to be too focused on revenue maximisation, even though they would have the power to influence consumer choices directly at the point of sale (Dora, 2022, p. 783). De Bernardi, Bertello, and Forliano (2022, p. 1101) state that some companies could close the loop by themselves through internal adaptations. However, to achieve an overall positive development of the industry towards CE, strong partnerships are essential for success (De Bernardi et al., 2022, p. 1101).

When looking at food waste within food retail, losses happen along different steps within the supply chain (Dora, 2022, p. 770). Wrong labelling and storage mistakes in food processing often cause these losses. It can also be related to the high aesthetic requirements for fruits and vegetables that retailers expect of their suppliers (Batista et al., 2021, pp. 754, 761; Cao, 2021, p. 966). Recent technological developments in Artificial Intelligence [AI] provide new ways of increasing performance in the production chain (De Bernardi et al., 2022, p. 1104; Cao, 2021, p. 967). According to Cao (2021, p. 967), AI is the most reliable business partner for operational and financial efficiency. AI optimises storage planning by forecasting demand and automation of re-stocking products in stores (Cao, 2021, p. 966). This provides the possibility for additional revenue increases with dynamic pricing models through machine learning processes and offers the opportunity to reduce food waste simultaneously (De Bernardi et al., 2022, p. 1104). Another method, already implemented by many retailers, to reduce food waste at the stores is a cooperation with local NGOs, food banks, and shelters (Batista et al., 2021, p. 761). Thereby, geographical proximity is essential for successful partnerships (Batista et al., 2021, p. 761; De Bernardi et al., 2022, p. 1101). Since food waste does not necessarily mean spoiled food, there is a high potential to create a social and sustainable impact by donating food leftovers that cannot be sold anymore due to expired durability date or aesthetic inconsistencies (Batista et al., 2021, pp. 754, 761).

## **2.4 Consumers' influence on Circular Economy**

Prior research mainly focuses on analysing the increase of efficiency through CE along the supply chain without elaborating on the impact of consumption for achieving successful CE systems (Lehtokunnas et al., 2022, p. 229; Mylan et al., 2016, p. 2). Anderson and Brodin (2005, p. 78) state that consumer choices are essential to create product and material flows that go „beyond the final consumption or use of products“. Even though consumers are responsible for making sustainable decisions, they are sometimes restricted in their choices by their habits, social rules, and the given infrastructure (Tukker et al., 2008, p. 1220). Hence, sustainable consumption can increase the quality of life and support CE's success at the same time (Tukker et al., 2008, p. 1220). According to the United Nations, a transition to sustainable consumption patterns is urgently necessary since 17% of total food waste occurs at the last stage of the value chain in households, retailers, or restaurants, which accounts for 121 kilograms per person per year (UN, 2022a, pp. 19, 50). These numbers prove that households significantly impact the sustainable development of the food industry (EMAF, 2013, p. 42). Additionally, an average

EU household can reduce food costs by 25 to 40% simply by switching to sustainable practices (UN, 2018, p. 3). A switch in daily consumption is required to achieve SDG12 and to develop CE within the industry (Lehtokunnas et al., 2022, p. 229; UN, 2022a, p. 50). According to Esposito et al. (2018, p. 10), waste should be seen as a „useful commodity“ since it does not only offer possibilities for new products by reusing, recycling, and remanufacturing but the valuable resource also brings economic benefits (Esposito et al., 2018, p. 10; UN, 2018, p. 3). Corporations, for example, can save up to 90% on raw material costs and generate higher profits at the same time by repairing and remanufacturing old goods and selling them again to consumers (Esposito et al., 2018, p. 10). Additionally, it ensures longer product lives and decreases expenses in parallel (EMAF, 2013, p. 41; Esposito et al., 2018, p. 10). These arguments prove that not only consumers but also corporates profit from sustainable practices within the consumption stage.

#### **2.4.1 Household Food Waste**

According to Li et al. (2021, p. 1800), on average 1.2-kilogram food waste is produced per person per week. The creation of household food waste is influenced by two main factors: „socio-demographic factors“ as well as „skills and lifestyles“ (De Bernardi et al., 2022, p. 1098). When it comes to the importance of age, gender, and income in relation to waste production, researchers vary in their answers (Ang, Narayanan, & Hong, 2021, p. 3255; Russo, Confente, Scarpi, & Hazen, 2019, p. 972; Skourides et al., 2008, p. 194). Surprisingly, consumers' residence does not change the amount of food waste produced, even though consumption habits vary between rural and urban areas (Skourides et al., 2008, p. 194). Urban citizens tend to consume more prepared food, which diminishes food waste but increases the disposal of additional packaging (Skourides et al., 2008, p. 194). Rural consumers recycle more food waste in composts in their gardens or use leftovers as animal feed (Skourides et al., 2008, p. 194). Social components like interest in environmental concern, engagement in donation activities and past experiences of food scarcity, seem to increase consumers' consciousness of food consumption (Ang, Narayanan, & Hong, 2021, p. 3255).

Price sensitivity is another characteristic of less food waste since price-sensitive consumers consciously choose products according to their needs (Ang et al., 2021, p. 3256; Nunkoo, Bhadain, & Baboo, 2021, p. 2028). This goes in hand with the degree of preparation before going to the grocery store since prepared consumers with a shopping list tend to add less extra food to their shopping cart (Farr-Wharton, Foth, & Choi, 2014, p. 397). According to a study by Li



et al. (2021, p. 1800), 70% of people check the storage at home before leaving for groceries, and 44% make a shopping list ahead. Nevertheless, certain circumstances like promotions, bulk packages, and wrong coordination among household members negatively influence the sustainable food supply (Farr-Wharton et al., 2014, pp. 397-398).

Once at home, the correct storage of goods is essential to avoid food waste. Farr-Wharton et al. (2014, p. 396) found out that the arrangement of goods within refrigerators highly influences the degree of waste production. Refrigerators often lack the visibility of goods and limit the overview of expired products (Farr-Wharton et al., 2014, p. 396). Consequently, a household without a proper arrangement system in the refrigerator disposes of more food than homes where all household members follow a regulated food storage system (Farr-Wharton et al., 2014, p. 396). Apart from that, there seems to be a lack of knowledge of food processing and judgment of food safety (Farr-Wharton et al., 2014, p. 396; Haque et al., 2021, p. 3793; Li, Maclaren, & Soma, 2021, p. 1806). The inability to use food leftovers and the uncertainty about safe food processing, including heating, freezing, and reusing, leads to additional waste creation (Haque et al., 2021, p. 3793; Li et al., 2021, pp. 1805-1806).

#### **2.4.2 Waste Disposal and Recycling**

Regarding waste disposal, research shows a lack of disposal and recycling knowledge among people (Munro, 2021, p. 1527; Nunkoo et al., 2021, p. 2028). The general belief that „food waste decomposes naturally, and [...] does not harm the environment or causes pollution“ outlines the missing environmental awareness of the population and leads to incorrect disposal and less attention on waste in food consumption (Nunkoo et al., 2021, pp. 2024, 2028). Therefore, Munro (2021, p. 1522) states that consumers see food waste as a normal part of life due to missing knowledge about sustainable consumption practices. Additionally, correct disposal seems to be not a priority in many households due to time limitations and stress in daily routines (Nunkoo et al., 2021, p. 2027). This time pressure often leads to unsustainable consumption patterns and increases waste production by raising online purchases resulting in more waste through additional packaging (Munro, 2021, p. 1524). People feel a sense of guilt when generating additional waste through packaging (Munro, 2021, p. 1524; Nunkoo et al., 2021, p. 2027). Some studies state that packaging is often simply unavoidable due to changing consumption habits as a family or increased food ordering due to time restraints (Munro, 2021, pp. 1522-1523). However, grocery store packaging still seems to negatively affect consumers due to ex-

cessively used plastic films, bags, and containers (Munro, 2021, p. 1522). Recycling is generally considered an emotional act, often led by personal values and the community around it (Munro, 2021, p. 1524; Scott, 1999, p. 270). The main intention for recycling behaviour seems to be ecological reasons; thus, financial benefits and support from the peer group play an essential role as well (Scott, 1999, p. 270). This peer group pressure highly influences people since humans seek recognition and pride from others (Oluwadipe, Garelick, McCarthy, & Purchase, 2022, p. 910).

The most common recycling practices within households are curb-side recycling and bottle return to supermarkets (Munro, 2021, p. 1525). These are the easiest to implement in daily routines since people often lack time for more recycling practices (Munro, 2021, p. 1524). However, the bigger picture of recycling often leads to the feeling that “one’s own recycling behaviour most probably does not have any impact on the environmental problems in general” (Ojala, 2008, p. 789). This fact goes in hand with people’s feeling of powerlessness and missing knowledge on proper recycling practices (Munro, 2021, p. 1527; Ojala, 2008, p. 789). A lack of clear information about local recycling possibilities and constantly changing recycling rules evoke additional restrictions for proper household recycling (Munro, 2021, p. 1526; Ojala, 2008, p. 788).

Apart from the missing knowledge of people when it comes to recycling, researchers claim that more regulations and policies should be set in place by local authorities (Nunkoo et al., 2021, p. 2026). Urban citizens especially claim limited disposal and recycling possibilities provided by building management or the city itself (Nunkoo et al., 2021, p. 2027). Space constraints in urban apartments make it even more complicated to separate and recycle waste efficiently (Nunkoo et al., 2021, p. 2026; Ojala, 2008, p. 788; Oluwadipe et al., 2022, p. 908). At the same time, rural areas offer more space for people’s compost in the garden and extended recycling possibilities in the surroundings (Nunkoo et al., 2021, p. 2026; Skourides et al., 2008, p. 195). This could be a reason for higher recycling rates outside urban areas (Oluwadipe et al., 2022, p. 908). Recycling practices can only be successful “when policy or decision-making tools are aligned with citizen or public behaviour” (Oluwadipe et al., 2022, p. 911). Hence, Oluwadipe et al. (2022, pp. 907, 910) emphasise understanding consumer attitudes by switching from enforcing policies to more nudging and consumer-centred methods.

### **2.4.3 Behavioural Change**

To achieve a behavioural change towards consumption within CE, motivation, ability, and opportunity are essential parts for success (Tukker et al., 2008, p. 1220). The ability to follow CE is often limited to the knowledge people get transferred from family and friends, daily routines without time for waste management as well as limited possibilities to recycle in the neighbourhood (Munro, 2021, p. 1524; Oluwadipe et al., 2022, pp. 911, 914). Motivational factors for sustainable consumption are mainly ecological, personal, and financial rewards since cautious behaviour can improve people's quality of life (Scott, 1999, p. 270; Tukker et al., 2008, p. 1220). Consequently, sustainability plays an emotional role in a consumer's daily life since ecologically friendly behaviour is appreciated by communities and sometimes even pressured by peer groups (Lehtokunnas et al., 2022, p. 241). Some researchers also emphasise the social impact of sustainable consumption practices (EEA, 2016, p. 13). Innovations like sharing platforms, repairing stations, and recycling education further push consumers towards the right direction (EEA, 2016, pp. 13-14). Thereby, the constant information exchange among consumers helps to keep the topic of sustainable consumption in consumers' thoughts (EMAF, 2013, p. 83). Since many researchers claim the missing knowledge of recycling and correct food processing among consumers, social media platforms offer the perfect opportunity to spread information and nudge shoppers to already take the right decisions at the grocery store (EMAF, 2013, p. 83; Munro, 2021, p. 1527).

### **2.5 Shopper Behaviour in Food Retail**

A common approach for explaining food choices is the cost-benefit analysis. Thus, Camacho-Otero et al. (2018, p. 4) claim that this approach would assume that „individuals do not have morals or emotions“ when choosing daily consumption goods (Camacho-Otero, Boks, & Petersen, 2018, p. 4). Additional components influencing the choice in front of the shelf are habits, the geographical proximity of stores, price, and the range of choices offered to consumers (Ang et al., 2021, p. 3256; Batista et al., 2021, p. 761; Tukker et al., 2008, p. 1220). Price-sensitive consumers tend to make more conscious choices while shopping since they focus on strictly necessary goods to save money (Ang et al., 2021, p. 3256). This behaviour restricts unplanned buying and decreases waste production due to cautious shopping and consumption behaviour (Ang et al., 2021, p. 3256). Price also plays an important role in food sustainability (Ang et al., 2021, p. 3256). Research claims consumers are not ready to pay more for sustainable packaging alternatives since the products often stay the same (De Bernardi et al., 2022, p. 1098). Even

eco-labels tend not to fully fulfil their purpose since many consumers do not even know them or do not care about sustainability in their weekly food shopping routine (De Bernardi et al., 2022, p. 1098). Consequently, environmental factors do not seem important in routine food shopping (De Bernardi et al., 2022, p. 1101).

To push consumers to sustainable practices in food retail, a switch “from consumers to users” is needed (Corvellec et al., 2021, p. 421). Current habits must be changed to more sustainable practices like buying organic and locally produced food (Perez-Castillo & Vera-Martinez, 2021, pp. 1776-1777). Thus, sustainable consumption does not only include the choice of products. According to Lee et al. (2016, p. 79), it is a mixture of environmental thinking, financial responsibility, social components, and personal health. Therefore, the development of circular systems within the food industry needs to consider several personal factors of consumers (Camacho-Otero et al., 2018, p. 12; Wang & Chou, 2021, p. 33). Personal norms tend to be highly influenced by people’s surroundings, including family and friends (Wang & Chou, 2021, p. 33). Another influence on people’s behaviour nowadays is social media (De Bernardi et al., 2022, p. 1101). There are many triggers leading to the choice of products in the supermarket, so the question is how can these components lead to a more circular and sustainable consumption approach?

### **2.5.1 Food Shopping Behaviour of Generation Z**

According to Djafarova and Fouts (2022, p. 415), Generation Z includes all people born between 1995-2010. This generation focuses on the younger citizens, characterized by higher social awareness and environmental concern than other Generations (Arenas-Gaitán, Peral-Peral, & Reina-Arroyo, 2022, pp. 1489-1490; Kola-Olusanya, 2012, p. 210). They are highly connected to others via the Internet and eager for new solutions and innovation in terms of technical as well as sustainable development (Arenas-Gaitán et al., 2022, pp. 1489-1490; Djafarova & Fouts, 2022, p. 424). They care about the future of the planet and show interest in new perspectives, so Kola-Olusanya (2012, p. 210) states that Generation Z has the influence to push sustainable change to a new level and influence behaviour patterns of upcoming generations (Arenas-Gaitán et al., 2022, p. 1496; Kola-Olusanya, 2012, p. 210). Generation Z has, therefore, a strong influence on the development of sustainable solutions (Kola-Olusanya, 2012, p. 210). When it comes to buying food, “rational and social element[s]” guide the generation’s choices (Arenas-Gaitán et al., 2022, p. 1496). Past personal experiences in food purchase and traditional family practices often lead to uncautious behaviour at the supermarket (Kamenidou, Mamalis,

Pavlidis, & Bara, 2019, pp. 3, 14). In this generation, the influence of the peer group is outstanding since individual lifestyles and consumption practices are established at that age (Kamenidou et al., 2019, p. 14; Kymäläinen, Seisto, & Malila, 2021, p. 12). Even though the topic of climate change is rather complex, young adults are aware of their influence on the development of the planet and know how their actions will influence the lives of future generations (Djafarova & Foots, 2022, p. 423; Kymäläinen et al., 2021, p. 12). They aim for ethical and environmentally friendly behaviour since, for them, it is important to be seen in a positive matter by others (Djafarova & Foots, 2022, pp. 423-424). Nevertheless, consumption patterns within the whole generations can not be generalised (Djafarova & Foots, 2022, p. 424; Kamenidou et al., 2019, p. 15). Individual beliefs, norms, and motivations influence food buying and consumption behaviour differently (Djafarova & Foots, 2022, p. 424). Additionally, young people are often still economically restricted and cannot always choose the more expensive sustainable alternatives (Kamenidou et al., 2019, p. 3; Kymäläinen et al., 2021, p. 12). The spontaneous lifestyle makes it even more challenging to adopt sustainable practices and avoid waste (Kamenidou et al., 2019, p. 3; Kymäläinen et al., 2021, p. 12). Generation Z has, nevertheless a high influence on the development of circular practices within the food industry since they strongly believe in the urgency of climate change and seem to be more willing to change for the better than other generations (Djafarova & Foots, 2022, p. 423; Kola-Olusanya, 2012, p. 210).

### **2.5.2 Recent adaptations in food retail towards CE**

The biggest challenge retailers face when following the concept of circular economy is matching their supply with consumers' demand (Batista et al., 2021, p. 760). Regarding sustainable practices within supermarkets, Gupta et al. (2022, p. 13) realised that most retailers do not know how to change their business to a more sustainable and circular model. Thus, "addressing societal needs and stakeholder interests is key to business success and profitability" (Gupta et al., 2022, p. 13). Therefore, retailers are especially asked to adapt their assortment according to consumers' demand for sustainable products and practices (Gupta et al., 2022, pp. 13-14). Another problem shoppers face during their shopping decisions in the stores is the price battles among food suppliers (Lehner, 2015, p. 416). Promotions on conventional products further decrease the price of these products compared to sustainable alternatives and often lead to the unsustainable buying behaviour of consumers (Lehner, 2015, p. 416). Lehner (2015, p. 418)

points out that the right communication in-store through posters and information leaflets is essential to educating consumers about the sustainable alternatives offered.

Unfortunately, the high demand for good-looking fresh food is still enormous among consumers. By fulfilling these aesthetic requirements, retailers often generate additional food waste that could have been avoided through changing consumption patterns (Batista et al., 2021, p. 754). Many retailers start initiatives like the food discounter Lidl to counteract this problem. First initiated in Great Britain, Lidl started selling badly shaped fruits and vegetables in so-called “Too good to waste” boxes at a discounted price (Hirsh, 2019). Even though the boxes were initially only launched for a trial, they remain in the assortment due to the high demand from consumers (Hirsh, 2019). The company “Too Good To Go”, initially founded in 2015, focuses on reducing food waste by saving food leftovers and cooperating with restaurants, food suppliers, and retailers (Condamine, 2020). Consumers order their leftover bags upfront through a mobile app and pay the discounted fee in advance; then they pick up their food at the end of the day in the stores, which helps corporates to decrease food waste and create additional revenue by selling goods they would otherwise throw away (Condamine, 2020).

In general, efficient operations support sustainable practices and save retailers much money (Esposito et al., 2018, p. 10). Recent innovations in the field of AI help retailers to improve the effectiveness of their stores (Cao, 2021, pp. 966-967). Additionally, AI can optimize ordering processes by forecasting demand and improving supply chain efficiency (Cao, 2021, p. 966; Riesenegger & Hübner, 2022, p. 14). Concrete measures in shelf planning can additionally support the implementation of sustainable alternatives and lead consumers to make the right choice for sustainable development of our society (Gupta et al., 2022, p. 14; Riesenegger & Hübner, 2022, p. 14).

### **3 Collection and Evaluation of Empirical Results**

This Master thesis consists of primary as well as secondary data. The first part of the thesis is formed by a detailed literature review, which only consists of secondary data gathered through online databases and journals. This section focuses on gathering findings from prior research and discussing insights on the researched topic (Veal, 2018, p. 52). It provides key concepts and forms the basis for the empirical research of this study (Veal, 2018, p. 182). In the second part of the thesis, primary data is collected through in-depth interviews. Thereby, new insights of consumers are gathered and analysed to find answers to the set research questions (Veal, 2018, p. 52). The section on the findings combines insights from the empirical method with secondary data, so the literature review is part of the entire thesis (Veal, 2018, p. 182).

#### **3.1 In-depth Interviews**

The theoretical background of this study proves that a qualitative approach, in this case in-depth interviews, is the best fitting method for this empirical study to investigate consumers' influence on the development of CE. Prior research rather used quantitative approaches to determine percentages and numerical outcomes of people's consumption behaviour compared to certain groups of people (Haque et al., 2021, p. 3783). Thus, this thesis focuses on how consumers can influence the development of CE within the food retail industry. Prior findings did not provide enough information to determine hypotheses in this specific field of research (Camacho-Otero et al., 2018, p. 18). Additionally, this study focuses on understanding people's underlying needs and motivations depending on experience and behaviour, which can not be determined with quantitative data (Granot, Brashear, & Motta, 2012, p. 547; Hennink et al., 2011, p. 10). Since this research aims to ascertain current challenges, possibilities to support, solutions and inter-relations in the field of buying and consuming food retail goods, the selected method is qualitative in-depth interviews. Qualitative research is "the systematic inquiry into social phenomena in natural settings" (Teherani, Martimianakis, Stenfors-Hayes, Wadhwa, & Varpio, 2015, p. 669), which perfectly fits the analysis of behaviour within the consumption stage of a circular economy. The outcome of this qualitative method is words, sounds, and emotions rather than numbers (Veal, 2018, p. 278). The interviews provide a subjective perspective on a particular topic and cannot be generalised for a whole population (Granot et al., 2012, p. 549). Especially when it comes to awareness and behavioural actions, it is essential to "capture the processual nature of consumer experience" (Becker, 2018, p. 469). Therefore, the interviews of

this research started with a narrative stimulus, where the participants were asked to talk about their daily food shopping behaviour. This scheme is a phenomenological approach to analyse human behaviour and experiences, which can be related to storytelling (Becker, 2018, p. 472; Mueller, 2019, p. 1). The conversation starts with one narrative question, which leads the interviewee to talk about a personal routine, followed by sub-questions posed by the interviewer to go into further detail. This method provides insights from a “customer-centric perspective” (Becker, 2018, p. 469).

The semi-structured and informal interview guideline enabled the interviewer to individually adapt the questions within the process. First, the interviewees were asked to talk about their regular food shopping purchases at the supermarket, which helped to analyse unconscious behaviours and their impact on the development of CE within the food industry. After a few follow-up questions on the upcoming topics, like the selection of products on the shelf and sustainability labels, the interview focused on household practices and food consumption behaviour at home. Here the underlying awareness of consumer influence on CE was analysed. Finally, the discussion started in the direction of CE, talking about consumers, groceries, and producers’ influence on the success of CE within food retail. The interview was closed with some final restrictions and recommendations for future initiatives.

### **3.1.1 Justification of Selected Method**

To answer the research questions, it is crucial to understand people’s behavioural patterns and beliefs. Even though quantitative data acquisition would provide insights into a more significant amount of people, the information would be limited. It would not provide enough detailed information about the behaviour and awareness of consumers (Veal, 2018, p. 278). The outcome of quantitative studies would show tendencies of behaviour and differences between different groups of people (Haque et al., 2021, p. 3789). Thus, it would not explain the choices and behaviour patterns of participants. But in qualitative research, the interviewer can ask detailed questions depending on the participant’s engagement by conducting in-depth interviews. This approach enables one to figure out personal intentions and reasons for specific decision-making within the consumption stage.

The decision was made to conduct in-depth interviews within the possibilities of qualitative research methods since it offers the most promising outcome for this research. Other qualitative options like focus groups, which encourage people to interact with each other, would distract the individuals’ intentions too much and would falsify the outcome (Veal, 2018, p. 292). Case



studies and field observations could be options for further research on this study. However, it is essential to understand people's behaviour by analysing narrative storytelling followed by detailed questions on food consumption decisions. The interviews were semi-structured since it is more flexible and individually adaptable than structured interviews. The aim was to let the consumer talk about his or her experiences and get into detailed questioning only in the second part of the interview.

### **3.1.2 Sampling Approach**

The population of this study is represented by the total number of people fitting in the set research group (Veal, 2018, p. 414). Since an analysis of the whole population is not possible due to time and resource restrictions, a selected sample was taken for this research (Veal, 2018, p. 414). The researcher conducted a non-probability sampling to determine a homogeneous group of people participating in this empirical study. The overall population of this thesis includes all Austrian household shoppers of Generation Z. "Household shopper" stands in this definition for the main person responsible for nutrition purchases within one household. This perimeter is essential since the focus of the study is set on consumer choices in a supermarket, as well as consumption and disposal practices at home. Another important perimeter was the equal number of participants living in rural and urban areas of Vienna and Lower Austria. The sample of ten interviewees included five female and five male participants. In this research, only people with birth years from 1995-2005 are included, even though the whole Generation Z would include additional birth years. This is set due to the requested target group since people younger than 17 years tend to still live at their parent's place and tend, therefore, not to be responsible for primary food shopping at home. The group of young adults selected for this study is especially interesting for the research since consumption behaviours are shaped in their first own households and tend to stay the same over a lifetime (Ojala, 2008, p. 778). This means it is crucial to adopt offers of sustainable alternatives, especially for young people, to achieve long-term positive development in the progress of creating fully circular systems in all industries.

### **3.1.3 Data Collection**

The scope of this thesis's empirical part includes ten interviews for primary data acquisition. The verbal exchanges were held in person during February 2023. The interviews lasted between 20 to 40 minutes, depending on the participants' engagement. Half of the interviews were conducted in German language and half in English. The participants were allowed to choose the

language they felt more comfortable with since otherwise their engagement and talking might have been restricted due to language barriers. All interviews were tape-recorded by phone and transcribed by hand or with the help of the application Otter.io for the interviews conducted in English. The participant gave the consent to process the data collected in this thesis by signature before the start of the recording.

As already mentioned before, the interview guideline consisted of two main parts. The first section focused on the narrative experience guided by the participant, which aimed to let the interviewee talk and enabled the interviewer to analyse emotions, speed of talking, and possible underlying attitudes. In the second part, the interviewer asked more detailed questions and led the conversation towards the suitable topics required for this Master thesis. This start helped to first get insights on shopping behaviour without mentioning the overall topic. The second part was divided into three sub-sections focusing on the following topics: follow-up questions to narrative storytelling, consumption practices at home and concrete questions towards the development of CE within food retail and consumption practices. Here, the questioning went into more detail to discover reasons for decision-making in the supermarket, analysing consumption habits and disposal patterns as well as their overall knowledge and commitment to CE.

During the whole research process, a particular focus was set on ethical standards since “[e]thical behaviour is important in research, as in any other field of human activity” (Veal, 2018, p. 109). Therefore, no harm was done to individuals, and participation in the interview was completely free with consent beforehand by the signature at the beginning of the interview. This signed data protection form ensured that the individual’s identity was anonymised. The only information disposed of participants is birth years, gender and their living residence divided into rural and urban areas. Signatures permitted the use of this data from the interviewees, which enabled the researcher to determine fitting participants for the selected target sample of this research.

### **3.1.4 Data Analysis**

Once all data was collected and transcribed, the process of analysis started. The transcriptions were reviewed and summarised in the first step by focusing on the most important outcomes. This step helped to “identify categories and patterns” within the researched field and provided the first insights for further analysis of the data input (Cope, 2010, p. 441). Afterwards, the primary input data summary was structured according to different themes in an Excel file. This qualitative data analysis approach is called “Theme analysis”, which focuses on summarising

and structuring the data input to get an overview of the argumentation structure (Froschauer & Lueger, 2020, pp. 182, 199). Thereby, deductive and inductive themes were combined in one overview, which was structured according to the thematic input of the interviews. Deductive information represents topics that were actively looked for, whereas inductive insights are themes that emerged during verbal exchanges with the participants (Veal, 2018, p. 462). Within the Excel file, correlations and contradictions were then analysed to ascertain the behavioural patterns of participants. Finally, this study's primary data output was analysed with existing findings from prior research, outlined in Chapter 4. Thereby, all gathered data was combined to find answers to the research questions of this Master thesis.

## **4 Findings**

The following chapter analyses the output of the conducted interviews and determines correlations from the primary data to already existing knowledge. The findings of this empirical study consist of four sub-chapters. First, consumer behaviour towards CE within Generation Z is discussed and analysed, including household practices and differences concerning the place of residence of the participants. This chapter provides an answer to SubRQ1. Afterwards, possible initiatives and constraints for consumers to support CE are critically reflected to determine current restrictions according to SubRQ2. Finally, the responsibilities of consumers, producers, groceries, and the government to better support CE within the food retail industry are outlined. The overall outcome of this primary data acquisition provides additional insights to the literature review to answer the overall RQ of “How can consumers of Generation Z influence the success of circular economy within the food retail industry?”.

### **4.1 Consumer behaviour towards CE**

Sustainability has gained importance over the last few years. Participant 9 said, “I think sustainability being a trend is the best thing that happened in years”. This new healthy lifestyle that developed focuses on “quality over quantity” and thereby supports responsible consumption patterns (P9). Most participants interviewed actively look for organic and sustainable food during their grocery shopping trips (P3; P5-10). Nowadays, consumers seek fresh and healthy products, which led to first adaptations of assortments in supermarkets (P2; P4; P7). Especially the offers for vegan and vegetarian goods are higher nowadays than ever (P7). Therefore, most of the participants emphasised the impact consumers have on assortments in stores and the influence on how products are offered (P1-9). This finding agrees with the discovery of prior studies (Kymäläinen et al., 2021, p. 12). If demand changes, “then the supply will adapt to it, and then it will also come down to trying to create a continuous cycle if that is what consumers want” (P7, translated by the author). Customer demand is a primary driver for implementing a circular economy (Piila et al., 2022, p. 536). Thus, there still seems to be a lack of awareness about consumers’ influence on sustainable development (Ojala, 2008, p. 789). Participant 9 stated, “[p]eople say that me doing something doesn’t make a difference, but if everybody would adapt, producers would have to stop producing certain goods because no one buys them anymore”. Another problem in this context is the missing visibility of consequences from individual choices (Moser, 2010, p. 34). Participant 9 thinks that people have good intentions

to act sustainable, but until “we see the consequences in front of our faces, I don’t think people are [going to] realize that, you know, climate change is actually a thing” (P9). On the other hand, participant 9 stated that “putting a mirror in front of someone and showing them how bad they are doing, that doesn’t help. People are gonna get defensive” (P9). This statement proves that sustainability plays an emotional role in people’s daily lives (Lehtokunnas et al., 2022, p. 241). Emotions can help to push people in the right direction (P1-2). Especially regarding food, choices are often guided by social or emotional intentions (P3; P7). Participant 7 admitted that the opinion of friends and family highly influences his buying and consumption habits. When choosing a new product on the shelf, he stated as an example that he would prefer to take an item that he already saw in the relatives’ kitchen over trying a new one (P7). Childhood practices guiding daily consumption practices is another point mentioned by several participants (P1-4; P6-7; P9-10), which proves that individual lifestyles and consumption practices are established at an early stage of life and usually stay the same over a lifetime (Kymäläinen et al., 2021, pp. 11-12).

Even though sustainable consumption has gained importance over the last few years, current economic developments tend to hinder consumers from deciding on eco-friendly alternatives while grocery shopping (P4; P9; UN, 2022a, p. 3). Raising prices due to inflation, as mentioned in the publication of Keppen (2022, p. 6), makes it difficult for low-income households to actively decide on organic products (P4; P9). „It’s just expensive. It’s not easy to eat healthy“ (P9). The most vulnerable households are families and students since the budget is limited anyway, but inflation makes it even harder to decide on green alternatives (P1-4; P6; P7). Nevertheless, there are as well other influences guiding consumer decisions in retail stores. One aspect mentioned by several participants was the routine of daily food shopping (P3; P5; P6-8). People tend to stick to their usual purchases instead of actively considering other, more sustainable products while going through the store (P3; P5; P7-8). Otero et al. (2018, p. 4) describe that consumers usually conduct a cost-benefit analysis during their groceries. Even though price often overrules buying decisions, there is always a comparison between price and quality or quantity (P4; P6-7; P9-10). Another interesting aspect raised by participant 4 stated that higher prices mean higher quality in consumers’ perception (P4). Different theories can challenge this statement. First, Brucks, Zeithaml and Naylor (2000, p. 371) determined that the consumers’ judgement of quality depends on several dimensions, like “ease of use, versatility, performance, durability, serviceability, and prestige”. Since most of those factors are not visible to the consumer when choosing a new product, theoretically, quality cannot be judged correctly when standing in front of a shelf in the supermarket (Brucks et al., 2000, p. 371). Therefore,

price, brand and product attributes guide consumers' quality perceptions (Brucks et al., 2000, p. 359). Another dimension for quality raised by participants is sustainability labels like the EU organic label, fair trade or the Austrian "AMA Gütesiegel" (P5; P7; P10). So overall, criteria for quality judgement cannot be generalised since individual preferences and experiences influence that evaluation (Völckner & Hofmann, 2007, p. 189).

#### **4.1.1 Characteristics of Generation Z**

Prior research expressed that Generation Z has a high potential to push sustainability to a new level and positively influence the sustainable behaviour of future generations (Arenas-Gaitán et al., 2022, p. 1496; Kola-Olusanya, 2012, p. 210). That young people care about the planet's future and seek sustainable alternatives does not only show Kola-Olusanya (2012, p. 210) in his publication; all participants of the conducted interviews showed commitment to support sustainable consumption practices to a certain extent (P1-10). Despite the strong interest in the development of the planet and their commitment to influencing the lives of future generations for the better (Djafarova & Fouts, 2022, p. 423), young people still seem to lack knowledge in waste processing practices or characteristics of sustainability labels (P4-5; P8; P10). When asked about the meaning of the labels, many participants simply stated that they trusted the labels without questioning their backgrounds and attributes (P4-5; P10). This fact could have something to do with their stressful lifestyle since students usually handle studying and working simultaneously (P4; P6-7). This means not much time and energy is left to spend hours in the supermarket (P4). Buying choices are usually a routinised behaviour with "rational and social element[s]", as mentioned in the publication by Arenas-Gaitán et al. (2022, p. 1496). The routine in daily schedules also leads to more regular online food orders (P2; P4), which is way easier in urban areas since the city offers more options than food delivery services in the countryside (P2). Concerning sustainability in daily decisions, participant 2 claimed, "I really do have other concerns in my everyday life [than] to think constantly about my [ecological] footprint". Another interviewee stated that splitting waste in a single household is difficult since everything starts smelling bad fast if one does not cook regularly (P10). The living circumstances of young adults make it difficult to implement sustainable practices in their daily life (P4; P6; P10). Additionally, the theme of a tight budget, as mentioned before, due to lower income at the start of one's career limits Generation Z's daily purchase choices (P2; P6-7). This finding coincides with a study by Drescher, Thiele, Roosen and Mensink (2009, p. 690) deter-

mining that income and age guide healthy food diversity in consumers' food shopping behaviour. Nevertheless, it is probably one of the most connected generations due to its constant information exchange through social media platforms (P9). According to some interviewees, these platforms offer the perfect opportunity to further inform and push young adults to implement sustainable practices according to CE within their daily life (P6; P9).

#### **4.1.2 Shopping Behaviour and Household Practices**

Personal attitude is probably one of the main driving forces for behavioural patterns (P3; P9). Consumers with a certain interest in nutrition connected to health and the human body tend to prefer organic options during their food shopping trips (P3; P9). Interest in personal health seems to be an essential part of sustainable consumption, as well as environmental, social, and financial motives (Lee et al., 2016, p. 79). This environmental driving force was mentioned by participant 9 while talking about her daily practices of buying sustainable, splitting her waste and believing in the impact of her choices on society and nature. Her commitment to the environment starts in the store by deciding on sustainable solutions, trying to avoid plastic-packed vegetables and seeking organic products (P9). Once at home, she has informed herself about food storage and learned to store certain fruits and vegetables in a can of water in the fridge to prolong their durability (P9). And finally, concerning waste, she emphasized that sometimes it is more difficult to correctly separate waste in urban areas (P9). Thus she has been used to doing it since childhood, so she still cares a lot about proper waste separation and recycling (P9). This is only one of the examples recognized during the interviews. Other participants explained the fusion of habits once you move in with your partner (P6-7).

The social components influencing sustainable practices at home could be friends and family, roommates or childhood memories (P5-8). Especially the influence of childhood memories came up in nearly all interviews conducted (P1-7; P9-10). About half of them brought up the topic while discussing product choices in the store since childhood practices seem to guide the food shopping behaviour of young adults (P1; P3; P5-7). This phenomenon often occurs unconsciously; thus it is proven to be a guiding factor in decision-making in food consumption (Kamenidou et al., 2019, p. 3). For example, participant 7 mentioned that his parents always bought sparkling water in glass bottles, so he did not even think about switching to plastic bottled water once he got his household.

This influence of family and friends is as well guiding household practices. Interviewee 6 talked about how she learned everything concerning food purchases and processing at home, which

corresponds to the outcomes of prior research (Kymäläinen et al., 2021, pp. 11-12). She does not buy too much at once and thinks a lot about how to prevent food waste already upfront, which is how she learned it at home while growing up (P6). So, for example, she prefers to buy bread rolls instead of too much fresh bread, to be able to rebake once needed (P6). When analysing the topic of waste splitting in households of young adults, childhood plays an essential role in the development of people's waste-splitting practices (P2; P4). Participant 4 stated, "I have learned from when I was a child to recycle", and he is still doing it daily (P4). Participant 2 said she did not split waste when growing up since she was living in an apartment building. No one really took care of proper splitting, so she explained, "I didn't grow up [...] doing that and I just never really grew accustomed to that. So for me, it's not that big of a deal." (P2).

When going back to the connection between household practices and shopping behaviour, the financial aspect still tends to overrule certain underlying beliefs and intentions of Generation Z (P2; P6). As mentioned before, participant 6 tries to avoid food waste as much as possible. Thus she does not always decide on the most sustainable alternative in stores due to budget restraints (P6). As an example, she mentioned that high-quality meat has become nearly unaffordable for frequent purchases, so there is no budget to always buy the most organic and sustainable piece of meat (P6). So one could argue that the behaviour is not consistent with her consumption; thus she does everything in her power to support sustainable practices, which means there is still a red line going through her behavioural patterns (P6). A different lifestyle is followed by participant 2. She seeks cheap grocery shopping products, aims for fast-cooked food at home and regularly orders food online (P2). She struggles as well with the high prices due to her limited budget; thus she seems to rather prefer price-quantity offers over sustainable goods (P2). So overall, there is a connection between shopping behaviour with household practices, since several external factors and inner motivations always influence personal behaviour. These external influences and restrictions might be price, living circumstances or the opinions of one's peer group (Kamenidou et al., 2019, p. 14). Thus, young adults' inner motivation and commitment to a certain lifestyle usually stay constant within shopping and consumption practices.

#### **4.1.3 Food waste**

One part of the conducted interviews focused on the fact that in the EU, more than 50% of edible and unedible food waste occurs in private households (Stenmarck, Jensen, Quested, &



Moates, 2016, pp. 26-27). According to the participants, the main factors, therefore, are low food prices (P6-7; P10), convenience (P6), lack of awareness (P10) and the influence of society on consumption (P10). De Bernardi et al. (2022, p. 1098) summarize the first two points under “socio-demographic factors”. The problem with low food prices is that “many people don’t value their food enough because it’s just too easy for them to get” (P7, translated by the author). Low prices lead to buying higher quantities, which usually leads to a high amount of leftovers and food waste (P10). Participant 10 suggests here that the price for lower quantities should be adapted to the same as big packages. For example, he mentioned that buying a one-kilogram bag is in relation cheaper to buying three single carrots (P10). This influence of price on buying higher quantities counteracts the research of Ang et al. (2021, p. 3256), which states that “price-conscious consumers shop carefully” to minimize food waste as much as possible. But according to several participants in this study, price sensitivity does not necessarily lead to less food waste (P2) since other factors like convenience and awareness are coming along in these decisions (P2; P7; P6; P10). Convenience describes the fact that people are used to having everything they want, whenever they want, so they tend to throw away food more easily (P6). Participant 6 focused here on the mindset of people living in the middle eastern region by stating, “in other countries you would never throw away a loaf of bread so easily” (P6, translated by the author). Lack of awareness and the influence of society falls under the category of “skills and lifestyles” (De Bernardi et al., 2022, p. 1098). People often do not know how to properly store food and do not take the initiatives to get the information from somewhere (P9). Especially in family households, it is difficult to keep an overview of the items in the fridge, which leads to increased food waste through living circumstances and often time pressure (P10). Society is pushing consumers to eat healthy and fresh (P10). Thus often, it is simply not compatible with the stressful daily lives of young adults (P2; P4; P8; P10).

#### **4.1.4 Difference urban and rural residence**

During the interviews, many participants outlined behavioural differences according to habitual residence in two different contexts: waste separation and food shopping possibilities. Similar variations of consumption habits according to the place of living were recognized by prior research (Skourides et al., 2008, p. 194). According to the output of the interviews, rural habitants seem to consume more sustainably than people living in the city (P6; P9). Thus, this statement is not necessarily related to personal motivations but to external factors and circumstances influencing individual behaviour.

When observing the waste disposal infrastructure in urban areas, participants claimed that restricted possibilities make it difficult to properly dispose of household waste, like missing containers for organic waste in apartment complexes (P2; P4). Even though some say there are enough possibilities available in Vienna (P3), others claim that separating organic waste is an extra effort in the city since you need to bring your bag to a collecting island in your district, which is often not necessarily near one's apartment (P4). Another restricting factor is the wrong waste splitting of other habitats within a building (P9). Participant 9 claims that, it does not make sense to correctly separate waste if she sees in the bins downstairs that people are throwing in whatever they like. Missing knowledge about correct waste management restricts proper recycling in urban areas (P9). Participant 9 made the city accountable by stating, "I think in Vienna it should be regulated a little better". When looking at the situation in the countryside, people have better opportunities to properly split waste in front of their houses and smaller apartment buildings (P5-6, P8-10). Additionally, participant 9 thinks that rural habitats are more connected to nature and, therefore, more willing to properly manage their private waste.

This relation to nature also relates to the shopping offers available in the countryside (P9). "I think cities are kind of a bit like excluded sometimes from the bubble, from the rest of the world" (P9). Of course, a big city like Vienna offers many different stores to buy food, from casual supermarket chains to organic stores and district markets (P1; P4). Thus, consumers claim that the sustainable offers in the city are more expensive than those in rural areas (P9). Participant 9 thinks that "at least in the city, sustainability or buying good food is a luxury and I think that's just very unfair". Even though rural areas do not have many stores available, they have other options, more regional options available for their food purchases (P4; P6; P9). Apart from weekly village farmer markets (P5-6), people living in the countryside benefit from their proximity to regional farmers. Examples, therefore, are farmers directly coming to your district and offering either fresh bread out of their van (P6), a box of vegetables for € 20 that farmers could not sell to supermarkets anymore due to high corporate requirements (P9) or the possibility to get fresh eggs directly from a farm nearby (P6). Even though participant 4 emphasized that every district in Vienna has its weekly markets, the distance to regional farmers is still making it difficult to get regional and local delicacies (P1; P3-4; P9).

## **4.2 Consumer Challenges to support CE**

While asking about participants' daily food shopping habits, some restrictions concerning sustainable consumption towards CE came up during the conversations. Prior research elaborated

on some consumer-related challenges, like the fundamental change in consumers' mindset (Piila et al., 2022, p. 536). Others emphasized the lack of initiatives for proper recycling opportunities (Kunz et al., 2018, p. 46). Some of these points relate to the statements of the participants of this research study. The following chapter will go into more detail on the challenges consumers currently face in supporting CE.

#### **4.2.1 Convenience**

Convenience is usually guiding daily choices. Regarding food choices, participant answers showed that traditions and childhood practices often manoeuvre them through their day (P3; P5; P7), which could lead in both directions, positively and negatively. Participant 3 stated, "I am a creature of habit, but I think a lot of people are, concerning these small things, concerning household choices, where you go, what you buy, which brands you consume and stuff like that". Others claimed that many people are used to their way of buying, consuming, and disposing of goods (P3), so for most consumers, it is difficult to break that habit (P5; P7). When deciding on a new product, the beloved taste of products tend to overrule sustainable decision criteria (P2; P8). In stressful everyday lives, consumers tend not to think about healthy and sustainable nutrition since they have other concerns in mind (P2) and their choices are often guided by a routinised behaviour (Aydin & Yildirim, 2021, p. 2; De Bernardi et al., 2022, p. 1101). One trigger for this could be that "we're so used to having everything accessible to us all at once, at every day or night-time" (P3). The real value of commodities is often mixed up with the price etiquette in supermarkets since the price is the easiest indicator people can get to measure the value of food (P7). Thus, the value often encompasses far more factors like those included in the ecological footprint of goods (Zambrano-Monserrate et al., 2020b, p. 1). So, consumer's choices are guided by convenience, leading to a preference for fast purchases at the nearest supermarket instead of a cautious selection of fresh products from local farmers (P5). Sustainable consumption, according to CE, seems to be an extra effort for consumers. Participant 5 claimed that driving to every farmer individually to get the eggs from one, the meat from another and vegetables from a third one simply takes way more time than buying everything at once in a retail store. This point proves that the inner motivation for sustainable practices is essential to achieve the change in consumer's mindset suggested by Piila et al. (2022, p. 536).

### **4.2.2 Price**

The ability to buy sustainable goods is usually guided by the consumer's income and available price ranges in stores (Drescher et al., 2009, p. 690; Lehner, 2015, p. 416). The fact that sustainable and organic products tend to be more expensive than conventional ones was not only elaborated in prior research (Kamenidou et al., 2019, p. 8). Several interviewees claimed the same issue during the empirical data acquisition (P7-9). According to participant 9, sustainability is "just still a privilege thing sadly". Not everyone can afford to buy eco-friendly alternatives, especially students with tight budgets (P6) and "families, I don't think have a choice at all to buy more organic and [...] products that are better for the environment" (P4). Even though high prices were already an existing barrier for young adults to decide on sustainable alternatives before (Kymäläinen et al., 2021, p. 12), current trends of healthy lifestyles and the rising prices among other things due to inflation are further restricting their daily life choices (P4; P6; P9). Nearly all participants mentioned price as a main decision criterion when choosing products on the shelf (P1-2; P4-7; P9). Generally, it seems acceptable for the participants to pay more for organic products to get better quality (P4). Thus, especially when buying high-quality meat, for example, participant 6 claims that frequent fresh meat purchases are expensive and limit her from choosing the best quality at each trip to the supermarket (P6). Balancing price and quality are daily conflicts in young people's lives (P7). Thus, their inner driving force for sustainable alternatives is still clearly visible (P3-9).

### **4.2.3 Waste**

Childhood practices and traditions highly guide consumers' attitudes towards waste (P2; P4; P6; P9-10). Another influence mentioned by participant 2 is the stressful daily lifestyle, leading to routinised behaviour and restricting young adults from properly splitting their waste (Nunkoo et al., 2021, p. 2027). Furthermore, the offer of recycling bins provided by the city authorities guides this aspect, which claims to be more restricted in urban areas (P2-5). Waste splitting, in general, is limited to consumers' knowledge on proper splitting in their districts (P2). Often, it is an extra effort to get the right information on proper waste splitting within one's living area, which restrains individuals from taking the right initiatives (P2). Participant 2 thinks that consumers just need "a little push in the right direction" regarding waste regulations set by the authorities (P2; P9). This aspect of missing information on local recycling possibilities was also outlined in a study by Munro (2021, pp. 1525-1526), stating that "constantly changing recycling

rules” and the busy lifestyle of young people makes it hard to keep up to date with proper recycling practices.

One important aspect in this context is packaging waste. Interviewees complained about unnecessarily plastic-wrapped fruits and vegetables that have a peel and would not need any packaging (P5; P8-9), which corresponds to the results of previous studies (Munro, 2021, p. 1522). Another example would be individually plastic-packed cookies within one big package (P7). By analysing the mixture of plastic and paper-packed goods, participant 2 claimed that sometimes “everything’s glued together” making it difficult to properly split and recycle packaging waste. When looking at requirements to better support CE in food consumption, participant 9 said, “I think the way food is produced or packed or sold, I think that could make a difference”. Even though consumption goods always bring a certain degree of waste with them, “especially in the case of packaging waste [it is] a way to really change things easily and quickly” (P7, translated by the author). Consumers ask companies to adapt to alternative packaging solutions like using more cardboard or sustainable plastic substitutes (P3; P7; P10). Because, after all, consumers tend to stay in their convenient habits and might need some support from groceries and producers in this aspect (P1; P8).

#### **4.2.4 Limited awareness**

Consumers do not get any immediate positive or negative feedback for their actions (P9). The lack of direct consequences of actions makes it difficult for consumers to understand their impact on climate change (Moser, 2010, p. 34). Additionally, consumers do not have enough information about the influence of their actions on the social and economic development of our society (Nunkoo et al., 2021, p. 2024). However, most of the consumers do not seem to actively seek those insights either. Participant 6 explained this dilemma by saying, “I think that people - at least in our country - are doing very well, sometimes too well, and that’s why people often don’t think about such things” (P6, translated by the author). This statement proves the urgent need to educate better and inform people about CE (P6-7; P9). Participants claim that groceries and food suppliers are not providing enough information to understand the topic of sustainable consumption (P4; P10). Participant 4 would love to have a separate shelf with uniquely organic products in regular supermarkets. Until now, consumers have struggled to quickly find alternative solutions in food stores (P1-2; P4; P10).

### **4.3 Possibilities for Consumers to support CE**

Some of the following points came up during the last part of the interviews while discussing future initiatives for CE. To counteract current restrictions and challenges, participants provided, often without concrete questions from the interviewer, examples of how to improve circumstances for consumers to support CE. The following chapter provides an overview of possibilities to better support the success of CE within food retail and food consumption, including active purchase decisions, sustainable alternatives, active consumption, proper waste management and awareness.

#### **4.3.1 Active purchase decisions**

Prior research emphasises that food purchasing is a routine behaviour, where consumers usually do not take active shopping decisions (Aydin & Yildirim, 2021, p. 2). This passive buying is often led by marketing stimuli, design, or promotions (P1-3), corresponding to the findings of Aydin and Yildirim (2021, p. 3). The packaging design is often more attractive than the products' origin or ingredients. Participant 1, for example, recently bought mustard in a black tube simply because it looked cool (P1). Others are incautiously or cautiously guided by products that one of their followed influencers on social media is using (P9). According to Djafarova and Foots (2022, p. 424), the influence of social media on consumers' behavioural patterns will even rise further. Participant 8 mentioned here that the need to seek the newest things often guides shopping decisions without properly thinking about the necessity to exchange current goods for new ones (P8). Buying higher quantities is often guided by discounts, so consumers should actively seek discounts on durable goods rather than fresh ones, which are limited in their consumption time (P7; P10). Another trigger for buying higher quantities than needed is stress and appetite (P8). Spontaneous lifestyles make it difficult to actively choose sustainable alternatives (Kymäläinen et al., 2021, p. 12). Participant 8 suggests avoiding going for groceries when one is hungry. Instead, it helps to follow a shopping list to avoid extra quantities in the basket (P8).

An active change in consumer demand for year-round fresh products of all varieties is necessary to switch consumption to a more sustainable approach (Priefer et al., 2016, p. 156). Consumers should seek regional and seasonal goods (P8; P10). Participant 8 said that she tries to avoid buying strawberries in Winter, and participant 5 seeks fruit and vegetables uniquely from Austria. Consumers should look for regional offers like local farmers and local markets, which tend to be easier accessible in rural areas (P6; P9). In addition to active purchase decisions,

consumers should minimise emissions by avoiding taking the car for grocery trips nearby or combining trips to avoid several drives per store (P10).

### **4.3.2 Sustainable alternatives**

Seeking sustainable alternatives still is a challenge for consumers among other things due to the restricted availability of sustainable offers, price limitations and convenience (P1-9). Thus, the empirical study of this research shows that young people are aware of the topic and already taking first initiatives towards sustainable consumption. One aspect mentioned by several participants is the active search for local offers from farmers (P4; P6; P9). Even though searching for such offers tends to be difficult (P7), participant 6 is actively buying fresh bread from a local baker who comes by every Wednesday, tries to go to the farmer's market each Friday and buys eggs from a local farm. Participant 9 talked about similar experiences in a rural area, where she bought leftover vegetables from farmers that they could not sell to supermarkets anymore for a discounted price.

Buying at local farmer markets not only supports the regional economy but provides the opportunity to buy local goods and avoid packaging simultaneously (P6). Another example of less packaging waste is open shelf stores, where one can take individual amounts of goods filled in jars and boxes (P7). Even though this is still not common practice in regular supermarkets (P1), young consumers seek alternative shopping possibilities (P7). In this context, interviewees saw a relation to practices from the past, where self-filling stations for milk and bringing their own boxes for fresh ham or cheese was common practice (P7-8). One way to avoid food waste is to buy rescue bags with products that are not fresh anymore, which is a newly introduced offer by regular supermarkets to avoid food waste (Lange, 2022). Participant 6 checks those offers at the cash desk before choosing from the regular shelf since, for her, it is an excellent way to save money and rescue goods from being wasted at the same time. Another offer by the Austrian supermarket chain Billa is a cheaper price on unformed vegetables called "Wunderlinge" (P5). Participants were positively surprised by the quality of those "saving" offers (P5-6; P8). Compared to other food-saving platforms like Too Good To Go, some interviewees stated that they prefer the food-saving options where one sees the products before buying (P8; P10). Yet, the company Too Good To Go is nowadays well-known in urban areas of Austria since it is a good way of saving money and supporting the environment simultaneously (P4). The opinions on the practical and convenient use of the platform differ. Some enjoy the possibility of quickly filling an empty fridge at home (P4), or the quantity of food offered for the small price (P8).

Others claim the limited variety in their districts (P2-3) and the specific time slots needed for pickup (P9). Nevertheless, the company was awarded for being one of the 100 most influential companies of 2022, *inter alia*, because the company “saved 124 million meals from landfills since 2016” and supports the positive development of sustainable consumption practices (Pearse, 2022).

### **4.3.3 Active consumption**

“Nowadays, consumers definitely have a choice to reduce the footprint they are leaving while grocery shopping and eating and buying food” (P4). Active consumption is one of the leading behavioural changes of consumers needed to support the success of the circular economy. Buying and consuming food is a human choice (Jonkute & Staniskis, 2016, p. 171). Therefore, people are asked to rethink their consumption patterns and adapt their practices accordingly (P8). Participant 2 supports this argument by stating, “I think it still comes down, mostly to the consumer to change their habits”. Thus, this change in daily consumption seems difficult due to traditions and current practices of society (P1; P3). One of the interviewees stated that he does not buy nuts on the open shelf yet, because nobody does, and he does not know how it works, so he prefers to buy the standard pre-packed package of nuts (P1). This example proves that Generation Z is highly influenced by personal experiences, social surroundings, and family traditions in their daily consumption choices (Kamenidou et al., 2019, pp. 3, 14). Even though the generation is eager to improve our planet’s development, peer groups’ pressure often seems to overrule individual intentions and opinions (Djafarova & Fouts, 2022, pp. 423-424). This fact aligns with young people’s connection to childhood practices and their impact on daily life choices (Ojala, 2008, p. 778; P1; P3; P6-7).

One other external factor influencing the generation’s daily life is their busy everyday schedule (P2; P8). Participant 8 suggests reducing stress since limited time leads consumers to take unsustainable decisions like throwing away things more quickly and forgetting to think about re-using or recycling during home cooking. Active consumption makes people rethink the actual value of goods (P7). Interviewee 7 pointed out that people tend to value their consumption goods according to their price etiquette on the supermarket shelf. Thus, research shows that monetary value does not always present the accurate picture of a product since social and ecological components are not considered (Kallis, Gómez-Baggethun, & Zografos, 2013, p. 101). Participants claim that it is easy to forget the actual value of food when old products can be



replaced with new ones so quickly in our current economy (P7-8). Promotions are further pushing to buy higher quantities than needed (Farr-Wharton et al., 2014, pp. 397-398), which leads people to over-shop (P8). To counteract this problem, participants stated that people's habits need to change (P2; P8). As an example, one of the participants stated that she learned how to better store fresh goods in the fridge (P9), while others tried to eliminate food waste by freezing leftovers (P6; P8). So consumers do have a choice to actively counteract food waste and support CE within the stage of consumption (P7).

#### **4.3.4 Proper Waste Management**

The absence of direct consequences in waste management makes it difficult for consumers to recognise the impact of their choices on the development of CE (Ojala, 2008, p. 789). The circular economy focuses on waste management, prevention, and resource efficiency (EEA, 2016, p. 31). Even though consumers might be restricted by the offers from companies and local waste authorities (P1-4), they influence waste management and prevention by cautiously avoiding packaging as far as possible. At the end of the life cycle of goods, consumers must properly dispose, recycle, repair or reuse food and their packaging (Ojala, 2008, p. 787). In a broader sense, CE includes parts of green economy development as well since proper waste management positively influences "ecosystem resilience" and "human well-being" (EEA, 2016, p. 31). These findings relate to the fact that recycling can be seen as an emotional act, since it is usually guided by an ecological intention (Munro, 2021, p. 1524). Participants seemed proud when talking about their recycling practices and efforts at home (P1; P4; P7). Even though it might be an extra effort in urban areas to split biodegradable waste, for example, there are possibilities for proper splitting in place (P4), consumers are often simply too lazy to walk a short distance to the next recycling island within their district (P2-3). Ojala (2008, p. 789) analysed this characterisation as lazy person, concluding that people either use this attribute as a "strategy to avoid feelings of cognitive dissonance" or to accept these feelings and evoke a sense of guilt. The interviews of this research showed examples for both directions (P2-3; P4). Another example from the empirical study shows that consumers influence offers from groceries (P10). The supermarket chain Hofer introduced glass bottled milk by promoting it as a sustainable alternative to conventional cardboard-packed milk (P10). Thus, the grocery chain did not provide any possibility to recycle the bottles, so consumers and NGOs like Greenpeace started lobbying accusations against Hofer (Golser, 2020; P10). Consequently, Hofer provided the possibility to return glass bottles at the cash desk (P10). This example proves that consumer

demand has an immense impact on the development of green initiatives (Camacho-Otero et al., 2018, p. 2).

#### **4.3.5 Raise awareness**

All aspects mentioned before are building on the awareness of consumers of their possibilities and their impact on the planet's development. Especially regarding food proceedings and recycling processes, there still needs to be more information and awareness among Generation Z (P4; P7). Even though young people are supposed to have higher social awareness and environmental concern than others; they are often facing issues of proper sustainable behaviour due to limited knowledge of recycling rules and limited education on sustainable consumption practices supporting CE (Arenas-Gaitán et al., 2022, pp. 1489-1490; Munro, 2021, pp. 1525-1526; Ojala, 2008, p. 788). Participants' perceptions and argumentations support these limitations (P2-5; P7-9). "I think most of the problems generally start because people don't know anything about anything" (P9).

In the first step, consumers should rethink their individual food shopping behaviour (P3; P5; P9). Participant 3 suggests that "everyone should just look within themselves, see what is within their options and just do their best because really, that's all everyone can do" (P3). Additionally, as a second step, people should look for more information on sustainable practices, question current practices and seek alternative options. Some interviewees claimed the extra effort needed for sustainable consumption (P5; P7), but once one knows where to contact regional farmers, consumption practices can be positively changed for the better in the long run. Moreover, eco-friendly behaviour should be better educated to everyone (P6-7; P9). It can start with courses on splitting waste in nursery school (P6), awareness-raising campaigns directly in the supermarket (P4) or direct interactions with influencers, NGOs or environmental specialists through social media (P6). Especially young consumers from Generation Z are highly interacting through online platforms (De Bernardi et al., 2022, p. 1101), which provides the perfect stage for educational talks and information spread (P6). According to some participants, it is important to push people in the right direction (P1-2), for example, by facing them with the consequences of their behaviour (P9) and trying to change their mindset (P6). "[J]ust with information we could change so much and make so much better" (P9).

## **4.4 Responsibilities of different parties**

The question, which is now arising from these findings, asks who is responsible for the success of CE within food retail. How can consumer choices make a difference in development? Research shows that CE requires strong cooperation between all stakeholders (Fassio & Tecco, 2019, p. 2). This collaboration requires interconnections and responsibilities from everyone within the food retail industry, including producers, groceries, consumers, and the government. Participant 6 supports this argument by stating that groceries and producers should “explicitly do something here” (P6, translated by the author). Another participant emphasises the importance of regulations within the food sector to speed up the process of the positive development of CE (P10). Even though corporates still seem hesitant if consumers are ready for this significant change to sustainable practices in everyday lives (Piila et al., 2022, p. 536; Sroufe, 2017, pp. 315-316), increasing demand for alternative solutions to conventional goods shows that there is the necessary motivation of young people to support the change (P3-7; P9-10).

Ongoing challenges, which hinder the proper implementation of CE within food retail, are related to the current state of the world’s economy. The unstable situation after the Covid-19 pandemic, rising prices due to inflation and ongoing conflict predominance between countries and states are all factors influencing the current priorities of companies and governments, but in the end as well the final buying behaviour of consumers (P4; P6; P10). “[B]ecause of the other issues we are facing right now, I think let’s say the effect on the climate for example, and the environment has taken a backseat again” (P4). Nevertheless, consumer demand for changes to prevent climate change seems to rise. Participant 7 thinks that the economy is ready to change since groceries have “also already adapted a lot, if you look at today as an example when I go to the supermarket it is now very easy to get vegan or vegetarian food”, which was not the case a few years ago (P7, translated by the author). The influence of consumer behaviour on this incremental change is clear to young adults (P4-7; P9). If demand changes, “then the supply will adapt to it and then it will also come down to trying to create a continuous cycle if that is what consumers want” (P7, translated by the author).

### **4.4.1 The role of consumers**

As emphasised before, demand controls supply and, thereby, the development of the economic system (Mongale, Kumar, & Tiwari, 2020, p. 258). “At the end of the day, it sounds harsh, but [food retail is] a business and it’s about financial success, about profits, and those are generated through consumption and if consumption changes, the other will automatically adapt” (P7,

translated by the author). This research shows that consumers control supply since shoppers provide financial support for companies by purchasing of their products (P7). Suppliers need loyal consumers to stay in business, so if consumers stop buying certain goods, the economy will have to adapt and offer customer-fitting alternatives (P7). “Producers and supermarkets will have to design their offer accordingly” (P7, translated by the author). This is why other researchers like Winans et al. (2017, p. 830) emphasise the importance of including communities in the development process of CE.

Thus, it is important to mention that the consumer is not only the shopper of consumption goods but also the user and product holder (Shevchenko et al., 2023, p. n.a.). Consequently, the consumer’s responsibility to support the development of CE within food retail goes far beyond the actual purchase of goods in the store. Of course, consumers must seek regional and seasonal goods by looking for local farmers and regional offers, which highly depends on self-interest (P7). Thus, there are other responsibilities which have an important influence on CE’s success, like avoiding food waste during food processing and consumption in private households. In this context, participants provided examples like properly storing fresh goods in the fridge (P9), freezing leftovers for another time to prevent food waste (P5-6) and properly planning your groceries already in advance (P6). Proper waste splitting and recycling are necessary to support CE (Munro, 2021, p. 1519). Here consumers are asked to take the initiatives to get properly informed about the correct recycling rules and possibilities at their residence (P7; P9). As product holder, people need to understand their responsibility to prolong the circle by cascading the usage of the goods (EMAF, 2015, p. 8). Consumers need to actively consider recycling possibilities within their households and otherwise ensure correct recycling to eliminate waste within the circle (Munro, 2021, pp. 1519-1520). And finally, the interviewees raised the duty of end users to inform their surroundings about proper implementation practices of CE by talking to their peer group about it, sharing awareness campaigns on social media or consulting with neighbours about cooperations to get fresh goods from local farmers (P3-4; P6-7; P9).

#### **4.4.2 The role of producers**

One of the main drivers for value creation within CE, highly influenced by producers’ actions, is “[t]he power of pure intentions” (EMAF, 2015, p. 8). Therefore, companies need to think about the whole product life cycle already in the first stages of creating a new product or adapting a current one by aiming to build lasting products (Esposito et al., 2018, pp. 11-12). Extending the lifetime of products and ensuring proper consumption and recycling possibilities

upfront is key to success within a circular supply chain (Andrews, 2015, p. 310; EMAF, 2015, p. 8; Esposito et al., 2018, pp. 10-11). Unfortunately, corporates still focus too much on profit maximisation (P3; P9). Participant 3 stated that “many companies [are] trying to just sell their products for their own benefits just to [...] make money”. According to prior research, many industries still doubt the positive impact of sustainable initiatives on current business practices (Piila et al., 2022, p. 536). Since adaptations seem to raise extra effort and costs for companies, the ability of CE initiatives to provide enough benefits to exceed those extra spending is crucial (Chen et al., 2018, p. 1027). Thus, Esposito et al. (2018, p. 10) state that corporations can save expenses on raw material costs and other costs by implementing CE.

Implementing eco-friendly practices not only supports the financial numbers of corporations but could also be an opportunity to change the company’s image to the positive in the long run (P7). Consumers claim misleading marketing strategies, campaigns, and marketing stimuli of food suppliers often guide uncautious buying behaviour (P2-4; P7). Promotions on conventional goods (Lehner, 2015, p. 416) and attractive packaging design (P1-3) make it even more challenging for consumers to decide on sustainable alternatives while shopping. According to participant 7, companies should focus more on the sustainable demand of consumers and adapt marketing strategies to educate consumers and raise additional awareness of the topic. This step would not only help shoppers to take eco-friendlier decisions in the store but improves companies’ positive image towards environmental initiatives for the long run (P7). The importance of long-term planning when implementing sustainable actions was as well outlined by Chen et al. (2018, p. 1027) and participant 7 emphasised the added value companies can achieve soon by changing to eco-friendly practices.

In this context, companies need to adapt their offers to consumer requests. Especially when it comes to recycling, this study shows that young adults ask food producers to better think through their packaging practices and ensure proper recycling possibilities of the materials (P2; P5; P7-9). Interviewee 2 complained, for example, about glued packages that can not be properly separated for disposal. Others claimed the missing possibilities for recycling provided by food producers and suppliers (P6; P8). Young consumers ask companies to reduce plastic packaging (P1, P8) and offer a variety of quantities, for example, through open shelves or self-filling stations, to avoid over-shopping and the resulting food waste in private households (P7; P10). These examples prove that close cooperation between producers and groceries is essential to correctly implement initiatives towards CE within the industry.

### 4.4.3 The role of groceries

About the responsibilities of producers, interviewees ask for similar support from groceries to push shopping and consumption practices to sustainable alternatives (P5; P7-8). Even though retailers also have profit maximisation as a main driving force to stay in business (P3; P9). Participant 8 recognised the potential of groceries to change consumption patterns by stating, “I think the grocery stores already have a big influence, because if it is not offered otherwise, people have to adapt to it“ (P8, translated by the author). This statement shows that the offer provided by retailers guides people’s purchase decisions (P8), which corresponds to findings from prior research (Dora, 2022, p. 783). Especially the assortments of goods and the position of products on the shelf tend to highly influence buying decisions (P7). Therefore, Gupta et al. (2022, pp. 13-14) request groceries to adapt their assortments to consumers’ demand for sustainable goods. Participant 5 suggested creating a separate shelf for uniquely organic products to support the clear orientation for sustainable goods. Even though Gupta et al. (2022, p. 14) highlight the restriction of limited space and resources within the store’s infrastructure, others suggest proper demand forecasting, for example, with the help of AI to optimise the distribution of products at the shelf and create space for sustainable alternatives (Cao, 2021, pp. 966-967; Riesenegger & Hübner, 2022, p. 14). Participants liked the idea of bringing back practices from the past and implementing self-filling stations in stores (P7-8), providing open shelves for the selection of individual quantities (P10) or promoting bringing own jars and Tupperware for fresh goods (P8). Participant 9 said, „I think the way food is produced or packed or sold, I think that could make a difference”.

Retailers should better promote sustainable practices like the return of glass bottles from drinks and liquid goods (P6). Prior findings prove that suppliers play an essential role in supporting reprocessing and recycling products and packaging (Andrews, 2015, p. 310; EMAF, 2015, p. 8). Participant 8 emphasized that consumers need a little push to change from convenient purchase decisions to sustainable alternatives. This change could be achieved through eco-friendly Marketing campaigns and educational in-store communication (P8), as mentioned by Lehner (2015, p. 418). Another critical point repeatedly mentioned by the interviewees is the price difference between sustainable and conventional goods (P3-4; P7-9). This difference prevents consumers in current budget restrictions from deciding on the eco-friendly option (P1-2; P4; P6). By adapting the customized retailer pricing strategy, stores have the influence to balance these price battles to a certain degree (Bolton, Shankar, & Montoya, 2010, p. 312). According to Bolton et al. (2010, p. 317), these pricing strategies will develop in a more locally

customized direction, provide more flexibility and adapt pricing among the different distribution channels. Consequently, retailers can adapt pricing more easily to circumstances and customer needs. So groceries are asked to reduce the price differences between conventional and sustainable goods by pushing organic offers and adapting pricing ranges to make sustainable decisions in-store easier for shoppers (P8).

#### **4.4.4 The role of the government**

When thinking about the strongest influence on the development of a circular economy, participant 10 stated, „I think it’s more political and governmental side where they can change like how the circle is working or if the circle is working“. The government’s main responsibility in this context is to issue regulations that push the development of CE and, thereby, simultaneously the implementation of sustainable practices (P10). These regulatory actions can combine “the transition towards more circularity and hence higher resource productivity” (EMAF, 2013, p. 48). In this way, interviewee 10 emphasises that it is easier to set regulations which obligate companies to adapt their offers with no room for discussion instead of trying to change consumers’ consumption practices. Thus, Oluwadipe et al. (2022, p. 910) emphasise consumer-centred methods’ importance by nudging industry stakeholders instead of forcing them to implement eco-friendly standards. Prior research stated that too strict regulations, such as safety and required bureaucracy steps, might limit companies in their research and development process for sustainable alternatives (Piila et al., 2022, p. 537). On the other hand, strict regulations could help to adjust industry practices to more sustainable approaches like banning toxic materials and “mandatory deposits on single-use packaging” (EMAF, 2013, p. 72). Ultimately, policy tools and company commitment must be aligned to achieve circularity within the economy (Oluwadipe et al., 2022, p. 911).

From a consumer point of view, actions from local governments regulate the provided infrastructure for sustainable practices (Piila et al., 2022, p. 537). One interviewee stated in this context, “I think in Vienna it should be regulated a little better” (P9). Urban habitats complain about limited disposal and recycling possibilities in cities (P2; P4; P9), which was also criticised in a publication by Nunkoo et al. (2021, pp. 2026-2027). The importance of local initiatives was not only realised during the interviews of the empirical study (P4; P7; P9). Prior research emphasises that the local government plays an essential role in promoting and implementing sustainable actions (Evans, Joas, Sundback, & Theobald, 2006, p. 866). A similar statement was given by participant 7, stating that CE means regional offers, regional cooperations and

regional development depending on the self-interest of consumers (P7). Thereby, close communication between citizens and the local government is needed to ensure the proper implementation of sustainable development policies (Evans et al., 2006, p. 865).

When coming back to the role of the national government, it is clear that the current economy is still in a crisis, which sets sustainability topics on the backseat (P10). In order to implement a transition to a circular economy, a stable economy is required (Cohen, 2021). Governments must invest heavily in green initiatives and set regulations for sustainable practices (Cohen, 2021). Even though this seems not to be the case, interviewee 10 raised the issue of missing direct consequences from political actions. “If you do things that are popular, and are seen right away, they don’t have an influence on the long run. If you do things that have an influence on the long run, they are not seen” (P10). This statement could raise a discussion on the efficiency of governmental actions on sustainable development over time, which will not be further discussed in this research. However, interviewee 10 highlighted the influence of governmental actions on sustainable long-term change by stating the example of the EU regulation on obligatory deposit for disposable beverage containers in Austria from the 1<sup>st</sup> of January 2025 onwards (Austrian National Council, 2021, pp. 16-17). First retailers, like Hofer, have already accomplished a successful test phase in some stores and are now extending the deposit system to all their retail stores in Austria (Heigl, 2023). Examples like this prove again the necessary cooperation among the different stakeholders of an economy to achieve long-term success in the development of a circular economy (Piila et al., 2022, p. 537).



## 5 Results and Recommendations

Consumer's influence on the development of CE within the food retail industry is mainly guided by practices within the consumption stage of a product's life cycle. The main RQ of this thesis focused on the investigation of "How can consumers of Generation Z influence the success of circular economy within the food retail industry?". The answer is that consumers are responsible for adequately buying, consuming, and disposing following CE. Consumer demand is the main driver for implementing CE practices (Piila et al., 2022, p. 536). Shopper choices do not only lead demand but control the industry's supply at the same time (Mongale et al., 2020, p. 258; P7; P9). Therefore, consumers can influence the success of CE within food retail by taking active purchase decisions in supermarkets, since these decisions influence the offer provided by producers and groceries. Food shoppers supporting CE seek regional offers like farmer markets or local organic shops. Actively looking for sustainable alternatives helps to decide on goods which support the concept of CE cautiously. Examples are vegetable-saving boxes from retail chains or food-saving platforms like Too Good To Go to reduce food waste from supermarkets, bakeries, restaurants and other food suppliers (P4-6; P8). Regarding cautious grocery shopping, the aim is to avoid waste through overconsumption, which means not buying more than needed. Participants emphasised the importance of reducing stress while food shopping by planning the purchases upfront to avoid falling for promotions on fresh goods and bypassing additional food waste (P6; P10). Even though plastic packaging is still a fixed component of the fruit and vegetable shelf (P9), food packaging can be entirely avoided by seeking open-shelf stores or regional farmer markets. Other examples to avoid waste are to bring own bags, jars or Tupperware for the fresh goods.

At the consumption stage, young people are asked to rethink their eating habits and actively value the food they consume to support CE (P7-8). This active consumption means reducing stress, minimising ordering food and ensuring proper food processing at home, for example, by freezing leftovers to avoid wasting food (P5-6; P8-9). Proper disposal needs to be priority for waste that can not be avoided during the final stage of a product's life cycle. A particular focus is set on keeping products in circles, which can be achieved by prolonging product lives by repairing, reusing and correctly recycling goods (EMAF, 2015, p. 8; Ojala, 2008, p. 787). This research showed some restrictions on young consumers' awareness of correct splitting practices in their habitual residences. So, education on recycling and correct disposal is crucial for the success of a circular economy within the food retail industry.

The analysis of interrelations between household practices and shopping behaviour, according to SubRQ1, showed that young people are highly influenced by their surroundings, including their peer group, society, and personal attitudes. The most remarkable answer to SubRQ1, “How are household practices interrelated with people’s food shopping behaviour?”, revealed that participants’ childhood influences most daily consumption practices of consumers from Generation Z. Interviewees mentioned examples of parents buying glass bottled water and strict waste-splitting practices when growing up, which young people took over in their individual lives. The influence of friends and family is powerful at that age. The findings of this study show that young people’s shopping behaviour is usually coherent with their consumption practices at home. When people picture a commitment to sustainability, they seek regional and organic goods in the store and take care of proper waste splitting at home. Thus, this coherent behaviour of Generation Z might be restricted by a limited budget, living circumstances and the opinion of the peer group to persist in a healthy lifestyle.

The outcome of SubRQ2, “What are restrictions for shoppers to better support CE within food consumption?”, showed daily challenges limiting the support of CE like convenience, habit, price, waste, packaging, and missing awareness. In this context, several recommendations for industry stakeholders are given to ensure the success of a circular economy within food retail through better cooperation and collective actions to support CE. Producers must rethink and improve product life cycles by extending the lifetimes of goods, offering better recycling possibilities for packaging materials and innovating on sustainable alternatives. Especially in food production, farmers should implement sustainable practices and actively communicate that to consumers by adapting marketing strategies to lead consumers to make sustainable choices towards CE. Groceries have similar duties to support consumers within CE since offering goods in stores determines people’s buying and consumption practices (Dora, 2022, p. 783). Store planners should adapt assortments in supermarkets to simplify sustainable choices and support consumers to act by CE. This research suggests supporting this change through active communication and education on in-store CE practices. And finally, young people ask for groceries to better balance prices between conventional and sustainable goods to eliminate the restriction of the limited budget for eco-friendly choices. Crucial for the successful development of CE within the food retail industry is governmental support. By setting strict regulations, for example, on a national deposit system, the government can quickly achieve significant changes. Primarily local authorities shall communicate better with inhabitants by supporting sustainable practices in the region. Overall, a circular economy requires close cooperation between all players to ensure a positive development of CE within the industry.

## 6 Conclusion

The world is still in crisis due to several challenges in the last few years. Hence, the urgent need for sustainable change is seen in the current development of climate change and society's excessive consumption practices. Implementing a circular economy within the food retail industry would help reduce the impact of people's consumption practices by limiting purchases to regional and organic products, supporting sustainable practices by avoiding food waste and properly recycling packaging materials. Consumers do control supply through their daily consumption choices, so people shall actively buy, consume, and dispose products during food consumption. Simple changes could lead to significant improvements. This research showed the interrelation between household practices and shopping behaviour, mainly guided by childhood practices. Current restrictions for consumers to support CE include factors like convenience, price, waste, and limited awareness. Consequently, the findings of this study provide opportunities for consumers to support CE within their scope of action better. And finally, the responsibilities of other players within the industry were outlined to promote and help consumers to choose sustainable alternatives.

Overall, the outcome of this research not only provides insights into consumption practices and preferences of Generation Z but also provides concrete guidelines for consumers on how to better support the development of CE within food retail and consumption. Thus, consumers are not solely responsible for the realisation of the concept. A functioning CE requires close cooperation between all players in the industry. Therefore, the findings emphasise the importance of support from producers, groceries, and the government to lead consumers to sustainable practices. Hence, this research provides precise ideas and recommendations for industry players to achieve the overall success of a circular economy within the food retail industry.

## **7 Critical reflection and outlook**

This research focused on consumers' influence on CE. Thus, the findings showed that a close cooperation between all stakeholders is necessary to achieve sustainable change towards CE. This research suggests initiatives for producers, groceries, and the government. Nevertheless, this analysis of the impact of other players than consumers is not representative nor complete; it only provides insights that emerged during the interviews with participants and would need further in-depth analysis to determine the impact on other stakeholders' CE. Additional limitations of this research relate to the selected methodology of qualitative data acquisition since language restrictions might have influenced the translations and interpretations of the interviews, which might have biased the outcome of this research. Even though the topic of food consumption is not that complex to translate, participants might have been restricted by language barriers in their responses, which might have misled the author's interpretations. Since this study aimed to understand young people's attitudes, behaviour, and inner motivations, the outcome may vary when selecting a different sample within the target population.

Further investigations on the successful implementation of CE within the food retail industry should focus on the individual capacities of the different stakeholders to better support CE. For producers, a detailed analysis of alternative packaging solutions would help to get an overview of possibilities and further education in this context. Another topic raised during the interviews is the behavioural difference between rural and urban residences, which would be relevant to several players in the industry. Here the hypothesis that rural habitants consume more sustainably than urban citizens emerged. Thus, this needs further tests and analysis to find solutions for improvements on both sides. When it comes to waste, many consumers still lack knowledge of how the Austrian recycling and waste system works. Therefore, detailed interviews with industry peers and visionaries would help to understand the current situation and possible restrictions for future improvement. Furthermore, the impact of governmental regulations on the success of CE should be measured and analysed to show the effect of national and local initiatives to push the development of CE in different industries.

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