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Zurich**^{UZH}

Reducing Food Waste in Switzerland: A Study of the Challenges and Motivations Behind Food Sharing Initiatives at the Example of Madame Frigo

GEO 511 Master's Thesis

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Abstract

Food waste is a significant issue affecting both the environment and society. Food production consumes vast amounts of resources and contributes to greenhouse gas emissions, with one-third of global food production being wasted annually. In Switzerland, 25% of the food system's environmental impact results from food waste. To address this issue, the UN's Sustainable Development Goals set a target to halve food waste by 2030, a commitment to which Switzerland has pledged itself. Many different actors are contributing to reaching this goal. This thesis focuses on Madame Frigo, a Swiss food sharing initiative promoting sustainable consumption. The organization's main goals are reducing food waste through the utilization of public fridges, as well as raising awareness about the issue and contributing to community building. The aim of this thesis is to explore the motivations driving the individuals behind the initiative and to examine the challenges they encounter through in-depth interviews. The primary motivations are environmental and social, with social motivations being classified into community building and social responsibility. Additional motivations include valuing food, the concept of Madame Frigo, spreading knowledge and networking. The challenges encountered by individuals involved in Madame Frigo are diverse, ranging from financing, growth and professionalization to cooperation and competition, knowledge and prominence, and threshold to participate and lack of trust. Specific challenges related to the fridges themselves include managing volunteers and the network around the fridges, dealing with users, the fact that food can be accessed for free, addressing empty fridges, determining optimal fridge locations, and handling issues such as vandalism, theft, and hygiene regulations. The diverse economies approach by J. K. Gibson-Graham was utilized to understand how Madame Frigo serves as an alternative way of accessing food and situates itself within the diverse economies of Switzerland. Madame Frigo illustrates how community-driven, non-market practices can promote sustainable development, social equity, and community well-being, offering alternative solutions to challenges typically unmet by the traditional capitalist economy.

Keywords: Food Waste, Food Sharing, Sharing Economy, Public Fridges, Community Building, Sustainability, Diverse Economies.

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Abbreviations

BAFU	Bundesamt für Umwelt (Federal Office for the Environment)
Fairteiler	Refrigerators by Foodsharing
FAO	Food and Agriculture Organization
Food Savers	Volunteers of Foodsharing who do pick-ups
Frigo	Refrigerators by Madame Frigo
Gotti/ Götti	Godmother/ Godfather, main responsible volunteers for the Frigos
ICT	Information and Communication Technology
SDGs	Sustainable Development Goals

1. Introduction

In the landscape of modern food production, distribution and consumption, food waste has emerged as a critical concern. According to the Food and Agriculture Organization (FAO, 2011: 4), “roughly one-third of food produced for human consumption is lost or wasted globally, which amounts to about 1.3 billion tons per year.” This food waste has far-reaching effects on the climate and environment (FAO, 2011). Food produced that is not consumed uses vast amounts of limited resources such as land, water, and energy, leading to unnecessary greenhouse gas emissions and other negative externalities such as biodiversity loss, soil erosion, and loss of organic matter (Beretta et al. 2013). The Bundesamt für Umwelt (BAFU, 2022) estimates that 25% of the environmental impact of the food system is due to food waste. In Switzerland, 2.8 million tons of food waste are caused annually across all stages of the food chain, equating to approximately 330 kg of food waste per person per year (Beretta and Hellweg, 2019). In industrialized countries, food waste by end consumers is significantly higher than in developing countries, with around 40% of food waste occurring at the retail or consumer level in countries like Switzerland (FAO, 2011; Beretta, 2018). In addition to its significant environmental impact, food waste also poses social and ethical issues. Overconsumption and food waste occur while many people lack access to adequate nutrition (FAO, 2019).

The United Nations (2024) addresses the environmental and social impact of food waste in the Sustainable Development Goal (SDG) 12.3: reduce global food waste along the entire supply chain and halve global food waste on the retail and consumer level by 2030. Switzerland’s 2030 Sustainable Development Strategy by the Swiss Federal Council (2021) also prioritizes sustainable consumption and a more sustainable food system to promote food security. In order to reduce negative environmental impacts along the food supply chain and promote sustainable consumption patterns, food waste needs to be addressed. This calls for a transition at the various steps in the food system, from producing and processing to distributing and consuming food. This involves improving the efficiency of the use of resources, reducing food waste and greenhouse gas emissions, as well as promoting social justice (BAFU, 2022; Swiss Feder Council, 2021). In industrialized countries, a large part of total food waste is caused at the end of the supply chain and therefore should be addressed at this stage (FAO, 2011). This is why Switzerland employs various strategies to reduce food waste especially focusing on the consumers, including public awareness campaigns, household waste reduction information campaigns, education and research initiatives. Additionally, social movements promote food rescue and food sharing from the grassroots level. Initiatives like Tischlein deck dich, Schweizer Tafel, and other food banks distribute surplus food to those in need, contributing to food security. Furthermore, food sharing initiatives like Foodsharing and Madame Frigo are also increasing, reflecting growing public concern about the environmental impact of food waste. This master’s thesis will focus on Madame Frigo, a local food sharing initiative in Switzerland which addresses food waste by providing public refrigerators. The organizations focus lies on changing consumption patterns and raising awareness. Besides influencing environmental challenges

by reducing food waste, the organization has a social impact by fostering community and promoting food security by enabling access to food (BAFU, 2022; Madame Frigo, 2024b).

1.1 Literature Review

Food waste is a very large topic which has inspired a vast body of literature over the last years, especially focusing on the negative environmental impacts of the current food system and food waste as well as the reasons where and why food waste occurs along the supply chain (Beretta et al., 2013; Beretta et al., 2017; Beretta, 2018; Beretta and Hellweg, 2019), nevertheless more data on the topic is needed. Especially differing definitions of food waste and food losses impede the comparability of data and literature. Scientific literature about food waste in countries of the Global North is often focused on data from the UK (Lazell, 2016; Quested and Johnson, 2009; Schanes and Stagl, 2019). Authors that write about food waste in Switzerland have also partly used this research from the UK as a guideline, as they claim that data from the UK and Switzerland is comparable (Beretta et al., 2013; Delley and Brunner, 2017). In Switzerland, Claudio Beretta was one of the first researchers to collect data about food waste in the country and understanding where most food is wasted, as well as its environmental consequences (Beretta et al., 2013; Beretta et al., 2017; Beretta, 2018; Beretta and Hellweg, 2019). Last et al. (2015) conducted research for a sustainable Swiss food system where they also addressed the challenge of food waste. Additionally, the BAFU (2022) does research on food waste in Switzerland and creates informative graphs and figures, often times in cooperation with researchers.

The concept of sharing is central to this master's thesis, with a particular focus on the work of Russell Belk (Belk, 2007; Belk, 2010; Belk, 2014). Similar to food waste, there are also different definitions for the terms sharing and food sharing. In this thesis the focus lies on distributive food sharing at the household level, facilitated through the use of community fridges (Bakharev et al., 2023). Anna R. Davies has contributed significantly to the understanding of ICT-mediated urban food sharing initiatives, exploring the mechanisms, practices, rules, tools, networks, and goals involved (Davies et al., 2017; Davies et al., 2018; Davies, 2019). The sharing economy and food sharing are frequently studied to assess their effectiveness in reducing food waste and promoting sustainability. Research has repeatedly focused on the rebound effect of sharing (Meshulam et al., 2023; Makov et al., 2020; Wahlen, 2018). This research primarily emphasizes environmental sustainability while often overlooking the positive social impacts of food sharing (Meshulam et al., 2023). Morgan and Kuch (2015: 556) presented in their work an "original theoretical approach to the analysis of community-level action for sustainability", highlighting the complex relationship between community action and the sharing economy.

Various researchers have explored the motivations behind participation in food sharing initiatives (Schanes and Stagl, 2019; Ganglbauer et al., 2014; Rombach and Bitsch, 2015; Zurek, 2016), although the motivations behind initiating such initiatives remain understudied. Studies have also addressed

barriers to participation for both providers and consumers (Spindeldreher et al., 2019). Challenges of food sharing activities, especially focusing on community fridges, have been investigated by multiple researchers (Zurek, 2016; Saginova et al. 2021). Zurek (2016) focuses on the risks and regulatory challenges faced by food sharing initiatives, with public fridges as one of the cases studied. However, the challenges faced by the individuals behind these initiatives are often neglected.

J.K. Gibson-Graham introduced the concept of diverse economies in their influential work ‘The End of Capitalism (As We Knew It): A Feminist Critique of Political Economy’ (Gibson-Graham, 2006) and deepened in their later work (Gibson-Graham, 2008; Gibson-Graham et al., 2013). The connection between food sharing and the diverse economies approach has been established by some researchers but warrants further exploration (Holmes, 2018; Morgan and Kuch, 2015). Healy (2009) discusses alternative economies and the issues with the term ‘alternative’ while Gritzas and Kavoulakos (2016) provide examples of diverse economies in practice. Holmes (2018: 138) analyzes how alternative ways of consumption and provisioning are taking place in the UK through case studies on food and clothing, and explores “how alternative modes of provisioning employ ordinary practices of sharing and circularity,” illustrating that while these practices are not new, they are organized in novel ways.

1.2 Research Gap and Research Questions

There is a lot of literature about food waste in general and also a rising tendency, but there are certain challenges in food waste literature. Xue et al. (2017) examined 202 publications in their paper which reported on food waste data in 84 countries. They concluded that most publications focus on certain countries, often the UK or the United States. Most of the literature is based on secondary data which can lead to high uncertainties. Additionally, there are geographical differences and difficulties in measuring food waste along complex supply chains. More in-depth studies and studies which conduct primary data are needed, especially to better understand the causes of food waste and to take appropriate measures. Nevertheless, most literature concludes that there is an increase in food waste in private households (Xue et al., 2017). The literature on food waste in Switzerland is mainly contributed by one researcher, Claudio Beretta (Beretta et al., 2013; Beretta et al., 2017; Beretta, 2018; Beretta and Hellweg, 2019). The research primarily focuses on the negative environmental impact of food waste, where food waste occurs and how it could be reduced. However, there is significant potential for further exploration in this area.

While Switzerland has been a subject of discussion in the context of food waste (BAFU, 2022; Beretta et al., 2013; Beretta et al., 2017; Beretta, 2018; Beretta and Hellweg, 2019), the literature on food sharing initiatives aimed at reducing food waste within the country remains relatively sparse. The initiative Foodsharing has some scientific coverage (Bachnik and Szumniak-Samolej, 2018; Ganglbauer et al., 2014; Morrow, 2019a; Morrow, 2019b; Rombach and Bitsch, 2015; Wahlen, 2018), while the case study

of Madame Frigo lacks any scientific coverage. The initiative has been studied in some bachelor's theses, for example one at the University of Bern, in which it was chosen as one of the case studies. The bachelor's thesis examined how often the public refrigerators of Madame Frigo are used, which types of food are mainly exchanged and how much food waste was saved. It was found that food does not remain in the fridges for a long period of time and a variety of products can be saved. The thesis examined only four fridges in the canton of Bern over a short period of time, resulting in a dataset that is very small and not representative of the broader range of fridges (Frey, 2020). This scarcity of research highlights a significant research gap in the field of food sharing in Switzerland, a gap that my master's thesis seeks to address. While existing literature delves into the motivations of individuals participating in food sharing, it fails to explore the motivations driving the inception of such initiatives. Moreover, there is a significant research gap in understanding the challenges faced by food sharing initiatives as perceived by the individuals behind them. Therefore, I propose the following main research question to be answered in my master's thesis:

“How do the individuals behind the food sharing initiative of Madame Frigo, along with associated actors, perceive the challenges and motivations inherent in their initiative?”

By exploring this question, the goal is to understand the motivations of individuals behind food sharing initiatives and to identify the challenges they face. Furthermore, I aim to investigate how Madame Frigo is cultivating a communal spirit and fosters a sense of community as well as how their contribution to food waste reduction and promoting sustainability is perceived by answering the following questions:

“How do the individuals involved in the food sharing initiative of Madame Frigo, along with associated actors, perceive Madame Frigo in cultivating a communal spirit and fostering a sense of community through the initiative's emphasis on sharing and collaborative values?”

“How do the individuals involved in the food sharing initiative of Madame Frigo, along with associated actors, perceive the contribution of Madame Frigo to reducing food waste and promoting sustainability in Switzerland?”

In order to identify the key actors for conducting interviews and to understand the network behind Madame Frigo, I will analyze who the key stakeholders involved in Madame Frigo are as well as the organizational structure of the network, for which I proposed the following question:

“Who are the key stakeholders involved in the food sharing initiative of Madame Frigo, and what is the organizational structure of the network that facilitates and supports the initiative's activities?”

1.3 Structure of Work

In order to answer the research questions, this master's thesis is organized into eleven chapters. Chapter 1 includes a literature review, identifies the research gap, and states the research questions. The topic of food waste with a focus on Switzerland as well as the measures to reduce food waste, including the chosen case study of Madame Frigo, are presented in chapter 2. In chapter 3 the concept of sharing will be introduced and food sharing proposed as a possible solution to the food waste dilemma. Additionally, the theoretical concept of diverse economies by J. K. Gibson-Graham which connects to food sharing is elaborated. Chapter 4 presents the methodology used in this thesis with a focus on the qualitative interviews and the analysis of the data. Chapter 5 outlines and analyzes the organizational structure and network surrounding Madame Frigo. Chapter 6 explores perceptions of food waste in Switzerland, identifies its main drivers, and investigates the motivations of the individuals behind the initiative, focusing on the social and environmental motivations. Chapter 7 analyzes the challenges perceived by the individuals behind Madame Frigo and is organized into several subchapters. Chapter 6 and 7 help to answer the main research question and are therefore the focus of this thesis. In the following chapter 8, the impact and future of Madame Frigo will be discussed and the diverse economies approach connected to the case study. In chapter 9, the findings are summarized, the research questions proposed above are answered and a conclusion is drawn from it. In chapter 10 the used literature is listed in a bibliography and in chapter 11 additional documents and tables are attached, such as an example of the interview guideline, a table of the codes used in MAXQDA and the list of the fridges I visited.

2. State of Research

The following chapter provides an overview of the current state of research on food waste, aiming to offer a comprehensive understanding. It focuses on defining food waste and examining its root causes along the supply chain, while exploring the economic, environmental, and social consequences arising from it. The chapter initially presents a global perspective on the scale of food waste before shifting the focus to Switzerland, highlighting the specific challenges faced by the country. Furthermore, Switzerland's efforts in combating food waste will be examined, differentiating between political measures, information campaigns, social institutions and food sharing initiatives. Towards the end, the chosen case study of Madame Frigo is introduced. Through comprehensive exploration, this chapter aims to clarify the current state of research surrounding food waste, particularly within the Swiss context, while underscoring the significance of collaborative efforts towards a more sustainable future.

2.1 Food Waste

The global food system favors the ongoing expansion of agricultural land, which is the main reason for ecosystem degradation and increasing biodiversity loss. Additionally, agricultural activities, along with food transport and processing, lead to high greenhouse gas emissions (Beretta et al., 2017). Furthermore, the production of food that is not consumed has far-reaching effects on the climate and environment, as it uses significant amounts of limited resources, such as land, water, and energy, and leads to unnecessary greenhouse gas emissions as well as other negative externalities, for instance biodiversity loss, soil erosion, and loss of organic matter (Beretta et al., 2013; FAO, 2011). As reported by the BAFU (2022), 25% of the environmental impact of the food system is due to avoidable food losses. This is because “roughly one-third of food produced for human consumption is lost or wasted globally, which amounts to about 1.3 billion tons per year” according to the FAO (2011: 4).

The issue of unsustainable food production is intensified by a “growing conflict between resource degradation due to unsustainable practices and production intensities on one hand and a growing food demand on the other hand” (Beretta, 2018: 26). To address this conflict, natural resources need to be used more sustainably by optimizing agricultural practices, avoiding food waste along the entire food supply chain, and using resources more efficiently (Beretta, 2018). Food waste has not only an enormous environmental impact, it also has a social impact and is an ethical issue, as there is a general overconsumption while others lack access to food (FAO, 2019). This is why the SDGs by the United Nations (2024) set as a goal (SDG 12.3) to reduce global food waste along the entire supply chain and halve global food waste on the retail and consumer level by 2030. This SDG is also connected to achieving other goals, such as SDG 2 ‘Zero Hunger’, which focuses on ending hunger globally and ensuring food security. Due to the negative environmental impact of the food system, it also connects to SDG 6 ‘Clean Water and Sanitation’, SDG 13 ‘Climate Action’, SDG 14 ‘Life below Water’, SDG 15 ‘Life on Land’, and

many other SDGs (see Figure 2). The FAO of the United Nations and the UN Environment Programme monitor the progress towards the SDG 12.3 target through the use of the Food Loss Index (FLI) and the Food Waste Index (FWI) (FAO, 2019).



Figure 2: The 17 Sustainable Development Goals (SDGs) (United Nations, 2024).

Food losses can be categorized into three groups: avoidable food losses, possibly avoidable food losses, and unavoidable food losses. Avoidable food losses refer to food that is discarded because it is no longer wanted. Possibly avoidable food losses refer to food that some people might eat and others might not, such as apple peels. Unavoidable food losses refer to food that is not edible, for example banana skins (Beretta et al., 2013). Currently, unavoidable food losses cannot be prevented (Beretta et al., 2017). The definition of food losses and food waste can vary depending on the researcher and is often not consistent. For this master’s thesis, the definition by Beretta (2018) will be used, who describes food waste as avoidable food losses that could be prevented through different measures, such as if supply chains were more efficient, cosmetic standards were reduced, and if potentially edible parts of certain foods were prepared better. Generally, food waste is food that has been produced for human consumption but is not consumed by humans. This definition includes food that is subsequently used for non-food purposes.

Food waste occurs at all stages of food production. It can result from agricultural produce not meeting standard requirements, poor transportation and storage, surpassed best-before or expiration dates in retail, discarded leftovers in restaurants, or overconsumption in households (Bakharev et al., 2023; Beretta et al., 2013; Beretta et al., 2017; Beretta and Hellweg, 2019). Wahlen (2018) mentions the ‘fetishism of immaculacy’, meaning that only foods that meet ideal standards of size, shape, and color are allowed on the market, resulting in disposal of food that is still edible but does not meet the ideal standards. The causes of food waste are very diverse and vary depending on where along the supply chain it occurs.

Research by the European Commission (2010) on 27 European countries highlighted the main causes of food waste. At the household level the main research is based on the UK, even though there could be strong variations between the countries because of cultural practices, climate, and socio-economic

factors. Causes on the household level include lack of awareness and knowledge, attitude towards the value of food, personal preferences, planning issues, labelling issues related to best-before or expiration dates, storage and packing issues, portion sizes, and socio-economic factors. In the manufacturing sector, the main causes were unavoidable food waste and technical malfunctions, while in the wholesale and retail sector, the focus lay more on supply chain inefficiencies, marketing strategies, and standards. In the food service sector, challenges include portion size, logistics, and issues related to the household sector (European Commission, 2010). Canali et al. (2017) investigated the main drivers of food waste in Europe and categorized them into four principal categories: technological, institutional (related to business management and economy), institutional (related to legislation and policy), and social. Also Aschemann-Witzel et al. (2015) examined consumer-related food waste and examined the main reasons why consumers waste food, and mention the impact of psychographic but also socio-demographic factors. Therefore, food waste at the individual level can be influenced by factors like household size, income, level of education, and other variables. Delley and Brunner (2017) examined drivers of food waste focusing on Swiss households, differentiating between contextual and individual drivers.

In industrialized countries, food waste by end consumers is significantly higher than in developing countries (FAO, 2011). According to the FAO (2011: 5), “per capita food wasted by consumers in Europe and North-America is 95-115 kg/year, while this figure in sub-Saharan Africa and South/Southeast Asia is only 6-11 kg/year.” In industrialized countries like Switzerland, around 40% of food waste occur at the end of the supply chain, at the retail or consumer level. In developing countries, these 40% occur at the beginning of the supply chain, at the post-harvest and processing levels (Beretta, 2018). The amount of food waste per person varies significantly between countries. In Europe the variation is severe, with 50 kg of food losses per person per year in Greece compared to 500 kg per person per year in the Netherlands. On average, food waste per person in Europe totals 180 kg per year (European Commission, 2010; Beretta et al., 2013).

The high amounts of food waste have a direct global economic cost of about 1 trillion US dollars each year, as well as environmental costs of approximately 700 billion US dollars and social costs of about 900 billion US dollars (Beretta et al., 2017). This data should be interpreted with caution, as behavioral changes can also have indirect effects that are often neglected. For instance, if food waste is prevented, this can lead to buying less food and saving money, which might then be spent on other products and services with a higher environmental impact, often described as the rebound effect (Beretta et al., 2017; Wahlen, 2018). However, this outcome is not inevitable, as the additional money could also be spent on high-quality food or donated, which would likely have a positive effect (Beretta et al., 2017).

2.2 Food Waste in Switzerland

To make food systems, particularly the Swiss food system, more efficient and sustainable, food losses need to be quantified along the entire supply chain. Claudio Beretta was one of the first researchers to investigate food waste in Switzerland, starting with his master's thesis (Beretta, 2012). Beretta et al. (2013) then examined food losses along the supply chain in Switzerland. Studies from the UK, such as the study by Quesada and Johnson (2009), which conducted a waste analysis on over 2000 households, significantly impacted research in Switzerland. This is because food waste at the household level has only been thoroughly analyzed in the UK based on a representative number of households and measurements, and is therefore used when data for Switzerland is missing. Beretta et al. (2013) divide the supply chain into several steps: agricultural production, postharvest handling and trade, processing, the food service industry, retail, and households. The goal is to analyze the reasons for food losses at each step and also identify where the highest amounts of food loss occur. They conclude that 48% of the total calories produced are lost along the supply chain, of which 50% would be avoidable if certain measures were taken into consideration. The highest amount of food waste occurs in households, accounting for nearly 50% of avoidable food losses. The processing and agricultural production stages are also responsible for high amounts of food waste (Beretta et al. 2013).

The study by Beretta et al. (2017) was the first to quantify the environmental impact of food losses at various stages along the supply chain of the Swiss food system as well as including suggestions for addressing these losses. The environmental impact of food waste was measured in terms of mass, energy, climate change, and biodiversity impact (see Figure 3). The study found that food waste at the end of the supply chain has the strongest impact in all four categories. This is due to both the large quantity of food wasted and the accumulated impact per kilogram, as more resources are consumed along the supply chain. Beretta et al. (2017) categorized food into 33 categories to analyze which types of food have the highest environmental impact if wasted. They concluded that fresh vegetables have the highest climate change impact due to the large amounts wasted, while beef has the highest impact per kilogram.

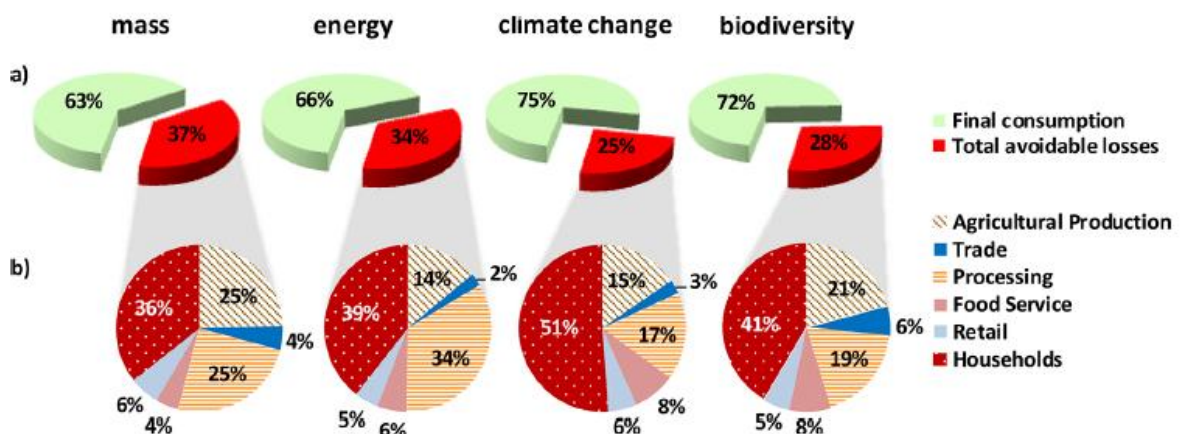


Figure 3: Share of food waste and final consumption (a) and share of food waste arising at the various stages of the food value chain (b) in terms of mass, metabolizable energy, impact on climate change and on biodiversity (Beretta et al., 2017).

In terms of biodiversity impact, cocoa and coffee are particularly significant, as well as beef. Beretta and Hellweg (2019) further analyzed where food is wasted along the supply chain, which categories of food are wasted the most, as well as the environmental impact of specific food categories. The environmental consequences of food waste vary significantly based on the specific products involved and the stage of the supply chain where the losses occur. The greatest environmental impact can be attributed to meat, coffee and cacao beans, butter, eggs, cheese, fish and food that is imported by air. Other products like fruits, vegetables, breads and baked foods are also relevant, the reason being the large quantities in which they are thrown away. Notably, the highest loss of fresh vegetables occurs at the household level (Beretta and Hellweg, 2019; BAFU, 2022). Hüscher et al. (2018) conducted a study on food waste in Swiss green waste, commissioned by the BAFU, to address the data gap on waste at the level of private consumption in Switzerland. They found that food waste constituted between 4.8% and 49% of green waste, with 20% to 49% being avoidable. Overall, at the level of private consumption, approximately 81 kg of food losses and about 37 kg of avoidable food losses per person per year are expected from garbage and green waste.

In Switzerland, food waste is primarily generated in households, which accounts for 38% of total food waste. Processing contributes 27%, catering accounts for 14%, wholesale and retail trade contribute 8%, and agriculture generates 13% of all food waste (see Figure 4) (Beretta and Hellweg, 2019; BAFU, 2022). The literature consistently identifies households as the largest contributors to food waste in Switzerland (Beretta et al., 2013; Beretta et al., 2017; Beretta and Hellweg, 2019). Globally, there is also an increasing trend of food waste in

Umweltbelastung der vermeidbaren Lebensmittelverluste der Schweiz

Auf jeder Stufe der Lebensmittelkette fallen Lebensmittelverluste an, welche die Umwelt zusätzlich belasten.

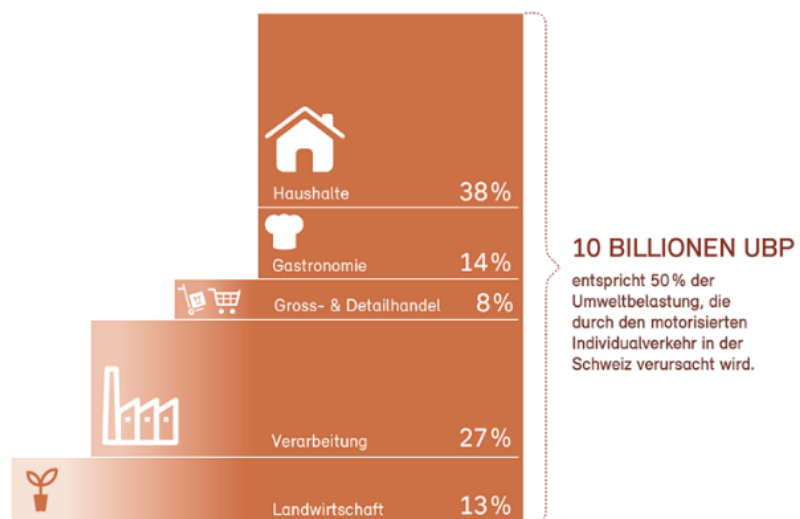


Figure 4: Environmental impact of avoidable food losses in Switzerland (Beretta and Hellweg, 2019)

private households (Xue et al., 2017). A significant problem associated with food waste is its disposal, which can have severe impacts on the environment. In Switzerland, the largest portion of food waste is used as animal feed, which accounts for 1,030,000 tons of the total 2,786,000 tons. The most used disposal methods include fermentation, waste incineration, field composting, followed by composting in plants, waste water, and garden composting (BAFU, 2022). While the environmental impact of food

waste and its disposal is considerable, its consequences extend beyond ecological concerns. Food waste not only burdens the environment but also has significant social and economic implications, playing a major role in combating hunger and improving food security (Beretta et al. 2013). Moreover, the high levels of food waste result in costs of about 600 CHF per person per year in Switzerland, equating to approximately 5 billion CHF for the entire country (Beretta and Hellweg, 2019).

According to Beretta and Hellweg (2019), 28% of Switzerland's overall ecological footprint is attributed to the food system, with a quarter of this directly linked to avoidable food losses. Switzerland currently experiences 2.8 million tons of avoidable food losses across all stages of the food chain, equating to approximately 330 kg of avoidable food losses per person per year. Of the 2.8 million tons, around 360,000 tons of food losses occur abroad during the production of food imported into Switzerland, not directly within the country (Beretta and Hellweg, 2019). The amount of food waste in Switzerland causes about 4% of the emissions of the carbon footprint of consumption (Beretta et al., 2017). The impact of food waste on the environment increases with each step of processing, as each step involves a higher resource consumption and produces emissions. Therefore, it is crucial to minimize food waste, particularly for items that are produced in large quantities or have a substantial environmental impact (BAFU, 2022; Beretta and Hellweg, 2019; Swiss Federal Council, 2021). Food waste on the processing and agriculture level have a lower environmental impact, as the food losses can be used as animal feed and therefore are still of use (BAFU, 2022). In order to reduce food waste it is important to think globally and look at the entire food value chain, as food waste can be prevented at every step along the chain. Especially reducing food waste at the end of the supply chain, on the gastronomy, retail and household level has a very high potential. The two main reasons for this are the high amount of food waste at this stage as well as the high environmental impact of food waste at this level, as lots of resources have been used along the chain. It is also a lot better to avoid food waste altogether instead of improving waste recycling (Beretta et al., 2017; Beretta and Hellweg, 2019). Recycling or recovery of food waste is a possibility, for example using food waste as animal feed, fertilizer or to generate electricity and heat. However, according to Beretta and Hellweg (2019), this can only diminish the environmental impact of food waste to a small extent, even if recovery and recycling were to be optimized.

2.3 Measures Against Food Waste in Switzerland

Addressing food waste is a critical component of creating a sustainable food system. Priefer, Jörissen and Bräutigam (2016) identified the most relevant leverage points for reducing food waste and found that many measures implemented in the EU are soft instruments aimed at raising awareness and spreading knowledge. However, they also highlighted the need for more rigorous approaches, such as abolishing subsidies on food, changing regulations, and promoting economic incentives. In Switzerland, significant research efforts are focused on achieving a sustainable food system. Last et al. (2015) explore

trends, challenges, and opportunities within the Swiss food system, offering insights into how it can evolve to be more sustainable, with food waste being a key issue to address. Further research by Delley and Brunner (2017) delved into food waste at the household level in Switzerland, categorizing Swiss residents into six distinct consumer groups and suggesting tailored measures to tackle food waste for each group. Lazell (2016) focused their research on students in the UK, they argued that understanding the practices, routines, and habits of consumers is crucial to identifying behaviors that lead to food waste and the reasons for food waste to occur at the end of the supply chain.

Measures against food waste need to be fitting to the origin and the reasons for food waste. In countries like Switzerland, most food losses occur towards the end of the supply chain. Therefore, measures to combat food waste must start at the consumption level, making awareness rising crucial in Switzerland (Beretta, 2018; Falcone and Imbert, 2017). Beretta and Hellweg (2019) emphasize that raising awareness and educating people on food waste and its environmental impact is vital, as household-level food waste is relatively high and easily avoidable. Influencing consumer behavior can also impact food waste at earlier stages of the food chain, potentially leading to changes in purchasing habits in supermarkets. Beretta and Hellweg (2019: 69) state, “The best chance to achieve SDG 12.3 is through a combination of individual initiatives from the public and private sectors, along with public measures for education and awareness-raising among the general population, as well as policy measures to adjust the legal and financial frameworks for the food industry.” This approach underscores the need for a multi-faceted strategy involving both public and private sector efforts, educational campaigns, and policy adjustments to effectively reduce food waste. In the following subchapters, different measures implemented in Switzerland to tackle food waste will be introduced, showcasing the country’s comprehensive approach to reducing waste and promoting sustainability.

2.3.1 Political Measures

The Federal Council of Switzerland is committed to achieving the 17 SDGs by aligning with the 2030 Agenda for Sustainable Development. They aim to halve avoidable food losses by 2030 compared to 2017, in line with the Goal 12.3 (BAFU, 2022; United Nations, 2024). The Swiss Federal Council (2021) published the 2030 Sustainable Development Strategy, which highlights sustainable production and consumption as primary goals, with a specific focus on creating a more sustainable food system to promote food security. According to Beretta and Hellweg (2019), achieving the SDGs could reduce the environmental impact of food waste in Switzerland’s food system by 39-61%. At the same time it could lead to a notable 10-15% decrease in total environmental impact and greenhouse gas emissions. To support this goal, the Swiss Federal Council (2022a) implemented an action plan in 2022 aimed at reducing food waste, emphasizing the importance of SDG 12.3.

The action plan noted that the topic of reducing food waste is generally well received, with many ongoing efforts already in place. Although the impact of these activities cannot be quantified individually, it is clear that they will not be sufficient to halve food waste by 2030. A particularly large amount of food waste is generated in households, where incentives to minimize food waste have so far been quite low. This target group has not been adequately reached by the previous small-scale and sporadic activities. For this reason, the action plan proposes additional meaningful measures (Swiss Federal Council, 2022a). In the first voluntary phase from 2022 to 2025, measures will be implemented in three key areas: business initiatives and innovations, public sector measures, and information and education. The Federal Council will review progress in 2025. If it becomes clear that the goals for 2030 cannot be met following this initial phase, further measures will be introduced that move beyond self-regulation. The design of possible measures for the second phase of the action plan, from 2026 to 2030, remains open (Swiss Federal Council, 2022a).

The plan is not only addressed at actors in the food industry, but also involves different geographical levels, such as the federal government, cantons, and communes in Switzerland. The three main objectives of the plan are “1. Halving the amount of avoidable food losses in Switzerland by 2030 compared to 2017, 2. Defining industry-specific reduction targets together with the industries, 3. Reducing the environmental impact of avoidable food losses as much as possible through the appropriate formulation and prioritization of measures” (BAFU, 2022; Swiss Federal Council, 2022a: 11). A key element of the action plan is the cross-industry agreement signed on the 12.05.2022 by various significant stakeholders such as Coop Genossenschaft, Migros-Genossenschafts-Bund, Lidl Schweiz AG, Aldi Suisse AG and many more. The federal government aims to collaborate with industries to define clear reduction targets along the supply and value chains (Swiss Federal Council, 2022b; BAFU, 2022).

2.3.2 Information and Networking Campaigns

Effective information and networking campaigns play a crucial role in Switzerland’s efforts to reduce food waste. This chapter highlights the most prominent initiatives, which not only raise public awareness but also promote collaboration throughout the food supply chain. The association ‘United Against Waste – Gemeinsam gegen Verschwendung’ is an industry alliance within the Swiss food sector that is actively involved in reducing food waste along the entire value chain. The association supports networking and knowledge transfer within the Swiss food industry and raises public awareness about food waste. Additionally, it aims at making food waste a priority for companies and assists them in their efforts to reduce it. The association also works on shaping political instruments and research to support the reduction of food waste (United Against Waste, 2024; BAFU, 2022).

The ‘Save Food - Fight Waste’ initiative in Switzerland is a collaborative effort designed to tackle the problem of food waste. The initiative involves multiple stakeholders, including government agencies,

businesses, non-profit organizations, and consumers. Its goal is to reduce food waste through simple tips and tricks, demonstrating how easy it is to prevent food from becoming waste and encouraging people to adopt these practical measures. Initiated by the Pusch foundation, which is dedicated to environmental sustainability, the initiative focuses on resource conservation and biodiversity. It provides practical support to municipalities, schools, and businesses through resources such as training courses, conferences, publications, and educational programs, helping them address environmental issues effectively (Save Food - Fight Waste, 2024; BAFU, 2022).

The website [foodwaste.ch](https://www.foodwaste.ch) informs about food waste in Switzerland and also provides a good overview of the measures against food waste in Switzerland. Under the brand [foodwaste.ch](https://www.foodwaste.ch), the non-profit organizations OGG Bern and [foodwaste.ch](https://www.foodwaste.ch) conduct activities to prevent food waste. On the website, information can be found about food waste in Switzerland and tips on how to avoid it. Thanks to the straightforward presentation of information and numerous infographics, the issue of food waste becomes understandable for everyone. The website also provides information about food waste projects, initiatives, and events. Exciting projects such as ‘Deine Stadt tischt auf’ (Your City Sets the Table), ‘Null-Resten-Küche’ (Zero-Waste Kitchen), or the exhibition ‘Aus Liebe zum Essen’ (For the Love of Food) bring people closer to the appreciation of food ([foodwaste.ch](https://www.foodwaste.ch), 2024). On an interactive map, it is possible to find the various food-saving initiatives in Switzerland. The initiatives are categorized into five categories, digital platforms, shopping and gastronomy, sharing or donating food, participatory activities, and sustainable nutrition. The food-saving initiatives featured on the website address different points along the value chain. There are initiatives like ‘ACKR’, which processes vegetables that would otherwise be discarded, for example, into chutneys or bouillon powder. Additionally, [foodwaste.ch](https://www.foodwaste.ch) organizes various events and workshops where information about food waste is shared, with a focus on the aspect of food saving ([foodwaste.ch](https://www.foodwaste.ch), 2024).

2.3.3 Social Institutions

Social Institutions such as [Tischlein deck dich](https://www.tischleindeckdich.ch), [Schweizer Tafel](https://www.schweizer-tafel.ch), and various food banks play a vital role in redistributing surplus food to those in need while also reducing food waste in Switzerland. Even though social institutions focus on the issue of food security rather than tackling environmental issues related to food waste, they still save considerable amounts of food waste each year. [Schweizer Tafel](https://www.schweizer-tafel.ch), for instance, gathers 25 tons of surplus, perfectly edible food from large retailers, producers, and wholesalers each day and distributes it to social institutions serving people affected by poverty, rather than to individuals directly. This food, which is past its sell-by date but still safe to eat, can be effectively repurposed instead of being wasted ([Schweizer Tafel](https://www.schweizer-tafel.ch), 2024). [Schweizer Tafel](https://www.schweizer-tafel.ch) was first inspired by the German [Tafel](https://www.tafel.de), which was founded in 1993 ([Tafel Deutschland](https://www.tafel.de), 2024). In December of 2001 the first location of the [Schweizer Tafel](https://www.schweizer-tafel.ch) was opened in Bern. Today, each of [Schweizer Tafel](https://www.schweizer-tafel.ch)’s seven regional

locations operates with its own infrastructure and is managed by a regional leader and supported by volunteers, individuals in unemployment programs, welfare recipients, and civilian service workers (Schweizer Tafel, 2024). Tischlein deck dich was founded in 1999 and also rescues food from being wasted and distributes it to those in need across Switzerland and the Principality of Liechtenstein. With 7 locations, 159 distribution points and connections to other food aid organizations, Tischlein deck dich provided food to a total of 1.8 million people in 2023. This effort significantly contributes to a socially meaningful and environmentally sustainable approach to respecting food (Tischlein deck dich, 2024).

2.3.4 Food Sharing Initiatives

The sharing economy has emerged as a solution to the food waste dilemma and many food sharing initiatives have evolved in the last years, especially in Europe and North America (Falcone and Imbert, 2017). There are social movements that promote bottom-up food sharing, focusing on distributing surplus food among community members. These grassroots initiatives against food waste began with a few individuals and have grown into businesses and formal organizations, such as Madame Frigo and Foodsharing. In Switzerland, a network of various food sharing initiatives exists, collaborating regularly and linking with social institutions and other related efforts to maximize their impact.

Foodsharing had its beginnings in December of 2012, with the launch of the website ‘foodsharing.de’. Foodsharing is a grassroots initiative founded in Cologne by social activists, but soon expanding all over Germany, and later also into other countries, including Switzerland. Inspired by Valentin Thurn’s book and film ‘Taste the Waste’, which highlighted the global issue of food waste, Foodsharing defines itself as an environmental and educational movement which aims to reduce food waste and promote a sustainable food system. Initially, awareness of food waste in Germany was limited, but Foodsharing sparked significant changes and garnered widespread media attention (Foodsharing, 2024; Ganglbauer et al., 2014). The organization operates on a voluntary basis, rescuing food from businesses, including retailers, restaurants, and shops. They also engage in awareness-raising and educational activities, getting into dialogue with policymakers and voicing political demands, and run workshops, cooking events, and discussion rounds to encourage sustainable consumption habits. Foodsharing’s free, non-commercial platform is supported entirely by volunteers, known as ‘food savers’, who collect and share surplus food. They also maintain public fridges, known as ‘Fairteiler’, for communal food sharing (Foodsharing, 2024). Foodsharing is active in several countries, including Austria, the UK, Poland, and Switzerland (Bachnik and Szumniak-Samolej, 2018). The impact and effectiveness of Foodsharing have been studied by various researchers, highlighting its role in reducing food waste and promoting sustainability (Ganglbauer et al., 2014; Rombach and Bitsch, 2015; Schanes and Stagl, 2019).

Other initiatives similar to Foodsharing include Madame Frigo, Association Free Go, Free-Go and Robin Food. These organizations also promote food sharing through public fridges. Association Free

Go operates 14 fridges with the help of 50 volunteers, saving over 5 tons of food annually (Association Free Go, 2024). Free-Go, located in Geneva, manages 5 fridges (Free-Go, 2024). Additionally, Robin Food and local and independent RestEssBars provide community fridges stocked with surplus food from volunteers and stores, available to everyone for free (foodwaste.ch, 2024).

Besides non-profit food sharing there is also for-profit food sharing, such as for example Äss-Bar. Äss-Bar is a Swiss food retailer established in 2013, which specializes in the sale of baked goods from the previous day. Their range includes bread, croissants, pastries, cheese, dairy products, meat, and sandwiches. Äss-Bar also offers catering and lunch menus. They claim to save about 800 tons of bread and other baked goods annually, significantly reducing food waste in Switzerland. Besides selling baked goods, Äss-Bar raises awareness about food waste and sustainability through workshops and online cooking classes (Äss-Bar, 2024). There are also ICT facilitated food sharing apps used in Switzerland, such as Too Good To Go, a Danish company founded in 2016, which uses a digital platform to fight food waste. Its free app connects users with bakeries, restaurants, supermarkets, and other food businesses offering leftover food at reduced prices. This model helps rescue food from waste, benefiting businesses, consumers, and the environment. Too Good To Go operates in 17 European countries and the USA and has been active in Switzerland since summer 2018 (Too Good To Go, 2024).

2.3.5 The Case Study: Madame Frigo

In this master's thesis the focus lies on one specific local food sharing initiative in Switzerland, Madame Frigo. It is one of the few initiatives in Switzerland which focuses strongly on food waste reduction at the household level and promotes sharing in order to reduce food waste. The reason for choosing to focus on Madame Frigo is because I myself have come in contact with this initiative, as it is situated in cities I often visit, such as Zurich and Luzern. This proximity has afforded me a firsthand understanding of their operations and has sparked my



Figure 5: Logo of Madame Frigo (Madame Frigo, 2024b).

curiosity. What really caught my interest is the fact that, despite their relatively short existence, Madame Frigo has already gained considerable recognition in the fight against food waste in Switzerland (Madame Frigo, 2020c).

The roots of Madame Frigo can be traced back to a pilot project initially launched in 2014 under the name 'Bern isst Bern'. Jana H., president and co-founder of Madame Frigo, reflected on the beginnings of the initiative in an interview and what inspired her to start the initiative. As an employee at a catering event, she had to throw away a lot of desserts at the end. Nobody seemed to care much, which she found very distressing. It was like a wake-up call for her that we have reached a point in society where it is normal to waste food. As a student at the University of Bern, she then had the opportunity to participate

in a workshop called Imp!Act, organized by Euforia. There, she had the chance to develop an idea against food waste with other students. That is how the idea of public refrigerators came about, and an initial concept was drafted. After further developing the idea and completing the workshop, they wanted to put the idea into action and see if it actually worked. Even before the first fridge was set up, a Facebook post already sparked the interest of media outlets, leading to the publication of articles about the initiative. Thanks to this significant media presence, they soon attracted individuals eager to set up their own fridges. Jana H. reflected in the interview

“And I think maybe that is even been a bit of the recipe for success in the end, looking back now. We have never tried to force anything on anyone, but we have always tried to simply offer solutions and see if they really help. And if they did not help, we changed it again.” (Jana H., 16.02.2024)

The first public refrigerator, called ‘Frigo’, was opened next to the Lola shop in the year 2015 (see Figure 6). After that, more and more fridges were added to the network in Bern, and the project grew significantly. After about three years, it was decided that the volunteer commitment of those involved was becoming too much, and they needed financial support to continue growing. With the support of the Migros Pioneer Fund they were able to continue this growth and the non-profit organization Madame Frigo was officially founded by Jana Huwyler and Nina Fassbind in 2018.



Figure 6: Frigo “LOLA Lorraine”, City of Bern (Madame Frigo, 2024b).

Madame Frigo is a community fridge project, allowing individuals and businesses to place surplus food in a communal refrigerator for others to take freely. These community fridges are typically located in public areas and rely on the goodwill of donors and users. The Frigos operate according to certain rules set by Madame Frigo and the respective cantonal authorities to ensure hygiene standards. Accordingly, no food that has already been opened or has exceeded its use-by date is allowed to be stored in the fridges. However, products that have only passed their best-before date are permitted. Additionally, cooked but unpackaged food, as well as meat, fish and alcohol are not allowed (Madame Frigo, 2024b). Every Frigo is initiated by volunteers, with one of the volunteers taking the main responsibility and called the ‘Gotti’ or ‘Götti’ of the Frigo, which means something like godmother or godfather. The volunteers are responsible for cleaning, maintaining the Frigo and sometimes participate in filling the Frigo. Madame Frigo offers the Swiss population a simple way to reduce their own food waste while also engaging in food sharing and promoting social interaction (Madame Frigo, 2020b; Madame Frigo, 2022; Madame Frigo, 2024b). Marilen Z., CEO of Madame Frigo, highlighted this in an interview

“We can offer the possibility to get involved, but afterwards, it is implemented on a very individual level by these volunteers. They can also bring in their own ideas, and I think that makes it really cool to participate, [...] it is a project that is here for everyone, and you can really see that it is being used a lot, and it gives something to people.” (Marilen Z., 29.01.2024)

Madame Frigo has three primary areas of impact. The first area of impact are the refrigerators and the shared food, working to reduce food waste. The practical and straightforward solution of the refrigerators allows individuals interested in minimizing food waste to take action. The second area of impact encompasses individuals engaged in food sharing and refrigerator usage, through which Madame Frigo fosters a network and a sense of community. The final area of impact involves raising awareness about the issue of food waste and promoting appreciation for food (Madame Frigo, 2024a). Currently, there are more than 150 public refrigerators in 18 cantons in operation (as of 01.08.2024), supported by over 500 volunteers (see Figure 7). Thanks to this engagement, they are able to save more than 200 tons of food from premature disposal each year (Madame Frigo, 2024b). Since 2019, Madame Frigo has been publishing an annual report, in which they reflect on the past year (Madame Frigo, 2020a; Madame Frigo, 2020b; Madame Frigo, 2022; Madame Frigo, 2023; Madame Frigo, 2024a).

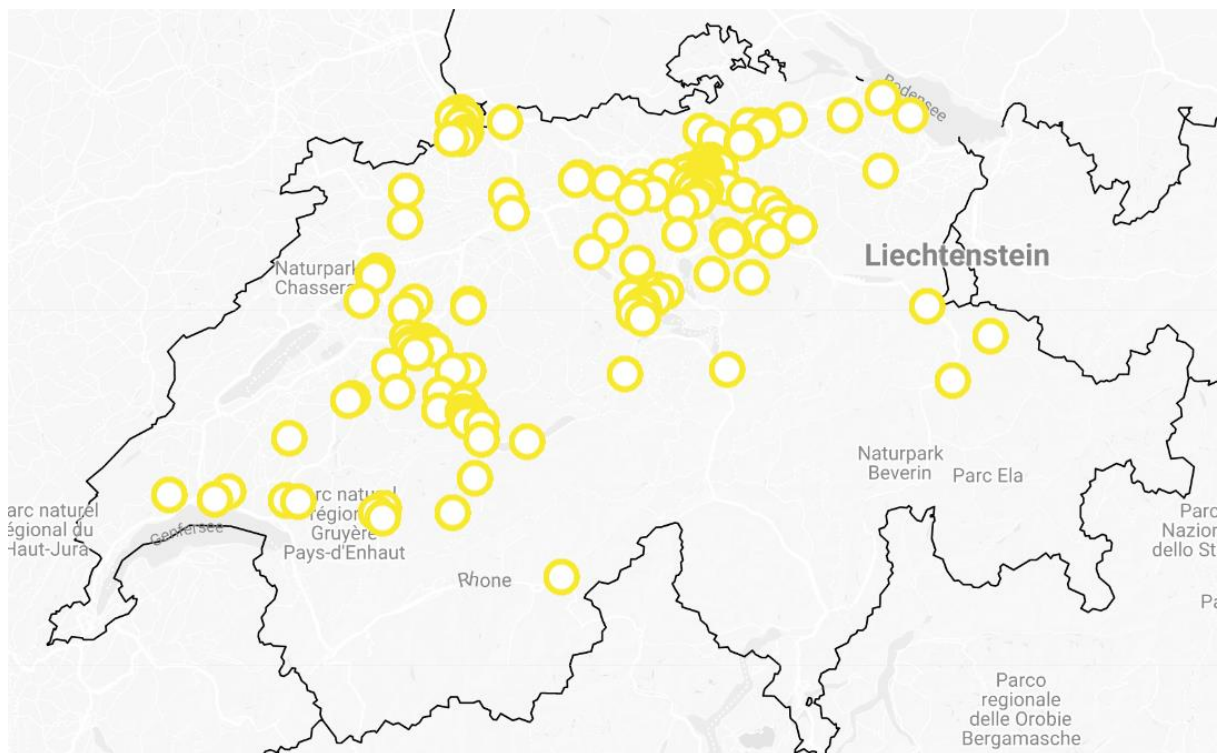


Figure 7: Map of Madame Frigos locations (Madame Frigo, 2024b.)

3. The Power of Food Sharing

In this chapter, the concept of sharing will be introduced, highlighting its advantages compared to other forms of interaction. The focus will then be laid on food sharing, exploring its different types and discussing its benefits in reducing food waste, promoting sustainability, and supporting community building. Furthermore, the motivations driving individuals to participate in food sharing and the challenges faced by these initiatives will be examined. The diverse economies approach by J. K. Gibson-Graham (Gibson-Graham, 2008) will serve in order to better understand how food sharing initiatives offer alternative economic practices that prioritize sustainability and community. In contemporary society, economies are often viewed through a capitalist lens. The diverse economies approach broadens this perspective by recognizing a spectrum of economic practices, including those outside the traditional market economy. It disrupts the conventional market-centric view by highlighting non-capitalist forms of economic activity that are often overlooked or undervalued (Gibson-Graham, 2008; Davies et al., 2017; Holmes, 2018; Healy, 2009). Ultimately, this chapter aims to provide a comprehensive understanding of how food sharing, as an embodiment of diverse economic practices, offers a viable and transformative alternative to the mainstream food system.

3.1 The Concept of Sharing

Sharing is a very old phenomenon and has always been an integral part of human civilization, extending beyond the sharing of food, as emphasized by Belk (2010). Nevertheless, consumer behavior in the modern world is mostly focused on economic exchange while the importance of sharing has gone largely unrecognized. Unlike conventional exchanges such as market transactions and gift giving, which revolve around notions of private ownership, sharing stands out as an alternative way of distribution (Belk, 2007; Belk, 2010; Wahlen, 2018) and favors access over ownership (Morgan and Kuch, 2015). Belk (2007: 127) describes sharing as “the act and process of distributing what is ours to others for their use as well as the act and process of receiving something from others for our use.” Similarly, Wahlen and Laamanen (2017) describe sharing as the practices through which individuals access both material and immaterial resources within a given network, group, or community. According to Belk (2010), sharing can be seen as a communal act which serves as a way to connect with others and can therefore also promote feelings of solidarity. Trust and bonding are central aspects of sharing, which are often neglected in market transaction. Unlike conventional exchanges via market transaction that foster transactional obligations between buyer and seller or producer and consumer, sharing supports communal bonding (Belk, 2010; Wahlen, 2018). Sharing also differentiates itself strongly from gift giving, as gift giving always leads to an imbalance between the giver and the receiver and creates a debt. In social contexts and especially in gift giving, reciprocity often involves the expectation that if one person does something

for another, there is an implied obligation or expectation that the favor will be returned in the future (Belk, 2007).

Sharing is also different to other forms of distribution, as the benefits of sharing grow if more people engage in this activity (Belk, 2010). Belk (2010: 727) uses the term “comedy of the commons” compared to the “tragedy of the commons” in his paper. But it has to also be kept in mind, that sometimes, sharing can happen out of egoistic motives, as some people only participate in sharing activities out of economic motivation (Belk, 2010). Belk (2010: 727) states that in this case “what appears to be sharing is actually more of a self-interested commodity exchange.” Generally speaking, however, the act of sharing has many benefits compared to owning, for the people involved as well as for the environment, as it can increase resource efficiency and security (Belk, 2007; Belk, 2010). According to Micheline et al. (2018), one of the most crucial aspects of sharing with regard to sustainability is that it promotes access to resources that already exists, rather than producing new ones. Sharing serves as a solution to two challenges of modern capitalism, which are over-consumption, leading to huge amounts of waste, as well as limited access for certain groups of people. Sharing can serve as a solution as it promotes collaborative use and responsible consumption (Bakharev et al., 2023). Belk (2014: 1599) even claims that we may be moving towards a post-ownership economy in which the wisdom of “You are what you own” is changing to “You are what you share”.

Sharing serves as an alternative way of consuming and therefore gives rise to a new business paradigm (Belk, 2014). Sharing is not a new phenomenon, but the new form of sharing practiced in the sharing economy is getting more attention in recent years (Falcone and Imbert, 2017). Many contemporary business models rely on the basic principle of sharing and are growing in many sectors, known as the sharing economy (Bakharev et al., 2023; Botsman and Rogers, 2011). The sharing economy, also referred to as collaborative economy or collaborative consumption by some researchers (Botsman and Rogers, 2011; Wahlen, 2018), represents a relatively recent development mostly linked to Information and Communication Technology (ICT), which facilitates the development of new forms of sharing (Belk, 2010; Belk, 2014; Wahlen and Laamanen, 2017). Botsman and Rogers (2011) discuss how the sharing economy and collaborative consumption could offer a possibility to break out of unsustainable consumption practices which are a characteristic of the current capitalist economy. The main reasons include its potential to make more efficient use of resources, reduce environmental impact, and strengthen community ties. It also provides economic benefits by giving people access to goods and services at lower costs and creating new business opportunities.

The modern sharing economy encompasses various commodities that can be shared, with notable examples such as Airbnb, Uber, Wikipedia and Facebook (Bakharev et al., 2023). Sharing can be seen as a way to make use of underutilized resources, whether for financial or non-financial benefits. Even initiatives driven primarily by profit motives often adopt the rhetoric of sharing and are therefore

criticized for taking advantage of the positive connotations with the concept of sharing to generate profit (Belk, 2014; Davies, 2019; Rýparová, 2022). But the sharing economy also includes sustainability initiatives and grassroots innovations which are community-based and mix certain elements of enterprises with activism, as pointed out by Morgan and Kuch (2015). However, certain scholars, notably Belk (2014) and Rýparová (2022), contend that true sharing must prioritize socio-cultural considerations and is reflected in initiatives that are motivated by environmental and social goals. This would exclude the commercial transactions characteristic of many large-scale sharing platforms or apps (Davies, 2019). Rýparová (2022) defines three types of sharing: the sharing economy, true sharing and informal sharing. The sharing economy is used to describe profit-driven activities among strangers. Informal sharing is located at the other end of the spectrum and describes non-profit sharing within family or with friends. The third type of sharing, true sharing, lies between the two and describes non-profit sharing among strangers. Since they do not engage in profit-driven activities, their motivations are primarily social or environmental rather than economic. Thus, Madame Frigo can be classified as true sharing.

Sharing transcends traditional boundaries and can occur between different groups of people, including familial, extended familial, and communal settings. However, urban spaces and ICT have significantly stretched the spaces over which sharing is happening, both spatially and socially, fostering interactions among diverse groups, even with strangers (Belk, 2007; Belk, 2010; Davies et al., 2018). ICT, in particular, facilitates the sharing process, leveraging platforms such as websites, social media, and apps (Belk, 2014; Davies et al., 2018; Davies, 2019). While research on the sharing economy, especially through ICT, predominantly focuses on for-profit sharing platforms, it has also drawn criticism. It is questioned if businesses in the sharing economy that claim the benefits of sharing truly deliver on the benefits they purport to provide, such as reducing food waste or fostering community development. However, fixating solely on these businesses overlooks a lot of the other ways individuals engage in sharing, as well as the variety of sharing initiatives and business models that are practiced (Davies et al., 2017).

The concept of sharing is very dependent on four principles: trust between strangers, a belief in the commons, idle capacity, and critical mass (Botsman and Rogers, 2011; Morgan and Kuch, 2015). Botsman and Rogers (2011) acknowledge the benefits but also address the challenges and potential downsides of collaborative consumption, such as regulatory issues, trust and safety concerns, and the risk of exploitation. Morgan and Kuch (2015) mention that hybrid practices related to sharing can challenge legal categories and are therefore confronted with regulatory barriers. Challenges are also connected to barriers which prevent the participation in sharing. Spindeldreher et al. (2019) identified nine barriers which prevent participation in the sharing economy: effort expectancy, exploitation, inflexibility, lack of trust, performance risk, physical risk, privacy risk, process risk, and undesired social interaction.

3.2 Food Sharing

Food sharing among humans is very unique compared to other species due to the complex social as well as cultural contexts in which it occurs. While food sharing is traditionally carried out within nuclear families, many societies extend this practice across communities, a phenomenon less common among other species (Kaplan and Gurven, 2005). In contemporary society, food sharing has seamlessly integrated into our daily routines, often practiced without conscious thought. Despite food sharing being a human practice that has always been around as part of human civilization, a decline of sharing food and eating together has been noted in recent years, particularly in some Western societies (Davies, 2019; Davies et al., 2017). However, the significance of food sharing has surged especially in recent years as a practical means to combat food waste, as well as enabling access to food for those in need (Bakharev et al., 2023; Wahlen, 2018). As Schanes and Stagl (2019: 1492) put it “sharing food is nowadays positioned at the nexus of various issues that are seen as critical for sustainability, such as waste reduction, social inclusion, food security, and community engagement.” Defining the concept of food sharing proves challenging as it includes a variety of practices aimed at preserving and redistributing food, such as community supported agriculture, shared kitchens, community fridges and so on. Davies et al. (2017: 137) used the following definition by the Cambridge University Press (2017) “having a portion [of food] with another or others; giving a portion [of food] to others; using, occupying or enjoying food [and food related spaces to include the growing, cooking and/or eating of food] jointly; possessing an interest in food in common; or telling someone about food.”

3.2.1 Types of Food Sharing

Food sharing initiatives can vary greatly, for example in organizational structure, ranging from for-profit to non-profit, social enterprises, cooperatives, associations, and informal setups. These initiatives also differ in modes of sharing, including gifting, bartering, collecting, and selling, with varying degrees of ICT integration, such as websites, social media platforms, or dedicated apps (Davies et al., 2017; Davies, 2019). Moreover, differences between food sharing initiatives are related to who participates and is allowed to access the food, in which form the interaction takes place, which types of products can be accessed and the quantity of food that is provided (Bakharev et al., 2023). Additionally, the goals of food sharing vary widely, with some organizations prioritizing social aspects while other focus on food waste reduction (Davies, 2019).

Food sharing initiatives exist globally, including in Switzerland, and while their specifics may differ, their core principles remain consistent. Bakharev et al. (2023) identify four main types of food sharing, including food co-production, collective purchase of food, collective cooking and collaborative food consumption. Among these, only collaborative food consumption can be classified as distributive food sharing, aimed at reducing food waste by redistributing food surplus, and thereby offering economic,

social, ecological, and community-building benefits (Bakharev et al., 2023; Davies, 2019). The other three types focus more on productive food sharing, where the emphasis is on food production and enabling access to food. Bakharev et al. (2023) also provide a nuanced categorization of distributive food sharing. B2B2C food banks redistribute food collected from stores, focusing on providing assistance to financially vulnerable individuals and ensuring food security, although often neglecting the environmental aspects of food waste. B2C retail food sharing operates through online services, such as food sharing apps. C2C food sharing involves direct exchange of food between consumers, often times facilitated through social media platforms. Meanwhile, C2B2C initiatives offer food exchange infrastructure in a physical interaction space to simplify the sharing of food with strangers, such as public refrigerators. The case study of Madame Frigo which was introduced in chapter 2.3.5 can be classified as distributive food sharing, more specific as C2B2C, as they have public refrigerators to facilitate sharing.

Research on food sharing through community fridges has gained importance in recent years. Morgan and Kuch (2015) propose that ownership remains central in food sharing through community fridges, as still only one person can own a product, but the shared infrastructure of a community fridge enables sharing. Jo et al. (2024) mention that after the Covid-19 pandemic food security became an issue especially in the US and community fridges served as a way for people to access food. Michelini et al. (2018) also analyzed 52 food sharing cases, which they then categorized into three types. The first one is a for-profit model of sharing focusing on reducing waste while simultaneously generating revenue, called 'sharing for money'. The second category called 'sharing for charity' model, where food is collected and given to non-profit organizations. And lastly the model where food is being shared amongst consumers, called 'sharing for the community'. Here Madame Frigo can be classified as the sharing for the community, which creates a community engaged in reducing food waste.

In urbanized settings, food sharing has evolved with increased anonymity and the integration of ICT enabling broader participation (Belk, 2014; Davies et al., 2017; Davies, 2019; Bakharev et al., 2023). ICT-mediated urban food sharing initiatives hold transformative potential to make urban spaces more sustainable by "reducing consumption, conserving resources, preventing waste and providing additional opportunities to interact with others" (Davies et al., 2018: 38). Research on urban food sharing in the 21st century, especially emphasizing ICT-mediated urban food sharing initiatives, is receiving increasing attention (Davies et al., 2017; Davies, 2019; Bakharev et al., 2023). Understanding and examining how people, organizations, and communities share food within cities is pivotal for transforming urban food systems towards sustainability and unlocking their inherent transformative potential (Davies, 2019). Ganglbauer et al. (2014) mention the food sharing platform Foodsharing.de as an example on how ICT facilitates sharing but also enables people to connect and build a community. By utilizing apps, it becomes notably more accessible to reach a larger audience compared to local projects and it also facilitates the process of food sharing (Davies et al., 2017; Makov et al., 2020). In Switzerland, notable examples include the web-based platform Foodsharing and the app Too Good To Go.

3.2.2 Food Sharing and Sustainability

While the overarching goals of food sharing initiatives remain somewhat consistent, there are notable differences between them. On the one hand, some focus on distributing food to financially vulnerable individuals and ensuring food security, while environmental aspects of food waste are not part of their concept. Yet, Makov et al. (2020) note that food sharing often occurs among individuals of similar socioeconomic backgrounds, potentially limiting its impact on food security. On the other hand, some food sharing initiatives position themselves as environmental organizations, focusing on mitigating food waste. Additionally, there are initiatives that navigate between these priorities (Bakharev et al., 2023). Food sharing encompasses a multifaceted array of economic, environmental, cultural, and social dimensions, highlighting how these practices can promote sustainability, community-building, and resource efficiency. Bachnik and Szumniak-Samolej (2018) assert a strong correlation between sustainable consumption and the sharing economy, suggesting that the sharing economy can take sustainable consumption to the next level. However, Meshulam et al. (2023) and Wahlen (2018) raise questions regarding the superiority of sharing over traditional consumption, particularly concerning environmental impact and social justice. They argue that sharing may influence consumer behavior in diverse ways, prompting a critical examination of its broader implications.

Extensive research has explored whether the sharing economy can enhance resource efficiency and therefore reduce food waste (Meshulam et al., 2023; Makov et al., 2020). Food sharing claims to promote resource efficiency and sustainable consumption, but the economic savings by consuming food for free could lead to rebound effects, where the money saved is used for activities or products that are worse for the environment, such as increased travel (Meshulam et al., 2023; Makov et al., 2020; Wahlen, 2018). Makov et al. (2020) propose that food sharing might contribute to higher levels of food consumption, and the transportation involved in food exchanges could potentially counteract the environmental benefits of reducing food waste. However, they concluded that the climate benefits of food sharing outweigh the negative environmental impact of transportation or other factors and that the sharing economy can indeed support the reduction of food waste. Meshulam et al. (2023) concluded that the rebound effect could offset up to 59–94% of greenhouse gas emission reduction. Similarly high numbers are also expected for water depletion benefits as well as land use benefit. They claim that sharing can be especially favorable for the environment when the entire lifestyle is changed towards de-growth and away from over-consumption.

Beyond its environmental implications, sharing and collaborative consumption are also very much a social practice (Wahlen, 2018). Food sharing initiatives worldwide serve as platforms for people to share food with others, foster interpersonal connections and reshape human relations around the shared experience of food (Davies, 2019). Successful sharing hinges on a network of individuals committed to mutual trust, often among strangers (Bachnik and Szumniak-Samolej, 2018; Davies, 2019). Davies et al. (2017) points out that individuals are the carriers of the food sharing practice, sustaining and enriching

communities through diverse interactions. Communities can form around food as they have food as a theme that connects them as well as the general idea of sharing with others (Ganglbauer et al. 2014). For many participants, sharing offers many advantages, as they can undertake good actions, build a community, support a useful initiative, help the environment, and support alternative ideas (Bachnik and Szumniak-Samolej, 2018). Falcone and Imbert (2017) point out that food sharing can build relationships especially in urban settings where citizens are very anonymous and live under alienating circumstances. However, the potential of sharing to cultivate more sustainable communities calls for further investigation (Davies, 2019).

3.2.3 Motivations and Challenges of Food Sharing

Davies et al. (2018) delve into the motivations and goals driving food sharing initiatives, uncovering a blend of social, environmental, economic, political and health-related goals. They found out that social goals were essential for almost every initiative, while environmental goals were also of great importance for a vast majority of the initiatives. Only about half of the initiatives mentioned economic and health goals, while political goals were only important for about a fourth of the initiatives which were investigated. Accordingly, Wahlen (2018) emphasizes that reducing food waste is a central objective of food sharing, but it also serves as a broader purpose of driving social change, aiming to raise awareness and shape consumption patterns at both individual and societal levels.

Motivations for engaging in food sharing can vary significantly, as explored by Schanes and Stagl (2019), Rombach and Bitsch (2015), and Ganglbauer et al. (2014) at the example of the initiative Food-sharing. Social and ecological factors emerge as primary motivators, alongside economic needs in some cases, as mentioned by Ganglbauer et al. (2014). Schanes and Stagl (2019) identified five categories of motivations, including emotions and morality, identity and sense of community, reward, social influence, and instrumentality. Meanwhile, Rombach and Bitsch (2015) categorize motivations into instrumental, ideological, and identification-based. Moreover, research is actively investigating the barriers to participation in food sharing initiatives, as exemplified by Lazell's (2016) study exploring reasons for non-participation among university students.

Transitioning from a local community of neighbors to a community of strangers profoundly affects essential elements of the food sharing, including knowledge, trust, and risk perception. Therefore, food sharing is connected to strong regulations and brings into focus social, political as well as legal rules and policies (Davies, 2019; Zurek, 2016). Zurek (2016) analyzed the risk and regulatory challenges which are inherent by food sharing practices. Davies (2019) extensively analyzes the rules and regulations governing food sharing, alongside the networks and tools facilitating these activities. She provides a detailed analysis of the benefits and challenges associated with urban food sharing, exploring the implications for urban policy and planning. Furthermore, the author highlights the complex interplay

between formal regulations and social-cultural norms, which are about trust but also taste and disgust. This is especially the case if surplus food is being redistributed. People that access surplus food through food sharing need to rely on their sense of taste and smell in order to find out if something is still edible and also trust the other people in the food sharing network (Davies, 2019). Morrow (2019a; 2019b) analyzed how risks of food sharing are managed focusing on the example of Foodsharing in Germany. They claim that the fridges by Foodsharing have raised food safety concerns, as they are open-access food commons. The open-access characteristics makes it difficult to establish boundaries and assign responsibility.

3.3 Diverse Economies and Food Sharing

In recent years, the limitations of conventional economic models have become increasingly apparent, prompting researchers to explore alternative frameworks that prioritize social and environmental well-being. One such framework is the diverse economies approach, pioneered by the feminist economic geographers J.K. Gibson-Graham. They first introduced the concept of diverse economies in their influential book 'The End of Capitalism (As We Knew It): A Feminist Critique of Political Economy', published in 1996. In this book, they argued for a more pluralistic understanding of economies, challenging the dominant narrative of capitalism as the only viable economic system. Instead, they highlighted the coexistence of multiple economic forms and practices that exist beyond traditional market transactions, including non-capitalist modes of production and exchange. The umbrella concept of diverse economies captures initiatives that have been called alternative markets or non-market, alternative capitalist or non-capitalist in the past (Gibson-Graham, 2006; Gibson-Graham, 2008; Davies, 2019).

The diverse economies approach tries to replace the binary of mainstream and alternative, as this suggests that there is a mainstream, or dominant, economy "against which the alternative is defined" (Healy, 2009: 338). Capitalism is often seen as the dominant economy and capital flows as dominant ways of exchange. Therefore, alternative or non-capitalist economy forms are perceived as invisible and "a large number of hidden and alternative economic activities are treated as marginal phenomena or even as subsystems of the dominant capitalist economy" (Gritzas and Kavoulakos, 2016: 919). The diverse economies approach tries to reveal often hidden alternatives and show the existing variety of economic forms within existing capitalist social relations, emphasizing non-capitalist economies, while simultaneously questioning capitalist dynamics such as growth, commodification and overproduction. J. K. Gibson-Graham aim to disrupt the prevailing economic narrative that favors capital, markets, wages, private property, and mainstream financing and view economies as heterogeneous spaces which consist of different kinds of exchange, labor, finance and ownership (Healy, 2009). They achieve this by uncovering a variety of existing practices that function differently. The diverse economies approach encourages us to recognize and value the multitude of ways in which people organize their livelihoods and

meet their needs. It brings to the forefront often overlooked economic practices such as gifting, sharing, volunteering, and bartering. By expanding our understanding of what constitutes economic activity, the diverse economies approach provides a more inclusive and holistic view of the economy that acknowledges the contributions of marginalized groups and sustainable practices (Gibson-Graham, 2008; Davies et al., 2017; Holmes, 2018).

The diverse economies approach relates to the later work of Gibson-Graham et al. (2013) ‘Take back the economy’ in which they call for looking for alternatives to the current capitalist way of thinking and look for more socially and environmentally sustainable alternatives “reimagining labour, markets, finance, and property in the process” (Morgan and Kuch, 2015: 570). In this context, the diverse economies approach can reveal the economic activities which can be developed to take back the economy (Gibson-Graham et al., 2013). There are different aspects of economy, such as labor, enterprise, transactions, property, and finance. The diverse economy figure (see Figure 8) puts these different aspects of economy into columns. At the top of the columns are economic activities that are recognized in the capitalist system, whereas economic activities often hidden and unrecognized are located at the bottom. Economic activities recognized in the capitalist system while at the same time involving alternative elements are found in the middle (Gibson-Graham et al., 2013; Gritzas and Kavoulakos, 2016; Morgan and Kuch, 2015).

THE DIVERSE ECONOMY				
LABOR	ENTERPRISE	TRANSACTIONS	PROPERTY	FINANCE
Wage	Capitalist	Market	Private	Mainstream Market
Alternative Paid	Alternative Capitalist	Alternative Market	Alternative Private	Alternative Market
Unpaid	Noncapitalist	Nonmarket	Open Access	Nonmarket

Figure 8: Diverse economy figure (Gibson-Graham et al., 2013).

According to Belk (2014), the sharing economy highlights heterogeneity of economic activity and therefore situates itself in the diverse economies framework. Holmes (2018) pointed out that we need to think about how the sharing economy works in order to not overlook the informal and diverse. Food sharing initiatives can be situated in the diverse economies approach, as they offer examples of alternative economic practices in action. Madame Frigo’s model of sharing surplus food aligns with the diverse economies approach, as it operates outside traditional market mechanisms and relies on un-paid, collective, volunteer-driven efforts. The non-profit character, financing itself through donations, of Madame Frigo as well as the aspect of true sharing, therefore non-market transaction, relates to the diverse economies approach, as these aspects are often below the level of attention in the capitalist system, even though it is a part of the diversity of economic activities (Gibson-Graham, 2008; Rýparová, 2022).

4. Methodology

This master's thesis analyzes the perceived motivations and challenges faced by people in the food sharing network of Madame Frigo. Further, an attempt is being made to understand how Madame Frigo can contribute to community building and generate a feeling of belonging as well as what impact the initiative has on food waste reduction in Switzerland. To study these issues, a qualitative approach seems to fit best, since the focus is very much on the individual perspectives and perceptions of the interviewees. It is important to consider that no objective reality is reflected in the interviews, but rather subjective perceptions are captured and analyzed. Qualitative interviews allow to gather detailed information and insights from the interviewees and offer a lot of flexibility, enabling to ask spontaneous questions and respond to new information as it arises. Additionally, qualitative interviews help gauge the emotions of the individual interviewees, which is advantageous when exploring the motivations and challenges faced by the interviewees (Helfferich, 2009). The data used for this master's thesis was therefore primarily acquired through semi-structured interviews, supplemented by information from external sources such as scientific literature, news articles, and websites from various initiatives. For the qualitative approach, fifteen interviews were conducted with individuals involved in the Madame Frigo network. Several visits to the Frigos of Madame Frigo allowed me to summarize my subjective perceptions of these sites (see Appendix C). Additionally, I attended a Foodsharing event and integrated my professional experiences gained as a member of the Madame Frigo team into this master's thesis.

At the beginning of the research, the focus lay on reviewing scientific literature in order to understand the current state of research about food waste. Additionally, I explored existing literature on the broader topic of sharing and food sharing and its potential connections to theoretical concepts, focusing on the diverse economies approach by J. K. Gibson-Graham. Furthermore, information about the case study Madame Frigo was gathered, by examining their website, social media profiles, and relevant newspaper articles. The scientific literature I have used is from 1997 until 2024, mostly written in English and a small number in German. The illustrations that can be seen in this master's thesis are selected from literature, as well as the websites of different initiatives and some were taken by myself. After gaining knowledge about the issue of food waste, food sharing and Madame Frigo, a general interview guideline was created which was adapted to the various interview partners (see Appendix A). The following chapter 4.1 describes the data acquisition through the interviews.

4.1 Data Acquisition

For this master's thesis, semi-structured interviews based on an interview guideline were used, enabling a flexible and open-ended dialogue. For creating the guideline, the SPSS method by Helfferich (2009) was utilized. The abbreviation 'SPSS' stands for the four steps Collecting, Checking, Sorting and Subsuming. After collecting questions, I checked if they were useful to answer the research questions and

then grouped the interview questions into four thematic blocks, each block trying to answer one of the research questions. Additionally, an introductory block was added to get to know the interview partners and their connection to Madame Frigo. The interview guideline was adapted to the specific interview partners, while keeping one to three questions per block the same for every interview partner in order to have a better comparability of the interview findings (see Appendix A). The questions should motivate the interviewees to speak freely and lead to a conversation. Therefore, it is crucial to remain flexible and not be excessively focused on the interview guideline (Mattissek et al., 2013). After creating a first draft of an interview guideline, a test interview was conducted, which was very helpful and gave the opportunity to adapt the questions that were difficult to understand or too vague. The interview guideline was also improved and newly gained knowledge was included during the process of data acquisition (Helfferich, 2009; Mattissek et al., 2013). This process is called the hermeneutic spiral, as the questions of the interview guideline are adapted to the newly gained insights from previous interviews (Helfferich, 2009). The interviews were conducted in a language of the interviewee's choice, which was Swiss German in most cases and German in some. None of the interviews were conducted in English.

4.1.1 Interview Partners

The method used for data collection was to conduct qualitative interviews with individuals actively engaged in the food sharing initiative of Madame Frigo, as well as individuals closely affiliated with the initiative. For this reason, the composition of the interview partners is very diverse, and thus the knowledge on different aspects varies greatly. First, interviews with the people behind Madame Frigo were conducted (MZ; TK; JH; MS). Since I applied for an internship at Madame Frigo just before starting the master's thesis, I already had contact with the people behind the initiative, making it very easy for me to arrange interviews with them. During the interviews as well as in private conversations, they helped me find out who the relevant actors in Madame Frigo's network are and which ones would be suitable for an interview. Additionally, they enabled me to get access to more potential interview partners. For this reason, an interview was conducted with a representative of the Migros Pioneer Fund (PV) as well as two representatives of Electrolux (NA; SG). Most of the interviews were conducted with the main responsible volunteers for one of the Frigos of Madame Frigo, also referred to as Gottis and Göttis (RM; FA; SM; CB2; LS; CS). As there are over 500 volunteers working for Madame Frigo and a vast diversity of users, it was attempted to interview people with different backgrounds, in order to get different views and answers. Through the website of Madame Frigo, it was possible to contact the Gottis and Göttis of the different Frigos by myself and schedule the interviews. In order to understand the food sharing network in Switzerland better, some interviews were also held with food savers of Foodsharing Switzerland (CV), who were sometimes also responsible for one of the Frigos of Madame Frigo (SN; MB). Additionally, one interview was carried out with one of the most important researchers when it comes to food waste in Switzerland, Claudio Beretta (CB1). He is also the president of foodwaste.ch

and therefore a part of the food sharing network in Switzerland. The following table (Table 1) shows a list of the interview partners. Thankfully, almost everyone who was contacted was open to do an interview and one interview partner even invited me to a Foodsharing event. Additionally, a declaration of consent was created where the interview partners stated whether they want to remain anonymous or not. All the interview partners wanted their real name to be used, this is why they are included in the table as well as in the master's thesis.

Association	Date	Function	Initials	Setting
Madame Frigo	29.01.2024	Marilen Zosso: CEO	MZ	In Person
	29.01.2024	Tina Köhler: Fundraising and Partnerships	TK	In Person
	16.02.2024	Jana Huwyler: President and Co-founder	JH	Teams
	19.02.2024	Marlen Stocker: Community and Location	MS	In Person
Madame Frigo or Foodsharing Volunteer	07.02.2024	Raphael Meyer: Coordination Sentitreff	RM	In Person
		Filmon Asmlash: Volunteer (Lucerne)	FA	
	22.02.2024	Sibylle Neumann: Volunteer (Basel) and Food-sharing Basel	SN	In Person
	26.02.2024	Carl von Holly-Ponientzietz: Foodsharing Zurich	CV	In Person
	28.02.2024	Sanela Meyer: Volunteer (Lenzburg)	SM	Teams
	28.02.2024	Claudia Bachmann: Volunteer (Emmen) and Board Member of Madame Frigo	CB2	In Person
	02.03.2024	Lukas Steiner: Volunteer (Aarau)	LS	In Person
	05.03.2024	Claudia Schwitzer: Volunteer (Lucerne)	CS	In Person
11.03.2024	Mischa Badasyan: Volunteer (Zurich) and Foodsharing Zurich	MB	In Person	
Migros Pioneer Fund	13.02.2024	Pablo Villars: Project Lead	PV	Teams
Electrolux	21.02.2024	Noemi Anesini: Sustainability Manager	NA	In Person
		Stefano Grasso: PR- and Communication Manager	SG	
Research Food Waste, foodwaste.ch	05.02.2024	Claudio Beretta: Researcher at ZHAW, President of foodwaste.ch	CB1	Teams

Table 1: Table of interview partners (Table by Anja Schenk, 11.03.2024).

4.1.2 Conducting the Interviews

Finding suitable interview partners was an easy process, as I already had a connection to Madame Frigo from the beginning of my master's thesis. Thanks to the personal connection to Madame Frigo, I had the opportunity to easily have access to interviews with three people working for Madame Frigo as well as the president and co-founder, Jana H.. They helped me reach out to the volunteers of Madame Frigo for further interviews as well as Foodsharing Switzerland. They also connected me to representatives of Migros Pioneer Fund and Electrolux. Contacts to the interview partners were established via e-mail. Most of the interviews were conducted face-to-face, which made the communication a lot easier. The interviews with the people behind Madame Frigo took place in the office of Madame Frigo in Lucerne in a personal meeting. Some of the interviews took place outside, for example in a parc or in front of the Frigo. One of the interviews took place in a café, which made the recording and transcription more difficult, as there were lots of background noises. The interviews with the Gottis and Göttis of the Frigos always took place close to the Frigo and were sometimes combined with a visit of the Frigo. The visit was a great opportunity to better understand what they were talking about in the interview. I also conducted interviews through Teams, as some of the interview partners did not have the resources to meet me in person. During the interviews, notes were taken in order to point out important statements as well as ask questions that came up without disturbing the interview partner.

4.1.3 Reflection

The interview partners varied greatly in their levels of knowledge about Madame Frigo, food waste and food sharing. While all had a general understanding of food waste statistics in Switzerland and its primary sources, differences occurred in the understanding of the network around Madame Frigo. The fact that I started working for Madame Frigo in June, and that I communicated this before the interviews or even knew the interview partners surely influenced the interview situation. Many of the interview partners saw me as a kindred spirit and confided a lot in me, especially regarding the challenges faced by Madame Frigo. Some even sought my insights on aspects of Madame Frigo or suggested closer collaboration with me and Madame Frigo in the future. This proximity afforded me unique insights into the initiative that I might not have otherwise gained and I also had the opportunity to already establish a relationship with the interview partners previous to my working experience. However, I also recognized instances of bias during the interviews, since I already engaged extensively with the topic. Nonetheless, the interviews provided valuable perspectives and objections that deepened my understanding and offered new insights.

4.1.4 Interview Transcripts

All interview conversations were recorded after getting the consent of each interview partner in oral as well as written form. The audio recordings were then transcribed using Word online. After uploading the audio recording, it transcribed the interview automatically. However, given that the majority of my interviews were conducted in Swiss-German, significant corrections were necessary. Conducting interviews in Swiss-German meant that I had to translate them into standard German during transcription and later on translate certain parts of the transcriptions to English, a process that can sometimes result in loss of meaning, particularly in direct quotations. I tried to translate as accurately as possible and stay as close to the original statement. The transcription was conducted after Rädiker and Kuckartz (2019). Each speaker's contributions were transcribed as separate paragraphs, which I introduced with the letters 'A' for the interviewer and 'I' for the interviewee. In two cases where two individuals were interviewed simultaneously, the initial letters of the interviewees names were used. Agreeing utterances such as 'ehm', 'hmm', 'mhm', etc. were left in the transcripts, but often omitted in citations within the master's thesis, except if they were meaningful. Vocal utterances were also left in the transcripts, but within brackets, such as '(laughs)'. In one of the interviews certain segments were omitted at the interview partners request, as they preferred those details to remain unpublished.

The transcripts will not be published.

4.1.5 Own Experiences

Besides reviewing literature on the topic as well as conducting interviews, I also had the opportunity to collect my own experiences. I observed the Frigos in order to confirm what my interview partners told me, I attended a Foodsharing event to witness the community building aspect of food sharing and I also started working for Madame Frigo in June of 2024 while still writing my master's thesis. All these experiences helped me to get a better insight into the perceptions of my interview partners.

I started to visit different Frigos in January of 2024. I tried to connect the visits of the Frigos to other activities, such as travelling to the interview partners or going to university. The first Frigo I visited is located right next to the university of Zurich, Irchel. At the beginning, most of the Frigos I visited were in the canton of Lucerne, Zurich, Aargau and Basel. This had to do with the location of the interview partners and where I spent most of my free time. As Madame Frigo was first founded in Bern, I decided to also travel to Bern and look at some of the Frigos there. To maintain an overview, I compiled all the visited Frigos into a table and described the experiences (see Appendix C). After June of 2024 I visited a lot more Frigos and came in contact with even more volunteers, as I started to work for Madame Frigo. This is why I decided to end the visits to the Frigos for this thesis, as I feared that I would be to biased. The visits to the Frigos not only gave me insights on how the Frigos look and how clean they are, I also

had some very interesting encounters at the Frigos which helped me to understand how the Frigos can also serve as community spaces.

On the 11th of March I participated at a Foodsharing event to which I was invited by one of my interview partners. The event took place in Zurich and was organized by Foodsharing Zurich. On the 1st of every month they cook together using food that would otherwise have been thrown away. The food is prepared by two to three people from Foodsharing Zurich and is very diverse, as they never know what food they get that day. Nevertheless, there was something for everyone. From salad, rice, vegan sausages, cheese to a lot of baked goods and pastries. At the end of the event, there was nothing left of the food, as the last baked goods that were leftover were taken by people that attended the event. Around thirty people participated.

In November of 2023 I signed a contract with Madame Frigo and knew that I would start working for the organization in June of 2024. This is why I already had the opportunity to be a part of certain events before my official starting date. For example I accompanied a delivery of two Frigos in March as well as their yearly exchange round with the volunteers of the Frigos in April. In June of 2024, I began my official tenure at Madame Frigo, focusing primarily on community and locations. This role directly aligns with the core focus of this master's thesis, which centers around the community and the individuals involved with Madame Frigo. Moreover, my work at Madame Frigo exposed me extensively to the challenges I analyze in this thesis. The experiences and insights I had already gained while writing my master's thesis proved invaluable in my work at Madame Frigo. Conversely, my time at Madame Frigo provided me with new perspectives and insights that greatly assisted me in finalizing this thesis. The practical experience and hands-on knowledge I gained complemented the theoretical framework of my academic research, enriching the overall quality of my thesis.

4.2 Data Analysis

After conducting the interviews, transcriptions were generated and the gathered information classified through a coding system, for which the software MAXQDA2024 was used and a content analysis was performed on the interview data. The data analysis was done according to Rädiker and Kuckartz (2019). Rädiker and Kuckartz (2019) was used to understand MAXQDA and how the software can be used to code transcripts. The code system was created by first looking over the interview transcripts and identifying main codes to categorize the interviews, which also aligned with the research questions (Kuckartz, 2012; Rädiker and Kuckartz, 2019). After creating the main codes, the transcripts were coded once according to the chosen main codes. Additionally, the first sub codes were created and important parts which could be used for quotations were highlighted. Furthermore, interesting ideas and solutions which were proposed by the interview partners were highlighted in a different color. After creating the main codes as well as sub codes, the transcripts were coded once again according to the codes, which were

also defined more clearly and described in memos. Some of the sub codes also needed to be merged during this process, as they were sometimes too detailed (Kuckartz, 2012; Rädiker and Kuckartz, 2019). A table of the codes helped me to then structure the titles and subtitles in my master's thesis (see Appendix B). I also reviewed the interview files in order to include direct quotations, which had to be translated into English. During data analysis, the focus was on the main codes and sub codes at the center of the evaluation process (Kuckartz, 2012). The data analysis with MAXQDA following Rädiker and Kuckartz (2019) facilitated identifying patterns and discovering which topics were most frequently mentioned in the interviews. These interviews collectively contribute to underpinning the theoretical frameworks used in this thesis.

4.3 Positionality

During the process of writing this master's thesis and conducting interviews with different actors, I had to be aware of my own positionality. The concept of situated knowledge identifies knowledge as produced from a specific position within social, cultural, and historical contexts. Therefore a reflection on how my own background, experiences, and social location influence the research process and the interpretations of the data gathered is crucial. This includes reflecting on my own placement and questioning my expectations, assumptions as well as prejudices. Besides questioning them, I also needed to be aware of them during the research process and especially when conducting the interviews (Kobayashi, 2009; Rose, 1997).

I am a 24 year old, middle-class, white woman living in the canton of Aargau in Switzerland. Therefore, I am very privileged to live in a country where there is enough food and the money spent on food only makes up a small portion of the income. Food security was never an issue for my family and we always had enough food at home. Nevertheless, I have frequently encountered the problem of food waste due to my background in gastronomy. I worked in a restaurant full-time from 2018 to 2020 and part time in a café from 2021 to 2024. I witnessed lots of food waste while working in the gastronomy sector and also saw huge differences. In the local café I worked from 2021 to 2024, I had a boss who was very environmentally conscious, who also sold remaining food for discounted prices or let us take it home for free. Contrarily, the chain restaurant I worked at had rather strict guidelines which prevented the employees from taking home leftover food. In addition to my job, I have also learned a lot about food waste in my bachelor's and master's studies in geography. As a consequence, I reflected a lot about my own consumption patterns and how I myself can minimize food waste. During the writing process of my master's thesis, I had to keep in mind that not everyone I was going to interview had the same background and was confronted with food waste to the same extent. My background as a master's student in human geography connects me with many people that see food waste as a big problem and are interested in food sharing. Food sharing is highly frequently practiced by students, as they see the social

and environmental aspects but also the economic advantages, as they often have to use their money sparingly. Therefore I am in an environment where food sharing is seen very positively.

Besides my positionality, I also had to reflect on my research by considering the interaction between the interview partners and myself (Bourke, 2014). After conducting the first interviews I soon realized that I closely resemble my interview partners. Most of my interview partners were also middle-aged, white women. This is also reflected in Madame Frigo, where all employees are women and also most of the volunteers. This shapes my interaction with the people I interview, as most are female, which makes it a lot easier for me to interact with them. During the research process the changing of being an outsider and to being an insider to the studies topic and the case study made my positionality change slightly. At the beginning I was placed as an outsider to the social space I was studying, as I was not a part of the food sharing community or Madame Frigo. This could have limited the information I was able to get and how open people communicated with me (Bourke, 2014). But soon after writing the master's concept I was able to have a job interview at Madame Frigo and started working for the organization from June 2024. This changed my position from an outsider to an insider and gave me various new insights. This could have influenced my research, as I am probably biased about the impact Madame Frigo has on food waste. It could also have changed the perception of people around me and maybe result in different answers.

4.4 Ethical Considerations and Challenges

All interviews were conducted with the permission of the interviewed person. To ensure this, the interview partners signed a declaration of consent before the interviews began, and I also explained the topic and goals of the interview. It was also clarified that the interview will be audio recorded and later on transcribed. I furthermore went through the 'Guideline questionnaire on Ethics, Safety, and Methodology in Fieldwork' provided by the Political Geography division. This guideline made me reflect on my position and potential harms stemming from my research. Taking part in an interview for my master's thesis is very unlikely to impose harm on the interview partners. Nevertheless, the interview partners had the opportunity to choose if they wanted to be anonymized or if certain parts of the interview should not be used in the master's thesis. As the focus lay on one very specific case study, I depended on interviews with certain people, such as the CEO of Madame Frigo. It could have been that they did not want to participate in an interview or do not want their information to be used retroactively. Luckily, this was not the case, however.

5. Stakeholders and Organizational Structure

Food sharing initiatives interact not only with each other but also with other organizations and heavily rely on these interactions, thus building a strong network (Davies, 2019). Davies (2019: 76) underscores this point in their research, stating that “Sharing initiatives do not, however, operate in a vacuum; they intersect with a range of different actors, sometimes by choice and sometimes by necessity.” Madame Frigo collaborates with a diverse array of stakeholders across different tiers to ensure and facilitate the implementation of its initiative. To gain a deeper understanding of the levels at which Madame Frigo engages with these stakeholders, they can be segmented into several categories. These encompass the political level and the state, financing partners focusing on Electrolux and Migros Pioneer Fund, food retailers such as supermarkets, local shops, bakeries and restaurants, social institutions, and other initiatives combatting food waste, including Foodsharing and foodwaste.ch. Madame Frigo values the collaboration with diverse stakeholders who share the common goal of reducing food waste, as it allows them to significantly expand their network and to increase their influence, as articulated by Marilen Z., CEO of Madame Frigo, during an interview

“We could actually imagine collaborating with all organizations that function similarly and where the basic idea is the same. [...] Yes, because we know that we cannot do it alone (laughs). We do not want to do it alone. Definitely.” (Marilen Z., 29.01.2024)

To comprehend how Madame Frigo operates within the food sharing landscape and connects with other anti-food waste initiatives and actors in the food system, interviewees were asked to identify the most important actors in the network. In general, Madame Frigo’s employees emphasized the significance of their financial partners, other anti-food waste initiatives, and engagement at the political level, while volunteers from Madame Frigo and Foodsharing highlighted the importance of surrounding food retailers, social institutions, and fellow food sharing initiatives, which assist them in filling the Frigos.

5.1 The Political Level and the State

Madame Frigo actively engages with various political levels and is significantly influenced by decisions made at these different administrative levels. They particularly rely on regulations established at both, the state and cantonal levels concerning food waste reduction rules and hygiene standards for their Frigos, a point that became evident during the interview with Jana H.. Collaboration with responsible cantons and municipalities is crucial, as it ensures alignment with local regulations and secures suitable locations for the Frigos. Open communication and fostering cooperation with municipalities are essential for a successful project implementation. Furthermore, Madame Frigo supports state initiatives aimed at reducing food waste, including the federal government’s action plan. Claudio B., researcher at ZHAW

and president of foodwaste.ch, elaborated on the importance of this plan and the pressing need for legislative action to combat food waste, stating

“This creates pressure to take more measures if we are not on track and to involve more stakeholders. I really hope that the parliament is composed in such a way that meaningful additional measures will be taken when the voluntary phase ends, where the voluntary level is not sufficient, without leading to pointless bureaucracy, but rather having a truly effective impact.” (Claudio B., 05.02.2024)

He further highlights the significance of the industry agreement within the action plan, demonstrating the importance of collaboration between the industry and the government to achieve shared goals. While Madame Frigo’s connection to federal offices may not be as strong, other organizations such as foodwaste.ch collaborate closely with federal agencies like the BAFU, providing valuable data about food waste in Switzerland and contributing to national efforts to reduce food waste, as Claudio B. mentioned in the interview. Additionally, the employees of Madame Frigo emphasize the importance of financial support at both the cantonal and municipal levels. For instance, the City of Zurich has backed sustainability initiatives and awareness campaigns to combat food waste. In 2023, Madame was supported by the City of Zurich on a poster campaign to increase public awareness about food waste.

5.2 Financing Partners

Financing partners play a pivotal role in supporting Madame Frigo, as the initiative does not generate any income by itself. Recognizing their high dependence on financing partners, Madame Frigo endeavors to secure diverse sources of income to mitigate over-reliance on a small number of partners. Tina K., responsible for fundraising and partnerships at Madame Frigo, elaborates on the diverse nature of their funding sources, highlighting the importance of securing a broad network of partners

“As an organization, we ensure that we have a wide range of partners supporting us. This includes foundations, cities and municipalities, as well as companies like Electrolux, who is our main sponsor. We aim to have as large and broad a network as possible of funding partners.” (Tina K., 29.01.2024)

The Migros Pioneer Fund played a significant role in Madame Frigo’s early growth phase and process of scaling up, offering substantial financial backing and support in professional development and securing new financing partners, as was mentioned in the interview with Pablo V., Project Lead for the Migros Pioneer Fund. He also explained their project selection process, which involves proactive scouting in thematic areas with societal relevance with identified challenges, prioritizing projects demonstrating innovation. They projects are then evaluated based on the significance of the challenge addressed, the feasibility of the proposed solution, and its potential for transformative impact. Madame Frigo’s

alignment with these criteria led to a three-year partnership, crucial for its rapid expansion. Jana H., co-founder and president of Madame Frigo, emphasized that without the support of the Migros Pioneer Fund, Madame Frigo's rapid expansion might not have been feasible, stating

“But then we approached Migros. And that was actually a bit of the driving force for the subsequent national expansion of the project. And I believe without this support from Migros, it would not have been really possible because we simply would have lacked the necessary funds.” (Jana H., 16.02.2024)

However, the support from the Migros Pioneer Fund was time-limited, ending in late 2022. Despite its significant contribution, Madame Frigo faced uncertainty regarding continuation after the fund's support ended, reflecting the challenge in securing alternative financing solutions. Jana H. mentioned that there was a period of time when it was very uncertain if the initiative would continue after the partnership with Migros Pioneer Fund came to an end.

Electrolux's partnership is instrumental, providing not only refrigerators since 2020, the core of the sharing platform, but also financial backing since 2024. This collaboration has been crucial since the beginning of the project, with Electrolux providing the very first refrigerator in Bern, as mentioned by Jana H.. Beyond material support, Electrolux contributes to communication and awareness-raising efforts, fostering a deeper collaboration. The interviews made it clear that the partnership benefits both parties, with Madame Frigo gaining visibility through Electrolux's network, while Electrolux can implement concrete measures in Switzerland thanks to its collaboration with Madame Frigo. Stefano G., PR- and Communication Manager at Electrolux, articulated the shared values driving the partnership

“We have a very strong match in terms of vision. So, basically, we can promote sustainable nutrition. In this context, it is also about minimizing food waste, and we share many common values. Sustainability is one aspect, but also overall mindfulness, not just in the food sector, but also in household matters.” (Stefano G., 21.02.2024)

Representatives from Electrolux express satisfaction with the contribution they can have in this initiative and the partnership in general, focusing their support on Madame Frigo.

Aside from these major partners, contributions from other financing partners, including foundations, individual donors, and location sponsorships from various entities sustain Madame Frigo. Seedling Foundation was won as a key contributor in 2023, alongside various smaller foundations. The foundation is particularly crucial after the detachment from the Migros Pioneer Fund, as they provide part of the financial resources that had to be newly acquired, as mentioned by Tina K. and Marilen Z.. Tina K. also pointed out the significance of individual contributions, albeit relatively modest due to the absence of specific public fundraising campaigns. Additionally, location sponsorships from companies, churches, and political municipalities contribute significantly to Madame Frigo's operations. Cantonal

lottery funds, derived from the sale of lottery tickets, also serve as an essential financing avenue, supporting the development of individual regions and adding new Frigo locations as well as maintaining existing ones. Overall, the financial sustainability of Madame Frigo hinges on the collective support of diverse stakeholders, each playing a unique and indispensable role in advancing the initiative's goals.

5.3 Food Retailers

Madame Frigo does not engage in direct collaborations with supermarkets, local shops, bakeries, or restaurants. Whether or not the Frigos are filled with products from these actors highly depends on the Frigos' locations and their surrounding networks. While Madame Frigo itself is not directly involved in filling the Frigos, other food sharing initiatives like Foodsharing rely heavily on surplus food from food retailers to stock the Frigos. Carl V., food saver from Foodsharing, emphasized the importance of collaboration with supermarkets, local shops, bakeries, and restaurants for initiatives like Foodsharing, which often fill the Frigos with collected food. Collaboration with local shops typically proves to be easier than with supermarkets. Supermarkets sometimes impose restrictions on donating food waste solely to social institutions or express concerns about competition. The Gottis and Göttis of the Frigos noted that major retailers like Coop and Migros often donate their surplus food to organizations such as Tischlein deck dich or Schweizer Tafel, focusing primarily on supporting individuals in need. German supermarkets like Aldi and Lidl tend to show more receptiveness toward donating food to food sharing initiatives like Foodsharing, although this may vary by location. The German origins of Foodsharing might contribute to this openness among German supermarkets, according to one interviewee. Marilen Z. highlighted the significant role played by supermarkets like Coop, Migros, Aldi, and Lidl in the redistribution or donation of food and the differences between them, stating

“Ultimately, when it comes to the level of redistributing or picking up food from stores, Migros, Coop, Aldi, and Lidl are certainly at a very large lever, um, yes, where we can see that a lot is happening in some, in others not so much.” (Marilen Z., 29.01.2024)

Moreover, actors that prioritize environmental consciousness are more inclined to participate in initiatives like Foodsharing or Madame Frigo, as noted by some interviewees. Wahlen (2018) also observed that food sharing initiatives are more likely to cooperate with supermarkets that demonstrate sustainability, such as organic supermarkets. However, the extent of collaboration with surrounding supermarkets or shops varies depending on the Frigo's location. For instance, in Lenzburg, Sanela M.'s Frigo was initially located next to a Migros supermarket, receiving regular donations and assistance from the staff. Unfortunately, the Frigo had to be relocated due to issues arising from its usage. In locations where Foodsharing is absent, local shops and bakeries become crucial stakeholders. For example, in the Old Town of Aarau, stores like the health food store and an organic shop occasionally contribute items to the Frigo of Lukas S.. Similarly, in Emmen, a local drugstore occasionally fills Claudia B.'s Frigo with

organic products they can no longer sell. Although direct cooperation between Madame Frigo and supermarkets as well as other food retailers is absent, many interviewees highlighted the pivotal role of supermarkets in the food waste reduction network, either by donating food to social institutions and food sharing initiatives or implementing various measures to contribute to food waste reduction, such as offering products at discounted prices or introducing ‘rescue-me’ boxes containing surplus food at a reduced price, as noted by some interviewees.

5.4 Social Institutions

Social institutions play a crucial role within Madame Frigo’s network, although primarily in an informal capacity. On occasion, when these institutions have excess food, it finds its way to nearby Frigos or is directly placed there by volunteers of the institutions. Marlen S., responsible for community and location at Madame Frigo, underscores the independent nature of this process. Furthermore, Foodsharing maintains close connections with social institutions. Sibylle N., volunteer from Foodsharing and Gotti of a Frigo, highlights that surplus food collected by Foodsharing is sometimes distributed to establishments such as local soup kitchens. At specific Frigo locations, such as for example the Sentitreff in Lucerne, there is a strong partnership with social institutions like Schweizer Tafel. Here, surplus food received from Schweizer Tafel is utilized in meal preparation, with any remaining items placed in the Frigo. This collaborative effort ensures that food is not wasted but instead reaches those who need it most. This sentiment underscores the thoughtful approach taken to ensure resources are optimally utilized while respecting the intent behind the donations.

5.5 Initiatives Against Food Waste

Madame Frigo’s network thrives on collaboration with various initiatives combating food waste, among which the focus lies on Foodsharing and foodwaste.ch. Foodsharing, in particular, shares a deep connection with Madame Frigo as the two initiatives operate many of the Frigos together, for example in Zurich and Basel. Meanwhile, foodwaste.ch plays a significant role in Switzerland’s broader efforts to reduce food waste and connecting all of Switzerland’s anti-food waste initiatives. Foodsharing is probably the most important initiative against food waste within the Madame Frigo network, as the food savers from Foodsharing frequently fill the Frigos, as well as collaboratively managing several of the Frigos. According to Jana H., the beginning of their collaboration dates back to a shared vision and similar concepts. She explained

“We actually reached out to Foodsharing relatively early on because, I mean, we basically had the same goal and a very similar concept. [...]over the past few years, it has evolved into a stronger partnership, where we realized that we could each build a sort

of brand independently, and by connecting them, we could reach even more people.”

(Jana H., 16.02.2024)

This sentiment underscores the relationship between Foodsharing and Madame Frigo, illustrating how collaboration amplifies their impact on mitigating food waste. While Madame Frigo and Foodsharing operate some of the Frigos together, clear differences between the original Fairteiler and Frigos remain evident. The Frigos by Madame Frigo boast a more standardized appearance and feature refrigerators sponsored by Electrolux. In contrast, Foodsharing's Fairteiler are more diverse, constructed by volunteers themselves, as pointed out by Sibylle N. and observed by myself. Madame Frigo's provision of Frigo locations for Foodsharing's use, along with support in maintaining Fairteiler, underscores the mutual benefits of their partnership. Madame Frigo secures financing partners for maintaining the Frigos, while Foodsharing leverages collaborations with various food retailers to rescue surplus food. Marilen Z. pointed out that Madame Frigo benefits from the collaboration with Foodsharing, as the vast network of Foodsharing expands Madame Frigo's reach to both volunteers and users. The strong collaboration between Madame Frigo and Foodsharing also becomes evident as many Foodsharing volunteers engage with Madame Frigo through this collaboration. Notably, some interviewees serve as both Gottis and Götis of one of the Frigos while volunteering with Foodsharing, blurring the lines between the two initiatives. Sibylle N., volunteer from Foodsharing and Gotti of a Frigo, clarified this interconnectedness

“I have been involved with Foodsharing for almost ten years, and that is actually my connection to Madame Frigo. We have taken over the maintenance of these Madame Frigo fridges through a cooperation [...]. It is integrated here because we have already had what we called Fairteiler before. They exist within Foodsharing, and the Madame Frigo fridges complement them.” (Sibylle N., 22.02.2024)

This integration illustrates how the collaboration enriches both initiatives, emphasizing their shared goals in combating food waste. In major cities such as Basel, Bern, and Zurich, Foodsharing food savers are crucial for filling the Frigos with food collected from retailers. Especially Foodsharing Zurich and Foodsharing Basel maintain a strong connection with Madame Frigo, jointly operating all Frigos in the city. However, it is important to note that Foodsharing's activities are limited to specific cities, as highlighted by Marilen Z.. In essence, the collaboration between Foodsharing and Madame Frigo represents a strategic alliance focused on optimizing resources, reducing food waste, and expanding community outreach.

Too Good To Go has been mentioned in several interviews for its significant role in reducing food waste in Switzerland, despite lacking any collaboration with Madame Frigo. While generally viewed positively and praised as an effective initiative, concerns have arisen regarding greenwashing due to the profit generated from food that would otherwise be discarded. Some food retailers have transitioned from Foodsharing to Too Good To Go attracted by the potential for profit, which has been upsetting for

some Foodsharing volunteers. Moreover, it was mentioned by several interviewees that there often is a confusion between Foodsharing and Too Good To Go, with both occasionally perceived as interchangeable. Mischa B., volunteer from Foodsharing and Götli of a Frigo, highlighted in an interview the positive aspects of Too Good To Go while also raising critical questions about the need for differentiation between the two.

The website foodwaste.ch and Madame Frigo have an exchange and mutual support, as emphasized by Claudio B.. The partnership between the two initiatives primarily revolves around exchanging knowledge and supporting each other in awareness-raising efforts, for example through shared monthly posts and joint appearance at sustainability events. For Madame Frigo, Claudio B. and foodwaste.ch are important partners, providing access to a wealth of knowledge and up-to-date data on food waste in Switzerland, as noted by Tina K.. Claudio B. mentioned one concrete example in which he supported Madame Frigo in addressing the issue of expiration dates on products, attempting to mediate with various cantons to enable the inclusion of products past their expiration dates in the Frigos. The website foodwaste.ch serves as a main player in connecting various initiatives in Switzerland, including engagement at the political level. The goal of foodwaste.ch was described by Claudio B. as follows

“The goal is for foodwaste.ch to no longer be necessary. Or for people to be able to focus on the next project, the next environmental challenge [...]. Until then, the aim is to spread as much knowledge and awareness as possible and to instill joy and appreciation for food in people, so that food waste does not occur [...]. And, of course, to support all actors working towards this vision.” (Claudio B., 05.02.2024)

Within the Madame Frigo network, numerous anti-food waste initiatives are dedicated to raise awareness. For instance, United Against Waste collaborates with foodwaste.ch to combat food waste. Similarly, the Pusch Foundation’s ‘Safe Food, Fight Waste’ campaign aims to raise awareness, as noted by Marilen Z.. Madame Frigo has actively participated in sustainability events such as food save banquets in various cities and the Week for Sustainable Nutrition in Bern. Another significant initiative in Switzerland is Äss-Bar, which collaborates with Madame Frigo at certain locations, as highlighted by Claudia S., Götli of a Frigo in Lucerne. In Bern, Madame Frigo volunteers also collect leftover baked goods from Äss-Bar to stock their fridges, as mentioned by Marilen Z. Moreover, Madame Frigo has incorporated Äss-Bar into their CSR events. Several smaller local projects also partner with Madame Frigo, which include RestEssBar and Delikatrestessen. These local initiatives often combine efforts with Madame Frigo to fight food waste. In the French-speaking part of Switzerland, projects like Robin Food in Biel, Free-Go in Geneva and Association Free Go in Neuchatel operate public fridges at a local level. Marilen Z. notes that while collaboration with these projects is generally limited to communication, there is potential for deeper partnerships, as seen with Robin Food, where they already have a more substantial collaboration. While there is a diverse range of initiatives in Switzerland, some are more

closely connected to Madame Frigo than others. However, all initiatives aiming to reduce food waste in Switzerland are welcome in the network, as emphasized by Jana H., who stresses the importance of collaboration and amplifying collective efforts

“I think what is very important is that other organizations advocating for food waste are not in competition [...]. We all pursue the same goal, and it is important to establish partnerships and connect with these organizations on those levels where possible, because together we are simply stronger.” (Jana H., 16.02.2024)

6. Motivations and Perceptions

There are different motivations for people to participate in food sharing activities as well as for people to initiate or support them. Ganglbauer et al. (2014) and Rombach and Bitsch (2015) investigated the motivations of people to participate in Foodsharing by doing pick-ups and taking surplus food. Ganglbauer et al. (2014) identified social and ecological values as well as economic needs as main motivations to take action in the Foodsharing initiative. Economic needs were seldom pointed out as the main motivation, although they mentioned that feelings of shame could hinder people expressing their economic needs. Rombach and Bitsch (2015) differentiated between instrumental, ideological, and identificational motivations and concluded that economic needs are not of importance. Schanes and Stagl (2019) also investigated the motivations of people to participate in food sharing in the UK, which they categorized into emotions and morality, identity and sense of community, reward, social influence and instrumentality.

From an external perspective, many consider financial reasons as the main motivation for participating in food sharing. My interviewees have also been confronted with this assumption, even though none of them agreed with it. It could be that many users utilize the services for financial reasons, but for the volunteers, the effort would not be worthwhile purely for financial gain, as emphasized in one of the interviews. As the focus in this master's thesis lies on the motivations of the people behind the food sharing initiative of Madame Frigo and not the users, the economical motivation does not play a significant role. There is a notable shift in the motivations behind efforts to reduce food waste. While previously driven primarily by social considerations, there is now a growing emphasis on environmental concerns. Unlike in the past when food waste was predominantly directed towards those in need, today, there is a broader recognition that everyone can play a role in minimizing waste, as pointed out by Marlen S.. The motivations of the interviewees are primarily of either environmental and social nature, while there are also lots of intersections between the environmental and social domains, as mentioned by Tina K.. The CEO of Madame Frigo, Marilen Z., mentioned that she perceives the motivations of different Gottis and Göttis can vary greatly, stating

“The backgrounds and motivations are extremely diverse. We have refrigerators where it is incredibly important for people to emphasize the social aspect. Where people would like it if those who may have a financially challenging situation could help themselves to these refrigerators. And we have others who simply say, ‘Hey, it is just about making sure the food gets eaten.’ There are very big differences.” (Marilen Z., 29.01.2024)

In this chapter, the diverse motivations of the individuals behind Madame Frigo are focused on, starting by looking at the perception of food waste in Switzerland and its main drivers. The motivations are categorized into environmental, social and other motivations, including for example the impact one can have by participating in Madame Frigo or spreading knowledge and networking.

6.1 Perception of Food Waste in Switzerland and Its Drivers

To delve into the motivations behind my interview partners' involvement in the Madame Frigo network, I first wanted to understand how they assess the food waste situation in Switzerland at the moment and what main reasons they mention for this situation. Many of the interview partners noted a growing awareness of food waste in recent years, along with an increased understanding of its negative consequences. Numerous interviewees highlighted the considerable efforts underway to address food waste, whether through actions like selling discounted food in supermarkets, improving calculations in restaurants to minimize waste, or the emergence of numerous new and inventive initiatives aimed at reducing food waste. However, they expressed a desire for more people to participate in different anti-food waste initiatives and a broader awareness of the consequences of individual behaviors, emphasizing the need for a cultural shift towards valuing food and minimizing waste. Some interviewees expressed hope for changes in hygiene standards and regulations to facilitate the saving of food and cooperation among stakeholders. Others advocated for laws compelling supermarkets and other key players in the supply chain to take more decisive actions against food waste. Claudio B., president of foodwaste.ch, mentioned that the website foodwaste.ch actively showcases these anti-food waste initiatives, revealing a significant raise in their numbers over the past few years. Additionally, this raising awareness about the issue is also mirrored in the political arena, as food waste reduction goals are included in the state's political action plan, targeting a reduction by 2030 (Swiss Federal Council, 2021). It is evident that while progress has been made in addressing food waste at various levels, there is still much work to be done in shifting perceptions, social attitudes and behaviors towards more sustainable practices, as noted by Claudia S.. Claudio B. mentioned that while a lot is happening, effecting widespread behavioral change takes time and concerted effort, stating

“Two to three million tons of food waste is extremely high, and it does not require actions from fifty or a hundred actors, but ultimately from eight million Swiss citizens, and also to some extent, systemic changes, and that takes much longer.” (Claudio B., 05.02.2024)

Some interviewees considered current efforts insufficient to address the magnitude of the problem, particularly if solutions rely solely on voluntary measures without broader systemic changes. Marilen Z. and Tina K. pointed out that the goal of halving food waste until 2030 will most likely not be met. This was also pointed out by Sibylle N., stating

“Yes, I think it is utopian at the moment to believe that we will not need us (Foodsharing) anymore. Because I think, well, we have such great prosperity that the supply is already very abundant [...]. I think there will always be food waste.” (Sibylle N., 22.02.2024)

When I asked about the factors contributing to the current state of food waste in Switzerland, there were various reasons mentioned. While food waste occurs at every stage of the supply chain, discussions

predominantly revolved around consumer-related issues towards the consumption end. Nevertheless, Claudio B. highlighted that there is always a chain of causes which lead to the discarding of food and also a lot of different reasons which are interconnected. Foremost among the reasons cited was Switzerland's wealth, mentioned by nearly all interviewees. This observation resonates not only among my interview partners but is also reflected by statistics from foodwaste.ch which was mentioned in one of the interviews, revealing that food expenses constitute only 7% of income in Switzerland, in stark contrast to countries like Cameroon, where it comprises nearly 50% (foodwaste.ch, 2024). As mentioned by Beretta (2018) the customers in countries like Switzerland can buy more than they actually need, as the food prices are significantly lower than the real cost of food, as products are subsidized or imported from low-income countries. Additionally, it emerged that discarding food is not only cheaper for private individuals but also for various actors along the supply chain. Furthermore, the abundance and availability of food in combination with low prices, exacerbate the problem, such as Marlen S. made clear

“The main reasons, well, simply our prosperity, that is just how our generation has grown up, having everything. And, yes, it is like, when you have the money and you have the option.” (Marlen S., 19.02.2024)

Wealth as well as abundance and availability were the two reasons that were mentioned the most, often intertwined. However, these two causes are also often times related to other ones. The affordability and availability of food fosters a culture of disregard for food and lack of appreciation, leading to food being thrown away without thinking about its consequences and prompting wasteful behaviors, mentioned by Noemi A. and also reflected in the work of Aschemann-Witzel et al. (2015). This is connected to other reasons such as lack of planning and spontaneity, as food is always available, which was also mentioned by Aschemann-Witzel et al. (2015) as one of the main reasons. Delley and Brunner (2017) categorized this group of people as the short-termists who have rather low planning capabilities and therefore buy too much and throw away more. This goes hand in hand with a lower appreciation for the value of food. Not only do people not want to plan their meals out and shop accordingly, they also lack the creativity to do something with the leftovers or do not want to package the leftovers and eat something they already ate the day before. Aschemann-Witzel et al. (2015) even mentioned that some feel disgust when having to eat leftovers. Some interview partners attributed this cause to laziness. The word laziness was used in different contexts when it comes to the causes of food waste. Laziness for example manifests in shopping behaviors, as people prefer pre-packaged convenience foods, such as ready to eat salads or fruit bowls. As a consequence, these kind of products spoil much faster than vegetables and fruits that need to be prepared by yourself, as pointed out by Sibylle N..

Delley and Brunner (2017) categorized people as the consumerist for which they also attributed a lack of planning, favoring eating out over cooking at home and not considering their consumption patterns. This results in very high food waste amounts. Laziness was not only mentioned as a reason why people

throw away food in the first place, but also as a reason why people do not invest time into giving away the food they do not want any more, emphasized by Jana H.. Canali et al. (2017) categorized food waste drivers into four categories, one of which is social context. Most of the drivers identified in the interviews fall under this category. Furthermore, a lack of knowledge about the extent of food waste in Switzerland and its environmental consequences was mentioned as one of the reasons why people throw away food in the first place but also why there is a lack of motivation to reduce it. Despite awareness raising initiatives, the food industry's conflicting messaging perpetuates misconceptions and undermines efforts to combat waste, as Tina K. put it

“I believe that because we are led to believe that there is always enough [...]. And yet, to the individual it is suggested that it is okay and it is fine. It is not like there is anywhere the healthy limit is being shown, but on the contrary, it is always suggested that more is better. I believe that is certainly the main problem, that it is being communicated incorrectly in public, in the media, and in the offerings themselves.” (Tina K., 29.01.2024)

The industries communication on specific dates, such as for example the best before date, is also misleading. To many consumers it suggests that after this date the food is spoiled and cannot be consumed anymore, even though it is still edible. Furthermore, hygiene standards are very strict, as mentioned by Wahlen (2018). Additionally, the strict laws in Switzerland and the lack of cooperation of supermarkets also makes it difficult to save more food along the supply chain. While some interviewees mentioned missing or misleading information as a primary reason for food waste, others saw an inundation of consumers with too much information as more of a problem, as it leads to consumer overwhelm. A lack of knowledge and awareness about food waste in Switzerland in combination with a lack of drive to do something against food waste can be fatal, or as Jana H. called it “a fatal combination between laziness and not-knowing”. Another reason which was mentioned was a growing distance to food and the way it is produced. This was also often combined with the terms consciousness or mindfulness, as for example by Noemi A.. Groceries are purchased in gigantic supermarkets, filled to the brim with a wide variety of products of the same kind, many of which are imported from other countries. Reasons like these lead to a decreasing awareness and consciousness about where the food is coming from and how it was produced. Marilen Z. used the term “alienation from food” to describe the losing connection to food. Wahlen (2018) pointed out that collaborative consumption could be a way to reduce the alienation from food, as it enables more social ways of consuming. Especially in the interview with Mischa B. the missing connection to food and food production became clear

“We have lost this connection, truly become estranged from food [...]. The supermarket has become a place where I get something, but I do not know where it comes from.” (Mischa B., 11.03.2024)

Aschemann-Witzel et al. (2015) also mentioned in their research a lack of connection between the consumers and how the food is produced which makes it difficult for consumers to visualize the production of the food they consume.

6.2 Environmental Motivations

The main focus of Madame Frigo is reducing food waste and promoting sustainable consumption. This is why the environmental motivation is the primary one for most of the individuals behind Madame Frigo. This was also mentioned by Ganglbauer et al. (2014) for Foodsharing, where ecological motivations are of great importance, also in terms of supporting broader societal change and achieving macro-effects along the supply chain. For financing partners like Electrolux often times the contribution to food waste reduction and achieving more sustainability in households is the main focus.

Madame Frigo estimate that they save over 200 tons of food each year (Madame Frigo, 2024a). Compared to other initiatives, especially social institutions like Tischlein deck dich or Schweizer Tafel, the amount of food waste actively saved through Madame Frigo is small. This is also because social institutions often actively pick up leftover food from shops which Madame Frigo does not actively do. Madame Frigo acknowledges that it is not a lot in terms of quantity, but this is also not the main goal as mentioned by Marlen S.. Quantity does matter too, but it is also very much about raising awareness among households and therefore reducing food waste indirectly. It was noted in some interviews, for example by Lukas S., that the impact of Madame Frigo lies more in raising awareness and therefore indirectly reducing food waste rather than by the usage of the Frigos. Tina K. pointed out that Madame Frigo raises awareness by for example attending sustainability events, neighborhood festivals, but also the Frigos serve as objects to spark public discussions. Additionally, they organize workshops as well as corporate events, and opportunities for volunteering days. Delley and Brunner (2017) claim that raising awareness about the issue of food waste is important but will not be enough to change people to act more environmentally conscious. It is more effective to show that a sustainable behavior meets the social norm, as was also mentioned by Claudio B. in the interview. Jana H. remarked that it is important to raise awareness that even if we can afford it financially to throw away so much food, we cannot afford it ecologically

“And I think it is important to raise awareness there. You might be able to afford it financially, but you cannot really afford it ecologically, because food waste accounts for a significant portion of overall CO2 emissions.” (Jana H., 16.02.2024)

As it affects every person individually, it is also a very suitable topic to engage in discourse with people who have not yet had anything to do with the environment and sustainability. The topic of food waste is very much about moderate consumption and principles that are actually applicable to other

environmental issues as well. Some of the interview partners were more general about their motivation and emphasized the importance of looking after the resources in general, not only in the food sector, as mentioned by Jana H.. Claudio B. made clear that for him there is a huge need for action in our society to move towards a sustainable level, and food waste avoidance is in his view the low-hanging fruit of environmental protection, where a lot can be changed with very simple measures, which are also often least controversial compared to other areas. Many of the interviewees are also involved in other environmental issues alongside Madame Frigo and see a great need to live more sustainably and ecologically. Carl V., volunteer from Foodsharing, mentioned that his main focus was the environmental aspect, saying that

“So, the biggest motivation was definitely environmental, an interest in environmental issues in general, like climate change. And you quickly realize that the food sector plays a significant part, which is not talked about as much. And that is where Foodsharing is a great place to start because we are essentially using food directly that would otherwise be thrown away.” (Carl V., 26.02.2024)

For many it is also very motivating that you can achieve a lot with little effort by reducing food waste and therefore can have a significant ecological impact. Moreover, according to Tina K., one does not have to advocate for sacrifice as in other environmental issues, but simply to pay attention to wasting less and to appreciate and better utilize resources. This can make the work on food waste reduction very positive and motivating. Besides this, the impact on food waste each one of us can have can happen very fast in comparison to other changes in the food sector, such as for example cultivation and production methods, transitioning to organic farming, and solidary agricultural structures.

6.3 Social Motivations

Food sharing has a great environmental impact, but it can also be argued that the greater benefit of food sharing is the sense of community it fosters and the people in need it helps. It becomes clear that Madame Frigo does not save a lot of food compared to other initiatives and social institutions. This is why Marlen S. also emphasized that Madame Frigo not only focuses on the environmental aspect, but also on the social aspect

“And that is why I think it would be good to also emphasize the social aspect, because if you only focus on the ecological, you would have to save a lot to say, ‘We are so sustainable because we save this much,’ right? But I think Madame Frigo is much more.” (Marlen S., 19.02.2024)

The initiative of Madame Frigo is accessible to everyone and gives something to people and society in general. When I asked my interview partners about their motivations, the social aspects was mostly

understood in either community building or helping those in need. Madame Frigo can build a community through connecting people in their volunteer work and in the food sharing network in general, but also with people that use the Frigo and participate in sharing. The aspect of sharing and giving away things that have been picked up through Foodsharing can also bring a lot of joy and motivate to further engage in the volunteer work, as described by one of my interviewees, Sibylle N.. Ganglbauer et al. (2014) mention that people volunteering for Foodsharing are motivated by doing something good, feeling a reward for being socially responsible. This is also connected to the aspect of helping those in need by providing them with surplus food. The two aspects of community building and social responsibility will be looked at in more detail in the next two subchapters.

6.3.1 Community Building

Food in general has a social and cultural value and therefore a community building function, as pointed out by Zurek (2016). The action of sharing can be perceived as a communal act and promotes a feeling of solidarity (Belk, 2010). Community building through food sharing can occur at various levels, and Madame Frigo is a prime example of this. The initiative fosters community building significantly through volunteer work, as the volunteers are in exchange not only at the individual locations but also with other locations. The Frigos are maintained and stocked by several volunteers, creating small communities at each location. Madame Frigo unites volunteers and facilitates the formation of local communities by providing organizational means and resources for the community to form. They also support the volunteers and the community in maintaining the Frigos and sharing food. This supportive structure is greatly appreciated by the volunteers and distinguishes Madame Frigo from other initiatives, as noted by Sibylle N. and Sanela M.. With approximately 500 volunteers across 150 locations, Madame Frigo's extensive national network prevents every volunteer from knowing one another. However, smaller community groups often form in cities or around individual Frigos. Each location usually has multiple volunteers, fostering a sense of solidarity as they collaborate to care for the Frigos. Volunteers are deeply committed to the process, from finding a location and contacting the municipality to organizing a team and building a network, creating strong bonds among them, as pointed out by Tina K.

“One reason is that so much volunteer work is involved [...] So that alone makes it something where people come together within a cooperative project, within a neighborhood, or their village, etc., and often initiate the project together.” (Tina K., 29.01.2024)

In neighborhoods with an already strong community presence, a Frigo can enhance these connections, as seen with Claudia B.'s Frigo, which also benefits from a group chat, also mentioned in the paper by Jo et al. (2024). Frigos are also often times placed in a location where a strong community already exists which then facilitates the food sharing process, as pointed out by Jana H.

“In that sense, I would definitely say it is a good tool for promoting community, but also for being established within an existing community context.” (Jana H., 16.02.2024)

Food sharing can support community building, but also relies heavily on local communities and the active participation of users and volunteers in order for it to work, as also pointed out by Ganglbauer et al. (2014). In areas where there are multiple Frigos close by, strong connections can form between volunteers, either from previous acquaintances or through their involvement with the Frigos. The Frigos are often times initiated with the support of the municipality, the local church, or other initiatives, becoming true community projects. Even the opening celebrations for new Frigos can bring neighborhoods together, offering opportunities for people to connect and exchange ideas. The Frigos as a physical space can serve as a community gathering place for people to share and connect, therefore a social infrastructure, contributing significantly to community building, also noted by Jo et al. (2024).

Connections can also extend beyond the activities themselves, fostering relationships among participants in food sharing initiatives and further strengthening community bonds. Marilen Z. mentioned that it is very dependent on the people who use the Frigo, whether they just go there and quickly put something in or take something out or if they actively engage in the entire process, by helping to maintain and clean the Frigo and holding short conversations with other people. Interviewees pointed out while most interactions are anonymous, occasional conversations and expressions of gratitude do occur, fostering a sense of community, as noted by Raphael M.

“Over time, the same people keep coming, so you get to know each other and say hello. It means there is a bit of a community.” (Raphael M., 07.02.2024)

Although most volunteers do not know all of the users, they often recognize regular visitors, leading to friendly interactions. Those weak ties can also transform into stronger social ties through repeated encounters at the Frigos (Jo et al., 2024). Sometimes the users know the Gottis and Göttis, for example one of the Göttis told me that he was once greeted by one of the users

“Yeah, one time in the city, a woman called out, ‘Hello, Madame Frigo!’ (laughs).” (Filmon A., 07.02.2024)

Carl V. mentioned that there is a basic understanding and trust among those involved in Madame Frigo or Foodsharing, as they share a common goal and similar motivations, though it is generally a loosely connected community. Both Madame Frigo and Foodsharing host events to promote community building, and many interviewees expressed a desire to see the social aspect of these initiatives revitalized. Food sharing initiatives also enable people to get out of the anonymity of big cities by fostering community projects and encouraging interactions among people who might not otherwise connect. Falcone and Imbert (2017) also pointed out that food sharing can be examined from the social perspective, especially in urban settings where people live very anonymously.

One interviewee, a refugee who cannot work in Switzerland, focuses on volunteer work with Madame Frigo. For him, the project is not only enjoyable but also allows him to contribute meaningfully to the community while benefiting from food sharing himself. The reality that Madame Frigo is a project for everyone is reflected by the fact that the Frigos also serve as a way to integrate people into a community from diverse backgrounds, including those who may face cultural or language barriers, as food sharing requires minimal language skills. This inclusivity is also noted in Foodsharing, where about 50% of participants are from abroad, pointed out by Mischa B. and Carl V.. Sharing food and eating together in general is a phenomenon that naturally binds people, especially when the food is rescued or shared directly. Mischa B. emphasized that sharing, preparing, and eating food together can significantly foster a community spirit, stating

“Food unites people, really, it is so amazing. [...] No matter which country you are from, the only way we can truly communicate is with food. [...] all people need to eat or want to eat, and that is what brings us together.” (Mischa B., 11.03.2024)

Additionally, food sharing goes beyond just sharing food. Holmes (2018) also mentions that beside food, there is also an exchange between volunteers and users where advice and support is being shared.

6.3.2 Social Responsibility

Madame Frigo is a project that claims to be accessible to everyone and a service for the general population. Tina K. highlighted that Madame Frigo is not limited to certain groups of people and the concept is kept simple in order for it to reach as many people as possible. Nevertheless, a lot of people that use the Frigos provided by the initiative are in financially vulnerable situations. For many volunteers, it is a great motivation to take care of the Frigo and ensure that it is regularly filled for this reason. At almost every location, there is a small group of people who rely on the Frigo. It becomes very obvious as many of the volunteers mentioned that certain people know exactly what time they refill the Frigo and come by to pick something up at that exact moment. The interviewees perceived a kind of dependence on these products. However, this can also become problematic if the users start relying on the volunteers and the volunteers feel pressured to help them, as mentioned by Mischa B.. However, it was also often mentioned in the interviews that while they appreciate that people who need it have the option, it should still be a project that is available to everyone, regardless of income or prosperity. Although Foodsharing officially stands for the idea that it does not matter who picks up the food and there are no social standards, many people are still motivated by the fact that they are doing something socially valuable, such as Carl V..

Overall, the main group of people that use Madame Frigo are in financially challenging situations, such as refugees, foreigners, older people, or sometimes even students. However, this opinion was not shared

in all interviews. At the location in Aarau, the Götti mentioned that individuals in financially challenging situations often do not engage with the project or are simply unaware of its existence. Much of the sharing occurs anonymously, making it difficult to quantify. For Madame Frigo it is important to guarantee anonymity when using the Frigo, which was emphasized by Tina K. and Marilen Z.. By guaranteeing anonymity, Madame Frigo works against stigmatization of users, as everyone can and should access the food in the Frigos (Wahlen, 2018).

All interviewees involved in Foodsharing emphasize that the main motivation behind Foodsharing or similar food sharing initiatives like Madame Frigo is not to help people who depend on it. There are other organizations that focus on this social aspect. However, all of them consider the social aspect of Foodsharing and Madame Frigo important, and some even pass on the food collected from Foodsharing to soup kitchens. Besides providing access to food for those in need, Madame Frigo can even promote solidarity among the volunteers and the users, as mentioned by Tina K.

“Madame Frigo is also used by many socially disadvantaged people or people in difficult life situations, with low incomes, in difficult social circumstances, etc. And I believe that just by this fact alone, it is a project that promotes solidarity among each other.”
(Tina K., 29.01.2024)

Madame Frigo and their financing partners are indifferent to who brings or takes the food, as long as someone is grateful that they can save food from being thrown away. But of course it is a nice benefit if people who really depend on it can profit from the initiative, as was discussed in one interview with the representatives of Electrolux

“In the end, it does not really matter who takes it. The main thing is that this food does not end up in the trash. That is the number one goal, and who takes it is actually secondary. [...] it is actually a positive side effect, and we are all the happier if people who really need it can benefit.” (Stefano G., 21.02.2024)

There are many aspects that will likely further strengthen social motivation in the future, as everything is becoming more expensive, especially food, and many people have ended up in difficult situations due to the COVID-19 pandemic and the conflict in Ukraine, which was perceived by Raphael M..

6.4 Other Motivations

Environmental and social motivations were the ones which were mentioned the most and are very visible. Nevertheless, there were also other motivations identified, which I summarize in this subchapter. For some of the interviewees the focus did not only lie on saving food because of the environment, but also for the sole purpose of valuing food, as Jana H. stated

“But I believe that when it comes to food, it is somehow a deeply rooted value for me. It is about caring for the resource and recognizing that food is precious. It is like something that is actually really internalized for me.” (Jana H., 16.02.2024)

This was also mentioned by Rombach and Bitsch (2015) in their paper, that many of the interviewees noted that they try to demonstrate that food is important and the value of food is independent of its retail price. Certain interview partners have also mentioned that the appreciation for food is something they were taught from a young age, and therefore, it remains an important motivation for them today. There were individual cases where the interviewees mentioned that they were in difficult situations where they did not have much to eat. For this reason, they find it important to appreciate food and not to waste it, simply because food should be valued.

One of the biggest motivations of the people behind Madame Frigo to continue their paid or volunteer work but also supporting the initiative is the appeal of the concept itself. Tina K. noted that the concept is really gratefully accepted, as it is a free option and Madame Frigo provides the entire organization and infrastructure. Tina K. and Marilen Z. mentioned that they get a sense of accomplishment through their work at Madame Frigo and being motivated over and over again through the exchange with the volunteers and hearing how grateful they are, such as in the interview with Tina K.

“And that is actually what makes working on this so incredibly motivating and enjoyable, that there is a big network of people behind it who want to volunteer, who also approach us with requests for new locations, and who manage that, often over several years. [...] even making compliments about how great the project is and how much they enjoy using it. And that it is a really cool concept.” (Tina K., 29.01.2024)

Many of the interviewees are also motivated simply by the fact that they can achieve a lot with little effort. Through the concept of Madame Frigo, volunteers can have direct impact and make an important contribution, which motivates a lot of people to get involved. Many of the interviewees are generally motivated to effect positive change and to participate in it as well. Marlen S. and Jana H. pointed out how one can use one's own resources to change something about the situation instead of only complaining. Madame Frigo offers people to do something themselves and become active. One can directly see the impact when food that would otherwise be discarded is consumed or passed on to someone else who enjoys it. This is quite different from other environmental challenges where one does not see the influence when abstaining for example from using a car or an airplane, as emphasized by Carl V.. Sibylle N. also mentioned this aspect in the interview, stating

“And I found it very meaningful. It is very local and, yeah, for me, that is the motivation, it is something very concrete. [...] with food rescue it is always so tangible and visible, that motivates me a lot.” (Sibylle N., 22.02.2024)

Besides the fact that they find the concept and idea behind Madame Frigo interesting, many of the interviewees think it can also easily be combined with other projects, such as their own sustainable brand, pointed out by Lukas S., a public bookshelf, or a social place like the Sentitreff. Also for Electrolux it was a great motivation to cooperate with Madame Frigo as their goals and visions align very much with the initiative in various aspects, such as promoting sustainable consumption, reducing food waste and promoting mindfulness for food and general in the household, pointed out by Stefano G..

An additional reasons to participate in food sharing initiatives but also raising awareness about the issue to spread knowledge. One of the interview partners, Mischa B., is a very active activist and his goal is to raise awareness and move people to change their thinking. He tries to achieve this through art, which sometimes is a bit shocking and therefore stimulates the mind. He also sees Foodsharing as a way to spread knowledge, as every single person involved in the initiative can educate and inspire more people in their personal circle

“Foodsharing is not just for alternative people, but rather it is a normal phenomenon. It is the most normal engagement for all of us. It is not something special or just for ‘freaks’ or ‘lefties’, but rather, every person is involved. It is normal not to waste.”
(Mischa B., 11.03.2024)

The representatives of Electrolux also mentioned that for them, educating consumers and thus bringing about a change in how food is handled is an important motivation to collaborate with Madame Frigo. As providers of, among other things, sustainable products, they can offer consumers a sustainable alternative. However, consumers must already be sensitized, which is where Madame Frigo plays a supporting role. Claudio B. focused very much on the motivation of spreading knowledge and building a network. As a researcher he sees the advantage in knowing more about the problem but also in managing to bring this knowledge to the places of decision-making. For this reason, he also founded foodwaste.ch. The website serves as a platform to process and publish knowledge which is found in scientific papers and publications in a form that reaches as many people as possible. Furthermore, all knowledge about the entire value chain should be concentrated in one place. Additionally, foodwaste.ch takes on a networking function in order to inform about new start-ups in the anti-food waste area and also to connect them, so that a solutions can spread much faster, and others can build on it and further develop it. Claudio B. pointed out that these are the main goals of foodwaste.ch, to communicate, process, and transfer information and create a knowledge as well as a networking platform.

7. Challenges

Madame Frigo faces a multitude of challenges of different kinds. Depending on the interviewee's role in the network of Madame Frigo, their focus varied. For instance, the Gottis and Göttis of the Frigos highlighted challenges specific to their individual Frigos, while Madame Frigo and representatives of their financing partners prioritized challenges related to funding, professionalization, growth, and prominence of Madame Frigo. This chapter is organized into subchapters covering topics such as financing, growth and professionalization, cooperation and competition, knowledge and prominence, threshold to participate and lack of trust, along with challenges specifically related to the Frigos themselves, which are further divided into additional subchapters.

7.1 Financing, Growth and Professionalization

Madame Frigo is an organization that does not generate revenue on its own and has therefore relied on external financial resources from the beginning on, as was mentioned by the president and co-founder of Madame Frigo, Jana H.. Maintaining the status of a non-profit organization and providing the Frigos and the food for free has been a crucial aspect since its inception. Approximately three years after its founding, the initiative's significant growth potential was recognized, which exceeded the capacity of volunteer work. Madame Frigo then faced challenge of financing both the acquisition of Frigos as well as compensating the employees who transitioned from volunteer to paid work. When Madame Frigo received initial financial support by the Migros Pioneer Fund, they employed individuals, primarily students, in small part-time roles. However, it became clear that there was a need for greater efficiency and professionalism as the initiative was growing further, prompting the creation of full-time positions and clearer hiring criteria. The CEO of Madame Frigo, Marilen Z., explained that most financial resources are allocated to the headquarters and therefore further financing is also necessary in order to be able to pay additional wages in the future, as the work related to the operation of the Frigos is undertaken voluntarily. During their initial growth phase, assembling a well-defined team and documenting processes were key challenges, in which they were also supported by the Migros Pioneer Fund. Furthermore, they have invested a lot of work into the professionalization to support volunteers effectively and manage other operational aspects. Finding alternative financial resources after the support of the Migros Pioneer Fund ended posed a significant challenge, where foundations like the Seedling Foundation and financial backing from Electrolux became crucial, as noted by both Tina K. and Marilen Z.. The representative of the Migros Pioneer Fund acknowledged that they should have pushed initiatives like Madame Frigo a lot earlier in seeking new financial partners, stating

“Today, we focus on more market-oriented projects, which have long-term potential, meaning they have significant impact potential and, first and foremost, the potential to be financed at least to a substantial extent through revenues. This is extremely difficult

for Madame Frigo. As part of our support, we assist the projects in evaluating, testing, and then tapping into income sources. In the past, many projects, including Madame Frigo to my knowledge, have approached this too late.” (Pablo V., 13.02.2024)

Nevertheless, Madame Frigo has overcome the hurdle well as Jana H. has mentioned in the interview. Although current financing of Madame Frigo is relatively stable, future challenges remain due to the one-time or limited nature of many funding sources. Therefore, fundraising and sponsorship will stay an important and challenging topic for Madame Frigo. Marlen S., responsible for location and community at Madame Frigo, mentioned that the demand for new Frigo locations remains high, with around 160 requests in the last year. Madame Frigo has experienced considerable growth, adding approximately 30 to 40 new Frigo locations annually. Marlen S. raised an important question about the scale of expansion, reflecting on the challenge of growth of Madame Frigo, stating

“And otherwise, I think, it is just that the more growth there is, the more people you need, obviously. And it is like the question [...] well, how big do you want to get?”
(Marlen S., 19.02.2024)

7.2 Cooperation and Competition

Cooperation and Competition pose significant challenges not only for Madame Frigo but also for the general food waste network. In order to increase their impact and expand their reach, anti-food waste initiatives rely on strong cooperation with actors in the food sector as well as other initiatives. This being said, cooperation among initiatives active in the anti-food waste network is generally perceived as easier than with actors along the supply chain such as for example producers or retailers. One major challenge arises from the restrictions large supermarkets such as Coop and Migros impose on themselves, which often limit their ability to donate surplus food. Often times they can donate their food to social institutions like Schweizer Tafel or Tischlein deck dich only. Nevertheless, some interview partners mentioned instances where employees from big supermarkets like Coop and Migros brought leftover food to the Frigos independently. In a unique case in Lenzburg, Migros even provided a location for the Frigo and supported the volunteer in maintaining it, mentioned by Sanela M., Gotti of a Frigo.

Beside the challenge of restrictions by supermarkets, concerns about competition hinder the cooperation with such entities. Some actors in the food industry view initiatives like Madame Frigo and Foodsharing as threats to their business model, fearing a loss of sales if surplus food becomes freely accessible. This was also mentioned by Marilen Z. who noted that food sharing initiatives are perceived as competition within the model of a supermarket. Big supermarkets are against redistributing food for free to everyone like the initiatives of Madame Frigo and Foodsharing do, and rather donate their surplus food to social

institutions or cooperate with the for-profit initiative Too Good To Go. Claudio B. also mentioned the issue of redistribution of food for free as a challenge for supermarkets, stating that

“One general challenge, from the perspective of certain individuals in the food industry or in commerce, is that it provides a way to access food for free. Some view this as a form of cannibalization of trade, where the livelihood depends on the viability of prices customers pay. If food is freely accessible to everyone [...], some argue that certain people would have otherwise needed to purchase food, resulting in reduced sales.”
(Claudio B., 05.02.2024)

But he does not see this as a valid argument against initiatives who offer food for free to everyone, as the ultimate goal should be to minimize food waste. He claims that as long as the system generates surplus food, it is valid to redistribute it. Food waste is a loss for society, and the redistribution of food for free is only a loss of income for a single company. Especially for Foodsharing, collaboration with different actors, such as supermarkets, local shops, bakeries and restaurants is the heart of their activities. Madame Frigo has a strong partnership with Foodsharing as they also maintain some of the Frigos together. As a consequence, Madame Frigo indirectly faces challenges that Foodsharing encounters in collaborating with food suppliers.

There are only a few exceptions where cooperation with projects that work similarly to Madame Frigo was difficult. The reason could also have been that they fear competition, as stated in this interview by the CEO of Madame Frigo, Marilen Z.

“We sometimes feel like we are perceived as competition, simply because we are the largest organization in Switzerland. It is often not the organization itself, but rather certain individuals who feel a bit attacked or perhaps threatened because of our size, as if we aim to take over or dominate them in some way. We occasionally sense this pushback, but it is not at all what we intend to convey.” (Marilen Z., 29.01.2024)

The potential to save food from being discarded as waste is still far bigger, but it needs a stronger willingness from all different actors to cooperate. Despite the different challenges, cooperation and competition within the food waste network have been evolving over the past years and more cooperation became possible. Ultimately, the success of cooperation efforts often hinges on a small number of key individuals, highlighting the importance of advocacy and education within the industry. Despite ongoing challenges, the network surrounding Madame Frigo and similar initiatives continues to grow, offering hope for a more sustainable approach to food waste management in the future.

7.3 Knowledge and Prominence

One of the main challenges faced by Madame Frigo and similar projects is the public's lack of awareness and understanding of how the initiative operates. The success of these initiatives is dependent on the fact that it must become normal for people to both contribute their surplus food to a Frigo and to take items from it when needed, pointed out by Mischa B.. Some interviewees recounted instances where they were approached while they were cleaning or restocking their Frigos, and curious people seeking clarification on its purpose and functionality.

Tina K. mentioned that increasing public awareness of Madame Frigo is essential in order for the initiative to increase their impact on food waste reduction in Switzerland. Without knowledge of its existence, potential users will remain unreached. Saginova et al. (2021) pointed out that people often do not know the benefits of food sharing as well as where they can bring their food surpluses. Effective communication is a very important aspect to inform people about the concept of Madame Frigo and how the initiative works. This can be achieved through social media platforms like Facebook, Instagram, and LinkedIn, as well as through community events. Additionally, the distinct yellow cabinets and flyers placed within the Frigos themselves serve as attention-grabbing tools, pointed out by Marilen Z.. The prominence of Madame Frigo varies significantly by location. Some interviewees mentioned that in larger cities like Basel, Bern and Zurich, where Frigos are more prevalent, Madame Frigo is well-known. Conversely, in areas where Madame Frigo is less present, public awareness is low, resulting in underutilization. Thus, expansion is crucial for Madame Frigo to fulfill its mission of combating food waste across Switzerland. Efforts to raise awareness should not only focus on Madame Frigo as a whole but also on individual Frigo locations. In some cases, Frigos may be nearby but not well visible. The Gottis and Göttis of the Frigos mentioned that it is mostly their responsibility to make people aware of the Frigo and what the purpose of it is, consequently requiring additional volunteer efforts which is not always possible.

7.4 Threshold to Participate and Lack of Trust

In order for sharing to work, the initiatives are dependent on enough participants, be it from the consumers or providers, but there are barriers that can prevent participation (Spindeldreher et al., 2019). Madame Frigo faces challenges in increasing participation due to various barriers. Marlen S. stated in her interview that the issue lies not in acceptance of Madame Frigo or awareness about the topic of food waste, but rather in individuals needing to surpass a certain threshold to actively participate. This was also investigated in the papers by Lazell (2016) as well as Saginova et al. (2021), where they found that although food sharing is perceived very positively, a gap between the intention to participate and the actual participation exists. Even if consumers are aware of the issue of food waste, there are still barriers in place, as mentioned by Delley and Brunner (2017). Pro-environmental behavior is often seen as

inconvenient, as it requires additional effort and time compared to simply discarding food (Delley and Brunner, 2017). Jana H. mentioned that there is still more potential for food to be placed in the Frigos, which they did not expect to be an issue when first initiating Madame Frigo. She also attributes this to laziness and therefore noted that participation has to be as effortless as possible, stating

“Um, and the reason for that is, to put it simply, people are just lazy or [...]. Then you have to pack these groceries, and then you have to take the effort to go to a refrigerator, put them in there, and then you do not even really get a reward for it, except maybe a little good feeling. And that is usually too little incentive or too much effort for many people.” (Jana H., 16.02.2024)

Food consumption is closely tied to other actions forming habits and routines. Therefore, changing or introducing new behaviors requires adjusting these deeply ingrained daily patterns (Lazell, 2016). It is difficult to motivate people to question their routines and habits and change their behavior (Delley and Brunner, 2017). Lazell (2016) points out that routines and habits are not only a barrier to participate in food sharing, but also one of the main reasons why food waste occurs in the first place. Tina K. emphasized the importance of minimizing barriers to participate by integrating it into daily routines, stating

“but then there is also the challenge of whether there is one (a Frigo) nearby, and if it is close enough to my commute that I pass by it every day. Can I somehow integrate this into my daily routine? [...] I think one of the major challenges is that it is as low-threshold as possible.” (Tina K., 29.01.2024)

Tina K. also pointed out that the perception that the Frigos are empty most of the time can be discouraging, as it seems they are not being used. Additionally, vandalism and concerns about food safety deter involvement. Especially in larger cities the Frigos are often sprayed or dirty, which can scare people off from participating. Furthermore, there is uncertainty about the quality and safety of the food and users fear that they get spoiled products (Saginova et al., 2021). This lack of trust can discourage involvement and perpetuate misconceptions about those who utilize Frigos, such as Mischa B. and Marilen Z. mentioned in their respective interview

“I eat everything, I do not pay attention to those ‘best before’ dates, I do not care about that. But with the fridge, there is this feeling of, ‘Is this really food that I can eat?’ [...] For many people, it is such a huge hurdle” (Mischa B., 11.03.2024)

“In this sense, I also feel that there are certain people who do not participate because there is a bit of a lack of trust. There is a feeling of, ‘What am I getting? What is actually inside that fridge?’ Yeah.” (Marilen Z., 29.01.2024)

Trust is a fundamental aspect of Madame Frigo’s concept, where people anonymously place food into communal refrigerators for others to take. Lazell (2016) emphasizes that trust between the people

involved is crucial for the success of food sharing initiatives. The relationship between the people that share food is of great importance and the absence of social connections between sharers can lead to a lack of trust and concerns about food safety, which can hinder participation (Lazell, 2016; Falcone and Imbert, 2017). Trust can be built through community events or personal encounters at the Frigos, which facilitates sharing (Morrow, 2019a). Zurek (2016) describes that the change of food sharing between members of a local community to an online community or sharing between strangers in general, can have consequences which impact the food sharing economy significantly, for example trust and the perceptions of risks. The lack of knowledge of where the food is coming from and which hygiene conditions were followed can affect the level of trust and therefore the risks people are willing to accept. In a traditional capitalist system currency serves as a way to ensure trust, which is not possible in food sharing or sharing in general, which is very much based on reciprocity and trust (Wahlen, 2018; Spindeldreher et al., 2019). This reliance on trust can be both empowering and challenging, as highlighted by Marilen Z.. Claudio B. further noted the fundamental difference between Madame Frigo and traditional food markets. While traditional markets have strict regulations to ensure food safety and protect consumers from risks, Madame Frigo operates on the principle of trust, requiring users to voluntarily assume associated risks. Educating users about these risks is crucial to fostering responsible use of the Frigos. Claudio B. also stressed that it is a great contribution and it is important that society can start to operate on a basis of trust. Wahlen (2018) supports this view, mentioning that trust becomes an important aspect in collaborative consumption where money does not serve as a medium of exchange, and social networks intermediate exchanges. Wahlen (2018) even claims that trust between strangers becomes even more attractive when it benefits the environment through sharing.

Embarrassment also plays a role in non-participation. In an interview with one of the Gottis, Claudia S., it was mentioned that some people might feel ashamed to take food from a public fridge, fearing it might give the impression that one relies on free food because one otherwise cannot afford it. Saginova et al. (2021) noted that especially people in need often feel embarrassed to take free food labeled as waste, associating it with poverty. This underscores the importance of making collaborative consumption and sharing more popular and accepted in the general population, demonstrating its social and environmental advantages. Lazell (2016: 436) noted that in some cases it is socially not acceptable to save food, because “Once food is classified as waste by either an individual or an organization, recovering and then consuming this food is not seen as a normal means through which to acquire sustenance”. Makov et al. (2020) identified psychological barriers which could influence demand and appreciation of food that is not-new, as a lot of people deem it disgusting.

A significant barrier preventing the use of the Frigos by a vast majority of people is the lack of understanding about the concept and the purpose of the Frigos. Many people mistakenly believe they are only for those in need, hesitating to take items for fear of depriving others. This misconception limits participation and contributes to low utilization, which was also noted by Saginova et al. (2021). If initiatives

focus on people in financially difficult situations, this can be a barrier for others to participate (Rýparová, 2022). Generally, it must be understood that initiatives like Madame Frigo and also Foodsharing are inclusive and open to everyone, not solely those in need. Educational efforts are necessary to clarify that the refrigerators are not exclusively for those facing financial hardships. It is essential to communicate that everyone, regardless of their socio-economic status, is allowed and encouraged to utilize the refrigerators, as inclusivity is critical for effectively combating food waste and ensuring the success of the initiative. A Gotti from one of the Frigos, Sanela M., emphasized that everyone is affected by food waste and that everyone therefore should participate in food sharing.

Recognizing the diverse reasons for non-participation, Madame Frigo employs various strategies to encourage engagement and overcome thresholds. Marilen Z. mentioned ideas such as ‘open-me’ stickers on Frigos, which aim to encourage exploration and participation, recognizing that the first step towards involvement is opening the Frigo. Through ongoing efforts to address barriers and misconceptions, Madame Frigo seeks to foster a culture of participation and collaboration in its mission to combat food waste.

7.5 Challenges Related to the Frigo

Many of the challenges and difficulties encountered by Madame Frigo and its volunteers revolve around the Frigos, which serve as the main sharing platform and what makes Madame Frigo unique. Distinguishing Madame Frigo from other food sharing initiatives, the Frigos provide a permanent place for food exchange, as highlighted by Marilen Z. in the interview. To better understand these challenges, I categorized them into subcategories, which are the following: missing network, volunteer work, anonymity and users, food for free, empty Frigos, location, vandalism and theft, hygiene and rules.

7.5.1 Missing Network

In order for the Frigo to work successfully and for it to be cleaned as well as filled a network of people around the Frigo is crucial, which is also emphasized in the paper by Davies (2019). There are different types of networks and each have their own importance. One type of network would be a team that cleans and maintains the Frigo together. It was mentioned by some interview partners that they sometimes struggle to do it alone and it would be nice to have a bigger team, such as Sibylle N. stated

“Uh, yes, it is really important to have a good network and enough people who take care of it. That is sometimes the challenge with volunteer work; when it becomes too much, it becomes a burden, and you have to stop.” (Sibylle N., 22.02.2024)

Another type of network would be a network of people who help to fill the Frigos. Frigos that are operated with Foodsharing face less problems in this aspect, as they are regularly filled by Foodsharing volunteers. At some locations, the volunteers have a great network with surrounding local shops and bakeries, but less with other food sharing initiatives, such as in the examples of the Frigos of Lukas S. and Claudia S.. At the same time, the involvement of social institutions like Tischlein deck dich and Schweizer Tafel are of great importance in other places. Some volunteers mentioned that they could invest more time in the future to build a better network of people who fill the Frigo or get in contact with surrounding shops and supermarkets. Building a good and stable network is very time-consuming and needs a lot of engagement from the Gottis and Götis.

Tina K. mentioned in her interview a third type of network. She mentions the importance of a network within the neighborhood where the Frigo is. For example that people can connect to each other in a group chat over the Frigo or at the Frigo itself. So that if people walk by a Frigo and have the impression that it is often empty, they have the opportunity to connect to other people who live near the Frigo and maybe use it. This can also ensure that the Frigos are utilized more effectively and that people are motivated to engage with them if they see others doing the same. This connects very well to how the Frigo of Claudia B. in Emmen, Lucerne works. They also have a group chat for the neighborhood and connecting within the neighborhood is of great importance to ensure the usage of the Frigo. Tina K. also pointed this out, stating that

“But I think that, uh, people getting to know each other more within the neighborhoods where the fridges are located, and better connecting with each other, and then being more in exchange with each other, that is definitely a challenge.” (Tina K., 29.01.2024)

Generally, it is important for volunteer work to also connect the volunteers with each other. That way they can also learn and benefit from the knowledge, experiences and motivations of other volunteers and be inspired. In cities like Bern and Zurich, this works very well, as there is a dense network of Frigos and volunteers. Tina K. mentioned that this network between volunteers of different Frigos could also lead to people enjoying much more what they are doing and being motivated to continue doing it for a long time.

7.5.2 Volunteer Work

Madame Frigo is highly dependent on the support of the volunteers, as only four people work in the headquarters while around 500 volunteers support the initiative in its implementation. The volunteers need to be responsible and reliable so that the maintenance of the Frigos can be guaranteed and hygiene standards adhered to. Therefore, a network of people who can monitor and replenish the fridge is very important, as mentioned above. If only one person is responsible for maintaining the Frigo, it could be

challenging for them as the work can be very time consuming. The amount of time and work each Gotti and Götti invests in the maintenance of the Frigo differs significantly. For some it is pretty easy and for others not so much. It also highly depends on other challenges faced by the specific location. If they have lots of issues with for example theft, vandalism or dirtiness, they also need to invest more time into maintaining the Frigo. According to Sanela M., there can be frustration and helplessness from the volunteers when things often get stolen. Madame Frigo provides the volunteers with materials such as a bread box and cleaning supplies, but sometimes the volunteers also buy the materials by themselves when the material is stolen again and again.

The time volunteers dedicate to their work varies based on how much they wish to invest in their Frigos and how much time they are willing to contribute. Especially in one interview I realized how motivated my interviewee was in investing a lot of time into maintaining the Frigo, creating a network around the Frigo and connecting to its users. But not everyone has the opportunity to invest that much. It is also important for volunteers to manage their resources well, whether it is with Madame Frigo or similar initiatives like Foodsharing. The goal is to sustain volunteer work for as long as possible and as effectively as possible, pointed out by Sibylle N.. For the volunteers it can also be challenging when users confront them about certain issues. Sanela M. mentioned that for example a lot of users hold the Gotti and Götti responsible if the Frigo is often empty or sometimes dirty. This can be very demotivating for the volunteer, as they are dependent on the assistance of the surrounding network and users.

For Madame Frigo it can also sometimes be a challenge to keep the volunteers in its community, pointed out by Marlen S., responsible for community and location at Madame Frigo. There are cases where volunteers do not realize how much work it can be to maintain a Frigo and leave after a short period of time, which makes it very difficult for Madame Frigo to find new volunteers. This is the main reason why Madame Frigo does not just place Frigos where they think it could fit, but the initiative for a new Frigo has to come from volunteers. To ensure that the volunteers are convinced by the project and understand the scope of it, Madame Frigo has introduced the realization amount in the form of a donation. With this, Madame Frigo aimed to achieve a more professional level and ensure that there was genuine interest in acquiring a new Frigo, and that it would be supported over several years. Besides the realization amount, Madame Frigo also used other measures such as providing interested individuals with more information about the operation of a Frigo also in the longer term. Madame Frigo focuses on implementing locations where the volunteers really want it. In the past, they sometimes had to force the implementation of new Frigos as they had to achieve certain goals, which led to challenges regarding the volunteer work. The Migros Pioneer Fund also tried to help in this regard, as projects with a lot of volunteer work sometimes can be challenging, as stated by Pablo V.

“Other challenges include volunteer management. There are a lot of people that need to be coordinated. This can quickly become overwhelming in terms of effort, or the quality might not be right in the end.” (Pablo V., 13.02.2024)

Many volunteers are grateful that they can rely on Madame Frigo when problems arise. Although the project runs very independently per location, the headquarter of Madame Frigo is always in the background and accessible.

7.5.3 Anonymity and Users

The community of users plays a pivotal role in shaping Madame Frigo. According to Davies et al. (2017), the individuals who participate are the carriers of food sharing. Nearly all challenges concerning the Frigos are intertwined with user behavior and the issue of anonymity. The Gottis and Göttis often do not know the users personally, which can be both advantageous and problematic. On the one hand, this anonymity fosters inclusivity, allowing anyone to participate without fear of judgment, even if they only take items from the Frigos without contributing. On the other hand, this anonymity becomes a challenge when users disregard rules, intentionally damage the Frigo, or steal items, leaving the volunteers of Madame Frigo powerless to intervene. There are individuals who maliciously damage the Frigos, while others may unwittingly cause harm due to factors such as psychological illness or childhood naivety. Moreover, many individuals who rely on the Frigos are facing difficult circumstances, including psychological illness or addiction. For instance, in Lucerne, a psychologically ill individual habitually unplugs the Frigo, posing communication challenges for the Gotti due to the person’s lack of awareness of their actions. Similarly, conflicts may arise when individuals become reliant on the regular fillings of the Frigo as pointed out by Claudia S..

The issue caused by the anonymity can also correlate with its location. Tina K. mentioned that the more anonymous the users of a Frigo are, depending on the location of the Frigo, it can very much be a difficulty. In close-knit neighborhoods, the Frigos tend to be well-maintained and people are respectful to each other as well as towards the project, while in urban areas with widespread access to the Frigos, incidents of vandalism are more prevalent. The level of anonymity can thus influence user behavior, impacting the quality of items contributed and adherence to rules. Ensuring the cleanliness of the Frigos is a shared responsibility. Users must be mindful of the items they contribute, considering their appearance and adherence to hygiene standards. Unfortunately, there are instances where users disregard these regulations, putting forbidden items like raw meat inside or treating the Frigos as general waste disposal units. Users sometimes complain that the Frigos are dirty, but maintaining cleanliness requires collective effort, with Marlen S. emphasizing the importance of user education and involvement in upkeep. Despite occasional challenges posed by a minority of users, Madame Frigo remains a valuable community asset and brings benefits to the vast majority, as one of the Gottis notes.

7.5.4 Food for Free

The fact that food is offered for free can be a huge advantage for people in need as the threshold for access to food is relatively low (Wahlen, 2018) and financial pressures can be alleviated (Morrow, 2019b), but it can also introduce challenges such as hoarding, wastage and mishandling of food. In these instances, there appears to be a lack of appreciation for the value of food, irrespective of its cost. Wahlen (2018) mentioned that food is often only valued if it has a price. Instances have been observed by the Gottis and Göttis of the Frigos where individuals fill their bags with food and empty the entire Frigo. While this may initially seem positive for reducing food waste, the concern arises whether they will actually utilize all the food or simply take advantage of its free availability, as mentioned in the interview with Claudia B.

“I can also imagine that it is almost more about getting something for free. And then, by taking something from the fridge, you might actually end up producing waste at home because maybe you did not really need it. [...] I can imagine there are definitely those who just think, ‘Ah, it is free, I will take as much as I can carry’.” (Claudia B., 28.02.2024)

The interviewees agree that the primary objective is to minimize food waste. Therefore, one should only take as much as is really needed as pointed out by Claudia B.. The volunteers furthermore mentioned that there are also lots of cases where the food in the Frigos is not appreciated and is thrown around or just left on the ground. The Gottis and Göttis of the Frigos and food savers of Foodsharing find joy in rescuing and redistributing food. Nonetheless, excessive taking with little intention to consume all the food poses a challenge for these initiatives, ultimately leading to the food being wasted. For people that actively engage in food saving and sharing, it can be hard to give the food away, not knowing if people still waste it at the end, as stated in the interview with Sibylle N.

“I also feel like, do I want to get upset about it, but in the end, I have to give it away too. When I give the food away, I do not know what will happen next. I just do my best to ensure it is not thrown away. But if people take it from the fridge and do not consume it and throw it away, then I cannot contribute anymore.” (Sibylle N., 22.02.2024)

7.5.5 Empty Frigos

One challenge Madame Frigo faces is criticism which arises due to the perceived emptiness of the Frigos. Users often approach the Gottis and Göttis and complain that the Frigos are always empty, yet the reality is often times quite different. It was frequently mentioned that the Frigos are very full at certain times, but are then emptied very quickly. The Frigos often times seem empty, even though there is a lot of sharing happening. All the Gottis and Göttis interviewed mentioned that if things are placed inside the Frigo, it only takes a few minutes until it is taken out. Pablo V. pointed out that the rapid turnover

of products is in fact a positive indicator, showing that there is a huge demand for the shared goods. Fundamentally, the objective is for the Frigos to be emptied regularly, demonstrating the efficacy of the sharing platform and minimizing food waste. This trend is particularly evident since Frigos are primarily stocked by initiatives like Foodsharing or social institutions such as Schweizer Tafel or Tischlein deck dich, which adhere to delivery schedules. Those aware of these schedules often wait eagerly for the deliveries. Jana H. mentioned that if more people participated by contributing surplus items, the Frigos would be filled more regularly. However, private people are not always the primary contributors. There exists a lot more potential to fill the Frigos, but for that increased participation by various actors would be needed.

The perceived empty Frigos can have different effects on the users. Some interview partners mentioned that individuals become frustrated or even resentful when faced with empty Frigos, as they rely on the food that is inside the Frigos. Instances have occurred where people have approached the Gottis and Göttis of the Frigos complaining about the empty Frigos, there were even cases where people put letters or warnings inside the Frigo, as described by Sanela M.

“Otherwise, yeah, I sometimes find the challenge to be a bit of people’s attitude, like, ‘Oh, the fridge is empty again, there was nothing today.’ A bit of disappointment, like, ‘There is usually something’.”(Sanela M., 28.02.2024)

The employees of Madame Frigo stress the importance of changing people’s expectation, clarifying that the emptiness is intentional and serves the goal of minimizing food waste. Nevertheless, the empty Frigos can be discouraging for new individuals to participate, as it seems as if the Frigos are not being used. Acknowledging the issue of empty Frigos, Marilen Z. mentioned that Madame Frigo is implementing various strategies to monitor their usage and assess their functionality. For example, scales were installed under certain fridges to measure the amount of exchanged food, and sensors were used to monitor the door openings.

7.5.6 Location

Almost all of the challenges mentioned arise based on the location of the Frigos, encompassing for example theft, vandalism, damage and usage. Each of the Gottis and Göttis interviewed highlighted distinct challenges linked to the Frigos location. Tina K. noted big differences whether the Frigo is placed in an urban or rural setting

“I believe that our concept works quite differently in the city and in rural areas... as far as I can tell and hear, and imagine, it is sometimes easier in small villages or communities because people simply know each other more. You meet in the neighborhood, you

talk to each other on the street... and I think these are the kinds of things that are needed for our locations to be used in the long term.” (Tina K., 29.01.2024)

The location of the Frigos influences usage dynamics. In neighborhoods, a sense of community often forms around the Frigos. In contrast, if they are located in more public places such a community does not form as strongly and one is more anonymous when needing to use the Frigo. At the same time Frigos in more public places are seen and noticed by more people. The location strongly influences who the main users of the Frigos are and who fills the Frigos regularly. In cities, initiatives like Foodsharing play a pivotal role, while rural areas rely on local residents or local anti-food waste initiatives to fill the Frigos. There are locations which are great as many people see the Frigo, such as at a bus station, but not a lot of people put things inside, and then there are places where not many people see the Frigo, such as in a neighborhood, but many participate. Locations like the Sentitreff are visited by many different people, which can sometimes pose challenges, as Raphael M. stated in the interview

“We have the Madame Frigo fridge from the Sentitreff, and there is a lot of activity and interaction. Many people come here with various intentions, and drug use is also a topic. Sometimes there are conflicts, or frustrations, or even property damage and such. But I am actually surprised that the refrigerator still works.” (Raphael M., 07.02.2024)

When first starting the project, one of the challenges is also to find a location where the Frigo can be placed. Different criteria play a role when choosing where the Frigo will be placed and sometimes it can be challenging for the volunteers, as not every city is as open for a new project. This is why at a lot of locations the Frigos are placed on private ground. Some of the interviewees also explained that their Frigo has changed the location in the past, such as in the case of Lenzburg and Aarau. Having a new location can be an advantage but it is also again more work for the volunteers. In the case of Sanela M.’s Frigo, there were more communication efforts needed in order to get the same usage as at the location before. Whether people know about Madame Frigo and use it is of course also very dependent on if there are locations nearby. Noemi A. mentioned that for example in Zurich or Basel, people have many options close by, compared to other cantons where there are only a few Frigos.

Marlen S. furthermore mentioned that one challenge for Madame Frigo’s headquarter is also to be in contact with all the volunteers, which becomes more difficult as there are more Frigo locations. Additionally, there are Frigos that have to close again due to different reasons. The goal of Madame Frigo is to keep the Frigos and look for solutions, rather than closing them right away. There are examples where the Frigo changed its location inside the same city or where the Frigo is only open during specific seasons, for example in the Summer. Generally it is always a good idea to connect the Frigo to other great initiatives, be it cooperatives interested in sustainability, open bookshelves, youth club, universities and so on. The importance of a good location was emphasized in different interviews, as the location decided whether a Frigo is being well used or not.

7.5.7 Vandalism and Theft

The volunteers perceive the primary challenges associated with the Frigo as a physical space to be damaged, vandalism, and theft. These issues significantly impact the Madame Frigo project, which operates on a voluntary basis with good intentions, as damaged or neglected Frigos can also hold other people off from participating in the initiative. Vandalism manifests in various forms. In some places, the refrigerator door is left open, or the fridge is being intentionally unplugged. Especially in cities, fridges are often sprayed with graffiti or covered with stickers (see Figure 9). Sometimes, inappropriate messages are written on the fridge that do not correspond to the idea of Madame Frigo. Additionally, fridges can get dirty, and necessary items may be intentionally damaged. Theft is another significant problem.



Figure 9: Frigo “Kalkbreite”, City of Zürich (Photo by Anja Schenk, 21.02.2024).

Unsecured items like breadboxes, cleaning supplies, or even hygiene protocols are often stolen. However, the fridge as such has only been stolen once, as pointed out by Marlen S.. In another interview, it was also mentioned that the fridge has been deliberately knocked over before. Marlen S., responsible for community and location at Madame Frigo, mentioned that about 10% of the Gottis and Götis indicate that they struggle with vandalism and theft, with most of the issues being related to theft. In the interviews I conducted, vandalism and theft were mentioned as some of the biggest challenges.

Most of the time, the same individuals repeatedly cause problems. The interviewees mentioned different possible reasons for this behavior. At some locations, people with psychological issues or drug addictions might be responsible. Sometimes, frustration arises because the Frigos are empty and serve as motivation to intentionally damage the Frigo, and occasionally, children leave the fridge open or play with the food. Volunteers have implemented various measures to reduce vandalism and theft. For example, in Aarau, the volunteers have decorated the Frigo with fruit stickers, while in Emmen, it is placed under a roof with a bookshelf next to it, creating an inviting atmosphere. It was also mentioned by some of the interview partners that they have tried to confront individuals who vandalize or steal if they witness such acts or have put fake warnings on the Frigos that they are video-monitored to scare such people off. However, there is sometimes a bit of frustration or helplessness because of these issues, as there is not a lot that can be done about it, as pointed out by Sanela M.

“For example, I always had a breadbox inside (laughs). It often went missing, and at some point, I thought, ‘Oh man, what should I do?’ I mean, going to buy a new box every week eventually adds up, you know, it costs money. [...] And then I had a bit of a conflict, you know, like, what should I do as a private person?” (Sanela M., 28.02.2024)

The wooden cabinet poses a minor challenge, as it can weather with time and not being able to close the door all the way. One interviewee mentioned that they had issues with the wooden cabinet as rats accessed through the floor of the cabinet, but this was because the cabinet was built by the volunteers themselves. The wooden cabinets provided by Madame Frigo do not have this problem as mentioned by Marilen Z., because they have a grid in front of the openings. A challenge that could develop in the future is that the wooden cabinets may not last as long since they are exposed to the weather. At certain locations, they are placed under an additional roof, providing some protection, while at others they are not. Marlen S. has also emphasized that placing the Frigos indoors or under an additional roof could be advantageous.

7.5.8 Hygiene and Rules

Public fridges, such as those provided by Madame Frigo, have faced criticism for being unhygienic and potentially a threat to public health (Davies, 2019; Zurek, 2016). Madame Frigo allows the anonymous sharing of food which can be very problematic in regards to food safety if the rules are not adhered to. Other actors in the food system are subject to regular food safety and hygiene inspections, which is difficult for food sharing through public fridges (Zurek, 2016). Food sharing operates outside of the official regulatory system as the products in the fridge cannot be traced back, which portrays a hazard of the shared food being a health risk to consumers. It may not only pose a risk to the individual consumer, but also a matter of public health, as traceability is difficult to apply (Zurek, 2016). The public fridges operated by Foodsharing in Germany have had problems with local food authorities in the past due to non-compliance with consumer policy rules and have attracted the attention of the Food Safety Authority (Morrow, 2019b; Wahlen, 2018). Public fridges can also be problematic as they are open-access commons accessible for everyone, where food belongs to no one and everyone at the same time. This raises concerns about accountability, deeming them risky by food-safety authorities (Morrow, 2019b; Davies, 2019). The issue of hygiene and regulations was also mentioned by Marilen Z., stating that

“One challenge is definitely the issue of hygiene, whether it is between individuals or when picking up items from a store. For example, initiatives like Foodsharing collect items and distribute them afterwards. There are things that are not sensitive, but there are also many things that are, and there are regulations that need to be followed. So, we are sometimes operating in a gray area [...]. So, hygiene is definitely a challenge.”
(Marilen Z., 29.01.2024)

Madame Frigo and similar initiatives are highly dependent on hygiene regulations, which are subject to change and can therefore present a challenge. Carl V. highlighted the importance of exchange with researchers to better understand and comply with current regulations as well as potentially advocate for

more lose regulations. For example, Madame Frigo contacted Claudio B. regarding best-before dates in a specific canton and consider allowing products that have already passed this date inside the Frigos. One significant challenge is maintaining hygiene protocols in the Frigos, as they are frequently stolen. Claudia S. pointed out that food inspectors expect the protocols to be present on-site for verification. However, keeping these protocols in place is challenging when they keep disappearing. Some interviewees suggested moving these protocols online as a potential solution. Additionally, maintaining the right temperature inside the Frigos, especially in the summer, is difficult. Frequent opening of the door and intentionally unplugging the Frigo can further complicate temperature control.

Madame Frigo addresses risks by having specific rules regarding the Frigo and what is allowed inside, also mentioned by Zurek (2016). However, not everyone follows them strictly. Interviewees mentioned that some restaurants and individuals sometimes place self-made or cooked meals in the Frigos, without declaring the contents, which poses a problem for food safety. Regular users often pick up such items quickly, making it challenging to enforce rules consistently. While there have been no cases of alcohol being stored in the Frigo, instances of meat, cooked food, and frozen items have been mentioned, as for example by Sibylle N.

“and there are also people who are not part of Foodsharing, who are less sensitized to these rules. I think there are also people who dumpster dive and have put raw meat in there. And that is just an absolute no-go.” (Sibylle N., 22.02.2024)

The fridges can become dirty when food is improperly packaged or already spoiled. If food is placed inside which should not, such as meat or fish, the Frigo can also start to smell bad. Claudia B. mentioned that people often leave behind unappealing items, like outer salad leaves, or fail to clean up if something spills. Additionally, there have been instances where individuals take food out of the fridges only to throw it around, creating a further mess. Addressing these hygiene challenges and ensuring adherence to the rules is crucial for maintaining the trust and safety of public fridge initiatives like Madame Frigo. Enhanced education, better monitoring, and possibly rethinking the accessibility of hygiene protocols are essential steps towards achieving this goal.

8. Discussion

8.1 Impact and Future of Madame Frigo

Food sharing impacts various areas of sustainability by reducing food waste, thus mitigating the environmental impact of the food system, while simultaneously fostering social connections and community building. According to Bakharev et al. (2023: 393), in countries like Switzerland, “food sharing is a reaction of the society to unreasoned (excessive) production and irresponsible consumption of food.” However, it remains debatable whether food sharing can significantly promote sustainability and effectively reduce food waste (Falcone and Imbert, 2017). Madame Frigo fights at two fronts by giving the opportunity to share food through the Frigos, thereby addressing the problem right where it shows up and offering a direct solution, while at the same time addressing the problem at its root by conducting workshops and other awareness-raising measures, showing people how they can avoid the need for a sharing platform in the first place. The impact of Madame Frigo is challenging to measure quantitatively, especially regarding social impact and awareness. Madame Frigo contributes to food waste reduction by maintaining numerous Frigos, reportedly saving over 200 tons of food per year (Madame Frigo, 2024b). Additionally, although not their primary goal, Madame Frigo has a considerable social impact, providing food access to those in need and fostering a community around the Frigos.

The people behind Madame Frigo are aware of the fact that they are far from reaching the entire population, but they are on their way to reaching more and more people and making food sharing more popular. By cooperating with other partners and attending different events, Madame Frigo can also reach people that are not already aware of the issue. More awareness and knowledge must be spread about the issue of food waste where Madame Frigo has a lot of potential and also the aspect of sharing must be more socially acceptable, as pointed out by Mischa B.. If people participate in food sharing the issue becomes more present and other people perceive this. The fact that products are in the Frigos only for a very short period of time shows that there is a high demand for the food that others classify as waste. Nevertheless, the amount of food waste that is shared through the Frigos of Madame Frigo is small. There are various barriers on both sides, the supply and demand. Those barriers could limit the willingness for people to participate. Therefore these limits and barriers need to be better understood (Makov et al., 2020). Madame Frigo still needs to become more integrated into society so that more people participate, and that way the potential of the fridges can be better utilized in the future.

While the Frigos are primarily stocked by initiatives like Foodsharing or social organizations, the goal is to encourage private individuals to share their food. Madame Frigo uniquely enables private households to reduce food waste. Tina K. mentioned that Madame Frigo aims to focus on reducing food waste in private households, differentiating them from initiatives like Foodsharing or Schweizer Tafel. Jana H. noted that while Madame Frigo seeks to involve private individuals, they also aim to maximize fridge capacity, not excluding contributions from other organizations. Future collaborations are likely to

increase. Strong partnerships exist with Foodsharing, while looser ones with others such as Schweizer Tafel, Tischlein deck dich, and Äss-Bar, varying by location. Any location offering Tischlein deck dich or Schweizer Tafel could benefit from a Frigo, given their surplus food and the local demand. Stronger communication could enhance these efforts. Madame Frigo also depends on the willingness of food retailers to donate unsellable food. Lukas S. emphasized the potential for greater retailer participation. Additionally, there is significant potential to create relationships with nearby shops and supermarkets to save more food and optimize the Frigos' usage within the broader sharing system.

Marlen S. focused on the aspect that in the future, there should be better control over the quality of the Frigos, rather than just focusing on quantity and growth. It discourages people when they see Frigos that are not well-maintained or always empty. For this reason, it is very important to have oversight to ensure that all fridges are running well, and if not, to consider changing the location or volunteers. Therefore, it is also important to install scales to estimate how much is being exchanged and when. For Madame Frigo it is difficult to provide numbers to justify their existence and show their impact. Also estimating the impact of Madame Frigo in raising awareness is difficult, as there are many initiatives that work together towards the same goal. The only way to estimate numbers is by calculating how much food is traded through a Frigo, which was pointed out by Jana H.

“I think if we could highlight and communicate that a bit better, then the fridges would probably gain a bit more legitimacy and a stronger scientific basis to show, Madame Frigo can contribute this much. And I think that is definitely something for the next steps, which is crucial or has a high priority—to make this clearer.” (Jana H., 16.02.2024)

Currently, Madame Frigo seems to be heading towards further growth. At the beginning of writing this thesis, there were 135 Frigos (01.02.2024) and at the end there were already 154 (01.08.2024). Madame Frigo has huge potential for growth in the future. The question is whether it will eventually reach saturation, and whether the focus will then shift from growth to maintaining a certain level, mentioned by Noemi A., Sustainability Manager at Electrolux. The future of Madame Frigo could take different directions. The initiative could grow further and implement more and more Frigos, maybe even outside Switzerland or at some point it could stagnate and stop growing, changing focus to raising awareness or education. Jana H. also mentioned the possibility for Madame Frigo to make use of ICT in the future and introduce an app for individuals to share food. The ultimate goal for food sharing initiatives such as Madame Frigo and Foodsharing is that they will not be needed anymore, as there is no more food being wasted. Therefore, the goal is to achieve short-term growth while aiming, in the long term, to no longer be needed, as pointed out by Jana H., president and co-founder of Madame Frigo

“In the best case, we would not even exist, right? That means our goal is essentially to eliminate ourselves, but that is not going to happen (laughs) [...]. And that would be

kind of my wish, or it would be kind of my vision, to try to minimize it as much as possible in Switzerland, so that we can truly be a role model.” (Jana H., 16.02.2024)

Nevertheless, it was also mentioned that food sharing will always be needed, because there will never be a situation where there is zero food waste. Also, it takes very long until humans change their behavioral patterns and as long as these do not change, initiatives like Madame Frigo will be needed. Madame Frigo can also be of use even if there is no food waste, as people always have things that they do not want anymore, have too much food at home or go away for a few days.

8.2 Madame Frigo as Part of the Diverse Economies in Switzerland

True sharing initiatives like Madame Frigo are a part of the diverse economies that exist in Switzerland. The concept of diverse economies helps to uncover how initiatives like Madame Frigo use other forms of economic activities and how diverse economies work in practice, as well as what their transformational potential is (Rýparová, 2022; Gibson-Graham, 2006; Gibson-Graham, 2008). The diverse economies framework highlights the importance of non-market transactions, which include sharing, gifting, and bartering (Holmes, 2018; Rýparová, 2022). Holmes (2018) also mentions that beside food, there is an exchange between volunteers and users where advice and support is being shared. Madame Frigo operates primarily through sharing, where people freely give and take food without any monetary exchange. Food sharing can also be understood within the framework of gift economies, where goods and services are exchanged without explicit expectation of immediate or direct reciprocity. This practice directly challenges the dominant market economy that values goods based on monetary transactions. Food sharing networks operate outside or alongside mainstream capitalist markets, embodying diverse economic practices and values such as cooperation, reciprocity, and social justice.

J. K. Gibson-Graham’s approach emphasizes the importance of sustainable practices that enhance community well-being. Madame Frigo addresses food waste, a significant environmental issue, by redirecting surplus food to those who need it. This initiative not only reduces waste but also supports food security and community cohesion. Madame Frigo is community-driven, relying on volunteers to maintain the Frigos and ensure they are stocked and clean. This collective effort strengthens community ties and fosters a sense of shared responsibility. Sharing can foster communal bonding, as described by Belk (2010) and reflected in the findings of this thesis. Food sharing and the sharing for the community benefits the people that participate, as they have access to food, a solution for their personal food waste and a possibility to strengthen their local communities (Michellini et al., 2018). Sharing has significant transformational potential, especially when food is distributed on a non-profit basis and shared with strangers. This practice can positively impact society by fostering community building and encouraging trust among individuals, also reflected in the research by Rýparová (2022) and Holmes (2018). Therefore one could argue, that the social impact of food sharing is even more important than the environmental.

Madame Frigo provides various open access communal resources such as public fridges, food, and knowledge, thereby creating a commons. They de-commodify food by separating it from the market-based value system. Morrow (2019b: 203-204) states, “Commons are often held up as the bedrock for creating more environmentally and socially just economies. Communities make and share a commons, and the value they generate can be captured to fuel a variety of economic enterprises.” Additionally, Morrow (2019b) highlights that through sharing, individuals co-create resources they benefit from, blurring the lines between donor and recipient. This makes food commons a fascinating area for exploring alternative ways to value, govern, and share food. Morgan and Kuch (2015) and Jo et al. (2024) explain that some diverse economies approaches extend this concept into an ethically-driven argument for highlighting ‘community economies’. These economies consist of varied economic practices that reject the mainstream view of ‘the economic’ as separate from ‘the social’.

J. K. Gibson-Graham encourage the exploration and legitimization of alternative economic practices that challenge the hegemony of capitalism. Madame Frigo is an example of such an alternative, demonstrating how community-based, non-capitalist practices can effectively address societal issues like food waste. The diverse economies framework is concerned with ethical considerations and the social implications of economic activities. Madame Frigo embodies ethical consumption by encouraging the redistribution of resources, reducing unnecessary waste, and promoting equitable access to food. Davies et al. (2017: 146) argue by using the diverse economies framework by Gibson-Graham (2008) that “capitalist and market transactions do not dominate the food sharing landscape. While venture capital, supported selling, and for-profit food sharing platforms and Apps are present, the vast majority of transactions and enterprises found in food sharing are alternative market, alternative capitalist, non-market or non-capitalist.” In summary, Madame Frigo aligns with the diverse economies approach by exemplifying how community-driven, non-market practices can contribute to sustainable development, social equity, and community well-being. It showcases the potential of alternative economic models to address real-world issues in ways that the traditional capitalist economy often does not.

8.3 Limitations of the Study and Areas for Future Research

This master’s thesis focused on the perceived challenges and motivations of the individuals behind a single local food sharing initiative in Switzerland, Madame Frigo. This is why the thesis has various limitations. In Switzerland, there is a variety of food sharing initiatives and, more generally, anti-food waste initiatives, which could be investigated in further research. The thesis was also limited to Switzerland which surely influenced the findings, as Switzerland is a very wealthy country with a high amount of food waste at the consumer level. Additionally, the research was very geographically limited. Interviews were only conducted with individuals from around 5 cantons. It became already clear during my time working for the initiative that there are differences between cantons. For example Fribourg has

more strict hygiene rules regarding the Frigos, while Zurich is very open-minded. There are also big differences compared to Bern, where Madame Frigo had its beginnings and therefore the oldest Frigos with the biggest challenges. Additionally, cooperation with supermarkets differ strongly depending on the canton. The research is not only geographically limited but also temporally limited, as the interviews were conducted during the months of February and March. Unlike when I began working for Madame Frigo in June, during which high temperatures in the Frigos were a common issue, the interviewees did not mention challenges related to heat. These geographical and temporal constraints could have significantly impacted the research findings.

By focusing on the perspectives of the individuals behind the initiative, new and interesting aspects were discovered. Lots of the literature emphasizes the user perspective, which could also be valuable for the initiative of Madame Frigo. Future research could examine the motivations for participation and the challenges users perceive as most significant. Engaging with users could also provide insights into what deters people from participating and identify existing barriers. In the future, these barriers to sharing should be studied further to better understand what hinders participation and to explore potential solutions that could encourage greater participation.

9. Conclusion

This master's thesis examined the challenges and motivations the individuals behind the food sharing initiative of Madame Frigo experience and explored the initiative's potential to reduce food waste in Switzerland as well as foster a sense of community through sharing. Chapter 5 delved into the organizational structure of the initiative and identified the key stakeholders to provide a comprehensive understanding of how the initiative operates. The chapter focused on answering the following research question: "Who are the key stakeholders involved in the food sharing initiative of Madame Frigo, and what is the organizational structure of the network that facilitates and supports the initiative's activities?".

Madame Frigo relies on a vast network of support, highlighting its interconnectedness with various other initiatives and stakeholders. Each actor plays a crucial role, whether in supplying food, providing financial backing, or building a network to raise awareness. This network encompasses actors from political levels and the state, financing partners, food retailers, social institutions, and other anti-food waste initiatives. The cooperation among these diverse actors is essential for the initiative to work successfully. Hopefully, there will be stronger cooperation in the future to save even more food, especially with supermarkets.

In chapter 6 the motivations of the interview partners were analyzed in order to answer part of the main research question: "How do the individuals behind the food sharing initiative of Madame Frigo, along with associated actors, perceive the challenges and motivations inherent in their initiative?". While the interviewees' motivations are similar, there is a notable shift towards social aspects, such as helping those in need and community building. Although Madame Frigo's primary goal is to reduce the environmental impact of food waste and save food for its intrinsic value, the social benefits are increasingly recognized as significant. When discussing environmental motivations, the interviewees often focused on the intrinsic value of food and resources rather than the broader negative impacts of food waste on the environment. Other motivations mentioned included valuing food, appreciating the concept's beauty, networking, and spreading awareness and knowledge.

The challenges faced by Madame Frigo were then analyzed in chapter 7. The initiative encounters various challenges, highly dependent on the roles of the interview partners. The main challenges identified include financing, growth and professionalization, cooperation and competition, knowledge and prominence, as well as threshold to participate and lack of trust. Specific issues related to the Frigo itself include a missing network, volunteer work, anonymity and users, food for free, empty Frigos, location, vandalism and theft, as well as hygiene and regulations. Many of these challenges are interconnected. For example, theft of hygiene supplies complicates hygiene controls, and empty fridges can further discourage participation. Additionally, user behavior can pose multiple problems, such as not following the rules on what can be placed inside, leaving the fridge dirty, or mishandling it. The network around the Frigo also presents a challenge, as having multiple people involved is crucial to avoid overwhelming

individuals. While numerous challenges were identified and discussed in the interviews, possible solutions were also mentioned. During my time working for Madame Frigo, I realized that many challenges and their potential solutions were already known, but implementation was often too difficult or impossible. One particularly persistent issue is the one of empty Frigos, which Madame Frigo is frequently confronted with and which I also observed during my visits. I plan to address this challenge in my ongoing work at Madame Frigo.

The research question: “How do the individuals involved in the food sharing initiative of Madame Frigo, along with associated actors, perceive Madame Frigo in cultivating a communal spirit and fostering a sense of community through the initiative’s emphasis on sharing and collaborative values?” was answered in chapter 6 as well as chapter 8. In conclusion, while the environmental impact of food sharing initiatives like Madame Frigo is significant, their greatest value probably lies in the sense of community and social responsibility they foster. Madame Frigo, though not the most effective in terms of sheer food-saving volume, excels in uniting people through volunteer work and providing support to those in need. This initiative strengthens local communities, encourages solidarity, and promotes social inclusion, making it a valuable project that extends beyond ecological benefits to create meaningful social connections.

The research question: “How do the individuals involved in the food sharing initiative of Madame Frigo, along with associated actors, perceive the contribution of Madame Frigo to reducing food waste and promoting sustainability in Switzerland?” can be answered as follows. Madame Frigo tackles food waste by maintaining numerous Frigos, reportedly saving over 200 tons of food annually, and raising awareness through workshops and community presence. Despite challenges in measuring social impact, Madame Frigo provides food access and community support, aiming to involve more private households and maximize Frigo usage. Future growth involves increasing partnerships and volunteer engagement, with potential expansion beyond Switzerland. Emphasizing quality maintenance and accurate impact measurement is crucial for demonstrating the initiatives legitimacy. Ultimately, food sharing initiatives like Madame Frigo aspire to eliminate food waste and, ideally, make themselves unnecessary, though some level of food sharing will always be needed.

The diverse economies framework was used to emphasize the importance of non-market transactions such as sharing and gifting, challenging the dominant market economy. Madame Frigo operates primarily through sharing, allowing people to give and take food without monetary exchange, thus promoting alternative economic practices that address societal issues like food waste. The initiative fosters communal bonding, enhances social trust, and supports community well-being by providing access to food and reducing waste. Overall, Madame Frigo exemplifies how community-driven, non-market practices can contribute to sustainable development, social equity, and community cohesion, showcasing the

potential of alternative economic models to address real-world issues that traditional capitalist economies often overlook.

Representatives from the initiatives of Madame Frigo, Foodsharing and foodwaste.ch agreed on the importance of addressing food waste more towards the beginning of the supply chain. They acknowledged that while their initiatives help mitigate waste, they are basically just the second best solution as there is still too much food waste at the end of the supply chain which needs to be redistributed. They emphasized the need for reduced production and optimal distribution to minimize surplus food. Food sharing serves as a momentary solution to the excessive production and consumption of food. Food sharing as a solution to food waste is only a short- to medium-term solution but not a long-term strategy to improve the food supply chain. Food sharing in general will not solve the problem of food waste alone and is also not the solution to providing people in need with food. Nevertheless, food sharing fills a need as can be perceived by the participation of many different people.

Madame Frigo is an initiative which is still at the beginning of its journey and there is a lot that can be improved and a big potential to save even more food in the future. The growth potential of Madame Frigo is big, even though the goal would be that at some point in the future it is not needed anymore. Many challenges related to the Frigos need to be addressed in the future to lower the barrier to participation. The importance of ICT in the future for redistributing food is undeniable. However, physical sharing locations can still play a crucial role in fostering community building and potentially lowering the barrier to participation.

This master's thesis can contribute to the field of food waste research and food sharing by giving new insights on an initiative that has not been studied a lot in the past, as it is also fairly young. Additionally, the motivations of people behind the initiatives and the challenges they perceive have not really been studied. The focus often centers on challenges related to rules and hygiene, with little attention given to issues like volunteer work, missing network, anonymity and users, or empty Frigos. Existing literature is limited and repeatedly addresses the same challenges and motivations without exploring a broader range of issues. Through my own experiences and the diverse viewpoints I gained during my research, I had the opportunity to engage informally with various individuals involved in food sharing, from volunteers to users. These conversations provided me with a clear understanding of the practical aspects of sharing and the different motivations behind it. The insights gained suggest that future research should place greater emphasis on the users to better understand their role within sharing networks. Additionally, it is crucial to examine the barriers that people face when participating in food sharing initiatives and to identify factors that might discourage their participation.

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11. Appendices

11.1 Appendix A: Example of Interview Guidelines

The interview guidelines and transcripts are in German, with the interviews conducted in Swiss-German. The guidelines were adapted to each interview partner's role within the Madame Frigo network, while some key questions remained consistent across all interviews to ensure the comparability of the findings.

Einstieg

- Könnten Sie sich kurz vorstellen und Ihre Verbindung zu Madame Frigo beschreiben?
- Wie sind Sie zu Foodsharing/ Madame Frigo gekommen?
- Wie lange machen sie schon Foodsharing/ Madame Frigo?
- Haben Sie sich schon davor mit Food Waste und Foodsharing beschäftigt?
- Wie nehmen Sie Food Waste und Foodsharing in der Schweiz war?

1. Wahrnehmung von Herausforderungen und Motivationen

- Wo sehen Sie generell Herausforderungen bei Foodsharing?
- Wie würden Sie die Hauptherausforderungen bei der Umsetzung der Foodsharing Initiative von Madame Frigo beschreiben?
 - Können Sie konkrete Beispiele von Herausforderungen nennen?
- Was motiviert Sie persönlich, an Foodsharing (spezifisch Madame Frigo) teilzunehmen?
- Wo sehen Sie Potenzial beim Foodsharing?
- Wie sehen Sie die Zukunft von Madame Frigo?

2. Kultivierung eines Gemeinschaftsgeistes

- Erfahren Sie durch Foodsharing ein Gefühl von Gemeinschaft?
- Wie erleben Sie die Bemühungen von Madame Frigo in Bezug auf die Förderung eines Gemeinschaftsgeistes?
- Können Sie konkrete Beispiele nennen, in denen die Betonung von Teilen und gemeinsamen Werten das Gemeinschaftsgefühl gestärkt hat?
- Wie nehmen Sie die Leute war, die an Madame Frigo beteiligt sind?

3. Beitrag zur Reduzierung von Lebensmittelverschwendung und Nachhaltigkeit

- Wo sehen Sie die Hauptgründe, dass so viele Lebensmittel verschwendet werden, global aber auch in der Schweiz?
- Wie würden Sie den Beitrag von Madame Frigo zur Reduzierung von Lebensmittelverschwendung in der Schweiz beschreiben?
- In welchen Aspekten fördert die Initiative von Madame Frigo Ihrer Meinung nach die Nachhaltigkeit?
- Denken Sie, dass die Bemühungen von Madame Frigo ausreichen werden, um Food Waste in der Schweiz zu reduzieren?

4. Schlüsselakteure und Organisationsstruktur

- Wer sind aus Ihrer Sicht die wichtigsten Akteure oder Interessengruppen hinter der Food Sharing Initiative von Madame Frigo?
- Könnten Sie die organisatorische Struktur des Netzwerks beschreiben, das die Aktivitäten der Initiative erleichtert und unterstützt?

Schluss

- Blick in die Zukunft: Was haben Sie für Hoffnungen bezüglich Food Waste und Foodsharing?
- Wie wird sich die Food Waste Problematik Ihrer Meinung nach entwickeln?

Zusätzliche Fragen für Madame Frigo

Lebensmittel/ Food Waste

- Wer bringt die meisten Lebensmittel zu den Kühlschränken?
- Wer nimmt die meisten Lebensmittel aus den Kühlschränken?

Standorte/ Kühlschränke

- Wie werden die Standorte für neue Kühlschränke ausgewählt?
- Ist der Bedarf an mehr Kühlschränken/ Standorten hoch?
- Werden die Kühlschränke regelmässig überprüft, um sicher zu stellen, dass Kühlschränke, die nicht gebraucht werden, wieder entfernt werden?
- Kommt es oft vor, dass Kühlschränke wieder entfernt werden?
- Ich habe gesehen, dass gewisse Kühlschränke video-überwacht werden, weshalb?
- Ebenfalls ist mir aufgefallen, dass gewisse Kühlschränke eine Winterpause haben, wieso?

Netzwerk

- Mit welchen anderen Organisationen/ Akteuren arbeitet ihr zusammen? Wie sieht diese Zusammenarbeit aus?
- Gibt es keine Konkurrenz mit anderen Food Sharing Projekten?
- Wie finanziert sich Madame Frigo?
- Spielen Spenden von Privatpersonen eine wichtige Rolle?

Motivation/ Zukunft

- Was ist eure Hauptmotivation? Hat sich diese über die Jahre verändert?
- Was wünscht ihr euch für die Zukunft? Generell oder auch spezifisch für Madame Frigo?
- Wie könnte Madame Frigo optimiert werden, um noch mehr Food Waste retten?
- Hat Madame Frigo das Bewusstsein der Menschen schon beeinflusst? Wie merkt ihr das?
- Welche Massnahmen ergreift ihr sonst noch um Bewusst sein zu stärken?

Beginn/ Vision

- Was hat Sie dazu inspiriert, Madame Frigo zu gründen?
- Können Sie uns etwas über die Mission und Vision von Madame Frigo erzählen?
- Wie funktioniert das Konzept von Madame Frigo und was war neu daran?
- Wie waren die ersten Reaktionen zu der Idee von Madame Frigo?

11.2 Appendix B: MAXQDA Codes

Main Category	Number of Codes	1. Subcategory	Number of Codes	2. Subcategory	Number of Codes	
Network	3	Political Level/ The State	19			
		Supermarkets	25			
		Local Shops/ Bakeries/ Restaurants	16			
		Financing Partners	4	Electrolux		22
				Migros Pioneer Fund		17
				Other Financing Partners		8
		Social Institutions	10	Schweizer Tafel		8
				Tischlein deck dich		9
				Other Social Institutions		3
		Other Initiatives against Food Waste	25	Äss-Bar		6
				Foodsharing		54
Too Good To Go				13		
foodwaste.ch				7		
Madame Frigo	0	Impact of Madame Frigo	19	Ecological Impact	20	
				Social Impact	18	
				Raising Awareness	22	
		Future/ Potential of Madame Frigo	60			
Community	21	Volunteer	50			
		User	48			
		Anonymity	11			
		Sharing/ Connecting	50			
Food Waste	0	Reasons for Food Waste	1	Laziness	10	
				Distance to Food/ Consciousness	9	
				Lack of Knowledge	8	
				Lack of Planning/ Spontaneity	8	
				Lack of Appreciation	6	
				Lack of Creativity	4	
				Wealth	24	
				Abundance/ Availability	17	
				Laws	7	
		Perception of Food Waste	27			

		Future of Food Waste	30		
Motivations	9	Knowledge/ Network- ing	7		
		Social	5	Community Build- ing	6
				Help those in Need	15
		Ecological	10	Direct Ecological Impact of Food Waste	2
				More General: De- growth, Consumer- ism	3
		Reducing Food Waste	13		
		Idea of Madame Frigo/ Making a Change	21		
Challenges	0	Financing	9		
		Growth	8		
		Professionalization	5		
		Cooperation/ Competi- tion	26		
		Knowledge/ Promi- nence	12		
		Threshold to Partici- pate	11		
		Frigos	2	Missing Network	13
				Volunteers/ Time	33
				User/ Anonymity	31
				Trust/ Uncertainty	13
				Empty Frigos	20
				Location	56
				Wooden Cabinet	6
				Damage/ Vandal- ism	31
				Theft	20
Dirty	14				
Hygiene/ Rules	23				
Food	29				
Food for Free	14				
Challenges Foodshar- ing	23				

11.3 Appendix C: Table of visited Frigos

Location	Date	Contents	Impression
“Stüssistrasse” Stüssistrasse 70, 8057 Zürich	15.01.2024 15.40	Empty	In a neighborhood right by the University of Irchel, near a daycare at a well-visible location.
“Helvetiaplatz” Helvetiaplatz, 6003 Luzern	22.01.2024 12.00	Empty	In a small park in the center of different restaurants, shops and so on. Video-monitored? No breadbox inside.
“Sentigarten” Baselstrasse 21, 6003 Luzern	22.01.2024 14.30	Empty	Frigo is visible from the bus line and close to a bus stop. No breadbox inside. Public bookcase right next to it. Interaction with different people the few times I was there. An older women filled up the Frigo with food from supermarkets and gave sandwiches with meat directly to a homeless man.
	19.02.2024 12.40	Full with various things, leftover salads, sandwiches...	
	19.02.2024 15.40	Various salads	
“HSLU Soziale Arbeit” Werftstrasse 1, 6005 Luzern	29.01.2024 16.20	Empty	Frigo next to the University of Lucerne. Lots of students who walk by it on a daily basis as well as students who look after the Frigo. During the semester filled with leftovers from the Mensa of the University.
“Celtastrasse” Celtastrasse 12a, 6020 Emmenbrücke	29.01.2024 18.50	One broccoli soup and two bags of homemade pasta	Frigo in a neighborhood and a public bookcase right next to a Frigo. Things inside were produced by people, not sure if it is even allowed to put these things inside. Did not look appetizing. I think the broccoli soup was already a few days inside the Frigo.
	28.02.2024 14.00	Empty	
“Werdmühleplatz” Werdmühleplatz, 8001 Zürich	20.02.2024 18.10	Empty	Frigo is very central, next to the most visited street in Zurich. According to flyer in the Frigo they are looking for new volunteers.
	19.30	One salad and some baked goods	
“Kalkbreite” Kalkbreitestrasse 2, 8003 Zürich	21.02.2024 12.15	Empty	No breadbox, things to clean or anything else inside. Sprayed on the outside. Does not look very nice, but other than that mostly clean.
	11.03.2024 18.30	Empty	
“Quiosk Klybeck” Klybeckstrasse 206, 4057 Basel	22.02.2024 15.25	Two spoiled broccolis and various breads	Very well visible next to a tram line. Went there with my interview partner. She filled the Frigo with baked goods, cakes and vegetables from Foodsharing. Rat problem!

“Fairteiler St. Johann” Vogesenstrasse 105, 4056 Basel	22.02.2024 16.00	Various breads, some of them half eaten	In the middle of a neighborhood. Not as good visible as it is in a room. Met a man while being in there.
“Lindenplatz” Lindenplatz, 4123 Allschwil	22.02.2024 16.30	Beans and spoiled brussels sprouts	Big painting on the outside which said: Fairteiler, Foodsharing. Next to a tram station and very good visible. Frigos in Basel in general: Mostly operated by Foodsharing and called Fairteiler, entire rooms instead of only Frigos and differ- ent kinds of Frigos, not uniformly.
“Fairteiler Werk- hof” Gundeldin- gerstrasse 286, 4053 Basel	22.02.2024 17.00	Expired beauty products, some half eaten bread, some salads	Again an entire room operated by Food- sharing. Kind of hidden, but I think a lot of people know about the location. Met a women who took some salad.
“Markthalle” Färbergässli, 5000 Aarau	02.03.2024 14.00 02.03.2024 20.35	One piece of choco- late and some tea Same tea and one pumpkin	Next to a market hall and very well visi- ble. On the day of the interview there was a flea market and lots of people there. A lot were interested and looked inside, un- fortunately, the Frigo remained almost empty. Would have been a great oppor- tunity to bring more people to use the Frigo.
“Bourbaki” Löwenplatz 11, 6004 Luzern	05.03.2024 09.30 05.03.2024 10.30 30.03.2024 18.30	Empty Empty One bread	Central location, lot of things happening at this place and right next to a bus sta- tion, a cinema and various restaurants. Also lots of tourists, as it is close to the lion monument of Lucerne.
“Fairteiler Kern- strasse” Kernstrasse 14, 8004 Zürich	11.03.2024 20.45	Vacuumed meals and open pack of meringues	Lots of food inside, but does not look very nice. Sprayed on the outside and dirty inside. Does not look very appeal- ing.
“Jugendanimation Kriens” Obernauerstrasse 1, 6010 Kriens	30.03.2024 14.00	Empty	Frigo on a big place and well visible. Frigo was not on. Sprayed on the outside.
“Gemeindehaus- platz” Gemeindehausplatz 1, 6048 Horw	30.03.2024 14.25	Lots of single prod- ucts (pasta, pesto, can of tuna, olives, dried fruits, sweets)	Well visible on a big square. Close to a supermarket.

“Pfarreizentrum Bruder Klaus” Hinter-Listrig 1a, 6020 Emmenbrücke	30.03.2024 14.50	Two pieces of bread	Next to a church, but kind of hidden.
“Blago Bung” Marktgasse 37, 3800 Interlaken	05.04.2024 10.30	Two pieces of leek	Clean, but Frigo looks well used. Additional storage next to the Frigo.
“Aki-Hirschengraben” Hirschengraben 86, 8001 Zürich	30.04.24 14.00	Empty	Clean, not sure if used at the moment. Lots of students who walk past it.
“PROGR” Speichergasse 4 – Innenhof, 3011 Bern	09.05.24 14.10	Empty	Clean. Small note that the hygiene protocol is done online.
“Sulgeneckstrasse (Pinto)” Sulgeneckstrasse 13, 3007 Bern	09.05.24 14.40	Two quiche Lorraine, one packet of shrimps, five sausages, one stake, everything frozen!	Frozen meat and shrimps in the Frigo, which is not allowed! Still frozen when we got there, therefore it was not long in the Frigo. Most of it expired a long time ago (in 2021 or 2022).
“Unia Sulgenau” Monbijoustrasse 61, 3007 Bern	09.05.24 16.00	Empty	Some things were missing in the fridge, such as the vegetable drawer. Not so clean, not sure if it really is in use.

11.4 Appendix D: Personal Declaration

Use of AI Tools

AI tools such as ChatGPT were utilized to refine written texts and restructure phrases. Additionally, questions such as ‘What is food waste?’ and ‘What are examples of food sharing in Switzerland?’ were asked to gain an overview and organize the arguments. ChatGPT also suggested concepts and provided ideas for the titles of the master’s thesis chapters and subchapters.

I hereby declare that the submitted thesis is the result of my own, independent work. All external sources are explicitly acknowledged in the thesis.

Luzern, 23.08.2024

A handwritten signature in black ink, appearing to read 'Anja Viktoria Schenk', with a large, stylized initial 'A'.

Anja Viktoria Schenk