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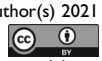

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Framings of Food Waste: How Food System Stakeholders Are Responsibilized in Public Policy Debate

Nina Mesiranta, Elina Närvänen, and Malla Mattila

Abstract

Food waste is a global sustainability issue that demands that multiple stakeholders participate in solving it. This article examines how different food system stakeholders are held responsible in the policy debate related to food waste reduction. The study adopts a framing approach, paying attention to the construction and negotiation of what is going on in the food waste–related public policy debate. The data consist of documents generated as a result of food policy development processes in Finland. The authors identify four framings—eco-efficiency, solidarity, safety, and appreciation—within which the issue of food waste is presented differently and different stakeholders responsibilized. The framings reveal the nature of food waste as a boundary object, a flexible and open-ended object that has different context-dependent meanings. The study extends marketing literature on responsibilization by investigating several stakeholders beyond consumers. Additionally, considering food waste a boundary object sheds light on how stakeholders, even those with conflicting interests, can debate policy measures collaboratively. Finally, the authors outline policy implications related to each framing.

Keywords

boundary object, food waste, framing, responsibilization, stakeholder

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Framing the Food Waste Issue in Public Policy

In September 2015, world leaders at the United Nations (UN) Sustainable Development Summit adopted 17 sustainable development goals (SDGs) with the aim of addressing global issues, such as ending poverty, reducing inequality, and protecting the planet, by 2030. SDG12, which addresses sustainable consumption and production patterns, states that the per capita global food waste at the retail and consumer levels must be halved by 2030 (UN 2018; see also European Commission 2017). According to the UN (2018), promotion of more sustainable consumption and production patterns "involves different stakeholders, including business, consumers, policy makers, researchers, scientists, retailers, media, and development cooperation agencies" and requires "a systemic approach and cooperation among actors operating in the supply chain, from producer to final consumer." This article focuses on how the aforementioned relevant food system stakeholders are responsibilized—that is, held responsible through moral agency to take action (Shamir 2008)—in public policy in order to address the issue of food waste.

No unified definition for food waste exists (for a review of the debate related to the definition of food waste, see, e.g., Hartikainen et al. 2020). For the purposes of this study, we define "food waste" simply as a failure to use edible food items for human purposes (Alexander, Gregson, and Gille 2013). One-third of all food produced goes to waste, and in developed countries, the problem occurs mostly at the consumption and retail stages (Gustavsson et al. 2011). Accordingly, the majority of food waste research has focused on households and consumers (for reviews on household food waste behavior, see Porpino 2016; Schanes, Dobernig, and

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Gözet 2018; Van Geffen, Van Herpen, and Van Trijp 2020). However, food waste occurs throughout the food supply chain, and a variety of interconnected factors at various stages of production and consumption can cause it. We illustrate this with the example of avocados. First, avocados must grow to a certain size and have a certain form for them to meet the wholesalers' and retailers' standards and for farmers to be able to sell them. Avocados that do not meet these standards are rejected at this stage. Second, the fruit may also be lost at the harvest stage for various reasons, such as unfavorable climatic conditions and other events outside farmers' control. Third, after the avocados are purchased from farmers, wholesalers and retailers pack avocados in large family bags under the presumption that they will be consumed at approximately the same time in the consumer household. If a few of the avocados in the bag spoil in the store, the bag will probably not be sold at all. Finally, retailers may discard or refuse misshapen or otherwise defective avocados or estimate demand incorrectly, which also results in the avocadoes being discarded.

Consumers expect avocados to have a certain appearance and are often not willing to pay for suboptimal produce (De Hooge et al. 2017; Grewal et al. 2019). Previous research has also identified psychological factors at the point of purchase that cause consumers to reject unattractive items (Grewal et al. 2019). Additionally, the consumer may not be able to gauge the package size of avocados and may purchase more than they will consume, leading to waste at home. Thus, households produce food waste due to complex processes involved in the everyday practices of purchasing, storing, cooking, and serving food (Block et al. 2016). Finally, food services create waste during cooking, preparation, serving, and managing the leftovers on consumers' plates.

Food waste entails environmental, social, and ethical problems, as well as economic costs. In fact, the carbon dioxide emissions caused by food waste are estimated to be almost equal (87%) to that caused by global road transport (Food Agriculture Organization [FAO] 2015). The carbon footprint of food waste varies according to the stage of the food supply chain and the type of food. The last stages of the food supply chain, such as retailing, food services, and households, create the greatest carbon dioxide emissions. Wasted meat is responsible for over 20% of the carbon footprint of food waste, even though it contributes to only 5% of the total food waste (FAO 2015). Another significant issue is the moral and ethical dilemmas that arise when food is wasted while millions of people simultaneously suffer from starvation and malnutrition. If food waste could be reduced even by one-fourth, 870 million people could be fed globally (FAO 2017b). Finally, from an economic point of view, the direct financial costs of food waste add up to about US$1 trillion a year, which increases to US$2.6 trillion when the indirect environmental and social costs are included (FAO 2017a).

Global policies and their targets, such as the UN's SDGs, bring specific issues to public debate at various levels, including the national policy level. However, the SDGs only provide general goals, thus leaving marketplace and public policies open. Food waste is an example of a sustainability issue that is currently under public debate, and the stakeholders involved have been negotiating over the meaning, causes, and solutions to the problem (Block et al. 2016; Mourad 2016; Welch, Swaffield, and Evans 2021). We conceptualize this negotiation process as framing. According to Entman (1993, p. 52), to frame is to "select some aspects of a perceived reality and make them more salient in communicating … to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation." Framing is, thus, an ongoing act of constructing and negotiating "what is going on" (Goffman 1974, p. 8). Different ways of framing an issue can have a significant impact on policy choices. Framing determines what kind of objectives are set and the possible interventions and solutions presented (Stewart 2014). How the problem of food waste is framed directs not only policy but also which food system stakeholders (e.g., retailers, research institutes, food industry) are responsibilized. For example, when food waste is framed as an environmental problem, the debate includes different stakeholders and resulting policy choices than when it is framed as an ethical problem.

The present study seeks to examine the framings that produce stakeholder responsibilization with regard to the issue of food waste reduction. We ask the following questions: What kinds of framings can be identified in the public policy debate on food waste? How do these framings inform the responsibilization of stakeholders in the food waste issue?

Our empirical material consists of policy documents related to food waste in Finland. In 2016, a legislative motion to amend the Food Act was initiated by a Finnish Parliament member. We scrutinized the documents related to this motion and how it developed during the creation of the Finnish national food policy for 2030. Prior research has shown communicative action to be central to the framing approach (Benford and Snow 2000; Goffman 1974), and the utilization of political documentary data is an established method for studying framing (Arcuri 2019). The findings of this study show that the various stakeholders are responsibilized differently in the food waste policy debate. Depending on the framing, food waste is also treated differently at the marketplace and policy levels.

This research contributes to marketing studies on responsibilization processes (Anderson et al. 2016; Eckhardt and Dobscha 2019; Giesler and Veresiu 2014; Gollnhofer and Kuruoglu 2018; Kipp and Hawkins 2019; Thompson and Kumar 2021) by offering a multi-actor perspective on responsibilization. This contribution is important, as previous research has criticized the neoliberal focus on consumer responsibilization in public policy for its narrow scope (Anderson et al. 2016; Welch, Swaffield, and Evans 2021). Furthermore, we contribute by identifying how framings used in assigning responsibility to multiple stakeholders can lead to various public policy solutions to solving the problem of food waste. Understanding this process sheds light on how a society deals with food waste. For food system stakeholders and policy makers, this research provides valuable information to address this issue and to assign responsibility to various stakeholders.

Responsibilization of Food System Stakeholders

Western societies have moved away from "legalistic, bureaucratic, centralized, top-down configuration of authority to a reflexive, self-regulatory and horizontal 'market-like' configuration" (Shamir 2008, p. 3); currently, governments are viewed as only one authority among others or as facilitators rather than as regulators (Shamir 2008). As a consequence, stakeholders such as companies and consumers should voluntarily address issues like climate change, human rights, and public health. In the context of sustainable production and consumption, policy makers increasingly expect stakeholders to change their practices through self-regulation (Giesler and Veresiu 2014; Soneryd and Uggla 2015). However, for stakeholders to be able to self-regulate, they must first be assigned responsibility for this activity; that is, they must be responsibilized. As a result of this responsibilization, actors self-regulate by following moral guidelines, nonbinding rules, and codes of conduct to solve societal problems (Giesler and Veresiu 2014). At the same time, while actors are essentially free to choose whether and how they enact their moral responsibility, they are bound by different kinds of expert knowledge, rules, and boundaries that direct behavior that can be considered moral (Anderson et al. 2016).

Earlier studies in marketing research have concentrated on how consumers are responsibilized to change their behavior on their own "free will" toward more sustainable or healthy lifestyles (Anderson et al. 2016; Eckhardt and Dobscha 2019; Giesler and Veresiu 2014). One such study examines how world leaders envision neoliberal global economic policies, viewing governmental policies as too static and inhibiting (Giesler and Veresiu 2014). Consumer responsibilization consists of a process of personalization (framing the responsible consumer as a solution to global problems), authorization (legitimizing responsible consumption), capabilization (creating a market in which responsible choices can be made), and transformation (creating identification with the new subject position) (Giesler and Veresiu 2014). Although this process is based on studying elites' visions, it shapes other agendas, including national and regional level policies to emphasize individual responsibility. Resulting policies emphasize individual consumers' duties to take action and direct their choices. However, for these policies to work, policy makers need to support them by other means such as discourses circulated in the mass media, information campaigns, websites, and environmental labeling (Soneryd and Uggla 2015).

Other studies have also explored the role of companies in enabling and facilitating consumers' responsibilization efforts. For instance, research has focused on cause-related marketing (Kipp and Hawkins 2019) and brand-led social partnerships (Bookman and Martens 2014). In both examples, companies use marketplace policies to authorize and legitimize consumers' and employees' individual choices as solutions to global social and environmental issues. This moves "the issues from the political to the personal level" and frames them as "simple problems solvable by individuals" (Kipp and Hawkins 2019, p. 8).

Previous studies have indicated that policies responsibilizing individual consumers do not always work as envisioned. First, especially in complex expert service systems such as health and well-being, consumers may lack the resources and competences to fulfill their role, which thus prevents them from taking action as well as causes them stress and anxiety (Anderson et al. 2016). This leads to a need to negotiate consumer responsibilization at the systems level and to develop new marketplace or government policies to address the negative aspects of responsibilization (Anderson et al. 2016). Second, consumers may react negatively to being responsibilized. They may struggle between costs and benefits related to responsibilization (Emontspool and Georgi 2017), become indifferent to the issue (Soneryd and Uggla 2015), or experience physical, psychological, and philosophical discomfort (Eckhardt and Dobscha 2019). This can create resistance in consumers, not only to acting responsibly, but also to the idea that consumers' sustainable actions can provide solutions to complex social problems (Eckhardt and Dobscha 2019). Third, company initiatives for consumer responsibilization can also become problematic. For example, capitalist market firms that attempt to solve international development issues may lack expertise and long-term commitment; moreover, their solutions may reinforce unequal power relations between developing and developed countries (Kipp and Hawkins 2019).

Earlier research has demonstrated that responsibilized consumers can organize themselves into collectives or networks (Gollnhofer and Kuruoglu 2018; Gollnhofer, Weijo, and Schouten 2019; Thompson and Kumar 2021). When faced with a sudden societal crisis, such as the 2015 refugee crisis in Europe, governmental or other more static institutions can be too slow to react. This leaves room for responsibilized consumers to form a temporary self-organized network in which even loosely connected responsibilized individuals can work together to complement the existing welfare institutions' work (Gollnhofer and Kuruoglu 2018). However, in this grassroots responsibilization, the purpose is not to take over responsibilities from the state but to quickly react by forming a network that is disassembled when it is no longer needed (Gollnhofer and Kuruoglu 2018). That said, more permanent networks might also evolve. For example, in their study of a Slow Food network, Thompson and Kumar (2021) illustrate that central aspects of consumer responsibilization can be traced back to the network's long history, in which practices related to consumer responsibilization are not unreflectively adopted but rather negotiated in and adapted to local contexts. Thus, they perceive responsibilization as "a collective autonomy from the corporate-controlled, industrialized food system" (Thompson and Kumar 2021, p. 16).

The research published so far clearly demonstrates that consumer responsibilization is not a straightforward concept. This is especially relevant in the context of the current study, reducing food waste. Despite the increasing political pressure to more effectively address the issue, responsibilizing consumers has not

been enough (Welch, Swaffield, and Evans 2021), because food waste is an issue of the whole food system, and solving it requires the efforts of multiple stakeholders (Närvänen et al. 2020).

In this article, we adopt Thörn and Svenberg's (2016) approach, which involves viewing responsibilization as a process that involves negotiation and/or struggle. Furthermore, although many marketing studies have researched consumer responsibilization, the responsibilization of a variety of other stakeholders has not been studied extensively. To extend the discussion on stakeholder responsibilization, we employ the concepts of framing and the boundary object. We shed light on how global policy visions set by institutions like the UN are negotiated at the national and regional levels to address the food waste issue. The boundary object concept (Star 2010; Star and Griesemer 1989) allows us to examine various stakeholder interests and viewpoints in this negotiation.

Framing the Issue: Food Waste as a Boundary Object

Framing is an interpretive meaning construction process that is active, dynamic, and processual (Benford and Snow 2000; Goffman 1974). It is a way to give meanings to an issue, focus attention on relevant aspects, and identify relevant actors. Moreover, it takes place at the individual, cognitive level, or as interpersonal meaning construction (Dewulf et al. 2009). Consumer decision-making literature has concentrated on the individual level; in contrast, we position our study in the meaning construction stream, wherein framing has been utilized to study, for example, the cultural legitimacy of brands (Kates 2004) and the legitimation of an industry (Humphreys and Latour 2013). Previous research has also examined how different framings of policy messages affect how acceptable they are to the public (Krishen et al. 2014).

In the area of food waste, only a few studies address framing. For example, a recent study focuses on how different message framings affect people's intentions to reduce food waste (Septianto, Kemper, and Northey 2020), and another (Gollnhofer 2017) examines how the practice of dumpster diving became legitimized in the marketplace through, for instance, reframing its stigmatized meanings as environmental responsibility.

To shed light on the effects of framing on stakeholder responsibilization, we have adopted the concept of the boundary object, which was introduced in the late 1980s in sociology (Star and Griesemer 1989) and has been utilized extensively in many fields since then. Boundary objects lie between social worlds and are ill-defined (Star 2010). The key aspect of boundary objects is that they facilitate collaboration when no agreement or consensus is present among actors because a boundary object is flexible and gains different meanings in different contexts. Thus, we argue that viewing food waste as a boundary object allows us to focus simultaneously on the responsibilization of different stakeholders in the food waste issue. As Sajtos, Klejnaltenkamp, and Harrison (2018, p. 618) put it, "boundary objects, as their name suggests, represent a bridge between an actor's own and other actors' worlds; hence, [they have] a balancing role." Even though food waste is currently an established phenomenon in both political and research agendas, it has emerged relatively recently as an issue, as waste has become more visible in society (Evans, Campbell, and Murcott 2012).

A boundary object has three features: (1) interpretive flexibility, (2) structure of work arrangements, and (3) the dynamic relationship between ill-structured and more tailored uses of the object (Star 2010). Interpretive flexibility implies that all actors identify and recognize the boundary object—in this case, food waste—but within their own communities, they might interpret it differently (Sajtos, Klejnaltenkamp, and Harrison 2018). That is, while all stakeholders recognize food waste as an important issue, debates have emerged on, for example, whether food surplus and food waste should be considered separately or together and whether inedible food waste should be measured in statistics on food waste (see, e.g., Hartikainen et al. 2020). The boundary object also "enables an actor's local understanding to be reframed in the context of a wider collective activity, by the process of negotiation and translation" (Sajtos, Klejnaltenkamp, and Harrison 2018, p. 619). An example of such wider collective activity is the process of policy making examined herein, which has been boosted by the UN and European Union's political goals related to the issue.

The second feature of boundary objects is the structure of work arrangements: boundary objects are the "stuff of action" (Star 2010, p. 603). Reducing food waste is, thus, connected to not only the different interpretations of stakeholders, but also to their activities. These activities can be very different: for primary producers, food waste is often an unavoidable part of producing food, whereas for retailers and consumers, it is connected to various routines and processes, which render the waste more visible and easier to act on. Cooperative work arrangements align and coordinate actors and create a shared understanding among them (Sajtos, Klejnaltenkamp, and Harrison 2018).

The third feature, the dynamic relationship between ill-structured and more tailored use of the object (Star 2010), is visible in the way actors continuously shift between their own perspectives and that of the phenomenon as a whole, which involves continuous negotiation. For example, retailers simultaneously claim to reduce food waste while setting strict standards for the appearance of fruit and vegetables that create food waste elsewhere in the food system (Devin and Richards 2018), and a retail store manager's social world may be different in relation to food waste than that of the company or regulators (Gruber, Holweg, and Teller 2016). Food waste allows for this dynamic negotiation as it lies in between two categories: food and waste. In any given framing, its status alternates between more food than waste and more waste than food (Mattila et al. 2019).

In summary, we consider food waste a boundary object that enables communication between stakeholders with varying

interests. These stakeholders continuously frame the issue in different ways, and this results in different responsibilities. Consequently, framing impacts how stakeholders negotiate and use various marketplace and public policies as solutions to the problem. In the empirical part of this article, we further examine how food waste appears as a boundary object within each framing.

Materials and Methods

Data Collection

Finland, like the other Nordic countries, has been ranked as one of the leading countries in addressing sustainability and corporate social responsibility (CSR) issues (Strand, Freeman, and Hockerts 2015). Food waste as a sustainability and CSR issue has gained a foothold in both the private and public spheres in Finland. In particular, Finnish companies have taken CSR initiatives involving food waste; for example, retailers have set numerical objectives to reduce food waste and report their results in their annual sustainability reports. However, so far, Finland has not taken the legislation route, as some other European countries have done to try to reduce food waste (see Giordano et al. 2020).

In Finland, policy making involves inviting various stakeholders, such as experts and various authorities, to participate in the discussion and voice their opinions and views, which can influence the outcomes of the process. Therefore, to examine food waste reduction as a multi-actor issue, we collected Finnish food policy documents from the Finnish Parliament web page that focus on the issue of food waste. These documents, which comprise a total of 289 pages, were issued between May 2016 and February 2019 and include government reports, minutes of the Parliament's plenary sessions, committees' statements, and expert statements from retailers, research institutes, trade associations, and nongovernmental organizations (NGOs; see the Web Appendix). They offer a fruitful entry point to examine various stakeholders' framing efforts related to the issue, because their purposes are to present the official public view of each stakeholder and to influence other stakeholders (especially policy makers and members of parliament) in the policy process from their respective viewpoints.

The documents collected during the study period follow two political initiatives launched during a four-year term (May 2015–April 2019) of the Finnish Parliament and Government. As each government sets its own objectives for action, we decided to restrict data collection to only one government's term. First, we analyzed the legislative motion to amend the Food Act in May 2016 and the discussions following it. This motion suggested that retailers and other relevant actors, such as bakeries and public kitchens, should be obligated to donate edible surplus foodstuffs to NGOs or allow it to be utilized otherwise. Second, we analyzed the Finnish government's Food2030 report published in February 2017 and its ensuing procedures and documents (e.g., statements from various stakeholders, parliament minutes) related to the food waste issue in the period between March 2017 and February 2019. The report sets policy objectives and key priorities for the Finnish national food policy.

Data Analysis

The data analysis process comprised five stages, and we proceeded in accordance with the principles of qualitative data analysis, in general (Belk, Fischer, and Kozinets 2013; Spiggle 1994), and frame analysis, in particular (Creed, Langstraat, and Scully 2002; Gamson and Lasch 1983). Table 1 details the stages.

The initial two stages of the process helped us gain a holistic view of the research phenomenon and to outline the public policy process in more detail. The first author led the analysis process, and all the authors collaboratively discussed it in several sessions, during which we noted that each stakeholder had differing definitions and understandings about the issue itself, and this in turn influenced the ways they perceived their own responsibility and role. Furthermore, we found commonalities between stakeholders' use of language, which led us to the notion of framing and frame analysis. According to Creed, Langstraat, and Scully (2002, p. 38), "frame analysis is explicitly about social actors' lenses and metaphors as they are deployed, particularly in the service of collective advocacy, mobilization, or public policy." In the third and fourth stages, by drawing from frame analysis (Creed, Langstraat, and Scully 2002; Gamson and Lasch 1983), we formed the discursive bases for each framing and identified five framings. After joint discussion, we combined the efficiency and environmental aspects under the eco-efficiency framing, because we noticed that their discursive basis and approach to food waste were similar. Therefore, we ultimately had four framings. As an inevitable result of framing, stakeholders exclude or silence some aspects (Star 2010). As Nyberg and Wright (2016, p. 618) argue, framing is a performative act in which "each cut or carving of the frame suggests inclusions and exclusions." We discuss these exclusions by denoting what is not included in a particular framing and highlighting the inherent incompleteness of framing. We identified these exclusions through joint discussion, reflecting on what was missing or not talked about in each framing but was present in the whole data set.

At the end of the analysis, we used the theory on boundary objects (Star 2010; Star and Griesemer 1989) to provide an interpretation as to why different framings may exist at the same time and enable collaboration between the actors without consensus. In this phase, we also compared the framings against one another. Thus, our analysis process can be characterized as a hermeneutic helix (Gummesson 2005) wherein we continuously moved between data and theory, which enriched our emerging interpretations with concepts and enabled us to deepen our understanding of the phenomenon. In reporting the results, we use data quotations that we translated from Finnish and were proofread by a native English

Table 1. Analyzing the Data on the Framings of Food Waste.

Stage of Analysis	Goal of Stage	Concrete Procedures	Analysis Techniques
1. Sketching a Timeline	To get a comprehensive and chronological overview of the issue's development in the public policy process	Reading through the documents, jotting down important milestones in policy process, guided by initial research questions	Organizing the data (Spiggle 1994) and getting a holistic sense of the phenomenon in its context, immersing in the data (Belk, Fischer, and Kozinets 2013)
2. Identifying Stakeholders	To identify different stakeholders involved in the public policy process	Identifying which stakeholders were involved in the process or mentioned in discussions as well as coding their interests, organizing the data according to stakeholders	Coding (Belk, Fischer, and Kozinets 2013; Spiggle 1994)
3. Frame Analysis, Step 1	To identify the discursive basis of framings used in the policy debate to discuss food waste	Categorizing language use and identifying idea elements in the data, including metaphors, examples, and keywords	Categorization (Spiggle 1994) of chunks of data into meaningful phenomena, identifying idea elements (Creed, Langstraat, and Scully 2002); Iteration (Spiggle 1994) through discussing the categories among the author team
4. Frame Analysis, Step 2	To identify relations between framings and their exclusions and inclusions	Paying attention to the similarities and differences in framings, abstracting from metaphors and examples to the framings level by asking what holds the elements together	Comparison of data, abstraction of the data into higher-order constructs (Spiggle 1994), asking what holds the idea elements together (Creed, Langstraat, and Scully 2002; Gamson and Lasch 1983)
5. Interpretation	To interpret the framings with the help of suitable theory	Using studies on responsibilization and boundary object theory to interpret the framings at a more abstract level	Dimensionalization of the data in terms of their properties, integration of relationships between the data (Spiggle 1994). Asking who is responsible in each framing, and what actions and solutions are considered appropriate in each framing (Creed, Langstraat, and Scully 2002)

editor. Within the quotes, we have highlighted in italics the keywords of the framings.

The Four Framings of Food Waste

Our analysis of food system stakeholder responsibilization resulted in the identification of four framings through which food waste was treated differently in the policy process: eco-efficiency, solidarity, safety, and appreciation (see Table 2). The framings reveal the different interpretations of the issue, stakeholder responsibilization, and the exclusions. Next, we elaborate on each identified framing.

Eco-Efficiency Framing

Within the eco-efficiency framing, the issue of food waste appears in the wider discursive basis of climate change. This is especially prominent in the data, because of the global and national political pressure to promote sustainable development. For instance, the Finnish government initiated a key project on promoting a circular economy in which the issue of food waste was included. According to the data, political actors responsibilize each other:

> Finland could be a forerunner of *circular economy*, ethical consumption, greener economy, and a more innovative food production chain. It is *not sensible to squander* foodstuffs and labor. Instead, we should *increase resource efficiency and use*. As policymakers, we can strive for creating structures which encourage citizens to consume in a more sustainable manner as well as urge different food producers to offer more *eco-friendly* products. (Ilmari Nurminen, Social Democratic, PTK 59/2016, p. 2)

Thus, the eco-efficiency framing links food waste closely with other environmental concerns, such as availability and use of natural resources as well as carbon dioxide emissions, often comparing the carbon dioxide emissions of food waste with those of car traffic. Thus, the eco-efficiency framing highlights food waste as a boundary object for which there are various definitions and measurements:

> Even though there are still ongoing debates also in Europe about the definition of food waste and these *definitions* still vary from one conversation and situation to another.… [It] can be examined from a couple of different perspectives and at different levels (thus producing knowledge and answers for different things). (Expert statement, Natural Resource Institute Finland, p. 3).

Table 2. The Four Framings of Food Waste.

Framing	Discursive Basis	Food Waste Is Treated As	Responsibilized Stakeholders	Examples of Suggested Solutions	Exclusions
Eco-efficiency	Climate change	Matter of calculation	• Political actors • Research institutes • Retailers • Food industry • Primary production	• Quantifying the issue • Solutions based on food waste hierarchy	• Nutritional value of food • Cultural meanings of food
Solidarity	Principles of the welfare state	Matter of care	• Food-sharing NGOs • Retailers • Political actors	• Enabling food aid	• Prevention of food waste • Voice of the disadvantaged
Safety	Citizens' well-being	Matter of health	• Food industry • Catering • Political actors • Public servants • Retailers • Consumers	• Improving date labels • Deregulation	• Citizens' food sense • Biological nature of food
Appreciation	Cultural values	Matter of education	• Consumers • Communication and PR agencies • Retailers • Catering	• Publicly funded campaigns • Participatory food system	• Complexity of the food system • Heterogeneity of consumers • Food-related daily routines

The eco-efficiency framing highlights the importance of scientific research that centers on measurement of food waste in different parts of the food chain. Thus, this framing responsibilizes research institutes, which accept this responsibilization readily, viewing themselves as facilitators of collaboration between different stakeholders:

> Thus, let's make Finland a European model country of *food waste monitoring* and reduction in cooperation with the food industry–government–research organizations. Natural Resources Institute Finland conducts research and cooperation as well as continually engages in dialogue with ministries, companies, industry unions, members of parliament, and representatives of the European Parliament regarding food waste measurement and reduction. (Expert statement, Natural Resource Institute Finland, p. 3)

In addition to research institutes, within this framing, retailers are held responsible for handling their food waste effectively. However, as a legislative motion would make retailers legally accountable, they put emphasis on having other stakeholders share equal responsibilities in the issue:

> [We] appreciate the effort to reduce food waste. However, we are concerned about suggestions similar to the legislative motion, which is directed only at distributors of food. In reducing food waste, the *entire supply chain* should be in focus. We should also enhance *waste measurement* and aim at finding voluntary, new operation models for reducing waste. (Expert Statement, Finnish Grocery Trade Association, pp. 2–3)

Further, in their expert statements, the retailers Kesko Corporation and S-Group respond to the effort to responsibilize them by emphasizing their already existing voluntary procedures to direct their food waste into biogas or bioethanol production as well as their existing targets to reduce food waste:

> For a retailer, food waste relates to *costs and environmental impacts*, which is why S-group has made long-term efforts to reduce it. In the S-group, food waste has been diminished by seventeen percent in the past five years. This has been achieved through improving our activities and information systems.… S-group is committed to continue reducing food waste by fifteen per cent by the year 2020. (Expert statement, S-group, p. 1)

Other stakeholders' statements utilize the discourse on the circular economy. In those statements, it operates as a basis of argumentation:

> When talking about food waste, it is important to distinguish between edible and inedible material as well as view the food system as an entity.… The food industry has already for a long time been working on *optimizing the effective use* of raw materials and resources. We are indeed in the center of the *bio and circular economy*: food industry products are *biobased* and consist of *renewable* raw materials. (Expert statement, Finnish Food and Drink Industries' Federation, pp. 4–5)

Within the eco-efficiency framing, food waste is treated as a material resource; that is, its renewable and bio-based nature is recognized and highlighted. As a result, it does not appear as environmentally detrimental as nonrenewable resources and instead

appears as something that can still be used for more sustainable energy production. However, as a result, the environmental impact of food production is downplayed. One way in which this is accomplished is by referring to food waste by another term, such as "food loss" (Gille 2012) or "side flows." The following quotation depicts this: "side flows of primary production must definitely be considered in the food waste discussion as side flows, *not as food waste*" (Expert statement, Central Union of Agricultural Producers and Forest Owners, p. 3). One effect of the eco-efficiency framing is, thus, the way it enables stakeholders such as primary producers to exclude themselves from the food waste definition and, consequently, from taking responsibility in the issue.

Overall, the eco-efficiency framing reflects a material world with quantified measures, such as carbon dioxide emissions, that direct the discussion on solutions. Stakeholders portray food waste through its relations with other materials, such as technologies, measurements, and the climate. Within this framing, the needs and interests of nature and the Earth are of primary concern. It excludes the more human aspects of the issue, such as the interests of individuals with regard to what should be eaten and what should be valued as food. The focus on edibility versus inedibility seals the fate of food waste, and thus, the nutritional value of food is not taken into account. Thus, as long as food waste is valued as a raw material, wider cultural meanings of food are excluded.

Solidarity Framing

The discursive basis of the solidarity framing stems from the principles of the Nordic welfare state, in which the state takes care of its citizens' health and well-being. The framing connects food waste with caring as an ethical issue, that is, caring for vulnerable and dependent others. Throwing food away is viewed as unethical because there are, simultaneously, those in need of it. Thus, food waste is treated as an instrument of care that emphasizes the nutritional value of wasted food.

Caring manifests concretely in the solidarity framing through food donations, wherein retailers are responsibilized to direct their surplus food to charity organizations:

> Throwing food away *seems grotesque* as more and more Finnish people get their food from bread lines. Malnutrition and lack of food is still a big and burning problem globally. At the same time, stores throw enormous amounts of edible food into locked trash bins. This is an *unbearable equation*.… Directing edible surplus food to *those in need* would however be sensible, fair, and environmentally friendly politics. (Hanna Sarkkinen, Left Alliance, PTK 59/2016, p. 3)

In this quotation, the retailers who throw food away are implicitly framed as the ones to blame. The imagery of locked trash bins portrays how edible food is concretely sealed away from those who could still eat it. Moreover, other members of parliament voiced their concerns related to food security, by referring to, for instance, statistics on people who use food charities regularly in Finland.

Food banks and third-sector charity organizations are also central stakeholders that are responsibilized in the solidarity framing. Internationally, food banks were originally framed as a means to alleviate food insecurity. In the food waste context, food banks have, in recent years, been reframed as mechanisms for solving the food waste problem, and this has allowed retailers to use them as part of their CSR strategies and branding (Welch, Swaffield, and Evans 2021). Within the solidarity framing, the social and moral values of sharing food are highlighted, but at the same time, NGOs, for instance, are concerned about the possibility of malnutrition among the disadvantaged as a result of consuming a one-sided diet that mainly consists of surplus food: "Without food waste, there would not be food aid in Finland, but it is also *ethically unbearable* that some citizens eat time and again the food which is not good enough for more affluent people" (Expert Statement, Shared Table action model, pp. 1–2).

Furthermore, while some see surplus food as a free resource to be used for food aid, others raise the argument of ownership: "People tend to think that someone's surplus food can be considered as public property.… Surplus food cannot be nationalized automatically to serve some other purpose; it also has ownership and certain value" (Kalle Jokinen, National Coalition Party, PTK 15/2017, p. 21). This can be seen as an example of how food waste plays a role in maintaining the existing value-creating activities in the food system (Gille 2012). Thus, the status of surplus food within the solidarity framing is unstable and continuously shifting—whether it is valuable or invaluable, or whether it is edible or inedible. Thus, within this framing, too, the nature of food waste as a boundary object becomes apparent.

Food sharing encourages cooperation among NGOs, retailers, individual citizens, communities, and organizations. However, stakeholders view this cooperation as somewhat problematic. Retailers call for establishing trustworthy relationships with food-sharing NGOs when donating surplus food. NGOs report that they continuously lack the resources (especially logistical and storing systems) to be an effective part of food-sharing activities. This can be seen as an example of how stakeholders can resist the responsibilized position, because they feel that they are not capabilized to act (Anderson et al. 2016; Giesler and Veresiu 2014).

> It is not just any *charity organization's* voluntary work that must be done every now and then, but instead, when operating as partners with retailers, it requires logistic chains, cold storages, a great number of volunteers, and collecting the food waste products every day. This is why we must also consider whether those organizations are able and capable to act in that way. (Sari Essayah, Christian Democratic, PTK 15/2017, pp. 22–23)

For grocery retailers and politicians, some food-sharing NGOs provide good examples of voluntary best practices and operational models for reducing food waste (see also Evans, Campbell, and Murcott 2012). For example, some stakeholders emphasized the Shared Table action model funded and owned

jointly by the City of Vantaa and Vantaa Parish Union: it serves not as a food bank in the traditional sense but as a more evolved version of a food bank with a communal approach, including community lunches. Originally adopted from Berliner Tafel in Germany, the Shared Table model has been proposed as a good candidate to copied and spread across Finland. Although existing cooperation between retailers and NGOs facilitates food waste reduction, retailers refer to these activities in their discourse to indicate that they are already acting on this issue. In this way, even though more could be done, retailers resist further responsibilization.

In summary, the solidarity framing pictures a more human world than the eco-efficiency framing. Here, food waste is treated as a matter of care. Care manifests itself through food sharing: food aid is highlighted as a possible way to connect various actors and to care for others. However, within this framing, too, certain exclusions emerge. First, food aid is insufficient to solve the problem of food waste; rather, food aid can succeed only if food waste is present throughout the food system. Therefore, it excludes prevention of food waste in the first place. The second exclusion is the missing voice of the disadvantaged consumers who are the targets of solidarity. For instance, all surplus food is seen as edible without accounting for its healthiness or the preferences and special needs of the receivers.

Safety Framing

The discursive basis of the safety framing is the idea of ensuring individual citizens' well-being by protecting them from food-related health hazards. It is linked with the solidarity framing in that both framings involve the nutritional perspective of food waste. Due to its organic nature, food spoils over time, simultaneously resulting in the growth of organisms that are harmful for humans. Therefore, this framing shifts the focus from rational economic calculations (i.e., eco-efficiency) and care for others (i.e., solidarity) to individual human bodies. Within the safety framing, food quality and safety, appropriate shelf life, and risk management practices are at the forefront (Milne 2012). Consequently, food waste is treated as the consequence of misleading date-labeling practices and strict food safety regulations and standards. The responsibilized stakeholders include the food industry, the catering industry, retailers, and policy makers, as well as public servants. In addition, consumers are responsibilized for interpreting date labels correctly.

The safety framing becomes concrete in discussions on date-labeling practices and how consumers interpret them:

> It is possible to reduce food waste at homes by *clarifying shelf life labeling*. "Best before, completely good afterwards" is a golden rule that should be deeply rooted in all of us. Use-by dates should only be in those products where there's a *genuine health risk* involved in exceeding their usage time frame. (Anne Kalmari, Centre Party, PTK 73/2017, pp. 2–3)

Previous studies have found that consumer misunderstanding of date labels commonly results in the discarding of food (Neff et al. 2019). The safety framing elevates food packages and date labels to a powerful position in the context of reducing food waste. This is reflected also in the food policy developments in the United Kingdom, in which four phases of food policy related to food package labeling have been identified: labels as a (1) internal stock control mechanism, (2) consumer protection mechanism, (3) food safety device, and (4) key element in fighting food waste (Milne 2012). Our data support a similar development in Finland, where especially political actors have tried to find a balance between protecting citizens and fighting against food waste, as the following quotation illustrates:

> [In Finland,] the biggest problem lies in *ensuring the health and safety of consumers*. While doing so, edible food remains at stores due to these regulations. (Kimmo Tiilikainen, Centre Party, Minister of the Agriculture and Environment, PTK 15/2017, p. 26)

Further, strict food safety regulations and standards contribute to food waste throughout the food system. For example, the requirements for food storage, such as storage temperatures and allowed time frames for buffet servings in restaurants, often cause food waste. Therefore, safety framing suggests deregulating of these kinds of norms as a solution:

> There are many reasons behind food waste, and partly, it is caused by legislation. Some of the regulations are definitely *well justified* in order to *protect human health*. Despite that, there would be nothing wrong with using common sense. (Suna Kymäläinen, Social Democratic, PTK 59/2016, p. 7)

With regard to this concern, the government commissioned a research project to examine how the current legislation impedes food waste reduction and what changes in legislation are necessary to minimize food waste (Hietala et al. 2018). This project responsibilized research institutes to produce knowledge regarding public policy that can be used to provide capabilities for stakeholders to achieve a balance between food safety and food waste. Furthermore, both the food industry and research institutes were responsibilized to conduct studies that make the shelf-life times of food better known and explicit:

> We have to ensure that so-called *common sense* has its place in food safety. A *food-wise citizen* must be aware of food safety but also recognize the nature of food products, so that food is not thrown away as a consequence of blindly following *date labels* on the packaging. Also, food industry firms and research institutes must be required to *conduct research studies* on the actual shelf-life of food, and the results of these have to be made public. (Expert statement, JAMK University of Applied Sciences & City of Jyväskylä, p. 7)

To summarize, within the safety framing, food waste is considered through the body-related material world and, consequently, as a matter of health. Here, food waste and its

potentially hostile companions (e.g., bacteria, yeasts, fungi) contaminate the body in unwanted ways, such as diseases, allergies, and other health problems. Therefore, stakeholders promote the protection of human health, but in doing so, two exclusions are created. First, the organic nature of food is not recognized, as experts in the food industry determine appropriate shelf lives. While factors such as transportation and storage conditions may affect the duration of food items, fixed date labels do not take this into account. Date labels standardize edibility of food, rather than allow it to be determined in each situation. As a second exclusion, the framing neglects citizens' food sense and bodily knowledge in their interactions with food. As Yngfalk (2016, p. 289) has pointed out in his study of the date-labeling policy in Sweden, labeling redistributes competences "from people to labeling technologies," by absorbing "the capacities and the knowledge previously embodied in the individual."

Appreciation Framing

The discursive basis of the appreciation framing intertwines cultural values and the frugal Finnish heritage of not wasting (Huttunen and Autio 2010; Uusitalo and Takala 2020). This framing stems from the idea that people no longer appreciate food and, as a consequence, create food waste. Lack of appreciation is presented as a result of consumers' estrangement from food production, as well as low food prices. Consumers and, to a smaller degree, retailers, are thus held responsible. The appreciation framing emphasizes food waste as a boundary object that comprises various interpretations about the value of food.

One solution to increase the appreciation of food (including surplus food) is to improve citizens' food sense, by responsibilizing them to self-regulate their food waste:

> Food sense includes *good manners, social skills, respect* for food, and responsible choices as well as an understanding of the complex significance of food in our society. Food sense is seen in the *sensible use of food* and being economical with it and minimizing waste. (Government Report on Food Policy, p. 4)

In addition to increasing the appreciation of food in general, one of the expert statements highlights valuing leftovers as food:

> Furthermore, there should be also consideration about how to *improve appreciation* both for leftover food and for food that is at the final stage of its life cycle but is still edible, so that they would be *accepted* also for other purposes besides charity. (Expert statement, JAMK University of Applied Sciences & City of Jyväskylä, pp. 6–7)

Communal eating is viewed as essential in increasing appreciation for food. The use of catering services daily for lunch is common in Finland; therefore, it is possible for the catering industry to influence food-related norms and behavior. Moreover, the Finnish system of publicly funded school meals creates an important platform for future consumers' food education.

> The strengthening of *positive food memories and food experiences* and sharing them with others closely relates to treating food in an *appreciative manner* so that no food is left on the plate or completely uneaten. The food waste discussion is strongly linked to eating together and food education. (Expert Statement, JAMK University of Applied Sciences & City of Jyväskylä, p. 2)

The appreciation framing treats food waste as a subject of education. Educational short- and long-term campaigns that aim to raise awareness and change attitudes are examples. Here, communication and public relations agencies are responsibilized to act as educators. The publicly funded "Food Waste Week" is an example of a short-term, week-long campaign organized annually in Finland that aims to increase media coverage and the visibility of food waste in society. It targets consumers but also encourages other stakeholders such as retailers, food services, and NGOs to talk about food waste and to arrange events around it. Long-term campaigning includes increasing consumers' knowledge about cooking leftovers and improving sensible use of food: "In order to improve housekeeping skills at both the EU and national level, [consumer] knowhow of utilizing leftovers, cooking, and storage needs to be improved through *giving advice and education"* (Expert statement, Central Union of Agricultural Producers and Forest Owners, p. 3).

Retailers have also voluntarily assumed the role of educators by providing consumers with tools and advice on reducing food waste: "K Group actively provides consumers with tools, advice, and help for reducing household food waste. Mobile applications such as 'K food' are increasingly playing a role in reducing household food waste" (Expert statement, Kesko Corporation, p. 1). Furthermore, some stakeholders frame educational responsibilities as part of child-rearing in homes, kindergartens, and schools:

> The *generations* that have not experienced scarcity and need in the way those who were born in the first part of the 20th century, naturally have a different attitude toward food. For them, food has always been available in *abundance*, or at least sufficiently, and that is a good thing. *Appreciation* for food starts at home from a young age. *Schools and kindergartens* also play a significant role in inculcating this. (Harry Wallin, Social Democratic, PTK 73/2017, pp. 19–20)

Overall, the appreciation framing elevates the human world, as it highlights learning in food waste reduction: to learn more about food or food waste, and how to act with various food items. However, this also creates exclusions of food-related daily routines (e.g., planning for purchases, shopping for food products, preparing meals, serving them to friends and/or family) and all the materials associated with them (e.g., shopping lists, recipes, refrigerators, kitchen appliances and utensils) (Mattila et al. 2019). The framing simultaneously reduces the complexity of the entire food system to only focus on consumers. Furthermore, the appreciation framing involves viewing consumers as a homogeneous group, and this creates an exclusion of policies that target educational initiatives for different consumer segments and their lifestyles (Aschemann-Witzel

et al. 2018). Similarly, the majority of suggested solutions in food waste research focus on consumers (see, e.g., Hebrok and Boks 2017) and have assigned the other stakeholders the role of educators. Thus, the appreciation framing excludes the systemic complexity of the food system.

Outcomes of the Policy Process in Relation to the Framings

After the discussion of the food policy process, the Finnish Parliament presented the government with two proposals for action related to food waste: (1) "to set numerical goals for food waste reduction in different parts of the food chain" and (2) "to look into the need for renewing date labeling of food" (EK 21/2017, p. 1). Next, we discuss the implications of these proposals.

Regarding the first proposal, food waste as the boundary object needs to create a common ground on which stakeholders can align their activities and achieve a shared understanding. As noted previously, Star (2010) calls this property of the boundary object "structure of work arrangements," and it can be accomplished through standardization and removal of various meanings of food waste. In our analysis, the eco-efficiency framing, in particular, caters to this common ground by attempting to assign a quantitative value to food waste and measuring it. This facilitates communication and cooperation between stakeholders even in the absence of consensus.

In accordance with the first proposal, the stakeholders identified in the study framed, rather unanimously, the issue of food waste as a calculable problem. This problematization enabled the stakeholders to engage in determining who is to be responsibilized and how. It also made possible efforts to control the food waste issue. However, stakeholders may strategically suggest more measurements and research on the issue to postpone decision making or the creation of regulations on the issue (Gille 2012). This resonates with the issue of capabilization (Giesler and Veresiu 2014)—that is, the capabilities needed for stakeholders to reduce food waste. The first proposal appears to suggest that only capabilities related to measuring food waste are important, while other kinds of capabilities are excluded.

The second proposal, revising the date labeling of food, draws from the safety framing and is related to the tendency of boundary objects to create new boundary objects as a result of their interpretive flexibility (Star 2010). Date labels, which consist of numerical, straightforward information about the edibility of food, represent another standard that facilitates communication between stakeholders. Over time, date labels may become a new boundary object in the food waste issue as cooperative work between food system stakeholders emerges around them (Star 2010). Date labels thus facilitate the collaboration between various stakeholders from the food industry to retailers and consumers. However, the current static date label system maintains the power relations of the established food system: food producers can set the labels to reduce their own risk, without concern for reducing food waste. Date labels are also a form of exercising biopower over consumers through the aim of protecting their health: consumers are held responsible for making informed decisions about the edibility of food based on these labels (Yngfalk 2016). A more dynamic labeling system is one solution, in which consumers' skills to evaluate edibility could be combined with new technological solutions in food packaging or storage.

The two proposals discussed previously represent the outcomes of the food policy process investigated herein. In addition to these measures, the Ministry of Agriculture and Forestry updated the implementation plan for the new food policy throughout the study period. Besides listing concrete action taken in relation to the two aforementioned measures, the plan also includes a food appreciation scheme, which includes food waste–related action at a more abstract level. For example, the plan mentions the campaign "Food Waste Week" but proposes it only as a target for funding, rather than as a means of addressing stakeholders other than consumers.

In summary, the eco-efficiency, safety, and appreciation framings are included in the outcomes of the policy process, but the solidarity framing is not. Furthermore, the outcomes do not account for the various exclusions identified in this study. According to our analysis, people's affective and bodily relations with food are not taken into account in the eco-efficiency and safety framings. Those actors who must frequently deal with food waste, such as retail managers, experience a moral burden that increases their will to do more than what is officially required to reduce food waste (Gruber, Holweg, and Teller 2016). The opposite is true as well: the further away the actors are from everyday interactions with food waste, the easier it seems for them to be able to manage it. The treatment of the food waste issue in public policy debate as a calculable problem also facilitates monitoring of the issue from a distance (Star and Griesemer 1989).

Discussion

Theoretical Implications

The article makes four theoretical contributions. First, the findings broaden the view of responsibilization by going beyond consumer responsibilization. Earlier studies focus on the processes and outcomes of consumer responsibilization as a consequence of the neoliberal ideology (Anderson et al. 2016; Giesler and Veresiu 2014). As a complement, this study reveals how framing is directly connected to responsibilization of various stakeholders and to public policy solutions. Responsibilization within sustainability issues is, increasingly, not only about shifting duties and risks to consumers, but also about an ongoing and multifaceted negotiation process (Soneryd and Uggla 2015) wherein several stakeholders, including retailers, research institutes, and public organizations strive to find workable solutions to address food waste.

Second, the findings of the present analysis demonstrate that stakeholder responsibilization intertwines with framing,

as different framings responsibilize different stakeholders. Likewise, food waste as a boundary object is flexible: within the eco-efficiency and safety framings, it appears more as a waste (and, consequently, health) management issue, while within the solidarity and appreciation framings, the focus is more on the human aspect. The study continues the critical discussion on responsibilization that highlights its complex and dynamic nature (Gollnhofer and Kuruoglu 2018; Gollnhofer, Weijo, and Schouten 2019; Kipp and Hawkins 2019; Soneryd and Uggla 2015; Thompson and Kumar 2021). Also, our findings further show how different framings of food waste relate the issue to larger themes in society and public policy, such as the solidarity framing to malnutrition and the disadvantaged or the eco-efficiency framing to climate change. Thus, our findings have implications to a wider audience within public policy discussions (see Porpino 2016, p. 49).

Third, our findings demonstrate that context and time frame matter in processes of stakeholder responsibilization. In contrast to sudden crises that can encourage stakeholders to self-responsibilize quickly (Gollnhofer and Kuruoglu 2018), food waste and many other sustainability issues develop slowly over time and are related to changes in stakeholders' daily practices and conventions. For instance, the goals set by the EU and UN to reduce food waste by 2030 creates a longer time frame for involved stakeholders to react and for the responsibilization process to unfold in both marketplace and public policies. The COVID-19 shock has shown that policies can also change extremely rapidly, even overriding basic human rights (e.g., freedom of movement). Compared with sustainability challenges, in which such sudden shocks are less common, responsibilization processes take more time and require more negotiation.

Fourth, the study connects the boundary object theory (Star 2010; Star and Griesemer 1989) with the processes of responsibilization. This study has demonstrated that food waste as a boundary object impacts stakeholder responsibilization. The findings highlight the continuous negotiation between stakeholders on who is responsible and how. Food system stakeholders have differing interests and promote solutions that are often in competition with each other, which can result in actions that do not necessarily lead to a win-win situation for all stakeholders or large-scale change within the food system (Mourad 2016). Thus, if only a few framings dominate the public policy debate, some stakeholders' interests and the solutions they strive for may be excluded. Likewise, the exclusions in the process of framing means that the responsibility of some stakeholders has been overlooked. Therefore, if only some framings translate into action, not all stakeholders will be mobilized to take action. The nature of food waste as a boundary object also may enable some stakeholders to withdraw from responsibility while still participating in the public policy debate.

However, wider distribution of responsibility between various food system stakeholders creates risks that need to be addressed. When every stakeholder is considered responsible for its own part, do any of the stakeholders take action at the system level? In many ways, food waste provides an attractive way for many stakeholders to participate in sustainability issues, yet few are ready to make radical changes (Mourad 2016; see also Welch, Swaffield, and Evans 2021). However, the food waste issue requires these strong sustainability initiatives. This may lead to a situation in which "political mobilization occurs around those constructions of the food waste problem that preserve the ability of the most powerful actors to protect themselves from economic, technological, legal and political risks" (Gille 2012, p. 41). Therefore, power relations among the stakeholders involved in the policy debate around the issue should be closely scrutinized and addressed.

Public Policy and Market Implications

This research aims to help food system stakeholders and policy makers in their attempt to address the issue of food waste and in distributing responsibility for the issue. Figure 1 details a framework of emerging solutions that have been developed at both the market and public policy levels. We distinguish between solutions that focus more on micro-level responsibilization (individual stakeholders) and those that focus more on macro-level responsibilization (broader structures and relations between the stakeholders). We also distinguish between solutions that are embedded strongly in the material or in the human world. In the first category, emerging solutions relate to the eco-efficiency framing. They concern the macro–level and are essentially about the material world. The solutions are characterized by a focus on the circular economy, that is, improving the efficient use of material resources. In the European Union, the solutions offered both at the market and policy levels are expected to follow the EU waste directive that puts different food waste solutions into an order of preference—in other words, the food waste hierarchy (Papargyropoulou et al. 2014; see also Giordano et al. 2020). The most preferable solutions are those that prevent food waste from occurring in the first place, followed by solutions that reuse the surplus food to be used for human consumption, recycling into animal feed or through composting, and recovery into energy. However, empirical data on food waste–related policies in different EU countries reveal that current policies do not fully utilize or implement this hierarchy (Giordano et al. 2020). Furthermore, EU policies have recently emphasized the creation of a uniform monitoring system for its member countries. This system, which includes reporting the amount of food waste for each stage of the food supply chain, should be ready for each member state by 2022 (European Commission 2020). Another example of how this category is implemented at the policy level can be found in South Korea, where household food waste is weighed and identified using an RFID tag, and the households pay taxes based on the amount of waste. This collected waste is then further processed, for example, by bioconversion of food waste through insects to produce fertilizers.

Utilizing food waste as a resource also presents an emerging business opportunity at the market level. The idea of using surplus food to produce new products has recently created opportunities

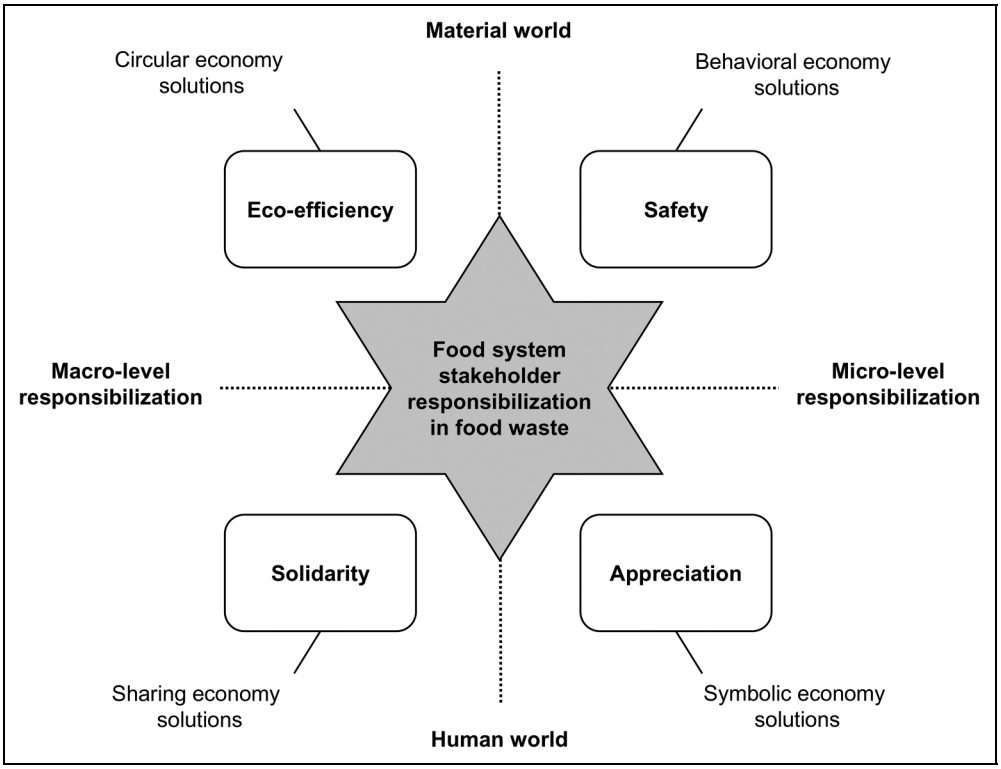

Figure 1. Framings and solutions addressing food system stakeholder responsibilization.

for many start-up companies, such as FoPo Food Powder (Sweden), ReBelle (France), and KromKrommer (the Netherlands) (see also Närvänen, Mattila, and Mesiranta 2021). Research has demonstrated the potential for these products, as consumers perceive them as a premium category (Bhatt et al. 2018). These solutions also require the cooperation of many stakeholders, and responsibilize farmers and manufacturers of food to consider their side flows to become part of a circular economy. Policy makers may further support the emergence of this type of market-level activity by establishing and setting up networks such as FoodWin (Food Waste Innovation Network) in Europe and ReFED in the United States, and through tax incentives and government support through funding and subsidies.

However, infrastructure that is invented to reduce food waste within the eco-efficiency framing, such as new business models or tax incentives, encourage stakeholders to use such infrastructure. Thus, these policies may result in fewer incentives to prevent food waste (Evans, Campbell, and Murcott 2012; Mourad 2016). For example, due to new technologies that turn food waste into bioethanol or biogas, food waste increasingly becomes a resource for energy (Alexander, Gregson, and Gille 2013). These new technologies create no incentive to reduce food waste. If policies then reward stakeholders for these activities, there is a risk of legitimizing the existence of food waste. Therefore, policy makers should acknowledge the negative consequences of these types of solutions that overemphasize food waste as a resource.

The second category of solutions is related to the solidarity framing. The solutions are embedded in the idea of a sharing economy (e.g., Davies, Cretella, and Franck 2019). These solutions involve micro-level responsibilization, and the focus is on the human world. Examples can be found in many countries in the form of policies, incentives, and regulations that facilitate food donations from retailers and food manufacturers to third-sector organizations (for a detailed discussion about food waste policies in Italy and France, see Giordano et al. 2020). These policies include legislation that obligates actors to donate, fiscal incentives, or avoidance of liabilities, such as the Good Samaritan Act in the United States. As Giordano et al. (2020) notes, however, the food waste regulations in Italy and France focus on responsibilizing only retailers, even though they account for only a small proportion of the overall food waste produced in those countries. In contrast, food donations are often restricted by policies related to food safety and traceability that do not clearly assign roles and responsibilities for actors (Davies, Cretella, and Franck 2019).

Gleaning, which is the opportunity for voluntary actors to collect farm produce that is left on the field by farmers, is another solution that reflects the solidarity framing. In addition to being utilized by NGOs to feed those in need, gleaning represents an emerging business opportunity (Kowalczyk, Taillon, and Hearn 2020). Furthermore, start-up companies have emerged that focus on facilitating the sharing of surplus food through, for example, offering mobile applications that sell unsold restaurant meals to consumers at a discounted price (ResQ Club, Finland) or help restaurants distribute surplus meals (Olio, United Kingdom). As the sharing economy becomes more popular, it also transforms the norms and meanings related to sharing food among strangers, similar to the way

Uber and AirBnB have transformed how consumers relate to sharing their cars and apartments with strangers (Närvänen, Mattila, and Mesiranta 2021). However, regulating the sharing economy represents a challenge for policy makers and requires the balancing of several stakeholders' interests as well as advancing both social and environmental sustainability. Concerning food waste, policy-related questions include who owns surplus food that is shared and whether non- or for-profit solutions should be prioritized when sharing surplus food.

The third category of solutions is related to the safety framing, and they are embedded in the idea of a behavioral economy, especially the concept of nudging (Thaler and Sunstein 2008). These solutions emphasize the material world and micro-level responsibilization. In the process of nudging, the material environment of actors' decision making is altered to direct them to make more sustainable decisions without conscious processing of information. In restaurant settings, nudging has been found to be effective to reduce food waste (e.g., Kallbekken and Sælen 2013; Von Kameke and Fischer 2018). The possibilities enabled by nudging have received attention in public policy as well. For example, the UK government established a behavioral insights team—the "Nudge Unit" — in 2010 to generate understanding about nudge theory and its policy applications to government. Now an independent social purpose company, the Nudge Unit trains governments around the world.

As our empirical findings on the safety framing show, date labels are strongly emphasized in current policy debate on food waste. Food packaging and date labeling also offer opportunities for nudging. In addition to static date labels, technological packaging innovations exist that give the consumer more accurate and dynamic information about the actual edibility of the food by taking into account its storage temperature and other conditions (e.g., Mimica Touch, United Kingdom). Food manufacturers can, thus, be responsibilized to adopt these new solutions, and policy makers can facilitate this adoption by reformulating date labeling policies. In the United States, however, a lack of a national (i.e., federal and standardized) date-labeling system has prompted a variety of methods, which increase consumer misunderstanding (Neff et al. 2019). At the policy level, fighting food waste in this category also might require deregulation of previous norms related to food safety, therefore responsibilizing also consumers to evaluate edibility of food in other ways. These ways may include using their own senses like smell and taste or adopting new technological solutions for assessing edibility.

The fourth category of solutions is related to the appreciation framing. The solutions are embedded in a symbolic economy, which represents the human world and micro-level responsibilization. They focus on changing stakeholders' perceptions of food waste. Educational campaigns have recently been initiated increasingly by food system stakeholders other than the government, such as food bloggers (Närvänen et al. 2018) and retailers (Aschemann-Witzel et al. 2018; Närvänen, Mattila, and Mesiranta 2021; Welch, Swaffield, and Evans 2021). These campaigns, importantly, can complement governmental and NGO campaigns, which often focus more on giving information than inspiring consumers to act on their daily practices. Research has demonstrated how giving information and raising awareness can be successfully combined with motivational prompts (e.g., carbon footprint targets), regulatory support (e.g., food safety guidelines) and product support (e.g., meal planning website), thus creating interventions that aim to transform daily food practices into more sustainable actions (Devaney and Davies 2017).

Strict marketing standards for the appearance and quality of fruit and vegetables have been a major contributor to food waste, especially in agriculture (Devin and Richards 2018; Priefer, Jörissen, and Bräutigam 2016). Various actors and institutions, including the European Commission and retailers, have set these market standards. However, recent developments, at both the policy (Priefer, Jörissen, and Bräutigam 2016) and market levels, have prompted reconsideration. Retailers (e.g., Edeka, Germany), restaurants, and start-ups (e.g., Oddbox, United Kingdom) have started new business ventures around misshapen produce (Gollnhofer and Boller 2020; Närvänen, Mattila, and Mesiranta 2021). By doing so, they are actively framing food waste in a new way by creating appreciation for all kinds and shapes of produce and educating consumers. Positive consumer reactions to ugly produce can be further enhanced by, for example, attributing human characteristics to them (i.e., anthropomorphization; Cooremans and Geuens 2019) or boosting consumers' self-esteem at point of purchase (Grewal et al. 2019). Despite these developments, further reformulation and loosening of market standards is called for (Priefer, Jörissen, and Bräutigam 2016).

Future Research

In this study, we have examined how different food system stakeholders are held responsible in the policy debate related to food waste reduction. We invite more research on processes of multi-stakeholder responsibilization in different contexts and types of public policy issues.

Using empirical data, we examined Finland, a Nordic welfare state. Future research could examine the emphasis of the identified framings and solutions in other cultures, utilizing different theoretical frameworks, such as Schwartz's (2012) value theory or Hofstede's (2011) cultural differences theory. How food waste is defined varies across cultures (Sirola et al. 2019), which in turn directs, for example, the framing and solutions related to appreciation for food. In Asian cultures such as China, campaigns on food waste should take into account balancing the Confucian values of face saving with thrift, especially concerning social situations involving leftover food (Liao et al. 2018). However, nationwide policies related to the safety framing might be more effective in countries like the Nordics, where protecting citizens is considered a responsibility of the state, in contrast to, for example, the United States, in which the responsibility falls to individual actors at the market and local levels. Furthermore, a longitudinal study could reveal how the framings change over time and how

they impact marketplace and policy solutions in the long term. Additionally, the framings we identified in this study could be explored further through marketing studies that focus on social marketing or campaigns targeted at reducing food waste (Aschemann-Witzel et al. 2018; Porpino 2016). For instance, field experiments could examine whether and how the different framings impact people's food waste attitudes or behavior.

Finally, we have established that the theory of boundary objects is especially useful for analyzing sustainability issues. Future research could focus on the use of plastics, air travel, and fast fashion. All of these issues involve potentially conflicting interests of globally connected stakeholders. They are characterized by the need for collaboration, even in situations where consensus cannot be achieved. The boundary object concept has not been frequently used in marketing theory (for exceptions, see Finch and Geiger 2010; Sajtos, Klejnaltenkamp, and Harrison 2018); thus, this article provides inspiration for future research to utilize this theory to address phenomena relevant to public policy and marketing.

By identifying food waste framings in the public policy debate, we have shed light on the responsibilization of stakeholders in an important sustainability issue. In doing so, we hope that this article will help illuminate how a society deals with food waste.

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