



THE CONTRIBUTION OF PLATFORM-BASED FOOD SHARING  
START-UPS TO FOOD WASTE REDUCTION IN DEVELOPED  
COUNTRIES

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## **Abstract**

This thesis aims to assess how platform-based food sharing start-ups tackle the problem of food waste in regard of the three dimensions of sustainability: economic, environmental and social. Drawing on a comparative case-study design, I analyzed three platform-based food sharing start-ups. To assess the sustainability of the platform-based start-ups, I examined them according to the triple layered business model (TLBMC). My empirical findings show that all three platform-based start-ups provide climate change mitigating benefits by reducing CO<sub>2</sub> emissions in the environmental layer of the TLBMC. The value propositions of the economic and social layer differ, depending on which food sharing model the start-ups adopt. Platform-based start-ups that apply the “sharing for money” model benefit food businesses who use the platform for for-profit reasons. Alternatively, they embrace the “sharing for community” model and comfort the end consumer. This thesis contributes to the literature on food sharing models as it enriches the understanding on how food sharing models tackle the problem of food waste taking into account the three dimensions of sustainability. In addition, this study contributes to sustainable business model research by examining how innovative, platform-based business models practice sustainability across the three layers of the TLBMC.

**Title:** *“The contribution of platform-based food sharing start-ups to food waste reduction in developed countries”*

**Author:** Zarah Pielow

**Keywords:** food waste, corporate sustainability, sustainable business models, food sharing models, triple layered business model

## Resumo

Esta tese visa avaliar a forma como as plataformas de partilha de alimentos em fase de arranque resolvem o problema dos resíduos alimentares no que diz respeito às três dimensões da sustentabilidade: económica, ambiental e social. Com base num estudo de caso comparativo, analisei três plataformas de arranque de empresas de partilha de alimentos. Para avaliar a sustentabilidade das empresas emergentes baseadas em plataformas, examinei-as de acordo com o modelo empresarial de tripla camada (TLBMC). As minhas conclusões empíricas mostram que as três empresas em fase de arranque baseadas em plataformas proporcionam benefícios atenuantes das alterações climáticas, reduzindo as emissões de CO2 na camada ambiental do TLBMC. As propostas de valor da camada económica e social diferem, dependendo do modelo de partilha de alimentos que as empresas em fase de arranque adoptem. As novas empresas baseadas em plataformas que aplicam o modelo de "partilha por dinheiro" beneficiam as empresas alimentares que utilizam a plataforma por razões lucrativas. Em alternativa, abraçam o modelo de "partilha para a comunidade" e confortam o consumidor final. Esta tese contribui para a literatura sobre modelos de partilha de alimentos, uma vez que enriquece a compreensão de como os modelos de partilha de alimentos abordam o problema do desperdício alimentar, tendo em conta as três dimensões da sustentabilidade. Além disso, este estudo contribui para a investigação de modelos empresariais sustentáveis ao examinar como modelos empresariais inovadores, baseados em plataformas, praticam a sustentabilidade nas três camadas do TLBMC.

**Título:** *"A contribuição das plataformas de partilha de alimentos para a redução dos resíduos alimentares nos países desenvolvidos"*

**Autor:** Zarah Pielow

**Palavras-chave:** desperdício alimentar, sustentabilidade empresarial, modelos empresariais sustentáveis, modelos de partilha de alimentos, modelo empresarial com três camadas

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## List of abbreviations

B2B	Business-to-Business
B2C	Business-to-Consumers
FAO	The Food and Agriculture Organization
P2P	Peer-to-Peer
ResQ	ResQ Club
TGTG	Too Good To Go
TLBMC	Triple layered business model canvas
Kg	Kilogram

## 1. Introduction

*“Reducing food waste is one of the most important things we can do to reverse global warming.”<sup>1</sup>*

In recent years food waste has become an international issue with the sustainable development goal 12.3 aiming to halve the per capita global food waste at retail and consumer level by 2030 (UN, 2015). The problem of food waste is a growing challenge for companies operating in the food service sector as well as for governments, public institutions and consumers. Every year, one-third of all produced food in the world goes to waste, which is equivalent to 1,5 million tons of edible food thrown away every day (FAO, 2017). Food waste harms the environment and has a significant social and economic impact. From an environmental perspective, food waste is responsible for approximately 8% of global greenhouse gas emissions per year (FAO, 2011). The social impact highlights the discrepancy between global food poverty and food waste, considering that the amount of wasted food could provide for the worldwide starving population more than three times (Stuart, 2009). From an economic point of view, avoidable food waste has a negative impact on the income of all actors along the food supply chain (i.e., farmers, manufacturers, retailers, consumers) (Papargyropoulou et al., 2014; Thyberg & Tonjes, 2016).

In developed countries, the highest amount of food waste occurs at the consumption stage (i.e., retail, food service sector, private households), with private households being responsible for the highest proportion (Gustavsson et al., 2011; Stenmarck et al., 2016). Public and private institutions apply policies and interventions to encourage consumers to reduce the daily food waste in their households (Mourad, 2016). The food service sector (e.g., restaurants, canteens and cafes) is responsible for the second-largest amount of food waste in developed countries (Papargyropoulou et al., 2014; UN, 2015).

The private sector plays a vital role in the sustainable reduction of food waste. To meet corporate sustainability, companies need to simultaneously integrate the economic, environmental and social dimension of sustainability without prioritizing one dimension over another (Hahn et al., 2015). Existing corporate solutions provide innovative approaches for companies to reduce food waste. These are digital technologies to monitor the production

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<sup>1</sup> Chad Frischmann, Climate Change Expert cited by Too Good To Go, n.d.-a.



process and improve communication between suppliers and retailers (Annosi et al., 2021). Recent growth of digital technologies and the development of the sharing economy have led to the emergence of new social start-ups that operate exclusively online with food sharing platforms (Michellini et al., 2018). Food sharing platforms can lead to a more efficient use of resources and thereby reduce the amount of food waste (Falcone & Imbert, 2017). However, existing literature lacks an understanding of how these platform-based start-ups reduce food waste while considering all dimensions of sustainability (economic, environmental, social). Therefore, I propose to answer the following research question:

*How do platform-based food sharing start-ups in developed countries tackle the problem of food waste in a sustainable way?*

To answer the research question, I conducted a comparative case study on three platform-based start-ups that tackle the problem of food waste: ResQ Club, OLIO and Too Good To Go. It is worth studying the selected companies due to their size and reach and their impact on food waste. To assess the sustainability of the companies, I examined them according to the triple layered business model (TLBMC). The TLBMC provides a concept for identifying sustainability-oriented business model innovations and extends the original business model canvas by an environmental and social layer (Joyce & Paquin, 2016).

My empirical findings show that all platform-based start-ups provide climate change mitigating benefits by reducing CO<sub>2</sub> emissions in the environmental layer of the TLBMC. The value propositions of the economic and social layer differ, depending on which food sharing model the platform-based start-ups adopt. Platform-based start-ups that apply the “sharing for money” model benefit food businesses by enabling financial profits. Alternatively, they embrace the “sharing for community” model which particularly comforts the end consumer.

The thesis includes the following contributions to the literature. Firstly, it enhances the literature on how food sharing models reduce food waste, taking into account all dimensions of sustainability (economic, environmental, social). Secondly, my study contributes to sustainable business model research by enriching the understanding of how innovative, platform-based business models embrace sustainability across the three layers of the TLBMC.

This thesis has the following structure: First, the literature review gives an overview of the problem of food waste, its challenges and its impact. Further, the literature on corporate sustainability, corporate solutions to reduce food waste and food sharing platforms is elaborated. Lastly, the TLBMC serves as the theoretical framework for this thesis. Second, the

methodology is subdivided into research design, which includes the selection of the cases and description of selected companies, data collection and data analysis. Third, the empirical setting presents the selected companies ResQ Club, OLIO and Too Good To Go. Fourth, the findings chapter summarizes the results of the qualitative analysis. Fifth, the discussion outlines the empirical findings and the contribution to literature by this thesis. Finally, the conclusion summarizes the thesis, highlights its limitations and possible directions for future research.

## **2. Literature review**

Food loss and food waste harm the environment and have a significant social and economic impact. Existing corporate solutions provide innovative approaches for companies to reduce food waste, for example by using digital technologies to monitor the production process (Annosi et al., 2021). Recently, the growth of digital technologies and the evolution of the sharing economy have led to the emergence of new social start-ups that operate exclusively online with food sharing platforms (Michelini et al., 2018).

The literature review starts with outlining the challenge of food waste in developed countries and the concept of corporate sustainability. The following corporate solutions outline how the private sector tackles the issue of food waste. The literature review will end with the introduction of the food sharing models and with the theory on the TLBMC, providing a basis for the qualitative analysis.

### **2.1 The challenge of food waste in developed countries**

There are various definitions of food waste that have evolved over the years. The Food and Agriculture Organization (FAO) defined that food waste includes all food considered healthy, edible and intended for human consumption but is discarded or lost at some point in the food supply chain (FAO, 2011, 2017). Smil (2004) supplements this definition and adds that over-nutrition of people also needs to be included in the definition of food waste, meaning that energy value per capita of food consumed is often higher than the energy value of food required per capita. Stuart (2009) provides an even broader definition. He emphasizes that food waste should include food that is purposely fed to animals or is a by-product of food processing, withheld from the end consumer (Stuart, 2009). I chose Stuart's definition of food waste because it is the most specific and addresses various origins of food waste, including food losses from animal feeding or food production.

Moreover, some authors distinguish between the concept of food loss and food waste, depending on the stage within the food supply chain. As food travels through the food supply chain from producer to consumer, it moves through various stages. Figure 1 illustrates the different stages of the food supply chain (Papargyropoulou et al., 2014). The first stage is the production stage, followed by the handling & storage and processing & packaging stage. The next stage is distribution & retail, followed by the last stage of the food supply chain, the consumption stage (Papargyropoulou et al., 2014). Food losses occur at the production and processing stage (Gustavsson et al., 2011; Willett et al., 2019) of the food supply chain, while

food waste occurs at the last stages of the food supply chain, including retail and final consumption. Therefore, the amount of food waste is dependent on the consumers' food purchasing behaviors and consumption patterns (Parfitt et al., 2010).

Developed countries account for the greatest quantity of food waste in the consumption stage, with private households being responsible for the highest proportion of wastage (Gustavsson et al., 2011). In Europe for example, about 50% of all wasted food occurs in households (Stenmarck et al., 2016). Further, Stuart (2009) estimates that the amount of food thrown away by Europe and America would be three times enough to feed the world's undernourished population.

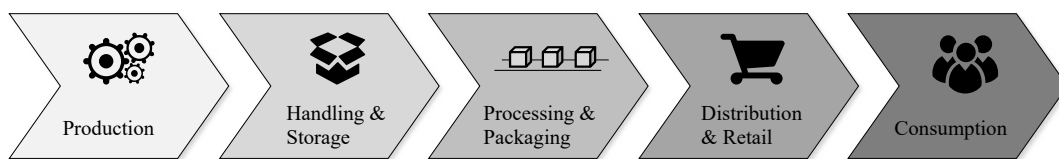


Figure 1: Stages of the food supply chain giving rise to food losses and waste (adapted from Papargyropoulou et al., 2014, p.107)

Food loss and waste harm the environment and have a significant social and economic impact. From an economic perspective, avoidable food losses and waste affect the income of both the farmer and the consumer (Papargyropoulou et al., 2014; Thyberg & Tonjes, 2016). For farmers reducing food losses could directly impact their livelihoods. Access to nutritious and affordable food is of greatest importance for the malnourished population. In this regard, lack of adequate nutrition is often due to missing access and availability of food rather than a pure supply chain problem (Papargyropoulou et al., 2014). Thus, improving efficiency of food supply chain could reduce costs for consumers and improve access to food. Further, the Environmental Protection Agency (EPA, 2012) highlights the economic impact of food waste and encourages manufacturers, retailers and food service operators to reduce food waste to generate significant cost savings. Once less food is thrown away, disposal costs and purchasing costs are reduced (EPA, 2012).

From an environmental perspective, food waste has various negative impacts on the environment. The food sector is estimated to be responsible for 22% of global warming (European Commission, 2006). Hence, water and air pollution and greenhouse gas emissions that arise from production, storage, transportation and disposal of food significantly impact the environment. For instance, during natural decomposition of waste in landfills Methane and Carbon dioxide are produced. Both greenhouse gases contribute significantly to climate change

(Adhikari et al., 2006). Compared to Carbon dioxide, Methane has a 25 times greater global warming potential on a 100-year scale (Corrado et al., 2019).

Further environmentally harmful effects are due to food production activities, which require a lot of energy and produce an embedded greenhouse gas impact. These activities include agricultural practices, manufacturing, transportation, storage, refrigeration, distribution and retailing of food. (Lundqvist et al., 2008) As a result of agriculture and large-scale cultivation, soil erosion and deforestation cause other environmentally damaging impacts (Mourad, 2016). The social impact of food waste highlights the existing disparity between food poverty and food waste. Therefore, the main focus of the social impact is on food waste's ethical and moral dimensions, considering the contrast between wasteful use of food and global food poverty (Stuart, 2009). In recent years, the issue of global food security has become increasingly important. Thus, reducing food losses and waste throughout the food supply chain and adopting alternative diets are first steps in ensuring global food security (Haberl et al., 2011).

Considering the impact that food waste has on the three dimensions of sustainability (economic environmental, social), the private sector will be the focus of the following chapters. The theory of corporate sustainability lays the foundation for the chapter on corporate solutions. Corporate solutions are outlining the existing and potential approaches performed by the private sector to tackle the problem of food waste.

## **2.2 Corporate sustainability**

Dyllick and Hockerts (2002) explore how companies can implement the concept of sustainable development. Thus, they define corporate sustainability as "meeting the needs of a company's direct and indirect stakeholders (such as shareholders, employees, communities, etc.) without compromising the ability to meet the needs of future stakeholders as well" (Dyllick & Hockerts, 2002, p.131). However, according to Hukkinen (1999), corporate sustainability often focuses only on the win-win paradigm based on conventional management logic of efficiency. Thus, most academic research on sustainability in corporate context is characterized by a narrower and organization-centered conceptualization of sustainability. Hahn et al (2015) complement by noting that the literature often focuses exclusively on economic outcomes, neglecting the social and environmental dimensions. Therefore, Hahn et al. (2015) propose a more comprehensive view of corporate sustainability "that emphasizes the need for simultaneous integration of the economic, environmental and social dimensions without a priori emphasizing one dimension over another" (Hahn et al., 2015, p. 297).

The purpose of corporate sustainability involves the contribution to societal-level objectives while achieving sustainable organizational outcomes (Bansal, 2002). Thus, corporate sustainability requires companies to provide value for society, such as social or environmental improvements (Santos et al., 2015). In addition, corporate sustainability involves balancing all stakeholder interests while reinforcing sustainability as a core value (Hahn et al., 2015).

### **2.3 Corporate solutions to reduce food waste**

To reduce food waste, companies rely mostly on technological solutions. Important technologies used to prevent food waste within companies are digital traceability tools and big data analytics (Annosi et al., 2021). Digital traceability tools enable tracking a food product flow from production to the end customer, thereby creating transparency and reducing number of damaged food (Annosi et al., 2021). Big data is used to improve performance and as a preventive measure to identify and avoid weaknesses in the production process (Kache & Seuring, 2017). Companies which are using big data analytics to create transparent production processes are able to diminish imperfect products and therefore reduce food waste (Annosi et al., 2021). Big data analytics enable companies to optimize planning and forecasting of demand leading to improved food waste management (Mena et al., 2011).

The integration of digital applications can reduce food waste across the entire food supply chain (Kache & Seuring, 2017). One example is the improved communication between relevant actors in the food supply chain (Richter & Bokelmann, 2016). Improved communication between retailers and suppliers helps to improve forecasting and planning and therefore reduces risks of overproduction and generation of food waste (Kor et al., 2017; Reynolds et al., 2019). Digital traceability systems during production and transport processes provide necessary information enabling suppliers and producers to create better predictions and an optimization of supply chain processes (Annosi et al., 2021). These systems are enabling food companies to reduce carbon emissions and food waste during the whole supply chain, particularly in the distribution stage (Annosi et al., 2021).

A main barrier for multinational companies in the digital supply chain is the collaboration with partners that are different in size, for instance, with small to medium-sized companies (SMEs). SMEs often innovate reactively driven by end market needs and competitiveness in the market (Horváth & Szabó, 2019). At the same time, they are lacking the identification of possible investment opportunities for digital applications which hinders them to be integrated into the digital food supply chain with larger multinational companies (Annosi et al., 2021). Another concern for SMEs implementing digital applications is the lack of resources to develop training

programs and to provide qualified personnel to manage digital technologies (Annosi et al., 2021). Furthermore, SMEs lack awareness of the environmental impact caused by their operations and of how digital solutions are able to improve their impact (e.g., reduction of food waste). As a result, lacking awareness of their negative environmental impact is a main barrier to invest in digital tools. (Annosi et al., 2021)

Another corporate solution approach to address food waste is the proposed "food waste hierarchy" framework by Papargyropoulou et al. (2014). The framework identifies and prioritizes most appropriate initiatives to address food surpluses and food waste (see figure 2) while considering the three dimensions of sustainability. The first proposed and most advantageous option is the prevention of overproduction of food that exceeds human nutritional needs at all levels of the food supply chain. At agricultural and food production stages, this means producing only the food needed to meet global dietary needs and to ensure food security (Papargyropoulou et al., 2014). In the retail and consumption stages, the prevention of food surplus implies providing only needed quantities, choosing suitable portion sizes and addressing unsustainable consumption patterns (Papargyropoulou et al., 2014). The second favorable option proposes redistributing surplus food to groups affected by food poverty (Papargyropoulou et al., 2014). Once prevention options are exploited, the third proposed option involves recycling food waste into animal feed. As soon as recycling efforts are depleted, the next favorable option is to treat food waste and recover energy through e.g., anaerobic digestion. Finally, the least advantageous option proposes the disposal of remaining food waste in landfills. (Papargyropoulou et al., 2014)

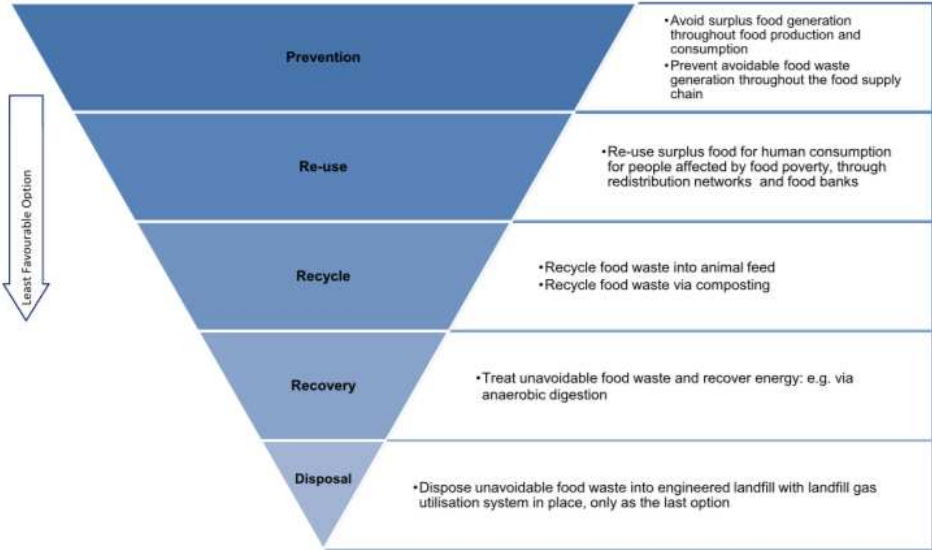


Figure 2: The food waste hierarchy (Papargyropoulou et al., 2014, p.108)

However, the proposed framework mainly focuses on the environmental and social dimensions of sustainability and neglects the economic dimension (Papargyropoulou et al., 2014). Hence, the “food waste hierarchy” does not assess how favorable the proposed options are from a financial perspective. A cost-benefit analysis would be necessary to validate the proposed framework in real company scenarios. Further criticism arises because the hierarchy does not simultaneously provide the best social and environmental options (Mourad, 2016). For instance, using the food surplus for animal feed is higher in the hierarchy than anaerobic digestion of food which produces less greenhouse gas emissions, depending on the water and energy content of food surplus (Eriksson et al., 2015).

Finally, the growth of digital technologies and the realization of the concept of sharing economy have recently led to the emergence of new social start-ups that operate website platforms and food sharing applications (Michelini et al., 2018). The sharing economy is defined as "a desirable and necessary innovation on the basis that it: empowers individuals; creates economic, social and environmental value; enables ‘sharing’ practices which are fundamental aspects of human nature; and, enables more efficient utilisation of resources" (Martin, 2016, p.154). Hence, the sharing economy creates a transformative perspective on the social, environmental and economic value that did not exist before (Botsman, 2014). However, existing literature lacks understanding on how these start-ups reduce food waste taking into account all dimensions of sustainability. Therefore, I propose to answer the following research question: *“How do platform-based food sharing start-ups in developed countries tackle the problem of food waste in a sustainable way?”*

## **2.4 Food sharing models**

Digital platforms have rapidly expanded on the internet, leading to the creation of new business models which realize innovative value propositions. Digital platforms act as intermediaries and create value by connecting two different but independent groups of consumers (Muzellec et al., 2015; Osterwalder & Pigneur, 2010). They enable interactions between consumers (primary side of platforms) and businesses (secondary side of platforms) while each side has positive externalities from the interaction (Muzellec et al., 2015; Rochet & Tirole, 2003).

Emerging social start-ups operate digital platforms that allow consumers to rent, sell, lend and share things with others (Täuscher & Laudien, 2018). Botsman and Rogers (2010) argue that such a redistribution market promotes reuse and resale of items and therefore reduces waste and saves resources. Food sharing can also lead to a more efficient use of resources and thereby reduce the amount of food waste (Falcone & Imbert, 2017). Michelini et al. (2018) categorize



the following three types of food sharing models: "sharing for money", "sharing for charity" and "sharing for community" model.

The first model, "sharing for money", includes profit organizations which operate website platforms or mobile applications. The distribution model is Business-to-Consumer (B2C) and food is collected from food businesses (e.g., retailers, restaurants, cafes, bakeries) and offered to end consumers (Michelini et al., 2018). Food businesses publish their expiring products or leftover food on the platform, while potential customers use the platform to preview them. Providers sell their products at a discount on the original price. After selecting a product, customers either buy the product at the provider's physical store or, in some cases, buy it online. (Michelini et al., 2018).

"Sharing for charity" primarily involves non-profit organizations using digital platforms and applications. The delivery model is Business-to-Business (B2B) and Consumer-to-Business (C2B), entailing that food is collected from all types of providers and given to non-profit organizations at a local or national level, primarily for free (Michelini et al., 2018).

"Sharing for community" includes for-profit and non-profit organizations using website platforms and mobile applications to organize their Peer-to-Peer (P2P) delivery models. Surplus food is collected from consumers and shared with other consumers for free at a local level (Michelini et al., 2018). The P2P delivery model enables the creation of a community aiming at reducing food waste while connecting people and fostering social networks (Michelini et al., 2018).

In order to assess the sustainability of platform-based food sharing start-ups, the next chapter outlines the theory on the TLBMC that provides the foundation for the qualitative analysis.

## **2.5 Triple layered business model**

The triple layered business model canvas is based on the original business model canvas of Osterwalder & Pigneur (2010). Using the business model canvas can help users balance profit and purpose to promote more sustainable value creation (Osterwalder & Pigneur, 2010). However, in practice, environmental and social values are relegated compared to the canvas economic value orientation (Joyce & Paquin, 2016). Consequently, the development of more sustainable business models beyond the economic focus requires the integration of economic, environmental and social values through the company's activities (Bocken et al., 2013).

The TLBMC puts this into practice and provides a concept for identifying sustainability-oriented business model innovations. The TLBMC adds two additional layers to the original

business model canvas, the environmental and social layer, while the original business model canvas represents the economic layer (Joyce & Paquin, 2016). The added environmental layer is based on a life cycle perspective while the social layer is based on a stakeholder perspective.

### 2.5.1 Economic layer

The business model canvas by Osterwalder & Pigneur (2010) represents the economic layer of the TLBMC and consists of the following nine components (Osterwalder & Pigneur, 2010).

- i. Value Proposition: Describes how an organization fulfills the needs of its customer segment and creates value for customers
- ii. Customer Segments: Set of customers an organization intends to reach
- iii. Channels: Communication tools of an organization to reach out to its customer segment and provide its customers with the value proposition
- iv. Customer Relationship: How and to which degree an organization interacts with its customers
- v. Revenue Streams: Sources an organization uses to capture value and generate revenues
- vi. Key Resources: Most relevant tangible and intangible resources an organization requires to operate
- vii. Key Activities: Most relevant actions and processes an organization undertakes to make the business work
- viii. Key Partnerships: Alliances and partnerships an organization establishes with its stakeholders
- ix. Cost Structure: Operational costs of an organization



Figure 3: Economic layer of the TLBMC (Joyce & Paquin, 2016, p. 1483)

### 2.5.2 Environmental layer

The environmental layer is based on a life cycle perspective of environmental impacts. This derives from research and practice on Life Cycle Assessment (LCA), which is a process for measuring the environmental impacts of a product's or service's life cycle (Guinée, 2002). A formal LCA provides an estimate of environmental impacts based on different types of indicators such as CO<sub>2</sub> emissions, resource depletion or water consumption (Hendrickson et al., 2006). While the original business model canvas is used to determine how revenues outweigh costs, the environmental layer attempts to understand to which extent organizations generate more environmental benefits than environmental impacts (Joyce & Paquin, 2016).

- |                               |  |
|-------------------------------|--|
| i. Functional value:          | Environmental needs met by the organization's service or product   |
| ii. Materials:                | Environmental impacts of physical assets of an organization used to provide functional value   |
| iii. Production:              | Environmental impact of the measures taken by the organization to create value   |
| iv. Supplies and outsourcing: | Environmental impact of various material and production activities necessary for the functional value which are not considered to be the "core" of the company |
| v. Distribution:              | Environmental impact of transportation, packaging and delivery of goods  |
| vi. Use phase:                | Environmental impact of the customer's participation in the organization's functional value or service and/or product  |

- vii. End-of-life: Time at which the customer decides to end the consumption of the functional value
- viii. Environmental impacts: Environmental costs of the organization’s action
- ix. Environmental benefits: Environmental value an organization creates by reducing its impact on the environment

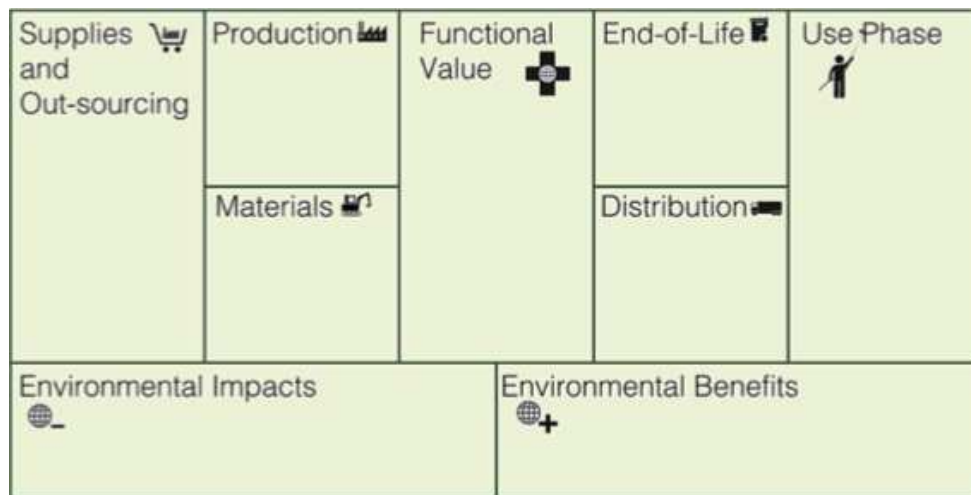


Figure 4: Environmental layer of the TLBMC (Joyce & Paquin, 2016, p. 1483)

### 2.5.3 Social layer

The social layer is based on a stakeholder management approach to examine societal impacts of an organization (Freeman, 1984). In this regard, a stakeholder management approach aims to balance the interests of an organization’s stakeholders, rather than achieving maximum profit for the organization itself. Stakeholders are defined as all groups of individuals or organizations that can influence the actions of an organization, such as employees, shareholders, suppliers, consumers and the community (Miles, 2011). The social layer extends the business model canvas by filtering the business model and impacts of an organization through a stakeholder perspective. The social layer is intentionally broad and flexible to use since an organizations’ stakeholders may vary depending on the context (Mitchell, 1997).

- i. Social value: Aspect of an organization’s mission that focuses on creating value for its stakeholders and the society
- ii. Employee: Consideration of the employee’s role as a key organizational stakeholder
- iii. Governance: Organizational structure and decision-making policies of an organization

- iv. Communities: Economic relationships with business partners and social relationships with suppliers and their local communities
- v. Societal culture: Potential impact of an organization on society as a whole
- vi. Scale of outreach: Extent of connections an organization creates with its stakeholders over time
- vii. End-users: Contribution of the value proposition to the needs and quality of life of the end-consumer
- viii. Social impacts: Social costs of an organization
- ix. Social benefits: Positive social value created by the organization’s activity

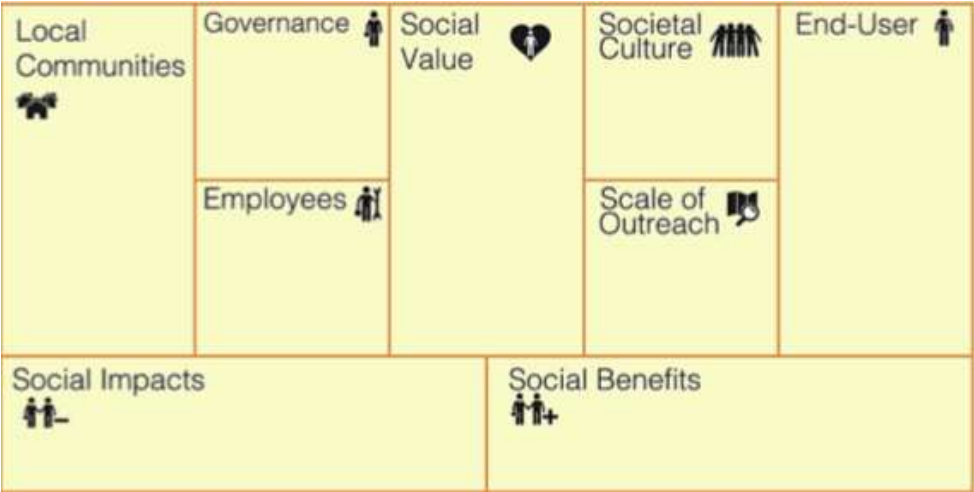


Figure 5: Social layer of the TLBMC (Joyce & Paquin, 2016, p. 1483)

### 3. Methodology

To answer my research question, I used a comparative case study to analyze the three platform-based companies. I conducted primary data through semi-structured interviews with employees of the selected companies and secondary data by collecting archival data on the companies. For the data analysis, I used a coding approach (Strauss & Corbin, 2008). I reviewed the interview transcripts and archival data and identified codes based on the triple layered business model canvas components.

#### 3.1 Research design

To answer the research question “*How do platform-based food sharing start-ups in developed countries tackle the problem of food waste in a sustainable way?*” I used a qualitative method and, more specifically, a comparative case study (Stake, 2013). I used a qualitative research method to capture the complex nature of the research topic and to create a differentiated understanding (Birkinshaw et al., 2011). In addition, I chose a comparative case study approach to identify differences and similarities between the selected cases and to facilitate the elaboration of conclusions to the research question (Stake, 2013). I chose three platform-based food sharing cases tackling the problem of food waste. Within the selection process, I focused on the following variables:

- (1) **Geographical origin:** Since this thesis focuses on the reduction of food waste in developed countries, the companies were selected within Europe, including three different headquarter locations in European cities (Helsinki, London and Copenhagen).
- (2) **Size and reach:** All companies operate in at least three different countries and have been economically stable over the last years.
- (3) **Focus on sustainability:** The selected companies actively communicate that they reduce food waste for environmental and social reasons and not only because of economic incentives (e.g., online publications and sustainability reports).

The selected companies consist of three platform-based start-ups: ResQ Club, OLIO and Too Good To Go. The empirical setting chapter describes each company in detail.

## 3.2 Data collection

I collected primary and secondary data, including (a) semi-structured interviews with employees of the three selected companies and (b) archival data about the cases.

### 3.2.1 Primary data collection

The time period of primary data collection spanned from 10/20/2021 – to 11/30/2022. Overall, I conducted six online interviews with the employees of the selected companies (see figure 6).

Type of data	Name of the interviewee	Organization	Position in the organization	Date of the interview	Length of the interview
Interview	Konsta Kallio-Mannila	ResQ Club	Account manager	20.10.21	45min
Interview	Venla Wiik	ResQ Club	Sales Team Lead	10.11.21	45min
Interview	Delia Gadea	OLIO	Head of Operations	26.10.21	45min
Interview	Frances Benson	OLIO	Growth and Engagement Executive	30.10.21	45min
Interview	Aneta Kaneva	Too Good To Go	Partner manager	21.11.21	45min
Interview	Leonora Loudon	Too Good To Go	Key account manager	30.11.21	45min

Figure 6: Overview of interview participants, the author

I designed a flexible interview guideline which enabled me to adjust the questions and their order depending on the received answers of the participants. The different sections within the guideline are not dependent on each other which created a flexible conversation. The sections are divided into the following themes:

- (1) **Introduction:** General questions about the food industry and the problem of food waste
- (2) **Company:** Specific questions about the companies' business model and food waste reduction strategies concerning the three layers of the TLBMC
- (3) **Outlook and Trends:** Approaches of the company to reduce food waste in the long term

I selected the interviewees based on their work experiences in the respective company. Further, I chose the acquired interviewees from different countries (Finland, England, Denmark, Italy and Germany) to obtain a greater understanding of the implications and tasks as well as to receive various perspectives onto the different platform-based businesses. I contacted potential interviewees via the website *LinkedIn*. If potential interviewees accepted the friend request, I sent them a more detailed description of the interview objective. I conducted all the interviews via video conference (i.e., Zoom and Microsoft Teams) because of the increased flexibility and

spatial distance to the interviewees. Further, the execution via video conference did not have any influence on the interview quality. The average length of the interviews was 45 minutes.

### 3.2.2 Secondary data collection

To collect secondary data for my analysis, I used a two-step process. First, I collected publicly available, self-reported data from the three selected companies. This primarily includes publications on the companies' websites. Second, I focused my data collection on publicly available data from independent third-party sources. The data collected includes online publications, newspaper articles, podcasts and videos (see Appendix A). In these two steps I collected data in total from 45 data sources (i.e., 15 data sources per company). Through this diverse set of sources, I analyzed the companies from different perspectives. In the next step, I used the triangulation approach which entails the collection of archival data and interview statements from two or more different sources of evidence. This enabled me to mitigate possible biases and to strengthen the construct validity (Yin, 2009).

### **3.3 Data analysis**

To conduct the data analysis, I used the TLBMC of Joyce & Paquin (2016) (see section 2.5 for a detailed description). I analyzed the primary and secondary data using the proposed coding approach of Corbin & Strauss (2008). The coding process involves the selection, categorization and identification of direct statements of interviewees and archival data (first order) into more conceptual categories (second order). In the next step, the second order categories can be compressed into general theoretical concepts (aggregate dimensions). The codes for my analysis were based on the components of the TLBMC. In the following, I briefly explain how I proceeded with the coding approach.

In the first step, I investigated whether sentences or passages from the interviews correspond to the defined codes. For instance, the interviewee Kallio-Mannila (Account Manager, ResQ) stated, "it is a great deal for the partners to save some portions from the trash bin and the consumers are curing themselves with good food for a lower price, it's like a win-win situation." This statement emphasizes the economic value proposition of ResQ to its' consumers and partners and therefore can be allocated to the defined second-order code of "economic value proposition". The "economic value proposition" is the main component of the "economic layer" of the TLBMC. Hence, the second-order code "economic value proposition" can be allocated to the aggregate dimension of the "economic layer."



As another example, the interviewee Delia Gadea (Head of Operations, OLIO) stated, “we started to hear more and more from our community that because they started using OLIO, they started to get to know their neighbors, so we started then doing surveys to ask people: “has OLIO helped you become more engaged with your community and social relationships?” and the great majority of people said “yes, absolutely, it had an impact on my social life.” The statement of Delia Gadea highlights the social value created by the organization’s activity defined as “social value” in the “social layer” of the TLBMC. Hence, the statement is allocated to the defined second-order code of “social value” and further to the aggregate dimension “social layer”. Appendix B illustrates the individual codes within the coding table.

## **4. Empirical setting**

In the following chapter, I present the three selected platform-based food sharing start-ups. The chapter will start with the Finnish company “ResQ Club” continued by the food-sharing company “OLIO” from London and lastly followed by the Danish company “Too Good To Go”.

### **4.1 ResQ Club**

ResQ Club (ResQ) was founded in Helsinki at the end of 2015 by Tuure Parkkinen and programmers Marko Rintamäki, Janne Käki, Antti Sykäri and graphic designer Matias Piiparinen (Arnoldt, 2017). Tuure Parkkinen then launched the platform against food waste with a team of three programmers in January 2016 (Arnoldt, 2017).

ResQ’s website platform and mobile application connect restaurants, cafes and grocery stores who want to sell their surplus food for a reduced price with consumers who like to eat low-cost quality products. In this way, ResQ aims to help urban communities waste less and operate more sustainably since every meal purchased through ResQ means one meal less thrown away (ResQ, n.d.-a). The company’s long-term goal is to achieve zero food waste in restaurants, cafes and grocery stores (ResQ, n.d.-a). By today 120.000 users registered on the platform and over 6 million portions from more than 8.000 food businesses have been saved from being wasted (ResQ Club, n.d.-h). At the moment, 27 people are working at ResQ and the turnover of the fiscal year of 2020 was €201.000 (Finder, n.d.). ResQ operates in 100 Finnish cities, 10 Swedish cities and one German city (ResQ Club, n.d.-b). Cooperating food businesses include Scandic Hotels, Holiday Inn, Dunkin’ Donuts and Robert’s Coffee, among others (ResQ Club, n.d.-c).

### **4.2 OLIO**

OLIO was founded in London, England, in 2015 by Tessa Clarke and Saasha Celestial-One (OLIO, n.d.-a). Tessa Clarke got the idea for OLIO in 2014 when she moved apartments and had many food leftovers, realizing that there was no option in private households besides throwing them away (OLIO, n.d.-a). On February 9th, 2015, Tessa Clarke and Saasha Celestial-One founded the company OLIO. After five months they launched the food sharing application which was available in the App Store on July 9th, 2015 and the Google Playstore three weeks later (OLIO, n.d.-a).

OLIO operates a website platform and mobile application which connect private households (neighbors) to share food items. Further, OLIO enables local businesses (e.g. caterer, hotel,

restaurants) to give their surplus food to OLIO volunteers who redistribute their food items to local communities (OLIO, n.d.-b). The food sharing between neighbors enables consumers to share food surpluses and to avoid the disposal and waste of food. These food surpluses include food that has passed its expiry date, homegrown vegetables or private food leftover. A fundamental principle of OLIO is that food sharing between neighbors remains free and accessible to everyone (OLIO, n.d.-c). Today, OLIO operates in over 51 countries with over 5 million users (OLIO, n.d.-d). Currently, 100 people are employed and the estimated annual revenue is €14,5 million (Growjo, n.d.a).

### **4.3 Too Good To Go**

Too Good To Go (TGTG) was founded in 2015 in Copenhagen, Denmark, by founders Brian Christensen, Thomas Bjørn Mønsen, Stian Olesen, Klaus Bagge Pedersen and Adam Sigbrand (Raidl, 2022). The founders' original idea focused on food leftovers from buffets. As the idea developed, the founders decided to expand the concept to all areas within hospitality industry, including restaurants, cafes, bakeries and hotels (Condamine, 2020).

TGTG operates via a website platform and mobile application to connect food businesses that have surplus food that would go to waste with consumers who are willing to save this food (Condamine, 2020). In this way, TGTG intends to actively fight the problem of food waste in the hospitality industry. In addition, the company aims to raise society's awareness of the problem of food waste in households, schools and policymakers (Too Good To Go, n.d.-a). After its foundation in Denmark, the company has grown to France, Norway and the UK. The company extended to other European countries such as Poland, Austria, Switzerland, Portugal, Belgium and the Netherlands in the following years (Condamine, 2020). Today, TGTG is operating in 17 countries with approximately 130.000 cooperating partners and a total of 112 million saved meals with over 49 million users (Too Good To Go, n.d.-b). Currently, 497 people are employed at TGTG and the estimated annual revenue is €134,2 million (Growjo, n.d.b).

## 5. Findings

This thesis addresses the research gap of how platform-based food sharing start-ups address the problem of food waste, taking into account all dimensions of sustainability (economic, environmental, social). The study is motivated by the following research question: *"How do platform-based food sharing start-ups in developed countries tackle the problem of food waste in a sustainable way?"*. To answer the research question, I conducted a comparative case study on three platform-based food sharing start-ups: ResQ Club, OLIO and Too Good To Go. To assess the companies' sustainability, they are analyzed with the TLBMC as described in the theoretical framework (section 2.5). In the following, my empirical findings for each company in every layer of the TLBMC are presented in detail. Appendix B illustrates the coding table including the collected data which is the basis for the following findings.

### 5.1 Economic layer

#### 5.1.1 ResQ Club

ResQ operates a website platform and mobile application to connect cooperating food businesses with consumers through a B2C distribution model. The cooperating food businesses (i.e., grocery stores, restaurants, cafes, bakeries) are identified as partners in the economic layer. The identified customer segments include environmentally conscious people who want to positively contribute to the fight against food waste and live near the cooperating food businesses. The economic value proposition of ResQ benefits cooperating food businesses and consumers. Cooperating food businesses are enabled to increase their revenues by 2-6% through selling surplus food at a reduced price and are benefiting by gaining additional customers. In addition, since the platform incentivizes customers to visit cooperating food businesses in person, customers are additionally encouraged to revisit the food business. ResQ enables consumers to save costs and time for meal preparation as they are able to buy quality food at a 50% discount on the original price. Konsta Kallio-Mannila (Account manager at ResQ) highlights the two-sided economic benefit of the platform as he states:

*"So, in this case it is a great deal for everybody because the company who normally generates food waste can now sell their leftovers and the consumers can buy these leftovers for less money than they would usually pay for a meal."*

ResQ fosters the feeling of belonging to a community that collectively fights food waste and consequently, the sense of community is a customer relationship. The website, the application and the food businesses pick-up points are ResQ’s key channels. ResQ’s customers can use the website and the application to check and order surplus food and pick up their orders at the respective food businesses pick-up point. The partnerships with the cooperating food businesses are a key resource of ResQ, which entails the listings of food surpluses to offer them to customers. Further key resources of ResQ are the mobile application and the internet website, which connect cooperating food businesses with consumers. ResQ’s main activities are promoting the platform to increase the brand awareness. In addition, the acquisition of partners is fundamental to expand the number of cooperating food businesses and therefore increase the company’s revenue and growth. ResQ receives a 25% commission on each meal sold, which is the company’s primary revenue stream. The company’s main fixed costs include salaries, maintenance and development costs for the platform. Variable costs are, among others, for marketing and advertising to increase the company’s brand awareness and visibility. (see figure 7)

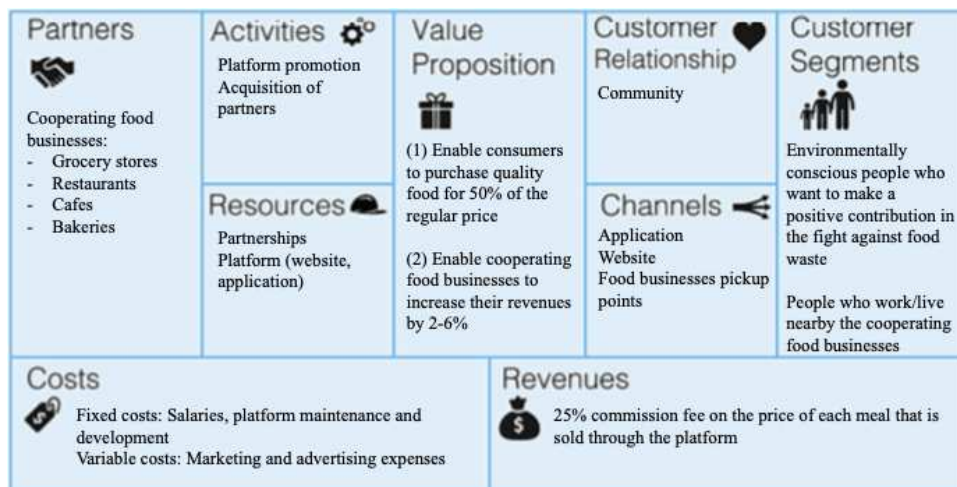


Figure 7: ResQ Economic layer (the author)

### 5.1.2 OLIO

OLIO’s website platform and mobile application connect consumers with each other through a P2P distribution model. Further, the company enables local food businesses to give their surplus to OLIO’s volunteers (B2B), who redistribute the surplus food to local communities (B2C). Therefore, the local businesses are partners, while customer segments include environmentally conscious people who want to act in the sense of community by sharing food with their neighbors. The economic value proposition benefits consumers and cooperating local

businesses. OLIO enables consumers to share food surpluses with their neighbors without financial compensation. Consumers who are addressed of becoming food insecure and lack access to affordable food, value the opportunity to receive free of charge food without providing personal information about themselves on the platform.

*“From an economic point of view, as the food is given out for free on the app, we are having a lot of families or individuals who are addressed of becoming food-insecure, of course what these people appreciate and like more about OLIO is the fact that it is anonymous.”* (Delia Gadea, Head of Operations at OLIO)

Local cooperating businesses improve their brand image and employee engagement by giving their food surpluses to OLIO volunteers. OLIO’s customer relationships are close personal relationships between neighbors due to the creation of a community. Special about OLIO’s customer relationship is that customers are able to co-create content on the platform by posting information about their surplus food. OLIO’s key channels are the application, the website and the food delivery points, which enable the local communities to collect surplus food. The key resources of OLIO include partnerships with local businesses and its digital platforms, the application and the website. Main activities are the promotion of the platform to increase brand visibility as well as the continuous improvement of the service. OLIO earns revenue by charging larger cooperating companies for redistributing their surplus food to local communities. Further, the company charges small subscription fees for premium features in the application as an additional source of revenue. The company’s main fixed costs are salaries and software services expenses to ensure the functionality of the platform. Further costs contain accountancy services, insurance and translation services. OLIO’s variable costs are marketing expenses to acquire new customers and increase the company’s growth and impact. (see figure 8)

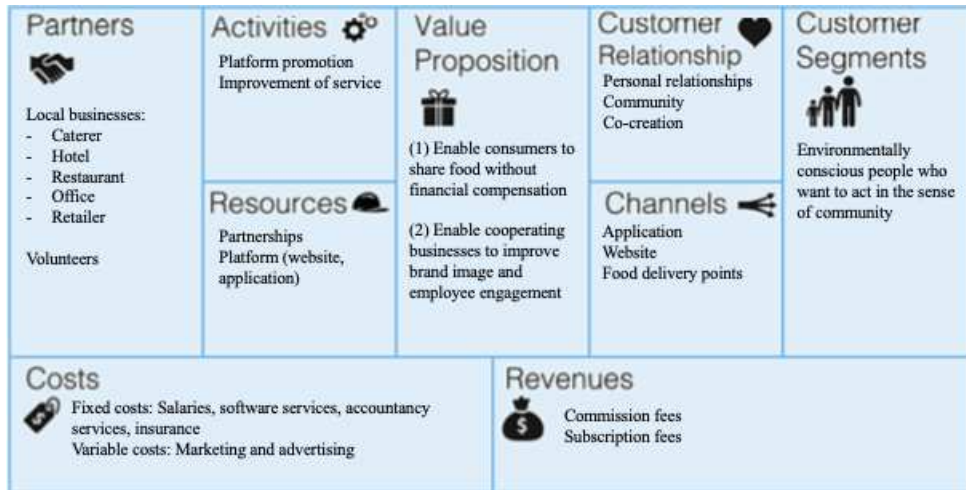


Figure 8: OLIO Economic layer (the author)

### 5.1.3 Too Good To Go

TGTG operates a website platform and mobile application connecting cooperating food businesses with consumers through a B2C distribution model. TGTG’s partners are cooperating food businesses and its customers are environmentally conscious people who want to be part of the food waste movement and who live in the vicinity of the cooperating food businesses. The economic value proposition benefits cooperating food businesses and consumers. For the food businesses, value is created by enabling them to sell their surplus food to recover part of their costs, as Aneta Kaneva (Partner Manager at TGTG) states:

*“When it comes to the economic perspective - the stores that join Too Good To Go are able to cover part of the costs they face in purchasing raw products for the food they don’t manage to sell by offering it on the app.”*

In addition, the platform enables food businesses to acquire new customers and strengthen their image of social responsibility. For consumers, value is created by offering high-quality food for up to 1/3 of the regular price. Consumers also benefit through the opportunity to discover unknown restaurants, bakeries and grocery stores. Moreover, TGTG enables consumers to actively participate in the movement against food waste. TGTG’s customer relationship is built by creating a sense of community and fostering a feeling of belonging to the food waste movement. Since consumers are able to preview and order surplus food via the application and collect ordered food at food business pick-up points, these two are the key channels. Further, the partnerships with cooperating food businesses and the platform’s functionality are TGTG’s key resources. TGTG’s main activities are maintaining the platform and improving current projects by ensuring that the customers and partners are aligned with the company’s actions.

TGTG generates revenues through a commission of €1,09 on each meal sold through the platform. The company's main fixed costs comprise salaries and software services for the maintenance of the website and application. Variable costs are spent for marketing and advertising to increase the company's brand awareness. (see figure 9)

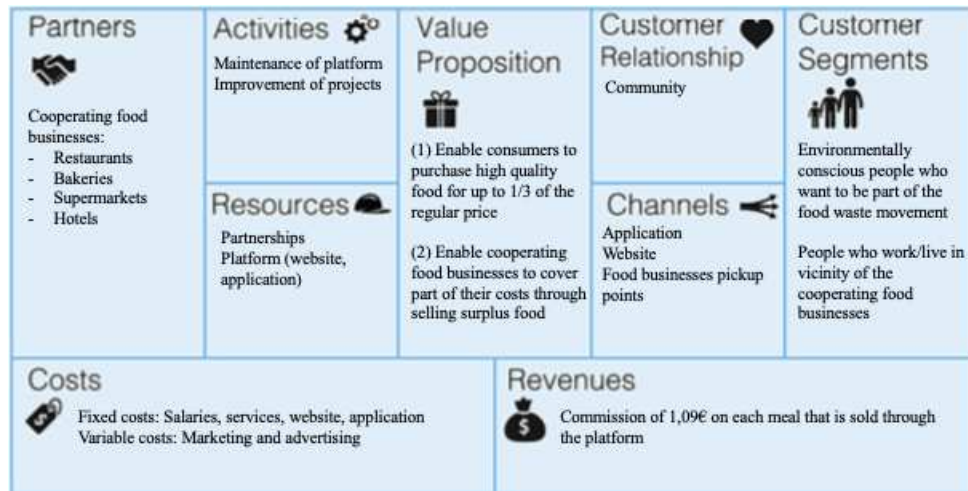


Figure 9: TGTG Economic layer (the author)

## 5.2 Environmental layer

### 5.2.1 ResQ Club

The functional value of ResQ consists of approximately 6 million portions of food saved from being wasted since 2016. The company generates an environmental benefit by the number of food portions consumed converted into kg (kg) of saved CO<sub>2</sub> emissions. Today, ResQ has saved approximately 15.000 kg of CO<sub>2</sub> emissions from the atmosphere, as Konsta Kallio-Mannila (Account Manager at ResQ) states:

*"There have been over six million portions of food that were saved through the ResQ Club. This means, that around 15 million kg of CO<sub>2</sub> have been saved from being wasted."*

The company's production creates an environmental impact by requiring energy and resources to develop and maintain the platform and utilize office spaces. There is no information on the distribution performed by ResQ since consumers pick up their selected meals themselves at the food business. ResQ's use phase consists of customers' potential use of transportation to pick up food items at the respective food business and the thereby caused emissions. The end of life of ResQ has no environmental impact because food surplus is consumed and not wasted.



ResQ’s cooperating food businesses are identified as supplies and out-sourcing because they supply the food surplus. The company has not published any information about its carbon emissions. Therefore, the environmental impact of the company cannot be determined. ResQ’s used materials are the food businesses’ biodegradable packages and boxes required to transport surplus food. (see figure 10)

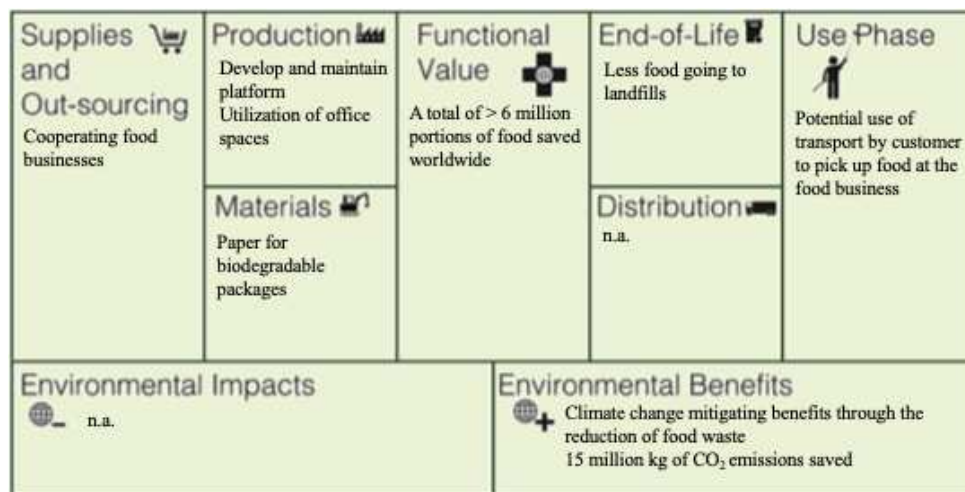


Figure 10: ResQ Environmental layer (the author)

### 5.2.2 OLIO

OLIO’s functional value consists of more than 34 million portions of food saved since 2015 equivalent to approximately 85 million kg of CO<sub>2</sub> emissions saved.

*"So, I think, all across the application, we saved over 34 million portions of food and this is through a combination of individuals sharing from their own kitchens and cooperating with some of the businesses that are B2B with the volunteers that share on the app. In this way, OLIO already saved about 85 million kg of CO<sub>2</sub> emissions from the atmosphere." (Delia Gadea, Head of Operations at OLIO)*

OLIO’s production causes an environmental impact through the consumer’s use of the platform enabled by carbon-intensive mobile data providers. The company’s distribution consists of the pick-up point logistics required to ensure the redistribution of surplus food. The use phase causes an environmental impact by the potential use of transportation by customers/neighbors. OLIO’s end of life has no negative environmental impact since surplus food of customers and local businesses is consumed and not wasted. For OLIO, local businesses and volunteers are supplies and out-sourcing because food businesses supply the surplus food and volunteers redistribute the food. The company reports being a carbon negative company

because it diverts more greenhouse gas emissions than it produces and therefore has no negative environmental impact. In addition, OLIO is emitting only 4% of all carbon emissions saved with its activities. OLIO's materials are primarily the packages and boxes required for redistributing food surpluses of local businesses to local communities. When consumers share food surpluses with their neighbors, they pick up food items in the original packaging. (see figure 11)

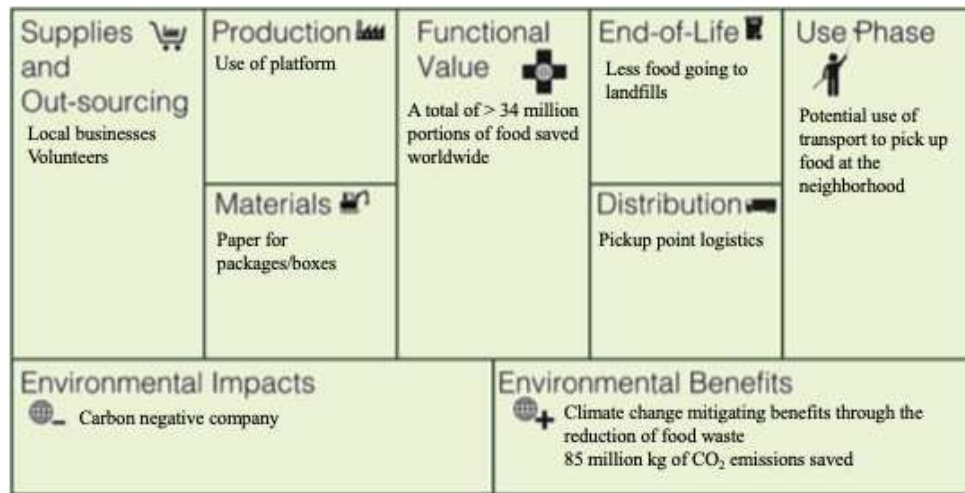


Figure 11: OLIO Environmental layer (the author)

### 5.2.3 Too Good To Go

The functional value of TGTG consists of 108 million portions of food saved since 2016 equating the conservation of approximately 270 million kg of CO<sub>2</sub> emissions.

*"We just reached 108.000.000 meals saved globally which is the equivalent to 270 million kg of CO<sub>2</sub> saved from the atmosphere - I think this number speaks volumes for the impact we have."* (Aneta Kaneva, Partner Manager at TGTG)

TGTG's production creates an environmental impact through the procurement process requiring external services, materials and equipment. Further, emissions caused by employees for example commuting to the office and working from home, are the second largest contributor to the company's environmental impact. There is no information about the distribution of TGTG because consumers pick up their ordered meals at restaurants' pick-up stations themselves. TGTG's environmental impact caused by the use phase consists of potential use of transportation by consumers and thereby generated emissions. The company's end of life has no negative environmental impact because the surplus food of local food businesses is consumed and not wasted. TGTG is dependent on the supply of surplus food by cooperating

food businesses. Therefore, cooperating food businesses are supplies and out-sourcing. Regarding the environmental impact, TGTG has committed itself to staying a carbon neutral+ company since 2020. As a carbon neutral+ company, TGTG commits itself to extract more carbon emissions from the atmosphere than it produces and, therefore, creates no negative environmental impact. Further, the foundation “solar impulse”<sup>2</sup> awarded TGTG as an efficient solution for climate protection. TGTG provides cooperating food businesses with unique paper bags to package surplus food. These paper bags are used materials. (see figure 12)

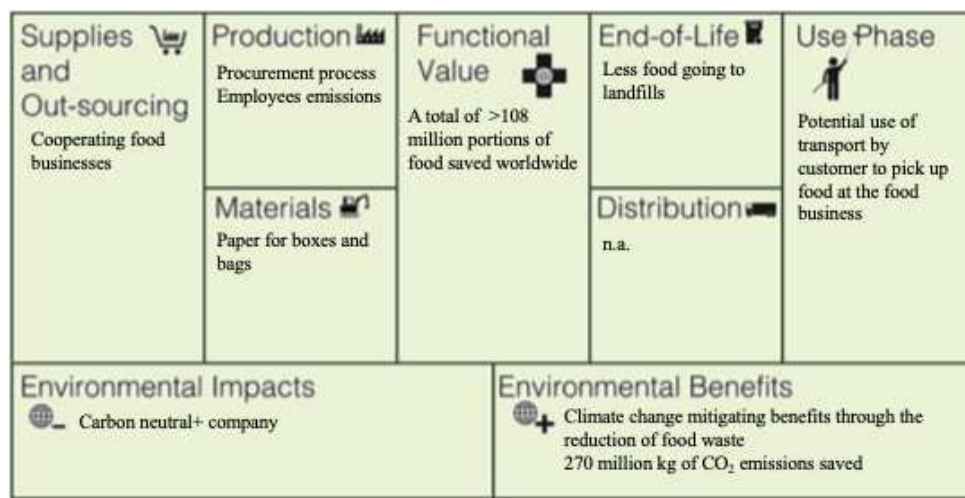


Figure 12: TGTG Environmental layer (the author)

### 5.3 Social layer

#### 5.3.1 ResQ Club

ResQ’s social value benefits both consumers and cooperating food businesses that are part of local communities. ResQ provides approximately 120.000 end-users access to quality food at a reduced price. These consumers support local businesses and actively contribute to reducing food waste. In addition, ResQ helps more than 8.000 food businesses to redistribute their surplus food and enables them to contribute to the fight against food waste. Konsta Kallio-Mannila (Account Manager at ResQ) highlights the social benefits for consumers and businesses as he states:

*“Regarding the social perspective, I would say both sides of the consumer and the partners are addressed. It is a great deal for the partners to save some portions*

<sup>2</sup> “The solar impulse foundation label recognizes business that are both profitable and impactful in the fight against climate change” (Too Good To Go, 2020, p.14)

*from the trash bin and the consumers are curing themselves with good food for a lower price; it's like a win-win situation."*

The main social benefits of ResQ are reducing food waste in food businesses and increasing community engagement in the fight against food waste. ResQ is a social enterprise that follows cooperative and social-driven governance. The company aims at a “people first” (ResQ Club, n.d.-i) approach for its’ employees by considering the individual needs of each employee. ResQ also promotes a “culture add” rather than “culture fit” (ResQ Club, n.d.-i) approach by inspiring every employee to make an impact at ResQ. The company’s societal culture aims to raise awareness for the problem of food waste within local communities. ResQ’s social impact could stem from creating additional incentives for restaurants to produce more food to serve the higher demand of the market. The company’s scale of outreach ranges over Finland, Sweden and Germany with more than 100 locations in Finland, 10 in Sweden and one in Germany. (see figure 13)

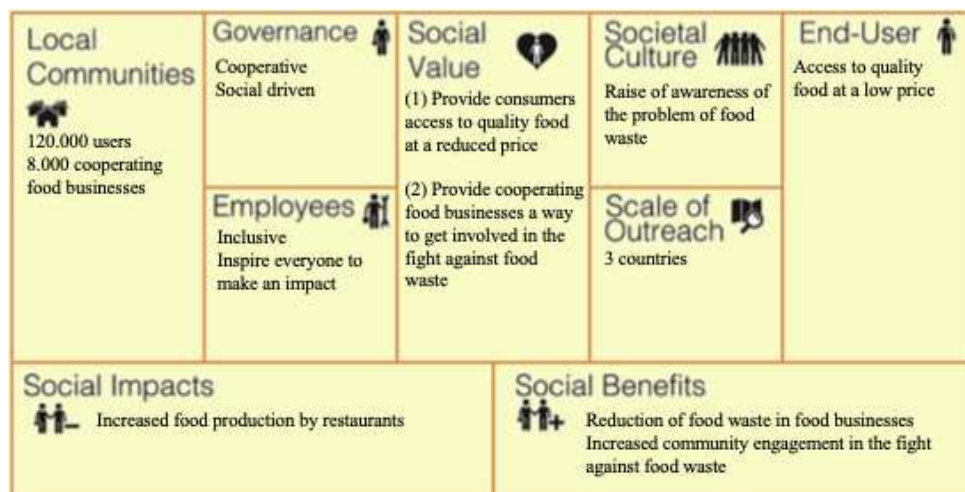


Figure 13: ResQ Social layer (the author)

### 5.3.2 OLIO

OLIO’s social value benefits consumers and cooperating local businesses. The company enables approximately 5 million end-users to receive surplus food from their neighbors free of charge. Some of these consumers were analyzed to be or become food insecure, meaning they lack access to affordable food. OLIO enables these people to access edible food surpluses without requesting personal information about them on the platform. Other consumers who share their surplus food are actively reducing food waste in their private households while at the same time supporting their community and strengthening their social relationships. Delia

Gadea (Head of Operations at OLIO) highlights the social benefits for consumers as she states that:

*“We started to hear more and more from our community that because they started using OLIO they started to get to know their neighbors, so we started then doing surveys to ask people: “has OLIO helped you become more engaged with your community and social relationships?” and the great majority of people said “yes, absolutely, it had an impact on my social life.”*

OLIO aims to constantly raise consumers’ awareness of the problem of food waste and engage people to contribute to reducing food waste. In addition, OLIO enables local businesses to contribute to social welfare by supplying their food surpluses to the local communities, redistributed by 80.000 OLIO volunteers. As a result, consumers, local businesses and volunteers are OLIO’s local communities. The social benefits of OLIO include reducing food waste in private households and local businesses, increasing the social welfare of local communities and creating a community between neighbors. OLIO has a socially driven governance approach that aims to promote diversity and inclusiveness for all its’ employees. In addition, OLIO’s societal culture is to increase general awareness of food waste within society and promote participation in the fight against food waste. OLIO’s negative social impact could stem from the possibility that food providing end-users feel the urgency to buy more food to distribute it to end-users in need. The scale of outreach ranges over 60 countries, with a media coverage of 1.643 radio, television and press appearances. (see figure 14)



Figure 14: OLIO Social layer (the author)

### 5.3.3 Too Good To Go

TGTG's social value simultaneously benefits both consumers and cooperating food businesses. TGTG enables 49,5 million end-users to purchase food surpluses for a reduced price. In addition, 130.559 cooperating food businesses are able to actively contribute to the fight against food waste. Further, TGTG aims to raise society's awareness of the problem of food waste in schools, policymakers and businesses.

*“We know we have to be constantly educating and raising awareness about this topic that seems to be still something that many of us are not aware. With the right projects, campaigns and partnerships we aim to motivate schools, politicians and businesses to change their behaviors and mindsets. These 5 pillars together are the core of our business and mission.”* (Leonora Loudon, Key account manager at TGTG)

The main social benefits are the reduction of food waste in food businesses, the empowerment of the community to take action against food waste and the increase of society's awareness in schools, policies and businesses. TGTG follows a social-driven governance approach as a social impact company and certified B corporation<sup>3</sup> while demonstrating transparency and credibility. TGTG strives for a “Diversity, Equity & Inclusion” (Too Good To Go, n.d.-d) approach for its employees by enabling everyone to contribute to the fight against climate change while ensuring diversity and equality of employees. Further, TGTG's mission characterizes its' societal culture: “Empower everyone to take action against food waste” (Too Good To Go, n.d.-a). The company's social impact could stem from incentivizing consumers to buy food primarily via the application and not for regular prices from the food businesses. The company's scale of outreach ranges from over 1.272 employees who fight food waste across 17 countries. (see figure 15)

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<sup>3</sup> “Companies that meet high standards of social and environmental performance, accountability and transparency” (B Lab, n.d.)



Figure 15: TGTG Social layer (the author)

After analyzing ResQ, OLIO and TGTG in detail concerning their operations and degree of sustainable actions within the three levels of the TLBMC, the following section compares the three cases and examines them for similarities and differences.

#### 5.4 Comparative case analysis

The following analysis starts with the comparison of the economic layer, followed by the environmental layer and closes with the social layer. The companies are compared with the most important components of each layer as well as with those that differ the most.

Comparing the economic value creation of the three companies, it becomes evident that ResQ and TGTG pursue a similar food sharing model while OLIO's food sharing model differs. ResQ and TGTG connect consumers and food businesses through a B2C distribution model. OLIO firstly connects consumers through a P2P distribution model and secondly organizes the redistribution of surplus food from local businesses to local communities. ResQ and TGTG enable consumers to buy high-quality food at a discounted price. OLIO supports consumers to share surplus food with each other for free and local communities to receive free surplus food supplied by local businesses. ResQ's and TGTG's partners are food businesses (e.g., restaurants, grocery stores and bakeries) which sell their leftover food for additional revenue. The local business partners of OLIO are for example catering companies, hotels and restaurants which do not receive any financial compensation for the provision of their surplus food. ResQ receives 25% of the price of each meal sold through the platform in comparison to TGTG's commission of €1.09 per meal sold. As a source of revenue, OLIO charges small subscription fees for premium features of the website and application. By charging its partners for the redistribution of surplus food, OLIO generates a second source of revenue. At ResQ, consumers

can purchase surplus food for 50% less of the original price while consumers at TGTG can save up to 66% on the actual price of meals. OLIO is providing the shared food for free to its local consumers. All three food sharing start-ups connect similar customer segments. The customer segments include environmentally conscious people who are aiming to make a positive contribution to the fight against food waste. Special about OLIO's customer segment is that they want to act in the sense of a community.

All three companies achieve climate change mitigating effects by reducing CO<sub>2</sub> emissions through the reduction of food waste. In comparison, TGTG has saved approximately 270 million kg of CO<sub>2</sub> emissions, OLIO 85 million kg of CO<sub>2</sub> and ResQ 15 million kg of CO<sub>2</sub>. By reducing food waste and thereby CO<sub>2</sub> emissions, the platform-based companies compensate their carbon emissions. OLIO reports being a carbon negative company because it diverts more greenhouse gas emissions than it produces. More precisely, the carbon emissions of its activities represent only 4% of the carbon emissions saved. Since 2020 TGTG has committed itself to stay a carbon neutral+ company. ResQ has not published any data on the company's carbon emissions and therefore the environmental impact of the company cannot be determined.

Considering the social layer, all platform-based food sharing start-ups aim to create a sense of community and to incentivize consumers to actively participate in the reduction of food waste. ResQ and TGTG additionally encourage food businesses to contribute to the fight against food waste while enabling them to strengthen their image of social responsibility. TGTG further aims to raise society's awareness of the problem of food waste in schools, policymakers and businesses. OLIO positively contributes to the social welfare by providing access to free of charge food to low-income consumers or people experiencing food insecurity. Compared to ResQ and TGTG, OLIO additionally enables consumers to strengthen their social connections and their sense of community by giving surplus food to people in need.



## 6. Discussion

This thesis examines how the private sector tackles the problem of food waste in the three dimensions of sustainability. In particular, it focused on social start-ups that operate website platforms and food sharing applications to answer the following research question: *"How do platform-based food sharing start-ups in developed countries tackle the problem of food waste in a sustainable way?"*. Drawing on a comparative case study design, I analyzed three platform-based start-ups that tackle the problem of food waste: ResQ Club, OLIO and Too Good To Go. To assess the companies' sustainability, I analyzed them according to the triple layered business model.

My empirical findings show that the three platform-based food sharing start-ups tackle the impact of food waste in the environmental, economic and social dimension of sustainability. While all start-ups have climate change mitigating benefits in the environmental dimension, their value propositions in the economic and social layer of the TLMBC differ. Following the literature on food sharing models of Micheline et al. (2018), it becomes evident that ResQ and TGTG apply the "sharing for money" model in the economic dimension. For-profit food businesses within the hospitality industry are the main beneficiary of this model (see figure 15). They reduce costs (e.g. for waste disposal and logistics) as well as increase their revenue by selling surplus food. Consumers are able to buy surplus food at a reduced price and thereby save costs. OLIO's business model adapts the "sharing for community" model (Micheline et al., 2018). This model mainly benefits the end consumer who receives free of charge food from its neighbors (see figure 15). In the social dimension, the community involvement and the creation of social connections became evident. ResQ and TGTG aim to raise society's awareness of the problem of food waste. In addition, they encourage food businesses to actively take part in the fight against food waste and thereby strengthen their image of social responsibility. OLIO aims to contribute positively to social welfare by providing people in need or affected by food insecurity access to free of charge food. Moreover, people who share their surplus food with neighbors strengthen their social connections and sense of community. In this way, all three start-ups contribute to the overall society's awareness of the food waste problem by addressing different actors within society.

	Value proposition	ResQ	OLIO	TGTG
Consumers	Purchase quality food at a reduced price	✓	✓	✓
	Receive free of charge food products	×	✓	×
	Foster social connections/sense of community	×	✓	×
Food businesses	Reduce waste disposal and logistics costs	✓	×	✓
	Increase revenue	✓	×	✓
	Improve reputation and image of social responsibility	✓	✓	✓
Society	Reduction of food waste	✓	✓	✓
	Increase society's awareness of food waste	✓	✓	✓
	Reduction of poverty	×	×	×

Figure 16: Value propositions of the food sharing start-ups (adapted from Michelini et al., 2018, p. 212)

All three food sharing start-ups focus exclusively on the consumption stage of the food supply chain. ResQ and TGTG focus on the reduction of waste in the food service sector while OLIO primarily attempts to reduce the amount of food waste in private households. However, the proposed corporate solutions, including digital technologies aim at improving processes in the whole supply chain (Annosi et al., 2021). Therefore, in order to prevent the generation of food waste the three start-ups would need to extend their food sharing models to the whole food supply chain (e.g., production stage until consumption stage). In regard to the proposed “food waste hierarchy” framework (Papargyropoulou et al., 2014), ResQ, OLIO and TGTG address the second level “re-use”. However, they do not address the first level, “prevention” (Papargyropoulou et al., 2014) which has the highest impact on reducing food waste because it avoids generating surplus food through more efficient planning processes.

In addition, it is essential to mention that by further analyzing the food sharing models positive and negative effects became evident. The food sharing model "sharing for community" can increase community benefits. However, by creating profit incentives like the "sharing for money" model, the sharing economy limits the promotion of social welfare (Michelini et al., 2018). For instance, a food business that previously donated surplus food can now use digital platforms to sell its leftover food for profit. In this regard, Falcone & Imbert (2017) argue that the “downside of the sharing economy lies in its ability to mobilize and encourage affluent populations to engage in sharing by choice, e.g. saving of money rather than necessity”. In this way, the literature characterizes the “sharing for money” model as “pseudo-sharing” (Belk, 2014) or “redistribution” (Lago & Sieber, 2016) as it encompasses profit and nonprofit organizations that pursue a broader definition of sharing (Codagnone et al., 2016). The “sharing for community” model refers to “pure or real sharing” (Lago & Sieber, 2016, p.19) as it ensures that consumers share a previously individually used resource without financial compensation (Belk, 2014).

Consistent with the literature on corporate sustainability, ResQ, TGTG and OLIO succeed in creating value for society through social and environmental improvements (Hahn et al., 2015). At the same time, these start-ups achieve sustainable organizational outcomes (Bansal, 2002). ResQ and TGTG are financially profitable through their food sharing model while OLIO is able to cover its expenses. Concluding, the three platform-based food sharing start-ups are contributing positively to the reduction of food waste in the consumption stage of the food supply chain in developed countries. The scalability of the platform-based business models bears the opportunity to attract a high number of additional users and therefore enables a greater impact on tackling the problem of food waste in the future.

Existing literature on food sharing models focuses on the understanding and illustration of the main differences between sharing models and its most significant variables. This thesis firstly enriches the existing literature by analyzing how food sharing models tackle the problem of food waste within the economic, environmental and social dimension of sustainability. Second, the thesis contributes to the literature of sustainable business models by enriching the understanding of how innovative, platform-based business models embrace sustainability across the three layers of the TLBMC. The TLBMC provided an integrated approach to examine the companies' impacts while highlighting key actions and relationships within the nine components of each layer. As a result, the analysis of the platform-based companies' business models provides a more holistic view of their economic, environmental and social impact.

## 7. Conclusion

Recently, the growth of digital technologies and the realization of the concept of the sharing economy have led to the emergence of new social start-ups that operate exclusively online with website platforms and food sharing applications (Michelini et al., 2018). However, the existing literature lacks understanding on how these start-ups reduce food waste taking into account all dimensions of sustainability. Therefore, my thesis addressed the following research question: *“How do platform-based food sharing start-ups in developed countries tackle the problem of food waste in a sustainable way?”*. Based on a comparative case study design (Stake, 2013), I analyzed three platform-based start-ups that tackle the problem of food waste. To answer my research question, I used primary and secondary data. The primary data included semi-structured interviews with employees of the selected companies, while the secondary data included publications on the companies’ websites, sustainability reports and online publications. In order to assess the sustainability of the three companies, I analyzed them according to the triple layered business model.

Overall, my findings suggest that while all platform-based start-ups provide climate change mitigating benefits in the environmental layer, the value propositions in the social and economic layer of the TLBMC differ. ResQ and TGTG adopt the “sharing for money” model that mainly benefits food businesses while OLIO applies the “sharing for community” model which particularly comforts the end consumers.

One major limitation of this thesis is the relatively small number of studied cases. The inclusion of more cases would be required for the analysis to strengthen the validity of the results. Secondly, this thesis particularly focuses on the emergence of food waste in developed countries, especially in the consumption stage (i.e., private households, food service sector). However, it is important to monitor the emergence of food loss and waste along the entire food supply chain and to identify strategies to reduce the problem of food waste at every stage.

Future research could expand the study to all stages of the food supply chain in developed countries. For instance, it would be insightful to study if and how platform-based start-ups tackle the problem of food waste from the production stage to the consumption stage. It would be interesting to examine how these start-ups structure their business models and embrace sustainability across the three dimensions of sustainability to compare the business model structure with one of the start-ups that tackle food waste exclusively in the consumption stage.

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## Appendix A – Secondary data collection

Organization	Type of data	Title of the document/ article/podcast	Name of the author	Name of his/her organization	Date of publication
ResQ Club	Video	Interview Sauli Böhm, CEO	Global Discovery of Business for Good	Global Discovery of Business for Good	n.d.
ResQ Club	Website	Financial information	Finder	Finder	n.d.
ResQ Club	Website	ResQ Club redeems surplus food from restaurants and brings it to consumer's plates: "The service must meet the needs of different markets"	Sitra	Sitra	n.d.
ResQ Club	Website	Goodbye Food Waste! ResQ Club	Hänninen, Leskinen, Keto, & Bancourt	Global Discovery of Business for Good	n.d.
ResQ Club	Website	FoodStartup Vorstellung ResQ Club	Arnoldt, C.	Gründermetropole Berlin	2017
ResQ Club	Website	Zero food waste	ResQ Club	ResQ Club	n.d.
ResQ Club	Website	Is ResQ in town?	ResQ Club	ResQ Club	n.d.
ResQ Club	Website	Leave no meal behind	ResQ Club	ResQ Club	n.d.
ResQ Club	Website	Increase your revenue and reduce food waste	ResQ Club	ResQ Club	n.d.
ResQ Club	Website	The more you eat, the more you save	ResQ Club	ResQ Club	n.d.
ResQ Club	Website	ResQ saves your restaurant from surplus	ResQ Club	ResQ Club	n.d.
ResQ Club	Website	Pricing and partner payouts	ResQ Club	ResQ Club	n.d.
ResQ Club	Website	The road to zero	ResQ Club	ResQ Club	n.d.
ResQ Club	Website	Work with ResQ Club	ResQ Club	ResQ Club	n.d.
ResQ Club	Presentation (internal)	THE RESQ CLUB	ResQ Club	ResQ Club	2020
OLIO	Podcast	Saasha Celestial-One	Be more pirate	OLIO	2020
OLIO	Video	OLIO co-founder, Tessa Clarke tells Sky News about our \$43M Series B	OLIO	OLIO	2021
OLIO	Presentation	OLIO overview, sustainability & implications for advertising	OLIO	OLIO	2020
OLIO	Presentation	OLIO overview & Earth Overshoot Day	OLIO	OLIO	2020
OLIO	Website	One third of people are 'physically pained' throwing away good food- yet, they do so almost daily: Interview with OLIO's Co-Founder, Tessa Clarke	Kholod, D.	OLIO	2021
OLIO	Website	OLIO Revenue and Competitors	Growjo	Growjo	n.d.
OLIO	Website	Food sharing app OLIO raises \$43M Series B, as the world switches on to the food waste crisis	Butcher, M.	Techcrunch	n.d.
OLIO	Website	Let's not waste our wonderful world	OLIO	OLIO	n.d.
OLIO	Website	Our story	OLIO	OLIO	n.d.
OLIO	Website	What is OLIO?	OLIO	OLIO	n.d.
OLIO	Website	How does OLIO make money?	OLIO	OLIO	n.d.
OLIO	Website	Our impact	OLIO	OLIO	n.d.
OLIO	Website	Net zero	OLIO	OLIO	n.d.
OLIO	Website	Become a Zero Food Waste business with OLIO	OLIO	OLIO	n.d.
OLIO	Website	Join our team	OLIO	OLIO	n.d.
Too Good To Go	Post of blog	The food waste knowledge hub	Several authors	Too Good To Go	n.d.
Too Good To Go	Presentation (internal)	TOO GOOD TO GO JUNTOS CONTRA O DESPERDÍCIO ALIMENTAR	Too Good To Go	Too Good To Go	2021
Too Good To Go	Report	Too Good To Go Impact Report	Too Good To Go	Too Good To Go	2021
Too Good To Go	Report	Too Good To Go Impact Report	Too Good To Go	Too Good To Go	2020
Too Good To Go	Video	Mette Lykke of Too Good To Go: 3 key decisions on TGTG's way to become fit for growth	Nordic Growth Hackers	Nordic Growth Hackers	2019
Too Good To Go	Video	Jamie Crummie, Co Founder, Too Good To Go	Food Matters Live	Food Matters Live	2020
Too Good To Go	Website	Too Good To Go: A Win-Win-Win Situation	Ray, P.	Digital Innovation and Transformation	n.d.
Too Good To Go	Website	Too Good To Go Revenue and Competitors	Growjo	Growjo	n.d.
Too Good To Go	Website	Social Impact Company Too Good To Go Becomes a Climate Action Pioneer	Planetly	Planetly	n.d.
Too Good To Go	Website	The story of Too Good To Go	Condamine, P-	Zero Waste Europe	n.d.
Too Good To Go	Website	The movement against food waste	Too Good To Go	Too Good To Go	n.d.
Too Good To Go	Website	Save food help the planet	Too Good To Go	Too Good To Go	n.d.
Too Good To Go	Website	Sell your surplus food, easily	Too Good To Go	Too Good To Go	n.d.
Too Good To Go	Website	Find your dream job	Too Good To Go	Too Good To Go	n.d.
Too Good To Go	Website	FAQ	Too Good To Go	Too Good To Go	n.d.

## Appendix B – Coding table

### B.1 Economic layer

#### B.1.1 ResQ Club

Economic layer ResQ Club	
<b>Partners</b>	<p>“We have an application for basically anyone who produces food, mostly restaurants, cafés, grocery stores who publish their service food in this marketplace.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p> <p>“Who should join ResQ Club?            - Grocery stores:            - Restaurants:            - Cafes &amp; Bakeries” (ResQ Club, n.d.-d)</p>
<b>Activities</b>	<p>“Our main activity is to get some partners on board and it still is, because customers are always easy to reach when they can purchase cheap food but for the restaurants it’s a minor impact for their bottom line.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p> <p>“I think we could definitely grow faster if more restaurants would see the long-term benefits of ResQ and sign up for our application which is also free of charge.” (Venla Wiik, Sales Team Lead at ResQ Club)</p> <p>“Here at ResQ Club, we are doing everything it takes to further accelerate this growth.” (Sauli Böhm, CEO of ResQ cited by Sitra, 2021)</p>
<b>Resources</b>	<p>“ResQ partners can drastically reduce their food waste with our most important resource, our proprietary location-based mobile and web service, as it enables consumers to find and rescue surplus food in their proximity.” (ResQ, n.d.-a)</p> <p>“Our actual service is to be in the marketplace, so we just provide the platform, the application - the providers and consumers can sell and buy.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p>
<b>Value proposition</b>	<p>“So, in this case it is a great deal for everybody because the company who normally generates food waste can now sell their leftovers and the consumers can buy these leftovers for less money than they would usually pay for a meal. So, it’s basically a great deal for everybody.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p> <p>“You can turn this into saved euros, so the price of one portion is around 5€ and if you want to measure the amount of saved money from the restaurants and the consumers, the restaurant gains 5€ per portion and also the consumer saves 5€ per portion because the price is minus 50%. If we multiply the 5€ per portion we end up with an amount of</p>

	<p>5€*6 million = 30 million€ saved for the consumers as well as the providers and partners.” (Venla Wiik, Sales Team Lead at ResQ Club)</p> <p>“For consumers, using ResQ means discovering new restaurants, cafeterias and grocery stores at around 50% discount and creating a more sustainable environment while at it.” (ResQ Club, n.d.-e)</p> <p>“For our partners, every portion sold in ResQ is one wasted portion less and one revenue item more in your bookkeeping. Benefits of joining ResQ Club: - Increased revenue by 2-6%:ResQ turns the lost revenue from your unsold meals into an extra revenue stream by bringing in customers who pay real money for your surplus food. One sold meal brings on average 4 euros to your bank account. - New customers: 70% of our users have found new restaurants to dine in while using ResQ. Selling surplus food with us doesn’t cannibalize your regular sales, as picking up ResQ food serves different user needs than lunch and á la carte dining. (ResQ Club, n.d.-d)</p> <p>“ResQ is an easy and quick way to reduce waste. You will earn extra money and new customers to your grocery store. And those customers often will buy something extra, so it’s a great marketing tool, too” (Aleksi Siltanen, owner of K-Market Lapuankatu cited by Sitra, 2021)</p> <p>“ResQ Club is a digital marketplace for surplus food, enabling people to buy surplus food from restaurants, cafés and grocery shops at a reduced price [...] Food industry operators can significantly reduce waste with the application: on average, our customers sell 65 per cent of all of the meals they offer through ResQ Club. Consumers get high-quality food at an affordable price and easily, without having to spend time waiting.” (Sauli Böhm, CEO of ResQ cited by Sitra, 2021)</p>
<b>Customer Relationship</b>	<p>“By offering an interactive map with the local restaurants and food businesses that participate in the initiative, ResQ enables consumers to discover and rediscover businesses and strengthen the bonds in the community while also fostering the local economy.“ (Venla Wiik, Sales Team Lead at ResQ Club)</p>
<b>Channels</b>	<p>“Our actual service is to be in the marketplace, so we just provide the platform, the application - the providers and consumers can sell and buy.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p> <p>“ResQ partners can drastically reduce their food waste with our proprietary location-based mobile and web service, as it enables consumers to find and rescue surplus food in their proximity.” (ResQ, n.d.-a)</p> <p>“The End User collects the Ordered Portions from the Pickup Location on the day of the order within the time frame informed by the Partner through the Service in the Offer.” (ResQ Club, n.d.-g)</p>

<b>Customer Segments</b>	<p>“We are aiming to encourage as many people as possible to actively contribute to the fight against food waste. In this way, we like to reach people who are willing to make a positive contribution to the environment in addition to enjoying food for a reduced price” (Venla Wiik, Sales Team Lead at ResQ Club)</p> <p>“For consumers, using ResQ means discovering new restaurants, cafeterias and grocery stores at around 50% discount and creating a more sustainable environment while at it.”(ResQ Club, n.d.-e)</p>
<b>Costs</b>	<p>„Our main expenses include the salaries of our employees and costs for servers and software service providers to maintain and develop our platform. Next to many other costs, we also invest in marketing and PR costs to increase our awareness and brand visibility” (Venla Wiik, Sales Team Lead at ResQ Club)</p>
<b>Revenues</b>	<p>“The Service Provider charges from the Partner a sales commission (the ”Commission”) for sales via the Service. The Commission is automatically deducted by the Service Provider from the earned income paid to the Partner. The applicable Commission is 25 % of VAT-free sales.” (ResQ Club, n.d.-g)</p> <p>“We deduct a 25% sales commission. Otherwise the service is completely free.” (ResQ Club, n.d.-f)</p>

### B.1.2 OLIO

Economic layer OLIO	
<b>Partners</b>	<p>“We have almost 80.000 volunteers that are part of our programs, both with waste heroes and we also have ambassadors” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“Whether you’re a caterer, hotel, restaurant, office, retailer or any other food business or provider, OLIO’s Food Waste Heroes program can be a sustainable solution to your business whereby we arrange to pick up and safely redistribute your surplus food to local communities.” (OLIO, n.d.-f)</p>
<b>Activities</b>	<p>“We are preparing for a few big marketing campaigns in the next few months, so we are hoping that as people see us on TV, in subways and busses, we will have more and more people joining the application to share food or volunteer with us.” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“We put quite a lot of money into spreading the word about what we do and getting people to join us” (Frances Benson, Growth and Engagement Executive at OLIO, 2021)</p>



	<p>“We will continue to invest in improving the quality of our product, and increase our investment in marketing activities.” (Tessa Clarke, Co-founder and CEO of OLIO, cited by <a href="#">Kholod, 2021</a>)</p>
<b>Resources</b>	<p>“It has always been a challenge having enough money to maintain our most important resources, our application and website, our volunteering program and partnerships and a team of people who can deliver.” (Frances Benson, Growth and Engagement Executive at OLIO, 2021)</p>
<b>Value proposition</b>	<p>“From an economic point of view, as the food is given out for free on the app, we are having a lot of families or individuals who are addressed of becoming food-insecure, of course what these people appreciate and like more about OLIO is the fact that it is anonymous. So, what people in these situations like most, is the fact that they just can use an app, they don’t even have to use their real name or have a picture up, they just request food since OLIO is for everyone, they can go and pick up their food, there are no questions asked and no explanation needed, you request and can take as much as you need and you can do that over and over again. So, we are trying to make food accessible for as many people as needed.” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“A fundamental principle we have is that the core OLIO app (neighbour-to-neighbour food sharing) will always remain free to all. The features that are included in the Supporter bundle have been deliberately selected to ensure that no-one is prevented from using the free version of OLIO, which continues to give away millions of pounds of free food every month.” (OLIO, n.d.-c)</p> <p>“Your surplus food ends up in bellies, not bins. This benefits the environment, helps build local communities and improves your employee engagement.” (OLIO, n.d.-f)</p> <p>“OLIO has been fantastic in helping us to redistribute unwanted food into the local community. we would strongly encourage any other food providers to get involved.” (Veryan Palmer, Compass Group cited by OLIO, n.d.-f)</p>
<b>Customer relationship</b>	<p>“We started to hear more and more from our community that because they started volunteering and using OLIO they started to get to know their neighbors, so we started then doing surveys to ask people: “has OLIO helped you to fellow more when it comes to your community and social connections?” and the great majority of people said “yes, absolutely, it had an impact on my social life” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“Whilst OLIO looks like an app, its beating heart is its community. Our users tell us that whilst they joined OLIO because they hate waste, what keeps them using and raving about it is the joy that they experience through meeting a neighbour! Recent research found that over 40% of OLIOers say that they’re less lonely since joining OLIO,</p>

	<p>and over 40% have also made local friendships.” (Tessa Clarke, Co-founder and CEO of OLIO, cited by <u>Kholod, 2021</u>)</p> <p>“Users simply snap a picture of their surplus food and add it to OLIO, where neighbors receive customized alerts and can request anything that takes their fancy.” (OLIO, n.d.-b)</p>
<b>Channels</b>	<p>“Users (consumers, OLIO volunteers or independent businesses) simply snap a picture of their surplus food and add it to OLIO, where neighbors receive customized alerts and can request anything that takes their fancy. Pick-up then takes place at the home/store, an OLIO Drop Box, or another agreed location.” (OLIO, n.d.-b)</p>
<b>Customer segments</b>	<p>“We try to reach as many people as possible who want to actively fight food waste while supporting their neighbors and community. We strongly believe that small actions can lead to big changes. together, we can create a more sustainable future where valuable resources are shared and not thrown away.” (Frances Benson, Growth and Engagement Executive at OLIO, 2021)</p> <p>“The company enables each and every one of us to be a part of the future that we all need – a future where good food is eaten, not thrown away; where everyone has enough to eat; and where the planet isn’t destroyed to produce our food.“ (Tessa Clarke, Co-founder and CEO of OLIO, cited by <u>Kholod, 2021</u>)</p>
<b>Costs</b>	<p>“In addition to our core team, we also pay for servers that host the app and hundreds of 3rd party software services that enable our app and teams to function effectively; we also have to pay for legal support, accountancy services, insurance, translation services and PR. And we invest in marketing to bring new users into our community so that we can grow and have more impact.” (OLIO, n.d.-c)</p>
<b>Revenues</b>	<p>“In terms of revenue, we are not profitable right now. We make some money from, like I said, the businesses that asked but we do not make profit. We still have investors, who provide us with the money that we need to basically spend marketing and advertising and all the big expenses.” (Frances Benson, Growth and Engagement Executive at OLIO, 2021)</p> <p>“We charge a nominal fee per collection to enable businesses to become zero waste. This includes fully serviced food collections with a dedicated account manager &amp; monthly impact reports.” (OLIO, n.d.-f)</p> <p>“OLIO started making money by charging larger businesses for the services we provide via our Food Waste Heroes Programme. Unfortunately, the revenues generated via this programme are nowhere near enough to cover our cost base and so we have developed an additional revenue stream which is providing extra features in the app for a small subscription fee. A fundamental principle is that the core OLIO app (neighbour-to-neighbour food sharing) will always remain free and available to all.” (OLIO, n.d.-c)</p>

### B.1.3 Too Good To Go

Economic layer Too Good To Go	
<b>Partners</b>	<p>“Too Good To Go is a free platform that connects consumers with businesses such as retailers, supermarkets and cafés who have surplus food for sale” (Aneta Kaneva, Partner manager at TGTG, 2021)</p> <p>“Businesses can simply sign up on our partner page and participate. The businesses where it works best are cafes, bakeries, restaurants, buffets, supermarkets or hotels.” (Leonora Loudon, Key account manager at TGTG, 2021).</p>
<b>Activities</b>	<p>“Make sure we have the right foundation. We are looking to improve current projects by making sure our customers and partners are happily aligned with what we do.” (Leonora Loudon, Key account manager at TGTG, 2021).</p>
<b>Resources</b>	<p>“Our main resource is our platform which is all about tackling and reducing food waste. It’s a free platform that connects consumers with businesses (retailers, supermarkets, cafés) that have surplus food for sale” (Aneta Kaneva, Partner manager at TGTG, 2021)</p>
<b>Value proposition</b>	<p>“Too Good To Go creates an alternative marketplace for excess food - stores can put daily the products they didn’t manage to sell by the end of the work day and our users can purchase them for 1/3 of their actual price.” (Leonora Loudon, Key account manager at TGTG, 2021).</p> <p>“It’s like a win-win situation for businesses, so all food that is about to end up in the bin is ensured to be consumed by TGTG. Therefore, it allows businesses to do the right thing, I mean no one really wants to throw food away, especially in regard of the SDGs there really is a push towards reducing food waste. But it is also a great way to recover some costs, so all businesses know that disposing of food costs money. So if we can prevent this food from going to waste and ensure it will be consumed we can recover some costs. One thing to point out about the application itself is that people are paying a reduced price for this food, so it’s allowing businesses to recover sunk costs. And finally one big thing is the sense of discovery, so people are discovering new restaurants and cafés but they are also discovering new things on the menu. This is allowing businesses to reach a different type of consumers and acquire new consumers at the same time. So we see it’s a great deal for CSR, to recovering sunk costs and to acquiring new consumers.” (Leonora Loudon, Key account manager at TGTG, 2021).</p> <p>“When it comes to the economic perspective - the stores that join Too Good To Go are able to cover part of the costs they face in purchasing raw products for the food they don’t manage to sell by offering it on the app” (Aneta Kaneva, Partner manager at TGTG, 2021)</p> <p>“For partners: Win new customers: 49,5 million users and counting</p>

	<p>Generate income from your surplus: Sustainability that pays off!          Make the planet greener: More than 108,133,207 meals saved globally!” (Too Good To Go, n.d.-c)</p> <p>“When businesses like supermarkets, cafes, bakeries or manufacturers have too much food in their hands (perhaps because of an inaccurate forecast, an interrupted supply chain, or rainy weather), they list it on our app. Consumers browse the app for businesses that have surplus food, then buy it for a great price, pick it up and take it home to enjoy. The food isn’t wasted, the business offsets sunk costs and the customer gets delicious food for a great price. Best of all, it gives ordinary people the chance to have a direct impact on the food waste issue - all while they’re going about their everyday life.” (Too Good To Go, 2020, p.6)</p>
<b>Customer relationship</b>	<p>“A big thing is really to inspire and empower these consumers to take action against food waste” (Aneta Kaneva, Partner manager at TGTG, 2021)</p> <p>“Our mission is to inspire and empower everyone to fight food waste together.” (Too Good To Go, 2020, p.6)</p> <p>“We have set out a new ambition - to contribute in every way we can to building the global food waste movement. It’s only when we all come together to fight food waste, that we’ll be able to generate a positive change in society.” (Too Good To Go, n.d.-a)</p>
<b>Channels</b>	<p>“We help stores and restaurants sell their surplus food through our free smartphone app. Customers choose a restaurant or store, they order a “surprise bag” of surplus food at a reduced price and then collect it from the store during a pre-set collection window.” (Too Good To Go, n.d.-e)</p>
<b>Customer segments</b>	<p>“At the same time, we need a community - users who want to save food with us. We try to reach people that are environmentally conscious and aim to contribute positively to our planet.” (Leonora Loudon, Key account manager at TGTG, 2021)</p> <p>“We can all make a difference, through changes as simple as making sure you eat what’s in your cupboard. When enough of us change our habits, we can truly change the world” (Too Good To Go, n.d.-a)</p>
<b>Costs</b>	<p>“Costs primarily arise for software services in order to ensure the functionality of our application and website. Other costs are incurring for the salaries of our employees. Marketing costs are also required for increases in our brand awareness.” (Leonora Loudon, Key account manager at TGTG, 2021)</p>
<b>Revenues</b>	<p>“The primary source of the firm’s revenues come from taking a cut on meals sold through the app.” (Ray, 2020)</p> <p>“Too Good To Go keeps 1.09 euros as commission per transaction” (Too Good To Go, n.d.-c)</p>

## B.2 Environmental layer

### B.2.1 ResQ Club

Environmental layer ResQ Club	
<b>Supplies and out-sourcing</b>	<p>“Our actual service is to be in the marketplace, so we just provide the platform, the application - the providers and consumers can sell and buy.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p> <p>“We have around 8.000 providers who assigned for an account at some point, mostly in Finland. We don’t own the food at any point, because there are different actors who use our infrastructure to sell their surpluses and different actors who want to buy these surpluses.” (Venla Wiik, Sales Team Lead at ResQ Club)</p>
<b>Production</b>	<p>“The external servers require the largest amount of energy to operate our platform. Further CO<sub>2</sub> emissions are generated by the use of office spaces and the travels of our employees.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p>
<b>Materials</b>	<p>“Customers can easily pick up the portions by showing the receipt at our reception and the portions are packed in biodegradable boxes.” (Scandic Simonkenttä, Partner of the ResQ Club, cited by ResQ Club, n.d.-e)</p> <p>“From each box sold, we deduct 33 percent of the sales price to support the development of our product. When restaurants use their own biodegradable packaging, we retain only 25 percent.” (Tuure Parkkinen, Founder of the ResQ Club, cited by Arnoldt, 2017)</p>
<b>Functional value</b>	<p>“There have been over six million portions of food that were saved through the ResQ Club. This means, that around 15 million kg of CO<sub>2</sub> have been saved from being wasted – so that’s a lot.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p> <p>“One kilogram of food takes around 5 kg of CO<sub>2</sub> to produce and we estimate that one portion is 500g so that one portion corresponds to 2,5 kg of CO<sub>2</sub>. When we multiply the six million portions saved by the ResQ Club, we end up with 6 million*2,5 = 15 million kg of CO<sub>2</sub> saved from being wasted” (Venla Wiik, Sales Team Lead at ResQ Club)</p> <p>“200000+ portions saved every month. 6+ million portions saved in total. With ResQ, the world becomes a better place over 4000 times a day. With tens of thousands of active buyers and thousands of sustainable food businesses on the platform, ResQ is the driving force of preventing last-mile food waste in restaurants, cafes and grocery stores.” (ResQ Club, n.d.-h)</p>

<b>Environmental benefits</b>	<p>“Regarding the environmental perspective, as I said, we are saving tons of CO<sub>2</sub> from being wasted.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p> <p>“One kg of food takes around 5 kg of CO<sub>2</sub> to produce and we estimate that one portion is 500g so that one portion corresponds to 2,5 kg of CO<sub>2</sub>. When we multiply the six million portions saved by the ResQ club, we end up with 6 million*2,5 = 15 million kg of CO<sub>2</sub> saved from being wasted.” (Venla Wiik, Sales Team Lead at ResQ Club)</p> <p>“500 tons of CO<sub>2</sub> emissions saved every month Putting it in perspective, it’s the same as: 90 car rides around the world, 450 flights between Helsinki and New York, 80 tons of perfectly fine food” (ResQ Club, n.d.-h)</p> <p>“Finally, SDG 13 deals with the climate action and ResQ supports the reaching of this goal directly by reducing CO<sub>2</sub> emissions generated by food waste and by doing so also mitigates climate change. Additionally, ResQ raises awareness related to the effects that food waste has on the environment and the climate change by offering its users interactive information of their positive impact on the reduction of emissions.” (Hänninen et al., n.d.)</p>
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### B.2.2 OLIO

Environmental layer OLIO	
<b>Supplies and out-sourcing</b>	<p>“Whether you’re a caterer, hotel, restaurant, office, retailer or any other food business or provider, OLIO’s Food Waste Heroes programme can be a sustainable solution to your business whereby we arrange to pick up and safely redistribute your surplus food to local communities.” (OLIO, n.d.-f)</p>
<b>Production</b>	<p>“99.3% of our carbon comes from our scope 3 emissions (indirect emissions that occur in OLIO’s value chain). Our top 2 most carbon-intensive indirect emissions come from: - User sessions facilitated by carbon-heavy mobile data providers - Website hits due to inefficient design To address this, OLIO commits to: Encourage and incentivize our community to switch to a green mobile data provider in Q2 2022 Redesign our website to decrease emissions by 40% by Q3 2022” (OLIO, n.d.-e)</p>
<b>Materials</b>	<p>“OLIO’s volunteers arrange to pick up and safely redistribute the surplus food of food businesses in paper boxes or packages. The neighbor-to-neighbor food sharing doesn’t require any materials since users pick up the food items in the original packaging at their neighbor’s home.” (Delia Gadea, Head of Operations at OLIO, 2021)</p>

<b>Functional value</b>	<p>“So, I think, all across the application, we saved over 34 million portions of food and this is through a combination of individuals sharing from their own kitchens and cooperating with some of the businesses that are B2B with the volunteers that share on the app. In this way, OLIO already saved over 85 million kg of CO<sub>2</sub> emissions from the atmosphere” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“34.093.311 portions have been shared” (OLIO, n.d.-d)</p>
<b>Distribution</b>	<p>“OLIO has developed safe systems in partnership with local government authorities so that donor businesses can relax in the knowledge that any surplus food that they donate will be delivered to the final consumer in a safe way.</p> <ul style="list-style-type: none"> <li>- 24/7 pick ups</li> <li>- Minimal operational disruption</li> <li>- All food types accepted</li> <li>- Approved Food Safety Management System” (OLIO, n.d.-f)</li> </ul>
<b>Environmental impacts</b>	<p>“OLIO is already a carbon negative company because we divert far more greenhouse gas emissions than we produce. In fact, the carbon emissions we create as a business is offset by only 4% of all the carbon we’re saving as a result of our waste busting activities” (OLIO, n.d.-e)</p> <p>“As part of our Carbon Negative commitment, we will:</p> <ul style="list-style-type: none"> <li>- Measure all our global organization’s emissions, including scope 3 and report them publicly each year.</li> <li>- Publish more details about how we are already beating net zero and interim targets to reduce our emissions yet further.</li> <li>- Continue to be a Carbon Negative business through our core work to reduce food waste.</li> <li>- Appoint a member of our Senior Leadership Team to be responsible and accountable for our carbon emissions targets.</li> <li>- Communicate our climate commitments in other meaningful ways, including to our customers.</li> <li>- Report our progress to our Board annually and on our website.” (OLIO, n.d.-e)</li> </ul>
<b>Environmental benefits</b>	<p>“34.093.311 portions have been shared equivalent to 100.784.397 car miles and approximately 85 million kg of CO<sub>2</sub> saved from being wasted” (OLIO, n.d.-d)</p> <p>“So, I think, all across the application, we saved over 34 million portions of food. In this way, OLIO already saved about 85 million kg of CO<sub>2</sub> emissions from the atmosphere” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“We have this enormous ambition because humanity cannot continue to puzzle over how to keep global warming within 1.5 degrees and feed a population of 10 billion — whilst continuing to throw away one-third of the food we produce and consuming as if we have 1.75 planets. In solving these twin problems we aim to build one of the most</p>

	<p>transformational companies of our generation.“ (Tessa Clarke, Co-founder and CEO of OLIO, cited by Butcher, 2021)</p> <p>“Our vision is for millions of hyper local food sharing networks all around the world. We believe OLIO can help create a world in which nothing of value goes to waste and every single person has enough to eat – without destroying our planet in the process.“ (OLIO, n.d.-d)</p>
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### B.2.3 Too Good To Go

Environmental layer Too Good To Go	
<b>Supplies and out-sourcing</b>	<p>“We help stores and restaurants sell their surplus food through our free smartphone app. Customers choose a restaurant or store, they order a “surprise bag” of surplus food at a reduced price and then collect it from the store during a pre-set collection window.” (Too Good To Go, n.d.-e)</p>
<b>Production</b>	<p>“The largest share of Too Good To Go’s carbon footprint stems from the company’s procurement process. This includes the use of external services, external servers and consumables and equipment. The emissions of Too Good To Go employees form the second-largest contribution to the carbon footprint. Emissions for example occur from commuting to the office, but also when working from home. Office operations, including heating and electricity, account for the third biggest share of the footprint. A comparatively small share (27t CO<sub>2</sub> e) is generated by packaging emissions and the emissions that Too Good To Go’s customers produce by using the app.” (Planety, n.d.)</p> <p>“Like any growing business, we’re a contributor of both direct and indirect emissions. With more than 1000 employees stationed across 15 countries, we need servers, we need office space and our team need to travel between suburbs, cities, countries and continents to make sure we can stop as much food as possible from being wasted” (Too Good To Go, 2020, p.17)</p> <p>“Our servers keep our app running - but they consume a lot of energy.” (Too Good To Go, 2020, p.19)</p>
<b>Materials</b>	<p>“No labelling, no sorting: Pack your delicious unsold goods into one of our Surprise Bags.” (Too Good To Go, n.d.-c)</p>
<b>Functional value</b>	<p>“We just reached 108.000.000 meals saved globally” (Aneta Kaneva, Partner manager at TGTG, 2021)</p> <p>“Of course, our marketplace is the most direct way for one to have an impact. As a consumer you can save, on a daily basis, a meal from going to waste - which is equivalent to 2.5Kgs of CO<sub>2</sub> avoided in our atmosphere.” (Leonora Loudon, Key account manager at TGTG, 2021)</p>



	<p>“108 million meals saved all over the world since 2016 and it’s only the beginning” (Too Good To Go, n.d.-b)</p>
<p><b>Environmental impacts</b></p>	<p>“We know that we all have a responsibility to tackle climate change and every person can make a difference but we, as businesses, need to lead by example. This is why we’ve committed to being carbon neutral + from 2020 onwards.” (Philippe Schuler, Global impact manager at TGTG cited by Planetly, n.d.)</p> <p>“Adding up all emissions, Too Good To Go had a footprint of 2,475 t CO2e in 2020.  2,475 t CO2e total carbon emissions  1,142 t CO2e Purchased goods &amp; services  665 t CO2e Home office, commuting &amp; business travel of employees  493 t CO2e Building emissions such as electricity” (Planetly, n.d.)</p> <p>“Our 2020 emissions came out at 2,475.7T CO2e.  So we set an ambition to be carbon neutral+ from this year on. That means not only do we neutralize our emissions; we go one step further, increasing our positive impact by extracting more carbon from the atmosphere than we put in.” (Too Good To Go, 2020, p.17)</p>
<p><b>Environmental benefits</b></p>	<p>“We just reached 108.000.000 meals saved globally which is the equivalent to 270 million kg of CO<sub>2</sub> saved from the atmosphere - I think this number speaks volumes for the impact we have.” (Aneta Kaneva, Partner manager at TGTG, 2021)</p> <p>“Each saved meal means that less CO<sub>2</sub> is released into our environment. Today TGTG saved 108 million meals equivalent to more than 270 million kg of CO<sub>2</sub> saved.” (Too Good To Go, n.d.-b)</p> <p>“We want to halve food waste per capita by 2030 - this is embedded in the Sustainable Development Goals and we want to make our contribution.” (Leonora Loudon, Key account manager at TGTG, 2021)</p> <p>“Too Good To Go has been labelled an efficient solution on climate action by solar impulse foundation (Too Good To Go, 2020, p.14)</p>

## B.3 Social layer

### B.3.1 ResQ Club

Social layer ResQ Club	
<b>Local communities</b>	<p>“We have around 8.000 providers who assigned for an account at some point, mostly in Finland.” (Venla Wiik, Sales Team Lead at ResQ Club)</p> <p>“With more than 120.000 of active buyers and around 8.000 sustainable food businesses on the platform, ResQ is the driving force of preventing last-mile food waste in restaurants, cafes and grocery stores.” (ResQ Club, n.d.-h)</p>
<b>Governance</b>	<p>“We go people first: We know life is about more than work: we want you to work reasonable hours, be 100% off on holidays and other leaves, take time with your family &amp; friends. We support your personal and professional development and are constantly working to be better at it.”</p> <p>“We aim for diversity: We are far from perfect but rest assured, we want everyone to feel they can make an impact at ResQ Club. Instead of 100% culture fit, we love to see culture add, as long as you have a passion for a better tomorrow and value freedom &amp; responsibility. Above all, we want you to be emphatic and act like a decent human being.” (ResQ Club, n.d.-i)</p>
<b>Employees</b>	<p>“Perks &amp; benefits:</p> <p>Working for a better tomorrow: Food waste is one of the biggest global challenges contributing to climate change. We’re literally working for a better, greener future. With us, there’s no need to dig deep to realize your work has a purpose.</p> <p>Small team, big impact: We have a small team and intend to keep it as small as possible. Your impact on our company will be big.</p> <p>Great, proven product: No matter of your position, your work will revolve around our product in some way. And our product is really good, giving you a good start for success.</p> <p>Flexible remote policy: We believe that teams know best what kind of a working mode is ideal for them in their line of work and therefore we let the teams decide themselves. However, occasionally we might have situations where on-site presence is requested and obviously seeing your co-workers is always nice.</p> <p>Support for development: We want to see you progress both professionally and as a person, which is why we have a personal self-development fund for all employees and are constantly looking into ways to improve.</p> <p>Paid holiday: Everyone is entitled to paid holiday right from the get-go – and we want to make sure that you actually use your holiday.</p> <p>Paid parental leave: There are important things and then there are work things. We offer 3 months of fully paid parental leave, regardless of your gender or how you become a parent.” (ResQ Club, n.d.-i)</p>

	<p>“Our aim is to grow, but we are not looking to exponentially increase our headcount – our goal is to grow smart and increase the impact of our people.” (ResQ, n.d.-a)</p>
<b>Social value</b>	<p>“Regarding the social perspective, I would say both sides of the consumer and the partners are addressed. It is a great deal for the partners to save some portions from the trash bin and the consumers are curing themselves with good food for a lower price, it’s like a win-win situation.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p> <p>“Every meal purchased via ResQ is one less meal thrown away, helping our urban communities to waste less and be more sustainable.” (ResQ, n.d.-a)</p> <p>“Reduction of food waste: Following our best practices, you are likely to sell more than half of your surplus food with ResQ. Every portion sold and not thrown away reduces unnecessary emissions caused by food production and shows you care about the environment.” (ResQ Club, n.d.-d)</p>
<b>Societal culture</b>	<p>“Every initiative with sustainability at the core helps society to become more sustainable. ResQ’s part in that is to educate what the impact of food waste is and therefore fostering more sustainable behavior not only on the user side but also on the partner side as well.” (Sauli Böhm, CEO of ResQ, Interview published by Hänninen et al., n.d.)</p> <p>“Initiating the change for more sustainable living on both societal and individual level” (Hänninen et al., n.d.)</p>
<b>Scale of outreach</b>	<p>„ResQ Club operates in over a hundred Finnish towns and cities and in 10 in Sweden.” (Sauli Böhm, CEO of ResQ cited by Sitra, 2021)</p> <p>“ResQ operates in more than 100 Finish cities, 10 in Sweden and 1 in Germany” (ResQ Club, n.d.-b)</p>
<b>End-user</b>	<p>“Consumers get high-quality food at an affordable price and easily, without having to spend time waiting.“ (Sauli Böhm, CEO of ResQ cited by Sitra, 2021)</p> <p>“For consumers, using ResQ means discovering new restaurants, cafeterias and grocery stores at around 50% discount and creating a more sustainable environment while at it.”(ResQ Club, n.d.-e)</p>
<b>Social benefits</b>	<p>“So, educating the public would be one thing to do since the households are accountable for the most part of food waste and not the restaurants.” (Konsta-Kallio Mannila, Account Manager at ResQ Club)</p> <p>“The societal effects of ResQ are both local and global. ResQ’s short-term effects include initiating the change for more sustainable living on both societal and individual level, whereas the long-term effects are more global, as ResQ’s target is to expand their business outside Finland, Germany and Sweden where it is currently operating and to foster sustainable behaviour on a wider scale. The increasing number</p>

	<p>of weekly purchasing users is an evidence of the fact that using ResQ has become a habit and people are in fact acting more sustainably thanks to ResQ.” (Hänninen et al., n.d.)</p> <p>“I think short-term effects are about triggering change on a societal level but also on the basic user level to act more sustainably and I think the long-term effects are more global meaning educating markets outside Finland, Sweden and Germany where we are currently at and fostering sort of more sustainable behavior on a wider scale” (Sauli Böhm, CEO of ResQ, Interview published by Hänninen et al., n.d.)</p>
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### B.3.2 OLIO

Social layer OLIO	
<b>Local communities</b>	<p>“We have 5 million users on the app and then we have almost 80.000 volunteers that are part of our programs, both with waste heroes and we also have ambassadors” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“Although we’ve only just begun, OLIOers have already accomplished a lot. Together, we can end food waste! 5,003,579 OLIOers have joined the Free Sharing App 75,891 OLIO volunteer Ambassadors and Food Waste Heroes!” (OLIO, n.d.-d)</p>
<b>Governance</b>	<p>“We are INCLUSIVE: OLIO is for everybody. It’s a mind-set, not a demographic. We value diversity of background, perspective and thought. We empower others to help fulfil our mission. We believe in karma and the power of collaboration.</p> <p>We are RESOURCEFUL: We hate waste of any variety. We spend our money very carefully; and time is our most precious asset, so we guard it well. We take the initiative.</p> <p>We are CARING: We’re caring in our actions and words within the OLIO community, towards each other, ourselves and the planet.</p> <p>We are AMBITIOUS: We’re ambitious for OLIO and for ourselves. We’re mission obsessed and we want 1 billion OLIOers in 10 years time. We get stuff done; we’re constantly learning and improving.” (OLIO, n.d.-g)</p>
<b>Employees</b>	<p>“OLIO is an Equal Opportunity Employer: We celebrate, support and embrace differences. You will be hired based purely on merit, job requirements and your individual qualifications, without regard to race, colour, religion, social origin, age, physical or mental disability, gender or sexual orientation. OLIO users are a very diverse group and the more inclusive we are, the better our work will be.”(OLIO, n.d.-g)</p>

<p><b>Social value</b></p>	<p>“We are also addressing social issues because we started to hear more and more from our community that because they started volunteering and using OLIO they started to get to know their neighbors, so we started then doing surveys to ask people: “has OLIO helped you to fellow more when it comes to your community and social connections?” and the great majority of people said “yes, absolutely, it had an impact on my social life” and similarly when it comes to raising awareness about food waste, I think there is a great deal that we are influencing their behavior because all our messaging is around “connect with your neighbors” and “share this food with someone, do something good for yourself and for a neighbor” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“Whilst OLIO looks like an app, its beating heart is its community. Our users tell us that whilst they joined OLIO because they hate waste, what keeps them using and raving about it is the joy that they experience through meeting a neighbour! Recent research found that over 40% of OLIOers say that they’re less lonely since joining OLIO, and over 40% have also made local friendships.” (Tessa Clarke, Co-founder and CEO of OLIO, cited by <a href="#">Kholod, 2021</a>)</p> <p>“As the food is given out for free on the app, we are having a lot of families or individuals who are addressed of becoming food-insecure, of course what these people appreciate and like more about OLIO is the fact that it is anonymous. So, what people in these situations like most, is the fact that they just can use an app, they don’t even have to use their real name or have a picture up, they just request food since OLIO is for everyone, they can go and pick up their food, there are no questions asked and no explanation needed, you request and can take as much as you need and you can do that over and over again. So, we are trying to make food accessible for as many people as needed.” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“Ensure that no-one is prevented from using the free version of OLIO, which continues to give away millions of pounds of free food every month.” (OLIO, n.d.-c)</p>
<p><b>Societal Culture</b></p>	<p>“Here at OLIO we believe that small actions can lead to big change. Collectively – one rescued cupcake, carrot or bottle of lotion at a time – we can build a more sustainable future where our most precious resources are shared, not thrown away. Join today!” (OLIO, n.d.-b)</p>
<p><b>Scale of Outreach</b></p>	<p>“We are planning to expand internationally, so we have about 10-11 countries that we want to grow into over the next 12 months and then further into the future we want to reach 1 billion OLIOers by 2030, so in 9 years – that’s the long-term plan.” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“Expanding internationally is absolutely on the cards for us – and something that we’re hugely excited about. We’ll focus on Latin American, Northern European, and Asian markets, targeting one</p>

	<p>billion OLIO users by 2030.” (Tessa Clarke, Co-founder and CEO of OLIO, cited by <a href="#">Kholod, 2021</a>)</p> <p>“1.643 Radio, TV and press pieces 60 countries OLIOers have successfully shared in” (OLIO, n.d.-e)</p>
<b>End-user</b>	<p>“Ensure that no-one is prevented from using the free version of OLIO, which continues to give away millions of pounds of free food every month.” (OLIO, n.d.-c)</p> <p>“As the food is given out for free on the app, we are having a lot of families or individuals who are addressed of becoming food-insecure, of course what these people appreciate and like more about OLIO is the fact that it is anonymous.” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“We started to hear more and more from our community that because they started volunteering and using OLIO they started to get to know their neighbors.” (Delia Gadea, Head of Operations at OLIO, 2021)</p> <p>“Please, please use OLIO! Olío is for everyone, and it brings people from all walks of life together, to achieve the app’s main goal – to reduce food waste and build food sharing communities!” (Natalie Jersey, OLIO consumer cited by OLIO, n.d.-b)</p>
<b>Social Benefits</b>	<p>“Great awareness and emphasizes that we are putting on individuals to take action, straight away to do something about the food waste that they create in their homes, so that is a big part of our app. The second is encouraging food businesses to give their food surpluses to our OLIO volunteers who redistribute the surplus food to local communities, thereby contributing to social welfare” (Frances Benson, Growth and Engagement Executive at OLIO, 2021)</p> <p>“Our main goal is to encourage people at their homes to actively take part in the fight against food waste and give their surplus food to their neighbors or people in need.” (Delia Gadea, Head of Operations at OLIO, 2021)</p>

### B.3.3 Too Good To Go

Social layer Too Good To Go	
<b>Local communities</b>	<p>“We have over 130 thousand partners and almost 50 million users are saving food with us” (Aneta Kaneva, Partner manager at TGTG, 2021)</p> <p>“49,5 million people in the world already saving food with us 130.559 cafes, restaurants, supermarkets, bakeries, hotels (and more!) on board” (Too Good To Go, n.d.-b)</p>
<b>Governance</b>	<p>“As Too Good To Go, we are B-Corp certified. That means we measure ourselves by our own actions. We look at how we treat our employees, how we treat our partners, how we communicate, how fair</p>

	<p>we are. We measure ourselves on points and want to get better every year.” (Leonora Loudon, Key account manager at TGTG, 2021)</p> <p>“Too Good To Go was proud to qualify as a B corp in 2019 B Corp is a business certification that measures a company’s entire social and environmental performance. Certified B Corps are required to consider the impact their business has on their employees, customers, partner businesses and the planet- To qualify, businesses are scored for their social and environmental performance, public transparency and legal accountability to balance profit and purpose.” (Too Good To Go, 2020, p.50)</p> <p>“At Too Good To Go, we introduce ourselves as a “social impact company”. That means we have a clear core mission that extends far beyond the bottom line. We’re all about using a simple business model to create positive social impact at scale.” (Too Good To Go, 2020, p.6)</p> <p>“Business with purpose: Our B Corp status means you can expect fair wages, a healthy environment, high working standards and a job that gives more to the planet than it takes.” (Too Good To Go, n.d.-d)</p>
<p><b>Employees</b></p>	<p>“Diversity, equity &amp; inclusion: Everyone should be heard in the fight against climate change. Our management team is 50% women - but we’re working to ensure diverse identities are reflected across all levels.</p> <p>Global team: Expand your horizons by working closely with talented people from all over the world, learning from different countries and cultures to do the best work of your life.</p> <p>Great colleagues: Good causes attract good people. Spend your working hours with like-minded colleagues, working towards the common goal of making the world a better place.” (Too Good To Go, n.d.-d)</p> <p>“People: Hire for the right DNA We believe we can always improve #growth-minded We are driven by the need to change the world for the better #passionate We convert chaos into energy (and solutions) #resourceful We try to go beyond the obvious #creative” (Too Good To Go 2020, p.6)</p> <p>“At Too Good To Go I have found a unique workplace that combines building a healthy business with solving a really important challenge for society. Here we are allowed and encouraged to bring our whole selves to work and we are valued and respected for who we are. It is truly a place where you find opportunities to grow regardless of your individual traits, who you are or where you come from.” (Tabita, Head of People and Culture, Spain at TGTG cited by Too Good To Go, n.d.-d)</p>

<b>Social value</b>	<p>“We know we have to be constantly educating and raising awareness about this topic that seems to be still something that many of us are not aware. With the right projects, campaigns and partnerships we aim to motivate schools, politicians and businesses to change their behaviors and mindsets. These 5 pillars together are the core of our business and mission.” (Leonora Loudon, Key account manager at TGTG, 2021)</p> <p>“22% of our users indicated they have started reducing food waste in other ways since starting to use the app.“ (Too Good To Go, 2020, p.24)</p> <p>“2020 threw a spotlight on the issue of food insecurity and was a reminder of our world’s vast inequality. We’re happy that our app makes food more affordable for more people.” (Too Good To Go, 2020, p. 24)</p>
<b>Societal culture</b>	<p>“Our mission is to inspire and empower everyone to take action against food waste. We know that to live and breathe this every day, we need to turn our words into actions. With this in mind we have set out a new ambition - to contribute in every way we can to building the global food waste movement. It’s only when we all come together to fight food waste, that we’ll be able to generate a positive change in society.” (Too Good To Go, n.d.-a)</p> <p>“Our mission is to inspire and empower everyone to fight food waste together” (Too Good To Go 2020, p.6)</p>
<b>Scale of outreach</b>	<p>“Our app is available across 17 countries - and counting” (Too Good To Go, n.d.-a)</p> <p>“1272 Waste Warriors fighting food waste across our 17 countries” (Too Good To Go, n.d.-d)</p>
<b>End-user</b>	<p>“Our app gives everyday people a simple way to fight food waste, by allowing them to rescue food from shops, manufacturers, cafes and restaurants.” (Too Good To Go, 2020, p.24)</p> <p>“So far so great! I rarely leave app reviews but this app has already been a game changer for me and my friend. The value of the food we’re getting is incredible and it feels like we’re taking a more “green” approach to take-out” (Consumer US cited by Too Good To Go, 2020, p.24)</p>
<b>Social benefits</b>	<p>“We want to work together with politics, households, universities and schools. We can’t do everything at once, but in the long term we want to be more than just an app. We are a social impact organization that was founded with the objective of saving food and also successively reducing production to the required level over the next few years.” (Leonora Loudon, Key account manager at TGTG, 2021)</p> <p>“We’ve always known that what we really need to solve the issue is system and habit change. Therefore, as our concept caught on and our business grew, we knew we were in a position to do more: to educate, collaborate, influence and build a movement that would lead to real</p>



	<p>change. The impact of this is less direct, more slow-moving - but it's just as important.</p> <p>Now we're not only working with food businesses and consumers, but governments, schools and NGOs to drive impact at scale." (Too Good To Go, 2020, p.6)</p>
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