Master's Thesis

Sustainable Business and Innovation

Relations between business model archetypes, degrees of hybridity and levels of success: *A study on surplus food redistribution initiatives in the Netherlands*

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Abstract

In our current food systems, about one-third of the produced food is wasted. This food waste has a severe negative impact on our environment. Besides, it is expected that the kilograms of wasted food every year will double within the next 15 years. Over the last few years, various surplus food redistribution initiatives have started to address these problems by redistributing food that would otherwise be wasted. One interesting characteristic of these initiatives is that they are often hybrid organizations: they pursue environmental and commercial activities. Although these initiatives are a potential solution to the food-wasting problem and are expected to engage in novel and unknown business models, little research has been employed about these organizations' business models. Besides, it is questioned whether the different operational business models or choices that businesses make in prioritizing their missions might result in some organizations being more successful than others. Therefore, through a mixed-method design in which a qualitative study was followed by quantitative analysis, this thesis set out to a) identify and categorize the BM archetypes of all surplus food redistribution initiatives in the Netherlands; b) determine the degree of hybridity of each initiative; c) establish the level of success of different initiatives; and d) explore the relationship between business model archetypes, degrees of hybridity, and the levels of success. A database was set up using desk-research, which captured 45 initiatives followed by a survey to enrich this database. Besides, three propositions were explored using quantitative methods. The findings indicate that there are four different business model archetypes operational in the surplus food redistribution sector. Furthermore, the results support the existence of a relationship between archetypes and success as well as between hybridity and archetypes. No association between success and hybridity was identified. Besides, recommendations for future research on both the topic of hybridity and surplus food redistribution are given.

Executive summary

With the increased demand of society for corporate businesses to become sustainable and charities to carry their own weight, hybrid organizations with both environmental and commercial missions are gaining popularity. A similar trend can be found in the surplus food redistribution sector, which is traditionally based on purely philanthropic activities but is currently growing through commercial hybrid businesses. It is expected that hybrid organizations will operate novel and unknown business models. However, no overview of these organizations in the Netherlands exists. Similarly, little is known about the types of business model archetypes adopted by hybrid organizations operating in the surplus food redistribution sector. Besides, although it is expected that the positioning on the hybridity spectrum between for-profit and non-profit organizations will affect both the success levels and the archetypes, which might be most effective for hybrid organizations, the literature is mostly neglecting these suggestions.

A better understanding of surplus food redistribution and its various business model archetypes and the relationships between the concepts of business model archetypes, degrees of hybridity, and success levels will benefit managers and other stakeholders active in the sector of surplus food redistribution and hybrid organizations in general. Therefore, this research aims to answer the following research question: "*What is the relationship between Dutch surplus food redistribution initiatives' 1) operational business model archetypes, 2) degrees of hybridity, 3) and levels of success in tackling the issue of food waste?*"

This research selected a mixed-method strategy in which qualitative research, which led to the description of the archetypes, hybridity, and success concepts of the different captured initiatives, was followed by a quantitative phase used to analyze relations between these concepts. For the qualitative phase, a database including 45 initiatives was composed through desk-research. Besides, an additional survey, including eight respondents, was used to enrich this database. In the quantitative phase, three different propositions based on the relationships between the selected variables were explored.

The findings of this study reveal that there are four different business model archetypes operational in the field of surplus food redistribution in the Netherlands: 1) the producers - 28 initiatives - included organizations that produce a variety of products from food waste; 2) the food waste restaurants - 6 initiatives - consisted of restaurants that mainly used food waste to cook with; 3) the platforms - 4 initiatives - aimed at connecting supply and demand in the context of food waste; 4) the waste farmers - 7 initiatives - were incorporating food waste in different farming activities. Furthermore, it was recognized that a large number of these initiatives were operating other side activities to create a resilient organization.

With just 6 out of 45 initiatives oriented to the non-profit side of the hybridity spectrum, most of these organizations were found to be profit-driven organizations. Besides, since hybridity is still

an upcoming trend, most of these initiatives are relatively small - employing only one or two people and not having international activities.

Although various hybrid theories had suggestions, no relationship was recognized between the degrees of hybridity and chances to become successful. The other two relations did show some expected dynamics. Different archetypes are dominant in other positions on the hybridity spectrum - meaning some archetypes are more profit-oriented, while others are more related to charities. Finally, the platform archetype showed some remarkable results comparing it to success levels, showing the winner takes it all principle. Besides, food waste restaurants have higher chances of success, while the producer archetype has no very successful cases and counts most of the unsuccessful cases.

New entrants in the surplus food redistribution industry can use this knowledge to wisely select a business model that suits their preferences related to the types of business model archetypes and the hybridity form. Moreover, existing players could adopt some of the knowledge to adjust their businesses and improve their managerial activities to improve their environmental impact. Besides, they can use the database to select potential partnerships with similar or complementary business models or become more visible both individually and as a sector and show the sector’s cumulative impact.

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1. Introduction

Our current food system is unsustainable and characterized by a paradox. Although food production is known to be one of the chief contributors to global climate change and the depletion of essential resources (Stuart, 2009), approximately one-third of all produced food is wasted (Gustavsson, 2011). Furthermore, the amount of annually wasted food is expected to double within the next 15 years (Food and Agriculture Organization of the United Nations, 2013).

Over the last few years, various surplus food redistribution initiatives have started to address the problem of food waste (Davies & Legg, 2018). According to Weymes & Davies (2018), these initiatives involve: *"the collection of edible food that would otherwise be discarded and its subsequent relocation to individuals, organizations or communities."* Two illustrations of such initiatives in the Netherlands can be found in 'Taste Before You Waste', which is an organization that collects almost expired food from various sources and use these ingredients to run a restaurant (Taste Before You Waste, 2019), and 'Kromkommer' - which name is a play on the Dutch word cucumber (komkommer), where the Dutch 'krom' means 'crooked', 'misshapen' but also 'not right' or not correct or according to the rules - that saves misshapen or overproduced fruits and vegetables to create products, such as soups, for the retail sector (Kromkommer, 2019). As shown in these examples, the industry is diverse and dynamic (Davies, 2019) and includes numerous operational business models (BMs) - how a firm does business (Zott et al., 2011).

Although surplus food redistribution has a long philanthropic history (Edwards & Mercer, 2007), the current increase in such initiatives is driven by commercial activities from non-profit organizations, and by for-profit organizations answering the call from society for corporations to create social and environmental value (Ioannou & Serafeim, 2015; Lee & Jay, 2015; Margolis & Walsh, 2003). 'Taste Before You Waste', for example, has commercial activities through the income of its restaurant, but does not distribute its profits to owners or personnel (Taste Before You Waste, 2020); and 'Kromkommer' makes a profit, but prioritizes accomplishing its environmental mission over its financial mission (Kromkommer, 2020).

These surplus food redistribution initiatives pursue an environmental mission by contributing to the resolvement of the food waste issue, often through commercial activities (Weymes & Davies, 2019). As such, most organizations operating in the surplus food redistribution sector can be seen as 'hybrid organizations': *"organizations that combine aspects of typical businesses (undertaking commercial activity) and not-for-profit organizations (pursuing a social mission)" (Battilana, 2018, p3). Hybrids'* dual nature requires these organizations to engage in two or even three missions (financial, and social and environmental). Consequently, they need to prioritize the different missions they follow (Doherty et al., 2014). They can choose, for example, to distribute profit to the owners of the initiative (and act more like a for-profit organization), or decide not to distribute profits (and behave more like a non-profit initiative) (Hoffman et al.,

2012). Moreover, since hybrid organizations run multiple missions simultaneously, they can take various forms depending on whether their social and environmental missions are integrated into their commercial activities (Gamble et al., 2019).

Whereas in the past, these “divergent” missions were seen as incompatible both by scholars, e.g. (Chow & Friedman, 1970; Jensen, 2002; Mersland & Strøm, 2010), as well as by practitioners (Battilana, 2018), nowadays hybrids are promoted as a win-win combination (Haigh & Hoffman, 2011). These organizations are considered a solution for the unwanted environmental and social issues that our current capitalist model brings us and are predicted to reshape our economic structures, e.g. (Battilana et al., 2012; Boyd et al., 2009).

Although surplus food redistribution is a potential solution for food waste and its associated problems (Weymes & Davies, 2019; Alexander & Smaje, 2008; Sert et al., 2016), most surplus food studies focussed on the emergence and management of such waste streams, thereby neglecting redistribution BMs (Midgley, 2014). Furthermore, it is expected that hybrids - with their boundary spanning activities - engage in new and unknown BMs (Durand & Paolella, 2013). However, little is known about the BM characteristics of surplus food redistribution organizations, such as their type of transactions, the revenue models, and the logistics issues (Michelini et al., 2018), and no clear overview of these initiatives in the Netherlands exists.

Furthermore, our understanding of what makes particular surplus food redistribution organizations successful is minimal (Davies, 2019). More generally, clear operational definitions to measure the success of hybrid organizations and databases that solely include initiatives pursuing the same social/environmental goal - and thus have a common, well-defined output - are missing, making it infeasible to compare initiatives and determine success factors (Lee & Battilana, 2014).

Besides, it is questioned whether different hybridity types adopt other strategies (or BMs) to overcome the various struggles of pursuing multiple missions and the role that these models can play in identifying ideal hybrid types (Corbett & Katz, 2017; Gamble et al., 2019). Also, little is known about the consequences of the level of integration of social and environmental missions with commercial activities for the effectiveness and level of success of different businesses (Battilana et al., 2018).

Moreover, existing research on hybrids concentrates around socially driven organizations (Battilana et al., 2015; Mersland & Strøm, 2010; Haight, 2011), while organizations with an environmental mission - like most surplus food redistribution initiatives - are largely neglected (Boyd et al., 2009). Besides, the hybrid literature also focuses on enterprises that do not distribute their profits (Boyd et al., 2009), thereby ignoring hybrids that distribute profit and the variations the hybridity spectrum might behold.

To prevent country-specific (success) factors from influencing the results of this study (Chawla et al., 2010) and include comparable initiatives to keep the analysis manageable, it was

determined to set the boundaries of the research in a specific country. Since the Dutch government has been pushing surplus food redistribution for years (EU, 2019) - working together with scientists and entrepreneurs - making the Netherlands a rich and dynamic surplus food redistribution climate to research.

By outlining and studying surplus food redistribution initiatives in the Netherlands through the lens of hybrid organizations, this study aims at providing insights into Dutch surplus food redistribution organizations and the success of the identified BMs in relation to the initiatives' hybrid characteristics. Thus, the following research question will be addressed:

RQ: What is the relationship between Dutch surplus food redistribution initiatives' 1) operational business model archetypes, 2) degrees of hybridity, 3) and levels of success in tackling the issue of food waste?

To answer the RQ, this study has the following objectives:

a) to identify and categorize the BM archetypes of all surplus food redistribution initiatives in the Netherlands;
b) to determine the degree of hybridity of each initiative;
c) to establish the level of success of different initiatives; and
d) explore the relationship between BM archetypes, degrees of hybridity, and the levels of success and.

In other words, this study aims to find out if different BM archetypes are deployed depending on the priority organizations give to their environmental/social mission and commercial mission; whether organizations with a specific priority for environmental/social mission and commercial mission are more successful than organizations with another preference for missions, and if some specific BM archetypes in the surplus food redistribution sector are more successful than other archetypes.

The relevance of this research is twofold: societal and scientific. First, beginning with societal relevance, this work is the first to consider surplus food redistribution initiatives through the lens of hybrid theory. The use of this lens could deliver valuable practical insights into success factors for surplus food redistribution initiatives. In turn, surplus food redistribution practitioners can use these findings to improve their management practices, thereby becoming more successful in tackling the societal issue of food waste and its related contributions to global climate change and resource depletion. Besides, creating a database including all surplus food redistribution initiatives in the Netherlands will make these initiatives more visible both individually and as a sector, thereby showing the collective impact surplus food redistribution initiatives have and might help individual initiatives to recognize possible novel partnerships in the industry of surplus food redistribution. Ultimately, this research contributes to a better understanding of how the challenges of increasing levels of food waste can be addressed by governments and all other stakeholders in the industry.

Secondly, the research will contribute to the scientific understanding of hybrid organizations and surplus food redistribution initiatives by creating a database including initiatives with a common environmental mission and well-defined output, thereby making it possible to compare their impact. Moreover, classifying the different initiatives supports the understanding of the industry and its different BMs. Furthermore, by researching the whole spectrum of hybrids, important insights can be gained about the degrees of hybridity and if and how this level of hybridity is affecting the success of hybrid organizations. Finally, by selecting hybrids with an environmental mission - a mostly neglected field within the study on hybrids - possible differences between socially and environmentally driven hybrids can be identified.

2. Theoretical Framework

In this section firstly a review of BM archetype literature in general and surplus food redistribution specifically will be discussed. Secondly, this will be followed by treating success in the context of hybrids, followed by a discussion of the distribution of profits and the integration of missions and how these concepts relate to the hybridity spectrum. The chapter will end with a conceptual framework combining various discussed literature.

2.1 Business model archetypes

2.1.1 Categorizing organizations

BM theory suggests that choices in the type of BM could significantly influence an organization's success and should, therefore, not be neglected (Lambert & Davidson, 2013). Besides, to study, evaluate performance, compare organizations, and detect success factors in a particular sector, specifying different organizational models and their different components in archetypes is necessary (Osterwalder et al., 2005). However, there are various possibilities to realize such a categorization. Osterwalder et al. (2005), for example, categorizes businesses based on their value proposition, how they create and deliver value, and how they capture this value. Teece (2010) describes organizations based on how businesses turn resources and capabilities into economic value. However, depending on the goal of analysis, less holistic and detailed descriptions can be useful as well. In a study that aimed at identifying key success determinants and characteristics in the food waste prevention sector, for example, Aschemann-Witzel et al. (2017) categorize these businesses into three types of organizations based on the parts of the supply chain with which they interact.

2.1.2 Relevant variables for surplus food redistribution

It is important to use industry-relevant variables to describe organizations in a useful way. Different studies have tried to capture variations within the surplus food redistribution field. Davies et al. (2017b) and Davies (2019), for example, built a database including 4000 urban food sharing initiatives - surplus food redistribution falls under the umbrella of food sharing - to

present a landscape-level analysis of the active organizations. In a similar matter, Michelini et al. (2018) employ a literature review to identify the most relevant variables to describe, classify, and understand food-sharing platforms that aim at reducing food waste. The variables of both studies are presented in Table 1.

Variables Michelini et al. (2018)
Organizational profile
Delivery models (B2B, B2C, etc)
Types of donors (Farmer, producers, distributors, consumers)
Types of beneficiaries (consumer, non-profit)
Type of transactions (donation or sale)
Social impact (environmental/social)
Management futures (logistics, volunteer engagement, geographic area)
Description of mission (on website)
Characteristics of its offer (Type of product or service)
Benefits by-product claimed

Variables Davies et al. (2017) & Davies (2019)
Location
Type of organization
Goal (economic, environmental and social)
Year of establishment
What was shared (for example, the qualities of materials or information)
How it was shared (for example, the mode of sharing such as bartering, gifting or selling)
Institutional form (for example, whether it is formally registered as a for-profit or not-for-profit initiative)

Table 1. Relevant variables for describing surplus food redistribution initiatives.

2.2 Levels of success in a hybrid context

2.2.1 Profit distribution and performance

Studying why some organizations have a better performance than others is at the core of strategic management (Grunert & Hildebrandt, 2004) and a permanent subject in the investigation of organizations (March & Sutton, 1997). In the case of for-profit companies, the definition is undoubtedly about the maximization of profit (Jennings & Beaver, 1997). Lussier & Pfeifer (2001) offer a practical approach to capture the success of for-profit organizations: to be

considered a success, a business needs to produce industry average profits for the last three years; when not producing profits for the last three years the business is deemed a failure.

Defining success for non-profit organizations is less straightforward. Non-profit organizations are driven towards missions, are frequently sponsored by the government or public funds, and are bound by the non-distribution constraint - which means they cannot distribute profit to those who control the organization (Hansmann, 1980; Johnson, 1997). Therefore, the evaluation of non-profit organizations should be based on the degree of mission accomplishment (Sawhill & Williamson, 2001; Oster, 1995). Yet, in an extensive literature review by Helmig et al. (2014), including 147 different studies around the evaluation of non-profit organization's success, less than seventeen percent of research had mission accomplishment as the dependent variable. This is due to the fact that measuring the achievement of a mission is challenging (Herman & Renz, 1997). Therefore, Helmig et al., (2014) suggest that more research on proxies that capture target achievement in different sectors should be conducted.

Although all hybrids should have a certain level of social/environmental performance as well as being financially viable, the balance between these components varies depending on the positioning of the hybrid between traditional for-profit and non-profit organizations. Some hybrids, for example, choose to distribute their profits to owners or people in control, while others operate more like a non-profit organization that does not distribute profit (Hoffman et al., 2012). If hybrids are successful, therefore, is determined by how these organizations aspire to balance their social and/or environmental mission with the distribution of financial capital and to measure if they achieve these ambitions.

Soh (2012) suggests that hybrids might have difficulties balancing multiple missions. If hybrids fail to balance their missions in the aspired and communicated way, this is called mission drift. Such divergence from the primary purpose or mission could risk the legitimacy, and ultimately be of significant influence for the success of any hybrid (Haigh & Hoffman, 2011). Therefore, for hybrids, measuring their social/environmental and financial performance is not only essential to indicate how successful their strategies are, but also as a tool to identify mission drift (Mersland & Strøm, 2010).

However, frequently, it is not only the individual performance of hybrid organizations that determines their degree of success. Hybrids usually do not have hard competition within their market. Often, they favor inspiring other organizations with their innovations (Haigh & Hoffman, 2011). Hence, imitation by other companies or collaborations with conventional firms that have similar societal goals can sometimes be seen as a success. In these partnerships, hybrids can function as incubators for innovations that can utilize the capacity of the partner to gain in size and impact (Lee & Jay, 2015).

In the case a hybrid organization distributes profits, it would be reasonable to measure the success of the organization based on its financial performance as well as its social/environmental performance (using a proxy for their mission). However, if the organization

is not distributing profits, it appears reasonable to approach the initiative as a non-profit organization and measure its success by selecting a proxy that represents the achievement of its intended target. From a practical perspective (financial data is often private) and because this study centers around the problem of food waste, only proxies that represent success in the context of food waste are used. Aschemann-Witzel et al. (2017) offer two practical proxies that should represent success for food-redistribution initiatives: media/societal awareness - since food redistribution organizations often aim at influencing behavior, and kilograms of avoided waste.

2.3 Degrees of hybridity

2.3.1 Mission motive and integration

Besides choices in the distribution of profits, hybrids are categorized based on the integration of social/environmental missions in their revenue model. Alter (2007) for example, recognizes embedded, integrated, and external hybrids. In this typology, the embedded hybrids have social and economic activities that are unified, the social/environmental mission is the central purpose of the initiative and the beneficiaries are integral to the BM. With integrated hybrids, social and economical activities find overlap, synergies between the missions exist and income generated by the enterprise is used to run the social missions. In external hybrids social and economical activities are only related via their funding relationship: economic activities are used as funding mechanisms for social activities, and beneficiaries are not involved in the economic activities.

Furthermore, Alter (2007) relates embedded hybrids to mission-centric organizations, integrated hybrids to mission-related enterprises, and external hybrids to mission unrelated organizations. A similar typology can be found in the work of Gamble et al., (2019), who recognizes a continuum between the integrated and differentiated types of BMs and suggests an intermediate type that the authors call the partially integrated BM. In this typology, the integrated BM has a social/environmental mission that is integrated into the revenue model; the partially integrated BM is partially integrated into the revenue model; the differentiated BM has a social/environmental mission that is separable from their revenue model. The higher the integration of commercial and social/environmental missions, the lower the risk of tensions between the different missions.

2.3.2 The hybrid spectrum

Alter (2007) organizes both mission motives, use of income, and the accountability of the organization (shareholders vs stakeholders) in a spectrum (figure 1) between traditional for-profit and nonprofit organizations. Organizations with embedded missions which do not distribute profit would be located on the right side of the spectrum - either as non-profit with income-generating activities or as a social enterprise, while initiatives with external missions who distribute profits to owners would likely be located on the left side of the spectrum - either as socially responsible business or corporation practicing social responsibility.

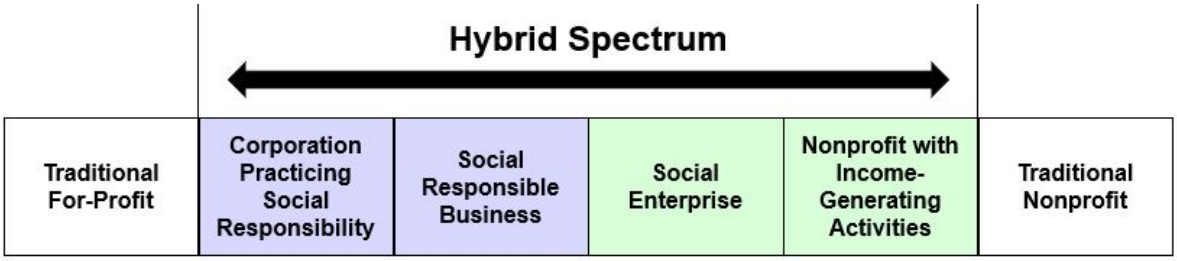

Figure 1. The hybridity spectrum between traditional for-profit and non-profit organizations

2.3.3 Merging theories

When combining Gamble (2019) - which states that higher levels of integration of missions will result in fewer tensions between missions and the potential of mission drift - and Alter (2007) - which proposes a relationship between the integration of missions and the non-profit side of the hybridity spectrum - together, these two studies suggest that the nonprofit side of the spectrum will be less likely experiencing mission drift, and as High & Hoffman (2011) state, mission drift could be a huge factor in the success of any hybrid organization.

2.4 Conceptual framework

As discussed in the theory section, three domains of literature will be treated during the research: BM archetypes, degrees of hybridity, and levels of success (figure 2). The concept of BM archetypes is used to define how an organization does business. Besides, it is used to categorize and compare different initiatives from the same or different sectors. This concept can be found in the conceptual framework in industries in which multiple “expected” archetypes are presented. The second variable (degrees of hybridity) determines where organizations should be placed on the hybridity spectrum between for-profit and non-profit organizations using various criteria. The third concept is based on the success definition of Aschemann-Witzel et al. (2017) which incorporates both the direct avoidance of food waste in kilograms as well as influencing peoples’ food-wasting behavior in his success definition.

Next to studying these three concepts, the relationships between all three variables will be explored. According to the theory, integrated hybrids are expected to be more successful since they will have to deal with less of the issues separated hybrids are coping with. Furthermore, the theory suggests that different positions on the hybridity spectrum will result in other strategies and BMs. Finally, it is expected that choices in the type of BM archetype influence the chances to become successful as an organization. Based on these theories, the following relationships are expected to occur in the data:

Proposition 1 regarding degrees of hybridity and levels of success
The closer an organization is located to the traditional nonprofit side of the hybridity spectrum, the higher their levels of success.

P0: The position of an organization on the hybridity spectrum does not influence their levels of success.

Proposition 2 regarding degrees hybridity and business model archetypes
Depending on the position on the hybridity spectrum, different BMs will be dominant.

P0: There is no relationship between the position on the hybridity spectrum and specific BMs.

Proposition 3 regarding business model archetypes and levels of success
There is a positive relationship between the adopted business model archetypes and the achieved levels of success.

P0: There is no relationship between the adopted business model archetype and the achieved levels of success.

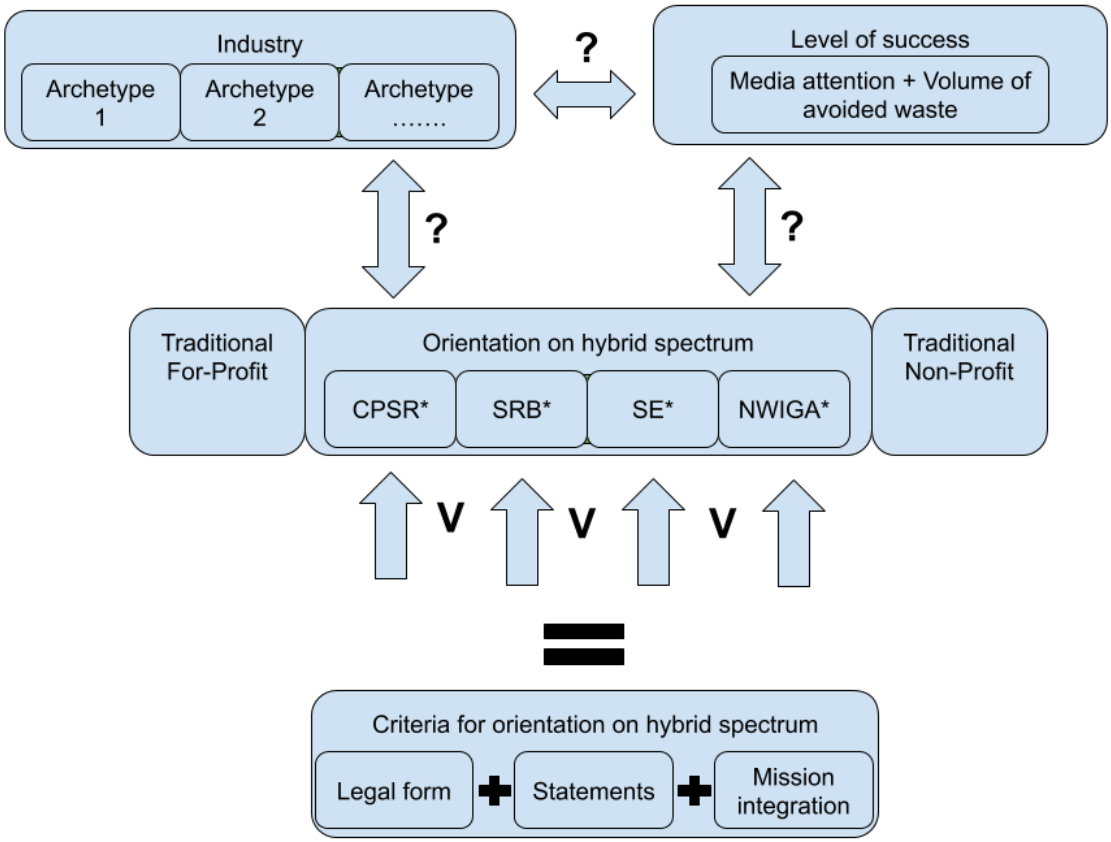

Figure 2. Conceptual framework.

- CPSR = Corporation Practicing Social Responsibility
- SRB = Socially Responsible Business
- SE = Social Enterprise
- NWIGA = Nonprofit with Income Generating Activities

3. Methodology

The four aims of this research were to:

a) to identify and categorize the BM archetypes of all surplus food redistribution initiatives in the Netherlands;
b) to determine the degree of hybridity of each initiative;
c) to establish the level of success of different initiatives; and
d) explore the relationship between BM archetypes, degrees of hybridity, and the levels of success and.

A sequential mixed-methods approach that appears in figure 3 was used to complete these four objectives. In the first phase, data were collected and analyzed in both quantitative and qualitative manners covering research objectives a to c. The follow-up phase mainly consisted of quantitative analyses and covered research objective d.

3.1 Research strategy and design

Firstly, a database including all surplus food redistribution initiatives in the Netherlands was set up. After that, a survey was sent out to all captured initiatives to extend this database - asking detailed questions about used waste streams, organizational characteristics, hybridity, and success. These steps were followed by a qualitative and quantitative analysis of the database and survey results in order to conceptualize archetypes, degrees of hybridity, levels of success, and the relationship between these concepts. As Engel & Schutt (2016) suggest, these steps implicate a sequential mixed-methods design in which qualitative research was followed by quantitative research. Using different methods for different themes expanded the scope of the study (Engel & Schutt, 2016; Greene et al., 1989).

Scientific literature about surplus food redistribution in the Netherlands was not available - e.g., operational BM archetypes, the dimensions, and magnitude of the field, degrees of hybridity, and success levels of active initiatives. Therefore, the collection and analysis of qualitative data were conditional in order to perform quantitative analysis. A quantitative research style was most suitable for the analysis of the relationships between the concepts to make meaningful and generalizable statements.

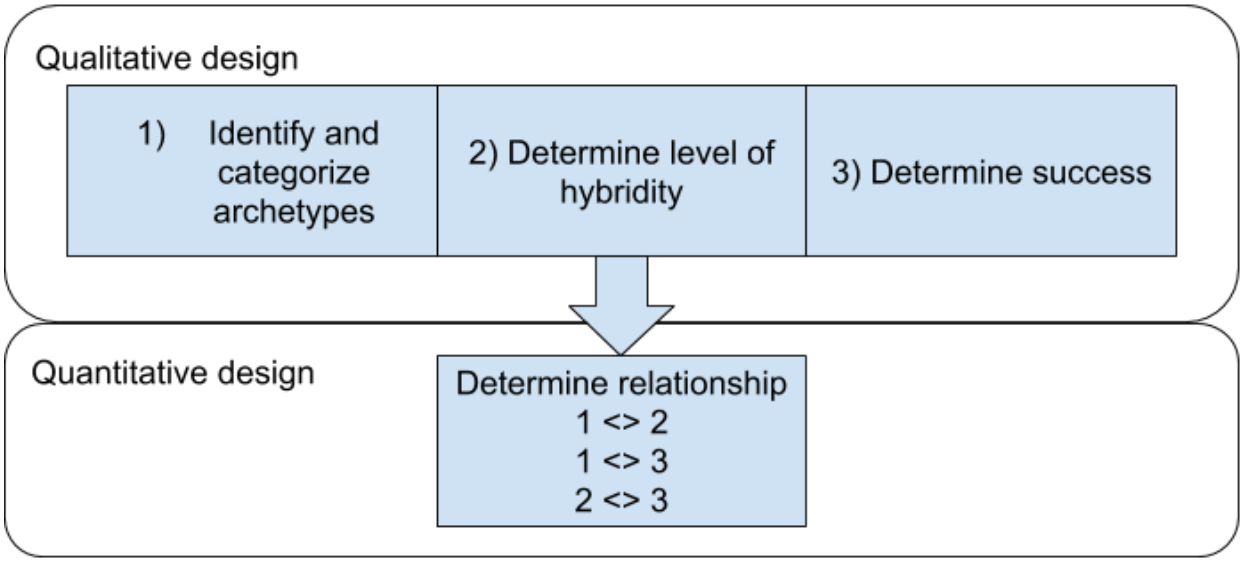

Figure 3. Research steps.

3.2 Data collection and sampling

As aforementioned, multiple approaches for data collection were used during this research. First, desk research was applied to identify and develop a database, including all surplus food redistribution initiatives in the Netherlands.

It can be a complicated process to capture initiatives beyond the mainstream economy - such as surplus food redistribution initiatives. This complexity originated from the variety of organizations this particular sector beholds, with a debatable definition and a population partly represented by informal initiatives not filed by the chamber of commerce. Since the research on such a field requires a fluid and sufficient approach, the creation of the database was performed manually.

By using some evident first search terms - such as ‘food waste initiatives’, ‘food rescue business’, ‘fight against food waste’, ‘residual food flows’ and ‘surplus food redistribution’ (also translated to Dutch) - in the google search engine, a food waste-related database, together with some food waste-related alliances websites arose, which could be used to distill initiatives from. The more comprehensive database used was the ‘Sharecity database’, which includes food sharing activities across 100 cities around the world and covers multiple cities in the Netherlands (Davies et al., 2017a). Furthermore, different alliances were studied to identify initiatives. These included: ‘Samen tegen voedselverspilling’ - a coalition of 64 businesses, scientists, and governmental bodies working together to develop solutions against food waste (Samen Tegen Voedselverspilling, 2019); ‘Verspilling is Verrukkelijk’ - initiated by MVO Nederland - which connected 15 businesses to cooperate in fighting food waste (Verspilling Is Verrukkelijk, 2019); and ‘Food waste experts and MVO Nederland’, which host an online platform to work together on food waste-related issues (Futureproof, 2019).

After identifying the complying initiatives from both the existing databases and different alliances, and through the google search engine, a second searching round to identify more initiatives was started. This round used a snowballing technique for identifying partners, alliances, or “friends” of the already identified initiatives. For example, numerous initiatives were connected with similar organizations on Facebook or promoted comparable initiatives on their websites. The different initiatives were captured manually in an excel sheet with general attributes (e.g., date of establishment, location, and focus/goal of activities), together with the data about archetypes, degrees of hybridity, and levels of success. Although most often the organization’s websites were the richest data source, some initiatives mainly had information available through their Facebook page (especially informal initiatives).

Case selection took place based on the applied definition: *“the collection of edible food that would otherwise be discarded and its subsequent relocation to individuals, organizations or communities.”* To be more specific, organizations that are not responsible for the physical movement of food - for example, when developing technologies for food waste - or that saved food to feed animals were not taken into account. This choice was made since the comparison of success between initiatives would become unfeasible. Besides, in line with the hybrid organization’s context of this research, to be included in the database initiatives had to have commercial activities.

Forty-five different initiatives - of which at least four are no longer in business - were captured and coded into the database. Since these failed operations left their traces in the field, they were included in the analysis. Furthermore, nine pure non-profit initiatives were recorded in the database - some of them operating identical BMs as the hybrid organizations except leaving out the commercial elements. However, these were not taken into account during the analysis process, since they fall outside this study’s hybridity scope.

Although desk-research and the created database were useful for describing the Dutch landscape of surplus food redistribution initiatives and provided knowledge about operational BM archetypes, degree of hybridity and the level of success, some in-depth analysis of specific organizations seemed useful to discuss the gathered results. Therefore, a survey was sent to all identified organizations to complement the database and findings. This survey involved general questions about operating BMs and covered the conceptual framework - treating the surplus food redistribution variables covered, hybridity, success, and more general information about the respondents. The survey followed the structure of firstly including some general questions about the organization and the respondent, followed by specific questions about the origin of redistributed waste streams. This was followed by examining some organizational characteristics (e.g., number employees and volunteers, key-activities, and revenue streams) and was finished by both a hybrid and success section. The software that was selected to develop, send, and analyze the survey was Qualtrics.

3.3 Qualitative data analysis

3.3.1 Business model archetypes

By coding the key activities of the initiatives - filtered from their websites and social media accounts - main BM archetypes were developed to frame the identification, analysis, comparison, and performance evaluation of the initiatives. This coding was done through firstly capturing the main activities - e.g., hosting a restaurant, cooking with food waste, and producing for retail - of the different initiatives. These were analyzed through classifying, coding, and interpretation - a thematic analysis - to form a coding framework. This structure holds the central themes and sub-themes of the data (Ritchie & Spencer, 2002). The identification of themes supported understanding the gathered data and helped recognize archetypes in these main activities. Besides, relevant variables that were extracted from the surplus food redistribution literature were used to describe the different identified archetypes.

3.3.2 Levels of success

surplus food redistribution initiatives are known to have one or both of the following goals: to avoid food from being wasted by either saving it from the bin and giving it a new purpose or by influencing people to waste less food. Moreover, some of these initiatives had social or commercial goals next to these environmental missions. However, this research focused on successfully tackling the food waste issue, ignoring other forms of success. Aschemann-Witzel et al. (2017) offer two working proxies that should represent such success for surplus food redistribution initiatives: media/societal awareness (since surplus food redistribution organizations often aim at influencing behavior) and kilograms of avoided waste. Media/societal awareness was measured by the amount of Facebook likes. Since many “followers” on Facebook is assumed to result in an organization having an impact on more people - thereby influencing their behavior, this seemed like a fair proxy. For the second goal of avoiding kilograms of food waste, numbers about avoided waste on initiatives’ websites or social media accounts, and sometimes even newspapers were used. However, only a percentage (13 of 45 initiatives) communicated this information online. Therefore, since 44 out of 45 initiatives had a Facebook page, the emphasis was laid on the latter - attributing a maximum of two success points for avoided food waste and a maximum of four success points depending on the number of Facebook likes. Besides, since not all organizations were active for three years, it was decided to divide their cumulative performance through the number of years being active to generate an average performance. Between zero and two points could be gathered depending on how many kilograms of food waste they avoided yearly. Secondly, zero to four points could be received depending on how many media/societal awareness (in Facebook likes) the different initiatives scored. For both criteria the initiatives were listed, scoring from highest to lowest for that particular criteria. Then, in the case of avoiding food waste, the list was divided into two, of which the most top-scoring part of the list scored two points, while the lower part still received one point. It was decided to give the lowest scoring group still one point since at least they were

measuring and communicating their avoided waste. All organizations that did not disclose anything about their yearly avoided kilograms of food waste received zero points. The same was done for the number of Facebook likes listed from highest to lowest. Here the list was divided into four equal parts. The best scoring initiatives received four points, while the least scoring initiatives scored one point. Organizations without a Facebook account or that were no longer active scored zero points. Points were summed up, and a list of initiatives scoring between zero and six points arose. Six points meant best in class, while zero points meant the impact of the organization was negligible.

3.3.3 Degrees of hybridity

There were three criteria selected to determine the degree of hybridity. For the first criteria (legal registration), the study looked at their registration form at the chamber of commerce. The different registration forms that were recognized were: besloten vennootschap (B.V.) - Private limited companies in English - vennootschap onder firma (V.O.F.) - partnerships in English - eenmanszaak - solo proprietorship in English - stichting - charity in English - and Informal initiatives: organizations that do not have any registration at the chamber of commerce. When looking at these legal statuses, two relevant hybridity variables emerge. Depending on the chosen registration form, organizations will be able to distribute profit or sell the initiative. Selling an organization and distributing profit could both be attributed to a commercial mentality. However, other forms will withhold initiatives from handling in a profitable way (meaning they can not sell their company nor distribute profits). When an initiative was registered under the first (commercial) category - B.V., V.O.F., and Eenmanszaak, they would receive 0 points and be set at the for-profit side of the hybrid spectrum. However, if an organization was registered under the latter (less or non-commercial) category - Informal initiative or stichting - they would receive two points and move to the non-profit side of the hybrid spectrum. For the second criterium, the study looked at statements and appearance of the initiatives websites. Through google advanced searching, websites, and Facebook pages were screened on keywords such as social-enterprise, non-profit, Profit, motive, reinvestment, etc. Besides, various Dutch translations were integrated into this scan. When these keywords would propose a hit, then contextual paragraphs of the keyword were read. However, if no hits were found based on the used keywords, the about us/what we do pages were read to look for any hints which would point to either a profit/non-profit appearance/behavior. This criteria again was worth a total of 2 points. However, it should be noted that distributing these points was personal work done manually. In some cases, it was clearly stated that an organization was not distributing profits and that all potential profits would be reinvested in the organizations' environmental mission - which would get them two points). Others stated they were operating as a social enterprise (getting them one point). Again others were not making any statements about profits at all (getting them zero points). The final criterion was whether or not the initiative integrated its commercial and social/environmental activities (integrated, partially integrated, separated) in its BM. Since Alter (2007) argues that separated missions would be a for-profit attribute and integrated missions would be related to the non-profit side of the spectrum, one or two points were distributed depending on the level of integration of environmental missions in the BM.

Determining this level of integration was done using the practical guide of Gamble et al. (2019). This meant asking the question: Does an initiative make money the same way as they have a positive impact on the environment? The possible answers were: yes, in between, no. Two points were given if the BM was integrated, while one point was given for partially integrated and separated BMs. It was also decided to give one point to separate BMs since they still work with food waste and should not end up being listed as a traditional for-profit organization. Finally, two points were assigned for each of the three criteria, which lead to a score. The criteria were lined up in such a way that the higher number of points an initiative receives, the higher the chances that this organization would be located close to the non-profit side of the hybridity spectrum. The opposite is true for organizations that scored little to no points. From those initiatives, it would be expected that they are more profit-orientated. An overview of the variables and criteria is given in table 2.

Variable	**Composition of variable**	**Possible scores**
Business model archetype	Key-activities	
Hybridity	Legal registration	0 - 2 points
“	Integration of missions	1 - 2 points
“	Statements on website	0 - 2 points
Success	Facebook likes	0 - 4 points
“	Avoided kilograms of food waste	0 - 2 points

Table 2. Variables and criteria.

3.3.4 Survey analysis

In total, the survey was sent to 45 initiatives of which eight organizations replied and filled in the survey. The list of participants can be found in table 3.

Name of organization	Activities
De Fruitmotor	Juice from residual flows
Kromkommer	Soup from unwanted vegetables
Van Eigen Deeg	Cookies from old bread
Trash'ure Taarten	Cakes and sweets for events from different waste sources
Taste Before You Waste	Organizing dinners from waste streams of the retail sector
Jacobs juice	Juice and food bar using waste streams
Uitvalvoedselweeropweg	Organizing catering for events using food waste
Falafval	Falafel from juice pulp of juice industry

Table 3. Participating initiatives of the survey.

3.4 Quantitative analysis

The quantitative and qualitative data was collected through desk research, and the survey was first entered into google sheets. Variables were converted for analysis using numerical labels. Data was then transferred to Stata for quantitative analysis. The quantitative data collected through desk research and the survey were firstly summarized through descriptive analysis. This analysis showed a reflection of the Dutch landscape of surplus food redistribution initiatives through percentages, frequencies, and modes (Mann, 2007). These descriptives offered a first understanding of the collected data. The descriptive statistics were followed by inferential statistics to describe and disclose relationships between the different concepts.

3.4.1 Nature of variables

The three studied variables were degrees of hybridity, BM archetypes, and the achieved levels of success. First, the nature of these variables was determined before studying the relationships between these concepts.

3.4.1.1 Degrees of hybridity

This concept captured the position of initiatives on the hybridity spectrum. It was based on the criteria legal registration at the chamber of commerce, statements and appearance on initiatives websites and social media related to a certain position on the spectrum, and whether they have integrated social/environmental activities in their business model.

Firstly, it was determined in which of the two categories (either quantitative or categorical) the variables could be located. The variable was not originating from the quantitative category since the data did not represent real amounts - that is, a specific value can be subtracted or divided. If an organization scored six points on the hybridity criteria, and another scored one point, this does not mean that the one that scores six points is six times more of a non-profit initiative than the one that scores one point. Therefore, it had to be a categorical variable; specifically, an ordinal variable, since it has a certain order. If an initiative has more hybridity points, this means it can be located closer to the non-profit side of the spectrum.

3.4.1.2 Business model archetype

This variable of a categorization includes the different groups of archetypes, which are based on the key activities of the various businesses. These different archetypes represent groups with no specific order or ranking between them. Therefore the nature of this variable can be labeled nominal.

3.4.1.3 Level of success

This concept was based upon two criteria - media attention measured in Facebook likes and avoided food waste measured in kilograms of avoided waste every year. For the kilograms of avoided waste, the total list of initiatives that were communicating their avoided waste performance, the list was divided into a total of two groups. The group with better performance received two points, while the second group received one point. In total, therefore, each initiative could receive zero to six points. The nature of this variable - just as degree of hybridity - is ordinal, since there is a certain ranking or order to be recognized. Organizations that received fewer points were performing less - according to the definition of success used in this research - than organizations that score more points.

As shown, the variables studied in this research were either ordinal or nominal - which are both under the umbrella of categorical variables. In contrast with quantitative variables, categorical variables do not represent real amounts, which cannot be divided, subtracted, or added. Instead, they are groupings of some kind. The difference between ordinal and nominal variables is that nominal variables know no specific order - as for example, male and female - while ordinal variables can be ranked - e.g., finishing position in a race. In the case of this study, the ordinal variables included degree of success (0 > 6) and level of hybridity (0 > 6). The nominal variable only included the type of BM (1 > 4).

3.4.2 Hypotheses

For this research, the relationships between three different concepts were explored. For these relations (1 > 2, 2 > 3, 1 > 3) three different null-hypotheses with accompanying alternative hypotheses were lined up. The null-hypotheses could prove that there are no relationships recognized, while the alternative hypotheses could prove that there is a positive or negative relationship.

3.4.3 Statistical tests

In general, there are two groups of statistical tests distinguished in quantitative research: parametric and non-parametric tests. Some popular parametric tests include regression tests (simple - and multiple - regressions and logistic regression) and comparison tests (e.g., ANOVA and MANOVA). Parametric tests regularly have stricter requirements, which results in stronger conclusions about the data. One requirement for parametric tests to be executed is that the dependent variable must be quantitative and continuous. Since this study has no such variables, it was left with non-parametric tests to be used. However, various non-parametric tests also require quantitative variables. Down below various tests are evaluated:

The **Chi-square test** seemed applicable for hypotheses two and three since the data fulfills the assumptions of categorical variables. The relationship between only two variables is tested and the independent variable should consist of at least two or more independent groups (Mann, 2007). However, the data did not meet the assumption that the expected frequency of 5 is present in every cell. For example, level of hybridity (1 > 6) * BMs (1 > 4) = 24. 24 * 5 (expected frequency) = a minimum population of 120 initiatives is required to test hypothesis 2. For hypothesis 3 BMs (1 > 4) * level of success (0 > 6) = 28. 28 * 5 (expected frequency) = a minimum population of 140 initiatives is required to test hypothesis 3.

Fisher's exact test is an alternative follow up on the chi-square test when one or more cells have an expected frequency of five or less since the Fisher's exact test does not assume a minimum frequency per cell. However, Fisher's exact test is made for 2 * 2 tables. Since all hypotheses need more than 2 * 2 tables, this test was not applicable (Mann, 2007).

The **Spearman rank-order correlation** test seemed promising to test hypothesis 1 since it requires two ordinal variables. However, before such a test could be applied, it is first advised to test in a scatter plot whether any sign of a monotonic relationship can be recognized (Mann, 2007). When looking at the plot, it can be stated - without a doubt - that no such relationship exists between the concepts of hypothesis 1.

The **Kruskal Wallis test** could work for hypotheses 2 and 3 since the data fulfills the first three assumptions required for the test: the dependent variable should be ordinal, the independent variable should consist of two or more categorical independent groups and there should be independence of observations. The fourth assumption was somewhat different from the earlier discussed assumptions and required checking whether the different groups have similar or different distributions. When tested, both hypotheses 2 and 3 had groups with different distributions. Since distributions between groups vary, the Kruskal Wallis test could only be used to compare mean ranks of groups rather than carrying out the test to compare medians of dependent and independent variables. However, the data for hypotheses 2 and 3 fail to fulfill the requirement of having sample sizes as close to equal as possible (Mann, 2007). However, both for hypotheses 2 and 3 already in the BM archetype variable, some groups have been

measured 28 times and other groups had only four counts. Therefore, the test did not seem suitable.

The **Wilcoxon-Mann-test** is not suitable since it requires the independent variable to consist of only two groups. All hypotheses have more than two independent variables (Mann, 2007).
Since no statistical test (parametric or non-parametric) seemed to fit the research data, it was not possible to significantly verify whether the alternative hypotheses could be accepted or needed to be rejected (Field, 2013). In the absence of available statistical tests, the study used exhaustive descriptive statistics, including boxplots, scatterplots, and other graphs, to make meaningful conclusions about the data. Moreover, rather than significantly testing hypotheses, this research explored the relationships between concepts.

3.5 Research quality indicators

The condition of qualitative research is usually captured in three concepts: construct validity - the accuracy of the research findings, internal validity - the establishment of a true cause and effect relationship, and external validity - the extent to which the findings are generalizable across groups (Bryman, 2016). The mixed-methods design is known to strengthen construct validity. This results from the triangulating nature of the mixed-method design, which uses different methods to measure the same concept. In this study, both desk-research, as well as surveys (quantitative and qualitative), strengthen each other (Bryman, 2016). Moreover, validity was ensured by directly operationalizing the conceptual framework in the measurable and usable variables in both the database and survey (Bryman, 2016). Furthermore, findings were compared with scientific evidence. Finally, the reliability of the research is guaranteed by documenting each step of the research process (Bryman, 2016).

3.6 Operationalization of concepts

The operationalized conceptual framework for both desk-research and the survey can be found in appendix A.

4. Qualitative results

The qualitative part of this mixed-method study used both the database and survey as input for analysis. Firstly, the database analysis is covered through a description of the database in general, followed by the identification of archetypes, degrees of hybridity, and levels of success. The second part of the qualitative analysis focuses on the survey results and follows a similar structure of archetypes, hybridity, and success. In this section a general description of the database will be presented discussing numbers of initiatives counted, establishing years, geographies, registration types, country of origin, and initiatives that are no longer active.

4.1 General database description

4.1.1 Numbers of initiatives

In total, 54 initiatives were captured by the database, of which nine had to be deleted since they could not meet the hybridity requirement - meaning they were pure non-profits. The most famous example of such a non-profit player can be found in de Voedselbank, which collects otherwise wasted food and offers this to people in need (Voedselbank, 2020).

4.1.2 Year of establishment

What is interesting about the starting date of the initiatives is that the vast majority (all organizations except for two) were established during, or soon after the financial crisis (2007 - 2011). Furthermore, about 70 percent of all organizations are five years or younger. Therefore, the redistribution of food seems like a recent trend. The cumulative growth of initiatives is given in figure 4.

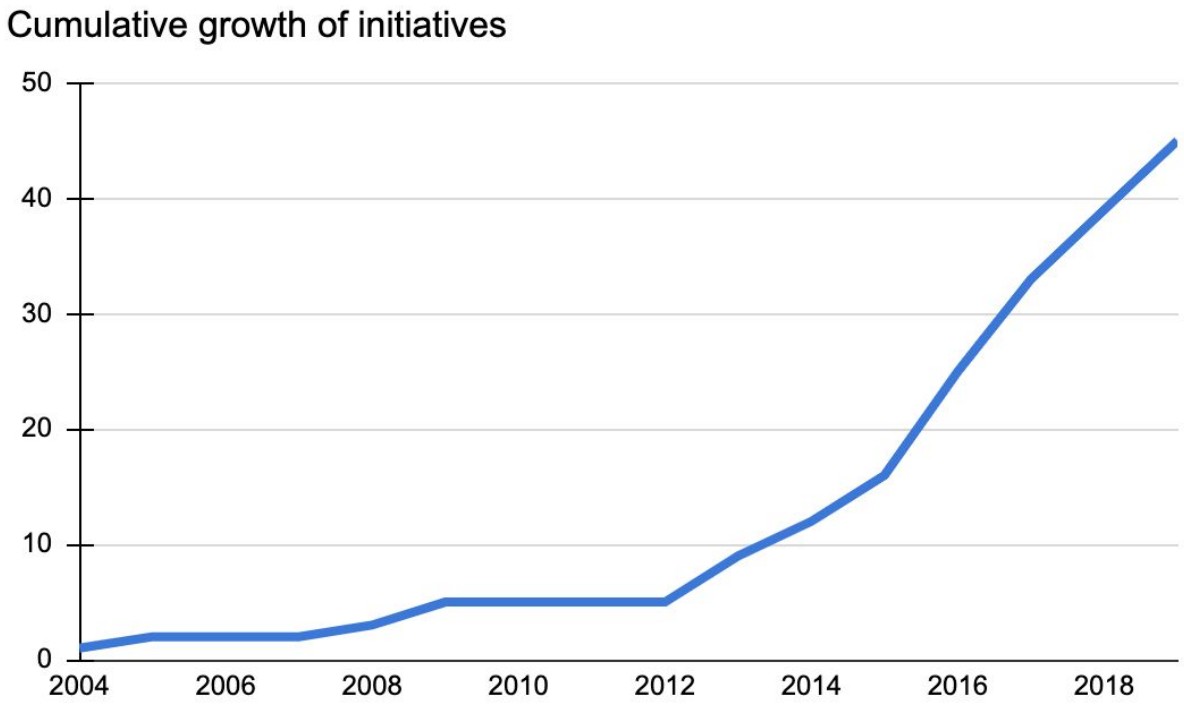

Figure 4. Cumulative growth of initiative per year.

4.1.3 Geographies

From the 45 identified initiatives, the vast part is based in Amsterdam (18), followed by Rotterdam (5), Utrecht (5), Tilburg (3), and Nijmegen (2). The remaining activities are spread over 12 different cities and villages, with only one initiative identified per city/village. What is

remarkable about the geographies of the identified initiatives is that about 60 percent of the initiatives are located within the top 10 of the Netherlands' largest urban areas. While the remaining 40 percent can be found in smaller cities or villages and some in more rural areas.

4.1.4 Standard Industrial Classification

An attribute of the different identified organizations is that they are registered under a variety of standard industrial classification (S.I.C.) codes. In total, the identified initiatives are registered under 25 unique S.I.C. codes. Moreover, only five classification codes (i.e., 'Event catering'; 'Commercial intermediation in food, beverages, and tobacco'; 'Other services'; 'Manufacture of bread and fresh pastry products'; 'Manufacture of other food products') appeared multiple times in the database. These various registration codes - which are meant to categorize businesses within different groups - already hint to the diversity of activities and BMs in the surplus food redistribution field.

4.1.5 Origin

Although there are two examples of initiatives present in the database that started outside of the Netherlands (e.g., Too Good To Go and Fair insects), all other organizations began in the Netherlands. Furthermore, there were only three initiatives that started in the Netherlands and went international. This shows that the current redistribution initiatives are national organizations that either did not manage to grow outside of the Dutch borders or did not aspire to do so.

4.1.6 Percentage no longer active

From the included initiatives, at least four organizations stopped being active. Although the period in which these organizations stopped is not entirely known, most organizations started only five years ago - meaning most of the bankrupt organizations likely went bankrupt in the last five years. This was identified either by a permanent stop of activities on social media and their website or through unsubscription at the chamber of commerce. Although surely not all bankrupt organizations are captured by the database, this seems like a fairly small number.

4.2 Categorize archetypes

By coding the key activities of the initiatives, insight into the variations between these businesses was gained. Some examples of key activities are producing products for retail; collecting food waste; running a food waste restaurant; working with people who have poor job prospects. Through these key-activities, BM archetypes were developed to frame the identification and analysis of different initiatives. Furthermore, different variations within these main archetypes were recognized as subcategories. For example, subcategories could differ in the origin of their food waste, revenue streams, or legal status.

Although a few initiatives ran multiple archetypes, it was manageable to distinguish main BM archetypes with possible sub-BMs. The recognized archetypes are Food waste restaurant;

Platform; Producer; and Wastefarmer. The initiatives per archetype can be found in figure 5. The identified archetypes will be discussed down below.

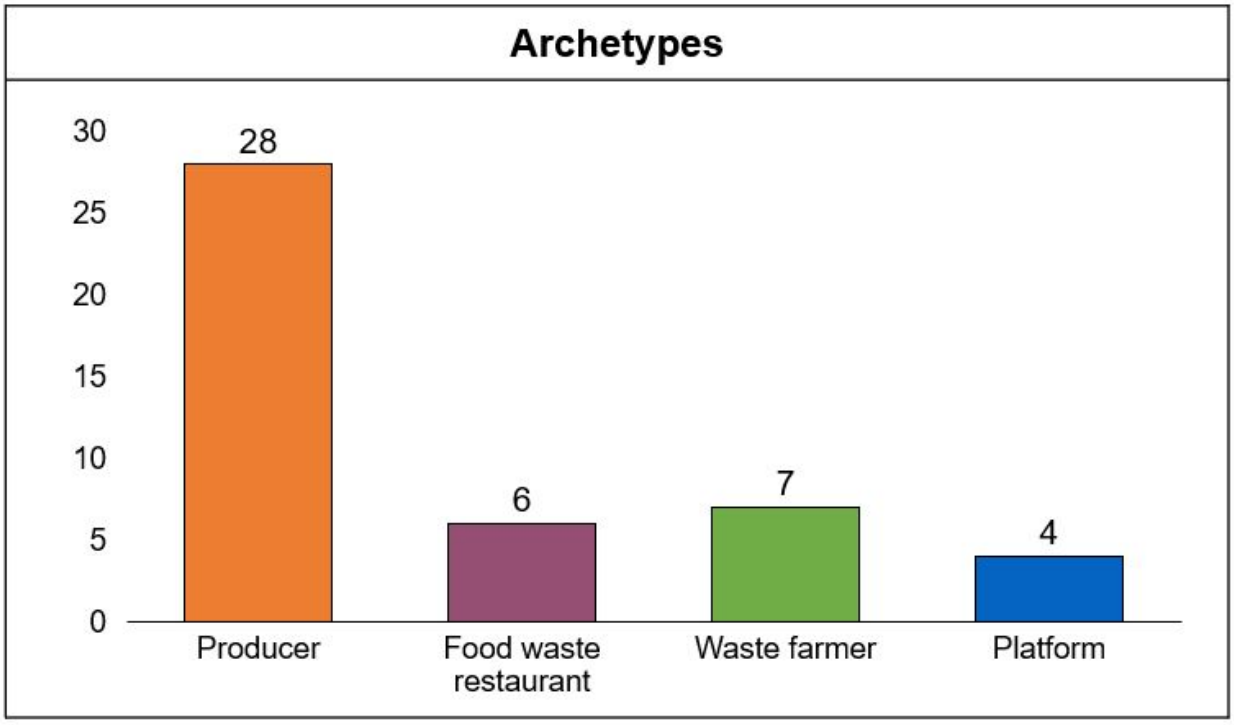

Figure 5. Initiatives per archetypes.

4.2.1 The producer archetype

The most counted BM archetype - 28 out of 45 initiatives - consists of organizations that produce products - for example, jams, meat substitutes, ice teas, and bread - mainly for retail. A variation that partially defined what type of producer they were is how they buy/get their waste streams. Although not all organizations communicated their source of food waste, different groups within the archetype were identified. The vast majority of producers got their waste streams directly from farmers or indirectly through wholesalers. These products are rejected by the usual market because of their appearance or overproduction. However, there were producers who collected their waste streams from other sources. At least two initiatives recognized waste streams at farmer processes on a great distance from the Netherlands and decided to actively work together with these farmers to produce banana bread with otherwise wasted bananas from a farm in Ecuador (i.e. Sunt Food) or Ketchup from rejected tomatoes at farms in Kenya (i.e. the Ketchup Project). Another variation within the producers' archetype used waste streams from side streams of the production processes of other factories (e.g., brewers' grain from the process of brewing beer for producing bread - i.e., de Bierbakkers, or old bread to produce grilled sandwiches - i.e. Tweede Jeugd) or used their own residual streams to create new products (e.g., a bakery that opened a store to sell day-old bread - i.e., bBrood, or a fries factory that brews beer from its potato rest streams - i.e., Friethoes). Another

variable within the archetype of producers was found in the workforce of the producers. Although most of the producers did not communicate if they worked with particular categories of employees, at least seven initiatives did work with specific groups of employees (e.g. people with poor job prospects, poor farmers in Kenya and Ecuador, lonely elderly, and immigrants) to create better life circumstances for these people. The vast part of products created by producers was sold through indirect retail channels. Other indirect channels identified are webshops from third parties, restaurants, and wholesalers. However, some initiatives had their own sales channels, e.g., through webshops, or a store. A summary of the archetype can be found in figure 6.

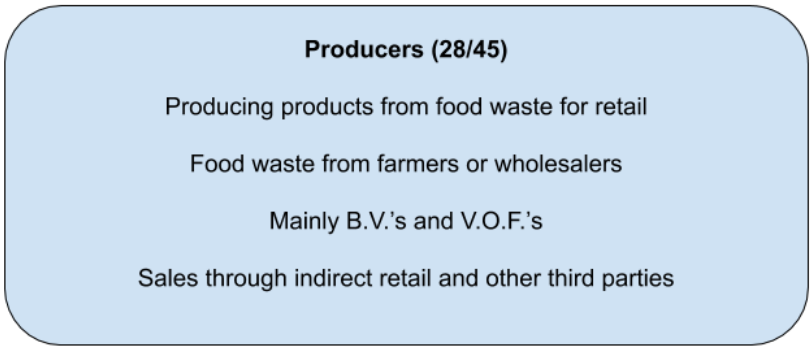

Figure 6. Summary of the producer Archetype.

4.2.2 The food waste restaurant archetype

The second BM archetype consists of six initiatives that run restaurants that (mainly) use food waste streams for cooking with. Besides their restaurant, most of these initiatives have side activities. For example, organizing workshops about food waste (e.g. Taste Before You Waste), running a food waste platform (i.e. Instock), organizing a free supermarket once a week (e.g.. Taste Before You Waste and Guerilla Kitchen), etc. A distinctive difference with the producer archetype can be found in their group of waste stream suppliers. Whereas the producer mainly received their waste streams from farmers, the restaurants are mainly supported by retail/food service waste streams. These waste streams have different characteristics. While waste streams from farmers originate from overproduction, or because of their “odd” appearance, the waste streams from retail/food services consist of almost expired food. In this archetype, less variation between suppliers exists. However, one initiative used residual flows of factories to produce food. Although the B.V. and V.O.F. did not make statements about their employees, the informal parties and Stichting seem to work mainly with volunteers. All captured initiatives have sales through their restaurant and could be labeled as asset sales. However, since most initiatives in this archetype had multiple side activities, it is expected that many of them were making turnover in other ways. A summary of the archetype can be found in figure 7.

Figure 7. Summary of the food waste restaurants Archetype.

4.2.3 The platform archetype

The platform archetype BM is represented by four initiatives (i.e., Too Good To Go, Bubba, No Food Wasted, and Uitvalvoedselweeropweg) and aims at connecting surplus food streams with people in need of these streams. In addition, the food waste restaurant Instock is also hosting a platform that connects farmers with restaurants. In the platform archetype, the origin of food waste streams is the most diverse. The platform archetype is the only business model in which waste streams from consumers are redistributed (i.e., Bubba - however, this platform no longer exists). Furthermore, there was an initiative that uses waste streams from both retail and farmer (i.e. Uitvalvoedselweeropweg) and two more that used waste streams from retail/food services (i.e., Too Good To Go and No Food Wasted). The farmer was mostly absent as a supplier in this archetype. A summary of the archetype can be found in figure 8.

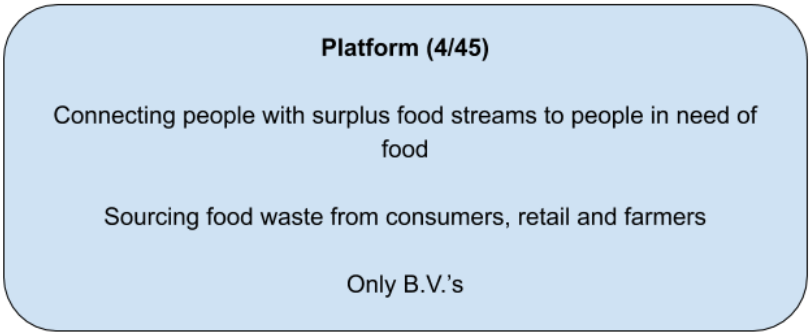

Figure 8. Summary of the platform Archetype.

4.2.4 The waste farmer archetype

Seven initiatives were categorized under the waste farmer archetype. Their business is mainly built around farming on food waste. This group is unique in the origin of their waste streams. Other than from retail or farmers, the primary source of input for this archetype is generated by restaurants. These food waste streams principally consist of used coffee grounds. The vast part

of the nutritional value of the coffee remains after being used. Different types of mushrooms are grown (by i.e. Containing Mushrooms, Gro Together, Rotterzwam, Zuiderzwam, Fungi Factory). However, a second BM within this archetype collects food waste streams from farmers and producers to grow different types of insects (i.e., De Krekerij and Fair Insects)). Little can be found about employment within this archetype. However, it is recognized that especially the mushroom farmers use volunteers to, for example, collect the coffee waste and work on their mushroom farm. Most sales take place indirectly, through restaurants and retail sales. A summary of the archetype can be found in figure 9.

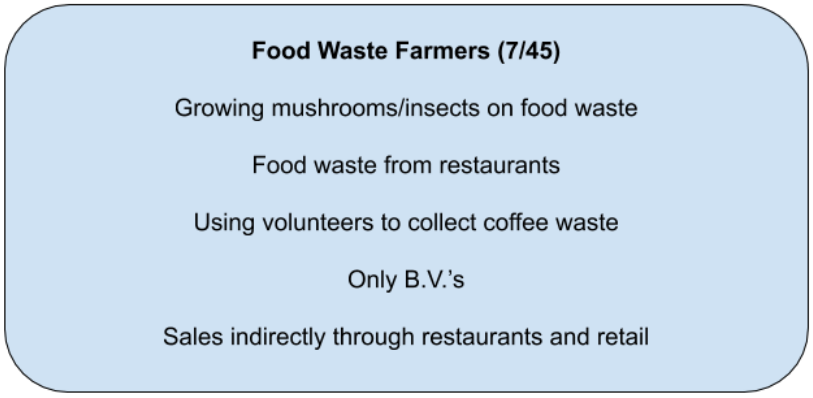

Figure 9. Summary of the food waste farmer Archetype.

4.3 Determine degree of hybridity

The level of hybridity of organizations was measured using three criteria: legal registration at the chamber of commerce to determine whether or not an initiative could be distributing profits or sell the organization, statements, and appearance on initiatives' websites and social media - for example if they made statements about being a non-profit organization or reinvested all their profits for the environmental/social objective of the organization, and whether or not the initiative integrated commercial and environmental activities (integrated, partially integrated, separated) in its BM.

4.3.1 Legal status

The most counted legal status was the B.V. with a total of 26 counts, followed by the V.O.F. with a total of nine counts. Furthermore, three stichtingen, three eenmanszaken, and two informal initiatives were counted. Since only informal initiatives and stichtingen are not able to either distribute profit or sell the company, these were the only organizations that received the full two points. All other initiatives were not receiving any points for this criterium. The distribution of initiatives per legal form is presented in figure 10.

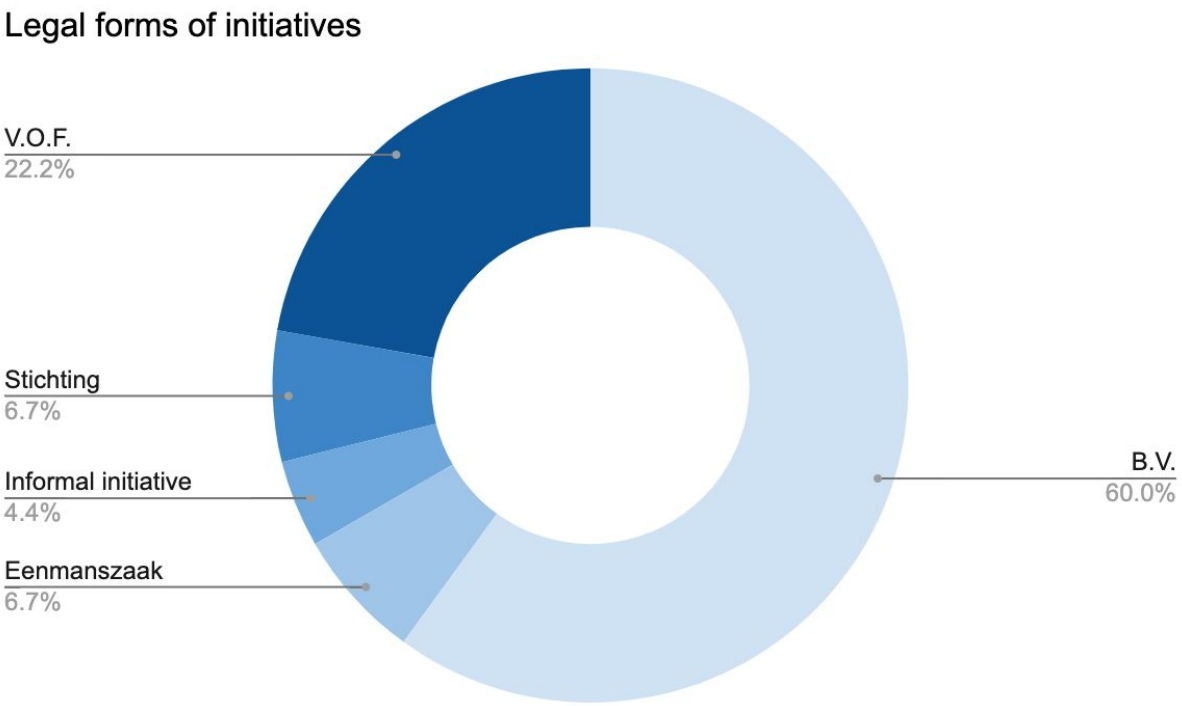

Figure 10. Legal registration at the chamber of commerce.

4.3.2 Statements and appearance

For this criterion, the group with zero points consisted of 28 organizations. Zero points were only distributed to organizations that were either not mentioning anything about their profit handling or simply stated they were a for-profit initiative. A second group consisting of 13 initiatives were receiving one point for statements on their website. One point was distributed to organizations which, for example, stated they were a social enterprise, reinvesting parts of the organization's profits in the sustainability goals of the initiative, or were doing extra activities to, for example, work together with people with poor job prospects. Only four organizations were receiving the full four points meaning they were communicating their non-profit intentions. The points that were scored per initiative are presented in figure 11.

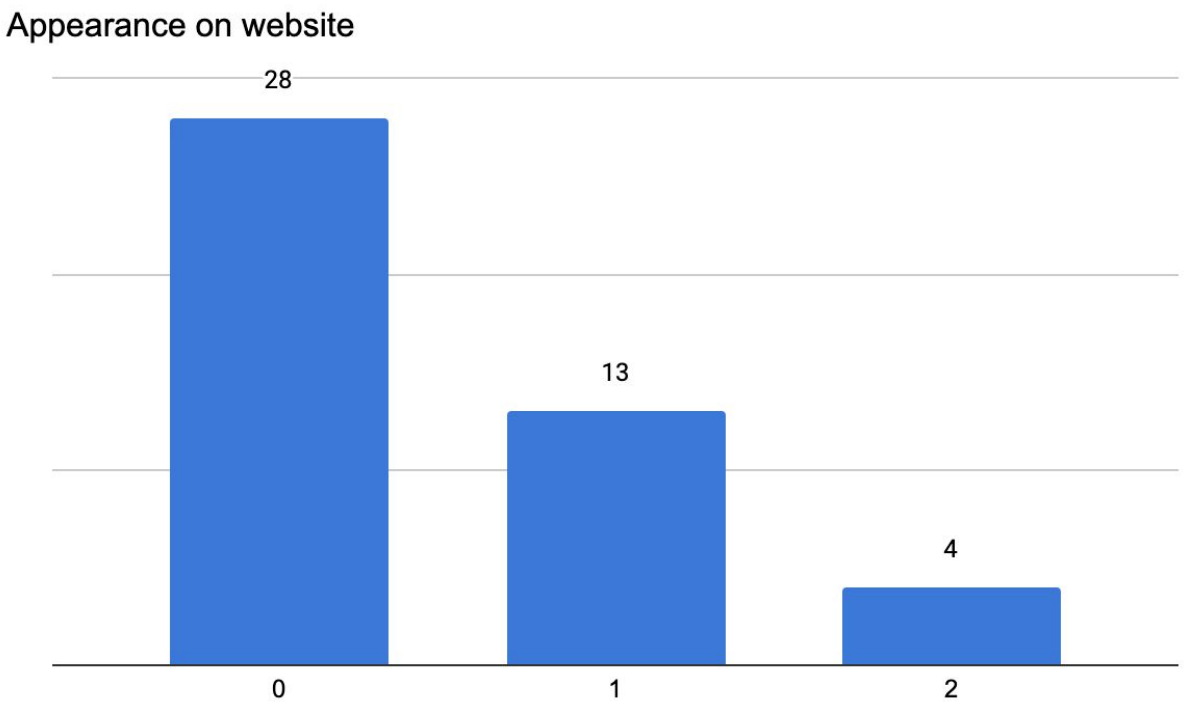

Figure 11. Distributed points about the statement on initiatives' websites.

4.3.3 Integration of missions

In this category, points were distributed based on the practical guide offered by (Gamble et al., 2019). As explained in the methodology section, they distinguish three types of mission integration in the BM: integrated, partially integrated, and separated. Most initiatives were labeled as having integrated environmental and commercial missions. Since all organizations use food waste in their BM, it seems logical that most of them make money in the same way as succeed in their environmental goal. If they sell more products, they need to collect more food waste (which therefore does not end up being wasted). At the same time, if they sell more products, more people know about their mission, thereby indirectly influencing people as well in their food waste behavior. There were, however, initiatives that were labeled as partially integrated or separated. For example, some organizations only had one (out of many) product lines, which was actually based on food waste, while all other products were not. Other organizations were just a project of a larger organization, which means it was separated from the main BM. Nine were labeled as partially integrated, three as separated, the other 33 organizations received the integrated label and therefore received two points, meaning they were located more to the non-profit side of the hybrid spectrum. The points per initiative scored are presented in figure 12.

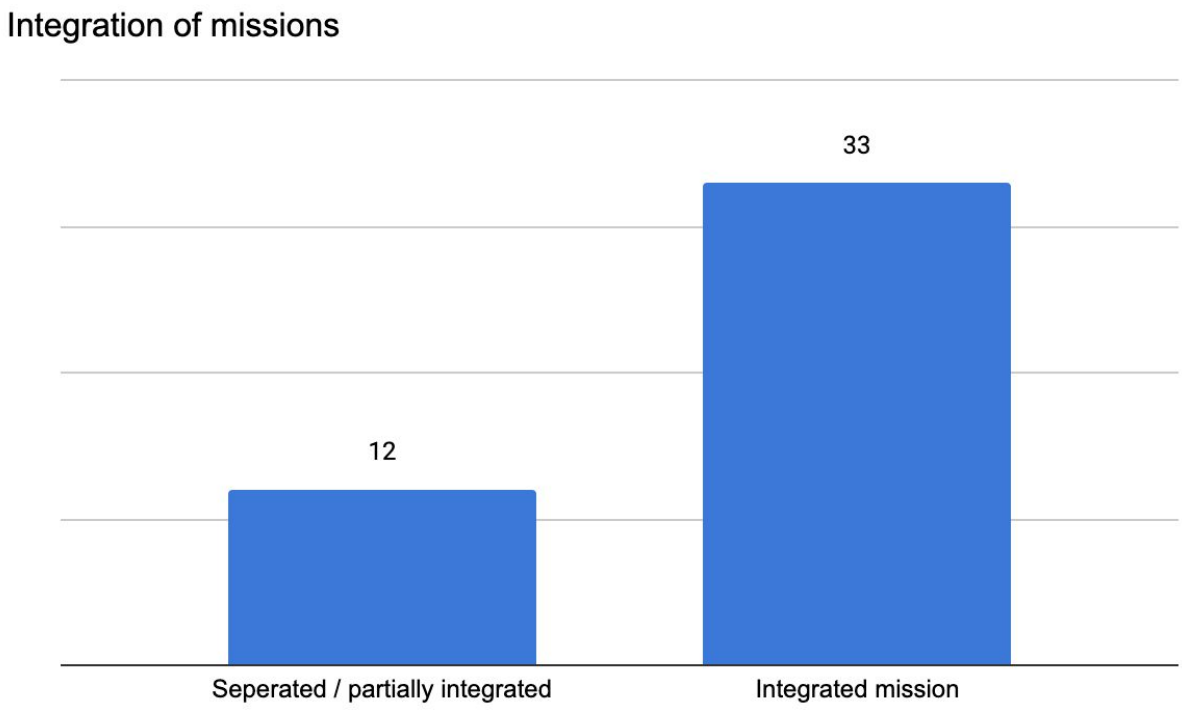

Figure 12. Integration points per initiative.

4.3.4 Numbers per type of hybridity

After the process of going through the three criteria, each initiative was able to collect between one and six points. The higher the number of points scored, the more an organization should be placed close to the non-profit side of the hybridity spectrum. The lower the number of points scored, the more profit-oriented the organization was. The initiatives per degree of hybridity can be found in figure 13. In which the purple-colored organizations are located closer to the for-profit side of the hybridity spectrum, grey-colored initiatives find themselves somewhere in the middle of the spectrum while green colored organizations are found close to the non-profit side of the spectrum.

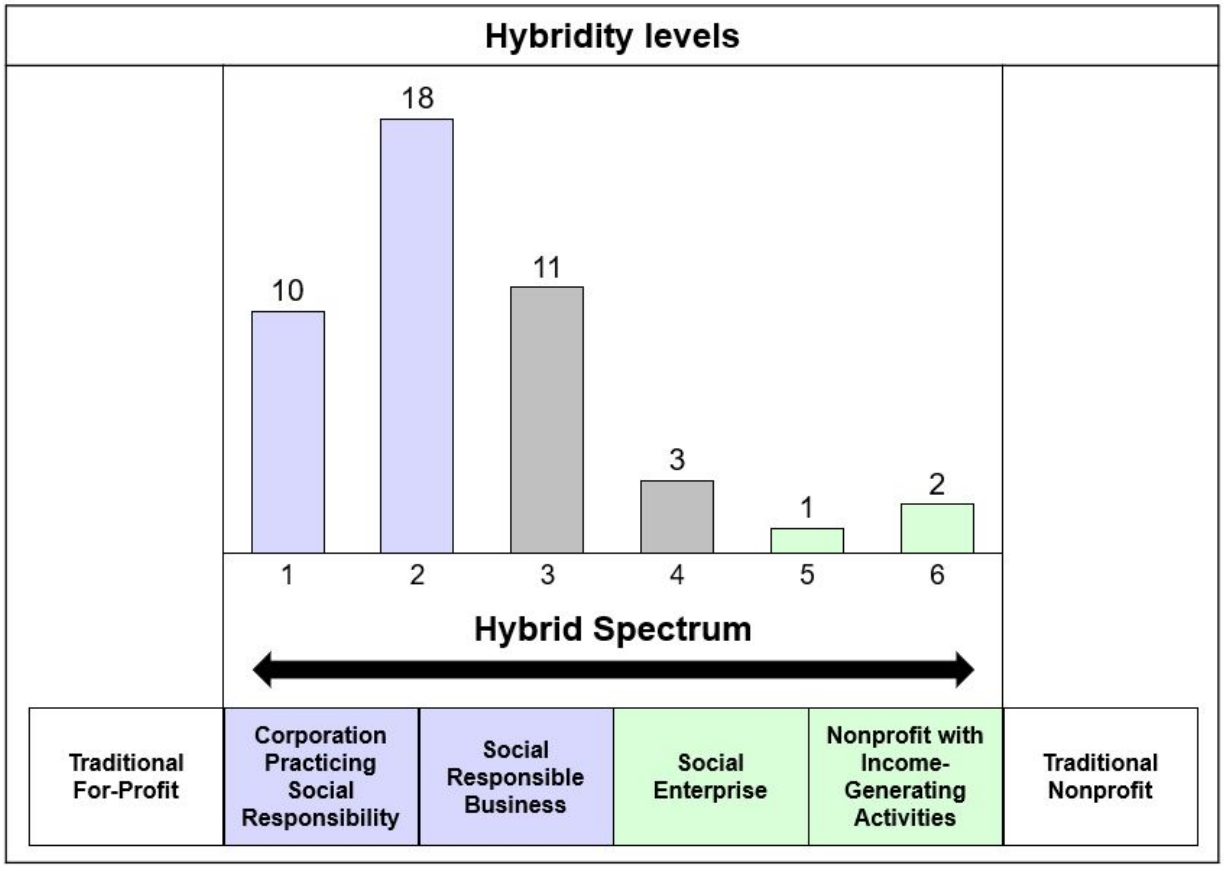

Figure 13. Counted initiatives per degree of hybridity.

4.4 Determine success

As stated in the methodology, the performance of initiatives was based on their social media activity - measured in the number of Facebook likes - and statements about the kilograms of avoided food waste every year. The initiatives were able to score between zero and two points for their performance in the avoided food waste category and between zero and four points based on their quantity of media attention measured in Facebook likes.

4.4.1 Societal awareness

The quantity of media/societal awareness shows a considerable span - from 58 to over 320.000 likes. What might not be surprising is that an initiative that started outside of the Netherlands and later settled in the Netherlands is the organization that shows the highest societal awareness - Too Good To Go. This organization has more than ten times more Facebook likes than the second-highest-rated initiative. Of course, this is (partially) because this organization has activities in at least eight different countries. Furthermore, this is a platform whose natural habitat is the online environment, making it more susceptible to the chosen proxy of Facebook likes. However, three other food waste restaurants can be found in the top five of most

(Facebook) liked organizations. The distribution of initiatives per number of likes is given in figure 14.

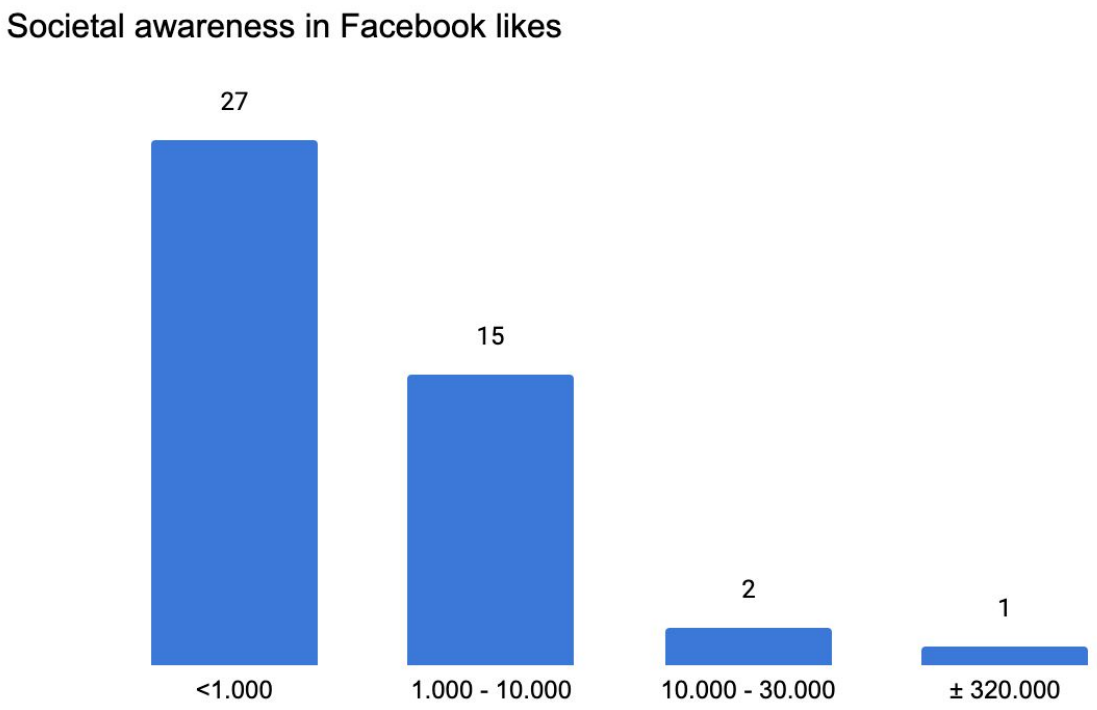

Figure 14. Societal awareness in Facebook likes per initiative.

4.4.2 Avoided food waste

Only a small group of the initiatives (11) presented their performance in terms of avoiding food waste. These numbers varied between about 100 kilograms (Van Eigen Deeg) to almost 5 million kilograms (Too Good To Go) on a yearly basis. Other large players in comparison with the rest of the list, however small in comparison with Too Good To Go, are Instock with about 850000 kilograms of avoided food waste per year and Food fellow which saves around 30000 kilograms yearly. The percentage of initiatives that did communicate their avoided kilograms of food waste are presented in figure 15. The numbers of the initiatives that did communicate their avoided kilograms can be found in table 4.

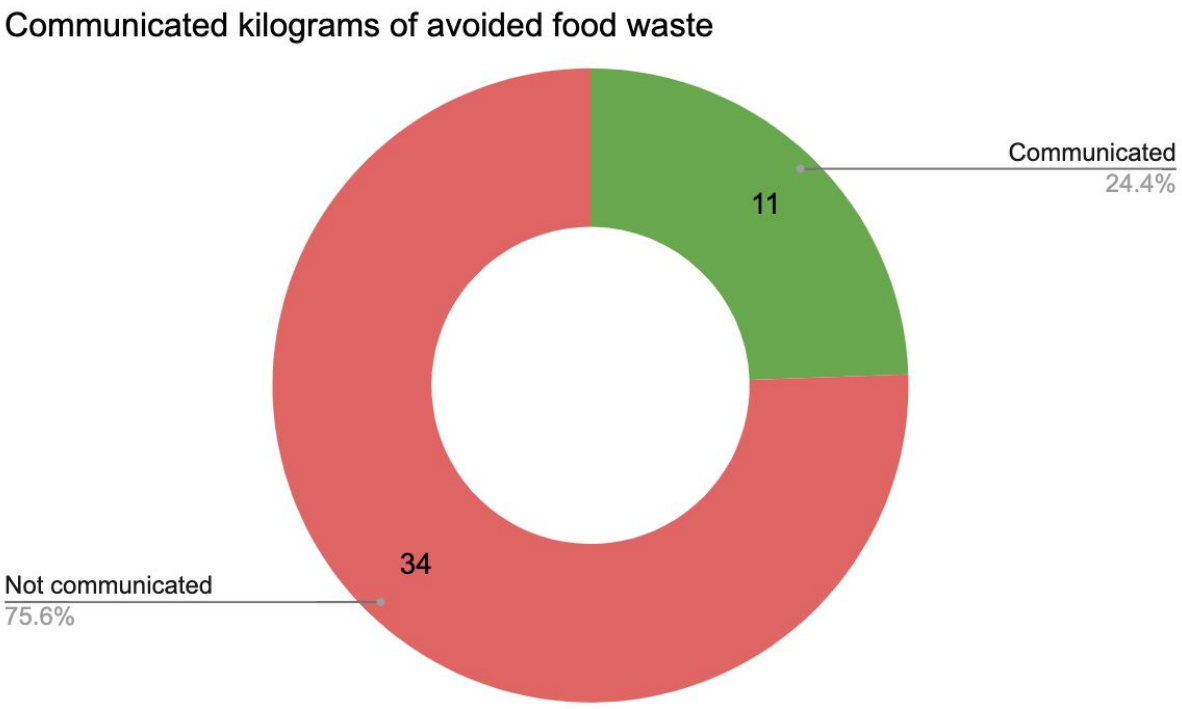

Figure 15. Communicated kilograms of avoided food waster

Organization	Yearly avoided food waste in kilograms
Van Eigen Deeg	100
Jacob's Juice	700
Falafval	1000
De Tweede Jeugd	7201
Taste Before You Waste	10775
De Fruitmotor	22063
Thijs Tea	22618
No Food Wasted	63792
Food Fellow	300000
Instock	853914
Too Good To Go	4955098

Table 4 Communicated kilograms of avoided food waste on a yearly basis.

4.4.3 Cumulative success levels

When adding both the scores for societal awareness as well as the avoided kilograms of food waste, the counted initiatives per level of success can be found in figure 16.

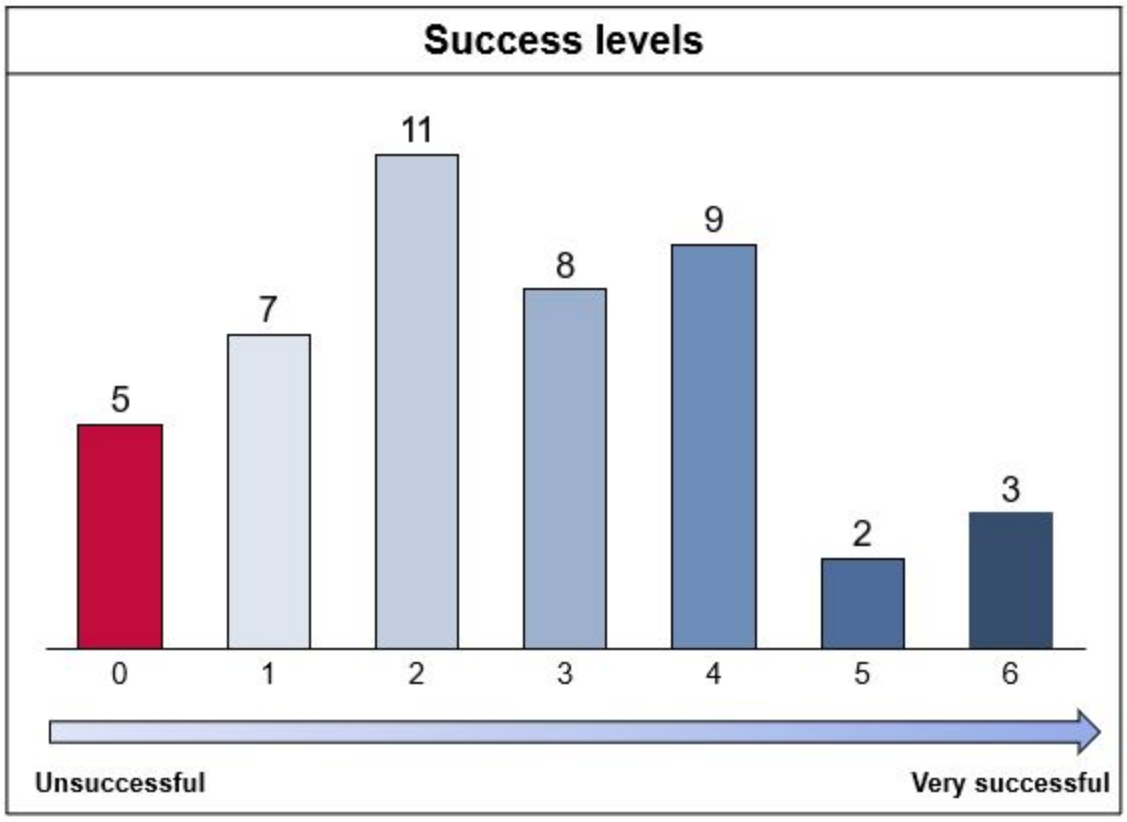

Figure 16. Counted initiatives per success level.

4.5 Survey results

To gain more insight into the various recognized archetypes and their success and hybridity related aspects a survey was sent to all initiatives. Although the survey was sent to all 45 initiatives included in the database, only eight organizations participated in the survey - of which six completed the full survey, while the remaining two completed a substantial part of it. However, the most populous archetype groups (i.e. 'Producers': 4 out of 28 initiatives, and 'Food waste restaurants': 3 out of 7 initiatives) and the platform archetype (1 out of 4 initiatives) are represented in the respondent group. Since one archetype is missing (waste farmers) and the distribution of initiatives per archetype is no reflection of reality, the survey analysis should be seen as a unique glimpse in the sector, rather than as a representative description of how the field as a whole is functioning. Firstly, descriptions of participating initiatives and general

surplus food redistribution questions will be discussed, followed by some organizational characteristics, hybridity, and success.

4.5.1 Participating initiatives

Respondents include: De Fruitmotor (producer), which produces juices, for example cider, from residual flow of fruit and invests in sustainable fruit cultivation, restoration of biodiversity and the conservation of wild bees; Kromkommer (producer), which produces soups from vegetables which are rejected by supermarkets because of their odd appearance or overproduction; Van Eigen Deeg (producer), which provides cookies and has one line of product made of collected old bread; Trash'ure Taarten (producer), which produces cakes and other sweets that can be ordered for catering events or businesses; Taste Before You Waste (food waste restaurant), which although it is categorized under food waste restaurant does much more, as for example organizing free supermarkets, educational workshops, event caterings, and presentations and does not have as a mission to save as many kilograms of food waste itself, but instead hopes to inspire consumers to waste less; Jacobs Juice (food waste restaurant) who states they do *"hospitality with a focus on reducing food waste."* Uitvalvoedselweeropweg (platform), which states "*This service means that we reduce the food print of parties and meetings by having a caterer cook with products that are at risk of ending up in the waste at supermarkets and growers. We arrange a caterer (or cook at our own location if it concerns snacks and smoothies in this region), supermarkets in the area, and a logistics party that brings the products to the caterer. And this throughout the NL with local organizations to minimize transport distances."* Falafval (Food waste restaurant), who states "*We are a sustainable catering/food company. We make falafel from fruit and vegetable pulp from juice bars. Our products are all vegan and we strive to obtain as many ingredients from waste streams as possible."*

4.5.2 Type of donors and food waste

Various aspects of the used waste streams were discussed. Although the database already tried to cover this, organizations were often unclear about this topic on their website. When asked what the origin of the waste flows was (figure 17), most organizations selected farmers (3 out of 4 producers, Uitvalvoedselweeropweg, and Jacob's Juice) and retail (Taste Before You Waste and Jacob's Juice, Uitvalvoedselweeropweg, and Trash'ure Taarten).

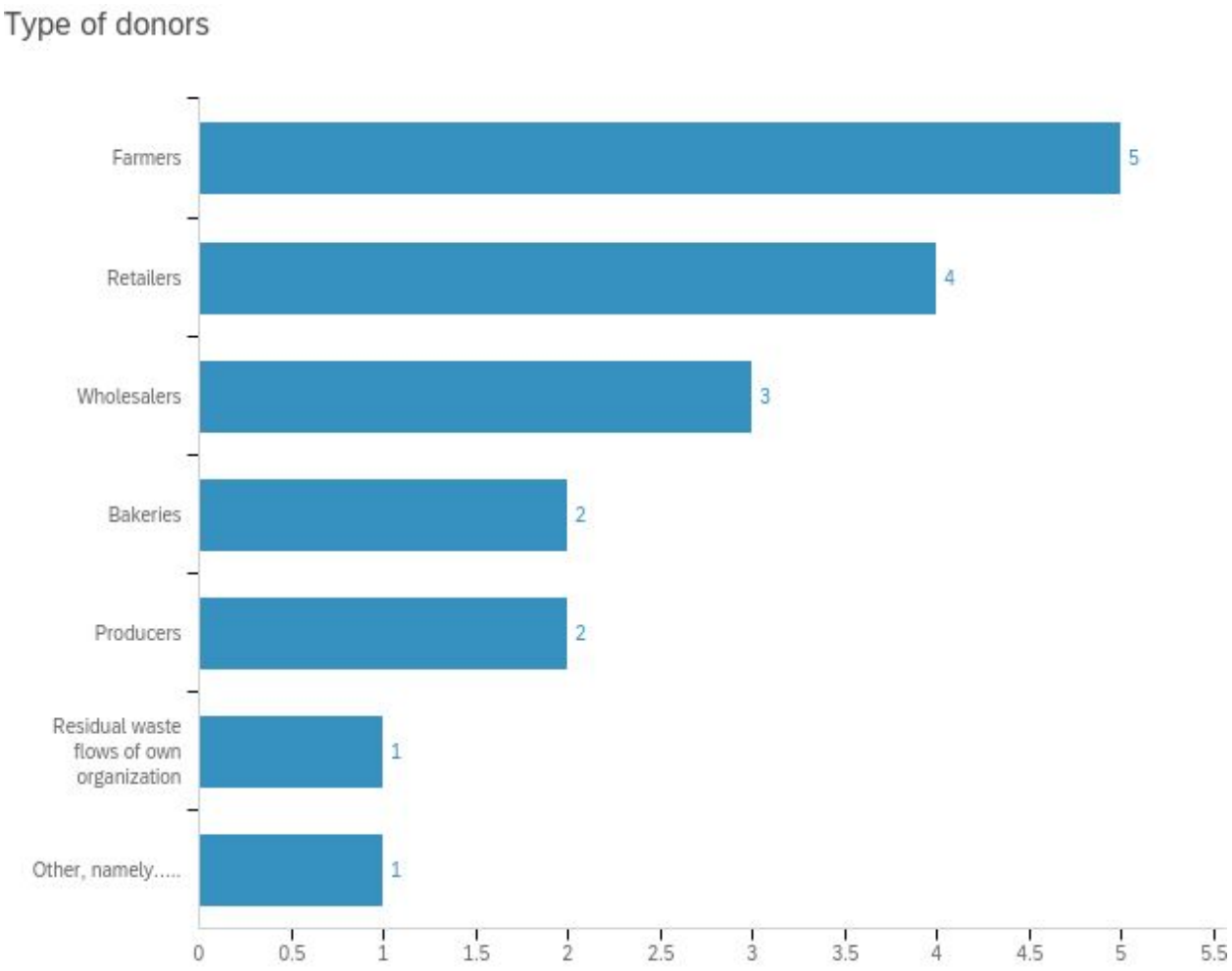

Figure 17. Type of donors.

The majority stated they were using waste streams that did not look like what was expected from these products. Other reasons for waste streams were; almost expired (Taste Before You Waste and Uitvalvoedselweeropweg), overproduction (3 out of 8 initiatives), and damaged packaging (Uitvalvoedselweeropweg) (figure 18).

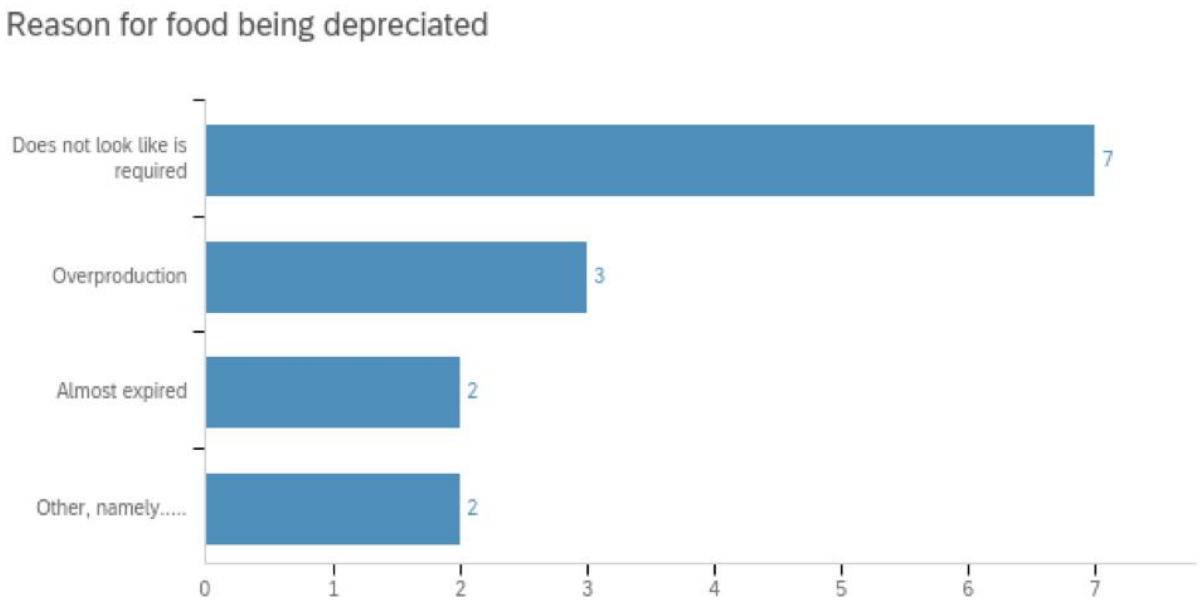

Figure 18. Reason for food being depreciated.

On the question of where these waste streams would otherwise end up 7 out of 8 initiatives answered waste incineration. In addition, five selected animal feed. Furthermore, half of the respondents replied that attracting new food waste was one of their main activities, while the other half did not consider this as the main activity (figure 19)

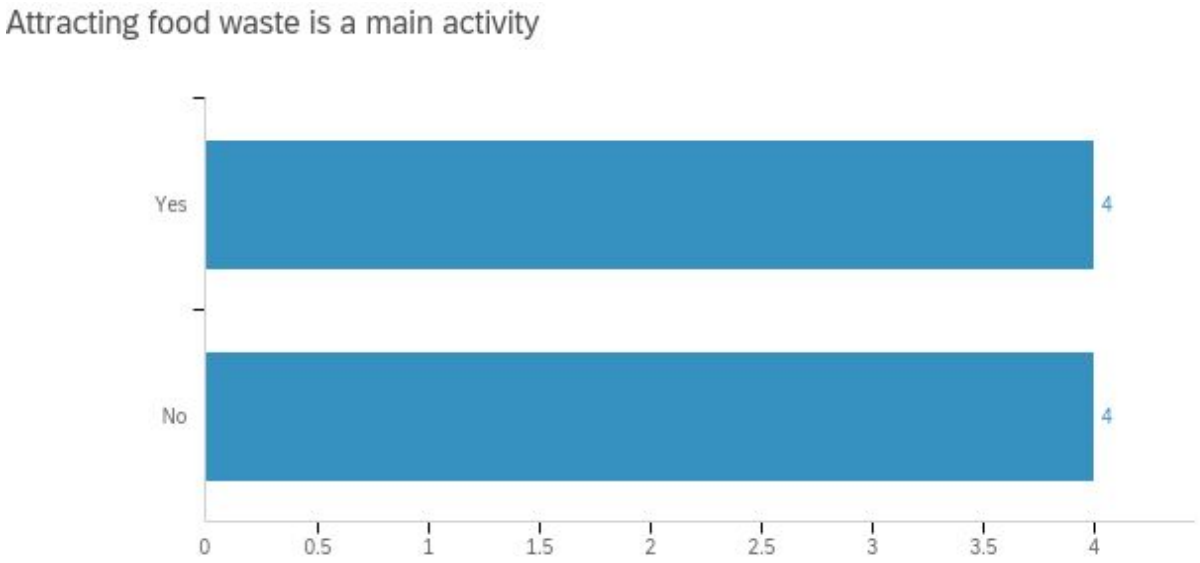

Figure 19. Attracting food waste as a main activity.

The majority indicated to pay for these waste streams (figure 20). However, some organizations receive free food waste streams (Taste Before You Waste and Falafval).

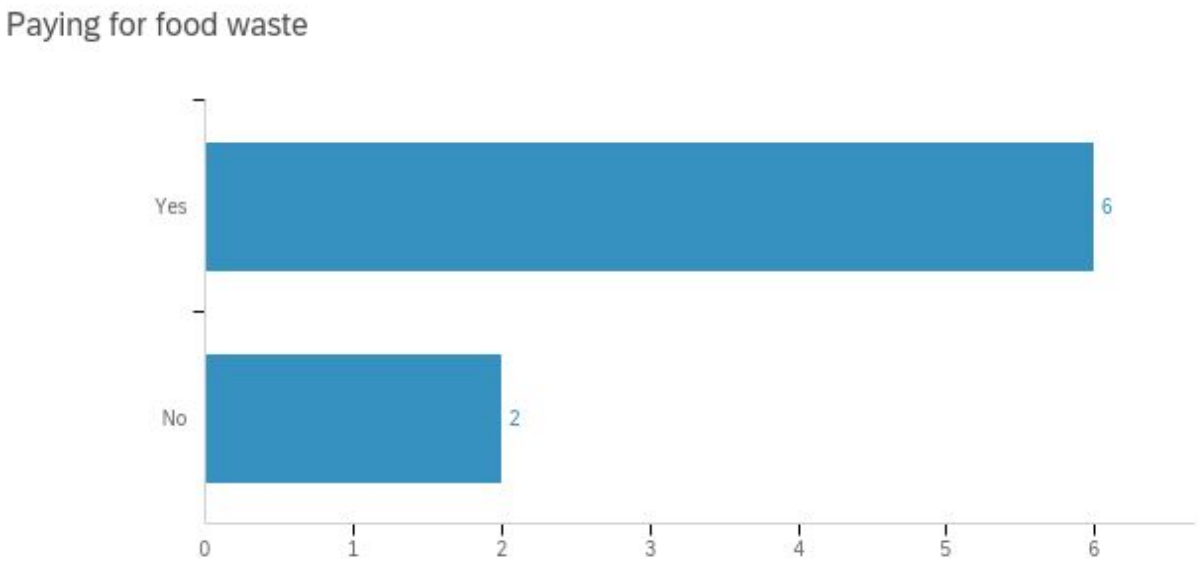

Figure 20. Initiatives paying for food waste.

4.5.3 Management futures and the organization

To the question of how many people the different initiatives employed, all parties answered between one and two employees. However, when they were asked about the number of active volunteers for their initiative, most organizations did not have any or just one volunteer. Only Taste Before You Waste had approximately 80 active volunteers. Another question that was asked during the survey was about attracting competent staff. Here most organizations stated they indeed had difficulties attracting competent personnel. The only parties that did not experience problems were Taste Before You Waste and Jacob's Juice. Finally, Falafval did not need any employees at all.

When asking about key-activities, three businesses (Jacob's Juice, Taste Before You Waste, and Van Eigen Deeg) stated that they do everything themselves. Falafval mentioned to only outsource branding/identity & accounting tasks. However, Kromkommer and Uitvalvoedselweeropweg outsourced almost all of their activities.

Customer segments varied from students (Taste Before You Waste) to retail (Van Eigen Deeg), and B2B and B2C for the platform (Uitvalvoedselweeropweg) that also had the government as a client.

Revenue streams are generated in different ways. While most initiatives stated they generate income through asset sales, Taste Before You Waste generates income through a *"pay as you wish"* system. In addition, Trash'ure Taarten generates income through paid presentations about the subject of food waste.

Furthermore, the most important resources mentioned (figure 21) were human resources (three times), and both financial (Uitvalvoedselweeropweg) and physical resources (Jacob's Juice).

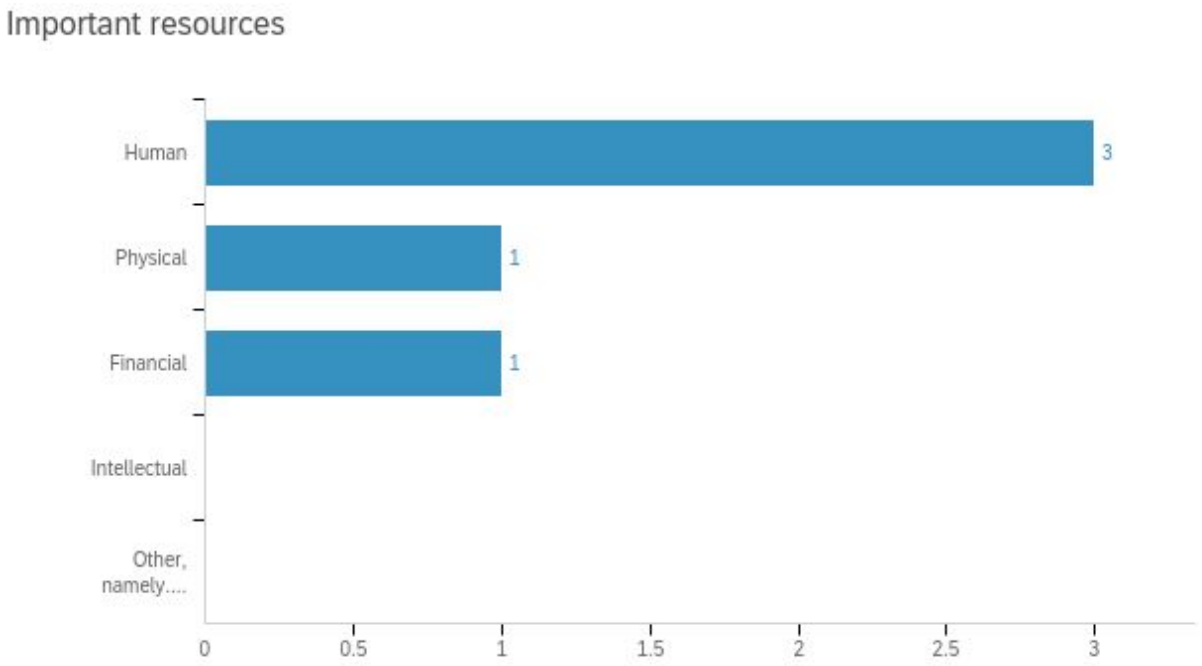

Figure 21. Important resources

Moreover, when asked about the cost structure or highest costs for the different initiatives, three initiatives replied that most costs are generated by the salaries of employees (Kromkommer, Van Eigen Deeg, and Taste Before You Waste). In addition, other high costs for Taste Before You Waste go to rent. The costs of Uitvalvoedselweeropweg were generated by outsourcing all activities of catering to events. The highest costs for Jacob's Juice were in the logistics of gathering the food waste streams.

Only a few of the organizations replied to be internationally active (figure 22): Van Eigen Deeg had activities over the border in Belgium, while Taste Before You Waste had activities in New Zealand and Canada.

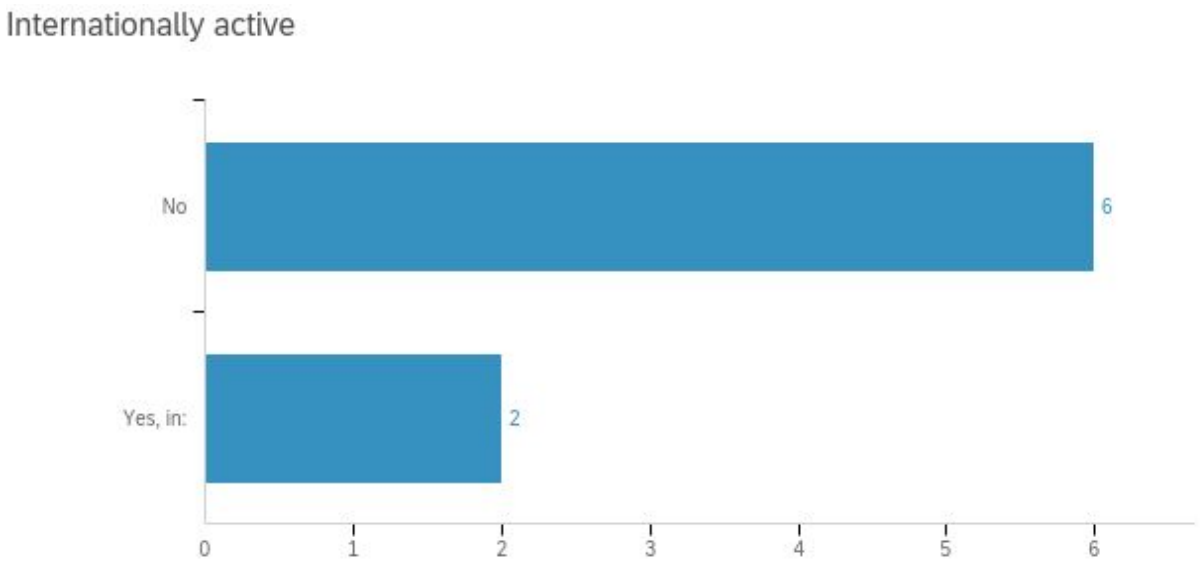

Figure 22. International active initiatives.

4.5.4 Success

When the different organizations were asked to summarize success for their organizations, half of them replied that being successful meant selling as many products as possible because more people would use sustainable products (Van Eigen Deeg, Trash'ure Taarten, and Jacob's Juice). The other three (Taste Before You Waste, Kromkommer, and Uitvalvoedselweeropweg) talked about changing public awareness around the issue of food waste. Taste Before You Waste, for example, stated they considered the community aspect of their organization as highly successful, both their volunteer network and the collaboration projects with the neighborhood to collect surplus food. And that in turn, these people spread the educational aspects and awareness of their organization. Kromkommer stated that the ultimate success would mean the end of their existence since public opinions would have been changed.

On the question about what has the most significant influence on their success (table 5), all parties answered something different. One stated that they were mostly depending on the status of their market. Another said that the taste of their cookies was most important. A third respondent stated that the consistent and passionate involvement of their volunteers was essential. A fourth initiative (Kromkommer) stated *"how consumers, supermarkets and the government choose fruit and vegetables with different looks."* The last initiative stated that the success of other players on the food waste market made input streams more expensive, which resulted in higher costs and fewer clients.

Initiative	Success determinant
Trash'ure Taarten	*"The market"*
Taste Before You Waste	*"Involvement of volunteers"*
Van Eigen Deeg	*"Quality of product"*
Kromkommer	*"Public attitude towards divergent food"*
Uitvalvoedselweeropweg	*"Competition"*

Table 5. Success determinants per initiative.

When the different initiatives were asked if they measured the number of kilograms of avoided food waste, the majority replied yes (figure 23).

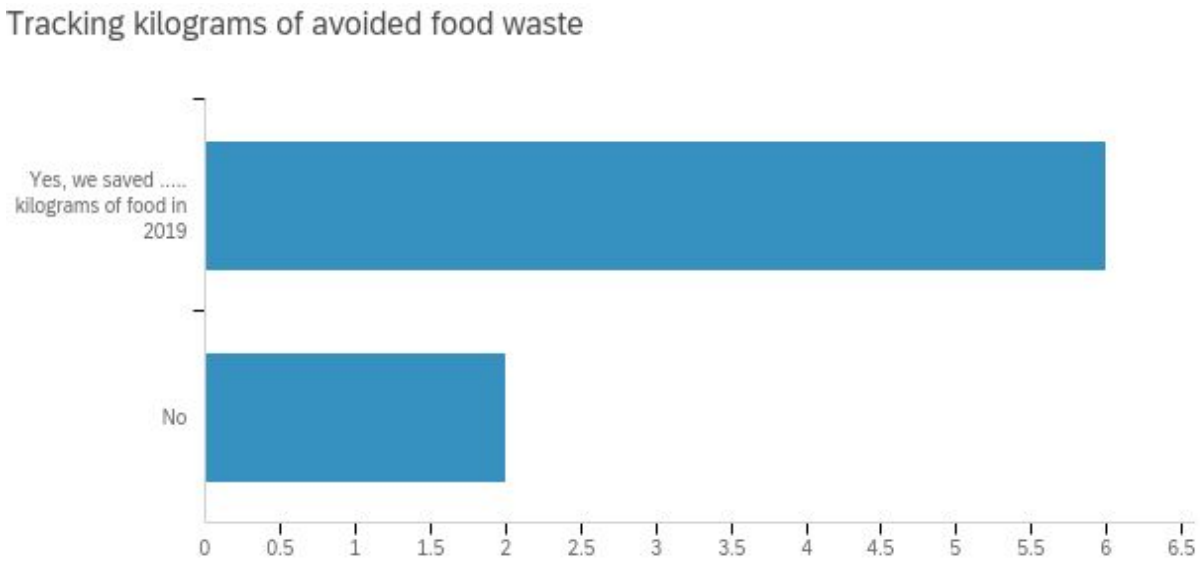

Figure 23. Tracking the kilograms of yearly avoided food waste.

This is striking since only 20 percent of the organizations communicated this "environmental" performance on their social media or website. Furthermore, all producers (De Fruitmotor, Kromkommer, and Van Eigen Deeg) kept a record of their performance. The quantities varied between 100 kilograms (Van Eigen Deeg) to 40.000 kilograms (De Fruitmotor) in 2019. Although two producers did keep track of their performance, they did not have them at hand while filling in the survey. Moreover, Taste Before You Waste saved approximately 10.775 kilograms in 2019, while Falafval stopped keeping track because: *"It was highly variable in the last year (2019). Now we are registering everything to have a good estimation of the kgs saved*

in 2020." Jacob's Juice and Uitvalvoedselweeropweg did not have any numbers. The calculation process differed per organization. Two kept track of the performance at the purchasing department (De Fruitmotor and Van Eigen Deeg), and a third (Taste Before You Waste) stated they *"Estimate proportion determined by the size of our collection carrier bike and frequency of food surplus collections which occur 3-4 days a week."* The two remaining organizations (Trash'ur Taarten and Kromkommer) calculated it through the products that they were selling.

4.5.5 Hybridity

When the initiatives were asked what the purpose of their organization was (figure 24), only Uitvalvoedselweeropweg and Van Eigen Deeg answered to have an economic purpose; all other parties replied they only had social and environmental intentions, except of Jacob's Juice that only had an environmental purpose.

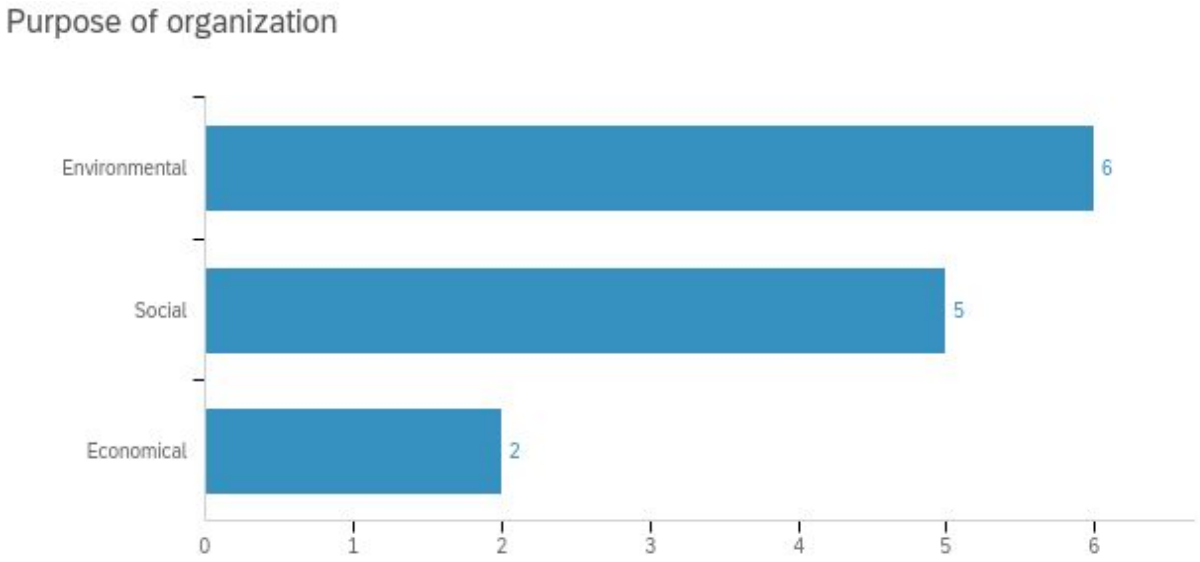

Figure 24. Purpose of the organization.

A question that could further help place any hybrid organization on the hybrid spectrum between traditional for-profit and non-profit organizations was to ask if profits are distributed to the organization's owners. From the six answering organizations, only Van Eigen Deeg and Uitvalvoedselweeropweg stated they distributed profits. However, the same parties stated that these profits were under the industry average. When asking them if they experienced difficulties balancing their social/environmental mission with their commercial activities (figure 25), 5 out of 6 initiatives responded they did experience difficulties. Only Uitvalvoedselweeropweg responded it did not experience any tensions between their missions.

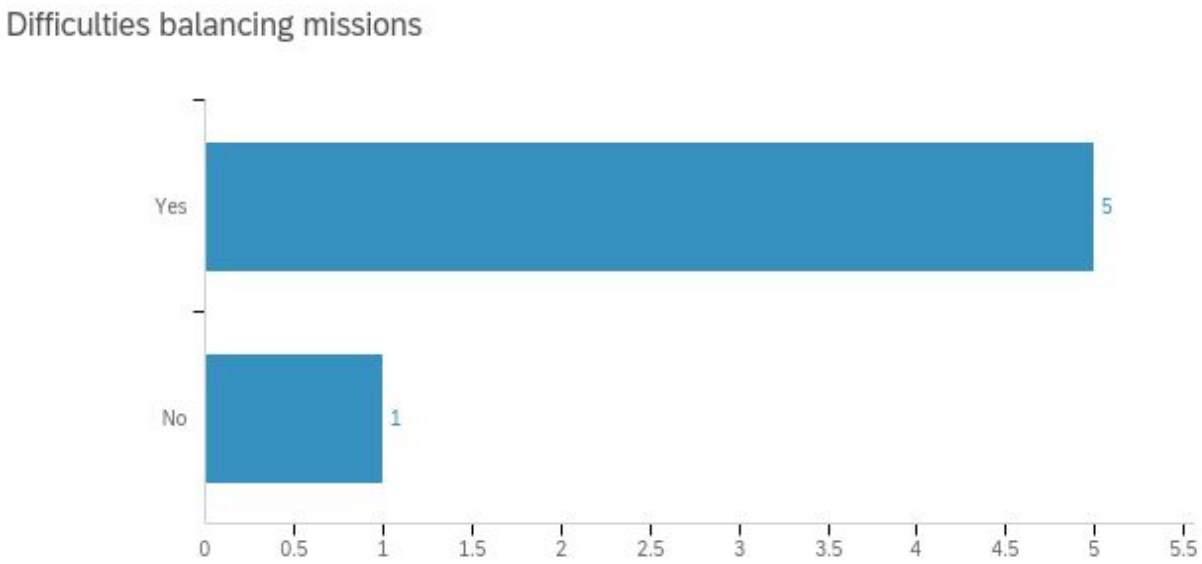

Figure 25. Difficulties balancing missions.

Half of the initiatives experienced tension between personnel about the organization's hybridity (commercial activities and their social/environmental missions). Also, the majority replied neutrally to the question if they experienced competition (figure 26), while Van Eigen Deeg did experience competition.

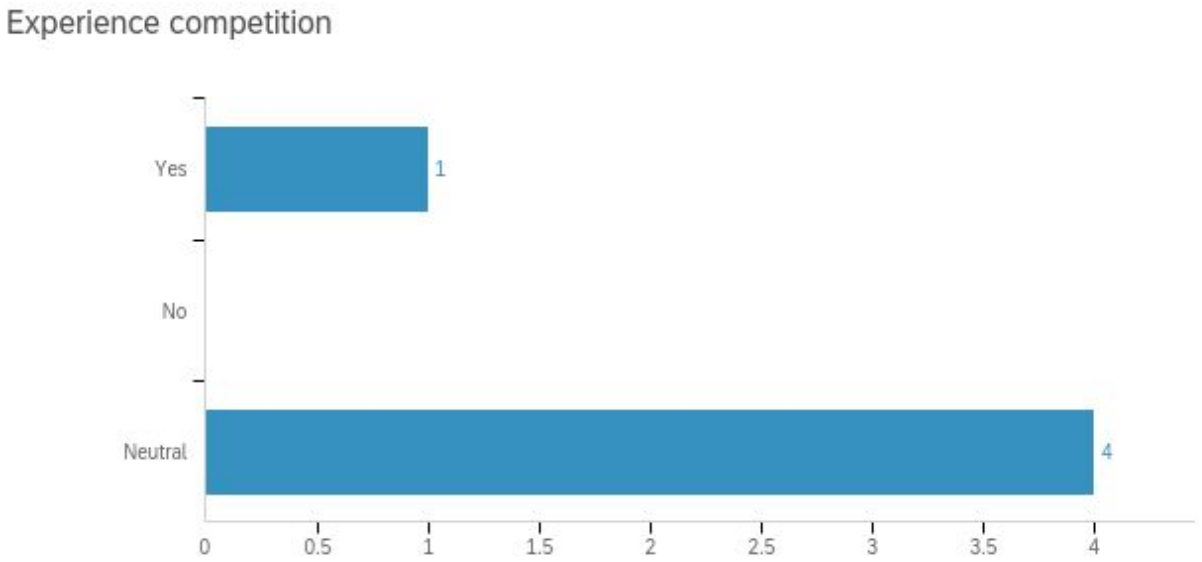

Figure 26. The experience of competition

When asked about governmental support (for example, through subsidies, favorable policies, or funding schemes), all parties (8) replied they did not experience any support.

In total, four different questions about collaboration and engagement were asked. Most of the partners of the initiatives could be categorized in the private sector group, while three initiatives stated they were cooperating with non-profit organizations, and two selected they worked together with public parties (figure 27).

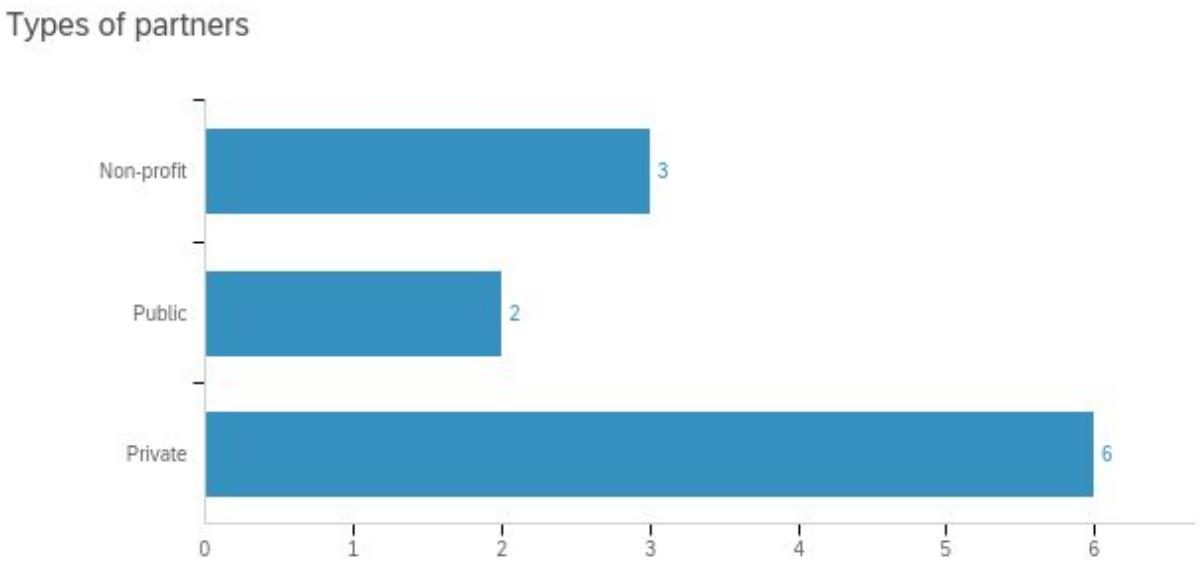

Figure 27. Types of partnerships.

Furthermore, when asked about the number of partners (figure 28), most respondents replied to have between one and five partners. Besides, Taste Before You Waste was working with six to ten partners and Kromkommer was collaborating with more than ten partners.

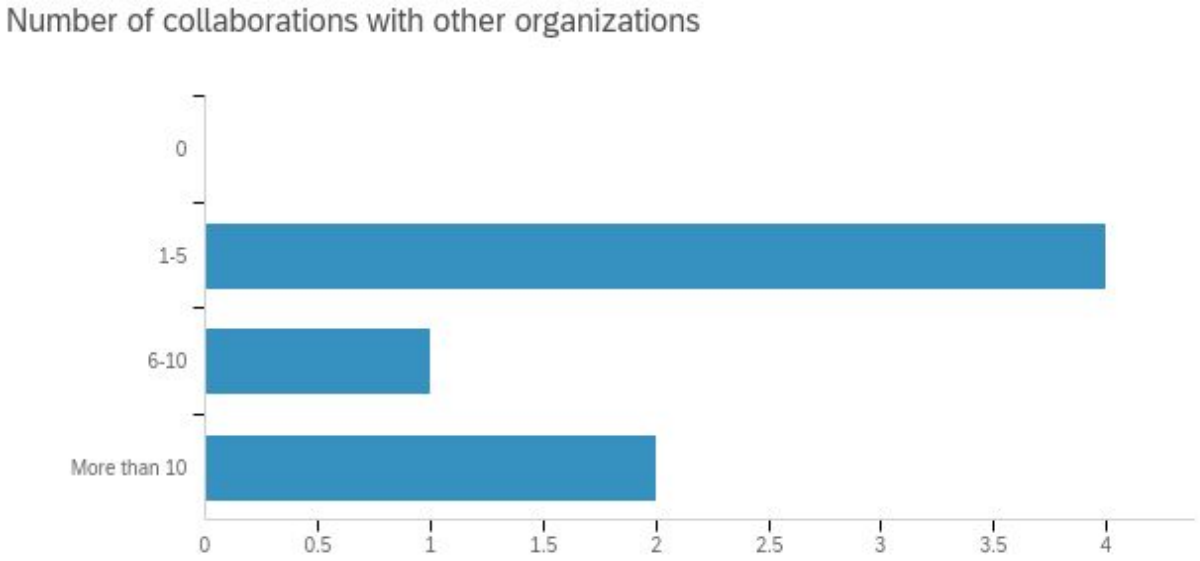

Figure 28. Collaborations with other organizations.

Moreover, they all stated that suppliers of the waste stream were of vital importance for the organization. Besides, Falafval stated that *"collaborations with juice bars, but also larger producers of legumes. & connections to other sustainable food companies to learn from each other and collaborate."* Other essential partnerships that were named are collaborations with other sustainable initiatives, customers, and other parties to which activities were outsourced. Furthermore, the majority stated that the local community was engaged in their operations (figure 29).

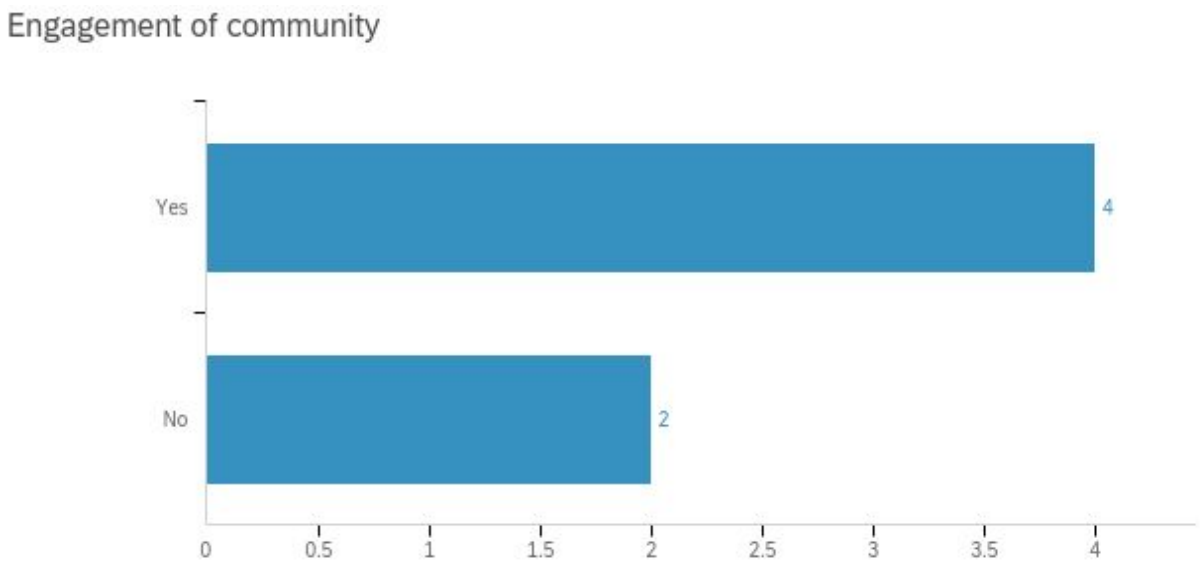

Figure 29. Engagement of community.

5. Quantitative results

There were three propositions set up to explore the relationship between the discussed variables:

- Proposition 1 regarding hybridity and success (the closer an organization is located to the traditional nonprofit side of the hybridity spectrum, the higher the chance they are successful).
- Proposition 2 regarding hybridity and BM archetypes (depending on the position on the hybridity spectrum, different BMs will be dominant).
- Proposition 3 regarding BMs and level of success (there is a positive relationship between the type of BM and the achieved success).

As discussed in the methodology, no statistical tests matched the data of this research. Therefore, rather than testing hypotheses, an exploration of relationships was executed.

5.1 Proposition 1 - Hybridity versus Success

In the first proposition, the relationship between hybridity and success was investigated. What was explored was which position on the hybridity spectrum might result in higher levels of success. In figure 30 hybridity is divided into six different graphs, each including one of the six degrees of hybridity. The color of the top bar of each of the six charts is based on their position on the hybridity spectrum. Hybridity 1 and 2 are purple - which means they are closer to the for-profit side of the spectrum. Hybridity 3 and 4 are colored grey since their orientation is somewhere in the middle of the spectrum. Hybridity 5 and 6 are colored green and are located more to the non-profit side of the spectrum. In each of the six graphs, a scale of success for each level of hybridity with the number of counted initiatives per level of success is presented. For example, hybridity 1 (closest to the for-profit side of the spectrum) counts a total of ten initiatives, of which zero organizations scored zero points for their success, three initiatives scored one point, and four initiatives scored four points.

After looking at the distribution over the six levels of hybridity, it became clear that only a few initiatives were labeled as organizations close to the non-profit side of the hybridity spectrum. Most were positioned in hybridity 2 (18) and hybridity 3 (11). In total (including the left of middle hybridity 3), 39 of the initiatives were located on the for-profit side of the spectrum, while six initiatives could be found at the non-profit side of the spectrum.

The distribution of initiatives per degree of hybridity over the level of success shows that most levels of hybridity had a reasonably even distribution per level of success. Although little initiatives were positioned in hybridity levels 4, 5, and 6, which means that findings are less generalizable and therefore should receive less attention, still hybridity levels 1, 2, and 3 show a remarkable even distribution over the levels of success. Besides, hybridity levels 4, 5, and 6 - with their meager numbers - show no uneven distribution.

What can be read from this graph is that there does not seem to be a relationship between hybridity and success. Moreover, a substantial part of the surplus food redistribution sector takes place on the for-profit side of the hybridity spectrum.

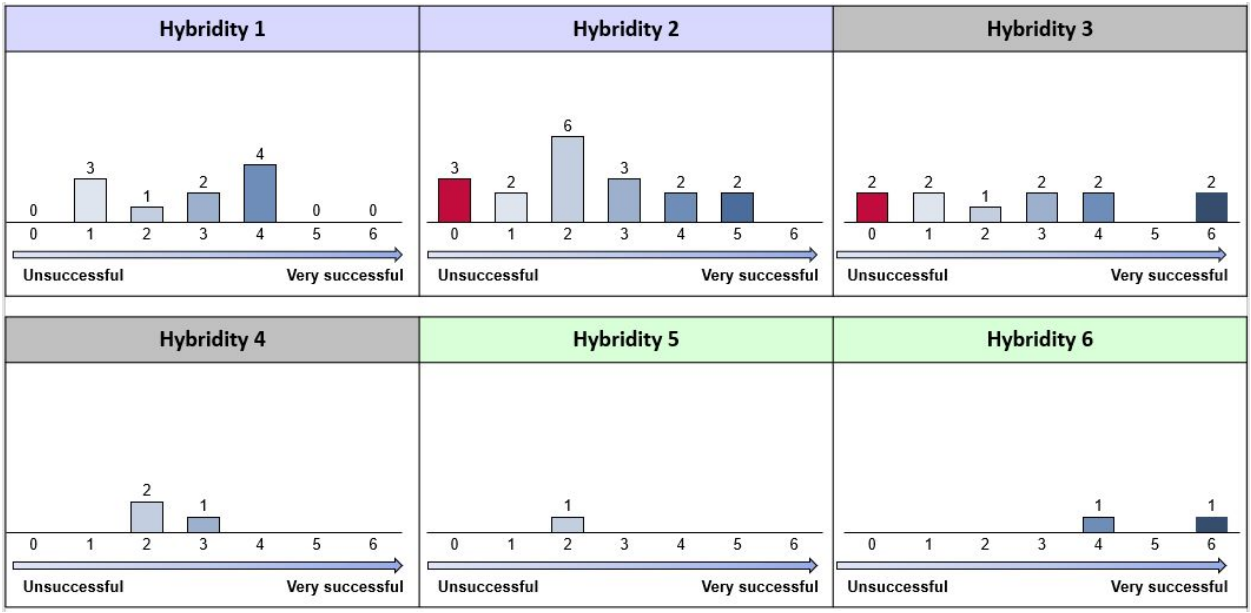

Figure 30. Distribution over levels of success per degree of hybridity.

5.2 Proposition 2 - Hybridity versus business model archetypes

In the second proposition, the relationship between hybridity and BM archetypes was explored. It was expected that an outcome of this exploration could be that certain archetypes are non-profit orientated, while other archetypes are more related to the for-profit side of the spectrum.

When looking at the legal status of the different archetypes, most of the producers were registered as either B.V. or V.O.F., which could indicate that there are commercial goals at play. However, two of the captured producers were registered as Stichting. From the Food waste restaurants, some of these initiatives were informal (2), meaning they are not registered at the chamber of commerce. Another restaurant was registered as a Stichting, two more as V.O.F. and the last one as B.V. Otherwise, all platforms and waste farmers registered as a B.V. Also, especially the producer archetype counted some separated BMs - rather than partially integrated or integrated. However, no patterns were recognized in the statements on websites and social media about the initiatives' position on the hybridity spectrum.

The archetypes are presented in four different graphs next to each other in figure 31. In each of these graphs, the hybridity spectrum is presented together with the number of initiatives per level of hybridity. Again the colors purple, grey, and green are used to indicate what position on

the hybridity spectrum these initiatives take. For example, from the producer archetype, there are nine initiatives that were labeled as hybridity level 1, meaning they are closest to the for-profit side of the spectrum.

When looking at the distribution of initiatives over the archetypes, most of the initiatives were categorized as producers. While 28 initiatives were labeled as producers, only 17 organizations are divided over the other three archetypes (six food waste restaurants, seven waste farmers, four platforms).

Although three out of four archetypes were represented by a small group of initiatives - resulting in less generalizable findings - still patterns were recognized. When looking at the archetypes separately, it seemed reasonable to state that the producer archetype would be most profit-oriented. Followed by both the waste farmers and platforms (which share a similar orientation) and finally the food waste restaurants (which was more non-profit orientated than the other archetypes).

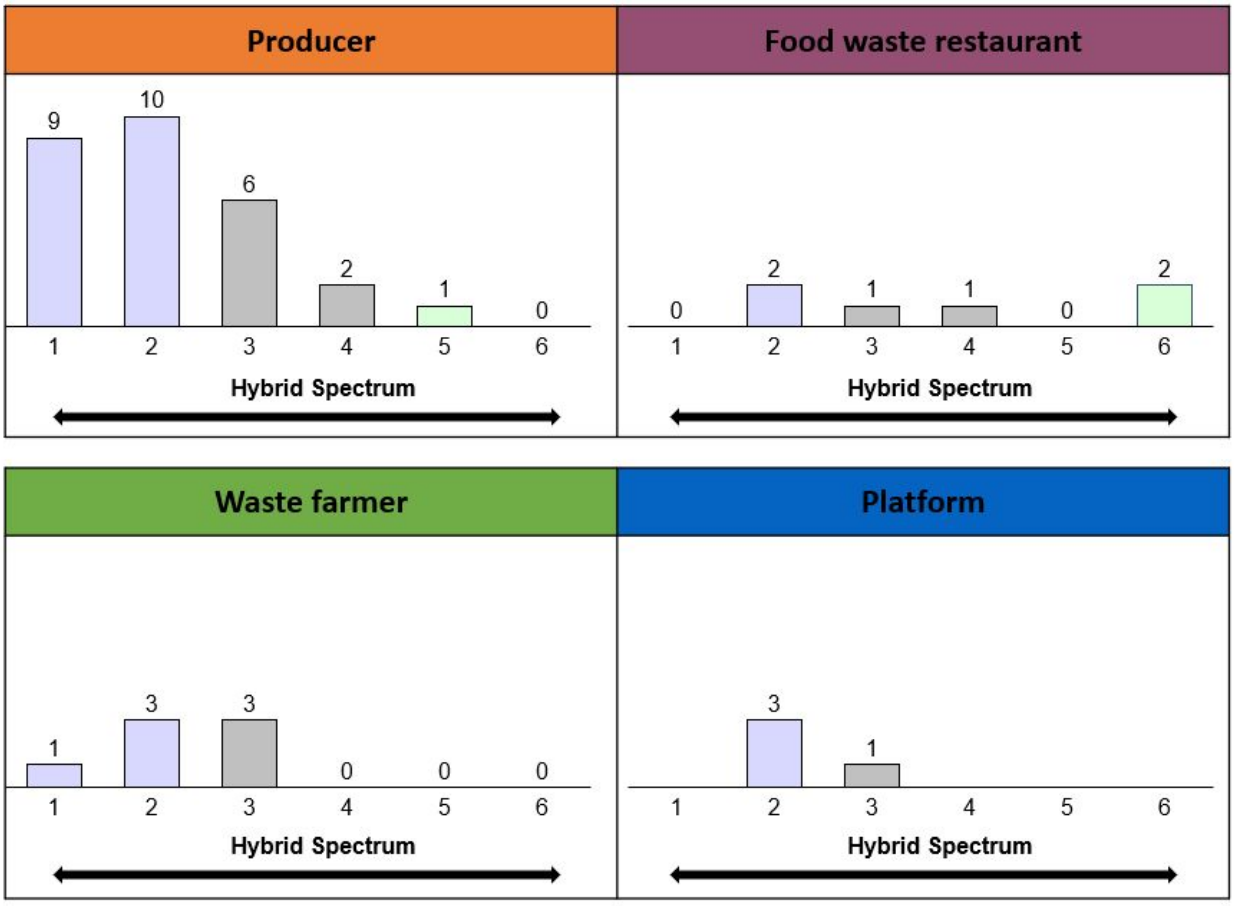

Figure 31. Distribution over degrees of hybridity per archetype.

5.3 Proposition 3 - Business model archetype versus level of success

In the third proposition, the relationship between BM archetypes and level of success was explored. This exploration aimed to find out if certain archetypes might be more successful than other archetypes.

Although most of the producers, in some way, were communicating that they tried to contribute to a better environment, few producers expressed a specific number of avoided waste. However, some organizations (five) did calculate their “environmental performance” and communicated this in a clear spot on their websites. Numbers here vary between 100 kilograms for Van Eigen Deeg to 300.00 kilograms for Food fellows. From the six Food waste restaurants, four were measuring and communicating their environmental performance. Instock was leading here with a performance of 850.000 kilograms of saved vegetables since its establishment in 2019. Besides, Taste Before You Waste informed the survey that it was approximately saving 10.775 kilograms of waste in 2019. Half of the platforms (2 out of 4 initiatives) were measuring and communicating their environmental performance. One platform (i.e., Too Good To Go) saved the largest amount of food waste (approximately 5.000.000kg in a year), the second (i.e., No Food Wasted) saved approximately 60.000 kilograms of food waste yearly. Moreover, none of the food waste farmers were communicating anything about kilograms of avoided waste.

When looking at the societal awareness criterion captured in the number of Facebook likes, particularly the producer archetype seemed to have lower scores. Furthermore, food waste restaurants were both represented three times in the top five of most liked organizations but were also present in the least successful part of the list.

Again the different archetypes are presented in four graphs next to each other (figure 32). In each of the charts - just as with proposition one - a scale of success for that archetype is presented with the number of counted initiatives per level of success.

Just as with proposition two, most of these initiatives are categorized as a producer, resulting in less information on the other three archetypes. However, the data seems captivating. When looking at bankrupt and unsuccessful organizations, it is logical that most of these organizations are captured in the group with the highest number of initiatives. Unsurprisingly, 3 out of 5 bankrupt or unsuccessful organizations were categorized under the producer archetype. However, the other two organizations in this category were both from the platform archetype. Since the platform archetype only counts four initiatives, this means that 50 percent of these initiatives seem to fail.

When looking at success level 6, the producer archetype and waste farmers know zero cases. However, the food waste restaurant archetype counted two of the best in class initiatives, which

means that 33 percent of this archetype is having a best in class performance. Besides, the platform archetype counted one case which translated to 25% of their initiatives being very successful. If success level five would also be labeled as best in class, 50% of the platforms would fall under this category. Moreover, the producer archetype would count one best in class organization.

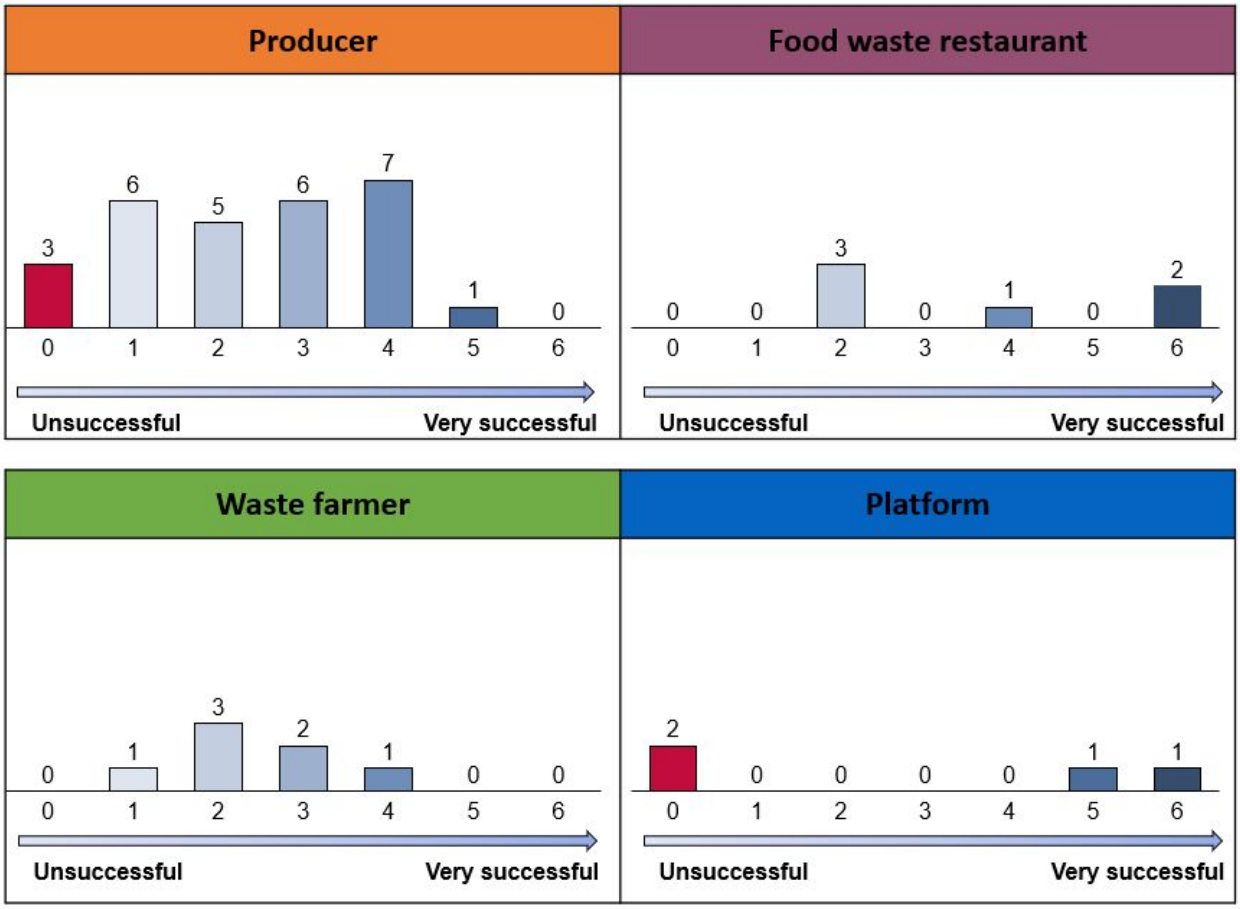

Figure 32. Distribution over success levels per archetype.

6. Discussion

In the next sections, the theoretical implications of the variables will be treated. Secondly, the propositions will be reviewed on similarities and deviations with the literature. In case the results diverge from the theory, alternative explanations will be offered. Thirdly, the limitations of this research will be discussed. And finally, the chapter will finish by presenting its contributions and future research possibilities.

6.1 Business model archetypes

When looking at the different identified archetypes, this study has two critical findings. Firstly, the industry of surplus food redistribution is diverse and knows numerous BM archetypes - accompanied by sub-BMs. Secondly, most organizations seem fairly small.

To begin, this study captured 45 initiatives that matched the adopted definition of surplus food redistribution and hybridity. These organizations were registered under 25 different S.I.C. codes and only five of these registration codes appeared multiple times. In addition, although four BM archetypes were identified, numerous variations within these archetypes exist. Moreover, a variety of initiatives operated other BMs simultaneously - from running an anarchistic library to organizing workshops, presentations, and free protest dinners about food waste, to free supermarkets. Both the theory regarding surplus food redistribution as well as the hybridity literature is in line with the diversity of BMs and the variety of simultaneously operated BMs found by this research. As indicated in the work of Davies & Evans (2019) and Davies & Legg (2018), the industry is diverse and dynamic. Davies & Evans (2019) explain this phenomenon through the fact that these initiatives aim to operate in multifunctional ways to create resilient businesses. Indeed, since only four of the 45 initiatives stopped being active - likely in the last five years, this resilience seems recognizable. The hybridity literature underwrites this great variety of BMs in surplus food redistribution organizations. Gamble et al. (2019), for example, suggest that the fact that hybrids run multiple missions simultaneously can result in a variety of BMs - in a sector - depending on the choices they make about integrating their environmental mission in their commercial activities. Finally, Durand & Paolella (2013) expect the boundary-spanning activities of hybrid organizations to result in the engagement of new and unknown BMs.

When looking at the size of the captured initiatives - taking into account the national operations and number of volunteers and employees active in most of these organizations - most organizations seem small opposed to other industries. The database captured only one (substantial) multinational, and during the survey, only 2 out of 8 respondents answered to have some international activities. Moreover, all initiatives replied to have either one or two employees, and 2 out of 8 organizations were getting help by volunteers (although one of these two had a huge membership base of 80 volunteers). The literature seems contradictory to these findings. Different researchers from the field of food sharing - of which surplus food

redistribution is part - were afraid that food sharing would turn out to provide fortune for a few venture capitalist-funded businesses while creating substantial risks and precarious work for both the users and business partners of these organizations (Davies, et al., 2017). These contradicting findings with literature might be explained by the fact that surplus food redistribution is less intertwined with ICT than food sharing initiatives in general. The majority of captured initiatives were identified as producers, which do not necessarily need ICT engagement to function. In contrast, only four of the organizations were categorized as platforms - thriving by a well-organized ICT system. A suggestion might be that surplus food redistribution is wrongly grouped under the umbrella of food sharing and the overarching sharing economy - which again is supposed to be highly intertwined with ICT engagement. This issue of categorizing under a wrong umbrella might be a direct result of the lack of an agreed definition of what constitutes food sharing (Davies, 2019) and the overarching sharing economy in general (Martin, 2016). Since debates still go on, Davies (2019) chooses to employ a rather broad definition. This, as shown by the findings of this study, might result in generalizability issues.

6.2 Degrees of hybridity

When taking a closer look at hybridity, some noticeable findings come forward as well. Although profit distributing hybrids have been neglected in hybridity studies in the past, the vast part of the studied initiatives have been identified as profit distributing hybrids. In addition, the focus of the hybrid studies on social impact rather than environmental impact might result in some contradictions.

First of all, when looking at degrees of hybridity of the initiatives, the majority of organizations are located on the profit distributing - (39) rather than the non-profit distributing - side of the spectrum (6). Following the suggestions of Boyd et al. (2009) and Jones et al. (2016) to investigate hybrids that distribute profits, valuable insights followed. Particularly, by including profit distributing hybrids, the possibility of studying a spectrum becomes available. Also, since profit distributing hybrids should be categorized as hybrid organizations - *“organizations that combine aspects of typical businesses (undertaking commercial activity) and not-for-profit organizations (pursuing a social mission)” (Battilana, 2018, p3)*, this study found no good reasoning for ignoring profit distributing hybrids. Hybridity is a trend, in which organizations slowly start to move from either the traditional for-profit side of the spectrum - as a corporation - towards the traditional non-profit side of the spectrum, or from the traditional non-profit side of the spectrum - as a charity - towards the for-profit side of the spectrum. By selecting a very specific scope, these overarching movements are denied. This study would even suggest that both pure for-profit and non-profit organizations should be taken into account in hybridity studies. In these studies, pure for-profit organizations and pure non-profit organizations could be seen as control groups shielded from exposure to the hybridity variable. The for-profit players would be shielded from any form of environmental or social missions, and the non-profit players would be shielded from any form of commerce. For example, this study found non-profit players that operated identical BMs as other hybrid initiatives - except for the part where they asked for

money for the service. If these organizations would have been taken into account an outcome could have been that the pure non-profit initiatives had far worse performance on their environmental mission than the initiatives which were asking money for the same activities. In that case, non-profit organizations should reconsider not asking money for their services. Other reasoning for looking at the whole spectrum (or at least the hybrids that distribute profits) can be found in sample sizes. For example, if this research would have neglected the profit distributing organizations, a problematic consequence would have been that only six initiatives, rather than 45 could be studied.

6.3 Levels of success

First of all the survey's findings related to defining success for the surplus food redistribution industry are in line with the definition of success adopted by Aschemann-Witzel et al. (2017). This definition included avoiding kilograms of food waste directly or indirectly changing people's behavior to tackle the issue of food waste. From the respondents, 50% stated that being successful with their organization meant avoiding as many kilograms of food waste as possible, while the other 50% focussed on behavioral change of their clients. Although a substantial part of the initiatives seems to aim at avoiding kilograms of food from being wasted, only about 20% of the initiatives communicated their performance on their websites or social media accounts. However, when asking about their avoided food waste during the survey, the majority actually had numbers about this performance at hand. It seems advisable - when having an environmental mission and numbers about your performance ready - to communicate your environmental performance with clients to gain transparency. Although it might seem difficult to measure such performance, some of the survey respondents had very easy, practical, and creative solutions. Taste Before You Waste, for example, estimated the cargo capacity of their cargo bike and counted the number of rides their bike made. Other initiatives calculated the average kilograms of avoided waste per product and just multiplied this weight with the number of products that they sold.

6.4 The relationship between hybridity and success

As Hoffman et al. (2012) suggest, the success of hybrids is determined by their perspective of success. For example, if a hybrid is commercially oriented, it might feel successful having excellent commercial performance despite having weak environmental results. However, if they aspire to have a relevant environmental impact - commercial interests come second - they might feel disappointed about the same operations. By focussing on the environmental issue of food waste and the success that different hybrids might have with this mission, this study deals with this problem of a moving definition. This choice seems reasonable since all survey respondents answered to feel successful if they were positively influencing the environment. However, a few respondents did have commercial interests - but all replied to have under industry-average profits.

Battilana et al. (2018) suggest that little is known about the consequences of choosing a particular form of hybridity for an organization's effectiveness. Anyway, some combinations of theories suggest which positions positively or negatively influence the chances of success. Soh (2012), for example, states that organizations have difficulties balancing multiple missions and that the peak of this balancing takes place in the middle of the hybridity spectrum - since that is the position where both missions are valued evenly. In other words, initiatives that are very much commercially orientated or environmentally oriented would likely be more successful. However, Gamble (2019) suggests that organizations with an integrated mission are less likely to experience tensions between missions. When then taking into account another study, Alter (2007) indicates that integrated BMs will be located closer to the non-profit side of the hybrid spectrum. Combined, in other words, they expect organizations that are located closer to the non-profit side of the spectrum to be more successful in general. However, during the exploration of these relationships, none of these suggestions seemed accurate for the data set results of this study. The distribution over the levels of success per level of hybridity was fairly evenly distributed. Soh (2012) suggests that the most successful cases should be counted either at hybridity level 1 or hybridity level 6. Besides, Gamble (2019) and Alter (2007) together suggest that hybridity level 5 and hybridity level 6 should count as the most successful cases. However, these suggestions do not match the results of this study. Although most cases can be found in hybridity 1, 2, and 3, these cases seem very evenly distributed. Moreover, if the average success level per hybridity type would have been calculated, these averages would be found very close to each other. An explanation might be found in the fact that these theories already contradict each other in the first place. Some expect success in the corners of the spectrum, while others expect a rising line in success going from one corner of the spectrum to the other. Although they could have some truth in them, they might weigh each other out.

6.5 Relationship between hybridity and business model archetypes

The aim of exploring the relationship between degrees of hybridity and BMs was to find out if different archetypes might be dominant depending on the position on the hybridity spectrum. In other words, could it be possible that non-profit oriented hybrids might choose for different BMs than commercial hybrids?

Different researchers have suggestions about the dynamics between hybridity and the BMs of choice. Corbett & Katz (2017) and Gamble et al. (2019), expect that organizations might select different BMs to overcome the tensions related to specific degrees of hybridity. Therefore, they assume that BM archetypes might even play a role in recognizing various degrees of hybridity - by looking at the archetypes. In addition, Gamble (2019) expects that level of integration of environmental missions in the BM - which is very much intertwined with hybridity - will also play a role in the choices that organizations make in selecting a BM.

These suggestions are in line with the findings of this study. The producer archetype, for example, counts 9 out of 10 hybridity 1 organizations, while the food waste restaurant and platform do not count any hybridity 1 organization. Moreover, the only hybridity 6 organizations can both be found under the food waste restaurant archetype. When looking at all organizations and their hybridity per archetype, the producers are the most profit-oriented of all archetypes, followed by both the platforms and waste farmers. Finally, the food waste restaurant archetype seems somewhat non-profit oriented.

A possible explanation for the non-profit-oriented food waste restaurants might be that operating such a restaurant could be a very social activity. Moreover, if the owner of these food waste restaurants can rent a location for one or a couple of days a week - resulting in little financial risks - this might be an activity people are interested in doing for free. The opposite might be right for the producers, which includes less contact with clients since most producers sell their products through third parties. In addition, developing products, a production line, and finding third parties that are willing to sell their products might include more financial risks and be more time-consuming. Furthermore, another explanation might be that some archetypes might have more profit potential - resulting in people making it a commercial organization. Other archetypes might miss this profit potential - resulting in people doing it for free.

6.6 The relationship between business model archetypes and success

First of all, as Lambert and Davidson (2013) suggest, choices in the type of BM archetype will likely affect the level of success an organization can achieve. However, as Davies (2019) indicates, for surplus food redistribution initiatives it remains unknown which of the archetypes are most successful. Although most of the captured initiatives are categorized as producers - resulting in less generalizable findings of the other archetypes - still the results of this study hint in some directions. Especially taking into account the limits (minimum and maximum success levels) give some insight into the success chances per archetype. Besides, the distribution over the levels of success per archetype reveals some insights into these relationships.

When looking at the five unsuccessful cases (success level 0), three of these organizations are categorized as producers. This is expected since the producer archetype counts over half of all initiatives. Nevertheless, the remaining unsuccessful cases can be found under the platform archetype. Since the platform archetype only counts four cases, 50% of all platforms are labeled as unsuccessful. This number is high in comparison with the other archetypes. When taking into account the most successful cases (level 5 and level 6), some different remarkable dynamics come forwards. Although the producers archetype counts over half of all cases (28), they only include one success level 5 initiative and no success level 6 organizations. However, the food waste restaurants - counting just six initiatives - include 2 out of 3 very successful cases (success level six). Moreover, the platform counts one success level 5 organization and another success level six organization. In other words, proportionally seen, the producer archetype only

knows a minimal number of successful cases. The platform archetype is dominant both in the unsuccessful group and - together with the food waste restaurants archetype - in the most successful group.

An explanation for the platform archetype counting only the most successful and least performing organization can be found in the winner takes it all narrative - which means that one or a couple of organizations become dominant in a market and capture the majority of users, leaving nothing for their competitors (Eisenmann, 2006). When looking at Facebook likes and kilograms of avoided food waste, Too Good To Go (platform) has both 10 times more Facebook likes than the number two and avoids about 10 times more kilograms of waste on a yearly basis than the second-best organization.

6.7 Limitations

Before talking through the contributions and future research possibilities, this study presents some limitations that should be taken into account regarding the applied hybridity criteria, the definition of success and comparable outputs, and finally, some quantitative limitations related to sample size and the absence of statistical testing.

First of all, the accountability characteristic of hybrid organizations was not taken into account influencing the validity of the research. However, this element was unlikely to be found by desk-research, making it infeasible to incorporate in this study. Moreover, the applied hybridity criteria are the most meaningful criteria to place any organization on the hybridity spectrum. A second issue regarding the hybridity criteria and the validity of the research can be found in the statements on the website criterion. This criterion can be sensitive for greenwashing activities, making it a vulnerable criterion. However, this study assumes that most of the captured organizations are sincere about their position towards distributing profits.

Secondly, some other complications appeared regarding the definition of success. Defining success for any organization will always result in validity issues. Especially for hybrid organizations, this might lead to problems. By only looking at the environmental performance of the initiatives, organizations with a commercial or social orientation were disadvantaged - since these organizations did not receive any success points for their efforts regarding social- or financial performances. Though, this study aimed at revealing which organizations were most successful in tackling the issue of food waste - rather than successful in general. Even within this narrow perspective of success, some validity related problems occurred. As Herman & Renz (1997) indicate, finding suitable proxies to measure any organizations' success can be challenging. Both applied proxies might be biased for some archetypes. For example, activities around platform archetypes take place online. Since Facebook is an online organization, this similarity might result in higher levels of Facebook likes. When looking at the other proxy, another issue might occur. Only 20% of organizations were communicating their avoided food waste. Organizations that did not express how they performed in terms of their avoided food waste were disadvantaged. Since hybrids' right to exist is always partially derived from their

environmental and social impact, this might suggest that they should always communicate their performance to gain and preserve legitimacy.

Finally, besides these qualitative limitations, the study also encountered some quantitative restrictions. Firstly, the fact that the population of surplus food redistribution initiatives in the Netherlands took a different turn than expected, being much smaller than expected. When, on top of this, most recognized initiatives were categorized under one of the archetypes - with minimal numbers for the alternative archetypes - this led to the fact that no statistical test could be employed and the related reliability issues. However, the exploration of the suggested propositions turned out to be a worthy alternative and other results would not be expected using a larger sample size.

6.8 Contributions and future research

This study adds to the existing literature about hybrid organizations and organization studies in general by being the first to create a database with hybrid initiatives with comparable outputs suggesting that profit distributing organizations should receive a more prominent position in the field of hybridity studies. Moreover, it indicates that for-profit and non-profit organizations could be introduced in hybridity studies as control groups - for-profit organizations being shielded from environmental and social missions, and non-profit organizations being shielded from commercial intentions. Besides, it offers a critical view on hybridity studies by recognizing no relationship between hybridity and success, while current literature expects various relations to be in place. Other contributions - to the surplus food redistribution literature - can be found in the recognized (new) archetypes and the determination of which archetypes might have chances to become successful in tackling food waste. Besides, this study found that surplus food redistribution might wrongly be categorized under the sharing economy umbrella, leading to unfounded assumptions about these organizations. This study also identified an expected but previously unproven relationship between the position on the hybridity spectrum and the dominance of certain archetypes. Finally, this study helps to place the surplus food redistribution industry in the Netherlands in perspective - by showing their operational archetypes, impacts, and hybridity forms - and supports a better understanding of the sector in general.

Practical contributions of this research can be found in the knowledge that particular archetypes might be better in tackling food waste than other archetypes. New entrants can use these insights to select a BM wisely, and existing initiatives can better manage their operations. Moreover, creating a database including all surplus food redistribution initiatives in the Netherlands made the different organizations more visible both individually and as a sector, thereby showing the collective impact surplus food redistribution initiatives have. In addition, this insight into the industry might help entrepreneurs to find new partnerships and exchange knowledge in the field. Ultimately, this research contributed to a better understanding of how the challenges of increasing food waste can be addressed.

This study presents a variety of future research possibilities. First of all, new studies could employ a larger sample size in order to have statistically significant findings and more generalizable results. However, it does not seem likely that such a population can be found in the Netherlands. Therefore, a similar study could be employed on an international basis. Besides, it could be compelling to include pure non-profit and for-profit organizations to cover the whole spectrum between for-profit and non-profit organizations and expand the population. Furthermore, studies should try to incorporate varieties of success proxies to test the current findings. One option here could be to include proxies for possible social or financial missions to test the dynamics between these three missions. New studies could also center around one mission, rather than two missions - the current study included both organizations aiming to directly avoid kilograms of food waste and initiatives that indirectly influence people's food-wasting behavior.

7. Conclusion

This mixed-method research set out to get a better understanding of the Dutch surplus food redistribution sector and hybrid organizations in general by answering the following research question: "*What is the relationship between Dutch surplus food redistribution initiatives' 1) operational BM archetypes, 2) level of hybridity, 3) and level of success in tackling the issue of food waste?"*

In total, the database captured 45 organizations that showed a variety of four operational BM archetypes in the Netherlands: 1) the producers - 28 initiatives - included organizations that produce a variety of products from food waste; 2) the food waste restaurants - 6 initiatives - consisted of restaurants that mainly used food waste to cook with; 3) the platforms - 4 initiatives - aimed at connecting supply and demand in the context of food waste; 4) the waste farmers - 7 initiatives - were incorporating food waste in different farming activities. Furthermore, it was recognized that a great extent of these initiatives were operating other side activities to create a resilient organization.

Furthermore, although profit distributing hybrids are a mostly neglected group in the hybridity literature, this study found that the surplus food redistribution industry mainly contains commercially oriented hybrid organizations. Just 6 out of 45 organizations could be categorized on the non-profit side of the hybridity spectrum. When looking at the environmental missions of these initiatives, the selected definition of directly avoiding food waste by saving vegetables from being thrown away or changing people's food waste behavior was confirmed. Besides, most captured organizations have none or a couple of employees or volunteers and have little international activities. Reasons can be found in the fact that both in the world of hybrids as well as the surplus food redistribution sector experience a shift. With their novel way of combining commercial and charity missions, hybrid organizations have just recently started to gain popularity, and surplus food redistribution initiatives only lately started to move from charity

oriented to a more commercial mindset. It can be expected that both individual organizations and the market will sprout in the years to follow.

When looking at the relationships between the recognized archetypes, degrees of hybridity, and levels of success, this study found no apparent relationship to exist between hybridity and the chances to become successful in tackling the issue of food waste. Different theories have varying suggestions about which positions on the hybridity spectrum might be beneficial. It can be that they all have some truth in them but cancel each other out. The exploration of the relationship between archetypes and hybridity, however, found more connections with the literature. As suggested by various authors, different relationships between these concepts were recognized. Especially food waste restaurants prefer the non-profit side of the hybridity spectrum, while producers are more likely to be found on the for-profit side. On average, the waste farmers and platforms were located somewhere in between these two archetypes. Finally, exploring the relationship between success and archetypes, the platform archetype - being either very successful or not successful at all - knows some remarkable dynamics which can be related to the winner takes it all principle. The same explanation can be used for the best platforms' performance being ten times greater than the second-best performing organization captured by the database. Then, when comparing the four archetypes, platforms can become either very successful or fail. Besides, food waste restaurants have higher chances of success, while the producer archetype has no very successful cases and counts most of the unsuccessful cases.

Let us end this conclusion by returning to the opening paragraph of this research and the paradox of a food wasting- and warming up world. Will hybrid organizations keep their promises and exclude the unwanted environmental and social by-products of our capitalist system? Will the surplus food redistribution industry be able to deal with the rising numbers of food waste? This study shows that, although most of the surplus food redistribution initiatives in this research are fairly small, they are expected to grow in size and numbers. Finally, when looking at their accumulated efforts as a sector, their impacts are both real and promising.

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10. Appendices

Appendix A. Operationalization of variables

Survey						
	Variable	**Composition of variable**	**Indicator**	**Survey question**	**Answer**	**(Options**
General	Name of organization	x	x	What is the name of your organization?	Open-ended question	
	Function of respondent	x	x	What is your function within the organization?	Single selection	Initiator Manager Other, namely ……
	Purpose of organization	x		Which of the following purposes does your organization have?	Multiple selections	Economical Social Environmental

Type of donors and food waste	Type of Donors	Origin of waste streams (Michelini et al., 2018) (Davies et al., 2017)	x	Where does the input stream of food in your organization come from?	Multiple selections	
		Performance evaluation (Michelini et al., 2018) (Davies et al., 2017)		Measuring sustainable impact	Do you keep track of the kilograms of food that your organization has rescued?	Yes/No
					How many kilograms per year are you saving?	Open-ended question
					How do you calculate the amount of yearly rescued kilograms?	Open ended question

					If no, Why are you not calculating this?	Open ended question
	Reason for becoming waste	(Michelini et al., 2018) (Davies et al., 2017)	x	What is the reason these food streams are depreciated?	Multiple selection	Almost expired Overproduction Does not look like it should Other, namely …...
	Other destination for waste stream	(Michelini et al., 2018) (Davies et al., 2017)	x	Where would these food streams otherwise end up?	Multiple selection	Waste incineration
						Animal feed
						Fermentation plant
						Retail
						Other, namely...

Organizational characteristics	Demographics	Number of employees (Michelini et al., 2018)	Full time equivalent	How many full-time equivalent employees (FTE) are active in the organization?	Open ended question	
	Number of volunteers	Number of volunteers (Michelini et al., 2018)	Number of volunteers	How many volunteers are active in the organization?	Open ended question	
		Every business model calls for a number of Key Activities. These are the most important actions a company must take to operate successfully (Osterwalder & Pigneur, 2010).	Main activities of organization	Can you shortly describe the organization and its main activities?	Open ended question	
				Which of your activities is outsourced?	Single selection	We do everything ourselves
						The following activities are outsourced
				Is attracting new “waste” streams one of your main activities?	Yes/No	
				Do you pay for the food that you rescue?	Yes/No	

		The Key Resources Building Block describes the most important assets required to make a business model work (Osterwalder & Pigneur, 2010).		Which of the organization's assets are most important to make the business model work?	Open ended question	
		The Customer Segments Building Block defines the different groups of people or organizations an enterprise aims to reach and serve (Osterwalder & Pigneur, 2010).		Which customer segment(s) is the organization serving?	Open ended question	
		What are the most important costs inherent in our business model? Which Key Resources are most expensive? Which Key Activities are most expensive?(Osterwalder & Pigneur, 2010).		Which key resources and key activities are most expensive to operate your business model?	Open ended question	

				Which different revenue streams are you generating with the organization?	Open ended question	
	Operative in the Netherlands/ Outside of the Netherlands	(Michelini et al., 2018)		Are you also active outside of the Netherlands?	Single selection	Yes No
Success	experiencing success	Frequently, it is not only the individual performance of hybrid organizations that determines their degree of success. Hybrids do not usually have hard competition within their market. Often, they favor inspiring other organizations with their innovations (Haigh & Hoffman, 2011). Hence, imitation by other companies or collaborations with conventional firms that have similar societal goals can sometimes be seen as a success. In these partnerships, hybrids can function as incubators for innovations that can utilize the capacity of the partner to gain in size and impact (Lee & Jay, 2015).	x	How would you summarize success for your organization?	Open ended question	

	Influence on success	x	x	What do you feel has the most influence on the success of your organization?	Open ended question	
	Performance evaluation	x	Measuring sustainable impact	Do you keep track of the kilograms of food that your organization has rescued?	Yes/No	
Hybridity	Profits	(Lussier & Pfeifer, 2001) offer a practical approach to capture the success of for-profit organizations: to be considered a success, a business needs to produce industry average profits for the last three years; when not producing profits for the last three years the business is deemed a failure.	Under average profits in the last 3 years, average profits, above average profits	How would you describe your profits in comparison with the rest of the industry in the last 3 years?	Single selection	Under average Average Above average I don't know
	Distribution of profit	They can choose, for example, to distribute profit to the owners of the initiative (and act more like a for-profit organization), or decide not to distribute profits (and behave more like a non-profit initiative) (Hoffman et al., 2012).	Is profit distributed to owners	Do you distribute profit to owners?	Yes/No	

	Hybrid spectrum	Traditional Nonprofit Nonprofit with income-generating activities Social Enterprise Socially Responsible Business Corporation Practicing Social Responsibility Traditional For-Profit (Alter 2007)		Where would you place yourself in the spectrum between for-profit and non-profit?	Single selection	Traditional Nonprofit Nonprofit with income-generating activities Social Enterprise Socially Responsible Business Corporation Practicing Social Responsibility Traditional For-Profit
	Managing multiple missions	The dual nature of hybrids requires these organizations to engage in two or even three missions (financial and social or environmental). As a consequence, hybrids are required to prioritize the different missions they follow (Doherty et al., 2014).	Experience of difficulties balancing different missions simultaneously	Do you feel difficulties balancing your environmental mission with your commercial activities?	Single selection	Yes No Other, ...

	Tensions within personnel because of hybridity	The dual nature of hybrids requires these organizations to engage in two or even three missions (financial and social or environmental). As a consequence, hybrids are required to prioritize the different missions they follow (Doherty et al., 2014).	Recognize tensions within personnel about different missions	Do you experience tensions within your organization's personnel about balancing the environmental mission and your commercial activities?	Single selection	Yes No Other, ...
	Competition	Nevertheless, frequently, it is not only the individual performance of hybrid organizations that determines their degree of success. Hybrids do not usually have hard competition within their market. Often, they favor inspiring other organizations with their innovations (Haigh & Hoffman, 2011). Hence, imitation by other companies or collaborations with conventional firms that have similar societal goals can sometimes be seen as a success. In these partnerships, hybrids can function as incubators for innovations that can utilize the capacity of the partner to gain in size and impact (Lee & Jay, 2015).	x	How would you summarize success for your organization?	Open ended question	

	Collaboration and engagement	Nevertheless, frequently, it is not only the individual performance of hybrid organizations that determines their degree of success. Hybrids do not usually have hard competition within their market. Often, they favor inspiring other organizations with their innovations (Haigh & Hoffman, 2011). Hence, imitation by other companies or collaborations with conventional firms that have similar societal goals can sometimes be seen as a success. In these partnerships, hybrids can function as incubators for innovations that can utilize the capacity of the partner to gain in size and impact (Lee & Jay, 2015).	Categories of main partners	Of which categories are your main partners?	Multiple selection	Non-profit Public Private
			Number of collaborations	Around how many collaborations with other organizations is your initiative maintaining?	Scale	0
			Vital collaborations	Could you shortly describe which collaborations are vital for the organization, and why?	Open ended question	

			Engagement of local community	Is the local community engaged in your activities?	Yes/No	
Database						
	Year of establishment	x (Davies et al., 2017)				
	Geographies (location)	Registration at Chamber of commerce (Davies et al., 2017)				
	Standard industrial code	Registration at Chamber of commerce (Davies et al., 2017)				
	Origin	Where did the initiative started (Davies et al., 2017)				
	Percentage no longer active	Measured by non activity on websites and social media or when signed out at chamber of commerce				
	Hybridity	Legal registration (Chamber of Commerce)				

		Statements on website about the distribution of profits (websites and social media of initiatives)				
		Integration of environmental mission in the business model (Gamble et al. 2019)				
	Success	Facebook likes (Aschemann-Witzel et al. 2017)				
		Avoided kilograms of food waste in yearly kilograms (Aschemann-Witzel et al. 2017)				
	Archetype	Key-activities presented on initiatives websites and social media accounts				