



# The hybrid organizations' contribution to the sustainability transition of actors in the German food industry

Lea Godejohann

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Leglise

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## **Abstract**

In recent years, concerns about climate change have increased and the urgency to act on them and respect the planet's boundaries is inevitable. With the United Nation's commitment to the Sustainable Development Goals, pressure on various sectors, including the food industry has increased, calling upon a divergent change.

Looking at the German food industry, this thesis aims at understanding and outlining how hybrid organisations operating in the German food industry can initiate such divergent, transform the latter into a less wasteful one, despite facing a variety of barriers and challenges.

Drawing on the institutional entrepreneurship (IE) theory and applying its framework onto a qualitative multiple case study, this thesis reveals that hybrid organizations do engage in vision creation, ally mobilization and resources mobilization, consequently characterising them as institutional entrepreneurs on a meso-level perspective.

Yet this research further shows that the role hybrids inhabit and the magnitude of their transformative power is limited by a variety of barriers and challenges, that arise from their and other actor's institutional embeddedness as well as due to the nature and complexity of the industry itself.

**Keywords:** *Hybrid organizations, food waste, food surplus, institutional entrepreneurship*

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**Author:** Lea Godejohann

## **Abstrato**

Nos últimos anos, as preocupações com as alterações climáticas têm aumentado e a urgência de agir sobre elas e respeitar os limites do planeta é inevitável. Com o empenho das Nações Unidas nos Objectivos de Desenvolvimento Sustentável, a pressão sobre vários sectores, incluindo a indústria alimentar, tem aumentado, apelando a uma mudança divergente.

Olhando para a indústria alimentar alemã, esta tese visa compreender e delinear como as organizações híbridas que operam na indústria alimentar alemã podem iniciar tais divergências, transformando estas últimas em menos desperdício, apesar de enfrentarem uma variedade de barreiras e desafios.

Baseando-se na teoria do empreendedorismo institucional (IE) e aplicando a sua estrutura num estudo de caso múltiplo qualitativo, esta tese revela que as organizações híbridas se envolvem na criação de visões, mobilização de aliados e mobilização de recursos, caracterizando-as consequentemente como empreendedores institucionais numa perspectiva meso-nível.

No entanto, esta investigação mostra ainda que o papel dos híbridos habita e a magnitude do seu poder transformador é limitado por uma variedade de barreiras e desafios, que surgem da sua e de outros actores, bem como devido à natureza e complexidade da própria indústria.

**Palavras-chave:** *organizações híbridas, desperdício alimentar, excedente alimentar, empreendedorismo institucional*

**Título:** The hybrid organizations' contribution to the sustainability transition of actors in the German food industry

**Autora:** Lea Godejohann

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## List of Abbreviations

### A

AI = Artificial intelligence

### E

e.g = for exemple

E&S = environmental and social

etc. = et cetera

### G

GHG = greenhouse gas emission

### I

IE = institutional entrepreneur

### S

S&E = social and/or environmental

SPRK = SPRK.global

### V

vs. = versus

## 1. Introduction

Based on estimations by the UN Food and Agriculture Organization (FAO) in 2011, one-third of the food produced globally is wasted annually. This estimate is still widely cited, yet recalibrations by the UN food waste index (2021) and the NGO “WWF” from 2021 suggest, that with 2.5 billion tonnes of food loss and waste, the amount is in fact closer to 40% (WWF, 2021). In Germany alone 12 million tons of food are wasted every year (BMEL, 2019).

As the production of food involves processes that are resource-intensive and inhabit a variety of environmental effects such as water, soil and air pollution as well as green-house gas emissions, the amount wasted significantly impacts the climate (Mourad, 2016; Schanes et al., 2018). The total amount of food waste and losses account for 10% of greenhouse gas emissions (GHG), making it one of the many contributors of climate change (WWF, 2021). Considering that the world population is growing rapidly and is expected to increase by 2 billion people, reaching a potential population of 9.7 billion in 2050 and 11 billion by 2100, this problem of food waste left unsolved, could create an even bigger problem as the demand for food will rise accordingly (United Nations, 2021). A reduction of food waste, redistribution of food surplus and a reconsideration of the way we value and consume food is consequently necessary (UNEP, 2021).

In recent years efforts on addressing this predicament have evolved in the waste management and environmental science field (Mourad, 2016). A similarly attitudinal shift, characterized by an increased attention on social and environmental topics is observable in management and organizational research. Interest in hybrid organizations, those merging organizational modules to attain both social or environmental and financial outcomes, has grown severely (Battilana & Lee, 2014; McMullen, 2018; Russo et al., 2022; Serres et al., 2022). In fact, an avenue of research has evolved around the topic of hybrid organisations, investigating their diverse structure and institutional complexity (Battilana & Dorado, 2010; Castellás et al., 2019; Gamble et al., 2020; Lynn, 2021; Pache & Santos, 2013) as well as the challenges arising from the latter (Alexius & Furusten, 2020; Ebrahim et al., 2014; Ramus & Vaccaro, 2017; Santos et al., 2015), in various economic sectors.

Yet little research has investigated hybrid organizations in the food industry, particularly regarding food waste management. The previously described scope of food wastage in the German food industry however, indicates the severity and topicality of the problem, calling for further research. Considering that these unique organisational forms act on an environmental

mission, suggests that hybrids could play an important role in fostering a sustainability transition of the food industry. Hence my research seeks to answer the following research question: How can hybrid organisations operating in the German food industry contribute to transform the latter into a less wasteful one, despite facing a variety of barriers and challenges? To answer this research question, I employ a qualitative research approach, more particularly a multiple case study of the four hybrid organisations: SPRK.global, The Good Food, foodforecast and be bananas, that target food waste reduction in the German food industry. As a qualitative approach is particularly suited to uncover the deeper meaning of a phenomenon as opposed to its frequency (Maanen, 1979), this methodical choice depicted the most appropriate approach to uncover activities and mechanisms hybrids employ, to initiate divergent change. Further a multiple case study enabled the comparison of different solutions along the supply chain. The four chosen businesses are operating in the German market, which enhances comparability, as they are exposed to similar conditions, barriers and challenges within this industry.

Drawing on the institutional entrepreneurship theory, my study demonstrates that hybrids do in fact engage in institutional entrepreneurship actions, by creating a vision of change, by mobilizing allies and by mobilizing resources. Doing so, my study contributes to a stream of literature on institutional entrepreneurship and organizational research, highlighting the relevance of hybrid organisations for the sustainability transformation of the German food industry towards a waste free sector. It further shows what role hybrids play in initiating such a change and how they bypass challenges and barriers arising along the process. Yet these findings are limited to the perspective of the meso-level cycle, which focusses the analysis on the interaction between actors, that fosters change.

To answer the prior mentioned research question, the structure of this study follows the following anatomy. After a general review of previous literature on food waste management and hybrid organisational research, I will explore the IE theory in chapter 2. In chapter 3, I will introduce the methodology applied to this study, followed by an outline of the empirical setting (chapter 4), before gathering the findings in chapter 5. Finally, I conclude with a discussion drawn from the findings and will outline opportunities for future research in organizational studies in chapter 6.

## **2. The literature Review**

This following chapter will provide an overview on recent literature regarding food waste management and hybrid organizations. It indicates that there are various ways of addressing and preventing food waste, through a food waste hierarchy. Further by drawing on organizational research, it establishes that hybrids can play a significant role in creating a path but that there is a need to consider their institutional complexity which gives rise to various challenges.

First this chapter will review literature on food waste, particularly the definition of food waste as well as ways to address it (in section 2.1.), continuing with the introduction of the hybrid organizations concept, their role, followed by their challenges (in section 2.2.). Lastly this chapter serves to outline the research gap (section 2.3.) and introduce a theoretical framework to accompany my research approach (in section 2.4 and 2.5.).

### **2.1. Comprehending food waste generation and ways to address it**

Through reviewing recent literature in the food waste management field, it can be noted, that there are various definitions of food waste and that there consequentially exists a necessity to differentiate between the terms “food waste” and “food surplus” to evaluate the contribution each business solution provides. Further this chapter finds that solutions can address food waste through a so called “3Rs” waste management hierarchy.

This section will first review the different definitions surrounding food waste, to construct a holistic understanding of its meaning and various forms, followed by a brief introduction of the food waste hierarchy framework.

#### **2.1.1. The necessity to differentiate food waste and food surplus**

Stemming from various fields of research, most authors’ general conceptions of waste and in particular food waste differ significantly. Within previous literature one can identify multiple definitions of food waste, that vary mainly in terms of the foods’ initial function. While some researchers refer to food waste as an edible substance initially designed for human consumption, that instead is degraded or disposed (Papargyropoulou et al., 2014), others relate food waste to food that has not been usable in the first place, like “scraps” or “trash” (Mourad,

2016). Yet others consider food waste to be closer linked to behavioural issues throughout the final consumption stage (Parfitt et al., 2010). Categorizing these findings Papargyropoulou et al. (2014) distinguish between avoidable and unavoidable waste. Unavoidable food waste defined as food that has not been edible under normal circumstances, like fruit skin for instance, as opposed to avoidable food waste that is considered edible by most persons.

Papargyropoulou et al. (2014) further emphasize the importance of differentiation between food waste and food surplus. In contrast to food surplus, which refers to the quantity of food produced beyond nutritional-physiological requirement, food waste is the result of food surplus. Papargyropoulou et al. (2014) find that opposite to its' intended function as a safeguard against unpredictable events, such as bad weather during the production phase, food surplus in fact further contributes to global food waste, up to a level where it is posing a severe threat to global food security.

Consequently, such a definitional distinction between food surplus and food waste is necessary to categorize potential solutions offered by businesses. Regarding my study, this differentiation further facilitates the comparison of the four cases and helps to characterize their contribution to the reduction of food waste and surplus. For the purposes of this study, I therefore adopt the outlined distinction between food waste and food surplus to improve mutual understanding of the arguments I am presenting.

### **2.1.2. Addressing food waste based on a food waste solution hierarchy**

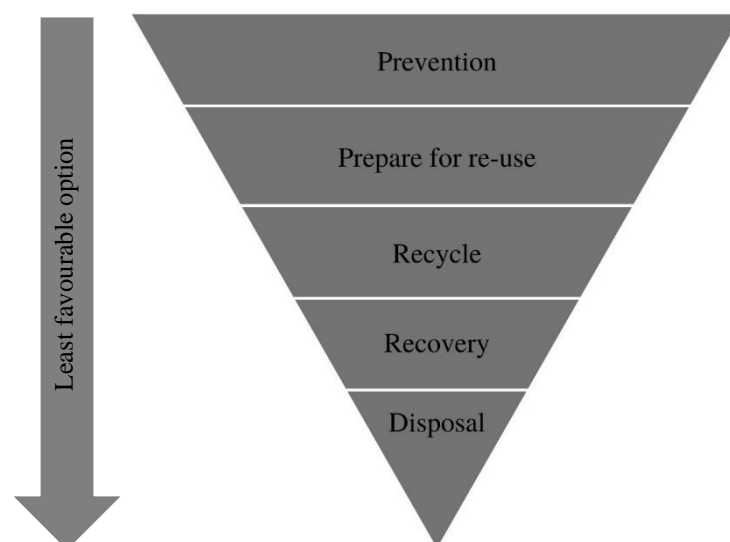
An increased number of studies from various fields of research such as industrial ecology, circular economy and waste management specifically address food waste through the so called "3Rs" waste management hierarchy - reduce, reuse, recycle (Mourad, 2016). This widely applied concept was first introduced by European policy in the 1970s and has since been adopted by scholars as a framework to combat food surplus and food waste (Papargyropoulou et al., 2014) (refer to Figure 1 below).

According to Gustavsson et al. (2011), the most dominant stage of food waste generation is the consumption stage. Therefore, unsurprisingly, the core focus of most research lies on the final stage of food consumption. Aiming to identify the focus points for sustainable solutions combatting food surplus and waste however, Papargyropoulou et al. (2014) instead suggest devoting similar scientific attention to all stages, taking the entirety of the global supply chain into account.

Extending the 3Rs framework, Papargyropoulou et al. (2014) as well as Mourad (2016) add further solution categories like “prevention” and food “recovery” to the hierarchy. Judging the categories on feasibility and level of contribution to solving food waste related issues, they are ranked from least to most favourable option. “Prevention” portraying the greatest potential and “recovery” portraying the least favourable. Ranging from improved agricultural infrastructure to more retail-based methods like improved food labelling or improved shelf life, multiple solutions along the hierarchy are proposed.

Behind this hierarchy, 3 perspective pillars can be identified - the economic, the social and the environmental pillar. In order to inspect the chain in a holistic way, these three pillars must be included in the hierarchy respectively (Mourad, 2016). For each dimension (social, economic, environmental), some proposed solutions are more likely to be implemented than others. Based on the environmental, social, and economic interests, the solutions they reflect, may even compete. For instance, if food surplus was donated for free instead of being sold, from an economic standpoint, this would portray a “loss”, since businesses usually aim to optimize sales instead of compromising it. From a social perspective however, this trade would be considered a solution (Mourad, 2016).

Regarding the organizational forms to address problems in the food sector, some researchers are starting to focus on hybrid organizations as a potential solution such as Vickers & Lyon (2014) and Civera et al. (2020).



**Figure 1:** Food waste reduction hierarchy (adapted from Papargyropoulou et al.(2014))

## **2.2. Hybrid organizations, the emergence of a new organizational form to address multiple objectives**

The review of literature on the new emerging organizational form - the hybrid organization - establishes that this organizational form is characterized by a complex institutional structure and hence is exposed to a variety of challenges. Nevertheless, their social or environmental mission enables them to act as change agents.

Exploring this type of venture in closer detail, the following sub-sections will map out their complex structure followed by a characterization of their role as change agents, before exploring challenges they face.

### **2.2.1. The complex construct of hybrid organizations**

Hybrid organizations can be described as organizations that combine multiple and conflictual institutional logics, pursuing dual missions (Battilana and Lee 2014; McMullen 2018; Pache and Santos 2013). They are for-profit enterprises with financially sustainable business models that simultaneously pursue a social and/or environmental mission. They go beyond profitability as they aim to create environmental or social value for all stakeholders and introduce a novel and innovative approach to address complex social problems by blending elements of non-profit and for-profit models (Ebrahim et al., 2014; Ramus & Vaccaro, 2017; Russo et al., 2022).

This multivocal ability, in other words ability to handle conflicting demands or competing institutional logics, specifically distinguishes them from dominant-logic organizations (Pache & Santos, 2013; Russo et al., 2022). While some scholars recognize a clear differentiation between hybrids and classic for-profits, others argue that the emergence of new socially oriented, corporate forms has blurred the boundaries between classic for-profits and traditional non-profits and hence stress the importance to further categorize social ventures by legal structure and core governance-related features (McMullen, 2018; Serres et al., 2022). As these organizations pursue potentially conflicting objectives, one stream of research focuses on understanding how hybrids manage and prioritize these opposing aims (Castellas et al., 2019).

### **2.2.2. The significant role of hybrid organizations as change agents**

In their role as “change agents” (Kibler and Munoz, 2020), hybrids play a significant part, specifically in the early phase of path development for institutional and societal transformation. Applying Bothellos and Salles-Dielics (2018) mechanisms of path generation (assimilation, coalescence, cooptation and recombination), Alexius & Furusten (2020) find that especially in the assimilation and coalescence phase, as hybrid organizations connect sub-paths, take the position of a neutral node and create space for dialogue and interaction, they enforce path generation. Russo et al. (2022) study on agglomeration of hybrids suggests that this is due to specialized knowledge spill overs. Organizations from various industries are united by a great social goal. Accordingly, their networking activities foster category-specific, rather than industry-specific spill over effects, building fertile ground for them to thrive. Consequently, this assimilation and coalescence phase is not just vital for their own future success but for the creation of a path for other organizations to follow. Thus, the greater the agglomeration of hybrids, the greater the likelihood that new ones will form.

### **2.2.3. Challenges of hybrid organizations**

Nevertheless, as hybrids aim to harmonize interests otherwise thought to be trade-offs, such as sustainability versus (vs.) efficiency, short-term vs. long-term interests or profit vs. purpose, this value pluralism and institutional complexity often leads them to experience a set of challenges (Castellas et al., 2019; Gamble et al., 2020; Lynn, 2021). As identified by Castellas et al. (2019) pluralism of logics and along with that, value pluralism give rise to four general categories of challenges: Cognitive dissonance, incommensurability, interdependence and aggregation. Cognitive dissonance, described as a mental discomfort resulting from the cognitive challenge to merge competing values results in an unavoidable, rising tension in any decision-making process. This problem is accompanied by incommensurability, imposing those values are hard to measure and compare, further complicating operating procedures. The interdependency of values challenges organizations additionally, as one type of value may depend on or even create another value. Lastly Castellas et al. (2019) identify aggregation as a challenge that is especially relevant across space and time. This challenge causes conflicts of interest, as individuals are forced to make a trade-off between short-term and long-term goals. For example, a positive short-term interest of an individual could cause a negative outcome in

the long run. Consequently, keeping the equilibrium between opposing values turns out to be vital for the sustainability of hybrids.

A main consequence of the outlined challenges, identified by many researchers, is mission drift. As companies sacrifice their pro-social goals for financial achievements to ensure the sustainability of the company or find themselves under internal or external pressure to achieve commercial goals, the balance of the two missions is thrown out of kilter (Ebrahim et al., 2014; Ramus & Vaccaro, 2017; Santos et al., 2015). Finding ways to address such challenges is imperative and aids the development of strategies to better align societal impact and profit generation (Santos et al., 2015). These surfacing hurdles within hybrid organisations are in fact an indicator for the fragile and temporary nature of their multivocal position, gained in the early phases (simulation, coalescence). As the emerging markets contract and mature (cooptation and recombination phase), hybrids often struggle to maintain or regain momentum. Failing to flexibly respond to a changing environment, their influential power as path generators decreases, yet again heightening the risk potential of internal conflicts (Alexius and Furusten, 2020). According to Pache and Santos (2013) the latter are often a vital reason for a compromised performance, risking the stability of the organisation. Battilana and Dorado (2010) further emphasize that internal conflicts may also arise due to hybrids lacking a common identity. A common organizational identity is vital for the survival of an organization, as it enables its members to maintain an equilibrium between multiple organizational logics. An unstable or absent organizational identity fosters the emergence of subgroups, creating intergroup tensions, that hence lead to severe identity conflicts. Consequently, the organizations' identity needs to be adapted or sustained to ensure continuous thriving of the venture (Alexius & Furusten, 2020).

Besides the identity, that signals rather internal functionality, the message that is signalled to external actors is equally as important. Projecting professional legitimacy to external stakeholders for example is essential for gaining their trust and acceptance. Further hybrids institutional freedom and selective coupling ability, described in the previous chapter, can only leveraged by those that have gain professional legitimacy in the first place (Pache & Santos, 2013). Extending those findings, Russo et al. (2022) stress that an accepting environment is equally as essential for the survival of such organisational forms and can strongly influences the agglomeration of the latter. They find that specific characteristics of the environment such as the political orientation or the munificence of a community can impact the number of organizations that prevail in the industry. They identify a negative correlation between conservative oriented communities and the number of hybrids operating in them. These

findings put an emphasis on the importance of the organizational fit with the community. Nevertheless, it remains to be investigated whether this is the result of hybrids simply being unfit for conservative communities or whether this result is rather connected to the speed in which conservative communities adopt hybrids (Russo et al., 2022).

One can conclude that the concept of hybrid organizations is very complex and that their success, especially in the long run, is dependent on a variety of factors. The literature review has revealed that both internal factors (e.g. organizational identity, logic pluralism) as well as external factors (e.g. legitimacy, munificence of a community) can impose great challenges and are vital in securing the sustainability of such organizational forms in the long run. Considering that hybrids have made it their mission to embrace social or environmental change, their ability to maintain their business in the long run is necessary for such change to happen. Yet the question of how these organisations can foster such a change in the German food industry and what role they play in initiating this change, remains.

### **2.3. Defining the research gap**

Recent advances in research on hybrid organizations have primarily focused on analysing the concept of logic plurality (Serres et al., 2022; Pache & Santos, 2013; Battilana & Lee 2014) as well as the potential internal conflicts and tensions arising from competing logics (Battilana & Dorado, 2010; Castellás et al., 2019; Ebrahim et al., 2014; Ramus & Vaccaro, 2017). Others have investigated the evolution of hybrids and their role as path generators (Alexius & Furusten 2020, McMullen, 2018; Russo et al. 2022) as well as their interorganizational collaborations (Savarese et al. 2021). Well-studied examples of hybrids are microfinance organizations, work integration social enterprises (WISEs), environment consulting firms, energy companies and utility and solidarity enterprise (Battilana & Dorado's, 2010; Ramus & Vaccaro, 2017; Serres et al., 2022). Although, as indicated in chapter 2.1.2., a great amount of literature has been dedicated to the examination of food waste management in the food industry, no articles in organizational research have yet investigated the problem of food waste from the perspective of hybrid organisations. As mentioned prior, research by Vickers & Lyon (2014) and Civera et al. (2020), has drawn on hybrid organizational research in the food industry. Articles from Díaz-Correa & López-Navarro (2018) and Siegner et al. (2018) have drawn on hybrid organizational research to explain how sustainable business models like hybrids can create a positive social and environmental change in the agriculture sector. However, the question of

how hybrids can foster such a change in the German food industry, contributing to food waste reduction, demands further study. It is still unclear what specific actions hybrids, targeting food waste reduction, can or already do engage in to promote change, what role they play in bringing about such a change and how they can bypass challenges, that hinder the magnitude of their impact. Thus, this study will answer the following research question: How can hybrid organisations operating in the German food industry can contribute to transform the latter into a less wasteful one, despite facing a variety of barriers and challenges?

To answer this, I will draw on the institutional entrepreneurship theory, more particularly the framework proposed by (Battilana et al., 2009) and the three-cycle model for social innovation by van Wijk et al. (2019).

## **2.4. The theoretical framework: Institutional entrepreneurship theory**

This section introduces the institutional entrepreneurship theory as well as the three-cycle model of innovation, particularly the meso-level, which focusses on interactions of actors to foster change. I first explain the institutional entrepreneurship theory, before illustrating the meso-level lens.

### **2.4.1. The emergence of the institutional entrepreneurship theory**

The so-called “institutional perspective” first arose in the 1970s through a group of researchers who critiqued the neo-institutional theory (Elliot 2016) and identified a need to distinguish “old” from “new” institutionalism, which puts an emphasize on legitimacy and the embeddedness of organizational fields (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Greenwood & Hinings 1996).

Although authors such as Meyer and Rowan (1977), Zucker (1977) DiMaggio and Powell (1983) are understood as the conceptual founders of modern organizations institutionalism, setting the course for much of the literature following this stream of research, the general concept of “institutional entrepreneurship” is most closely linked to DiMaggio (1988) (Battilana et al., 2009). Reviving ideas of “old institutionalism” by reconsidering agency, power and interests as well as the roles of agents and agency in institutional change within the framework of institutional theory, DiMaggio first initiated this notion of “institutional

entrepreneurship”. He argues that “new institutions arise when organized actors with sufficient resources (institutional entrepreneurs) see in them an opportunity to realize interests that they value highly” (DiMaggio, 1988; p.14). Ever since, a growing body of research has adapted and expanded this theory, seeking to bridge the “old” and “new” institutionalisms in organizational research (Greenwood & Hinings, 1996). This gave rise to new concepts and frameworks defining the core idea of institutional entrepreneurship. The institutional entrepreneur is thus understood as an actor who leverages resources to either create a new institutional context or transform existing ones by introducing new concepts and niche innovations and by proposing or building opportunities (Alonso-Almeida et al., 2021; Battilana et al., 2009; DiMaggio, 1988; Elliot, 2016). An institutional entrepreneur does not necessarily have to be an individual actor or organization but can consist of groups of individuals or groups of organizations (Battilana et al., 2009).

Within the boundaries of institutional theory however, the concept of institutional entrepreneurship seems paradoxical. As actors, individuals or organizations are embedded in institutions and consequently constrained by them, they face significant challenges initiating change that breaks with such institutionalized models in certain institutional contexts (Battilana et al., 2009). Accounting for this “paradox of embedded agency”, Battilana et al. (2009) examine the process of institutional entrepreneurship, proposing a framework of core actions, organizations engage in, when taking on the role of institutional entrepreneurs in their aim to initiate divergent change.

Building on previous definitions (in particular DiMaggio’s (1988)), Battilana et al. (2009) argue that institutional entrepreneurs fulfil two conditions. They (1) initiate divergent change – here regarded as “changes that break the institutionalized template for organizing within a given institutional context” (p. 68). and (2) actively participate in the transformation despite initially intending or not intending to change the institutional environment. Particular actions IEs engage in, in order to initiate divergent change, involve - creating a vision for divergent change - mobilizing allies and mobilizing resources mobilization. Further Battilana et al. (2009) identify two enabling conditions that work in favour of institutional entrepreneurship: 1) field characteristics and 2) the actors’ social position. Field characteristics refer to the levels of fragmentation and institutionalization of the field, accounting for the IEs degree of institutional embeddedness. A first form of field characteristics are critical events. Critical events can be interpreted as “events that influenced the path of institutional development in a given environment during a period of time” (Child et al., 2007, p.1017). Because they trigger the emergence of new ideas in response, they can be

regarded as enabling conditions for institutional entrepreneurship. The social position of an actor can be understood as the hierarchical position, status or the position within a given (social) network that the actor or organization withholds and through which the IE can leverage formal authority or social capacity in order to bring about change. Hence this factor can impact the likelihood of their engagement in institutional entrepreneurship and can thus function as an enabling condition (Battilana et al., 2009). To illustrate the proposed framework by Battilana et al. (2009) these interrelations are depicted in Appendix A.

Aiming to explain how institutional entrepreneurship favoured the evolution of new organizational forms such as hybrid organizations, authors like Tracey et al. (2011) or Ko & Liu (2021) have turned to institutional theories, investigating the emergence of plural logics in the light of IE. Similarly, scholars concerned with sustainable transition research, have employed the institutional entrepreneurship theory onto various studies in circular economy, energy systems or low carbon innovations (Alonso-Almeida et al., 2021; Jolly et al., 2016; van Doren et al., 2020). They however turned to the IE theory in order to illustrate how industry actors can leverage their abilities as IEs to shape such transitions. For the purpose of my study I therefore too draw on institutional entrepreneurship literature, yet I will apply a meso-level perspective, focussing on discussing how hybrid organizations can initiate a sustainability transformation.

#### **2.4.2. The meso-level perspective**

The meso-level is one perspective out of the three-cycle model for social innovation processes (micro -level, meso-level, macro-level), proposed by van Wijk et al. (2019). This model builds on the institutional entrepreneurship theory and offers an alternative view on social innovation. The meso-lens tries to better grasp the sustained efforts necessary to bring about change and observes “how actors see new opportunities for social innovation and begin to negotiate and co-create them together and, in doing so, help (or fail to) embed them in their respective contexts” (van Wijk et al., 2019, p.895). Accordingly, this level is characterized by tie creation and interaction in “interactive spaces”, by negotiation, co-creation and embedding, which enable innovation (van Wijk et al., 2019).

Investigating internal processes of hybrids, Battilana et al. (2015) and Ometto et al. (2019) for instance find that the creation and maintenance of “negotiation spaces” - where

employees can jointly develop solutions - and “hearding spaces” - that create links to the organizations’ institutional context, are necessary to ensure and maintain the internal balance of the organization. Moreover, highlighting the importance of interactional spaces, Carberry et al. (2019), find that corporate social innovations are the result of a collective interplay of managers, actors, social entrepreneurs, or activists rather than the consequence of actions carried out by one enlightened actor. Consequently, interactive spaces are an essential enabler of social movements or organizational change (Haug, 2013), not least because they temporarily shield actors from institutional constraints, enabling the development of new ideas, practices, and co-creation (van Wijk et al., 2019).

Besides interaction, co-creation and embedding are observable on the meso cycle. Studies by Purтик & Arenas (2019) and Huq (2019) for instance explore examples of the latter, by investigating user and professional embedding in social innovation processes. In their study, Purтик & Arenas (2019) demonstrated that companies that offered novel green technologies products that trigger change or significantly diverge from alternatives on the market strategically involved users and third-party actors early in the product development and used different trust-building processes to create legitimacy and turn the users into ambassadors and multipliers of innovation. Further Huq (2019) points to the necessity to involve professionals in the social innovation processes in highly professional fields. Such fields however are characterized by structuring and constraining forces that hinder the introduction of new solutions. Consequently, as she identified in her study, disruptive actions can enhance and encourage social innovation. It follows that involving a range of actors and interests increases the acceptance of the innovation and the chances of embedding it in the macro context.

For the purpose of my study, I will adopt the meso-level cycle as a lens to analyse my findings. Based on the article by van Wijk et al. (2019), only on the macro-level it is assessable if there is a long-term institutional change observable. Because the collection of data spun over a period of three months, unable to detect long-term profound changes in broader societal level institutions, I will neglect the macro-level cycle and will solely focus on the meso-level.

### **3. Methodology**

This section introduces and reasons the methodological approach applied for my research. It is presented in four parts. After exploring the methodological choices made and the sampling strategy employed, it will outline the data collection and the data analysis.

#### **3.1. Methodological choices**

Understanding how hybrid organisations operating in the German food industry can transform the latter into a less wasteful one, despite facing a variety of barriers and challenges, requires unpacking a complex entanglement of internal as well as external relationships with stakeholders and the institutional environment. Because a qualitative research approach is particularly suited to uncovering the deeper meaning of a phenomenon as opposed to its frequency (Maanen, 1979), I considered it the most appropriate research design for my study. A qualitative analysis allows an exploratory setting that gives rise to rich, contextualized and nuanced data (Weick, 2007), often containing details that are prone to be overlooked by quantitative data (Graebner et al., 2012). Further it promotes the investigation of topics that are new to the field or have not been adequately researched to date (Birkinshaw et al., 2011). As indicated in the literature review (chapter 2), hybrid organizations in the context of food waste reduction have thus far received little academic attention. Consequently, through applying interpretive techniques (Maanen, 1979) in the frame of a qualitative research approach, I seek to surface new knowledge on this under investigated phenomenon.

Understanding the general challenges hybrids face in the industry requires that one holds a holistic view of the general environment in which they operate. Considering that hybrids address different areas of the supply chain, one may agree that the individual stages of the supply chain impose situational uniqueness. This emphasizes the need to analyse their binding concept - the concept of hybridity - through cross-case comparison in order to understand how they adapt this core principle in different contexts (Stake, 2013). Consequently, I conducted a multiple case study as this proposed the most adequate methodological fit to discern interactions within and between entities (Stake, 2013).

### **3.2. Case selection strategy**

For the selection of the cases, I used the following criteria. Besides hybridity (implying that they pursue a profit purpose as well as an environmental purpose) and a food waste reduction purpose, I selected cases based on the maturity of the company (up to four year old considered low level of maturity, seven to nine years old considered mature), the operation area in the supply chain (between the production stage and the retail stage) and the company location (based in Germany). I judged their environmental purpose based on the food waste reduction hierarchy (reduce, reuse, recycle), previously introduced in the literature review. For an overview of the criteria, refer to Appendix B. To understand the construct as broad as possible, I selected cases that were very different in terms of the aforementioned criteria (Yin, 2003). However, to facilitate a market level comparison in a similar constitutional environment, I focussed on hybrids operating in the German market only. Out of the 20 interview requests sent out through email, the platform LinkedIn or through my personal network, 12 responded out of which 7 declined interviews due to a lack of capacity (lack of time or not enough employees to invest time in doing interviews). Based on the previously established definition of hybrids and the previously employed criteria, I selected “SPRK.global”, “The Good Food”, “foodforecast” and “be bananas” as the four cases for this research.

### **3.3. Data collection**

For the data collection I relied on both primary and secondary data. The primary data collection spanned over the course of one month. For the selection of the interviewees, I followed Lincoln and Guba's (1985) "purposeful sampling" strategy. I chose the individual informants based on (1) their function or hierarchical position within the company, (2) the years of service within the organization as well as (3) their availability and willingness to partake. Applying snowball sampling, the initially chosen informants that qualified due to their fit with the aforementioned criteria then referred additional informants. Moreover, I conducted interviews of industry experts from non-profit organizations to further explore the industry context. The selection criteria were particularly important to triangulate perspectives and mitigate potential bias due to conflicts of interest resulting from informants' positions in the organization.

Overall I conducted a total amount of 7 in-depth, semi-structured interviews. For the interviews I approached both company internal employees (e.g. founders, CEOs) and external respondents (industry experts). Table 1 indicates the positions that respondents held. The interviews had a length of between 40 and 56 minutes. The interview script consisted of broad and open-ended questions to prompt participants' opinions and perspectives and applied probing techniques to solicit additional information from participants. Throughout the data collection period I adapted the interview script as interviews progressed in order to customize it for each organizational context. Further I collected a rich set of archival secondary data, including archival records, company documents, pitch tags as well as company websites, media articles, or NGO reports of the food waste industry. These I selected based on their recency, topicality availability (e.g. company willing to provide documentation). Throughout the process, I also maintained a diary of observations and field notes to collect my thoughts. All secondary data sources are presented in Appendix C.

The variety of sources is motivated by the need to triangulate evidence from different types of sources. This illuminates the phenomena from diverse angles (Eisenhardt and Graebner, 2007). According to Olsen (2004, p. 103), "triangulation is defined as the mixing of [three different] data [sources] so that diverse viewpoints or standpoints cast light upon a topic". Further triangulation adds consistency, credibility and veracity to the claims made and mitigates potential arising biases through combining retrospective and real-time cases (Bryman, 2012; Eisenhardt and Graebner, 2007). I applied method and data source triangulation for the purpose of my study (Denzin, 1978).

Reference	Organization	Position in the organization	Date of the interview	Length of the interview (in hours)	Type of data
Interview 1	SPRK.global	Junior Sales & Operations Manager	27/03/2022	01:05	Interview
Interview 2	SPRK.global	Higher management	29/03/2022	00:50	Interview
Interview 3	The Good Food	Founder and CEO	04/04/2022	00:56	Interview
Interview 4	Foodsharing	Industry expert (food collector & distributor)	25/04/2022	00:42	Interview
Interview 5	Foodsharing	Industry expert (food collector & distributor)	26/04/2022	00:40	Interview

Interview 6	foodforecast	Head of marketing	29/04/2022	00:48	Interview
Interview 7	be bananas	Founder and CEO	03/05/2022	00:52	Interview

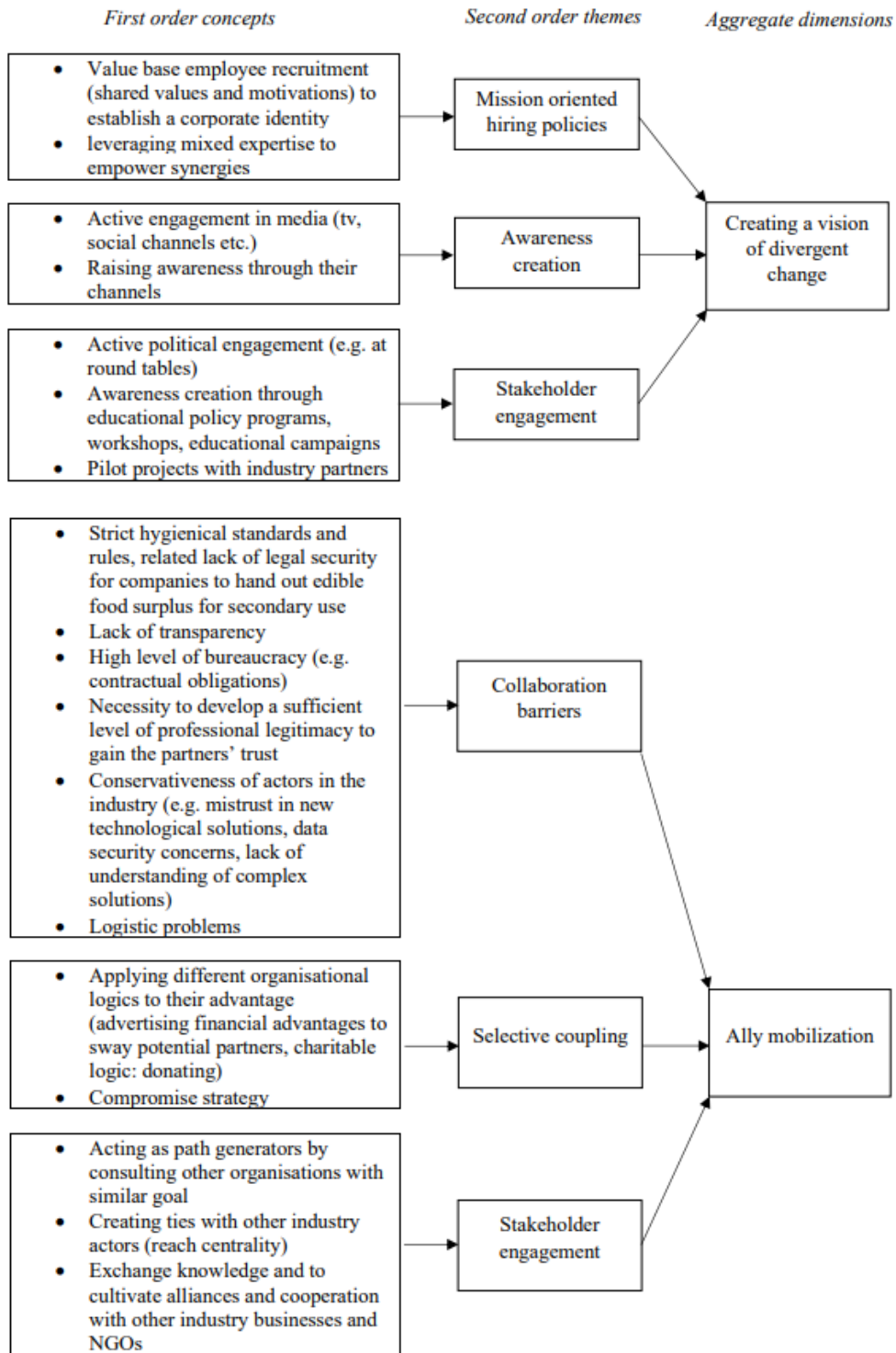
**Table 1:** Primary data

### 3.4. Data analysis

For the analysis of the data collected, I first reviewed the material in the original language before applying a coding method. From a detailed review of literature on hybrid organizations a list of predefined codes was derived (Table D1), such as selective coupling, which is defined as the action of combining a set of behaviours from both social welfare as well as commercial logics (Pache and Santos, 2013). From the conducted interviews, additional codes emerged (Table D2). One example of the latter is the differences in the academic background of employees working in the hybrid organizations. In the process of coding, I then defined this instance as “mixed expertise”. A similar approach was applied for the construction of other emerging codes. To illustrate the coding approach, the predefined as well as the constructed codes are depicted in Table D1 and Table D2 of the Appendix D.

Basing my findings on the institutional entrepreneurship framework of Battilana et al (2009), focussing on the meso-level (van Wijk, 2019), I organized the data by checking for behaviours hybrids employed that matched this framework and drew parallels to the actions of vision creation, ally mobilization and resource mobilization. Going back and forth between the data gathered from the interviews, archival data, previous literature and the theory, I gained a progressively deeper understanding of the connectivity of the data.

Finally, from a combination of predefined and constructed codes, emerged second order concepts. These concepts were categorized into the prior described actions (vision creation, ally mobilization and resource mobilization). Consequently, the latter proved to comprise the aggregate dimensions. To provide an illustrative summary of the defined construct of codes, themes and aggregate dimensions, the final data structure is depicted in coding table in Figure 2 below.



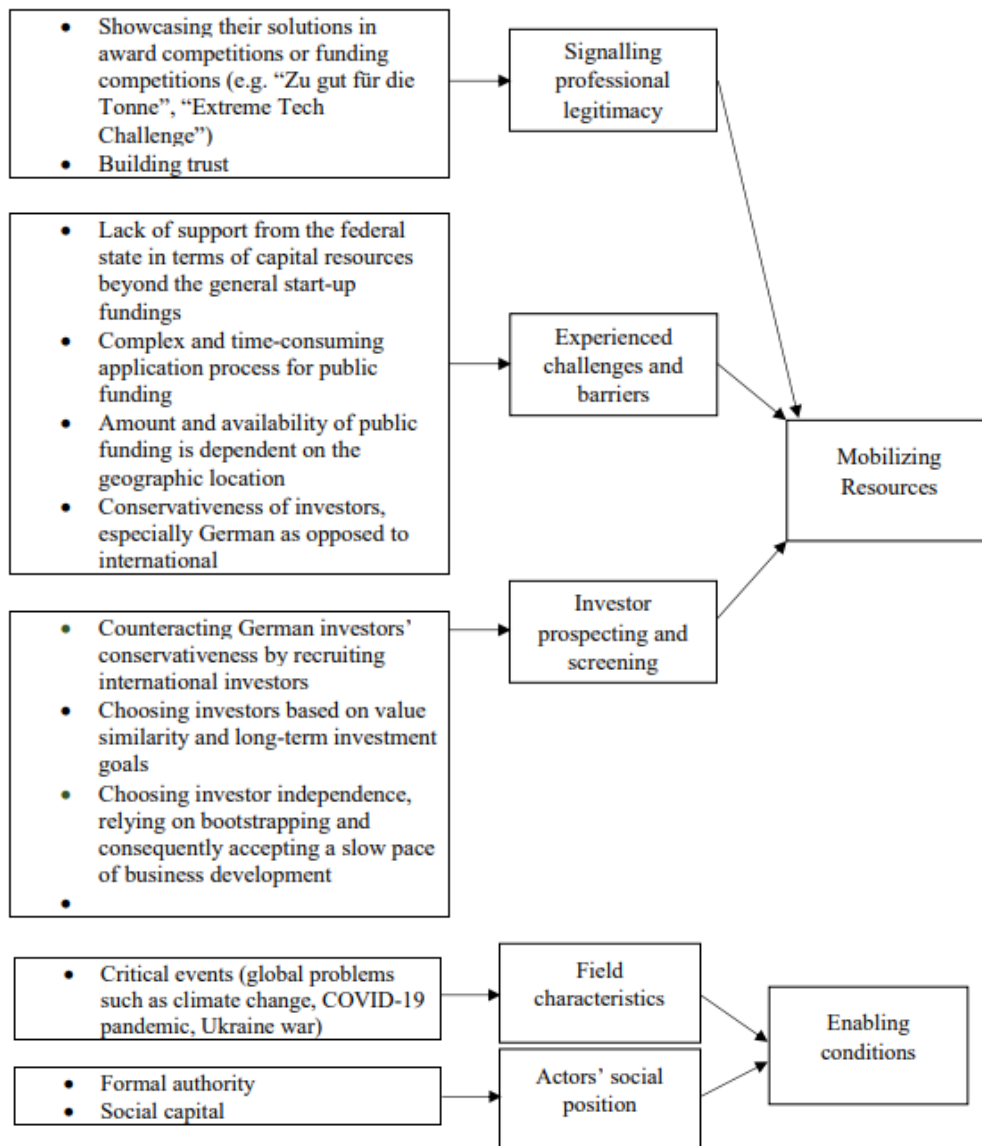


Figure 3: Coding table (own illustration)

## **4. Empirical setting**

In order to get a holistic understanding of the issue of food waste in the German market and eventually answer the question of how hybrid organizations can contribute to its reduction, it is important to grasp the wider context and discuss the German food and industry prior to exploring the individual cases.

### **4.1. The severity of food waste in the food industry**

Looking at statistics across the globe, illustrates the severity of the food waste problem.

If food waste were a country, it would be the third largest CO<sub>2</sub> emitter, after China. Approximately 17% of the globally produced food is lost at the retail and consumer levels (UNEP, 2021). Additionally, according to the FAO (2019) around 14% of the world's food with an approximate value of \$400 billion is wasted between the harvest and the retail level.

A similar picture emerges when applied to German industry. According to a study by the Thünen Institute (TI) and the University of Stuttgart on behalf of the German Federal Ministry of Food, each year, 12 million tons of food are wasted along the entirety of the supply chain in Germany alone. (52% at household level, processing with 18%, out-of-home catering 14%, agriculture with 12% and trading/commerce with 4%) (BMEL, 2019).

As households seem the most wasteful, naturally a lot of research investigates solutions on retail and consumption level as compared to farming. A recent study by WWF (2021) however found that in fact the number amount of food lost on farms, during, around, and after harvest is much higher (15.3% of food produced) than previously assumed. This consequently raises the previously estimated 8% of GHG emissions generated by food, to 10%. The latter not only further emphasising the significance of farm-stage food loss but of the consequences related to food waste as a whole.

### **4.2. The political landscape within the German nutrition industry**

The problem of food waste is not entirely new to the German nutrition industry. In fact, multiple associations and governmental initiatives have been formed in the past to approach this problem. This is for instance demonstrated by the formation of the association "United Against Waste e.V." in 2012 with participation of the Federation of German Food and Drink Industries

(BVE) or the initiative “Too good for the bin!” which has been run by the Federal Ministry of Food and Agriculture (BMEL) since 2012 (BMEL, 2019; BVE, 2021).

As the international community has committed itself to the United Nations 2030 Agenda, aiming to act against food waste (SDG 12.3), the ruling parties of the German Federal Government in 2018 have adopted this goal through a Coalition Agreement and have worked out a national strategy to achieve food waste reduction. The objective is to reduce food waste along the entirety of the supply chain and halve the per-capita waste at retail and consumer level. This 2019 defined National Strategy, functions as a guiding framework, defining joint measures. The strategy includes action steps such as the launch of sector specific dialogue forums, national workshops or the expansion of effective initiatives such as “Zu gut für die Tonne!” (BMEL, 2019; BVE, 2021). The latter intends to enhance the creation of a network, uniting start-ups, associations, and initiatives and showcasing best practise examples. Thus far the network features more than 120 projects. Every year around 160 proposals are submitted. To support this endeavour, the BVE therefore signed an agreement with the BMEL in March 2020 on behalf of the industry, in which it pledges its active support to the German government in achieving this goal. Further, to better organise, store and distribute food donations, especially in the case of large volumes, the BVE agreed on a stronger cooperation with the “Tafel Deutschland”, an umbrella organization of more than 950 food banks in Germany. Yet the reduction of food waste and along with that the redistribution of surplus food is not required but rather encouraged by the BMEL, thus the missions itself has to be taken up by the industry to some extent (BVE, 2021).

### **4.3. Hybrid organizations in the German nutrition industry**

Even though no details on the market saturation of hybrid organizations in the food waste sector are available, a report by the German Startup Monitor (DSM, 2021) indicates that environmental and social goals, in addition to economic motives, are becoming increasingly important in the German start-up scene. In 2021, 42.8% of start-ups categorized their products and services as green economy and 38.4% as social entrepreneurship. Further over recent years green start-ups have established a stable share of 29% of all innovative start-ups in Germany, making them a central part of the German start-up ecosystem. Currently hybrids and social start-ups such as “Too Good To Go”, “Motatos”, “etepetete” or “SIRPLUS” are pioneering the German market. Yet the number of imitators is increasing. The outlined start-up trends

consequently tease a potential rise in agglomeration of hybrids focussing on food waste reduction within the industry (BVE, 2021).

A similar trend is observable on a consumer level. According to a recent study by Danone & Too Good To Go (2021), the consumers awareness of the food waste issue is relatively high. 85% of respondents considered food waste to be a very big problem and saw themselves as responsible for reducing it. Similarly, consumers are increasingly paying attention to the products' origin (PwC, 2014). Consequently, sales of organic food in Germany have reached a new record high in 2021. German food retailers recorded turnovers of around 15.87 billion euros in organic food, corresponding to a sales growth rate of 5.8 % compared to the previous year. (Sandra Ahrens, 2022).

#### **4.4. Case study**

Having outlined the severity of food waste within the food and nutrition industry on a global, national and political level as well as having explored current trends for hybrids in the German market, this following section will present the individual cases that were interviewed as part of the case study.

##### **4.4.1. Case study of SPRK.global**

SPRK.global (SPRK) is a German, Berlin based impact driven social start-up, that aims to eliminate food waste in the long term, by redistributing food oversupply. The initial idea of SPRK's concept was born in 2017. Acknowledging that every year 1,6 billion tons of perfectly usable food are wasted along the supply chain, 12 million tonnes wasted in Germany alone, the founder created SPRK in March 2020 with the intend to contribute to a solution to this problem. SPRKs' approach is an innovative machine learning and artificial intelligence (AI) driven distribution platform, that connects supply chain participants of all stages to redistribute food oversupply rapidly and in line with the demand. Winning the "XTC Extreme Tech Challenge" in the category "Smart Cities" in June 2020, and securing a seven-figure seed funding in November 2020, SPRK attracted multiple investors such as the co-founder of Zanox Jens Hewald, the founders of Toniebox/Boxine and the Corporate President of Samsung Electronics.

Today SPRK consists of a team of 20 employees and counts 13 advisory board members from various academic backgrounds (SPRK, website, 2022). Focussing mainly on the redistribution of food on a B2B level, the company connects over 50 partners from supply side (e.g. farmers, producers, wholesalers, retailers) and demand side (NGOs, industry caterers, canteens, restaurants). Nevertheless, since May 2021 the venture is also working on B2C level solutions. SPRK's Deli for instance serves as a local marketplace for their SPRK.manufactory products. The latter can be understood as freshly produced, durable products, consistent of at least 54% transformed food surplus such as apple juice for example, made from assorted apples (SPRK, internal document, 2022).

#### **4.4.2. Case study of The Good Food**

The Good Food is a Cologne based, German hybrid, that sells surplus goods such as fresh but crocked or unusually sized fruits and vegetables in addition to foods that have exceeded their best-before date. The organization picks up food surplus at local farmers and wholesalers and even participates in post harvestings. The concept started off as occasional market stalls in 2015 and gained a lot of attention through the initiative "too good for the bin", through which they managed to open several pop-up stores. This enhanced the public's interest and lead them to gain nation-wide attention for the very first time. Through lots of media and press an invitation to a dinner party with the Danish princess Marie followed. In February 2017, The Good Food then opened their first store. Today the organization operates four local stores in Cologne with around 90 voluntary workers and three workers obtaining salaries. The founder anticipates to expand her ability to provide fair payment to all her employees in the future (The Good Food, website, 2022).

#### **4.4.3. Case study of be bananas GmbH**

Be bananas is a hybrid, that is based in Düsseldorf and made it their mission to produce banana bread from bananas that would otherwise go to waste. They rescue bananas from banana ripening facilities that are sorted out due to non-compliance with certain standards, a certain colour or a certain degree of ripeness and therefore do not reach the retail market. Monthly they

produce a quantity of 8 to 10 thousand banana breads, processing around 10 tons of rescued bananas.

The business was born in 2013 and expanded quickly, selling banana bread to 350 gastronomes to date. Further they operate an online shop, which is the only place where they approach B2C customers. Having outsourced most of their production process to their partnering bakery „Ihr Bäcker Schüren“, they employ two permanent, one part-time and four temporary employees. The bakery „Ihr Bäcker Schüren“ has been their partner since the beginning. With their sustainable energy and logistics concept, they follow a similar environmental mission (be bananas, website, 2022).

#### **4.4.4. Case study of Foodforecast**

Foodforecast is a Cologne based tech company, founded in December 2018, that uses AI to reduce food waste. The software was developed specifically for the bakery industry, in a pilot project in cooperation with a large bakery. AI analyses historical sales figures of bakery branches (e.g. historical internal data like sales, order or return data) and combines them with important influencing factors (e.g. weather) to create an automated sales forecast for the next day's order. The software recognises patterns and dependencies and delivers a sales forecast that customers can view in the checkout systems or in the app and which can also be adjusted manually. Currently the company consists of five permanent employees and five external freelancers. Foodforecast cooperates with three large bakery chains with around 150 branches but is looking to expand to other sectors in the near future (e.g. gastronomy sector or retail) because of the identified potential. In February 2020 they gained popularity through their participation in the TV start-up show “Höhle der Löwen” (foodforecast, website, 2022; foodforecast, internal document, 2022).

## 5. Findings

This following chapter presents the key findings for my qualitative research and will provide an answer to the research question of how hybrid organisations can initiate a divergent change in the food industry, transforming it into a less wasteful one, despite facing a variety of barriers and challenges. Following the framework of institutional entrepreneurship by Battilana et al. (2009), it is divided into three parts: Creating a vision of divergent change, ally mobilization and resource mobilization. Through the perspective of the meso-level cycle, it demonstrates how the four cases that are subject to this study engage in those actions, to initiate change and outlines the challenges they face along the process. Further supporting the findings, Appendix E, provides a collection of representative quotations from the conducted interviews for the related codes.

### 5.1. Creating a vision for divergent change

This findings chapter follows the narrative of the four German hybrids – SPRK.global, The Good Food, foodforecast, and be bananas, that are united in their vision of reducing food waste within the food industry. Following the institutional entrepreneurship theory, one of the main actions necessary to triggering change, is the crafting of a vision of change. Not only must this vision embody the power to unite actors, but it must appeal to those needed to implement the change (Battilana et al., 2009). Analysing the four cases, factors surfaced that favour the emergence of a vision for divergent change and thus have an enabling effect. Global problems such as climate change, that create critical events, influence the direction of institutional development and consequently act as enabling conditions for institutional entrepreneurs. They favour the awareness creation among the government and society. As the initiative “Fridays for future” gained popularity in Germany in 2019, causing various protests, the pressure on political parties to act on this problem rose. Food waste as one of the topics connected to the broader topic of sustainability and climate change consequently equally gained significance. The number of users engaging in food waste reduction activities rose significantly. An industry expert active for the citizens' initiative Foodsharing, reports:

*From initially 100 consumers who were participating in 2012 and around 40 thousand in 2018, we grew to about 200 thousand users in 2020. Those numbers really speak for*

*themselves. Yet a lot still needs to be done (Interview with industry expert of Foodsharing).*

With the German sustainability strategy, the German government committed to the SDGs of the Agenda 2030 (BMUV, 2022; BMEL,2019; Foodsharing, website 2022). These enabling field characteristics created fertile ground for institutional entrepreneurs such as the analysed hybrids to rise. In response to this global issue, following the “3Rs” waste management framework, they promoted innovative solutions such as food redistribution (reuse: SPRK and The Good Food), food transformation (recycle: SPRK and be bananas) and food demand forecast (reduce: Foodforecast). Seeking to create a vision of divergent change, they apply different internal & external strategies.

To establish a vision within the organization and unite their employees behind their mission, they select their employees based on shared values and motivations. These hiring policies enable the development of a corporate identity early on. Basing the employee selection primarily on values and mindset than on qualifications, leads to a diverse team with mixed expertise due to different academic backgrounds (Interview 1, 2, 3, 6 & 7). Yet hybrids recognize this as a strength, leveraging empowering synergies.

*I think that is also something that makes us special, that we are so cross-functional. It's very important not to solely think too much in one direction, but to have different input, different ideas. A developer has a different perspective than someone who has studied agricultural science or business administration. (Interview with the head of marketing, foodforecast).*

Externally, the analysed hybrids endorse their vision through active engagement in media (TV, podcasts) and social channels (Bollert, 2021; AFEW TALKS, 2022; Gernhard, 2020). They raise awareness of the topic, engage stakeholders through pilot projects and workshops and actively engage in politics (Interview 2, 3, 6). The Good Food for instance contributes to educational policy programs through offering workshops for children and parents, teaching food waste and food standards, with the aim to establish lower expectations towards visual attributes of food early on in future generations' minds (Interview 3). Similarly well-known hybrids in the industry, such as “Too Good To Go” work closely with politics, to create exchange and try to bring the topic forward on the political stage. Jointly they developed campaigns targeting the end consumer. For example in collaboration with a total of 65 trade

partners (like Danone, Alnatura, Lidl, Netto) they agreed on the campaign “Oft länger gut” (“often longer shelf life”) - a note on food packaging sensitizing customers to the fact that expiring date is not similar to the use-by date (Bollert, 2020; Danone & Too Good To Go, 2021). The prior described actions of engagement are an indication of “interactive spaces” on the meso-level cycle, used by organizations to enable the creation of ties and associations (Haug, 2013), as well as to foster debate and discussion among actors to mobilize action frames and to create a social platform for innovations (van Wijk et al., 2019).

As Too Good To Go is already a well-known and established hybrid, their social position positively impacts their ability to act as an IE. Able to leverage formal authority as well as social capital, they have the power to serve connections or links between other actors (Bollert, 2020). A field characteristic that could further reinforcing transformative power of hybrids in the industry is that their proposed solutions resonate with the values and interests of the current dominant coalition (BMUV, 2022; BMEL., 2019). Yet the pace in which change occurs, strongly influences the level of motivation of institutional entrepreneurs to continue embracing it. A comparison of the four cases shows that the longer IEs have worked in the industry, the more dissatisfied they are with the degree of change. Having been in the industry for 8 years now, the founder of “The Good Food” reports:

*To be honest, I am a little frustrated. In the beginning, we did a lot. Before that, I was the managing director of Foodsharing and had quite a bit of insight at round tables - North Rhine Westphalia has a round table where the sustainability officer from Rewe or other large companies participate. (...) And there was also an event where the environment minister was there, who quoted things that are years out of date. He said things like that there are no EU standards for crooked cucumbers. That was already 5 years out of date at the time, or that the best-before date will be removed from some foods (rice and pasta), but it never happened. And that was years ago. (Interview with the founder of The Good Food).*

Having been in the food industry even longer, saving bananas before they even enter the retail market, the founder of be bananas explained:

*I can only tell you it's terrible. I've been working here for 9 years now and in those 9 years I've been bombarded with expired food. And it's not just the bananas, it's other fruits too. Sometimes I'm standing in front of avocados where nobody knows why they're*

*wasted. (...). These are all fruits that don't grow in our country, that leave their mark ecologically when they come to us. They are sorted out because they are not good enough and are not processed further. So it's a really catastrophic state of affairs. And the quantity is always overwhelming (Interview with the founder of be bananas).*

The perceived lack of recognition of their efforts to drive change described here by the interview partners, point to van Wijks et al. (2019) critical evaluation, that “the agentic efforts emerging from interactive spaces and further supported by others can stall and fail to diffuse social innovations in time and space” (p. 897). Evidently, as described, the establishment of a common vision comes with its challenges. Understanding how hybrids in fact mobilize allies to act beyond the establishment of a joint vision, requires separate consideration.

## **5.2. Mobilizing allies**

When mobilizing allies, hybrids face various barriers that are partially of operational nature and partially owed to the level of fragmentation and institutionalization of the food industry. The biggest challenge of the food industry compared to other industries such as the fashion industry for instance is the limited durability of food and the consequential time constraints when working with food and food surplus (Interview 1, 2, 3). The industry imposes strict hygienical standards and rules which makes it harder to reuse and reintroduce food surplus into a secondary market. In addition, businesses – especially farmers and retail - lack legal security when it comes to surplus food dispensing or donation and fear the risk of being sued (Interview 3). Because there is no law, prohibiting food disposal, they have a lower incentive to organize an alternative use for their food surplus which hampers collaborations between hybrids and for-profits on the supply side (Interview 1, 3, 5, 7). Further such companies are not required to disclose the amount of food wasted, which leads to a lack of transparency, especially within the retail sector.

*If a supermarket says they don't throw anything away - I don't believe that at all anymore. I've often had the experience of asking if they can give us the food and they said they don't throw anything away or donate it to the NGOs. But then you check their bins and they are full to bursting every week(..). And then they declare a nationwide cooperation with that NGO. And they both protect one-another, praising each other for*

*how great they are at handing out food, but in fact the bins are full and it still goes to waste. (Interview with the founder of The Good Food).*

Other hurdles are of bureaucratic nature (Interview 1, 3, 7). For instance when donating food surplus, suppliers (e.g. supermarkets) often demand a certificate of donation which is related to accounting issues. In the food sector, they have to declare and certify a market value. If the food has passed a certain expiry date, the product has lost its market value and consequently its marketability. Hence it can no longer be put into circulation, the businesses cannot certify that the food has a marketability and out of tax purposes, it makes it more difficult to issue a donation certificate (Interview 3).

When mobilizing allies on the demand side, hybrids equally face bureaucratic issues. For instance, potential partners often decline a partnership because they are bound by long-term contractual obligations, which prevent them from pursuing more sustainable solutions (Interview 1). Often it demands a sufficient level of professional legitimacy to build trust. In the particular case of tech solutions (e.g. SPRK and foodforecast), the conservativeness of potential partners regarding new technological solutions presents an additional barrier for ally mobilization (Interview 2, 6). Due to mistrust in new technological solutions, as well as data security concerns, the potential allies are less open for a collaboration.

*When it comes to AI our clients are rather conservative and sceptical. Especially when it's completely new and they don't know exactly whether and how it works. The topic of AI may sometimes interest the managing director, but the person who has to implement it and previously used to execute the ordering process of baked goods, has concerns because they fear that their work will be replaced by the software (Interview with the head of marketing, foodforecast).*

Yet the data is necessary to run their business.

*We have to connect with the bakeries' inventory management software. Our software pulls the data from that. There are not so many providers on the market, we have 5 connected now. But if you had a new business system, it would take two to three months to build the interface. With an existing system that is already connected, it takes just a few minutes because everything is automated. (Interview with the head of marketing, foodforecast).*

When collaboration however materialises, logistic problems occur (Interview 3, 7). Since disposal costs are low for the suppliers, they are unwilling to provide freight forwarding for the hybrids out of economic reasons. Be bananas and The Good Food are consequently responsible for organizing the collection food scraps autonomously. This is associated with costs.

*As far as logistics are concerned, we need a van three times a week, to be able to drive the fruit and vegetables rescued on the so-called "farmers' tours" from the surrounding area to Cologne. (...) We have to advance the deposit for the rescued beverages, which can quickly amount to four-digit sums (Interview with the founder of The Good Food).*

From those barriers emerge a range of coping mechanisms that hybrids employ to bypass these challenges. From the analysis of the four cases, it appeared that they apply a mixture of for-profit and non-profit tactics (selective coupling).

Through showcasing their solutions in award competitions or funding competitions (e.g. “Zu gut für die Tonne”, “Extreme Tech Challenge”), they signal professional legitimacy and proof of concept (Interview 2, 3, 6, 7). Towards potential partners they refer to the economic rather than the environmental advantages in anticipation of support for their solution. They point out financial advantages and even offer free trials, in the form of pilot projects to reduce their clients skepticism and foster collaboration (Interview 6, CEO of foodforecast).

*Therefore, the pilot phase, which we provide free of charge, is very interesting for the customers to show them the added value. (Interview with the head of marketing, foodforecast).*

Yet they also engage in non-profit, rather charitable actions, such as donating food and actively avoiding competition through close partnership. To avoid competition amongst other promising businesses and NGOs, the analysed hybrid organizations occupy niches and make a great effort to work closely with NGOs, exchange knowledge and to cultivate alliance and cooperation (Interview 1, 2, 3, 6, 7; Bollert, 2021). Since 2020 SPRK for instance has been supplying "Die Arche" children's foundation with fresh food free of charge as well as other food banks or NGOs like the aid organization Hope Mallorca. To date, they have been able to provide a total of over 150 tons of edible food for a good cause (SPRK, internal document, 2022; Barkey, 2021). To avoid competition with food banks, they only pick up those products

that the food banks do not pick up due to logistical reasons or due to hygienical reasons (necessity of cooling the products) or because they don't pick up at that location that day (Interview 2, 3, 4, 5; Hartmann, 2022).

*We have a cooperation with Foodsharing. So it is not the case that food goes bad with us. For example, we have a lot of limes right now. (...) With limes, for, we approached bars and restaurants and try to find bulk buyers. And what we can't handle, we give to the operative Foodsharing (Interview with the founder of The Good Food).*

Going beyond showing cooperative behaviour, the analysed hybrids act as path generators, by consulting other organizations with a similar goal within the industry. Through their reach centrality, they can support the creation of ties with other industry actors (Interview 2, 3, 6; SPRK, internal document, 2022; GSM, 2022).

SPRK for instance is part of the Google Start-up Advisor Program with the mission to support and empower other social impact start-ups (SPRK, internal document, 2022; Interview 2). Similarly, The Good Food generally picks up more food than necessary for their own business in order to provide businesses that are new to the industry with products. Further they exchange products with the latter to enable a better distribution of the mass (Interview 3, 4, 5).

*In this way, we have established cooperations with a wide variety of start-ups and companies. A community has emerged. But I also pay a lot of attention to who we work with (Interview with the founder of The Good Food).*

The analysed hybrids also apply consultancy and engagement methods when it comes to for-profit partners. Besides their software that forecasts demand, foodforecast for example consults their for-profit clients past the pilot phase, to reduce food surplus and increase turnover by 4% through more accurate sales planning, personnel cost reduction and order automation (Interview 6). Foodforecast even developed their software in cooperation with their clients through the pilot phase. This indicates co-creation and is especially relevant for the development of disruptive technologies, that trigger change or diverge from alternatives on the market, as findings by Purтик & Arenas (2019) have shown. As described in the literature review, this method is used to create legitimacy and turn the users into ambassadors and multipliers of innovation. In another example, indicating engagement with for-profit partners, SPRK is working on developing CO2 certificates that for-profits can acquire to reduce their carbon footprint (SPRK, internal document, 2022).

There are several characteristics I identified that favour hybrid's ability to mobilise allies. Critical events such as the COVID 19 pandemic or the Ukraine war had a strong enabling effect for the analysed hybrids (Interview 1, 2, 6). It led to increased commodity, raw material prices and consequential increased the value businesses attached to the latter. Further it put pressure on businesses to reduce their costs and rebalance turnover, which favoured collaborations with the analysed hybrids, because they had a bigger incentive to look for alternative solutions. The head of marketing of foodforecast and a junior sales director of SPRK explain:

*The Ukraine crisis affects us because the clients have increasing raw materials costs. Our software is increasingly important for them. A large bakery customer also wanted to move the pilot phase forward, because they can not afford to waste anything due to the increase in prices (Interview with the head of marketing of foodforecast).*

*In the case of non-profit companies, especially now with this Ukraine conflict, we have supplied large quantities of food to several NGOs, the cooperation works overwhelmingly well. They mediate within their network to help support us and help us find other partners (Interview with the junior sales director of SPRK).*

As a result, one can say that as these interactive spaces grow beyond the organizational frame, they become “spaces of negotiation” and “herding spaces” evoking new arrangements, that further support the embedding process of change (van Wijk et al., 2019). Additionally, as established in the literature review, embracing social innovation requires the collective interplay of managers, actors and social entrepreneurs (Carberry et al.), observable here in the collaborative behaviour of actors across organizations and their knowledge exchange.

### **5.3. Resources mobilization**

Lastly implementing any change is costly, especially in the early stages of hybrid formation, when they still lack name recognition and popularity. To enable endorsements and support for the implementation of divergent change, hybrids mobilize resources. By doing so, they face barriers, especially when mobilizing financial resources.

A substantial hurdle when mobilizing financial resources in the early stages of hybrid formation is the lack of support from the federal state in terms of capital resources. Although there are subsidies available for start-ups and for the broader food sector, issued by the state in Germany, hybrids lack support beyond the general start-up fundings that are specifically tailored to ecologically valuable solutions (Interview 6, 7; foodforecast, website, 2021; Gernhard, 2020). The extent and availability of public funding varies according to the geographic location of the hybrid and often requires a lot of bureaucratic effort, which compromises valuable time (BMWK, 2021; Interview 2, 6, 7). The founder of be bananas explained:

*Of course, there is start-up aid and so on, but it is not explicitly aimed at ecologically valuable ideas. And ecological doesn't mean food waste. Food waste is a huge topic in the basic topic of sustainability. There is no explicit funding to support these approaches and I find that relatively unfortunate. However, I am neither the type who plans to go into politics with this, nor do I have the means or time to change that (Interview with the founder of be bananas).*

Consequently, hybrids turn to private investors. Especially for tech solutions, such as the ones developed by foodforecast and SPRK, the mobilization of financial resources is incremental to enable the evolution and improvement of their product.

*Last year we paid for the development of our business ourselves. The classic bootstrapping approach, but to further scale our business we needed external capital. Now we have taken on wonderful investors, so we are relatively far along in that sense and now of course we have to show that we can get this to a flying height where the impact really moves the needle. (Interview with the higher management of SPRK).*

In the case of SPRK the optimization of their tech solutions is incremental, as they experience the additional pressure of time constraints arising from the expiring dates of food.

*On our platform our partners on the demand side can generate an offer from us, by checking what is currently in our warehouse. (...) From a logistic perspective this process is not optimized. Currently when we have an offer, we first list it on the platform and then it goes out to our partners. That all eats up time. This process needs to be accelerated, which why we are currently working on an IT solution. The goal is to*

*eliminate the delay and process the redistribution of food scraps much faster (Interview with the junior Sales director of SPRK).*

Although successful in both cases of SPRK and foodforecats, generating investor interest comes with similar challenges as for for-profit start-ups, such as having to provide a prototype and a proof of concept (Bollert, 2021). Further the investor attitude and their openness towards new solutions plays an important role. As the founder of foodforecast explained:

*The process of raising funds was the same as for any start-up. The challenge is to get investors from Germany on board, as they tend to be somewhat risk-averse and conservative, whereas international investors, such as our investor Blue Horizon Ventures, are more open (Email interview with the founder of foodforecast).*

To counteract the occurring difficulties in mobilizing financial support, hybrids have developed different coping mechanisms. To prove their concept, they make an effort to signal professional legitimacy through turning to public media or through entering start-up contests. Foodforecast for example participated in February 2020 in the founder show “Die Höhle der Löwen” to showcase their concept and successfully secured a deal with the investor Carsten Maschmeyer. Though this deal did not go through in the end due to COVID and because of uncertainty concerns on the part of the investor, the TV appearance generated a lot of attention and reach and finally secured them the attention of their current impact investor Blue Horizon Ventures (Interview 6).

To generate awareness for their businesses be bananas, SPRK and The Good Food all participated in nation-wide contests such as “Mein gutes Beispiel” and “Zu gut für die Tonne” that give recognition to hybrids with exemplary social commitment and sustainable corporate governance (Interview 2, 3, 6, 7; SPRK, internal document, 2022; Päßgen, 2022; Bollert, 2021). With the intention to counteracting German investors’ conservativeness, SPRK entered an international contest, “The Extreme Tech Challenge (XTC)” in 2020, which they won (SPRK, internal Document, 2022).

*The Extreme Tech Challenge in the world's largest start-up competition with over 2,400 international participants for founders tackling global challenges. In the summer of 2020, we successfully concluded a 7-figure financing round with international investors. This was a significant milestone for SPRK that helped us a lot to finance the*

*company, get wonderful impact investors on board and to drive further scaling (Interview with higher management of SPRK).*

Yet again, this process was time consuming and tied to a lot of effort. Talking about the process of entering the competition the founder revealed:

*It went on for half a year. We had to pitch on several occasions, shoot a video and we even did a pitch coaching (Interview with higher management of SPRK).*

Another barrier arising from investor support is their interest in a return of investment and their consequential pressure on the organizations to fulfil certain short-term goals and KPIs. With the support of conventional investors there exists a danger of having to trade-off between a positive social or environmental impact and the financial return. As a result, aiming to avoid this bias, the analysed cases employed careful investor prospecting and screening techniques, choosing investors based on value similarity and long-term investment goals.

*Of course, we also have to show (with the other KPIs) that the investment has paid off and that we are investing in other sectors (...), but that does not pressure us. We want to grow and increase our impact and thus pursue a common goal with the investor. With Blue Horizon Ventures we have landed a venture capital fund that invests specifically in sustainable food systems, in fact they only invest in sustainable food systems, so it's not like they invest in just any company. They are pursuing the same vision as we are. The goal of our company is to really see AI as a means to an end. We want to be sustainable and reduce food waste by 10 billion euros in the next few years. (Interview with the head of marketing of foodforecast).*

Or as the founder of SPRK reviews:

*Fortunately, we assemble prominent investors, all people that I have gotten to know personally or that stem from my personal network. They don't see it as a profit opportunity, even though we have a clear business model that also makes money, we are a for profit impact venture. Of course, there were also investors who I didn't know before but those I knew were not typical venture capitalists, who may have to demand the return of investment back after 5 years or so. I mean of course we want to make our*

*investors happy, but for our investors it is not just a pure profit case for. (Interview with higher management of SPRK).*

On the other hand, other hybrids like be bananas and The Good Food, who additionally are non-reliant on tech solutions, decided to avoid investor support altogether. By embracing investor independence, they sacrifice the scalability and growth of their business in return. Instead, they rely on bootstrapping and accept a slow pace of the business development.

*I do not have support from public funds or investors. I didn't want that and I wouldn't accept it. The only thing we did was an environmental award from the city of Cologne. That was 1500 euros. Then we submitted small projects like and got 4000 euros or so. But we don't have any regular donors and certainly no investors who finance us in any way. I never wanted to take out a loan or anything, because I knew that we had to start small (Interview with the founder of The Good Food).*

From comparing the four cases it stood out, that the social position of the hybrids or their actors, in this case the founders, functioned as an enabler of power. Both, foodforecast through their TV appearance and SPRK through their competition victory, gained access to a network of investors, enabling them to leverage social capital. The founder of SPRK for instance had held a management position at Yahoo, been active in the start-up scene for 20 years and had founded several companies prior to founding SPRK (Bollert, 2021; Interview 1). Accordingly, his social position enabled access to information and political as well as economic support. Which signifies that their social position acted as an enabling condition in mobilizing resources.

Lastly, I want to highlight, that as the outlined arguments imply, hybrid organizations such as the four cases that built the basis of reasoning for this qualitative research, do employ actions that characterize them as institutional entrepreneurs. They create a vision of change, actively engage in the mobilization of allies and the mobilization of resources. Yet the magnitude of their impact is still relatively low, as far as this is assessable from the limited time frame of observation. The amount of food that is wasted along the supply chain is by far greater than what these hybrids can process. Looking at be bananas as an example, they process 10 tons of rescued bananas monthly. Yet the banana ripening plants that supply them with bananas that would otherwise be disposed, process 150 thousand boxes of bananas daily (1 box weights around 20 kilos). Of those at least 50 boxes are sorted out on the daily basis (Interview 7).

*For the banana ripeners, these are depreciation amounts, the individual banana has a value of less than one cent according to their approach (Interview with the founder of be bananas).*

That is just what is being disposed in one ripening plant. Along the supply chain from farmers to the end consumer there are many other stages where the bananas are sorted out.

*At the end of the day, a good 50% of all bananas are sorted out - whether by B2C end customers, food retailers, wholesalers, shipping companies or the plantation itself (Interview with the founder of be bananas).*

Considering, that bananas are just one product, this provides a good reflection of the current situation in the food industry. Accordingly, it can be concluded that hybrids in this industry have the capacity to initiate divergent change, but that they are limited in their transformative power due to a variety of challenges, not least arising from the nature and complexity of the industry.

## 6. Discussion & Conclusion

The objective of this in-depth qualitative study, was to expose how hybrid organisations operating in the German food industry can transform the latter into a less wasteful one, despite facing a variety of barriers and challenges.

As I found the general concept of hybrid organisations targeting food waste reduction to be an under researched phenomenon, this study aimed at extending research on the topic and to contribute to a stream of literature on institutional entrepreneurship, by applying the institutional entrepreneurship framework onto hybrids in the food waste management sector, analysing it on a meso-lense level. Successfully applying the latter on the four studied cases, revealed that hybrid organizations within this sector do in fact initiate change, by creating a vision, by mobilizing allies and by mobilizing resources. Despite the fact that they have an economic goal, they go beyond the organizational frame (consciously or unconsciously) in order to accomplish an even bigger goal which is the reduction of food waste. Due to their unique structure, consisting of competing institutional logics, they manage to create alliances with both for-profit and non-profit actors in the industry, which enhances their power of change. It was observable that hybrids can leverage both missions, the profit and the social and/or environmental (S&E) mission to unite actors behind their vision. Their environmental mission opens the gateway to cooperations with non-profits and grants their support. Their ability to provide profitable economic solutions sways for-profits, who generally tend to attach less value to the S&E mission. This supports findings by Pache and Santos (2013), who find that hybrid organizations employ selective coupling. As a result, these hybrids create “interactive spaces” and “herding spaces”, that foster tie creation and the formation of alliances, consequently also creating space for negotiation. Those results complement findings by Alexius & Furusten (2020) and support the notion that hybrids can play a significant role as path generators through connecting sub-paths as well as through creating space for dialogue and interaction among other actors. I found their transformative power to be enhanced through field characteristics and enabling conditions such as the social position of the actors. Yet the magnitude of their transformative power is limited due to their and other actor's institutional embeddedness as well as due to the nature and complexity of the industry itself (Battilana et al., 2009).

Throughout this study, I did not observe similar challenges arising from hybrids unique structure, as outlined in the literature review. Their business models rely on the existence of chronic overproduction and the consequential food surplus. At this point in time the food

industry accounts more food surplus than hybrids can currently process. The potential of this market paired with the low agglomeration of hybrids tackling food waste, indicates a low level of competition. The competition is further undermined by the fact that the hybrid organizations make an effort to collaborate and engage stakeholders, through interactive spaces and co-creation. Consequentially for the examined hybrids, there is currently a lower external pressure to perform in order to ensure maintainability of the business. Hence, I argue that those hybrids currently experience a lower risk to be subject to internal challenges such as cognitive dissonance and mission drift (Castellas et al., 2019; Ebrahim et al., 2014; Ramus & Vaccaro, 2017; Santos et al., 2015). Despite the low level of competition, the investigated hybrids were all performing well during the time of analysis. Though this is owed to my case selection approach, which aimed at exploring positive examples in order to highlight the best practices for to mobilize forces and bring about a sustainability transition, future research could explore negative examples as well. That would add relevant substance to this reasoning.

Further, parallel to findings by Ebrahim et al., (2014), Gamble et al. (2020), Santos et al. (2015) and Pache and Santos (2013) there were differences observable regarding resource mobilization, that emerged due to a different level of S&E integration with the revenue model. These differences were particularly prominent for tech versus non-tech solutions. As I only briefly touched on this subject, future research could further explore the differences in IE activities between tech and non-tech solutions.

Finally, I need to highlight, that the outlined findings are only generalisable to a limited extent. As the time frame of observation was limited to the three months of establishing this master thesis, I was not able to uncover if and how these hybrids could initiate a fundamental change of the institutions they are embedded in. Accordingly, this study aimed a focussing on the meso-level of analysis. Consequently, I would urge future research to go beyond this level and take the macro-level into account as well. Furthermore, as I have focused my analysis on hybrids in the German market, the obstacles and challenges identified apply specifically to this market and stem from its unique institutional framework. Future research could hence explore similar research objectives in other markets. For example, a duplication of this study in the French market could be relevant, as the French government has introduced a law prohibits the disposal of food surplus (The Guardian, 2016).

In conclusion, I believe that this qualitative study points to the distinct role hybrids can take in embracing a sustainable transition and sheds light on their ability to act as institutional entrepreneurs in fighting food waste. I acknowledge the opportunity of future work to further

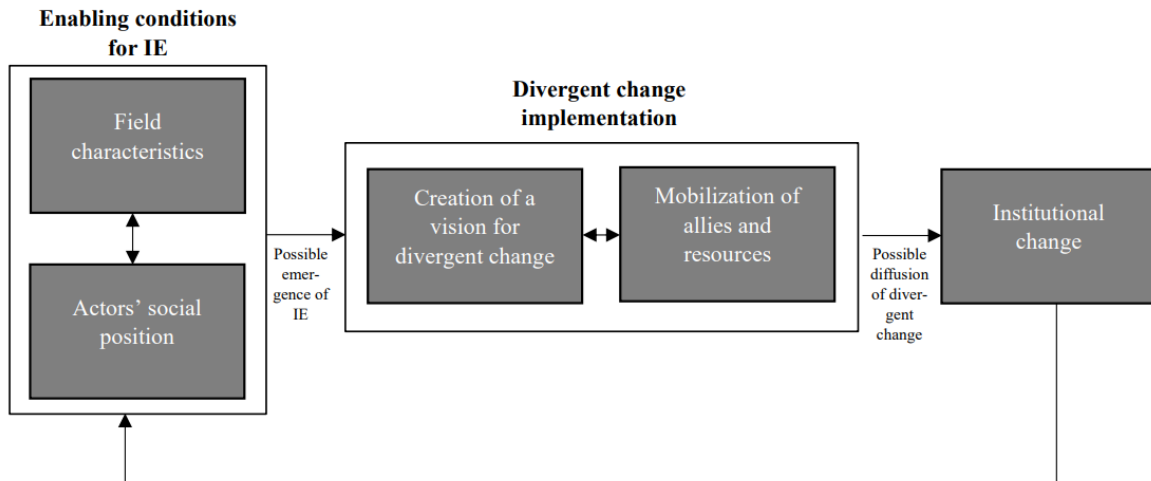
push the boundaries of this stream of research and extend investigations of this industries' untapped potential in coming years.

## Appendix

### Appendix A

#### Institutional Entrepreneurship Theory Framework

This Appendix shows the Institutional Entrepreneurship Theory Framework adapted from Battilana et al. (2009).



## Appendix B

### Case Selection Criteria

This Appendix consists of the criteria used for the case selection. Cases have been selected on the criteria of contribution to a hybridity model, maturity of the company, operation area of the supply chain and the location of the specific company. The table below shows the characteristics of the chosen cases on each level.

Company	Hybridity		Maturity	Operation area of the supply chain	Company location
	Environmental purpose	Profit purpose			
SPRK.global	Reuse, recycle	Impact start-up (commission for mediating between actors)	2 years	Concept addresses the entire supply chain, mediating between the supply side: farmers, producers, wholesalers' retailers and the demand side: NGOs, industry caterers canteens, restaurants).	Berlin
foodforecast	Reduce	Impact start-up (commission from consultancy and software service)	4 years	Concept addresses the production level	Cologne
be bananas	Recycle	Profit from selling reproduced products on a B2B level	9 years	The concept addresses the distribution level as well as the production stage	Düsseldorf
The Good Food	Reuse	Retail (profit from resale)	7 years	The concept addresses the retail level	Cologne

## Appendix C

### Secondary Data Research

This Appendix consists of the list of secondary data sources, including the title of the document, name of the organization, date of publication as well as the relevance for the study and the reference.

Type of data	Title of the document	Name of the Organization	Date of the publication	Relevance for study	Reference
Internal Adocument	Pitch document	SPRK.global	01/2022	Gives context, supplements data, verifies findings, provides strategic alignment of organisation	(SPRK, internal document, 2022)
Newspaper article	“Wir brauchen wahre Preise und transparente Lieferketten“ (Kristina Hartmann)	SPRK.global	2022	Supplements data, verifies data	(Hartmann, 2022)
Newspaper article	“Tech for Good’: Berliner Start-up bringt Lebensmittelspenden nach Mallorca” (Sophie Barkey)	SPRK.global	05/04/2021	Supplements data, verifies data	(Barkey, 2021)
Podcast	„Alexander Piutti: Lebensmittel retten mit Softwarelösung“	SPRK.global	29/01/2021	Supplement data	(Bollert, 2021)
Podcast	„Bananenbrot als Lebensmittelrettung?! Talk mit BeBananas!“	be bananas	05/04/2022	Supplement data	(AFEW TALKS, 2022)
Newspaper article	„Mission Bananenbrot: Das zweite Leben einer Banane“ (SWD)	be bananas	2022	Supplement data	(SWD, 2022)

Company pitch	Rheinland Pitch (#104) in Köln (Claudia Päffgen)	foodforecast	02/2022	Provide context, Supplement data	(Päffgen, 2022)
Blog post	„Neue Studie über KI Ökosystem“	foodforecast	22/10/2021	Supplement data	(foodforecast, website, 2021)
Email interview	Follow-up questions	foodforecast	29/04/2022	Verify data	(CEO of foodforecast)
Blog post	“Throw-Back: Die The Good Food-Story”	THE GOOD FOOD	03/07/2020	Give background about the history of the organization	(THE GOOD FOOD, website, 2020)
Newspaper article	“The Good Food Köln Gerettete Lebensmittel gibt es jetzt auch in Sülz“ (Susanne Esch)	THE GOOD FOOD	08/05/2020	Gives context, supplements data	(Esch, 2020)
Newspaper article	„Rettet Lebensmittel: ‚The Good Food‘ bietet Produkte zweiter Wahl an“ (Judith Büthe)	THE GOOD FOOD	12/04/2018	Gives context, supplements data	(Büthe, 2018)
Podcast	“Weltverbesserer” (host: Birte Gernhardt)	THE GOOD FOOD	12/05/2020	Supplements data, verifies findings	(Gernhardt, 2020)
Public document	Mission statement	Foodsharing Germany	2022	Supplements data, verifies findings	(Foodsharing, website, 2022)
Public document	“Danone, & Too Good To Go. (2021). The large-scale consumer study for Germany, Austria and Switzerland”	Too Good To Go	07/2021	Gives context,	(Danone & Too Good To Go, 2021)
Podcast	“Too Good To Go“ – Deutschlandschefin Laure Berment: “Niemand wird gerne	Too Good To Go	18/09/2020	Gives context, verifies findings	(Bollert, 2020)

	Lebensmittel weg““				
Public document	„Deutsche Nachhaltigkeits-Strategie 2021“	German Federal Ministry (BMUV)	15/02/2022	Gives context, supplements data	(BMUV, 2022)
Public document	National Strategy for Food Waste Reduction.	Federal Ministry of Food and Agriculture	02/2019	Gives context, supplements data	(BMEL., 2019).
Report	BVE-Jahresbericht 2020 - 2021.	The Federation of German Food and Drink Industries (BVE)	2021	Gives context, supplements data	(BVE, 2021).
Newspaper article	“Zukunftsfonds”	German Federal Ministry of Economics	2021	Verifies findings	(BMWK, 2021)
Report	„Deutscher Startup Monitor (2021). Nie war mehr möglich.“	DSM	2021	Give context, supplementing data &	(DSM, 2021)
Report	„pwc-megatrends-nov-2014.“	PwC	2014	Give context, supplementing data	(PwC, 2014)
Report	„Green Startup Monitor 2022.“	GSM	2022	Give context, supplementing data	(GSM, 2022)

## Appendix D

### Pre-defined and Constructed Codes

This Appendix consists of two Tables, Table D1 showing the pre-defined codes and Table D2 showing the constructed codes from the conducted interviews.

**Table D1**

This Table contains the pre-defined codes and their sources.

Pre-defined codes	Source
Logic plurality	Battilana and Dorado (2010)
Level of S&E integration with the revenue model	Ebrahim et al. (2014)
Selective coupling	Pache and Santos (2013)
Acting as path generators	Alexius and Furusten (2020)
Agglomeration	Russo et al. (2022)
Spillover effects	Russo et al. (2022)
Cognitive dissonance	Castellas et al. (2019)
Incommensurability	Castellas et al. (2019)
Interdependence	Castellas et al. (2019)
Aggregation	Castellas et al. (2019)
Mission drift	Ramus and Vaccaro (2017), Ebrahim et al. (2014)
(Social) accountability	Ramus and Vaccaro (2017), Ebrahim et al. (2014)
Stakeholder engagement	Ramus and Vaccaro (2017)
Corporate identity	Battilana and Dorado (2010)
Intergroup tension	Battilana and Dorado (2010)
Professional legitimacy	Pache and Santos (2013)
Vision creation	Battilana et al. (2009)
Ally mobilization	Battilana et al. (2009)
Resource mobilization	Battilana et al. (2009)
Field characteristics	Battilana et al. (2009)
Social position	Battilana et al. (2009)
Interactive spaces	van Wijk et al. (2019)
Herding spaces	van Wijk et al. (2019)
Negotiation	van Wijk et al. (2019)
Co-creation	van Wijk et al. (2019)
Embedding	van Wijk et al. (2019)

**Table D2**

This Table contains constructed codes from the interviews and the source from which they were conducted.

<b>Constructed codes</b>	<b>Source</b>
Contractual obligations	Interview 1; 2; 3
Awareness creation	Interview 2; 3; 5; 6
High Hygienical standards/rules	Interview 1; 2; 3; 4; 7
Legal security	Interview 1; 3
Competition avoidance	Interview 2; 3;
Mixed expertise	Interview 1; 2; 3; 6; 7
Signalling professional legitimacy/ showcasing	Interview 1; 2; 6
Political engagement	Interview 3; 4; 5; 6
Trust building	Interview 1; 6
Value based employee recruitment → mission oriented hiring policies	Interview 2; 3; 6; 7
Lack of transparency	Interview 3
High level of bureaucracy	Interview 3; 6; 7
Conservativeness of actors	Interview 2; 6
Logistic problems	Interview 3; 4; 5; 7
Compromise strategy	Interview 1; 2; 3; 5; 6; 7
Collaboration barriers	Interview 1; 2; 3; 6
Investor independence	Interview 3; 4; 5; 7
Investor prospecting	Interview 2; 6

## Appendix E

### Data Support of the Findings

This Appendix includes Representative quotes of the cases on the dimensions of Creating a vision of change, Ally mobilization, Mobilizing Resources and Enabling Conditions, while further denoting the representative themes as well as quotes from the Interview partners.

Dimen- sion	Theme	Representative quotes
<b>Creating a vision of change</b>	<b>Mission oriented hiring policies</b>	<p>“We are a diverse team, some techies like me but also food insider, which we also need in order to come up with creative solutions” (Founder and higher management, SPRK)</p> <p>“Our corporate culture is characterised by the fact that we are a young, dynamic company, that we have flat hierarchies and, like a start-up, can implement many things quickly and, above all, that we all identify with the issue of sustainability and that it is important to us that we make a positive contribution to changing something in society with our daily work.” (Head of marketing, foodforecast)</p> <p>“I think that is also something that makes us special, that we are so cross-functional. It's very important not to solely think too much in one direction, but to have different input, different ideas. A developer has a different perspective than someone who has studied agricultural science or business administration. It's great that that's the case here, that you have this combination of different disciplines.” (Head of marketing, foodforecast)</p> <p>“We are a small team. I have a business administration background. All the others don't have an academic background, but they all have a philosophy of sustainability embedded in them. But we're not the typical ecos either. (...) It is a business mindset, combined with sustainability, to find an economic approach to solving a problem.” (Founder and CEO, be bananas)</p> <p>“Anyone I have worked with out of the The Good Food team, is really passionate and caring. A lot of them work on a voluntary basis but also the full time employees are the for a</p>

		reason other than profit! You can really tell.” (Industry expert, Foodsharing)
	<b>Awareness creation</b>	“When we started, the issue was not really known - we also worked a lot with social media to make the issue more present in the minds of consumers. A lot of TV reports and radio reports and newspaper articles and so on. And through this we have also brought the topic forward, so that people also change their thinking.” (Founder and CEO, The Good Food)
	<b>Stakeholder engagement</b>	<p>“To be honest, I am a little frustrated. In the beginning, we did a lot. Before that, I was the managing director of Foodsharing and had quite a bit of insight at round tables - North Rhine Westphalia has a round table where the sustainability officer from Rewe or other large companies participate. “Zu gut für die Tonne” is another one of those prizes awarded by the state. I was there once and we applied because I thought it was interesting and great that the topic was being taken up politically. And there was also an event where the environment minister was there, who quoted things that are years out of date. He said things like that there are no EU standards for crooked cucumbers. That was already 5 years out of date at the time, or that the best-before date will be removed from some foods (rice and pasta) - he also said that, but it never happened. And that was years ago. Now since the pandemic there is even less happening.” (Founder and CEO, The Good Food).</p> <p>“So we want to do educational work through workshops. We want to start with children and young people and raise awareness of the issue. It works really well because the children love it and the parents learn from the children what they should pay attention to. And that is the political work we do.” (Founder and CEO, The Good Food)</p> <p>“We have also just been nominated for the national award “Zu gut für die Tonne”. We want to become better known and promote this topic of using artificial intelligence for the purpose of sustainability. Because many people don't see this possibility right away, and it's important to us that we get more attention.” (Head of marketing, foodforecast)</p>
<b>Ally mobilization</b>	<b>Collaboration barriers</b>	<p>“I think on a b2b level it is a bit like with fuel cars. It really isn't a problem until society, the government or politics in general put financial pressure on companies to concur that problem. On the other hand there is no particular law prohibiting disposal. And that is simply a legal question. Some also simply have their long term suppliers and are reasonably satisfied with that, until they hear that it can be done much more cheaply.” (Junior Sales Director, SPRK)</p> <p>“And a big thing is of course still that a lot of them, especial caterers already have partners and have long-term contracts with them and can't simply switch at the moment.” (Junior</p>

		<p>Sales Director, SPRK)</p> <p>“Also the question, what am I even allowed to do? Rules and regulations - it's not an open marketplace like e-Bay. With our approach, we are more like an extension of the workbench of the supply chain participants and coordinate in advance - what is allowed to happen with these goods? And then the technology comes into play. We want to work in partnership with the supply chain participants.” (Higher management, SPRK)</p> <p>“Especially for greater care facilities, for example, which are larger, which have I don't know 30 facilities in Berlin and then again nationwide 80, they simply operate on a greater scale than us. And they simply don't see a benefit working with such a small start-up, when they in fact in Berlin alone process around 20 tons of food each week. So there the scale simply does not match our capabilities. This of course does not mean that we are not expanding. It is quite the opposite, however at this stage we are still a little too small for some operations.” (Junior Sales Director, SPRK)</p> <p>“If a supermarket says they don't throw anything away - I don't believe that at all anymore. I've often had the experience of asking if they can give us the food and they said they don't throw anything away or donate it to the NGOs. But then you check their bins and they are full to bursting every week. That's super annoying. And then they declare a nationwide cooperation with that NGO. And they both protect one-another, praising each other for how great they are at handing out food, but in fact the bins are full and it still goes to waste.” (Founder and CEO, The Good Food).</p> <p>“When it comes to AI our clients are rather conservative and sceptical. Especially when it's completely new and they don't know exactly whether and how it works. The topic of AI may sometimes interest the managing director, but the person who has to implement it and previously used to execute the ordering process of baked goods, has concerns because they fear that their work will be replaced by the software.” (Head of marketing, foodforecast).</p> <p>“We have to connect with the bakeries' inventory management software. Our software pulls the data from that. There are not so many providers on the market, we have 5 connected now. But if you had a new business system, it would take two to three months to build the interface. With an existing system that is already connected, it takes just a few minutes because everything is automated.” (Head of marketing, foodforecast).</p>
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	<p>“Hm well, for one thing cold calling, especially on the phone is difficult. If you call a company that has never heard of you and you want to sell something, most people are put off. For them, it's just some guy on the phone who wants to tell me something about food waste and sell me some stuff. And most of them don't want to do that and are directly put off, even though it might even be interesting for them. That's a big problem or a big obstacle to simply building trust” (Junior sales director, SPRK)</p> <p>“The question of liability. It is always relevant whether the company donates the goods or whether they must fear that they will be taken into account. Politically or legally, there could be a higher level of security that the food that is put back into circulation, at least if it has passed its best-before date, can be given away without the threat of a wave of lawsuits if something happens. Because the people who put it into circulation - the people who pass it on to others - bear the liability, and that should be simplified.” (Founder and CEO, The Good Food)</p> <p>“Other hurdles are definitely bureaucratic hurdles. So we have two right now, for example, who somehow have problems booking it in their accounting, that it is spent and I don't understand why they can't just book it out at zero euros. They often want a donation certificate. We can issue a donation certificate, but in the food sector it is actually a bit complicated because you have to certify a market value and the market value, if the food has passed a certain expiry date, has lost its marketability if you can no longer put it on the market in this sense and that is the problem of the companies. They can no longer put the product into circulation and therefore cannot certify that the food has marketability and for this reason it is not at all easy to issue a donation certificate for tax purposes.” (Founder and CEO, The Good Food)</p> <p>“In other sectors, the product is not yet ready for the market because various factors have to be taken into account, which varies from sector to sector. Supermarkets - e.g. many more products, have minimum order quantities - is a completely different house number than bakeries.” (Head of marketing, foodforecast)</p> <p>“But for us there are no obstacles, they are happy to give away their goods - but you have to approach them and make it possible, because they don't actively search for them. They want to get rid of the food and anything beyond that is more of a logistical challenge, so you have to be prepared to approach them yourself.” (Founder and CEO, be bananas)</p>
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	<p><b>Selective coupling</b></p>	<p>“And then of course it’s essential to stress the positive aspects like the price advantages, which jump out immediately as well. With us they can simply order much below the usual market price and that is a great advantage.” (Junior sales director, SPRK)</p> <p>“NGOs that tend to be undersupplied when it comes to food can be systematically and regularly assisted by us and provided with the best edible food and the staple foods.” (Higher management, SPRK)</p> <p>„Although we take money with the goods in order to be able to cover the overheads, we are not concerned with maximizing profits.“ (Founder and CEO, The Good Food)</p> <p>“We actually started with market stalls on the street. With the existing shops that were empty during the summer break, for example, we went in there for two months and then somewhere else for two months until we were able to rent a shop at some point. These are also running costs that you first have to bear. And you have to build up a little buffer to pay for everything, and in the meantime I'm even an employer. It never occurred to me to finance a job with it. Neither mine nor anyone else's.” (Founder and CEO, The Good Food)</p> <p>“And that is also super important to our founder, that sustainability is our impact number 1. Even if the clients are interested in something else first and foremost, which is that they want to be economically efficient.” (Head of marketing, foodforecast)</p> <p>“The topic of sustainability also has a marketing purpose for many companies. To present themselves innovative. We use that too, in our sales strategy.” (Head of marketing, foodforecast)</p> <p>“I would say, all these profit-oriented companies are very difficult, of course. You cannot just ask them on the phone whether they might be able to refer us to their competitors. Whereas with NGOs it has worked surprisingly well.” (Junior Sales Director, SPRK)</p> <p>“Therefore, the pilot phase, which we provide free of charge, is very interesting for the customers to show them the added value. After that, they decide at the end of the pilot phase whether they want to use the software or not.”(Founder and CEO, foodforecast).</p> <p>“It still has value if you make upcycled products out of it, and so I approach them and tell them that I don't want to donate the</p>
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		<p>banana, but only because the trade says that the banana is no longer worth anything, we see the value of the banana and are happy to pay for it. And their disposal costs go down as a result - so that's the financial incentive they have. We took an unconventional approach and set up the logistics from our side. We picked up the goods ourselves and organised the shipping company.” (Founder and CEO, be bananas)</p>
	<p><b>Stakeholder engagement</b></p>	<p>“There is a whole range of possible models (to good to go etc.) or also non-profit - Tafel for example. We don’t want to compete with them and also the further forward we go in the supply chain, the larger the volumes become. And we are talking about surpluses - surpluses that are perfectly edible. At the front end of the supply chain, there are few or no solutions. Hence we are working in partnership with suppliers and exchanging data.” (Higher management, SPRK)</p> <p>“We have a cooperation with Foodsharing. So it is not the case that food goes bad with us. For example, we have a lot of limes right now. With limes, for example, we approached bars and restaurants and try to find bulk buyers. And what we can't handle, we give to the operative Foodsharing” (Founder and CEO, The Good Food).</p> <p>“We have a lot of limes right now for example. With limes, we approached bars and restaurants at the moment and try to find bulk buyers and since this is still in such a start-up phase, we have to make sure that it goes away (into the cycle) and what we can't handle, we give to foodsharing. Mrs. Lose, for example (Dortmund) - they come once a week and pick up food from us and take potatoes with them and exchange them so that there is a greater chance that the mass is better distributed. In this way, we have established cooperations with a wide variety of start-ups and companies. A community has emerged.” (Founder and CEO, The Good Food)</p> <p>“Nicole from The Good Food is working closely with us. She used to oversee the operations here before opening her stores, so the connection was there already. She always makes sure that we communicate in order to avoid picking up food at the same location. Working together simply ensures that we can handle the biggest volume possible.” (Industry expert, Foodsharing)</p> <p>“We have a cooperative with Foodsharing and it is not the case that food goes bad with us, but we pick up more than we know we can get rid of and try to expand the transport routes/try to expand this business even further.” (Founder and CEO, The Good Food)</p>

		<p>“Our business model is also not that we sell software to someone, and they use it, but rather that it is intended more as a software service, that you also have this consultation afterwards and through this pilot phase that the customers also work together with us and we develop it especially for them and on the other hand there are not yet so many solutions on the market and the potential is there. Our software has three big advantages for the customers - reduction of food waste, 4% more turnover through more precise sales planning, reduction of personnel costs through order automation.” (Head of marketing, foodforecast)</p>
<b>Mobilizing Resources</b>	<p><b>Signalling professional legitimacy</b></p>	<p>“A good way to convince them however is then of course always, to let them know which partners we have worked with in the past or are currently working with and that we have similar partners who really benefit from our solution. We would then tell them that we are of course very interested in their perspective on our solution, as other partners have found it great and benefited a lot.” (Junior Sales Director, SPRK)</p> <p>“The Extreme Tech Challenge in the world's largest startup competition with over 2,400 international participants for founders tackling global challenges. In the summer of 2020, we successfully concluded a 7-figure financing round with international investors. This was a significant milestone for SPRK that helped us a lot to finance the company, get wonderful impact investors on board and to drive further scaling.” (Higher management, SPRK).</p>
	<p><b>Challenges and barriers</b></p>	<p>“Of course, there is start-up aid and so on, but it is not explicitly aimed at ecologically valuable ideas. And ecological doesn't mean food waste. Food waste is a huge topic in the basic topic of sustainability. There is no explicit funding to support these approaches and I find that relatively unfortunate. However I am neither the type who plans to go into politics with this, nor do I have the means or time to change that” (Founder and CEO, be bananas).</p> <p>“The process of raising funds was the same as for any start-up. The challenge is to get investors from Germany on board, as they tend to be somewhat risk-averse and conservative, whereas international investors, such as our investor Blue Horizon Ventures, are more open.” (Founder and CEO, foodforecast).</p>
	<p><b>Investor prospecting and screening</b></p>	<p>“Of course, we also have to show (with the other KPIs) that the investment has paid off and that we are investing in other sectors and what we are really investing the money in, but that does not pressure us. We want to grow and increase our impact and thus pursue a common goal with the investor. With Blue Horizon Ventures we have landed a venture capital fund that invests specifically in sustainable food systems, in fact they</p>

		<p>only invest in sustainable food systems, so it's not like they invest in just any company. They are pursuing the same vision as we are. The goal of our company is to really see AI as a means to an end. We want to be sustainable and reduce food waste by 10 billion euros in the next few years. And that is also super important to our founder - that this is our primary impact" (Head of marketing, foodforecast).</p> <p>"Fortunately we assemble prominent investors, all people that I have gotten to know personally or that stem from my personal network. They don't see it as a profit opportunity, even though we have a clear business model that also makes money, we are a for profit impact venture. Of course there were also investors who I didn't know before but who I knew were not typical venture capitalists, who may have to demand the return of investment back after 5 years or so. I mean of course we want to make our investors happy, but for our investors it is not just a pure profit case for our investors." (Higher management, SPRK).</p> <p>"I do not have support from public funds or investors. I didn't want that and I wouldn't accept it at all. The only thing we did was an environmental award from the city of Cologne. That was 1500 euros. Then we submitted small projects like and got 4000 euros or so. But we don't have any regular donors and certainly no investors who finance us in any way. I never wanted to take out a loan or anything, because we said from the beginning that we would start small." (Founder and CEO, The Good Food).</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Enabling conditions</b></p>	<p><b>Field characteristics</b></p>	<p>"The Ukraine crisis affects us because the customers have increasing raw materials and therefore our software is increasingly important for them. A large bakery customer also wanted to move the pilot phase forward. Because they can not afford to waste anything due to the increase in raw material prices." (Head of marketing, foodforecast).</p> <p>"Corona - didn't affect us too much. Maybe it even played into our hands a bit because it became more and more important that the sales forecasts are more accurate. There are so many fluctuations that one person cannot really estimate how much will be ordered and how much can be sold." (Head of marketing, foodforecast)</p> <p>"In the case of non-profit companies, especially now with this Ukraine conflict, we have supplied large quantities of food to several NGOs, the cooperation works overwhelmingly well. They mediate within their network to help support us and help us find other partners." (Junior sales director, SPRK ).</p>

	<b>Actors's social position</b>	"I have been active in start-up scene for 20 years now and prior to founding SPRK I have founded several companies and have worked at Yahoo in a management position. I think that really gave me enough confidence but also enough credibility and experience." (Higher management, SPRK)
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