

# **Strategies, limitations and critical success factors for Responsible Innovation in food surplus social innovation**

- MSc thesis -

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## ABSTRACT

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The so called ‘grand challenges’ of our time, such as climate change and food insecurity put high pressure on societies worldwide. Whilst new technologies such as geo-engineering or GMO have the potential to provide a solution for these problems, there are grave concerns about the unforeseen consequences of these innovations. The emerging discipline of Responsible Innovation attempts to anticipate impacts of innovation and increase the chance of generating desirable outcomes. However, this discipline is still in its infancy and dominated by a theoretical discourse, lacking empirical concepts.

Consequently, this research examines Responsible Innovation from a business perspective. Backbone of this research is the assumption that there are already actors on the stage who work towards the solution of grand challenges, namely social entrepreneurs whose innovation processes show conceptual similarities with Responsible Innovation. Hence, if one wants to understand the logics behind Responsible Innovation in a business context, he is likely to make a find within the innovation processes of social entrepreneurs. Research goal is to identify strategies, limitations and critical success factors for Responsible Innovation in a food surplus social innovation context. This research contributes to an enhanced understanding of how to apply Responsible Innovation in a real-life situation, which can help to develop a concept that can be applied to business contexts.

## EXECUTIVE SUMMARY

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Responsible Innovation is a type of governing the process of innovation. Since the outcomes of innovations are inherently unpredictable, the discipline Responsible Innovation examines paths and trajectories of how to increase the likelihood of getting to an outcome that is desirable for society, thus preventing potential negative impacts.

The discipline is relatively new and still in a premature stage. Current research focuses mainly on academic innovation, thus neglecting market-driven innovation and innovation in the private sector. In order to better understand how to innovate responsibly, it is therefore reasonable to examine patterns of Responsible Innovation in a business context.

The objective of this exploratory research is to identify strategies, limitations and critical success factors for innovating responsibly in food surplus social innovation. The initial assumption is that applications of Responsible Innovation already exist in this particular business context. The reason hereof is that the disciplines Responsible Innovation, social innovation and social entrepreneurship show conceptual similarities. In this light, learning from these applications might allow for understanding how to increase practices of Responsible Innovation in the private sector.

Two research questions guide this research:

1. Which dimensions of RI are integrated in innovation processes of social entrepreneurs in the food surplus business?
2. What kind of management practices help social entrepreneurs in the food surplus business to overcome expected as well as unexpected limitations when engaging in RI practices?

To answer these research questions, a combination of literature research and empirical research was performed. First the body of literature around the three focal disciplines was studied. This literature study was used to deductively determine strategies and limitations to innovate responsibly in the particular business context under study. In a second step, an empirical case study was conducted to examine:

- Whether the deductively obtained strategies and limitations actually occur in a business context
- Which strategies and limitations can be found inductively in the innovation processes of the focus group
- Which management practices the focus group uses to overcome limitations.

The empirical case study consists of thirteen qualitative, semi-structured interviews with food surplus entrepreneurs. All interviewed companies are engaged in social innovation, can be classified as social entrepreneurs and conduct business activities around food surplus.

This research approach led to the following key findings:

- The focal group is strongly involved in the positive side of anticipation and reflexivity, namely defining a desired impact and reflecting on the business' role in society
- Risk assessments and response to critical feedback are less present. This can weaken the extent to which innovators are prepared for unforeseen consequences of their innovations
- Objective criteria to assess impacts (KPIs) can negate this effect as they ensure an unbiased reflection on the business practices and thus increase responsibility of the innovation
- All respondents are strongly involved in networks, which strengthens the dimensions of deliberation and knowledge management
- It is reasonable to assume that even perfect inclusion would not increase responsibility of the innovation, as the focal group and their stakeholders do not perceive the innovation as potentially harmful

In the end, this report contributes to RI research by adding empirical data to the discourse. Furthermore, it adds the perspective of social innovation which is a discipline where research on RI is lacking. Finally, it looks at RI in a business context, applying a viewpoint that is currently underrepresented in RI research.

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# 1. INTRODUCTION

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This first chapter of the research report gives an introduction into the area of research as well as the research gap that is addressed and the research objective.

## 1.1. RESEARCH BACKGROUND

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Responsible Innovation (RI) is an emerging concept in innovation management literature. Although for decades innovation was considered inherently good since it increases societal wealth (von Schomberg, 2013), this perception needs to be re-considered. In the light of asbestos, nuclear energy and other inventions that started promising but ended up harmful, there seems to be a discrepancy between technological progress and the ethical acceptability of many modern innovations (Deblonde, 2015). The Collingridge dilemma summarises this problem: Usually, consequences for society of a new technology cannot be anticipated at an early stage of its life cycle. Negative impacts only become visible as soon as the technology is available on the market, embedded in society and data can be collected on a large scale (Collingridge, 1981). This dilemma is especially gaining importance since new technologies such as geoengineering, GMO and synthetic biology are emerging (Owen, Stilgoe, Macnaghten, Gorman, Fisher & Guston, 2013). But also in low-tech industries, it is desirable to anticipate potential negative consequences of innovation and prevent them if possible.

As a consequence, scholars and practitioners contemplate on how to introduce responsibility into innovation processes in order to anticipate unexpected outcomes and take into account social and ethical aspects (von Schomberg, 2013), i.e. more responsible forms of research and innovation. This leads to theory concerning Responsible Innovation, which is defined as “a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)” (von Schomberg, 2011, p. 9). RI is a governance framework for innovation, undertaken by actors who collectively strive for a desirable impact for which they assume a shared responsibility. It is designed to anticipate potential outcomes of innovation in order to prevent negative effects and to enhance the responsiveness of these outcomes to societal challenges.

However, since the discipline is still in its infancy, scholars disagree on how to achieve this. Some of the suggestions focus on the incorporation of ethical guidelines (von Schomberg, 2013) whilst others emphasise anticipation through technology assessments (Owen & Goldberg, 2010), to name a few of the approaches.

## 1.2. RESEARCH GAP

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Current research on RI is dominated by a theoretical discourse and research from a business perspective is lacking (Raman, 2014). Additionally, Blok & Lemmens (2015) highlight that RI is primarily focusing on science-driven innovation, thus neglecting market-driven innovation. Consequently, they tag existing frameworks as idealistic and call for approaching the discipline from a business perspective, since an implementation of current concepts of RI into corporate contexts is likely to face constraints (Blok & Lemmens, 2015). For instance, the grand challenges of our time are characterised by their high complexity, which is linked to different interests of a variety of stakeholders involved who are impacted by and have impact on the innovation process. Consequently, it can be argued that stakeholder inclusion and deliberation can be detrimental to solving the problem due to competing motivations and agendas (Blok, 2014). Moreover, institutional limitations can be expected as well; since RI has not yet arrived in mainstream business practices, incumbent corporations could consider its application as incompatible with existing structures. Besides, existing research focuses on technological innovations, neglecting other forms of innovation, especially in the low-tech sector (Penders, Verbakel, & Nelis, 2009). It is thus questionable whether current conceptualisations of RI can be used to increase responsibility for other types of innovation and in the private sector as well.

In order to determine critical success factors to integrate RI into corporate innovation processes, it makes sense to research RI through an empirical lens. The departure point for this report is the assumption that applications of *de facto* RI already exist in some particular business contexts and that the discourse on RI can learn from their practices (Lubberink, Blok, van Ophem, & Omta, 2016, submitted for publication). More specifically, one can expect to find these practices in the field of social innovations by social entrepreneurs. Both social innovation and social entrepreneurship show conceptual similarities with RI. On an outcome level, social innovation emphasises societal wealth creation (opposed to economic wealth by for-profit entrepreneurs (cf. Dees, 1998)). Hence, we can expect that social entrepreneurs who engage in social innovation are more inclined to take into account ethical acceptability, sustainability and societal desirability, which are the outcomes of RI (von Schomberg, 2011). On a process level, collective action is an important feature in social innovation (Cajaiba-Santana, 2014). Social innovators strive for a positive impact, which they aim to achieve by altering existing social practices. This cannot be realised by one single actor alone, which is why social innovators empower a wide range of stakeholders (Lettice & Parekh, 2010). RI, accordingly, focuses on stakeholder inclusion and deliberation (among other dimensions) to achieve acceptability, sustainability and societal desirability (Lubberink et al., 2016). Because social entrepreneurship and RI share these conceptual similarities, one can expect to find practices, limitations and critical success factors for implementing RI within the social innovation practices of social entrepreneurs.

While it is safe to expect practices of RI in these business contexts, some constraints make it difficult to implement them in the corporate sector due to the conditions RI has for innovation management. For instance, it can be argued that an economic focus is a possible limitation (cf. Blok & Lemmens, 2015), because often for-profit enterprises are reluctant to be fully transparent and interactive throughout the entire innovation process (Wagner, 2009). Social entrepreneurs, on the other hand, are able to act from a different disposition, since when they innovate, they are not solely focused on creating economic wealth but stress the quest for a ‘right impact’ and a positive contribution to society. To achieve this, they frequently collaborate with a wide range of stakeholders who collectively strive for a positive impact (Lettice & Parekh, 2010). Moreover, institutional limitations can be expected as well since national and local governments are not familiar with this new kind of innovation. Since RI has not yet arrived in mainstream business practices, incumbent corporations could also consider its application as incompatible with existing structures. Current research is still scarce on how social entrepreneurs think about RI.

### 1.3. CONCEPTUAL RESEARCH DESIGN

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The **research objective** is twofold: First, the research focuses on what elements of RI are applied in the innovation processes of food surplus social entrepreneurs and how they are utilised. Second, it is studied which limitations for implementing specific elements of RI into business contexts as identified in RI research are present and which management practices food surplus social entrepreneurs use to overcome them.

Research questions are as follows:

#### **1. Which dimensions of RI are integrated in innovation processes of social entrepreneurs in the food surplus business?**

Using the following sub-questions:

- How are dimensions of RI conceptualised?
- How is integration operationalised?
- How are the innovation processes of social entrepreneurs operationalised?
- How is social entrepreneurship operationalised?
- How is social innovation operationalised?
- How are RI, innovation processes and social entrepreneurs related to each other?

**2. What kind of management practices help social entrepreneurs in the food surplus business to overcome expected as well as unexpected limitations when engaging in RI practices?**

Sub-questions are as follows:

- Which limitations are identified in literature?
- How are management practices operationalised?
- How can unexpected limitations be recognised?

The first research question is answered by deductively identifying dimensions of RI in literature and creating assumptions about which of these dimensions are utilised in the innovation processes of social entrepreneurs in the food surplus sector. The second part of the research builds on the results gained by answering the first research question. Consequently, part of the limitations for implementing RI is derived from literature. Another portion of limitations is identified in empirical interviews. Next, it is inductively studied how social entrepreneurs overcome these limitations in their innovation processes.

In order to conduct this research, first the theoretical framework was constructed. It is based on a literature review on the three disciplines that influence this project, namely RI, social innovation and social entrepreneurship. The theoretical framework can be divided into two parts. First, a literature review on RI provided dimensions of RI that are expected to be present in a business context. Second, the concepts of social innovation and social entrepreneurship were examined and related to each other. This exercise provided information about the context in which RI is implemented. A case study, consisting of a qualitative selection of social entrepreneurs engaged in food surplus innovation provides empirical data that adds to the literature study. Both the theoretical framework and the case study were used to better understand which dimensions of RI are utilised in social innovation processes. In a next step, limitations for implementation were identified and management practices used to overcome these limitations were researched.

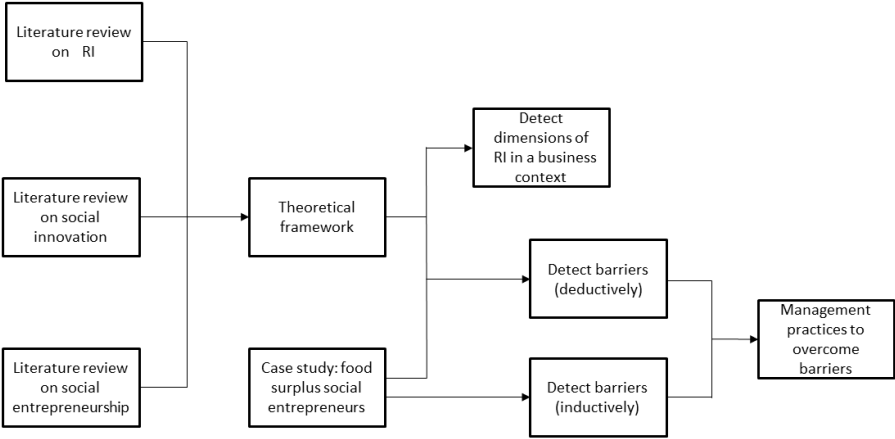


FIGURE 1-1 RESEARCH FRAMEWORK SCHEME

## 2. THEORETICAL FRAMEWORK

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In this chapter the three concepts are introduced that are vital to the research: RI, social innovation and social entrepreneurship. Moreover, they are conceptualised and related to each other in order to indicate how they are used throughout this report.

### 2.1. RESPONSIBLE INNOVATION

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RI is a type of governing the process of innovation. Its purpose is to make R&D more adaptive to grand challenges and societal demands (von Schomberg, 2013). One example of where this failed and the impacts of innovation have not been anticipated sufficiently is nuclear power, which had and still has serious negative consequences for society. Generally, RI aims at answering two questions: First, can it be normatively assessed what a desirable outcome of R&D is? Second, can R&D be directed into this direction, assumed that there is consensus about what this desirable outcome looks like? (von Schomberg, 2013).

Given the viral and ungovernable character of innovation, it is evident that realising these goals is no easy task. One difficulty of introducing responsibility into innovation is that nowadays innovation is a collective endeavour, where knowledge is openly accessible on the market, and usually no single actor can be identified for creating an innovation (Owen et al., 2013). Consequently, if negative outcomes happen, none can be held responsible (von Schomberg, 2013). Another difficulty is that von Schomberg calls for early societal intervention in the innovation process. The earlier a huge variety of societal stakeholders is involved, the better unintended outcomes can be anticipated. However, this approach is criticised since it can gravely constrain the creative process and close certain trajectories in scientific freedom (Stilgoe, Owen, & Macnaghten, 2013).

Applying RI can be a challenge, since our society has no agreed-upon governance mechanisms for enhancing the outcomes of innovations (von Schomberg, 2013). Assessing innovation is a highly chaotic and unorganised procedure, since there are no comprehensive values and no authorised control agents. Following the established business logics that constitute our market system, the normative dimension of what is considered an improvement is decided by market mechanisms. Consequently, assessments of innovation are based on economic criteria and fail to take into account values, assuming they exist. With the aforementioned spread of innovation and its collective creation, a system of checks and balances becomes even less manageable. Moreover, users can alter functions of technology almost indefinitely. One example is the videogame technology 'Kinect' by Microsoft, which, after it was put on the market, has been transformed by creative users to conduct keyhole surgery (von Schomberg, 2013). Hence,

searching for viable control agents as well as functioning procedures of assessment is one of the major challenges or limitations in RI. Prevalent answers to this problem focus on including as many stakeholders as possible and being highly responsive to their demands. Especially when it is expected that the respective innovation can have disruptive characteristics, anticipating consequences in different societal sectors can be crucial. Certain stakeholders can take part in promoting sustainable transitions, especially if they contribute strategically about how to influence the development process in some desired direction (Quitau, Hoffmann, & Elle, 2012).

Since RI is a comparatively young discipline, some limitations are present. First of all, RI literature focuses more on anticipating risks and negative outcomes, neglecting the question of how to generate positive outcomes (Owen et al., 2013). The neighbouring discipline of social innovation, in contrast, emphasises positive outcomes, focusing less on unforeseen consequences. However, RRI researchers acknowledge this gap (Owen et al., 2013; von Schomberg, 2013). Historically, RRI is influenced by a huge diversity of disciplines, such as philosophy, technology, science policy and strategic innovation management, to name a few. Accordingly, research can benefit from having numerous perspectives, but has to take into account various different angles that have to be related to each other (von Schomberg, 2013).

## 2.2. DIMENSIONS OF RI

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In RI research, certain dimensions have been identified by various scholars. These dimensions are meant to be included into an innovation process. In a literature review, Sophie Pellé and Bernard Reber listed five dimensions that have been referred to most in research (Pellé & Reber, 2014). They are; anticipation, responsiveness, reflexivity, inclusion and transparency. A more recent literature review conducted by Lubberink et al. identified a slightly different set of dimensions: anticipation, reflexivity, inclusion, deliberation, responsiveness and knowledge management (Lubberink et al., 2016). It is obvious that various scholars and practitioners included in the literature reviews have different understandings of what the dimensions bring about. Hence, it has to be clarified first how they can be defined. This research project focuses on the research by Lubberink et al. for two reasons; firstly, it is more recent and secondly, it elaborates on the review by Pellé and Reber and can thus be considered more inclusive.

This section is organised as follows: First the dimensions are introduced that form the dependent variables, defining how they are conceptualised in this research. Next, the key activities which comprise the independent variables are described. Consequently, the indicators are listed that can be used to measure the occurrence of the key activities. A more elaborate overview of variables is given in section 3.4.

The research was performed both in a deductive way (by identifying which indicators are utilised in practice) and inductively (by searching for new indicators that are carried out to perform the key activities). In this way, it is possible to find out in a viable way if and how the focus group as defined in section 3.2 engages in the dimensions of RI, even if they do not strictly use the key activities identified in literature.

For instance, with regard to anticipation the first step is to figure out which of the key activities are present. At the same time it has to be determined if other key activities to achieve anticipation as defined in section 2.2.1 occur. Building on the results, reasons for why some indicators are stronger utilised than others can be explored. In the end, this approach leads to an enhanced understanding of how RI can be implemented into a business context.

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### 2.2.1. ANTICIPATION

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Throughout the innovation process, entrepreneurs have to identify desired outcomes that have the potential to generate societal wealth. In an ideal case, they construct several roadmaps of how to reach their desired outcome (Steen, Buijs, & Williams, 2014). To achieve this, it is necessary to determine a desired impact of the innovation as well as identify and prevent negative outcomes.

The dimension of anticipation consists of three key activities, which are conceptualised as dependent variables here. These key activities are: determining desired outcomes for innovation to address societal needs; identifying potential negative outcomes and finding methods for mitigation; the set-up of various roadmaps to be prepared for different trajectories (Lubberink et al., 2016).

#### 1. Determining desired impacts and outcomes of innovation

Units of analysis:

- Sensing the environment (legislation, technologies, market/societal trends and supply chain) for opportunities
- Identifying and understanding societal and/or environmental needs
- Generating ideas for solutions
- Determining the outputs and impacts to be achieved
- Determining the social, environmental and/or economic value proposed

#### 2. Preventing or mitigating negative impacts

Units of analysis:

- Sensing the environment (legislation, technologies, market/societal trends and supply chain) for threats

- Assessment of risks, uncertainties and impacts of negative externalities on the firm's innovation governance and outcome
- Analysis of possible social, environmental and/or economic negative impacts of the innovation on the external environment

### 3. Development of roadmaps for impact

Units of analysis:

- Developing forward and backward scenarios taking into account long-term vision and short-term actions
- Plausibility assessment of different scenarios
- Developing and determining an ambitious and conceivable roadmap regarding firm's operations
- Aligning business strategies with impact vision and translated in day-to-day activities of employees in the firm

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## 2.2.2. REFLEXIVITY

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Reflexivity describes the willingness to critically reflect on one's own actions and attitudes and how they might affect society (Lubberink et al., 2016). It also entails that people are prepared to alter management practices according to what is learned from the process of reflection. Reflexivity can be achieved both informally and through formal mechanisms. A leadership style that encourages self-critical appraisal at different levels of the organisation is an example for formal management, whereas an empowerment of employees in order to encourage them to reflect on actions and values can be considered an informal practice. Another relevant characteristic of reflexivity is the way information is utilised. In order to increase reflexivity, it has to be made sure that information is obtained in a complete and accurate way (Lubberink et al., 2016). Additionally, it has to be used in an objective manner to avoid any bias that can occur when entrepreneurs 'fall in love' with their idea, which is obstructive to effective reflection.

### 1. Actions and responsibilities

Units of analysis:

- Making sure that there are:
  - Formal evaluations
  - Third party critical appraisal
  - Informal (self-) assessment culture
- Creating a culture where there is empowerment of employees



- Becoming aware of the function and power of the firm in society, and the responsibility that comes with that

## 2. Values and motivations

Units of analysis:

- Prioritization of values & motivations
- Thinking of its effect on innovation governance and outcome(s)
- Determining how to deal with incompatible values and/or motivations

## 3. Knowledge and perceived realities

Units of analysis:

- Scrutinizing the presence, absence and subjectivity of information
- Assessment of the knowledge and abilities present in the firm
- Becoming aware of different perceived realities between actors
- Reframing of problems and solutions, e.g. via multidisciplinary project management
- Knowledge-concept-process method

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### 2.2.3. INCLUSION

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Inclusion describes the practice of consulting a wide range of different stakeholders at several stages of the innovation process (Stilgoe, Owen, & Macnaghten, 2013). As many opinions and interests are to be considered as possible in order to be as best as possible prepared to face complex realities.

Perfect inclusion that involves all stakeholders who might be influenced by the innovation is neither possible nor desirable in the light of strategic management, since it is not feasible to identify and consult all stakeholders who are affected and it slows down decision making (Blok & Lemmens, 2015). Hence, the innovator has to choose which stakeholders to include, which information to share and at which stage of the innovation process to consult them.

#### 1. Involvement of stakeholders in different stages

Units of analysis:

- Consult, integrate or collaborate with the
  - Wider public
  - Supply-chain actors
  - End-users
  - NGOs

- Experts
- Governmental
- Multiple/non-specified/others

## 2. Provision of resources and capital

Units of analysis:

- Consultancy
  - Scientific support
  - Governmental support
- User-innovation
  - Crowdsourcing
  - Focus groups
- Community visits
- Indirect representatives
  - Thought experiments
  - Role playing
  - Intermediaries
- Living labs

## 3. Raised commitment and contribution

Units of analysis:

- Balancing transparency and openness in relationships and the innovation process and receiving inputs by external actors
- Fair relationship regarding the tasks and returns on inputs
- Role recalibrations as roles change over time and need to be re-adjusted
- Working with actors sharing same values or different (sometimes opposing) values

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### 2.2.4. DELIBERATION

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Deliberation is a mutual exchange between stakeholders in order to facilitate decision making. Other than only hearing their interests, this dimension emphasises creating structures where their inputs can be addressed, such as formal places in the organisation, regular meetings or transparent communication of how the stakes are incorporated. This also entails maintaining a network with other innovators. According to the network success hypothesis, these connections can be useful to obtain resources more cheaply than on the market (Lettice & Parekh, 2010). One can think of physical resources, but also

information and feedback. Consequently, deliberation can be seen as a survival factor for social innovators that determines who is successful and who fails.

1. Two-way exchange of views and opinions

Units of analysis:

- Formalised process how deliberation can be governed
- Enabling active systems of dialogue
  - Discussions & focus groups
  - Participation in societal debate

2. Shared information and value criteria

Units of analysis:

- Provision of accurate and transparent information
- Evaluation of shared information
  - Determined beforehand or along the way

3. Support decision-making with regard to the innovation that is under consideration

Units of analysis:

- Equal consideration of stakeholder interests
- Wider group of stakeholder consultation to decide

4. Decision-making power of stakeholders regarding the innovation process and/or outcome

Units of analysis:

- Providing a place in the board of the firm
- Providing voting power in the process and regarding the outcomes
- Providing a platform to express their voice regarding the process and outcomes

5. Feedback regarding the dialogue and explain how the results are integrated in the innovation

Units of analysis:

- Providing feedback what is done (or not) with the input of stakeholders
- Transparent process how ideas are selected and integrated

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## 2.2.5. RESPONSIVENESS

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This dimension considers actually incorporating the inputs collected from the various stakeholders into formal procedures. It is about setting up systems of how to alter the innovation or the process after hearing the inputs. Responsive strategies allow for being prepared for changing circumstances. It also includes having a scenario where the innovation is pivoted and not introduced to the market, if it deviates from the stakeholders' expectations and they have enough power to influence decision making. Incremental to the success of responsiveness is that actors first identify their own positions in order to determine which stakeholders can provide valuable input and create a shared goal, but they also have to deconstruct their own positions to enhance corrigibility and acknowledge limitations of the own perspective (Blok, 2014).

### 1. Making sure that one can respond to changes in the environment

Units of analysis:

- Mainstreaming/customizing to satisfy stakeholder needs
- Prevent or overcome organisational inertia
  - Little bureaucracy
  - Creativity trainings
  - (In)formal communication
- Collaboration for fast & effective response

### 2. Actual response to changing environments

Units of analysis:

- Defining nature, pace and impact based on interaction with the innovation system
- Reinvent (innovation & organisation) to align with newly recognized needs
- Changing the environment (e.g. institutional limitations or social epistemologies)

### 3. Addresses grand challenges

Units of analysis:

- Responding to social issues
- Responding to environmental issues
- Responding to economic issues
- Preventing detrimental effects

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## 2.2.6. KNOWLEDGE MANAGEMENT

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The dimension knowledge management stems from the business perspective of researching RI. Here, it is investigated how companies strategically manage their knowledge resources. This can be achieved by acquiring external knowledge or by creating knowledge internally, for instance by experimenting or encouraging different departments to learn from each other.

It can be expected that there are significant differences between the knowledge management of small enterprises and MNCs (Lubberink et al., 2016). For example, MNCs usually rely on their own resources more strongly than entrepreneurs, who often lack the financial capabilities. Instead, they have other ways of creating knowledge. To make this dimension apt for the case researched in this project, the following variables only consider small enterprises.

### 1. Knowledge creation and integration

Units of analysis:

- Intra-organisational training
- Firm-internal platforms for knowledge exchange
- Experimenting & R&D
- Brainstorming & ideation
- Non-hierarchical structures and/or direct communication (channels)

### 2. Knowledge developing, assimilating and synthesising

Units of analysis:

- Collaboration partnerships (e.g. R&D consortia)
- Create a culture and platforms for knowledge exchange
- Appoint a (team of) employee(s) responsible for gathering and integrating knowledge
- Autonomous thinking time

### 2.3. SOCIAL INNOVATION

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Globally, society is being confronted with fundamental and highly complex problems. Among these problems are, to name a few, climate change, the erosion of privacy and world famine. Science refers to them as ‘grand challenges’ or ‘wicked problems’, and one of their main characteristics is that they do not have a clear cause-effect relationship. Working towards a solution is thus a never ending process, and stakeholders disagree on effective ways of how to tackle them (Heiskala, 2007).

The current market-based system does not seem to have an answer to the grand challenges (Lettice & Parekh, 2010). As a result, more and more actors are starting to solve the problems themselves – via creative, unorthodox, small-scale projects. One of the most cited examples is the Grameen bank. By offering microcredits to the poorest in society, Grameen actively tries to solve the grand challenge of poverty and social injustice. However, its success cannot be explained by the rules of traditional market economy; Grameen’s motivations are not primarily profit-driven, and in the centre of its corporate policy stands a social goal, being majority owned by its customers and reinvesting most of the profits (Murray, Mulgan, & Caulier-Grice, 2008). This new emerging concept of innovation is frequently referred to as ‘social innovation’.

The concept of social innovation has gained in popularity in recent years (Mulgan, Tucker, Ali, & Sanders, 2007; Murray et al., 2008). Some scholars fear that the term will drift off into becoming a mere buzzword (Pol & Ville, 2009), and it is often unclear what people mean when they speak of social innovation. Interpretations and definitions differ largely, and it is widely acknowledged that a functioning definition has yet to be developed that can be used in academic research (Cajaiba-Santana, 2014; Choi & Majumdar, 2014b; Heiskala, 2007).

For this research a definition proposed by Giovani Cajaiba-Santana is used: “[S]ocial innovations are new social practices created from collective, intentional, and goal-oriented actions aimed at prompting social change through the reconfiguration of how social goals are accomplished.” (Cajaiba-Santana, 2014, p. 44). This understanding acknowledges the so-called “teleological mistake” (ibid., p. 44) that RI also emphasises: social innovation aims at solving societal problems, but the outcome of innovation is inherently unpredictable. As a result, social innovation focuses on creating a shared understanding among stakeholders, who collectively deliberate about an interpretation of their social context in order to create new social practices. This concept shows conceptual similarities to RI, which can be further conceptualised as “a strategy of stakeholders to become mutual responsive to each other and anticipate research and innovation outcomes underpinning the ‘grand challenges’ of our time for which they share responsibility” (von Schomberg, 2013, p. 1). The inclusion of stakeholders and deliberation among them is a critical success factor for changing social practices and gaining legitimacy, since social innovation is a collective construct from people’s interactions. New ideas generated by several agents are communicated via existing institutions (such as norms and values), that can either enable or constrain

these ideas. If the ideas manage to influence social systems and change conceptions of reality as they are rooted within societal groups, they can be translated into daily activities and routines and thus alter existing social practices (Fig. 2-3). According to this understanding, social innovation ideally displays the change in societal practices. However, in this respect it becomes clear that it is hard to identify a single author or even set of authors who are responsible for such a change. Consequently, when researching social innovation, it makes sense to examine innovations that have this social change defined as their output.

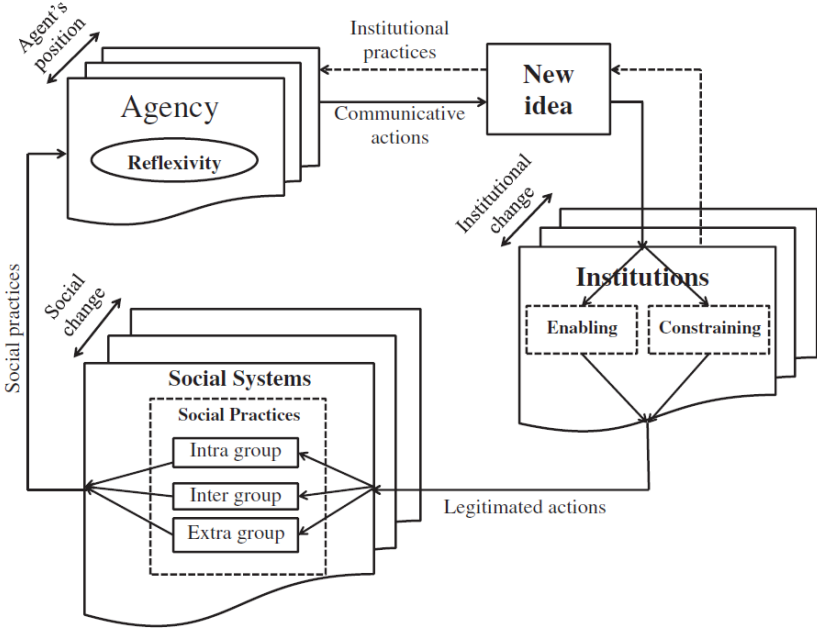


FIGURE 2-3 THE SOCIAL INNOVATION PROCESS (CAJAIBA-SANTANA, 2014, P. 48)

The agents who constitute the social innovation then reflect on the feedback they receive from society and are able to adapt the innovation in order to work further towards the societal goal and enhance social wealth. To clarify what is meant by ‘social wealth’, the following conceptualisation is used: a utilisation of resources “to address a social problem and thereby alter existing social structures” (Mair & Martí, 2006, p. 38). Consequently, social innovation has to be clearly distinguished from product innovation and technological innovation, since it focuses on social interactions and practices (Pol & Ville, 2009) and has at its centre the social change as an outcome.

Moreover, social innovations have the characteristics of public goods, addressing problems that are not solved by market mechanisms and being, in theory, not exclusive (Choi & Majumdar, 2014b). This understanding is interesting since it reflects the scope of this research. Public goods are not commonly provided by businesses, only by the welfare state. However, there are actors that operate at the margins of both fields, acting partially like business agents, but at the same time moving away from private corporations. Other than NGOs or similar philanthropic organisations, they pursue a social goal by

performing market transactions (Ebrahim, Battilana, & Mair, 2014; Murray et al., 2008). These actors are the social innovators that comprise the respondents in this research.

It can be concluded that social innovation is not exclusively found in the economic sector (Mulgan et al., 2007). Several cases succeed because they manage to build bridges between different sectors such as governments, non-governmental movements and private households. Mulgan especially looks at social innovation from a practice-led perspective (Choi & Majumdar, 2014b), emphasising strategies of implementation. He proposes four stages of a social innovation process: first, creating ideas by identifying social needs, which is similar to the RI dimension of anticipation and the entrepreneurial paradigm of opportunity recognition; second, prototyping and piloting; third, scaling up and diffusion; fourth, learning and evolving, which incorporates the RI dimensions of reflexivity and responsiveness (Mulgan et al., 2007). One can argue that these are processes every entrepreneur engaged in innovation has to go through, providing little novelties for social innovators. However, when one keeps in mind the definition by Cajaiba-Santana discussed above, these stages create a comprehensive picture of how one can look at social innovation. For instance, one characteristic that distinguishes social innovators from other forms of innovation is that they often perform a service that originally the welfare state should deliver (Scherer & Palazzo, 2011). Consequently, the overall goal of social innovation, if it can be defined as such, is to develop new social practices that entail a bigger societal change, attempting to do a positive contribution to society (Cajaiba-Santana, 2014). This practice is prominently undertaken by social entrepreneurs (Choi & Majumdar, 2014a), which is why they comprise the set of respondents in this research.

#### 2.4. SOCIAL ENTREPRENEURSHIP

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As a consequence of the difficulties in defining social innovation, a clear distinction to adjacent disciplines could not yet be established. Especially the field of ‘social entrepreneurship’ has strong ties to this area of research. As in social innovation, there is no globally accepted understanding of social entrepreneurship (Chell et al., 2010; Mair & Martí, 2006; Zahra, Gedajlovic, Neubaum, & Shulman, 2009). Definitions discussed in literature include characteristics such as, but not limited to, new business activities, independence, continuous innovation, risk-taking and resource limitations (Chell et al., 2010; Peredo & McLean, 2006). Social entrepreneurs are frequently referred to as aspiring to change the world, making society aware of the grand challenges and that small-scale solutions can make a difference (Choi & Majumdar, 2014a).

Most scholars acknowledge both social and economic goals as two drivers that are closely related (Chell et al., 2010; Doherty, Haugh, & Lyon, 2014; Ebrahim et al., 2014). The difference is that economic entrepreneurship sees innovation as a means to create profit, whereas in social entrepreneurship contexts



profit creation is just a means to generate social wealth (Dees, 1998). The concept of social change already identified as crucial ingredient for social innovation thereby also reoccurs in conceptualisations of social entrepreneurship. In this context, it has to be mentioned that even if economic wealth creation is not a main goal of social entrepreneurship, it does not mean that profitability shall be neglected. Profitability is seen as vital element of every sustainable business activity (Peredo & McLean, 2006). Consequently, social entrepreneurs have to balance their social mission with profitability goals, thus engaging in hybrid forms of business that entail elements of both non-profit organisations and for-profit corporations (Ebrahim et al., 2014).

One promising definition has been developed by Zahra et al. (2009): Social entrepreneurship describes “the activities and processes undertaken to discover, define, and exploit opportunities in order to enhance social wealth by creating new ventures or managing existing organizations in an innovative manner” (Zahra et al., 2009, p. 519). This definition makes points towards that both social innovation and social entrepreneurship seem to describe a highly similar phenomenon. Both focus on a) the potential to increase social wealth, b) the continuous creation of new ideas, and c) a process dimension of innovation. The main difference lies in that entrepreneurship adds the perspective of conducting business activities (as in offering products and/or services), using innovation as an incremental ingredient (Choi & Majumdar, 2014b). Choi and Majumdar conceptualise social entrepreneurship as consisting of five sub-concepts, namely social value creation, the social entrepreneur, the ‘social entrepreneurship organisation’, market orientation and social innovation (Choi & Majumdar, 2014a). Each of these criteria is highly ambiguous, making them hard to conceptualise. However, they can provide a high level indication of what elements establish a concept of social entrepreneurship. Subsequently, the criteria are shortly conceptualised as they are used throughout this research.

Social value creation describes the generation of social wealth as a goal of the entrepreneurial activities (Zahra et al., 2009). This social wealth is achieved by providing social services and addressing societal needs (Mair & Martí, 2006). The social entrepreneur is the actor who is at the heart of the activities, who defines the goals and executes them (Choi & Majumdar, 2014a). Whilst some scholars perceive the social entrepreneur as visionary, risk-taking change-makers (Bacq & Janssen, 2011), here he is seen as the actor who acts within the frame of the criteria identified by Choi and Majumdar (2014a). The social entrepreneurship organisation, or social enterprise, is the formal arrangement throughout which the activities are performed. It provides a structure that embeds entrepreneurial actions into their societal frame. Hence, this criterion deals with the variety of possible structural and legal shapes that a social enterprise can take. Market orientation emphasises that economic activities have to be present. To differentiate it e.g. from other forms of social value creation such as social activism, social entrepreneurs usually perform market transactions (Choi & Majumdar, 2014a; Doherty, Haugh, & Lyon, 2014). The criterion of social innovation is conceptualised in its own section in this report. Choi and Majumdar state that in order to be able to speak of social entrepreneurship, at least some of these criteria have to

be present. Given the conceptual similarities described above, it is reasonable to assume that social entrepreneurs engage in RI.

To sum up the concepts as they are used in this research, they are understood as follows: The respondents, namely food surplus entrepreneurs as conceptualised in the next section are the social entrepreneurs, who are within the frame of their social enterprise engaged in market activities (by offering goods or services to other market participants), managing a social innovation process (for instance, re-marketing food that is considered at its waste stage and valorising food surplus), which eventually leads to social change, that is a public perception of food surplus as having value.

## 3. MATERIALS AND METHODS

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### 3.1. RESEARCH STRATEGY

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This research followed an exploratory and qualitative approach. It was studied which RI strategies, limitations and critical success factors can be found in the social innovation processes of social entrepreneurs in food surplus business contexts. Since interdisciplinary research that connects RI and social innovation is scarce, it makes sense to apply exploratory methods (David & Sutton, 2007). First, a literature review has been conducted, regarding the three fields that influence this research: RI, social innovation and social entrepreneurship. From this part, RI strategies as well as limitations to implement them based on previous studies have been derived. Moreover, critical success factors for overcoming these limitations as they have been identified in previous research were also obtained from literature. Subsequently, the empirical case study has been used to inductively determine if additional RI strategies, limitations and critical success factors are present.

A number of n=13 qualitative, semi-structured interviews have been held until a point of saturation was reached where new samples did not provide enough new information to justify a continuation of empirical data collection. These interviews were done with representatives of start-ups that work in the food surplus sector, thus aiming at reducing the amount of still edible food that is wasted and creating societal awareness for this problem.

### 3.2. STUDY POPULATION

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While in quantitative research a sample should be representative for its population, in qualitative research the selection of a sample is much more biased and built on the judgement of the researcher (Kumar, 2011). Consequently, the subunits in this project are selected based on which ones the author considers fitting to hold a sufficient amount of information and provide valuable answers to the research questions.

As a sampling technique to follow this method, ‘theoretical sampling’ has been chosen (David & Sutton, 2007; Eisenhardt & Graebner, 2007). It prioritises samples that are likely to reveal previously unexplored issues or have the potential to unravel new relationships and logics among subunits. All the respondents are social entrepreneurs who engage in social innovation. Inclusion criteria were that they conduct business activities through a formalised structure, are involved in social innovation, have less than seven years of experience with their organisation

and innovate with regard to the problem of food surplus. The operational definitions introduced in 2.3 and 2.4 clarify these criteria. Conversely, no-tolerance criteria are the same criteria, but inverted. However, there are differences regarding the scope of their business activities. Some of the respondents are social enterprises, using a hybrid organisational form to pursue their social mission while performing market transactions (Doherty et al., 2014). A number of n=7 respondents were charities or foundations at the moment of data collection, but all had a business plan that they planned to implement in order to transition towards a social enterprise not dependent on external funding.

The range of business activities can be clustered into four categories; first, organisations that offer an online application or platform to connect surplus givers and surplus receivers (n=5; ID A); second, organisations that consult on food surplus reduction strategies (n=2; ID B); third, organisations that produce goods based on food surplus such as juice (n=2; ID C); fourth, food surplus oriented restaurants and catering (n=4; ID D). The respondents are introduced in more detail in section 4.1.

**Table 3.** Interviewees' specifications

Company number	Company ID	Activity cluster	Experience (years)	Number of employees (excluding volunteers)	Profitable
1	A1	Online application	2	12	Yes
2	A2	Online application	5	2	No
3	A3	Online application	3	2	No
4	A4	Online application	1	1	Yes
5	A5	Online application	1	10	No
6	B1	Consulting	7	10	Yes
7	B2	Consulting	2	2	No
8	C1	Produce	4	1	Yes
9	C2	Produce	1	1	No
10	D1	Restaurant/catering	2	7	No
11	D2	Restaurant/catering	3	4	Yes
12	D3	Restaurant/catering	4	2	No
13	D4	Restaurant/catering	2	4	Yes

Primary source for choosing the samples was the ‘food surplus entrepreneurs network’ (<http://fsenetwork.org/>), a hub that tries to connect all the entrepreneurs who are working on food waste related issues. It currently has around 180 members all over Europe and was thus a suitable source to provide enough appropriate samples.

### 3.3. THE CASE STUDY: FOOD SURPLUS ENTREPRENEURSHIP

Scholars estimate that worldwide between 30 and 50% of produced food is lost (Papargyropoulou, Lozano, Steinberger, Wright, & bin Ujang, 2014; Stuart, 2009). Losses occur in every stage of the food supply chain: Agricultural production; manufacturing and processing; retail; and consumption. In developed countries, the quantity of food waste is approximately twice as high than in developing countries (Papargyropoulou et al., 2014) and more than 40% of waste is generated during the consumption stage (Gustavsson, Cederberg, Sonesson, van Otterdijk, & Meybeck, 2011).

Losses in the first three stages are mostly caused by infrastructural problems, since high investments would be required e.g. to increase hygienic standards of storage or transportation. Waste in the consumption stage generally also includes behavioural issues, such as the disposal of edible food because of best-before dates (Gustavsson et al., 2011). These numbers are especially alarming since food waste causes economic damage as well as negative environmental and social impacts on global food security. Surprisingly, food insecurity is not only a phenomenon that occurs in developing countries, but also in affluent regions and especially in cities (Cohen & Ilieva, 2015; Edwards & Mercer, 2007).

In this research, the focus lies on entrepreneurs who tackle food waste from the retail and consumption stages. The reason hereof is that in these stages individual social practices are most present, which offers a platform for social innovation. It is expected that an effective reduction of food waste in these stages cannot come without a behavioural change in large parts of society (Papargyropoulou et al., 2014). Consequently, food surplus entrepreneurs work towards a change in the public perception of food surplus as waste to perceiving it as resource. This behavioural change is one of the essential themes contained within the definition of social innovation by Cajaiba-Santana (2014) as conceptualised earlier that is used throughout this research. However, a disadvantage of this focus needs to be taken into account: The importance of the behavioural change might be over-assessed. It is possible that customers of social enterprises buy the products because they like the product features and not because they want to contribute to a better society.

Throughout this study, the respondents are described as ‘food surplus entrepreneurs’. ‘Food waste’ as a term is considered too broad, since it generally describes all by-products of food production and

consumption (Papargyropoulou et al., 2014). Hence, innovations that for instance deal with making fertilizer from coffee waste are not examined in this study. Instead, the focus lies on food surplus, which is seen as food that is still edible.

### 3.4. DESCRIPTIONS OF THE RESPONDENTS

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Subsequently, brief descriptions of the organisations that have been interviewed are provided.

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#### 3.4.1. WINNOW SOLUTIONS (A1)

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Winnow is a London based, for-profit company incorporated in 2014. It offers software that measures the amount of food wasted in restaurants and industrial kitchens, thus offering clients financial figures on how much money is wasted. It focuses on waste prevention rather than reusing already existing food surplus. Winnow currently employs 12 people and is profitable.

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#### 3.4.2. PLAN ZHEROES (A2)

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Plan Zheroes is a foundation in London, incorporated in 2011. It offers an online map which can be used by food surplus givers and receivers to synchronize and connect to each other. Plan Zheroes is run by two people, who explore a business model where the data collected via the map is sold to companies.

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#### 3.4.3. NEAT TO EAT (A3)

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Neat to Eat is an online platform that allows surplus givers to post their surplus, and receivers to react upon that and buy it. The platform was started in 2013 and it is planned to be launched soon. Currently, two developers are working on the project, after the founder left the team in early 2016.

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#### 3.4.4. DE KLIK (A4)

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De Klik is an online platform that connects suppliers of organic waste, especially wood, with biomass companies. In 2015, the platform was extended to also include food surplus on the supplier side and surplus receivers on the receiver side. While the biomass part is profitable, the food part is still under development. One person is working for De Klik.

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#### 3.4.5. SUR+ PROJECT (A5)

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Sur+ is a software provider who started in 2015. The software aims at connecting supply and demand of food surplus and is targeted at farmers. It works like an application where farmers enter their surplus,

of which receivers such as food banks are notified. Sur+ is still a charity and employs ten people, out of which four developers belong to another company that supports Sur+ pro bono.

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#### 3.4.6. FOOD CABINET (B1)

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Food Cabinet is a for-profit consultancy founded in 2009. It focuses on advocacy for organizations that want to lower their food related footprint and advise them on strategies. Currently, ten people are working for Food Cabinet.

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#### 3.4.7. BUURTBUIK (B2)

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Buurtbuik is a foundation incorporated in 2014. It has a pool of about 100 volunteers, but the core group is equivalent to two full time employees. Buurtbuik collects surplus food from restaurants and supermarkets and distributes it to people in need such as shelters. Furthermore, it consults other organisations on how to reduce food waste.

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#### 3.4.8. REJUICE (C1)

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Rejuice is a London based company incorporated in 2012. It is specialized in producing juices out of food surplus that are mainly sold at festivals and a selection of bars and cafés. At the moment of data collection, one person worked for Rejuice who was assisted by a small number of seasonal workers during festival season in summer. Rejuice is a for-profit enterprise, which is however not yet profitable. While it manages to cover its costs, the owner is dependent on a side job to make a living.

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#### 3.4.9. CHICP (C2)

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ChicP is a producer of Hummus in London that started in 2015. Currently, there is only one person working on it, and the business is still under development. ChicP is meant to be a for-profit enterprise from the beginning.

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#### 3.4.10. RESTLOS GLÜCKLICH (D1)

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Restlos Glücklich is a restaurant in Berlin that was at the moment of data collection still in its planning phase. While they were gathering external capital for ramp up, they tested their concept by doing caterings. Currently, 11 people are working for Restlos Glücklich and it was founded in 2014. The founders do not intend to start as a foundation or not-for-profit organization and hope to be profitable as soon as possible.

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#### 3.4.11. ÄSSBAR (D2)

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Ässbar is a Swiss pop-up store that re-sells day-old bakery goods for half price. It was incorporated in 2013 and currently employs 4 people in the core group. Due to a strong marketing campaign in the first years that was linked to a national food waste initiative and effective branding, Ässbar managed to grow quickly and currently has five franchises in Switzerland and Germany.

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#### 3.4.12. TASTE BEFORE YOU WASTE (D3)

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Taste Before You Waste is an Amsterdam based, not-for-profit enterprise incorporated in 2012. It is a catering service that works solely with surplus food. Taste Before You Waste currently employs two people full-time and uses about 35 volunteers who work pro bono. It was at the moment of data collection not-for-profit. Taste Before You Waste has a franchise in Utrecht.

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#### 3.4.13. INSTOCK (D4)

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Instock is a restaurant in Amsterdam that offers meals cooked with surplus food. At the moment of data collection, it was a foundation, but at the verge of becoming a profitable business. It currently employs four people and was incorporated in 2014. Instock does not offer meals à la carte, but changes the meals offered every day according to the food that they have available that day.

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### 3.5. DATA COLLECTION STRATEGY

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As already introduced in section 3.1, data is collected both deductively and inductively. While the theoretical framework produces data solely deductively, the empirical case study generates data both deductively and inductively. The empirical part consists of n=13 samples in the food surplus entrepreneurship sector. The data is collected via qualitative, semi-structured interviews with owners or managers of a social enterprise. A case study approach has been preferred over other, more quantitative forms of research such as surveys since it is considered more viable to provide useful data in an exploratory research environment.

An advantage of this approach is that it examines fewer samples, but therefore in more depth. It offers a close and detailed understanding of a certain peer group. Consequently, a disadvantage is that it has a narrower scope and is thus less suitable for generating holistic and generalizable results.

For analysing the collected data, variables have been created. For a better overview, they can be organised in three levels: first, the dimensions of RI, which are here operationalised as dependent



variables (DV; n=6); second, the key activities as defining characteristics for each dimension, which are used as independent variables (IV; n=19); third, the indicators already identified in research that are used to measure the occurrence of the key activities (n=79). These indicators are used as units of analysis (Fig 3-5). It is important to notice that the set of indicators is only a suggestion that served as a departure point for this research. First and foremost, it was determined if the dimensions (DV) were utilised by the respondents, which was done by looking for the key activities (IV). Additionally, it was determined if the respondents engaged in the dimensions of RI in a different way than suggested by literature. This was done by inductively searching for other independent variables. In a next step, it was answered why they engage in certain dimensions more than in others and why they choose certain key activities to accomplish them.

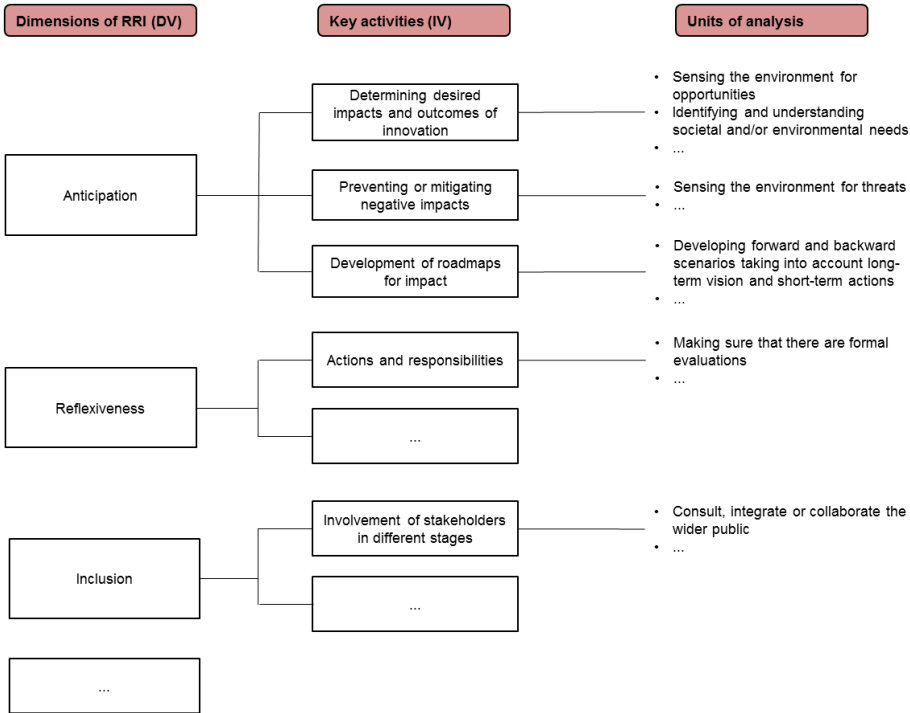


FIGURE 3-5 OPERATIONALISATION OF VARIABLES

At this point it is important to mention that the units presented subsequently were measured using a two level indicator scale (0/1). It was analysed if the units show or do not show certain aspects of the dimension under analysis. The more units found to be present, the more the dimension is considered relevant.

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## INTERVIEW DESIGN

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For each of the n=13 focal companies, one in-depth, semi-structured interview has been performed with a representative of the organisation. At the beginning of each interview it was tested whether the respondents match the inclusion criteria by asking questions to reveal their social mission and if their innovation process shows the characteristics employed in this research.

The interview questions have been clustered into seven broader categories. With these categories, it was meant to study the following aspects:

- The extent to which the respondents engage in social innovation
- The extent to which the respondents anticipate
- The extent to which the respondents are responsive to societal demands
- Partnerships and strategies to negotiate with stakeholders and include them in the innovation process
- Knowledge creation and access to information
- Information sharing and transparency
- Values and the perceived role of the business in society.

Before each interview, their innovation has been analysed using the framework by Cajaiba-Santana introduced in section 2.3 in order to determine the extent to which the innovation can be considered a social innovation. This analysis has been done to get a better understanding of the innovation under consideration and was based on information about the enterprises obtained online.

The questionnaire was not meant to be followed strictly in every interview. Instead, it provided a catalogue of guiding questions that have been selected for each interview individually, based on the respondents' answers and the flow of the interview. More case-specific information was obtained in the second part of the interviews by asking individual follow-up questions. This flexible approach using open questions also helped to overcome researcher bias, since it is expected that interviewees tend to talk more about aspects they consider important and automatically emphasize issues they deem most important.

### 3.6. CODING STRATEGY

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The purpose of coding is to identify “common themes [...] within the data being analysed” (David & Sutton, 2007, p. 195). The interview transcripts have been analysed to determine recurring subjects that allow drawing conclusions for answering the research questions introduced earlier.

The data have been coded both deductively and inductively. For the deductive part, a set of axial, or meta codes were created to identify major coding categories based on the theoretical framework (David & Sutton, 2007; Strauss & Corbin, 1990). The six dimensions of RI form the major categories since they

constitute the process of engaging in RI. On a lower hierarchical level, subcategories were created within the axial codes. Based on the research objectives, strategies, limitations and critical success factors (CSF) when engaging in RI were chosen as subcategories.

Consequently, a number of n=18 coding categories have been used to analyse the data in this research. Every dimension of RI forms one code, whilst the following aspects form sub-codes for each dimension: 'strategy', 'limitation' and 'CSF'. The code 'strategy' is used to mark RI practices performed. The next code, 'limitation' describes constraining factors that prevent an innovator from performing an RI practice. Lastly, the code 'CSF' highlights management practices to overcome own limitations, limitations faced by other respondents or limitations identified in literature.

The transcripts of the interviews have been coded following these previously arranged, deductively created codes. Using the results of these initial coding rounds, the coding continued inductively with pattern coding. Pattern coding is used to highlight recurring themes within the data (David & Sutton, 2007). For instance, with regard to a strategy (sub-code) to anticipate (meta code) it was found that the respondents identify a desired impact of their innovation (recurring pattern). With this coding strategy, it is possible to identify significant underlying themes within the concepts under study whilst displaying how they are related.

## 4. RESULTS OF THE EMPIRICAL DATA COLLECTION

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The interviews have been used to identify strategies, limitations and success factors for carrying out RI in a social innovation context. Results for every dimension are presented in this section. Because of the exploratory character of the research and the limited number of cases, a general outline of the findings is preferred rather than quantifying every observation. However, an overview of the indications is given where respondents showed an occurrence of a certain activity by providing the respective codings (in the respective table). This quantification does not display the number of respondents who engage in this particular activity, but the number of activities itself. For instance, if one respondent reflects on his own responsibility in different ways, this generates several codings.

### 4.1. ANTICIPATION

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Anticipation has been conceptualised earlier as the process of defining a desired impact, identifying and preventing negative impacts and constructing trajectories to achieve this (Lubberink et al., 2016). The focus lies on the external environment and which societal needs innovators see in society.

The most dominant strategy is the identification of a desired impact, be it the increase of societal consciousness and changing behaviour in private households or the quantity of reduced food waste. All respondents have identified a clear mission to work towards. Moreover, the respondents perform activities which can be interpreted as that they reflect on the origins of the problem and identify the value delivered to society by their innovation. They do this by determining societal needs, such as providing solutions for disadvantaged groups. However, assessments of potential negative impacts and pathways to prevent them such as scenario planning are less present.

**Table 4.1.** Overview of strategies for the dimension anticipation

Code	# Codings	Exemplary quote	Source
Identify a desired impact	28	“We are trying to make the waste amount less by connecting it with another problem which is food poverty”	Interviewee A5
Identify the value for society	15	“We are providing a social service without costing the government any money”	Interviewee D3
Reflect on origins of the problem	14	“Most people just don’t understand this. They go to the supermarkets, buy their bread without a crust, and	Interviewee C1

		this is because supermarkets told them to. Can you imagine, they are baking regular loafs of bread, then they remove the crusts, throw them away and sell what's left to people”	
Risk assessments	8	“Everybody would start advising you for all the risks that are there. And it is also good because you start thinking”	Interviewee A3

A first **limitation** the interviewees face when anticipating is a lack of resources to do complex analyses. Risk assessments and scenario planning are, if present, informal get-togethers of the founders to think about risks. As a reason for this, the respondents mentioned that social enterprises usually do not have any money available. Their revenue streams are limited and priorities are not set on thinking of negative externalities. One of the respondents described it as follows: “In a start-up, what you tend to focus on is more the opportunities, more your challenges. If something works or if you believe something works, then you are trying to get people to adopt it.”

Besides, flexibility regarding the problem definition and the desirable impact has been encountered. Customised for each respondent specifically, they were posed the question: What would be your reaction if you do not achieve the impact that you want to achieve? This question revealed a cause for a re-evaluation of the problem. As soon as a shock is introduced (e.g., people buy their products, but are not interested in the mission), the perception of the problem changes. The respondents reflect on their role and reconfigure the desired impact. For instance, a restaurant initially identifies awareness creation as desired impact, but realises later that the customers only come because of the good food. In this sense, the initial problem they wanted to address was a lack of awareness for food waste in society. However, they redefined it to a quantity problem. The solution offered to society is thus not about creating awareness, but about reducing the mere quantity of wasted food. In this sense, this behaviour can be interpreted that the question about what problem they want to solve and what the desired impact is, is subject to constant changes.

Another observation is related to the assessment of impacts. Whilst all respondents were clear about their desired impact, hardly anyone even considered that their innovations can cause negative consequences. For most respondents, their answers did not give an indication that considerations of potential risks of their innovation are part of their activities. The reason hereof might be that social innovations in a low-tech environment that are directed at changing societal behaviour are perceived to be more predictable in this respect than, for instance, highly complex chemical or biological innovations. However, one could still expect that social innovators at least think about potential risks with regard to,

for instance, behavioural changes or the stability of the market. This problem also comes back in the feedback culture. Most respondents emphasise strongly that they almost only get positive feedback. They either cannot remember negative feedback, or they indeed do not get it at all, which supposedly prevents them from thinking about negative outcomes. However, since apparently hardly any stakeholder voices concerns about these risks, it can be expected that even perfect inclusion could not increase the extent of anticipating risks.

**Table 4.2.** Overview of limitations for the dimension anticipation

Code	# Codings	Exemplary quote	Source
Lack of resources	16	“I haven’t thought of other ways [how to measure impact], because at the moment I am just trying to build a base, unfortunately”	Interviewee C2
Being flexible in terms of problem definition	6	“But if in the end people come back just because they had a great evening and not to rescue food, then that is fine with me. Always the reason for going out for dinner is not, I feel like rescuing food today, no, it is I feel like going out for dinner today, so let’s take (D4), they are making great food. And we are doing something good”	Interviewee D4
Social innovation perceived unlikely to create harmful outputs	4	“Well, I don’t think we have in the same way the danger of creating something that we find out then is going to be dangerous”	Interviewee B1

Overall, for most of the activities a high focus on opportunity recognition was observed. Most respondents do not search for potential detrimental effects of their innovation. Even though informal risk assessments are present for some respondents, the social entrepreneurial character seems to facilitate a neglect of mitigation strategies. Based on the interviews, it appears that one of the most present **critical success factors** to overcome the aforementioned limitations is an independent revenue stream that is disconnected from investors or the government. The respondents who have this independent revenue stream emphasised that it gives them more time and capacity to focus on other activities. Consequently, the creation of a business case that can operate independently from institutional conditions can be seen as a promising method to generate constant income, thus overcoming limitations identified earlier. Another CSF is to run small trial and error pilots without investing much money. The entrepreneurs try

out several ideas on a very small scale and keep those that prove successful. This is an indication that they found a way for less affluent organisations to analyse possible negative impacts on society.

**Table 4.3.** Overview of critical success factors for the dimension anticipation

Code	# Codings	Exemplary quote	Source
Independent revenue stream	16	“If you don’t earn money with it, then it is not sustainable. A sustainable company also needs some financial input. It is not that I want to earn lots and lots of money with it. I just want to run the platform. And to run the platform, I need money”	Interviewee A4
Small trial and error pilots	4	“We like to work with trial and error. Just start small and then see if we can do it at bigger volume”	Interviewee D4

## 4.2. REFLEXIVITY

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Reflexivity is the process of critically pondering on one’s actions, values and perceived realities in order to get a better understanding how they influence the innovation under consideration (Lubberink et al., 2016). While anticipation is directed at the external environment, reflexivity focuses on the actual innovator and the primary purposes of science or innovation, asking what the values, beliefs are and how they affect which kind of innovation he/she wants to develop (Owen et al., 2013).

One **strategy** is that the entrepreneurs frequently assess whether their actions lead to the intended result, thus reflecting on the problem, the desired impact and their proposed solution. As a consequence, some respondents changed their problem perception, for instance by focusing more on creating awareness with individual consumers rather than rescuing as much food as possible themselves. Moreover, the interviewees reinvest their profits, which can be seen as an indication for their efforts in reflecting on their organisation’s responsibility in society, especially since these reinvestment efforts were driven by their own intentions. Seven respondents are not profit driven and only think about covering their running costs, whilst six respondents are profit driven, but emphasise that all profits are reinvested.

**Table 4.4.** Overview of strategies for the dimension reflexivity

Code	# Codings	Exemplary quote	Source
Reflect on the problem definition and desired impact	22	“Well, if you look at the bigger problem, you could say that you would want to make (D4) unnecessary to exist”	Interviewee D4

Change in problem perception	9	“But in the end we thought, we have so much more that is now wasted, so why not create a dining concept where you really can have three courses”	Interviewee D4
Reinvesting profits	10	“And then, after that, we hope actually to be self-sustaining within a year with the caterings and the workshops that we do. Just to have enough caterings and workshops to finance for the hours that we spend organising all other things.”	Interviewee D3

One **limitation** that was present for most respondents is the lack of critical feedback. The interviews revealed that the low tech environment together with the positive social mission raises a lot of appreciation from stakeholders. Getting ‘too much’ or even only positive feedback increases the risk of falling in love with the own idea, which in some cases causes the respondents to ignore criticism and decide to convince critical stakeholders rather than reflecting themselves. This seems to affirm the interviewees in the perfectness of their mission, but closes doors for self-reflection.

Moreover, the perceptions of reality and problem definitions are subject of a certain flexibility for the entrepreneurs under study. Whilst all respondents have a clear understanding of the problem they want to solve and the desired impact, some are inclined to change it as soon as a shock is introduced, for instance if they do not achieve the impact they wanted to achieve in the beginning. Being confronted with this observation, it was found that the respondents are well aware of that, but do not see it as a problem as long as they still achieve a positive impact in some sense.

Some of the respondents are able to adapt their products to the current lifestyle and try to change the world for good while trying to be ‘invisible’. Rather than strongly advocating their service, they align their products with existing behavioural patterns, for instance by offering juices that do not prominently display the social purpose. This is an indication that the respective entrepreneurs get no feedback on the innovation itself, since the consumers do not notice their efforts. Another limitation is the distribution of stakeholders into ‘good’ and ‘bad guys’. This can cause innovators to only receive feedback from actors marked as ‘good’, whilst being hesitant to receive input from actors marked as enemies. This can be perceived obstructive for being reflective since innovators deliberately choose only positive feedback, but refrain from talking to critical stakeholders, which could provide valuable criticism on their values and beliefs.



**Table 4.5.** Overview of limitations for the dimension reflexivity

Code	# Codings	Exemplary quote	Source
Lack of critical feedback	10	“I think the feedback is what keeps me going, because the people love the product, and they love the concept behind it. The two combined have been quite successful. Everyone is supporting the surplus”	Interviewee C2
Ignore criticism	9	“No, at that time, I didn’t really consider it seriously, because we really use the same safety standards. So no, I didn’t consider it seriously” [concerns with regard to potential health risks]	Interviewee B2
Reluctance to acknowledge contribution of ‘bad guys’	2	“If Tesco would do the same, I mean they are able to do it much more efficient, they have a lot of money to throw at it, but it would just be a publicity stunt. It would be for the wrong reason. So I don't really know how to feel about that. In a lot of ways I'd be happy because it solved the problem that I am so passionate about. But of course I am also very much set up, because I feel like I have to protect my baby“	Interviewee C1

For this dimension, two **critical success factors** could be identified. Three interviewees mentioned the importance of clear and unbiased metrics to measure impact. These particular respondents use key performance indicators (KPIs) to measure the monetary value of avoided food waste, which makes it easy for them to reflect on their own perceived reality. Moreover, reflexivity can be enhanced by external actors. Also, via externally funded pilots (for instance, if a municipality funds a project for the respondent) additional feedback can be obtained that would otherwise not be accessible.

**Table 4.6.** Overview of critical success factors for the dimension reflexivity

Code	# Codings	Exemplary quote	Source
Clear and unbiased metrics to measure impact	3	“For every pilot that we are going to perform, they have very specific measurements at the beginning and very specific ones at the end, so you could very easily measure, is more food	Interviewee A5

		donated, how healthy is it, what is the frequency, how many different farmers, etc. So in that sense, I think it is very measurable what we are doing”	
Externally funded pilots	4	“We tend to do work with them if there is government-sponsored work that wants to take our technology for example into small businesses or help to promote different ideas and how you can run a more sustainable business”	Interviewee A1

### 4.3. INCLUSION

Inclusion is about involving a wide range of stakeholders with different opinions in the innovation process. These stakeholders provide additional resources and contribute in achieving the desired goal (Lubberink et al., 2016).

One **strategy** is to set up new projects built upon ideas from stakeholders. Especially in situations where the interviewees have a limited number of products or services, they are likely to develop new products or services that are suggested by external stakeholders. Feedback and input from outside of the organisation is mainly obtained via two channels; first, close and personal relationships with a limited number of carefully selected stakeholders and second, networks and platforms to share experiences among organisations with similar missions. While formal voting power of externals in the innovation processes of the respondents are not present, in the social innovation context that was studied these platforms are very prominently used to generate feedback on processes and actions taken. Since they are frequently perceived as contributors to social improvement, they have access to many resources that they acquire pro bono. Moreover, the respondents use existing channels such as events and CSR days by companies to reach out to more actors. In the cases under examination, these are explicitly used to introduce the mission to new people and learn from their ideas. As a final strategy, it was identified to unite volunteers under a good cause. The interviews revealed that volunteers have a high volatility, and the interviewees indicated that a proper volunteer management ensures a constant supply of new ideas.

**Table 4.7.** Overview of strategies for the dimension inclusion

Code	# Codings	Exemplary quote	Source
New projects built upon ideas from stakeholders	15	“What happened there was that I pitched my idea and I gathered a team of about 7-8 people. We started brainstorming intensely, coming up with all sorts of new ideas. Back then I only	Interviewee A3

		had the idea of setting up a restaurant, it was not even a platform”	
Obtain guidance and resources from other organisations	11	“And then we are also coached by someone, the founder of (another food surplus enterprise)”	Interviewee A5
Use existing channels	6	“So they are generally very willing to give us a stage or promote it on their website or do just different ways of communicating the story”	Interviewee D3
Volunteer management	5	“I would say we have a pool of 80, 90, 100 volunteers or so”	Interviewee B2

A **limitation** for inclusion that limited the extent to which the interviewees included external actors in their innovation process is a selective attitude towards certain actors, because they have been identified as ‘bad guys’. On the other hand, stakeholders can be sceptical as well because they do not support the innovation under consideration and are thus reluctant to contribute. Another limitation is that a stakeholder’s process does not match with one’s own processes, which makes a collaboration difficult. For instance, one interviewee indicated that charities that work with volunteers have strict processes and limited capacities, which, in this particular case, makes it hard to work with them. A final limitation that was identified is competition, since this makes the entrepreneur under consideration more hesitant to reach out to other parties.

**Table 4.8.** Overview of limitations for the dimension inclusion

Code	# Codings	Exemplary quote	Source
Being sceptical towards a specific group of stakeholders	4	“But once you get into a relationship with the government, they would probably influence us in certain ways, so we wouldn’t want to be forced by government officials to do things in a certain way”	Interviewee A2
Sceptical stakeholders	4	“It was not easy to start with, because initially the people from the festivals did not want to talk about what I do. They were concerned about this waste issue and afraid that people might connect that with diseases. I was not allowed to emphasize anything other than that I sell juice”	Interviewee C1
Stakeholder’s process does not match with one’s own process	4	“Most food professionals hate to throw good food away and the challenge is actually to get the charities to receive the food or to accept the food, because surplus food is unpredictable. That can give the charities a problem. [...] They are very, very restricted in terms of resources, they are usually staffed by volunteers, it is difficult for them to do	Interviewee A2

		anything out of the ordinary, because they have got their routines, they work very, very strictly too. They are living on the edge, pretty much in the same way like the people they provide their service to”	
Competition	3	“Sometimes there is some kind of competition in some kind of way that you hear what people are doing. And you think, these people, I trained them myself, and now they want to start an identical business. So then, sometimes, you feel some kind of competition”	Interviewee B1

**Critical success factors** that have been identified are first and foremost that respondents understand problems their business partners face and comply with their processes, which makes it easier for these partners to contribute. One example that was mentioned in the interviews is that their suppliers want them to adhere to their processes when they pick up surplus food. This way the entrepreneurs can build up partnerships and the suppliers are more likely to contribute to the social innovation. Another CSF is related to close relationships. Having personal contact to partners helps the interviewees to get their inputs and resources. Moreover, if they anticipate scepticism, they can increase the likelihood for their partners to contribute. Additionally, the good cause and a good reputation attract people, who contribute ideas and resources.

**Table 4.9.** Overview of critical success factors for the dimension inclusion

Code	# Codings	Exemplary quote	Source
Comply with stakeholders’ processes	18	“I think the biggest part of our project is about interacting with farmers, the agricultural sector on the one hand and food banks on the other hand to see, what are the obstacles for them to adopt software like this”	Interviewee A5
Close relationships	10	“The ones we work with on a regular basis are small Turkish and Moroccan grocery shops and a couple of supermarkets. The supermarkets are franchises, so it is also the business manager, or the store manager that you talk to generally. I guess we are just on good relationships”	Interviewee D3
Anticipate scepticism	6	“For example, a lot of people told me there is potential for you to be blamed by someone who is poisoned by your food and that they are going to get back at you. But we are definitely looking into how that legally applies”	Interviewee A3

Good cause attracts people	8	“They want to show that they are conscious, that they are doing something right” [formerly sceptical suppliers]	Interviewee C1
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#### 4.4. DELIBERATION

The dimension deliberation can be conceptualised as a mutual exchange of opinions that leads to joint decision making. This process is facilitated by the provision of information and feedback on how the stakeholders’ input is used in the innovation (Lubberink et al., 2016).

The most encountered **strategy** is the provision of information and transparency. Generally speaking, the interviewees are very open to share the knowledge they have in order to advance the social innovation, also the ones of others. Another strategy is that they attend meetings and events from other organisations, which leads to an exchange of opinions and shared action. Regarding political engagement, the entrepreneurs can be clustered into two categories. The first group which is slightly larger voiced their interests to politicians in order to change the institutional environment and enable facilitation or engaged in government-led think tanks and discussion boards. The second group refrained from joining the political debate.

**Table 4.10.** Overview of strategies for the dimension deliberation

Code	# Codings	Exemplary quote	Source
Provision of information/transparency	18	“Actually, today I am going to make a big list of all the people that we work with and send it to a guy who creates fair trade coffee. And I am giving him exactly the list of everyone we work for and say, just give them a call because I think it is good for you and good for them”	Interviewee B1
Attend meetings and events from other organisations	8	“So, I am working with a lot of people, just generally keeping contact or collaborating with them at events, cross-marketing and just kind of helping each other out”	Interviewee C2
Try to change the institutional environment by political action	8	“Actually, I am going to The Hague in a minute for a meeting. We have a direct line with the minister of agriculture in the Netherlands”	Interviewee B1

A first **limitation** for deliberation are power imbalances, especially regarding the relation between the entrepreneurs and the government. The respective interviewees mentioned that the government is in some instances reluctant to engage in a constructive dialogue. Besides, even though all respondents were very open with regard to information sharing, two specific factors discouraged them to do so. First, for the more profit-oriented respondents knowledge leakage can lead to a worse competitive position and a

loss of control. Second, four respondents were reluctant to share information when they felt that it damaged their existing relationships. The context here is that other entrepreneurs could contact their suppliers and receive the surplus food without complying to the supplier’s processes, which leaves the supplier with a lot of additional work. The respective respondents are afraid that this behaviour could cause the supplier to completely stop working with food surplus entrepreneurs.

**Table 4.11.** Overview of limitations for the dimension deliberation

Code	# Codings	Exemplary quote	Source
Power imbalances	4	“But it is just so hard, because the government is not necessarily on our side. There are so many laws that make it hard for us to change how we look at food”	Interviewee C1
Fear for knowledge leakage and loss of control	6	“But if he would say, I am going to help them with their campaigns and strategies, can you give me the list with all your contacts, I would say, well, no” [being asked whether they would share their contact list with an entrepreneur with a similar business idea]	Interviewee B1
Fear for damage to existing relationships	4	“We are talking about food waste in the agricultural sector. And then we use examples of farmers. We give those examples without saying the company that we talk about. So the examples are based on specific companies, but we don’t want to tell people what company they are, what is the name and their location, because that would be very negative publicity for their company”	Interviewee A5

One **critical success factor** was identified. All respondents are involved in one or several networks, where joint action is facilitated and knowledge is exchanged. The most important networks that were mentioned are the Food Surplus Entrepreneurs Network and the Fusions initiative by the European Union.

**Table 4.12.** Overview of critical success factors for the dimension deliberation

Code	# Codings	Exemplary quote	Source
networks	13	“There are 600 entrepreneurs they connect in the network, and quite often they have meetings”	Interviewee A4

## 4.5. RESPONSIVENESS

Responsiveness describes the ability of the organisation to actually alter their innovation process according to newly recognised needs, thus enhancing corrigibility. This dimension is meant to ensure that the organisation is equipped for a change or even withdrawal of their innovation in case the desired impact is in danger (Lubberink et al., 2016). It is not limited to responding to new information, but also emphasises responding to views and perceptions of other stakeholders (Owen et al., 2013).

Several **strategies** to be responsive were identified. First, processes can be changed according to newly recognised needs. One example is that one organisation was approached by a food bank which needed the surplus food more urgently. Hence, the organisation provided them the supplier as well as the infrastructure to collect the food, taking only what the food bank could not use. Another strategy is to install processes that are easily adaptable to changing environments such as low-tech tools. One respondent described their system as replicable in a lot of different environments, which he saw as a competitive disadvantage. However, put in the light of RI, this might allow for fast reconfiguration. Moreover, the respondents indicate that they, on top of preparing for change, actually align their strategies and desired impacts with newly recognised stakeholder demands. However, no interviewee had a scenario to withdraw from the market and end their business activities in case the innovation produces unforeseen consequences.

**Table 4.13.** Overview of strategies for the dimension responsiveness

Code	# Codings	Exemplary quote	Source
Change processes according to newly recognised needs	6	“We have for example the food bank, we have good contact with them. We always say if they can collect the food we rescue, we should give it to them. Because for us, we are young and have a good experience to collect new food. For others that is more difficult”	Interviewee D4
Install processes that are adaptable to changing environments	5	“Well, there might be no surplus one day, but there is still going to be second grade. There is always second grade products, and that is what a lot of people use, and if they can’t, well, then I will have to use it, if I can’t get the surplus”	Interviewee C2
Align business strategy and desired impacts	8	“We get most of the negative feedback, if I can call it that way, on our business model. And then, most of the time, we are going into discussion with these people to see if they can think about it in a way instead of only asking it to us”	Interviewee A5

As **limitations** firstly an un-reflective attitude was identified. The interviews revealed that entrepreneurs who ‘fall in love’ with their idea are less likely to install arrangements to be prepared for change. Furthermore, powerful actors such as investors can constitute processes according to their own interests and increase organisational inertia. This can be seen as a limitation to be responsive since it makes it harder for an organisation to adapt their strategies and structures if they have to comply with several, maybe even competing, stakeholder demands. Legal limitations that make a response harder have been identified as well, for which the same dependency that leads to organisational inertia can be derived. Finally, it was found that respondents find it hard to measure their impact. In cases where they cannot assess the impact of their social innovation, they are restricted in aligning their organisation with newly recognised challenges.

**Table 4.14.** Overview of limitations for the dimension responsiveness

Code	# Codings	Exemplary quote	Source
Un-reflective attitude	9	“And I don’t think this will happen. Because everyone talks about it, everyone likes the story and everyone visits our website and reads about everything we do”	Interviewee D4
Strong stakeholder demands	6	“As you are trying to grow a business, it is quite important to show revenue growth, to show people are sticking more to your system because that helps you to attract more funding, to grow more quickly”	Interviewee A1
Legal barriers	4	“The laws are too strict. We really need to change the food safety laws”	Interviewee C2
Hard to assess the impact	6	“You mean in a sense of what the impact is? That’s kind of difficult in general. You never really know whether that particular action that you did causes some type of behaviour change“	Interviewee D3

One **critical success factor** that was encountered is that the entrepreneurs attach great importance to being lean. They state that flat hierarchies and fast decision making help them to quickly react on changes introduced by changing circumstances. Accordingly, they opt for being independent from demanding actors such as the government in order to prevent organisational inertia. Finally, some respondents use KPIs to objectively and accurately assess impacts of their innovation. This provides them up-to-date information about changing circumstances.

**Table 4.15.** Overview of critical success factors for the dimension responsiveness

Code	# Codings	Exemplary quote	Source
Being lean	4	“I think we also would be in a situation where we would grow for a while, and when the	Interviewee A2



		financial situation got difficult we would shrink and become smaller. We need to be very lean and efficient and agile. We wouldn't spend the money on offices, or we wouldn't buy a lot of vans or something like that because a one-off amount of money like that would run off eventually" [in a case where they would get an unexpected cash inflow]	
Be independent from demanding actors	4	"I don't want to build my business off of the need for regulation. Because what that means is when regulation changes, then my business case falls apart. So I'm looking to build a sustainable, profitable endeavour that works regardless of what the regulatory environment is. That works in concert with how businesses deal with change"	Interviewee A1
Using KPIs to assess impact	4	"For every pilot that we are going to perform, they have very specific measurements at the beginning and very specific ones at the end, so you could very easily measure, is more food donated, how healthy is it, what is the frequency, how many different farmers, etc. So in that sense, I think it is very measurable what we are doing"	Interviewee A5

#### 4.6. KNOWLEDGE MANAGEMENT

Knowledge management is the incorporation of obtained epistemic knowledge related to the outcomes of innovation into the innovation process (Lubberink et al., 2016).

A **strategy** of knowledge management is to engage in knowledge sharing collaborations. All of the social entrepreneurs that were interviewed have a strong network of people who work on similar topics, with whom they exchange knowledge. This seems to be a method frequently used by social entrepreneurs judging from the number of occurrences in the empirical study. A second strategy encountered are trial and error approaches and running pilots that are used to close knowledge gaps with regard to the outcomes of innovation. This strategy also has implications for the dimension anticipation.

**Table 4.16.** Overview of strategies for the dimension knowledge management

Code	# Codings	Exemplary quote	Source
Knowledge sharing collaborations	18	"I am in constant contact with for instance, the food surplus network, I've been at the European Union, gave a talk for them where I talked about my company. And of course	Interviewee C1

		there are lots of other businesses such as mine, and we know each other and help each other”	
Small trial and error pilots	4	“We like to work with trial and error. Just start small and then see if we can do it at bigger volume”	Interviewee D4

As a **limitation**, it can be hard to get feedback and data after information has been shared. In some instances, respondents provided knowledge to a person who wanted to start a similar organisation in another city. However, the respondents never got any information on what happened from there on. This can be detrimental for social entrepreneurs to acquire knowledge about the consequences of their innovation. Accordingly, one respondent believed this happened because of a lack of interest. Getting feedback and information from people who are not interested in the innovation appears to be difficult, which decreases the amount of information social entrepreneurs have available.

**Table 4.17.** Overview of limitations for the dimension knowledge management

Code	# Codings	Exemplary quote	Source
Hard to get feedback	3	“Maybe the most negative feedback is the lack of attention. That people say, we are not interested in it, or what is in it for me. That doesn’t help the system to get any further. It takes time to use it”	Interviewee A4

Two **critical success factors** were identified. First, a non-profit status seems to be helpful to open doors for getting knowledge for free. The interviewees emphasised that a good cause attracts people, who want to show that they care about society and provide feedback and information on the innovation under consideration. One can deduct from this that stakeholders are inclined to provide knowledge to organisations that emphasise their positive mission. Second, in two cases interviewees who have a reputation as social entrepreneur frequently get invited to discussion groups and platforms, where knowledge is bundled. Next to the knowledge sharing platforms, having a name in the field of social entrepreneurship supposedly improves access to these platforms.

**Table 4.18.** Overview of critical success factors for the dimension knowledge management

Code	# Codings	Exemplary quote	Source
Good cause attracts people	8	“The people who want us as a caterer, or that want us to do a project, they like the project, and at least they might not find it as important as we do, but they do find it interesting, and they do want to help it along”	Interviewee D3

Having a reputation as social entrepreneur	2	“Actually, our local government appointed an official specifically for food waste reduction and poverty reduction within this municipality. And she wanted to set up a consulting group. So she said, poll all the people who are working on food waste and have some sort of knowledge on this in one room, and what would be good ways to solve this locally”	Interviewee D3
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**Table 4.19.** Overview over all strategies, limitations and critical success factors identified in the empirical case study

<b>Dimension</b>	<b>Cluster</b>	<b>Code</b>	<b>#Codings</b>
Anticipation	Strategy	Identify a desired impact	28
		Identify the value for society	15
		Reflect on origins of the problem	14
		Risk assessments	8
	Limitation	Lack of resources	16
		Being flexible in terms of problem definition	6
		Social innovation perceived unlikely to create harmful outputs	4
	CSF	Independent revenue stream	16
		Small trial and error pilots	4
Reflexivity	Strategy	Reflect on the problem definition and desired impact	22
		Change in problem perception	9
		Reinvesting profits	10
	Limitation	Lack of critical feedback	10
		Ignore criticism	9
		Reluctance to acknowledge contribution of 'bad guys'	2
	CSF	Clear and unbiased metrics to measure impact	3
		Externally funded pilots	4
	Inclusion	Strategy	New projects built upon ideas from stakeholders
Obtain guidance and resources from other organisations			11
Use existing channels			6
Volunteer management			5
Limitation		Being sceptical towards a specific group of stakeholders	4
		Sceptical stakeholders	4
		Stakeholder's process does not match with one's own process	4
		Competition	3
CSF		Comply with stakeholders' processes	18
	Close relationships	10	

		Anticipate scepticism	6
		Good cause attracts people	8
Deliberation	Strategy	Provision of information/ transparency	18
		Attend meetings and events from other organisations	8
		Try to change the institutional environment by political action	8
	Limitation	Power imbalances	4
		Fear for knowledge leakage and loss of control	6
		Fear for damage to existing relationships	4
CSF	Networks	13	
Responsiveness	Strategy	Change processes according to newly recognised needs	6
		Install processes that are adaptable to changing environments	5
		Align business strategy and desired impacts	8
	Limitation	Un-reflective attitude	9
		Strong stakeholder demands	6
		Legal barriers	4
		Hard to assess the impact	6
	CSF	Being lean	4
		Be independent from demanding actors	4
Using KPIs to assess impact		4	
Knowledge management	Strategy	Knowledge sharing collaborations	18
		Small trial and error pilots	4
	Limitation	Hard to get feedback	3
	CSF	Good cause attracts people	8
		Having a reputation as social entrepreneur	2

## 5. CONCLUSION

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In the first section of this report, it was announced that one can expect to find favourable conditions for innovating responsibly in the social innovation practices of social entrepreneurs. It was assumed that they do it intuitively, without knowing about the concept and without applying formal mechanisms that characterise innovation processes in MNCs. Based on the findings presented in chapter 4, it can be concluded that this was for some dimensions more the case than for others. Given this, the limitations expected to be faced when engaging in these dimensions also differ to some extent from what has been previously identified in literature and other empirical studies. The main objectives of this study have been presented in section 1.3. They were stated as follows:

### **1. Which dimensions of RI are integrated in innovation processes of social entrepreneurs in the food surplus business?**

Using the following sub-questions:

- How are dimensions of RI conceptualised?
- How is integration operationalised?
- How are the innovation processes of social entrepreneurs operationalised?
- How is social entrepreneurship operationalised?
- How is social innovation operationalised?
- How are RI, innovation processes and social entrepreneurs related to each other?

### **2. What kind of management practices help social entrepreneurs in the food surplus business to overcome expected as well as unexpected limitations when engaging in RI practices?**

With the following sub-questions:

- Which limitations are identified in literature?
- How are management practices operationalised?
- How can unexpected limitations be recognised?

In this chapter, the two research questions are definitively answered. It is argued how and to what extent the findings relate to the questions that guided this research. The sub-questions for the first research question have been addressed in chapter 2; the sub-questions for the second research question in chapter 2 and 3.

With regard to the first research question, the social innovation processes of the focus group have been screened for dimensions of RI as defined in section 2.2. It has been ensured that all innovation processes under examination aim for social change and the creation of social wealth and thus meet the inclusion criteria of this research. The dimensions that have been found are presented in detail in chapter 4; in the sections to follow, these findings are concluded and put into context.

To round up the overview of the structure for this final part of the report, the next and final chapter presents the discussion where the findings are related to the discourse of RI and it is reflected on how they contribute to the broader area of research.

Based on the occurrence of corresponding codings that have been outlined in sections 4.1 and 4.2, this research shows that it is easy for social innovators to define a desired impact of their innovation and to link their activities to this desired impact, hereby engaging in the two dimensions anticipation and reflexivity. However, literature suggests that proposing a desired impact is not guaranteed to lead to results that are ethically acceptable in society. The outcomes of innovations are inherently unpredictable, and history has presented several cases where the outcomes differed from the expectations, for the better or worse. In order to increase the chance of producing positive outcomes, the formulation of a desired impact needs to be complemented by activities to prevent potential harmful effects. The interviews performed in this research revealed that objective criteria to measure the caused impact at any given point in time helps innovators to understand potential consequences of their innovations without being blinded by the positive vision formulated upfront. An aspect that has not been studied in this research, but might be a hypothesis coming out of this observation, is that ideally this knowledge makes it possible to withdraw the innovation from the market in case it is harmful. Since no instance of withdrawal that originated from the information collected via objective criteria could be observed in the empirical case study, this observation has not yet been proven.

The interviews revealed that most respondents do not have such criteria in place that can be used to measure their impact. Consequently, one can draw the conclusion that they strive for the best possible outcome with their innovations, thus engaging in a social innovation process, but are not able to objectively assess whether they achieve this outcome. In this research, the innovators under study do not even think about their innovations being cause for a negative impact. Reason hereof might be that the low-tech character of the innovations that have been examined makes impacts more predictable with regard to their trajectories than for highly complex innovations. Being confronted with the question whether they can think of any negative outcomes of their innovation, the interviewees struggled to come up with an answer.

The neglect of risk assessments goes hand in hand with a lack of criticism. Most respondents could not name an incident where they were approached by any stakeholder who was sceptical towards their innovation. This runs the risk that they fall significantly short of the dimensions reflexivity and

responsiveness. Whilst the idea of including a broad variety of stakeholders into the innovation process is one of the pillars of RI, here it has to be concluded that even in a case where perfect inclusion would be possible this does not necessarily lead to higher responsibility.

This finding partly contradicts the assumption formulated in the beginning of the research that conceptual similarities create fruitful conditions for RI in social innovation processes. Instead, this finding implies that the inherently positive character of social innovation puts innovators in a position where they channel their resources into working towards the desired impact, thus refraining from considering risks. It requires further research whether this also speaks for other low-tech innovations and whether this can also be observed outside of a low-tech context.

With regard to the lack of reflexivity, this research shows that using objective criteria to measure impact can enhance a reflective attitude. Compared to the charities that were interviewed, the entrepreneurial social innovators who want to create economic value via an independent business case brought about a higher occurrence of objective criteria such as KPIs. However, for those a higher reluctance to share information and a stronger focus on competition was observed. This gives the indication that a more entrepreneurial character of the enterprise enhances reflexivity, but weakens deliberation. On contrast, all innovators are prominently involved in networks, where they share knowledge and experience with peers and at the same time get access to information. It can be argued that this behaviour potentially causes a conflict of interests, where innovators have to find a balance between a) sharing information, thus positioning themselves as altruists who strive for the common good and b) holding back information in order to achieve a competitive advantage. However, this assumption requires further examination.

With regard to the initially defined goal of this research, it was found that social innovators naturally engage in some aspects of RI, especially those related to defining desired impacts, obtaining knowledge and including like-minded stakeholders whilst neglecting other aspects such as risk assessments and responding to critical feedback. Limitations were analysed that prevent them to fully engage in RI and management practices were identified which they use to overcome some of these limitations. Ultimately, it requires further research to determine the extent to which these findings are generalizable both within and beyond a social innovation context. As indicated initially, research on RI from a business perspective is lacking. Therefore, at this point it is difficult to compare these results to other studies. The contribution of this report, however, is to contribute empirical data to the discourse on RI and add the perspective of social innovation that was so far underrepresented.



## 6. DISCUSSION

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The existing body of literature shows gaps with regard to the scope of areas already researched. As outlined in the theoretical framework, research focuses on academic innovation, thus neglecting innovation undertaken in the private sector. Furthermore, the conceptual similarities and differences between RI and adjacent disciplines such as social innovation are not yet clearly established. It is reasonable to assume that this is due to the young character of this discipline and that time will increase the range of research topics covered in literature. In this chapter, the results of the study are related to current literature on RI and implications are discussed of what the discipline can learn from the report at hand.

As reported in this study, proposing a desired impact is not guaranteed to lead to results that are ethically acceptable in society. Von Schomberg (2013) confirms this observation and suggests to use ‘normative anchor points’ based on the EU treaty as inspiration, such as ‘quality of life’ and ‘equality among men and women’. Measuring these indicators is difficult and there exists no common understanding of how to assess their implications. Therefore, other researchers hold different opinions on the roadmap to get to a desired impact. Owen (2012), for instance, emphasises that delineating a right impact is a political process where various stakeholders bring together different and sometimes opposing opinions. Rather than defining the desired outcome upfront, he suggests to start innovating without a clear goal in mind and accept that the best outcome for society will become more visible as the process. This can lead to power games between the stakeholders involved, which may slow down the process and distort the equal consideration of contributed ideas. The social innovators that were interviewed in this study derive their desired impact from a ‘common sense’, which is close to von Schomberg’s proposed approach. In the context of social innovation, no indication has been found that having a desired impact as a starting point increases the chance of generating positive results, which is also the prevailing opinion in literature. Whether Owen’s approach would have been more effective in the context under study requires further research. However, it can be concluded that even if social innovators define a desired impact and align their activities to it, it is difficult to make predictions about whether the desired impact they strive for truly leads to ethical acceptability, sustainability and societal desirability of the innovation under consideration.

Problematic in this respect is also that the innovators strongly focus on the positive side of finding a desired impact whilst neglecting the anticipation of negative consequences. According to the interviews, the main reason is that the entrepreneurial character of the organisations brings about a lack of resources and capacities, which results in an absence of risk assessments. While another empirical study identified formal mechanisms for RI when they analysed the innovation processes of businesses such as stage gate

models, formal after-launch assessment criteria and formal checks and balances in the design phase (Asante, Owen, & Williamson, 2014), in this research hardly any formal methods were found. A limited body of literature on such formal criteria makes it difficult to compare the findings of this research to other studies. Most entrepreneurs that were interviewed struggle with a lack of resources in terms of money and time. They spend their limited resources on identifying opportunities, which is a habit often referred to in literature on entrepreneurship (Choi & Majumdar, 2014a; Dees, 1998). They are in general very positive about their impact and appear to only look at the positive side of their innovations.

On the one hand, it can be argued that this has positive implications for the democratic governance of intent. Where RI is often associated with the management of impacts, the focal point for RI is a consideration of values and underlying purposes of innovation (Owen et al., 2013). Consequently, an innovator should not only ask which impacts the innovation could produce, but first and foremost why to innovate, who could benefit, and does society really want this innovation. Building on the results of this study, the democratic governance of intent seems to be strongly present in social innovation contexts where these questions are integral part of the innovation.

On the other hand, it appears that a use of formal mechanisms has positive implications for innovating responsibly (Asante, Owen, & Williamson, 2014). This notion has been confirmed by this study. Objective criteria to assess impact can make it possible even for entrepreneurs who face budget and time constraints to increase the extent to which they engage in anticipation and reflexivity. The empirical case study has shown that social innovators could negate the effect of a lack of critical feedback by using such formal mechanisms.

However, drawing the conclusion that the respondents tried to avoid objective criticism would be wrong. All interviewees were active in transporting their message to the public, letting others know about their innovation and emphasized the importance of mutual exchange with other people. Both this research and literature agree that most social entrepreneurs are strongly involved in networks where they share knowledge and resources (Peredo & McLean, 2006). This study as well as similar empirical studies confirmed that the use of networks helps social entrepreneurs to enhance responsibility (Halme & Korpela, 2014). At the same time, the results of the empirical case study point out that independence seems to play a role especially for the dimensions anticipation and responsiveness. Due to the high complexity and interdependencies of modern innovations (von Schomberg, 2013), it can be concluded that social entrepreneurs who want to enhance responsibility of their social innovation face a dilemma; they have to make maximal use of networks, share knowledge and interact with other entrepreneurs while at the same time staying independent. However, by combining the social mission with an independent business model, thus forming a synergy between social innovation and entrepreneurship, one can expect that the degree of RI can be enhanced. If social innovators are aware of the fact that the

impact is not as easy to predict as they assume, it is reasonable to expect a higher chance of producing desirable outcomes.

Finally, where social innovators redefine their desired impacts, this can negatively affect the precautionary principle (Owen et al., 2013; von Schomberg, 2013). The precautionary principle means that if there is a risk that the innovation can produce negative consequences, it is better to refrain from launching the innovation to the market in order to protect society, even if scientific evidence about potential harmful impacts is lacking. Since hardly any indication was found that social innovators are aware of potential harmful effects coming out of their innovation, it can be concluded that they do not recognise a responsibility issue. Another empirical study on RI came to similar results, where an innovator who has low uncertainty about whether an action leads to a certain impact does not assume a problem of responsibility (Pandza & Ellwood, 2013).

Whether the findings of this study can be used to increase responsibility for more high-tech innovations and outside the private sector as well requires further research. However, this opens doors for further research. Firstly, it is recommended to future researchers to look into the role of knowledge sharing and intellectual property. Apparently, intellectual property and business secrets do not seem to play an important role for social innovators who operate in a low-tech environment. They are together with other actors from the private and public sector fighting a problem in society and thus mainly benefit from an exchange of knowledge and resources. However, the extent to which they openly share resources may decrease as they move further towards a profit based structure.

Secondly, it can be interesting to study how a higher occurrence of RI practices correlates with the behavioural change in society that is at the centre of social innovation. Most of the respondents in this research reflect on what is necessary for a societal transition towards a large-scale decrease of food surplus. Whilst some emphasise individual consumer awareness, others aim at changing the system by showcasing that food surplus which is seen by many as waste can be turned into a valuable resource. Based on the findings of this study, it cannot be indicated whether the utilisation of RI practices enhances or constrains the goal of social innovation, which is a behavioural transition in society.

Finally, if one wants to get a holistic understanding of how innovation in the private sector can be done in a more responsible way, more research into other forms of innovation is needed as well. In this respect, this report is only one contribution to complement the bigger picture on how humanity can enhance the ethical acceptability, sustainability and societal desirability of modern innovations.

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