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# THEORIZING ABOUT SUSTAINABLE ENTREPRENEURSHIP

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## ABSTRACT

Facing grand societal challenges, sustainable entrepreneurship has emerged with the promise of providing economic solutions to social and ecological problems. Yet, current research on sustainable entrepreneurship has been mainly phenomenon driven and the link to theory has been rather implicit. Therefore the overarching aim of this thesis is to explore the key assumptions of sustainable entrepreneurship and to advance theory around the core drivers and relationships of the phenomenon. This is explored by means of five studies, i.e. a systematic literature review, three studies employing multiple case studies, as well as a verbal protocol study. The synthesis of the systematic literature review in essay I reveals five key assumptions for the study of sustainable entrepreneurship: 1) a triple bottom line focus of economic, social, and ecological value, 2) a process perspective, 3) the centrality of opportunities, 4) the importance of the individual founder, as well as the 5) the transformative potential of sustainable entrepreneurship. To explore and illuminate the phenomenon of sustainable entrepreneurship, the four empirical studies focus on one or more of the derived key assumptions. Accordingly, Essay II takes a process perspective on sustainable opportunities revealing a six-stage convergent process model. Exploring the relationship between individual and opportunities, Essay III uncovers the cognitive processes of sustainable entrepreneurs in reframing problems into opportunities. Focusing on the individual as a key driving force in sustainable entrepreneurship, Essay IV explores the identity of sustainable firm founders, bringing to light that negational categorizations affect founders' identities and in turn their decision making. Lastly, Essay V combines the different key assumptions to provide a holistic perspective on the value creation processes of sustainable entrepreneurs, revealing that the value creation process of sustainable entrepreneurship is driven by a duality between founders' social identities and social structure, facilitated by scripts. The results of this thesis contribute to delineating the key assumptions and boundary conditions of entrepreneurship research, and hold implications for current and potential entrepreneurs, policy makers, and entrepreneurship education.



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## LIST OF ABBREVIATIONS AND ACRONYMS

CEO	Chief Executive Officer
cf.	confer
DBL	Double Bottom Line
e.g.	exempli gratia
et al.	et alii
IA	Intercoder Agreement
IR	Intercoder Reliability
i.e.	id est
QCA	Qualitative Comparative Analysis
ROI	Return on Investment
RQ	Research Question
SEP	Sustainable Entrepreneurial Process
SLT	Structure Laying Technique
TBL	Triple Bottom Line

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# 1 INTRODUCTION

The world is in need of a transition towards a more sustainable future. Entrepreneurship can play a pivotal role in this transition, by providing economic solutions that counteract environmental degradation and rectify social injustice and inequality. In this respect, entrepreneurs can act as change agents who realize opportunities for sustainable development. This thesis aims to explore and illuminate the key assumptions of sustainable entrepreneurship, and to provide a theoretical foundation by investigating the key driving forces and relationships of the phenomenon. This introductory section motivates the need for studying sustainable entrepreneurship. To proceed, the research context and extant research on the topic are introduced, which is then followed by the delineation of the overall aim and research questions of this thesis. The chapter concludes by outlining the structure of the thesis.

## 1.1 Research Context

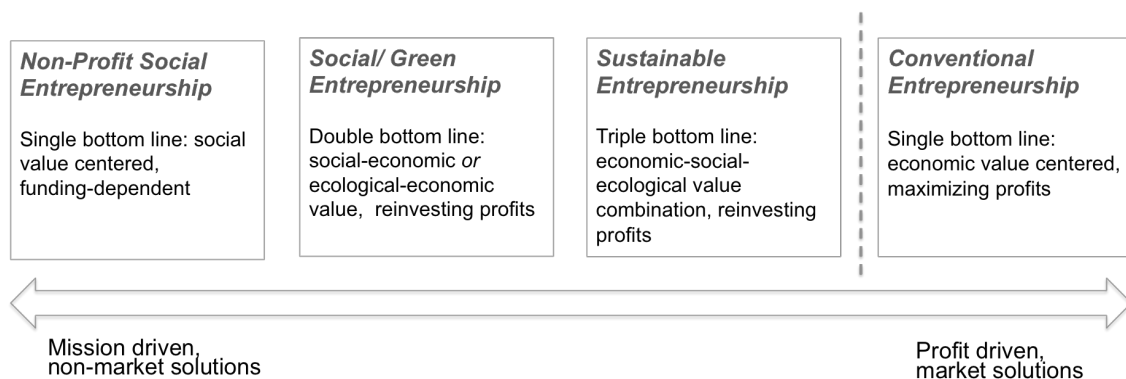
Sustainable development reflects one of the most important topics of our time and is an influential concept for policy, society, and business since the 1990s. Generally, sustainable development is defined by the World Commission on Development and the Environment of the United Nations as *“meeting the needs of the present without compromising the ability of future generations to meet their own needs”* (WCED,

1987). This definition implies the principles of intragenerational equity (present generations) and intergenerational equity (future generations). There is a growing consensus that current production and consumption are unsustainable (United Nations, 2002) and that there are “*limits to (economic) growth*” (Meadows et al., 1972). Fundamental transformations are needed to reduce the environmental and societal impacts of economic activities and to foster inclusive growth, that is growth that provides gains for all segments of society (World Resources Institute, 2005). Most recently, the climate change conference of the United Nations in Paris, signed a historic agreement among 175 countries, which agreed to keep the rise in temperature to a maximum of 2 degree Celsius (COP 21, 2015). This would require a zeroing of greenhouse gas emissions until 2060, reflecting a need for radical transformation in all sectors of civil society, particularly changes in consumption and production patterns.

To achieve such ambitious sustainable development gains, a transformation of economic activities is an indispensable condition. In 1994, Elkington coined the term *triple bottom line*, referring to the combination of economic, social and ecological benefits as a win-win-win situation for business, society and the environment. In the same vein, Hart and Milstein (1999) referred to the concept of creative destruction (Schumpeter, 1942) as a precondition and the central force for the transition to a sustainable society, emphasizing that “*innovators and entrepreneurs will view sustainable development as one of the biggest business opportunities in the history of commerce*” (Hart & Milstein, 1999: 25). Yet, integrating sustainability into a company’s activities is marked by high complexity and uncertainty due to the different and often competing demands and objectives, which requires organizations to achieve economic, social and environmental value simultaneously (Gao & Bansal, 2013). It requires managers and entrepreneurs to process different, sometimes ambiguous cues, and to draw meaningful inferences in response to institutional complexity and ambiguity.

Organizational response to internal and external demands to engage in sustainability has been twofold - while most organizations comply with such requests by reactively setting up corporate social responsibility departments, which frequently decouple social practices from their actual corporate activities, other businesses have started to proactively integrate social practices in their corporate strategy and core business activities (Weaver et al., 1999; Aragon-Correa & Sharma, 2003). While the former

reflects a reactive response to changing legislation and/ or stakeholder pressure, the latter can be seen as a proactive reaction to sustainability as an economic opportunity to be seized (Bansal & Roth, 2000). Such a proactive integration of sustainable practices has mainly been embraced by new ventures, which from the outset aim to create sustainable businesses, equally valuing and pursuing profitability and societal value as part of their organizational identity. Indeed, extant research found entrepreneurial efforts to have the potential to provide economic solutions to important social and environmental problems (Hall et al., 2010). As a response to such claims, the academic discourse on pro-social organizing has been evolving and several different albeit related school of thoughts have been suggested to study the phenomenon. These concepts are united by their focus, which goes beyond profit, taking social and/ or environmental value into consideration. At the same time, they can be distinguished along a continuum ranging from non-market to market solutions (figure 1).



**Figure 1 – Pro-social forms of entrepreneurship (Source: own illustration)**

At one end of the spectrum (left), there are funding-dependent social enterprises which are mission-driven and fully subsidized by external partners. These social businesses represent non-profit social entrepreneurship and are not dissimilar to non-governmental organizations (Austin et al., 2006; Thompson, 2002). Moving along the spectrum, self-funding social or environmental businesses can be found. These businesses have a strong focus on their social or environmental goals, yet they are able to make a profit, which is fully reinvested in the company (Bacq & Janssen, 2011). They are focused on the double-bottom line of either social-economic (Mair & Marti, 2006) or environmental-economic values (York & Venkataraman, 2010). Sustainable entrepreneurship goes one step further, by seeking to accomplish a balance between the



triple bottom line of economic, social, and environmental goals (Cohen et al., 2008; Parrish, 2010). Unlike conventional entrepreneurship, which mainly focuses on economic development (Kirzner, 1973; Schumpeter, 1942), sustainable entrepreneurship builds on the key premise that entrepreneurs have the potential to realize the triple bottom line of economic, social and ecological value by means of their business activity (Cohen & Winn, 2007; Dean & McMullen, 2007; Hockerts & Wüstenhagen, 2010; Pacheco et al., 2010). Therefore sustainable entrepreneurship can be differentiated from conventional entrepreneurship by its aim to create viable market solutions and focus on social and environmental value which impact key decisions. Aligned with the growth of sustainable enterprises, there has been increasing academic interest into sustainable entrepreneurship in a broader sense. With reference to past research, sustainable entrepreneurship research entails “*the scholarly examination of how opportunities to bring into existence future goods and services are recognized, developed, and exploited by whom, and with what economic, social and ecological gains*” (Binder & Belz, 2015). The definition highlights five central elements of sustainable entrepreneurship. First, the focus is on the sources of opportunities for sustainable development, referring to both, discovery and creation of opportunities (Cohen & Winn, 2007; Dean & McMullen, 2007; Pacheco et al., 2010). Second, the definition reflects a process perspective on the phenomenon, by exploring how opportunities are recognized, developed, and exploited (Hockerts & Wüstenhagen, 2010; Munoz & Dimov, 2015). Third, the role of the entrepreneur as a central driving force in identifying and acting on opportunities is highlighted (Kuckertz & Wagner, 2010; Schlange, 2009; Spence et al., 2010). Fourth, the relevance to balance the triple bottom line of economic, social, and ecological value in the starting and running of a sustainable venture is emphasized (Cohen et al., 2008; Parrish, 2010). Lastly, it takes into account the potential for sustainable entrepreneurship to be a central driving force in achieving the transition towards sustainable development (Gibbs, 2009; Hockerts & Wüstenhagen, 2010).

The relevance of sustainable entrepreneurship can be further emphasized by the direct effects of sustainable entrepreneurs on their local communities and environments, along with the indirect effects of sustainable new ventures serving as blueprints for new forms of pro-social organizations. This has led towards larger scale projects such as the European project “Sustainable Lifestyles 2.0: End User Integration, Innovation and

Entrepreneurship” (EU-InnovatE) which investigates the innovative and entrepreneurial roles of users in the transition towards a more sustainable future. The thesis at hand is embedded in this project, focusing on the entrepreneurial role of users in creating products and services that have the potential to transform markets and society. Taken together, the practitioner and academic fields for sustainable entrepreneurship seem to be converging, and the need to develop a theoretical basis for this emerging discipline becomes apparent.

## 1.2 Research Purpose

At the inception of this thesis in 2013, research on sustainable entrepreneurship was mainly phenomenon-driven. Theoretical implications, if any, had remained subordinate to the phenomenological observations and the link between empirical results and theory had been rather implicit. Research to date has neither systematically articulated the key assumptions related to sustainable entrepreneurship nor has it developed theory that captures the unique characteristics of the phenomenon. To gain legitimacy as a relevant subdomain for entrepreneurship research, the application of theory is a key requirement, increasing rigor and broadening the scientific discourse on the topic (Busenitz et al., 2003). It is in the realm of these considerations, that this thesis aims to make a contribution. More pointedly, the aim of this thesis is to delineate the key assumptions of the phenomenon and to provide the theoretical foundations for the emerging field of sustainable entrepreneurship by illuminating key driving forces and relationships of the phenomenon. In fulfilling the research aim, five more specific research questions were set:

- RQ 1 – What is sustainable entrepreneurship?
- RQ 2 – How do entrepreneurs recognize, develop, and exploit opportunities for sustainable development?
- RQ 3 – How, when, and why do entrepreneurs succeed in overcoming the negative framing of social and ecological problems?
- RQ 4 – How do negational categorizations influence the salient social identities of firm founders?
- RQ 5 – How and why do opportunities for sustainable development come into existence?

By addressing the five research questions outlined above, the intent is to shed light on 1) the key assumptions of sustainable entrepreneurship; 2) the process of sustainable entrepreneurship, focusing on the key activities in a sequence of events; 3) the cognitive process of sustainable entrepreneurs, exploring the reframing of problems into opportunities; 4) the social identity of firm founders, investigating affirmational and negational categorizations; and 5) the transformative power of sustainable entrepreneurial opportunities, by unearthing the value creation process of sustainable entrepreneurs from a structuration perspective.

Providing such novel insights hopefully encourages further research on the phenomenon and inspires potential entrepreneurs to go beyond a for-profit focus, striving to realize social and ecological value gains. In addition, the results of this study are intended to inform future policy-making directed at fostering sustainable entrepreneurship, as part of the project EU-InnovatE.

### 1.3 Structure of Thesis

Following this introductory section, chapter 2 will focus on introducing the research framework of this thesis. The aim of the research framework is to provide a concise synopsis and to highlight the interrelatedness of the research questions, the methodical considerations, as well as the theoretical foundations that guided the scientific endeavor. The main body of this thesis consists of five essays, which are presented in chapter 3. The essays focus on different facets of the sustainable entrepreneurship phenomenon, yet are interlinked by the key assumptions of sustainable entrepreneurship. As such, the findings of the synthesis of the systematic literature review (essay I) build the foundation for the following four empirical studies. While essay II, investigates the process of recognizing, developing, and exploiting opportunities for sustainable development, essay III explores the underlying cognitive dynamics that guide such opportunity identification. Essay IV remains with the focus on the individual entrepreneur by showing how negational categorizations of founder's social identity influence core strategic decisions. Essay V attempts to shed light on the value creation process of sustainable entrepreneurs by focusing on the duality between agent and structure. The thesis concludes in chapter 4 with summary of the key findings, contributions and an outline of a research agenda for future research opportunities.

## 2 RESEARCH FRAMEWORK

The thesis is conducted in the context of entrepreneurial ventures, which strive to realize the triple bottom line of economic, social, and ecological value, thereby providing private and public gains simultaneously. As the title of this thesis “Theorizing about Sustainable Entrepreneurship” implies, the scientific inquiry is motivated by the aim to provide a theoretical foundation for the emerging phenomenon. To achieve this aim, the thesis is structured into five consecutive essays, each focused on a specific research question, theory and method (see table 1). In the following subsections, the research framework will be introduced and discussed in detail. The chapter proceeds with the derivation of the research questions, which guided the scientific enquiry. Thereby, a particular focus will be on highlighting how the five research questions are interlinked. Next, the research methods that have been employed will be discussed. Due to the nascent stage of research, a qualitative research design was deemed most appropriate. In the last part of this chapter, the theories, which emerged during the data analysis, will be introduced by means of a concise overview.

	<b>Title</b>	<b>Research Question</b>	<b>Theoretical Foundation</b>	<b>Research Methods</b>	<b>Status</b>
<b>Essay I</b>	Sustainable Entrepreneurship – What it is	What is sustainable entrepreneurship?	n/a	Systematic Literature Review	Published in the Handbook of Entrepreneurship Research and Sustainable Development <i>co-author: F.M. Belz</i>
<b>Essay II</b>	Sustainable Entrepreneurship: A Convergent Process Model	How do entrepreneurs recognize, develop, and exploit opportunities in the context of sustainable development?	Process Theory	Multiple Case Study	Published in Business Strategy and the Environment <i>co-author: F.M. Belz</i>
<b>Essay III</b>	Framing is a Double-Edge Sword: Sustainable Entrepreneurs' Cognitive Efforts to Break the Mold of Social and Ecological Problems	How, when, and why do entrepreneurs succeed in overcoming the negative framing of social and ecological problems?	Framing Theory	Verbal Protocol Study	In preparation for submission <i>co-author: D.A. Grégoire</i>
<b>Essay IV</b>	Shades of Gray - Negational Categorizations of Founder Identity	How do negational categorizations influence the salient social identities of firm founders?	Social Identity Theory & Optimal Distinctiveness Theory	Multiple Case Study	Revise and resubmit at Journal of Business Venturing <i>co-author: F.M. Belz</i>
<b>Essay V</b>	Be the Change You Want to See in the World: The Value Creation Processes of Sustainable Entrepreneurs	How do sustainable entrepreneurial opportunities co-evolve in duality with individual action over time?	Structuration Theory & Social Identity Theory	Multiple Case Study	In preparation for submission <i>co-author: F.M. Belz</i>

**Table 1 – Synopsis of the five-essay thesis**

## 2.1 Research Questions

*“A key task in generating research questions through problematization is to enter a dialectical interrogation between one’s own and other metatheoretical stances so as to identify, articulate, and challenge central assumptions underlying existing literature in a way that opens up new areas of inquiry.” (Alvesson & Sandberg, 2011; p.255)*

According to Alvesson and Sandberg (2011), most studies to date rely on gap spotting, yet research questions based on gap spotting often fail in producing interesting theory as they rarely challenge existing literature. In contrast, research questions based on problematization are seen as challenging core assumptions thereby questioning what is commonly seen to be true (Alvesson & Sandberg, 2011). To develop interesting and relevant research questions, I first engaged in assessing the current state of research. By delineating what sustainable entrepreneurship is and at the same time differentiating it from related concepts, the aim was to uncover the key assumptions and boundary conditions of sustainable entrepreneurship (Busenitz et al., 2013). Thus, this thesis strives to answer the following overarching research question:

*RQ: What are the key assumptions of sustainable entrepreneurship and how can theory contribute to our understanding of the phenomenon?*

The exploration of this research question is expected to yield relevant theoretical contributions for the field of sustainable entrepreneurship in both specific and broad terms to enhance understanding of the importance of considering pro-social value gains in entrepreneurship theory and practice. Accordingly, the research questions of this thesis are based on the key premise that sustainable entrepreneurship is different from conventional entrepreneurship as it challenges the central, commonly accepted assumption that individuals engage in entrepreneurship to exploit profitable opportunities (Shane & Venkataraman, 2000). In the following, the problematization and development of the research questions will be explained in more detail, particularly highlighting the interrelatedness of the research questions.

### 2.1.1 Development of Research Questions

The interest in prosocial forms of organizing has struck a nerve in the entrepreneurship community and several different albeit related schools of thought have been suggested to study the phenomenon. For instance, social entrepreneurship, ecopreneurship, environmental entrepreneurship, or hybrid organizing are terminologies that have been used to describe the same or closely related phenomena. To date, these research streams have largely developed in parallel, neither systematically including nor excluding findings from related concepts. On the one hand, the plurality of terms and approaches add to the creativity of the field. The diversity and openness attracts researchers from different disciplines embracing the topic. On the other hand, the lack of clarity hampers rigorous research. As long as a common understanding of the key term “sustainable entrepreneurship” and a demarcation from related concepts are missing, further progress in this stream of research is unlikely – despite ample opportunities. Furthermore, to lay the foundation for further research into the topic, a systematic analysis of the key assumptions underlying the phenomenon is a prerequisite. To address this issue and to add to clarity about the boundaries of what sustainable entrepreneurship is, the aim of essay I was to answer the following research question:

*RQ1: What is sustainable entrepreneurship?*

According to the review and synthesis of the different definitions of sustainable entrepreneurship, sustainable entrepreneurship research can be defined “*as the scholarly examination of how opportunities to bring into existence future goods and services are recognized, developed, and exploited, by whom, and with what economic, social and ecological gains*”. The definition can be seen as a synopsis of the key assumptions of sustainable entrepreneurship, highlighting the importance of the triple bottom line focus, the process perspective, the centrality of opportunities, the relevance of individuals, as well as the potential to bring about transformation.

First, the relevance to balance the triple bottom line of economic, social, and ecological value in the starting and running of a sustainable venture is emphasized (Cohen et al., 2008; Parrish, 2010). Balancing the competing goals is a major challenge for sustainable entrepreneurs and results in increased complexity throughout the venture creation (and beyond) (Schlange, 2007; Parrish, 2010).

Second, the assumption that sustainable entrepreneurship is a process has been emphasized across definitions. Despite the recurring focus on the process, few studies have actually empirically investigated the sustainable entrepreneurial process (Choi & Gray, 2008; Larson, 2000). Larson (2000) provides an in-depth analysis of the sustainable entrepreneurial process from the lens of a single entrepreneur, which he finds to be similar to the conventional entrepreneurial process. Choi and Gray (2008) employed an existing process framework to their qualitative study, mainly focusing on how the triple bottom line value could be balanced throughout the process.

Third, the focus is on the sources of opportunities for sustainable development, which can be found in market failures and imperfections (Dorado, 2006; Cohen & Winn, 2007; Dean & McMullen, 2007; Lumpkin et al., 2013); unmet social needs (Shaw & Carter, 2007); as well as social and ecological problems (Dees, 1998). For Cohen and Winn (2007), market imperfections occur when firms are inefficient, externalities exist, pricing mechanisms are imperfect and in cases of imperfect distribution of information. Adding to Cohen and Winn (2007), Dean and McMullen (2007) suggest that public goods, monopoly power, and inappropriate government interventions also amount to market failures. Patzelt and Shepherd (2011) provide a first definition of sustainable entrepreneurial opportunities as *“opportunities that sustain the natural and/ or communal environment as well as provide development gain for others”*. In this sense, development gain for others encompasses the triple bottom line of economic, environmental and social gains, rather than solely economic gain as it is the case for conventional entrepreneurship. Accordingly, the identification of opportunities for sustainable development has an increased complexity compared to economic opportunities, which aim at creating financial value only (Cohen et al., 2008).

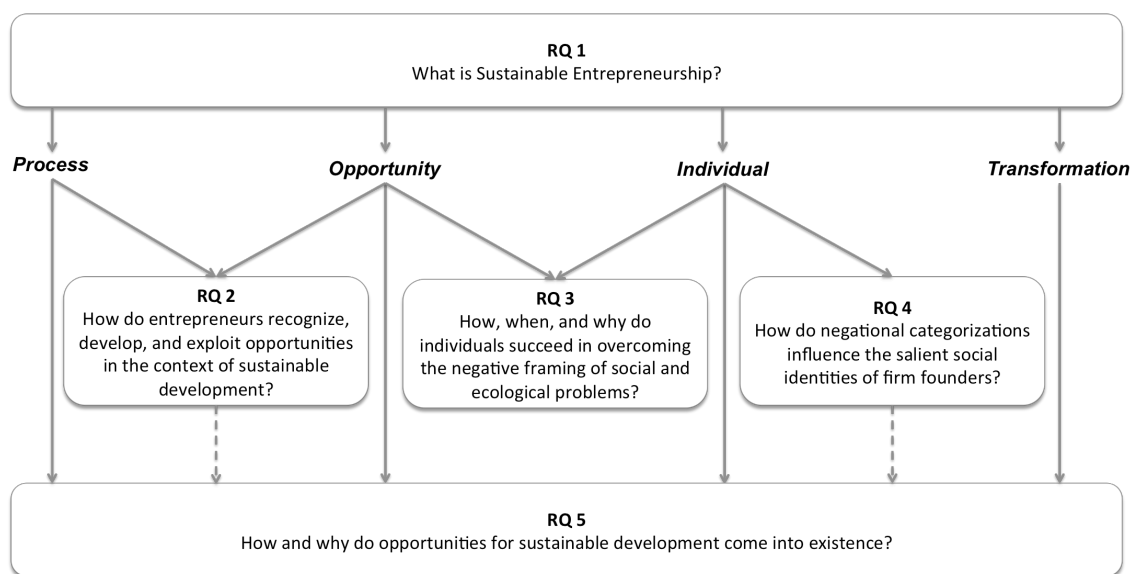
Fourth, the role of the entrepreneur as a central driving force in identifying and acting on opportunities is highlighted (Kuckertz & Wagner, 2010; Schlange, 2009; Spence et al., 2011). Such studies have focused mainly on the motivational factors of sustainable entrepreneurs. For instance, Kuckertz and Wagner (2010) highlight that sustainability-oriented individuals are more likely to recognize not only a higher number of sustainability entrepreneurial opportunities, but have also been found to be more ambitious to act upon the identified opportunities.

Lastly, the definition takes account of the potential of sustainable entrepreneurship to be a central driving force in achieving the transition towards sustainable development



(Gibbs, 2009; Hockerts & Wüstenhagen, 2010). Besides the direct benefits of the entrepreneurial activities, which are often on a local or communal level, sustainable entrepreneurship has been found to function as an impetus for the transition to a sustainable society (e.g. Gibbs, 2009; Parrish & Foxon, 2009; Schaltegger & Wagner, 2011).

The results of this systematic review laid the basis for the subsequent investigation of the phenomenon. Accordingly, the four empirical essays focus on the key assumption derived from the systematic review (Figure 2).



**Figure 2 – Overview of research questions (Source: own illustration)**

Despite the strong focus on opportunities and processes in the definitions analyzed as part of the systematic review, a surprising finding was that research on the entrepreneurial process of sustainable start-ups remains considerably small (Choi & Gray, 2008; Keskin et al., 2013). A reason for the lack of process research might be the complexity involved in studying processes (Langley, 1999). Yet, insights into the procedural nature of sustainable entrepreneurship hold the promise to advance to our understanding of the key variables that drive the phenomenon. Aiming to contribute such knowledge, essay II was designed to investigate the following research question:

*RQ 2: How do entrepreneurs recognize, develop, and exploit opportunities in the context of sustainable development?*

Based on four case studies a six staged process model was developed. A key finding was that a potential starting point of the sustainable entrepreneurship process is a particular social and/ or ecological problem on a local or global scale that prospective sustainable entrepreneurs encounter first-hand in their private or professional lives. Rather than perceiving the encountered problem as something negative, the founders in our sample perceived such maladministration and market failure as an opportunity to do things better. This is not a trivial challenge, as it requires individuals to cognitively reframe negative social and ecological problems into positive entrepreneurial opportunities. Considering that humans can “*hardly glance at anything without applying a primary framework, thereby forming conjectures as to what occurred before and what is likely to happen now*” (Goffman, 1974, p.38), re-framing negative problems into positive opportunities must be seen as a unique cognitive effort of sustainable entrepreneurs. Extant research has started to investigate the role of framing for entrepreneurship (Cornelissen & Clarke, 2010; Cornelissen & Werner, 2014). Yet, research on the strategies entrepreneurs can mobilize to identify positive opportunities from the negative circumstances they seek to address can only offer an incomplete understanding of this pertinent cognitive skill of sustainable entrepreneurs. Aiming to shed light on the underlying cognitive dynamics that facilitate the reframing of problems into opportunities, the following research question was investigated:

*RQ 3: How, when, and why do entrepreneurs succeed in overcoming the negative framing of social and ecological problems?*

Despite the finding that social and environmental problems are a potential starting point, which are re-framed in opportunities, a relevant finding of the process study (essay II) was that the triple bottom line of ecological, social and economic goals is integrated sequentially, not simultaneously. While the sequential integration of the different bottom lines reduces the complexities to some extent, it still represents a difficult undertaking. Interestingly, the integration of the triple bottom line of economic, social, and ecological value is not driven by external pressures (e.g. stakeholders, legal obligations), but rather by the convictions and values of the individual founder. By collecting additional data and based on a preliminary analysis of the interview material, the relevance of a founder’s social identity for developing sustainable opportunities was manifested (Fauchart & Gruber, 2011). Yet, rather than emphasizing the influence of

in-groups on their self-concept, the founders in the sample put increased attention on out-groups, pointing to the importance of distancing themselves from several groups of people. In research on social identity, Hogg et al., (1995) delineate the dual self-categorization process of individuals into in-groups and out-groups. Most research to date focuses on in-groups and affirmational categorization to provide an answer to the question “Who am I”. A notable exception is the study by Zhong et al. (2008), who draw attention to the important role of out-groups and negational categorizations, showing that an individual’s identity can form around out-groups and that common non-membership can motivate intergroup behaviors as much as common membership. The role of negational categorization might be particularly relevant in the context of entrepreneurship, as entrepreneurs have been repeatedly found for having higher needs for autonomy and independence, while exhibiting lower needs for conformity (Sexton & Bowman, 1986; Shepherd & Haynie, 2009). On top of this, sustainable entrepreneurs often position themselves as offering products counter to what is existing in the market, which is why it was assumed that there was a stronger need for negational categorizations. Aiming to provide novel insights into the identity of sustainable entrepreneurs, essay IV pursued the following research question:

*RQ 4: How do negational categorizations influence the salient social identities of firm founders?*

The four research questions already considered have focused on one or two key assumption each. Taking a more holistic perspective, the fifth essay focuses on the value creation processes of sustainable entrepreneurs, combining all key assumptions. As opportunities for sustainable development are characterized by their triple bottom line focus of economic, social, and ecological value, they have a much higher complexity and ambiguity than opportunities aimed at creating economic value (Cohen et al., 2008). At the same time, such opportunities for sustainable development may have the potential to challenge current economic-driven structures and change some of the commonly held rules and belief systems (Chiasson & Saunders, 2005). Thus, general assumptions surrounding conventional opportunity identification fall short in capturing the multidimensional nature of the phenomenon. The importance to consider structuration theory, and more precisely scripts, emerged during the data analysis. Aiming to provide insights into how entrepreneurs cope with and efficiently master the

intricacy involved in recognizing, developing, and exploiting sustainable entrepreneurial opportunities, essay V seeks to provide an answer to the following research question:

*RQ 5: How and why do opportunities for sustainable development come into existence?*

The research questions outlined above are explorative in nature, pointing to a qualitative approach for exploring the phenomenon. Accordingly, the research questions were not designed to test theory, but rather to build and develop theory. The following chapter will introduce the research methods applied in this thesis.

## 2.2 Research Methods

*“The key to good research lies not in choosing the right method, but rather in asking the right question and picking the most powerful method for answering that particular question” (Bouchard, 1976, p. 402)*

As the introductory quote by Bouchard illustrates, research question and research method are inseparably connected. If the focus of a research is on describing and understanding a phenomenon little is known about, it usually calls for qualitative research, which is interpretative in nature and allows for rich insights to be gathered into a phenomenon, thereby building or elaborating theory (Edmondson & McManus, 2007; Gephart, 2006; Lee et al., 1999). As such, research questions that address nascent phenomenon or theory (or both) are characterized by their open-ended nature, inquiring into “how” and “why” questions. The research questions under study focus on the entrepreneur as a key actor in driving the process, identifying opportunities, and transforming current structures, reflecting the ontological assumption that individuals actively create their social world and offering a more subjective perspective on human nature (Morgan & Smircich, 1980). Such questions are best investigated by a qualitative approach, which allows for an open and explorative inquiry into the phenomenon (Edmondson & McManus, 2007). Thereby the researcher attempts to understand the phenomenon from the perspective of the subject as it engages with the social world (Morgan & Smircich, 1980).

To proceed, a systematic literature review which holds the promise of providing a more transparent and accurate synthesis of extant research, was conducted. Accordingly, the systematic literature served as the basis for the subsequent investigation of the phenomenon by means of four empirical studies. For the empirical exploration of the research questions, two qualitative research methods were employed: multiple case studies (essays II, IV, V) and a verbal protocol study (essay III). In the following sections, an overview of the three different research methods, systematic literature review, multiple case studies, as well as verbal protocols is provided (summarized in table 2). More detailed justifications of the research procedure is provided in each of the essays II, III, IV, V.

<b>Research Methodology</b>	<b>Sample</b>	<b>Data Collection</b>	<b>Time of Data Collection</b>	<b>Data Analysis</b>	<b>Application in Thesis</b>
<b>Systematic literature review</b>	43 articles relevant for sustainable entrepreneurship	468 articles	April 2013 – June 2013	Content analysis	Essay I
<b>Multiple case study</b>	4 case studies of sustainable new ventures	4 semi-structured interviews, archival data, secondary data, visual data	March 2013 – May 2013	Within-case and cross-case analysis; time- and concept ordered displays	Essay II
	6 case studies of sustainable new ventures	12 semi-structured interviews, secondary data, visual data	May 2013 – July 2015	Within-case and cross-case analysis; concept ordered displays	Essay IV
	20 case studies with founders of sustainable new ventures	20 semi-structured interviews; secondary data, visual data	May 2013 – August 2014	Within-case and cross-case analysis; time- and concept ordered displays	Essay V
<b>Verbal protocol study</b>	72 think aloud protocols with founders of sustainable new ventures	24 interviews (3 protocols each)	April 2015 – July 2015	Content analysis and multi-level modeling (quantitative)	Essay III

**Table 2 – Overview of research methods**

\*For all studies, the doctoral candidate was involved in research design, data collection, and data analysis.

### 2.2.1 Systematic Literature Review

To proceed, a systematic literature review was conducted in essay I. A systematic literature review was deemed well suited to review the current state of literature on sustainable entrepreneurship, to investigate key assumptions, as well as to derive boundary conditions of the phenomenon. Systematic literature reviews adopt a transparent and replicable process with the aim of providing a thorough knowledge base of research published in a given field, while minimizing the bias of reviewers (Tranfield et al. 2003). Transparent in this context meant that the method employed in the literature review process is made explicit, with every step taken in the process described in detail. The transparency moreover allows other researchers to replicate the literature review, to repeat it with modifications or to update it.

*Research Procedure.* In line with the procedure suggested by Tranfield et al. (2003) and adopted by other management researchers (e.g. Pittaway et al. 2004; Macpherson & Holt 2007), the systematic literature review on sustainable entrepreneurship was organized into three main stages: 1) defining protocols; 2) mapping the field; and 3) reporting the findings.

*Data analysis.* The articles were analyzed in a three stage process consisting of (1) database analysis; (2) title and abstract analysis; and (3) relevance analysis. Accordingly, in the first stage, the databases are investigated by means of the indicated search terms. In the second stage, the articles were analyzed with regard to their relevance for answering the research question. In the last analysis stage, the remaining articles were content analyzed to map the field (quantitative) and subsequently report the findings (qualitative).

### 2.2.2 Multiple Case Studies

Following the systematic literature review, three of the four empirical essays employed a multiple case study design. Cases are well suited to explore nascent, subtle phenomena and to empirically investigate questions from a subjective epistemological perspective. Therefore, multiple case studies allow for more robust theory building and elaboration than single cases (Eisenhardt, 1989; Eisenhardt & Graebner, 2007, Lee et al., 1999; Yin, 2013).

*Sampling.* For the selection of the multiple case studies, purposeful and theoretical sampling were used (Patton, 1990). Purposeful sampling is an appropriate form of sampling for qualitative inquiries as it represents a recurrent process, which is directed towards identifying information rich cases (Patton, 1990). Theoretical sampling is particularly powerful for identifying cases that illuminate certain aspects of theory (Flyvbjerg, 2011; Yin, 2013).

*Data Collection.* For the multiple case studies we relied on three different types of data, including verbal, written, and visual data, as well as three methods, namely in-depth interviews, secondary/ archival data, and the structure laying technique/ graphic mind mapping. The use of data and method triangulation is well established in the social sciences, as a greater variety of data and method generally allow for a more robust analysis and deeper understanding than single sources (Scandura & Williams, 2000).

*Data analysis.* For the data analysis, an abductive reasoning approach was chosen, referring to the creative process of linking surprising observations to theory in a recursive cycle (Timmermans & Tavory, 2012). As such the researchers' familiarity with many different theoretical constructs is crucial in finding the best fit between observations and theory and in revealing common misconceptions and identifying better explanations (Timmermans & Tavory, 2012). In general, the analysis of the case study evidence included a two-stage process, consisting of within-case and systematic cross-case study comparisons (Eisenhardt, 1989). In the first step, the focus was on each case by itself and all data was coded in an inductive-abductive process. In the second step, the display technique proposed by Miles and Huberman (1994) was employed to reveal common themes across cases.

### 2.2.3 Verbal Protocol Study

For essay III, a verbal protocol study was chosen to investigate the cognitive processes of sustainable entrepreneurs. Verbal protocol techniques were deemed well suited for exploring the cognitive reframing processes of entrepreneurs, as they allowed for observing participants' cognitive strategies in real time (see Ericsson & Simon, 1993; Gregoire, Barr & Shepherd, 2010; Isenberg, 1986; Melone, 1994).

*Sampling.* For the sampling strategy purposeful sampling criteria were applied to select 24 individuals with prior experience in founding a sustainable new venture, and who

were familiar with both the task of identifying opportunities for sustainable entrepreneurship and the challenges of pursuing such opportunities. Focusing on such individuals minimized the risk that participants' verbalizations might be tainted by their lack of experience with the task of identifying opportunities for sustainable development.

*Data collection.* For the data collection a verbal protocol experiment was conducted. More specifically entrepreneurs were presented with three short newspaper articles describing a social and/or environmental problem, and were asked to "think out loud" as they interpreted the issues at play and sought to identify entrepreneurial solutions to possibly address these problems. To further examine individuals' framing efforts, the texts of the second and third newspaper articles were manipulated to convey either a positive or a negative valence. Prior and after the interview participants were asked to fill in questionnaires in order to obtain background information. In total, 72 verbal protocols were obtained from 24 sustainable entrepreneurs.

*Data analysis.* Consistent with other verbal protocol studies, content analysis techniques were used (Krippendorff 2013; Saldaña, 2012) to document participants' cognitive attention as well as their reasoning strategies. The protocols were analyzed in two rounds by two independent coders – including one coder blind to the study's motivations, design and analyses. The data was then further analyzed by means of multilevel analysis techniques (see Heck, Thomas & Tabata, 2014; Hox, 2010; Snijders & Bosker, 2012).

In the remainder of this chapter, the theoretical approaches that emerged during the qualitative data analyses are discussed.



## 2.3 Theoretical Approaches

*“Good theory is the foundation of any emerging field; it sets the boundaries and thus fosters both external and internal exchange. A field of study with distinctive boundaries and coherent theory faces few questions of legitimacy.” (Busenitz et al., 2003)*

As the title “Theorizing about Sustainable Entrepreneurship” implies, this thesis strives to utilize theoretical approaches to contribute to a more holistic understanding of the multi-faceted phenomenon. By approaching sustainable entrepreneurship from different theoretical lenses, multiple aspects of the phenomenon can be highlighted. Thereby, theory serves as a structure for guiding the scientific inquiry and relates the phenomenon to existing knowledge. According to Bacharach (1989), *“a theory is a statement of relations among concepts within a set of boundary assumptions and constraints”* (p. 496). Despite this straightforward definition of theory, it is difficult to delineate what actually constitutes theory and even more so strong theory (DiMaggio, 1995; Sutton & Staw, 1995). According to DiMaggio (1995), the main reason for this is the multidimensional nature of what constitutes “good” theory, which often involves trade-offs for instance when it comes to balancing clarity versus paradox, or interestingness versus relevance. I follow Sutton and Staw (1995) in my understanding of good theory as providing compelling insights in answering questions about *“why [and how] acts, events, structures, and thoughts occur”* (p. 378). Thereby, strong theory helps in advancing understanding about underlying phenomena and provides implications that may have not been conceivable without adopting a particular theoretical lens (Sutton & Staw, 1995).

By linking theory to the sustainable entrepreneurial context, I engage in a process of theorizing. Theorizing here is in the sense of Weick (1995), where it is seen as a process consisting of *“activities like abstracting, generalizing, relating, selecting, explaining, synthesizing, and idealizing”* (p. 389). Thus, theorizing is different from theory in the sense that the former describes a process, while the latter may be seen as the product of theorizing (Weick, 1995). The main motivation in engaging in theorizing was to advance understanding about sustainable entrepreneurship, at the same time as attempting to give back to theory, by relating it to new phenomena. The rationale behind this is the assumption that sustainable entrepreneurship is different from

conventional entrepreneurship due to its triple bottom line focus. that the argument is that by moving entrepreneurship beyond a purely profit-driven focus towards achieving multiple value gains simultaneously, this affects the process of opportunity recognition, development, and exploitation (essay II and V); and that the reason why some and not others engage in such a complex entrepreneurial journey might be found in their cognitive framing (essay III); as well as their social identity (essay IV). By delineating the importance of context, this thesis hopefully contributes to extending current conversations about sustainable entrepreneurship, and may even challenge some of the commonly held assumptions and boundary conditions of the theories applied. While essays II and III rely on one theory each, essays IV and V combine and bridge two theoretical angles in an attempt to better account for the complexity of the phenomenon under study.

In the following, the five different theories that have been applied in this thesis will be described with regard to their 1) origins, referring to the author(s) who first suggested the theory; 2) foundations, i.e. the historical background; 3) key premises, in reference to the tenets and key mechanisms of the theory; 4) their application in entrepreneurship research; and 5) their application in this thesis (summarized in table 3). Further consideration, discussion and contribution of these theories as related to the data analyses are provided in essays II, III, IV, V.

	<b>Origins</b>	<b>Foundation</b>	<b>Key Premise</b>	<b>Application in Entrepreneurship Research</b>	<b>Application in Thesis</b>
<b>Process Theory</b>	Van de Ven 1992	Theories of Life-Cycle, Teleology, Dialectic, Evolution	Process as variance, category of concepts, or sequence of events	Aldrich (1994); McMullen & Dimov (2013)	Essay II: Exploring the sustainable entrepreneurial process in a sequence of events
<b>Framing Theory</b>	Goffman 1974	Cognitive Sciences	Cognitive frames as mental shortcuts for processing information	Cornelissen & Clarke (2010)	Essay III: Exploring how entrepreneurs reframe social and ecological problems into opportunities
<b>Social Identity Theory</b>	Tajfel & Turner	Social Psychology	Individual's self-concept on basis of perceived group membership	Fauchart & Gruber (2011); Sieger et al. (2016)	Essay IV: Exploring the negational categorizations of founders' identities  Essay V: Exploring idiosyncratic nature of opportunities
<b>Optimal Distinctiveness Theory</b>	Brewer, 1991	Social Psychology & Evolutionary Theory	Optimal balance of group inclusion and exclusion	Shepherd & Haynie (2009)	Essay IV: Exploring optimal distinctiveness of negational categorizations of founders' identities
<b>Structuration Theory</b>	Giddens 1984	Sociology	Agent and Structure as a duality	Sarason et al. (2006); Chiasson & Saunders (2005)	Essay V: Exploring how opportunities co-evolve in a duality with individual action over time

**Table 3 – Theoretical foundations applied in the thesis**

### 2.3.1 Process Theory

The study of processes is a commonly used method for understanding development and change of a given phenomenon. In management science, Van de Ven (1992) was the first to propose a theory of processes. According to Van de Ven, the theoretical foundation of process theory might be found in theories of lifecycle, teleology, dialectic, and evolution, which are united by their procedural, evolving perspective on phenomena. There are different assumptions and meanings of processes: 1) as explanation for variance theory, referring to an input-process-output model that explains causal relationships between independent and dependent variables; 2) as a category of variables that are operationalized as constructs of actions; or 3) as developmental sequences, that observe activities and events in a sequence of time (van de Ven, 1992).

Aldrich (2001) argues that a differentiation between  $q$  is a necessity for the understanding of processes. Accordingly, outcome-driven approaches aim at the identification of variables that explain activities, while event-driven explanations observe events in a sequence of time. Van de Ven and Engleman (2004) pick up this line of reasoning and argue that the event-driven focus is more strongly connected to the original understanding of process theory, i.e. how things develop and change over time. The focus of event-driven, developmental process models is on progressions of activities, their nature, sequence, and order, which is why the third meaning of process is adopted in this thesis, understanding processes as a sequence of events that unfold over time. Van de Ven (1992) distinguishes further between unitary progression, assuming that there is only one single path, and multiple progressions, which reflect more than one possible pathway at a given time. Accordingly, developmental processes might progress in parallel, divergent, or convergent.

Aldrich (1994) postulated that a deeper understanding of event-driven processes is a key requirement for the study of entrepreneurship. Although several other authors supported his call (e.g. Shane & Venkataraman, 2000; Van de Ven and Engleman, 2004), event-driven research remains underrepresented in the field of entrepreneurship. In particular, McMullen and Dimov (2013) point to the lack of process oriented empirical studies. According to the authors, empirical research that adopts a process

view on entrepreneurial phenomena has the potential to yield relevant insights for the entire scholarly field.

Following such calls, process theory is applied in essay II, investigating the sustainable entrepreneurial process in a sequence of events. As opportunities for sustainable development have to create economic, social and ecological value simultaneously, they have an increased complexity and are subject to competing cues (Cohen et al., 2008). Against the background of the necessity and the complexity to translate sustainability goals into customer value and to balance the triple bottom line, it may be assumed that the process of sustainable entrepreneurship is different from the process of conventional entrepreneurship. To explore such claims empirically, essay II employs multiple case studies to reconstruct the process of recognizing developing, and exploiting opportunities for sustainable development. While the analysis of processes is a difficult undertaking (Langley, 1999), insights into how events unfold over time can largely contribute to our understanding of the key variables and assumptions that drive the phenomenon of sustainable entrepreneurship.

### 2.3.2 Framing Theory

Framing theory is a powerful theoretical construct to conceptualize cognitive processes. The origins can be traced back to 1937 when Burke first introduced “frames of acceptance”, referring to humans’ ability to make sense of historical change. Yet, it was not until March and Simon (1958) that the concept found widespread attention in the context of managerial cognition and decision making (Cornelissen & Werner, 2014). While frames and framing have found widespread scholarly interest on the meso-level (organizational processes of meaning construction) and macro-level (frames of reference in the realm of institutions and sense making dynamics taking shape at the broader social and cultural level) of analysis as well, the focus here will be on the micro-level, i.e. individual’s cognition and decision-making. Accordingly, ‘frames of reference’ on a micro-level consist of simplified cognitive representations that often guide individual perceptions, and can eventually serve as means for action (March & Simon, 1958). The assumption is that frames serve as knowledge structures that support thinking, reasoning and sense making, which in turn direct the interpretation and behavioral responses to stimuli (Starbuck, 1983). In line with this key premise, most of

extant research highlights frames of reference as helpful cognitive resources (Cornelissen & Werner, 2014). More recently, however, a growing body of literature emphasizes individuals' strong commitment to their extant frames (Weick, 1993), which may lead to frame failure. This is a misinterpretation of stimuli, particularly in situations that are out of the ordinary. Accordingly, researchers have called attention to the overreliance on a particular frame, which is acutely risky in novel and extraordinary situations (Maitlis & Sonenshein, 2010; Weick, 1995; Wilensky, 1986; Weick & Sutcliffe, 2007).

The notion of frame failure might be especially relevant in the context of entrepreneurship, as entrepreneurs often need to "think outside the box" to be able to recognize entrepreneurial opportunities. A study by Cornelissen and Clarke (2010) builds upon this assumption and shows how entrepreneurs' cognitive processes of inductive, analogical, and metaphorical reasoning are used to overcome the limitations of frames and to successfully identify opportunities. Building upon such novel insights, Cornelissen and Werner (2014) drew attention to the importance of frame changing or reframing to allow for a more meaningful interpretation of stimuli, particularly in novel and unfamiliar situations. Moreover, the authors highlight the importance of further research that addresses the notion of reframing, particularly in the context of opportunity research.

Heeding such calls, essay III enquires into the cognitive processes of sustainable entrepreneurs. According to existing research on sustainable entrepreneurship, opportunities for sustainable development find their sources in market failures and imperfections (Dorado, 2006; Cohen & Winn, 2007; Dean & McMullen, 2007; Lumpkin et al., 2013); unmet social needs (Shaw & Carter, 2007); as well as social and ecological problems (Dees, 1998; Belz & Binder, 2015). Building on arguments that entrepreneurship offers the means to realize sustainable developments in a business context (Dean & McMullen, 2007; Cohen & Winn, 2007), the questions of how, when and why entrepreneurs succeed in overcoming the negative framing of social and environmental problems thus become highly relevant. Yet, little is known about the cognitive processes that entrepreneurs mobilize to transform negative social and ecological problems into positive opportunities for sustainable development. Working along this train of thought, it is postulated that extant research on framing provides an additional angle to advance scholarly understanding of opportunity identification. More

specifically, we propose that extant research on framing could help unpack sustainable entrepreneurs' apparent successes at transforming negatively-framed social and environmental problems into positively-framed solutions.

### 2.3.3 Social Identity Theory

Social identity theory is focused on the individual's self-concept as embedded in its social context. Originally formulated by Tajfel and Turner (1979), the theory proposes that identity originates from and is shaped by social interactions. Thereby it serves as a framework for establishing the self-concept in response to one's social orientation (Hogg & Terry, 2000; Tajfel & Turner, 1979). The formation of a social identity depends on two relevant processes: self-categorization and social comparison (Hogg & Abrams, 1988; Stets & Burke, 2000). Self-categorization is, in essence a social categorization comparison, in which people are perceptually assigned as either relating to an in-group or an out-group (Hogg & Mullin, 1999). The unique aspect about self-categorization is that it involves a degree of depersonalization, in that individuals categorize themselves the same way they categorize other people, and by doing so, prototypically perceive themselves in terms of their group membership or non-membership (Turner et al., 1987, Hogg, 2001). The reason why this depersonalization process is so important is that individuals see and evaluate themselves on the basis of the qualities and values of a certain group, rather than their individuality (also referred to as collective self) (Hogg, 2001). The result of this self-categorizing directly links to the process of social comparison, as the in-group will be evaluated more positively, accentuating perceived similarities with in-group members, while the out-group will be evaluated much more critically, highlighting perceived differences with out-group members (Stets & Burke, 2000). As individuals will have several group memberships throughout their life, the importance of different group membership on actual prototypical cognition and behavior depends on the salience of the group membership. Salience can thereby be understood as the situational accessibility and fit of the group membership and the specific context (Hogg et al., 1995).

A specific context in which social identity has been used is entrepreneurship. In their seminal paper on founder's social identity, Fauchart and Gruber (2011) show how differences in the founder's identity explained core strategic decisions. Based on their

typology of Darwinians, Communitarians, Missionaries, and Hybrids, the authors provide compelling insights into the relevance of social identity for understanding entrepreneurial phenomena. Following their work, Powell and Baker (2014), combined social identity and role identity to explicate differences in the strategic responses to adversity. According to their findings, chronically salient identities affect strategic responses to adversity as accepting, sustaining, or transforming. What these and related studies have in common, is their focus on social identities based on in-group categorization.

In this thesis, social identity theory is applied in essays IV and V. Essay IV puts a strong focus on social identity theory to investigate the role of negational categorizations for a founders' self-concept and subsequently their behavior. On the basis of the empirical data gathered, we assumed that affirmational categorization (Who am I) may only tell half of the story, particularly in the context of sustainable entrepreneurship. Building upon the work of Zhong et al. (2008), who found that depending on the situation, negational categorizations can motivate behavior as much as affirmational categorization does, we aimed to explore the role of negational categorizations for the founder's self-concept and the resulting key strategic decisions. In addition to that, social identity is applied in essay V, where the idea that social identity serves as a relevant addition to conceptualize the agent structure duality is proposed. A key premise of the evolving idiosyncrasy view, which is based on structuration theory (Giddens, 1974), revolves around the idiosyncratic nature of opportunity and individual (Sarason et al., 2006; Davidsson, 2015). To conceptualize the subjective interpretations and perspectives of the entrepreneurs, we suggest considering social identity theory as a much-needed addition in understanding the idiosyncratic nature of opportunities in the value creation process.

### 2.3.4 Optimal Distinctiveness Theory

Optimal distinctiveness theory was originally proposed by Brewer (1991) and is rooted in social psychology and evolutionary theory. Optimal distinctiveness refers to the identification with in-groups and out-groups. As such, it is intuitively related to the theory of social identity (Leonardelli et al., 2010). The basic premise of the theory is that individuals have two fundamental, yet opposing needs that determine their self-



concept within and between groups: the need for inclusion and assimilation on the one hand, and the need for differentiation and distinctiveness on the other. As such, opposing needs are assumed to determine group identification on the basis of an individual's motivation to achieve an optimal balance between inclusion and differentiation (Brewer, 1991; Leonardelli et al., 2010). Testing such propositions empirically, Brewer and Weber (1994) as well as Brewer and Pickett (1999), found this relationship to be marked by an inverted U-shaped relationship, supporting the assumption that inclusion and differentiation are extremes at two separate ends.

In entrepreneurship research, Shepherd and Haynie (2009) applied optimal distinctiveness theory to explore what the authors coined the “dark side of entrepreneurship”. That is, the entrepreneurs' unsatisfied need of inclusiveness and belonging. In their study the authors highlight how the entrepreneurial activity is usually good for satisfying the need for distinctiveness, yet this satisfaction goes on cost of their need to belong, which results in an imbalance affecting their psychological well-being and contributing to feelings of loneliness and emotional stress. Building on and extending optimal distinctiveness theory, the authors find that entrepreneurs achieve optimal distinctiveness by relying on multiple micro-identities, rather than aiming to achieve optimal distinctiveness by means of one identity. Accordingly, the multiple micro-identities combined form a super-ordinate identity that accounts for both the need for belonging and the need for distinctiveness (Shepherd & Haynie, 2009).

For this thesis, optimal distinctiveness theory is combined with social identity theory, to explore the negational categorizations of entrepreneurs in essay IV. The importance of considering optimal distinctiveness theory in the analysis of the negational categorizations of founders emerged during the data analysis. According to our findings, the perspective of in-groups and out-groups might be too rigid as we reveal how a founder's opposing needs for assimilation and differentiation are satisfied on the same group level, through a self-categorization process that we have termed in-group differentiation and out-group mitigation.

### 2.3.5 Structuration Theory

In 1984, Anthony Giddens proposed structuration theory in an attempt to bridge the opposing objectivism and subjectivism perspectives, thereby aiming to provide a more holistic account of social theory. To offer such an eclectic sociological perspective, structuration theory draws on a wide array of social theoretical concepts, including symbolic interactionism, phenomenology, ethnomethodology, structuralism among others (Turner & Oakes, 1986). At the heart of the theory is the premise that human agency and social structures are characterized by a duality and interdependency. As such structures, defined as the rules and resources of social life, are “*drawn upon in the production and reproduction of social action [and] are at the same time the means of system reproduction (the duality of structure)*” (Giddens, 1984; p.19). In essence, this implies that human actors at the same time shape and are being shaped by the rules and resources of social life. Giddens (1984) conceptualizes the duality of structure in three dimensions. Accordingly, the first dimension relates to shared rules for interpretation and reasoning in order to convey meaning in communication. The second dimension refers to power and control over allocative (objects) and authoritative (people) resources. The third dimension reflects the normative dimension of shared societal rules. To translate structures into action and vice versa to shape structures by means of action requires modalities.

Entrepreneurship is a social phenomenon driven by individual action while being strongly embedded in social structures and the social system (Jack & Anderson, 2002). As such the application of structuration theory to the phenomenon of entrepreneurship might be regarded as a natural choice for explaining the interdependency of agent and structure in the context of entrepreneurial phenomena. For instance, past research on entrepreneurship has used Giddens’ (1984) structuration theory to explain the effects of entrepreneurs’ embeddedness in local structures (Jack & Anderson, 2002), the role of journalists in framing entrepreneurship culture (Nicholson & Anderson, 2005), as well as the importance of paradigm building actors in legitimizing social entrepreneurship as an emergent field of action (Nicholls, 2010). In the context of entrepreneurship, structure refers to the rules and resources of a social system, guiding entrepreneurial action. The agent is the entrepreneur (or entrepreneurial teams), who forms idiosyncratic representations of opportunities (Sarason et al., 2006). According to

Chiasson and Saunders (2005), scripts are central in linking agent and structure. Essentially, scripts refer to institutionally acknowledged templates (incl. mental models and behavioral regularities) that help entrepreneurs to get things done. Generally, scripts can be distinguished among a dichotomy of common scripts or uncommon scripts. As the name implies, common scripts refer to legitimate and established templates, for instance writing a business plan to attract seed funding. The advantage of relying on common scripts is that such scripts are readily available and relatively risk-free, yet at the same time relying on established scripts might be less innovative than producing novel scripts. Because they are unknown and novel, uncommon scripts may face initial perceptions of incompetence and illegitimacy, yet if successful, uncommon scripts have the potential to bring about transformation in structure (Chiasson & Saunders, 2005).

Given the multi-dimensionality and increased complexity of opportunities for sustainable development, the aim of Essay V was to explore the value creation process of sustainable entrepreneurs. A relevant finding was that opportunities emerge in the interplay between entrepreneurial agency and structure, pointing to structuration theory as a relevant theoretical lens for fostering understanding of the phenomenon. Considering Giddens' structuration concepts as taken up and applied by Chiasson and Saunders (2005), essay V presents the agent-structure duality in the value creation processes of sustainable entrepreneurs. Our findings reveal the centrality of scripts in the recognition, development, and exploitation of opportunities. Furthermore, the relevance of a founder's social identity (see p. 26) emerged during the data analysis and was applied to conceptualize the subjective interpretations and perspectives of the entrepreneurs.

Taken together, the theories presented in this section build the foundation for theorizing about sustainable entrepreneurship. It is important to highlight that the presented theories emerged during the data analysis (as opposed to testing theoretical assumptions), reflecting the qualitative research design applied in this thesis.

The aim of this chapter was to provide a concise review of the research framework for this thesis, including research questions, research methods, and theoretical approaches. Following this general overview, chapter 3 will now present the main body of the thesis. The chapter consists of five consecutive essays, representing a distinct theoretical contribution each.

# 3 FIVE ESSAYS ON SUSTAINABLE ENTREPRENEURSHIP

### 3.1 Essay I – Sustainable Entrepreneurship – What it is

#### Abstract

The aims of this book chapter are to give an overview of and to add clarity to the emerging field of sustainable entrepreneurship research. As a disparity in the terminology and understanding of sustainable entrepreneurship exists, the motivation is to give an answer to the following (deceptively simple) question: What is sustainable entrepreneurship? To this end a systematic literature review was conducted, in order to thoroughly present and evaluate the intellectual territory of the nascent research stream. The review resulted in 43 papers considered to be relevant for the field of sustainable entrepreneurship. As a synthesis and result of our review we suggest a definition of sustainable entrepreneurship research as the scholarly examination of how opportunities to bring into existence future goods and services are recognized, developed, and exploited by whom, and with what economic, social and ecological gains. The definition reflects five important aspects of sustainable entrepreneurship, which have been identified in the systematic review: The sources of opportunities; a process-focused perspective; the individual sustainable entrepreneur; economic, ecological and social value creation; as well as the transition to a sustainable society. We hope that the findings of our systematic literature review and the suggested definition of sustainable entrepreneurship are a step forward to enhance relevant and yet rigorous research in the nascent field of sustainable entrepreneurship.

*Key words:* Entrepreneurial process; entrepreneurship; social entrepreneurship; sustainable

development; sustainable entrepreneurship; triple bottom line

*Authors:* Binder, Julia Katharina & Belz, Frank-Martin

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### 3.1.1 Introduction

In 1987 the World Commission on Development and the Environment of the United Nations published the report “Our Common Future”. It defines sustainable development as “*meeting the needs of the present without compromising the ability of future generations to meet their needs*” (WCED, 1987, p.8). Hereby, the World Commission recognizes interdependencies between the natural environmental, human social welfare, and economic activity, and the need to establish and maintain a dynamic balance between the three elements. During the 1990s the definition of sustainable development gained wide recognition and support. However, production and consumption patterns remain unsustainable (United Nations, 2002). The scale and nature of human and economic activities exceeds what the planet can physically sustain (World Resources Institute, 2005). Traditionally, entrepreneurship was associated with economic development and wealth generation (e.g. Schumpeter, 1942; Kirzner, 1973), while environmental and social problems were widely neglected. At the nexus of sustainable development and entrepreneurship, Hart and Milstein (1999) were among the first to emphasize the potential of entrepreneurship. They applied the concept of creative destruction (Schumpeter, 1942) as a precondition and the central force for the transition to a sustainable society. They claimed that “*innovators and entrepreneurs will view sustainable development as one of the biggest business opportunities in the history of commerce*” (Hart and Milstein, 1999, p.25). Whereas sustainable development was often seen as a cost factor impeding competition, the authors provided a new perspective on sustainable development as a source for entrepreneurial opportunities. Following this understanding an increasing number of researchers started devoting their attention to the nexus of sustainable development and entrepreneurship (e.g. Cohen and Winn, 2007; Gibbs, 2009; O’Neill et al., 2009).

The aim of this book chapter is to give an overview of the emerging field of sustainable entrepreneurship research. We want to give an answer to the following (deceptively simple) question: What is sustainable entrepreneurship? To this end we conduct a systematic literature review, adopting a transparent and replicable process as suggested by Tranfield, Denyer and Smart (2003). Accordingly, our systematic literature review on sustainable entrepreneurship is organized into three main steps: 1) defining protocols, 2) mapping the field, and 3) reporting the findings. The first articles that can

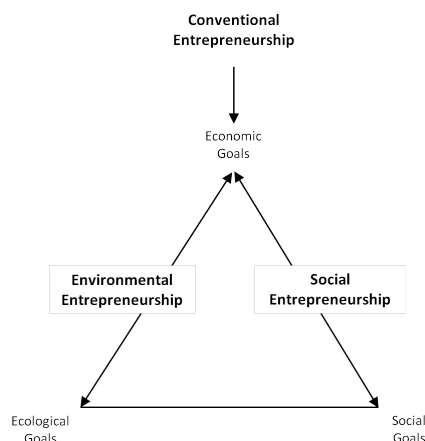
be assigned to the topic appeared in the end of the 1990s. However, prior to 2008 just a limited number of 15 articles were published in international, peer-reviewed journals. Since then the number of articles has increased significantly: In the short period between 2009 and 2012 a total of 28 articles were published on sustainable entrepreneurship. The special issue “Sustainable Development and Entrepreneurship” of the *Journal of Business Venturing* in 2010, co-edited by Hall, Daneke and Lenox (2010) increased the number of articles. More importantly, the special issue in one of the leading and most impactful entrepreneurship journal added legitimacy to the nascent research field. Not surprisingly for a new field of research, there is a variety of different terms and understandings of “sustainable entrepreneurship”: Some researchers see it as part of or equal to “social entrepreneurship” (e.g. Sullivan Mort and Hume, 2009; Berglund and Wigren, 2012; Kury, 2012). Others use sustainable entrepreneurship synonymous to “environmental entrepreneurship”, and “ecopreneurship” respectively (e.g. Pastakia, 1998; Isaak, 2002; Schick, Marxen and Freimann, 2002). Still others embrace sustainable entrepreneurship as the nexus of economic, ecological and social value creation (e.g. Cohen, Smith and Mitchell, 2008; Kuckertz and Wagner, 2010; Patzelt and Shepherd, 2011). On the one hand, the plurality of terms and approaches add to the creativity of the field. The diversity and openness attracts researchers from different disciplines embracing the topic. On the other hand, the lack of clarity hampers rigorous research. As long as a common understanding of the key term “sustainable entrepreneurship” is missing, further progress in this stream of research is unlikely – despite ample opportunities. Thus, we want to add clarity to the terminology of sustainable entrepreneurship in this book chapter. As a synthesis and result of our review we suggest a definition of sustainable entrepreneurship, which may serve as a common basis for further research in this area. We define sustainable entrepreneurship as the scholarly examination of how opportunities to bring into existence future goods and services are recognized, developed, and exploited by whom, and with what economic, social and ecological gains.

We proceed as follows: In the first part of the book chapter we look at the origins and related concepts of sustainable entrepreneurship, including conventional entrepreneurship, environmental entrepreneurship, and social entrepreneurship. In the second and main part of the book chapter we conduct a systematic literature review on

sustainable entrepreneurship. Key concepts of sustainable entrepreneurship include: socio-ecological problems as sources of entrepreneurial opportunities; process perspective; individual entrepreneur; the triple bottom line of economic, social and ecological value creation; and transition to a sustainable society. In the final part we give a brief summary and an outlook on further research in the nascent field of sustainable entrepreneurship.

### 3.1.2 Origins and related concepts of sustainable entrepreneurship

Sustainable entrepreneurship is based on and related to: 1) conventional entrepreneurship, 2) environmental entrepreneurship, and 3) social entrepreneurship. While sustainable entrepreneurship pursues the triple bottom line of economic, social and ecological goals, the other related concepts focus on one or two dimensions. Conventional entrepreneurship is one-dimensional insofar, as it mainly puts emphasis on economic goals such as income and profit (Gibb, 1996; Shane 1996). In contrast, environmental and social forms of entrepreneurship are two-dimensional: Environmental entrepreneurship pursues the double bottom line of economic and ecological goals, while social entrepreneurship mainly follows social goals, financed by economic income (figure 3). In this section we briefly introduce the three concepts. In line with the genesis and historic development we start with conventional entrepreneurship, and then go on with environmental entrepreneurship and social entrepreneurship. The overview of the three related concepts gives a better understanding for the emergence of sustainable entrepreneurship at the turn of the century and sets the ground for the discussion in the summary section of the book chapter.



**Figure 3 – Related concepts of sustainable entrepreneurship**



## **Conventional entrepreneurship**

Conventional entrepreneurship research builds on the early works from Schumpeter (1942) and Kirzner (1973). According to Schumpeter innovation is at the heart of the concept and can be seen as the creative act of combining existing resources in new valuable ways. Through creative destruction the entrepreneur changes the status quo in a market, thereby creating economic growth (Schumpeter, 1942). Accordingly, Schumpeter refers to the *creation of opportunities*, which he perceives as the active act of creating market disequilibrium (Chiles et al., 2007). For Kirzner, on the other hand, innovation is not a prerequisite for entrepreneurship. Instead, alertness to identify new opportunities is the essential attribute for entrepreneurship in his view (Kirzner, 1973). Thus, Kirzner refers to the *discovery of opportunities*, describing the more passive act of being alert to opportunities that have been overlooked in the past (Kirzner, 1979). Several entrepreneurship researchers have taken a neutral stance towards the two approaches and call for a combination of the two sources, thereby allowing for opportunities either to be created or discovered (McMullen and Shepherd, 2006; Short et al., 2010).

For long, the focus of entrepreneurship research has been on the individual entrepreneur. The field was mainly defined in terms of who the entrepreneur is, and what kind of traits and characteristics he or she has (Gartner, 1988). A notable change in current literature is the emphasis on the nexus of individuals and opportunities, and the process of entrepreneurship (Moroz and Hindle, 2012). One of the most accepted definitions of entrepreneurship comes from Shane and Venkataraman (2000). They define the field of entrepreneurship as “*the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited.*” (Shane and Venkataraman, 2000, p. 218.)

Key elements of this definition include:

- *Opportunities* lie at the heart of entrepreneurship. Generally, there are three categories of entrepreneurial opportunities: 1) the creation of new information, 2) the exploitation of market inefficiencies that result from market information asymmetries, and 3) the reaction to shifts in the relative costs and benefits of alternative uses for resources (Drucker, 1985).

- *By whom* refers to the nexus of the individual and opportunities. The recognition of entrepreneurial opportunities is a subjective process (Shane and Venkataraman, 2000), influenced by alertness (Kirzner, 1973) and prior knowledge (Shane, 2003).
- *Discovered, evaluated and exploited* relates to the activity-based process of entrepreneurship (Shane and Venkataraman, 2000; Ucbasaran, Westhead, and Wright, 2001; Zahra, 2007).
- *To create future goods and services* refers to material and immaterial services, which are combined in novel ways, and which are not offered at the market yet.
- *Effects* can be any effects, but in most studies on conventional entrepreneurship the output is measured in terms of profits, putting an emphasis on economic goals.

### **Environmental entrepreneurship**

The term and the concept of environmental entrepreneurship gained some popularity in the early 1990s (e.g. Blue 1990; Bennett 1991; Berle 1991). However, the initial academic interest in environmental entrepreneurship shifted away soon (Schaltegger, 2002). In 2002, a special issue on environmental entrepreneurship was published in the Greener Management International Journal, which contributed to a re-ignition of interest in the research stream. A substantial barrier of environmental entrepreneurship research is its terminology, leading to greater difficulties in establishing the phenomenon as a research field. Typical for this is the Greener Management International special issue in 2002, in which the same phenomenon was subject to three different terminologies that were used synonymously: Linnanen (2002) termed the phenomenon “environmental entrepreneurship”, Schaltegger (2002) defined it as “ecopreneurship”, while Walley and Taylor (2002) used “green entrepreneurship”. In essence, literature on environmental/ green entrepreneurship and ecopreneurship agrees that a double bottom line of environmentally responsible and yet profitable opportunities is at the core of the concept (Larson, 2000; Anderson and Leal, 2001; Meek et al., 2010). This is also reflected in the definition by Dean and McMullen (2007, p.58), who coined environmental entrepreneurship as “*the process of discovering, evaluating, and exploiting economic opportunities that are present in*

*environmentally relevant market failures.*”

Three elements of this definition are:

- Environmental entrepreneurship as a *process*, which focuses on discovering, evaluating and exploiting opportunities (Dean and McMullen, 2007).
- The reference to *economic opportunities*, emphasizing the for-profit nature of environmental entrepreneurship (Larson, 2000; Anderson and Huggins, 2008).
- *Environmentally relevant market failures* as the source of opportunities, implying that current market offerings are not efficient and linking to the Kirznerian school of thought (Cohen and Winn, 2007; Dean and McMullen, 2007).

The provided definition incorporates some characteristics that have been found to be important in environmental entrepreneurship literature (e.g. economic opportunities, environmental market failure), yet the process focus on environmental entrepreneurship is a rather unique approach of studying the phenomenon.

Similar to social entrepreneurship, environmental entrepreneurship can be categorized as mission-driven entrepreneurship (Dixon and Clifford, 2007). However, the difference is that in environmental entrepreneurship economic value creation is seen as equally important. This might be surprising, as environmental entrepreneurship often emphasizes the mission of creating environmental value, yet according to the literature environmental entrepreneurs are driven by both, the desire to save the environment and the desire to make a profit with their venture (Linnanen, 2002). Accordingly, environmental entrepreneurship can be found in for-profit contexts.

### **Social entrepreneurship**

The concept of social entrepreneurship first sparked the interest of academic researchers in the late 1990s (Boschee, 1995; Leadbeater, 1997; Dees, 1998; Wallace, 1999). In recent years, social entrepreneurship enjoys great popularity among researchers, resulting in a number of published articles in academic journals. Despite its relevance and the significant scientific contribution over the last 15 years, the research field lacks a unified definition and conceptual understanding (Short et al., 2009). This is reflected in a review conducted by Dacin et al. (2010). They identified 37 definitions of social entrepreneurship, revealing discrepancies between the different understandings.

As a common ground has yet to emerge, we will adopt the definition of one of the most frequently cited works in social entrepreneurship research by Dees (1998, p.4) who posits that: “*Social entrepreneurs play the role of change agents in the social sector, by: Adopting a mission to create and sustain social value (not just private value); recognizing and relentlessly pursuing new opportunities to serve that mission; engaging in a process of continuous innovation, adaptation, and learning; acting boldly without being limited by resources currently in hand; and exhibiting heightened accountability to the constituencies served and for the outcomes created.*”

This definition is characterized by the following elements:

- Social entrepreneurs as *change agents*, referring to the individual’s power to reform and revolutionize the social sector (Dees, 1998; Thompson et al., 2000; Chell, 2007)
- *Mission* to create and sustain *social value*, implying that the social mission or social value creation is at the heart of social entrepreneurship (Waddock and Post, 1991; Dees, 1998; Austin et al., 2006)
- *Social sector*, also referred to as not-for-profit or non-governmental sector, signifying that profit is entirely used to finance the social mission (Cornwall, 1998; Thompson, 2002; Lasprogata and Cotton, 2003)
- Recognize and pursue *opportunities*, where opportunities are considered as possibilities to realize an individual’s vision of social value creation (Dees, 1998; Thompson et al., 2000; Sullivan Mort et al., 2003)
- Continuous *innovation*, creating a link to Schumpeter’s concept of innovation as a basis for entrepreneurship (Dees, 1998; Sullivan Mort et al., 2003)

Furthermore, the definition focuses on the individual entrepreneur, rather than taking a process perspective on social entrepreneurship. This reflects the great majority of research in social entrepreneurship, yet several authors have criticized this individual-centered approach (Dorado, 2006; Mair and Marti, 2006). In line with conventional entrepreneurship, these researchers suggest a process perspective on social entrepreneurship.

Despite some major discrepancies in the research of social entrepreneurship, broad agreement exists about its mission. Several authors claim that social mission is fundamental and central to social entrepreneurship (Dees, 1998; Sullivan Mort et al.,

2003; Austin et al., 2006). Consequently, the primary aim of social entrepreneurs lies in creating social value, in form of products and services that benefit society and have social impact (Shaw, Shaw and Wilson, 2002; Mair and Noboa, 2006; Austin et al., 2006).

While many social entrepreneurs realize economic gains with their enterprise, these are by no means the focus of social entrepreneurs. Rather, social entrepreneurs utilize profit returns as a reinvestment of their social mission (Bacq and Janssen, 2011). Although more recent literature has stated that social entrepreneurship can occur in not-for-profit, for-profit and hybrid venture forms (Johnson, 2003; Roper and Cheney, 2005; Murphy and Coombes, 2008), the main focus of researchers in social entrepreneurship is on the not-for-profit sector (Thompson, 2002; Weerawardena and Mort, 2006).

### **Sustainable entrepreneurship**

Against the background of conventional, social and environmental forms of entrepreneurship, sustainable entrepreneurship emerged in the literature in the end of the 1990s. To give an overview of the emerging field of sustainable entrepreneurship research we conducted a systematic literature review, which differs from traditional narrative reviews. Systematic literature reviews adopt a transparent and replicable process with the aim of providing a thorough knowledge base of research published in a given field, while minimizing the bias of reviewers (Tranfield, Denyer and Smart, 2003). “Transparent” means that the method employed in the literature review process is made explicit. Every step taken in the process is described in sufficient detail. The transparency allows other researchers to replicate the literature review, to repeat it with modifications or to update it. In line with the procedure suggested by Tranfield et al. (2003) and adopted by other management researchers (e.g. Pittaway et al., 2004; Macpherson and Holt, 2007), our systematic literature review on sustainable entrepreneurship is organized into three main stages: 1) defining protocols; 2) mapping the field; and 3) reporting the findings.

#### **3.1.3 Defining protocols**

First, we have selected two established databases, Science Direct and EBSCO – Business Source Premier. As our review included peer-reviewed journal articles only,

these databases were deemed well-suited in providing a substantial number of relevant journals in the fields of entrepreneurship, e.g. Journal of Business Venturing; environmental management studies, e.g. Business Strategy and the Environment; as well as social management studies, e.g. Journal of Business Ethics. The potentially relevant studies were reviewed in a three step process: 1) database analysis, 2) title and abstract analysis, and 3) relevance analysis. By using the keywords “sustainable entrepreneurship”, “sustainability entrepreneurship” as well as “(sustainable OR sustainability) AND entrepreneur\*”, both databases were examined with regard to their title, keywords and abstracts.

In the first step, the inclusion and exclusion criteria were determined. Inclusion criteria were defined as follows: 1) peer-reviewed journal articles, 2) all industry sectors, 3) all articles published until 2012, 4) conceptual articles, and 5) empirical studies. We decided to exclude articles that 1) were not peer-reviewed journal articles, 2) were not written in English or German, 3) did not relate to entrepreneurship, and 4) did not relate to sustainability. The database analysis yielded a total number of 576 potentially relevant articles, which were exported to the referencing software programme Citavi for further analysis (see appendix 1).

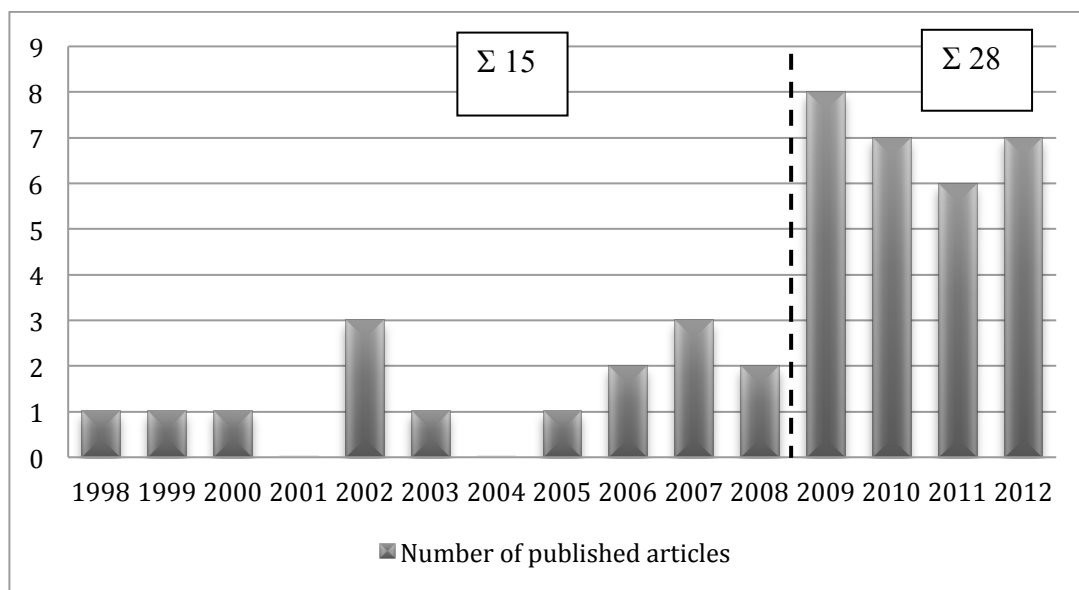
In the second step, the title and abstract of each article were reviewed against the predetermined inclusion and exclusion criteria and classified into two categories: *relevant* for sustainable entrepreneurship (108), and *not relevant* for sustainable entrepreneurship (468). Articles, which were categorized as “sustainable entrepreneurship”, shared the common understanding of “sustainable” as economic, social and/ or environmental sustainability. Articles, which were excluded, used “sustainable” in the sense of durable, financial or in the context of a competitive advantage. In the case that the abstract alone was not sufficient to classify the article, the entire article was reviewed in order to categorize it into one of the two categories (see appendix 2).

In the third and last step, each of the articles categorized as “sustainable entrepreneurship” was analyzed in greater depth. First, the duplicates were removed in order to avoid double counting. Due to similar search strings a few articles were detected several times by the search engines. Altogether 41 duplicates were removed, which resulted in a total number of 67 articles on sustainable entrepreneurship. In the following, each of the 67 articles was reviewed thoroughly regarding its relevance for

sustainable entrepreneurship research. The relevance judgment was made on whether the studies 1) focused on sustainable entrepreneurship in their paper, i.e. articles that only mentioned or just briefly touched on the topic were excluded, and 2) made a theoretical or empirical contribution to sustainable entrepreneurship. Based on the relevance judgement, 43 articles were considered relevant for the field of sustainable entrepreneurship (see appendix 4).

### 3.1.4 Mapping the field

The studies obtained from the systematic review were used as a basis for mapping the field of sustainable entrepreneurship. As said in the beginning, sustainable entrepreneurship is considered an emerging research stream. The systematic review supports this statement: According to our finding the first article in the field of sustainable entrepreneurship was published by Pastakia in 1998. In the following ten years, up to 2008, only 14 more articles were detected and deemed relevant for the field of sustainable entrepreneurship. This is an average of 1.4 articles per annum. From 2009 onwards, the number has increased significantly with 28 articles that have been published on sustainable entrepreneurship in international journals between 2009 and 2012 (see figure 4). This is an average of 7 articles per annum.

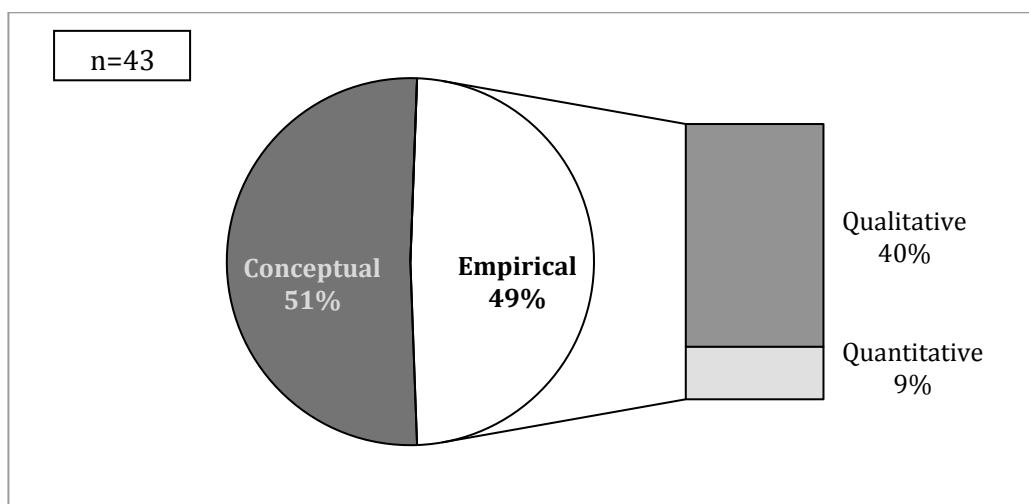


**Figure 4 – Number of journal articles on sustainable entrepreneurship 1998-2012**

18 out of 43 articles (42%) were published in sustainable business journals such as *Business Strategy and the Environment*, *Greener Management International*, and

*Journal of Cleaner Production*. This is in line with Hall et al. (2010), who maintain that articles on sustainable entrepreneurship are predominantly published by scholars who have a background in sustainable business research, rather than by those specializing in entrepreneurship research. 15 articles (35%) were published in entrepreneurship journals, including *Entrepreneurship Theory and Practice*, *Journal of Business Venturing*, and *Journal of Small Business & Entrepreneurship*. This relatively high number indicates that sustainable entrepreneurship has gained a foothold in mainstream entrepreneurship in recent years. This can also be attributed to the special issue “Sustainable Development and Entrepreneurship”, which was guest edited by Hall et al. (2010) and published in the *Journal of Business Venturing*, one of the leading entrepreneurship journals with an impact factor of 3.95. The rest of the identified articles (23%) were published in a variety of other journals from different fields and disciplines (e.g. *Environmental Economics and Policy Studies*, *Journal of Organizational Change Management*, and *Procedia Economics and Finance*).

The research methods employed in the journal articles were evenly distributed among conceptual and empirical research (figure 5). A total of 22 articles based their research on theoretical considerations and were of a purely conceptual nature. The remaining 21 articles conducted empirical studies, whereof 17 were qualitative and 4 were quantitative. The large proportion of conceptual papers and qualitative studies is typical for a nascent, emerging research field where the focus is on theory development, rather than theory testing (see e.g. Edmondson and McManus, 2007). As the field grows and matures, we might expect more empirical studies, especially quantitative research, based on variance models, hypotheses and large surveys.



**Figure 5 – Conceptual and empirical articles on sustainable entrepreneurship 1998-2012**



### 3.1.5 Reporting the findings

The systematic literature review intends to contribute to clarity in sustainable entrepreneurship research and to answer the question “What is sustainable entrepreneurship?”. At this stage, the findings of the systematic review will be discussed including 1) the terminology and definition of sustainable entrepreneurship, 2) the key concepts of sustainable entrepreneurship research, as well as 3) the differentiation from related concepts of sustainable entrepreneurship.

#### **Terminology and definition of sustainable entrepreneurship**

In their overview of sustainable entrepreneurship, Hall et al. (2010) pointed to the ambiguous use of the term sustainable entrepreneurship. Their finding can be supported by our systematic review. “Sustainable” was not only used in the context of the triple bottom line, but also with regard to financial development, longevity or stability of a business (e.g. Morris, 2001; Kelley, 2011). It is notable from the systematic review that sustainable entrepreneurship receives a great deal of interest from different research disciplines, including entrepreneurship, social business, and environmental management research. This leads to a wide array of various definitions of the phenomenon under study. Appendix 4 gives an overview of all definitions identified in the literature review. On the one hand, different disciplines and definitions add to the scientific creativity and diversity of the nascent research stream, which in turn contributes to the development of the field (Shepherd and Patzelt, 2011). On the other hand, the disparity in the terminology and diversity of definitions hampers rigorous research into the phenomenon. This in turn leads to difficulties in identifying the distinctiveness of sustainable entrepreneurship as an independent research stream in the domain of entrepreneurship. Despite the diversity among the definitions of sustainable entrepreneurship (Appendix 4), some patterns emerged from our analysis. For instance, a number of scholars from social and environmental management journals have taken a more narrow stance toward the phenomenon by defining it as “*those entrepreneurial activities in which the central guiding purpose is to make a substantial contribution to sustainable development*” (Parrish and Foxon., 2009, p.48), as “*the incorporation of all elements of sustainable development, not just some*” (Young and Tilley, 2006, p.411), or simply as the “*distinct approach to balance the requirements of the triple bottom line*” (Schlange, 2009, p.18). It is notable, that these definitions strongly emphasize the

concepts of sustainable development and the triple bottom line while the entrepreneurial activities remain subordinate to these. On the other hand, we found that consensus has been reached among scholars of leading entrepreneurship journals who aligned the notion of the triple bottom line with more established elements of conventional entrepreneurship. The definitions provided by authors of these journals put equal weight on sustainable development and entrepreneurial activities. Thus, they tend to better capture all the facets of the phenomenon (table 4).

<b>Authors</b>	<b>Journal</b>	<b>Definition</b>
<b>Cohen and Winn (2007, p. 35)</b>	Journal of Business Venturing	“We define sustainable entrepreneurship as the examination of how opportunities to bring into existence ‘future’ goods and services are discovered, created, and exploited, by whom, and with what economic, psychological, social, and environmental consequences.”
<b>Dean and McMullen (2007, p. 58)</b>	Journal of Business Venturing	“The process of discovering, evaluating, and exploiting economic opportunities that are present in market failures which detract from sustainability, including those that are environmentally relevant.”
<b>Hockerts and Wüstenhagen (2010, p. 482)</b>	Journal of Business Venturing	“We thus define sustainable entrepreneurship as the discovery and exploitation of economic opportunities through the generation of market disequilibria that initiate the transformation of a sector towards an environmentally and socially more sustainable state.”
<b>Pacheco et al. (2010, p. 471)</b>	Journal of Business Venturing	“We view sustainable entrepreneurship as the discovery, creation, evaluation, and exploitation of opportunities to create future goods and services that is consistent with sustainable development goals.”
<b>Patzelt and Shepherd (2011, p. 632)</b>	Entrepreneurship Theory and Practice	“Sustainable entrepreneurship is the discovery, creation, and exploitation of opportunities to create future goods and services that sustain the natural and/ or communal environment and provide development gain for others.”

**Table 4 – Definitions of sustainable entrepreneurship in leading entrepreneurship journals**

As table 5 shows, Cohen and Winn largely orientated themselves on Shane and Venkataraman (2000) and expanded their definition of conventional entrepreneurship by integrating a sustainable perspective: Accordingly, they defined sustainable entrepreneurship “*as the examination of how opportunities to bring into existence ‘future’ goods and services are discovered, created, and exploited, by whom, and with what economic, psychological, social and environmental consequences.*” (Cohen and

Winn, 2007, p. 35). The close alignment with the terminology of conventional entrepreneurship helps in establishing a common conceptual basis for entrepreneurship as a research domain (Landström and Benner, 2010). The other definitions bear some similarity.

It is notable that consensus has been reached in the articles published in leading journals to term the phenomenon under study *sustainable entrepreneurship*, with the common understanding of *sustainable* in terms of the triple bottom line (economic, social and ecological). Although, this might appear as a matter of course, the importance of a unified terminology for defining and positioning an emergent research stream cannot be underestimated and is far from being self-evident, as the systematic review has shown.

Another similarity is that all definitions emphasize opportunities as the central construct in their description of sustainable entrepreneurship. This is in line with the seminal works by Venkataraman (1997) and Shane and Venkataraman (2000) who emphasize the opportunity-centred approach in their research on entrepreneurship.

Furthermore, all definitions take a process view on sustainable entrepreneurship instead of focussing on the individual entrepreneur. This is in accordance with recent entrepreneurship research, which emphasizes the action-oriented process of entrepreneurship rather than the personality and characteristics of the individual entrepreneur (Bygrave 2004; Zahra 2007; Moroz and Hindle 2012).

<b>Process Activity</b>	<b>Discovery</b>	<b>Creation</b>	<b>Evaluation</b>	<b>Exploitation</b>
<b>Authors</b>				
<b>Cohen and Winn 2007</b>	x	x		x
<b>Dean and McMullen 2007</b>	x		x	x
<b>Hockerts and Wüstenhagen 2010</b>	x			x
<b>Pacheco et al. 2010</b>	x	x	x	x
<b>Patzelt and Shepherd 2011</b>	x	x		x

**Table 5 – Differences between the terminology of the sustainable entrepreneurial process**

A notable finding is that consistency can be found among the definitions with respect to the term *discovery* and *exploitation* of opportunities (table 5). It is apparent that all authors employed the term *discovery* as the first phase of the process which implies that a Kirznerian view on entrepreneurship has been taken. Accordingly, the opportunities

“just” have to be detected by individuals with a high level of alertness. This relates to the finding that market imperfections are a major source for sustainable entrepreneurial opportunities, which consequently need to be discovered. However, in many cases the challenges of sustainable development require innovation from a Schumpeterian perspective, suggesting that opportunities need to be created rather than discovered. This has been considered by the authors of three of the definitions, who refer to the Schumpeterian *creation* of opportunities as the second stage of the process (Cohen and Winn 2007; Pacheco et al. 2010; Shepherd and Patzelt 2011). These definitions combine the two views of entrepreneurial opportunities, which is a common approach in modern entrepreneurship research as both types have been found to account for the phenomenon in practice (Chiles et al., 2007; Pacheco et al., 2010).

Having analyzed the definitions of sustainable entrepreneurship in greater detail, we suggest the following definition:

Sustainable entrepreneurship as the scholarly examination of how opportunities to bring into existence future goods and services are recognized, developed, and exploited by whom, and with what economic, social and ecological gains.

The suggested definition is in close alignment with the ones presented before, yet we suggest employing the neutral term *recognition* for the description of the sources of opportunities, which allows for opportunities either to be discovered or created. This is in line with entrepreneurship research arguing that both types of opportunities can be present at the same time, thus combining Kirznerian and Schumpeterian opportunities (Holcombe, 1998; Shane and Venkataraman, 2000; Shane, 2003; Pacheco et al., 2010). As our definition emphasizes a process view on the phenomenon, applying both terms one after the other might suggest that the sources appear in a sequential order, rather than in terms of “either/or”. Thus, in order to avoid ambiguity, we apply the term *recognition* for the first phase of the process. Furthermore, we suggest adding the term *development* for the second phase of the process, where the development of the opportunity has been found to be a core activity for sustainable entrepreneurship (Belz and Binder, 2013). Lastly, our definition refers to *gains* rather than *consequences*, as the outcome of the entrepreneurial activity is a pro-actively managed achievement, rather than a logically effect of a previous occurrence.

Key elements of our definition include:

- The *source of opportunities*, referring to the sources of opportunities both, in form of alertness to sustainable entrepreneurial opportunities with regard to discovering market failures (e.g. Cohen and Winn, 2007; Dean and McMullen, 2007; Patzelt and Shepherd, 2011) as well as the creation of sustainable entrepreneurial opportunities (Pacheco et al., 2007; Schaltegger and Wagner, 2011)
- A *process perspective* on sustainable entrepreneurship by examining how opportunities are recognized, developed, and exploited (e.g. Dean and McMullen, 2007; Choi and Gray, 2008; Hockerts and Wüstenhagen, 2010)
- Examining *by whom* opportunities are recognized, developed, and exploited, integrating the individual sustainable entrepreneur as a unit of analysis (e.g. Schlange, 2009; Kuckertz and Wagner, 2010; Spence et al., 2011)
- Balancing the *economic, social and ecological gains* of the sustainable venture (e.g. Cohen et al., 2008; Parrish, 2010)
- *Future goods and services*, referring to the transformative power of sustainable entrepreneurship (Gibbs, 2009; Parrish and Foxon, 2009; Hockerts and Wüstenhagen, 2010)

The key concepts of sustainable entrepreneurship, derived from the definitions and the analysis of the systematic review, will be discussed in greater detail in the following section.

## **Key Concepts of Sustainable Entrepreneurship Research**

### ***Source of Opportunities***

In line with the high importance attached to entrepreneurial opportunities in conventional entrepreneurship research (e.g. Gaglio and Katz, 2001; Ardichvili et al., 2003; Shane, 2003), literature on sustainable entrepreneurship has started to turn its attention to sustainable entrepreneurial opportunities (Cohen and Winn, 2007; Dean and McMullen, 2007; Patzelt and Shepherd, 2011). In this literature, Patzelt and Shepherd (2011) distinguish between system-level and individual-level factors for explaining sustainable entrepreneurial opportunities.

*System-level factors*, explain the source of sustainable entrepreneurial opportunities to

be found in market imperfections (Cohen and Winn, 2007) or market failure (Dean and McMullen, 2007; Shepherd and Patzelt, 2011). According to Cohen and Winn (2007), market imperfections occur when 1) firms are inefficient, implying that natural resources are not used productively, 2) externalities exist, referring to the negative results of production and consumption on the cost of the natural environment, 3) pricing mechanisms are imperfect, representing the inaccurate pricing for exhaustible and non-renewable resources, or 4) the distribution of information is imperfectly, indicating an information asymmetry of individuals (producers and consumers) with regard to resources, markets and opportunities. The authors posit that all four types of market imperfections provide ample opportunities to be discovered by sustainable entrepreneurs.

Similar to this typology, Dean and McMullen (2007) identified five types of environmentally relevant market failures. Among these are in accordance with Cohen and Winn (2007) 1) externalities, and 2) imperfect distribution of information. Furthermore, the authors suggest that entrepreneurial opportunities for sustainable development can be found in 3) public goods, as the non-excludability of the public good results in the motivation for individuals to quickly exploit the resource, 4) monopoly power, as firms that do not face competitive pressure are less likely to adopt more sustainable technologies and production methods, and 5) inappropriate government intervention, accusing politicians and regulators to follow their own interests with their interventions, without taking the environmental impact of such action into consideration. The authors suggest that all these market failures are a source for entrepreneurial opportunities which, when exploited, contribute to sustainable development.

A point of criticism of the two papers is that both neglect social development in their analysis of sustainable entrepreneurial opportunities. The focus on environmentally related market imperfection and market failure provide important insights into sources for environmental entrepreneurial opportunities, yet their work should be extended by means of socially relevant market imperfections and failures. The multiple perspectives on entrepreneurial opportunities have been taken account for by Patzelt and Shepherd (2011) who focus on the individual-level factors in their research.

*Individual-level factors*, as the term implies, focus on the sustainable entrepreneurial opportunities with regard to the individual's prior knowledge and motivation (Patzelt

and Shepherd, 2011). Patzelt and Shepherd (2011) propose a model for the recognition of third-person sustainable development opportunities, which consists of the two variables *Knowledge of the Natural/ Communal Environment* and *Motivation*. These variables are moderated by *Entrepreneurial Knowledge*. According to the authors prior knowledge of the natural/ communal environment is an important factor for recognizing sustainable development opportunities. Furthermore, the authors posit that prior knowledge of the natural/ communal environment is not sufficient. It is complemented by prior knowledge of markets, ways to serve markets and customer problems, i.e. entrepreneurial knowledge. Another important factor the authors identified is motivation. Patzelt and Shepherd (2011) propose that in sustainable entrepreneurship, motivation occurs when individuals feel that their personal or another person's physical or psychological welfare is threatened. Again, this might be moderated by an individual's entrepreneurial knowledge, as individuals with entrepreneurial knowledge might be able to detect the source of the threat, i.e. a sustainable development opportunity. Patzelt and Shepherd (2011) are the first to look at the individual-level factors of opportunity recognition in sustainable entrepreneurship and their focus on third-person opportunities provides a valuable starting point for further research.

In sum, research in sustainable entrepreneurial opportunities is still in its infancy. The three conceptual papers presented above provide interesting insights, yet more research is needed to account for the important topic of entrepreneurial opportunities for sustainable development. Particularly, the papers presented above focus on the discovery of sustainable entrepreneurial opportunities, while the creation of sustainable entrepreneurial opportunities is largely neglected in their considerations. Furthermore, there is a lack of empirical research that sheds light on the recognition of sustainable entrepreneurial opportunities, including the process, types and antecedents.

### ***A Process Perspective on Sustainable Entrepreneurship***

Since the turn of the century, research on conventional entrepreneurship has started to emphasise the process view on the phenomenon (Shane and Venkataraman, 2000; Bygrave 2004; Zahra, 2007). The study of processes is a common approach for understanding development and change of a given phenomenon (van de Ven, 1992). The definitions of sustainable entrepreneurship presented in table 1 imply that the

process-centred view holds true for the sustainable entrepreneurship literature as well. Yet, out of the 43 relevant papers identified in the systematic review, only three explicitly focus their research on the entrepreneurial process of the sustainable venture (Larson, 2000; Schick et al., 2002; Choi and Gray, 2008).

According to our systematic review, Larson (2000) was the first who examined the process of a sustainable start-up. By focusing on the single case of Walden Paddlers, a kayaking company, the author provides a thorough description of the company's venture process through the lens of the entrepreneur.

In their case study research, Schick et al. (2002) analysed the start-up process of ten businesses with different industrial backgrounds. A particular focus was put on the ecological orientation in the practice of the start-ups. On basis of their results, the authors offer a differentiation between eco-dedicated, eco-open and eco-reluctant start-ups, which are assumed to vary in the degree of ecological consistency throughout the entrepreneurial process.

Choi and Gray (2008) analyzed the venture process of sustainable entrepreneurs by employing Morris et al. (2001) framework of the entrepreneurial process. Accordingly, the start-up process in sustainable entrepreneurship involves the same six steps than conventional entrepreneurial processes: 1) identify an opportunity, 2) develop the concept, 3) determine the required resources, 4) acquire the necessary resources, 5) implement and manage, 6) harvest the venture. By means of 21 case studies, the authors provide a descriptive overview of events, as experienced by the entrepreneurs.

As the review has shown, research focusing on the entrepreneurial process of sustainable start-ups remains considerably small. This is particularly surprising, as all definitions provided in table 1, emphasize the process view on sustainable entrepreneurship. The three articles dealing with sustainable entrepreneurship processes were of empirical nature, namely case studies. Yet, the findings of this research lack a generalization and theoretical understanding of the sustainability entrepreneurial process. This opens up ample of research opportunities in the important key concept of sustainable entrepreneurship from a process perspective.



### ***The Individual Entrepreneur***

Until the turn of the century, the individual-level perspective on entrepreneurship was the dominant research approach in entrepreneurship literature (Ucbasaran et al., 2001). The field was mainly defined in terms of who the entrepreneur is, and what he or she does (Shane and Venkataraman, 2000). As mentioned before, a notable change is that current literature emphasizes the action-oriented process of entrepreneurship (Moroz and Hindle, 2012). Nevertheless, Steyeart (2007) argues for a reintroduction of the individual entrepreneur as one part of the unit of analysis in entrepreneurship research. The literature on sustainable entrepreneurship takes account for this call. A number of papers identified in the systematic review focus on the motivation of entrepreneurs by studying their sustainability orientation (Kuckertz and Wagner, 2010; Wagner, 2012), their vision (Dixon and Clifford, 2007), their commitment (Spence et al., 2011) and their perpetual reasoning (Parrish, 2010). Typical for the nascent stage of sustainable entrepreneurship research, the papers on motivation of sustainable entrepreneurs differ greatly in their focus.

In their quantitative research, Kuckertz and Wagner (2010) aimed at testing whether there exists a link between sustainability orientation and entrepreneurial orientation. The results of their large-scale survey revealed that sustainability-oriented individuals are more likely to recognize not only a higher number of sustainability entrepreneurial opportunities, but have also been found to be more ambitious to act upon the identified opportunities (Kuckertz and Wagner, 2010). Yet, their results also showed that business education and business experience significantly weakened the positive effects of sustainability orientation for entrepreneurial opportunity recognition and the intention to act upon these opportunities. The authors assumed that with an advance in business experience, profitability and practicability of sustainable entrepreneurship were perceived as increasingly uneconomical (Kuckertz and Wagner, 2010). Similarly, Wagner (2012) shows that sustainability orientation is not a driver for entrepreneurial intentions. Although sustainability-oriented individuals are more likely to identify sustainability-related opportunities, they do not engage in entrepreneurial activities to act upon them.

In a comprehensive north-south comparison by means of case studies, Spence et al. (2011) identified three types of sustainable entrepreneurs, which they referred to as the committed, the aware and the indifferent. As the name implies, committed

entrepreneurs are most strongly associated with sustainable development goals and are driven by their sustainable vision and values. Entrepreneurs who belong to the second group of the typology are aware of social and environmental issues, yet these are not the primary mean of their motivation to engage in sustainable entrepreneurial behaviour. They are mainly driven by making profits, with sustainable considerations only playing a subordinate role to the economic ones. Lastly, the indifferent entrepreneurs understand sustainability purely in financial terms and do not take any socio-environmental factors into account. Nevertheless, even the indifferent might unintentionally contribute to sustainable development, when it results in an immediate gain for their business operations.

In his study of entrepreneurial motivations in the context of sustainability, Parrish (2010) derived five rules for successful sustainable organizations from his case studies: resource perpetuation, benefit stacking, strategic satisficing, qualitative management, and worthy contribution. Taken together, the author proposes that these rules result in *perpetual reasoning*, a unique interpretative scheme that distinguishes successful from unsuccessful sustainable entrepreneurs. The interpretative scheme can be seen as a reflection of the values, motives and purposes of the sustainable entrepreneurs, which are embedded in the organizational design of the sustainable venture.

To conclude, research focusing on the role of the individual for sustainable entrepreneurship has looked into many different factors that might be suitable to explain the motivation of some individuals to engage in sustainable entrepreneurship. Although, this research is exemplary in their use of empirical methods (as compared to the rest of the sustainable entrepreneurship literature), further research should try to replicate some of the findings in order to increase their validity. Furthermore, important future contributions should link individual-level research to research in entrepreneurial processes in order to better account for cause and effect of the phenomenon.

### ***Economic, Social and Ecological Value Creation***

Historically, entrepreneurship has been operationalized with regard to one dimension, which is the economic performance of the enterprise. The vast majority of conventional entrepreneurship research emphasizes profit creation as the central construct for entrepreneurship (Amit et al., 2000; Davidsson and Wiklund, 2001). As a consequence, value creation is measured in financial terms such as sales, profit or ROI and is seen as

maximizing individual utility (Schlange, 2009). In response to the increased demand for sustainability, and the criticism that business account for a high proportion of environmental degradation and social injustice (Pigou, 1932; Dorfman, 1993), the traditional understanding of value creation simply in terms of economic gains has been broadened to include non-economic gains as well (Shepherd and Patzelt, 2011).

As sustainability incorporates the notions of economy, environment and society, it comes with no surprise that value creation from a sustainable entrepreneurship perspective shows overlaps with the concepts of conventional, social and environmental entrepreneurship. While each of the concepts emphasizes one or two aspects of sustainable development, sustainable entrepreneurship calls for a holistic perspective on entrepreneurial value creation (Cohen et al., 2008). Consequently, sustainable entrepreneurs need to balance the competing objectives of economic, social and ecological value creation (Schlange, 2007; Parrish, 2010). This leads to an increased complexity for sustainable entrepreneurship in comparison to other forms of entrepreneurship, which might be one-dimensional or two-dimensional in nature. Furthermore, sustainable opportunities for value creation have been classified as “wicked problems”, as they are characterized by a high complexity, a strong uncertainty associated with the cause and effect of the problem, and difficulties in providing a definitive solution (Lans et al., 2013).

The common measure for sustainability is the triple bottom line, based on Elkington’s (1994) finding that the combination of economic, social and ecological benefits results in a win-win-win situation for business, the society and the environment. Almost all literature sources identified in the systematic review refers to the triple bottom line as the underlying principle of sustainable entrepreneurship. Proponents of the triple bottom line value the multi-perspectivity as the promise of sustaining the earth and society for future generations (Cohen et al., 2008). Opponents of the triple bottom line criticize that conventional accounting practices cannot capture the notions of society and environment (Brown et al., 2008; Dillard et al., 2005), thereby making it difficult to measure the entrepreneurial performance of sustainable ventures (Tilley and Young, 2009).

In sum, value creation in sustainable entrepreneurship encompasses economic, social and ecological wealth. Balancing the competing goals is a major challenge for sustainable entrepreneurs and results in increased complexity throughout the venture

creation (and beyond). Further research should identify adequate metrics that capture the social and ecological dimension, as these are hard to quantify with traditional accounting metrics.

### ***Transition to a Sustainable Society***

An important question in sustainable entrepreneurship research concerns whether sustainable entrepreneurship can have a positive impact on the larger society and environment. Besides the direct benefits of the entrepreneurial activities, which are often on a local or communal level, sustainable entrepreneurship has been found to function as an impetus for the transition to a sustainable society (e.g. Gibbs, 2009; Parrish and Foxon, 2009; Schaltegger and Wagner, 2011).

In their research Hockerts and Wüstenhagen (2010) distinguish between “Emerging Davids” and “Greening Goliaths”. While the latter is the attempt of established firms to implement sustainability in their innovation process, the former can be seen as the idealistic and radically innovating sustainable start-up. Although, Davids seem more desirable from a sustainability perspective, as they often show a superior performance with regard to one specific social or environmental problem, they tend to remain a niche phenomenon. Usually, Davids initiate sustainability innovations, which are then followed by the established market players. These kinds of Goliaths are less innovative, but have the possibility to serve mass-markets and can have a much stronger impact on the transformation beyond the sustainable niche. The findings of the authors imply that not one or the other is sufficient to bring about the transition to a sustainable society, but that it is a co-evolution of the two market players, in which the change is triggered by sustainability start-ups and taken-up by market incumbents to influence the wider society.

The importance of transformation beyond the sustainable niche has also been emphasized by Gibbs (2009). Building upon Geels’s (2005) work on transition management, the author takes a multi-level perspective on sustainable entrepreneurship. Accordingly, sustainable start-ups may occupy sustainable niches, which in turn have the transformative power of changing technological regimes, i.e. long-established systems, which largely neglect sustainable issues. This is also expressed by Schaltegger and Wagner (2011), who posit that the role of sustainable entrepreneurship lies in influencing the entire market which in turn influences society

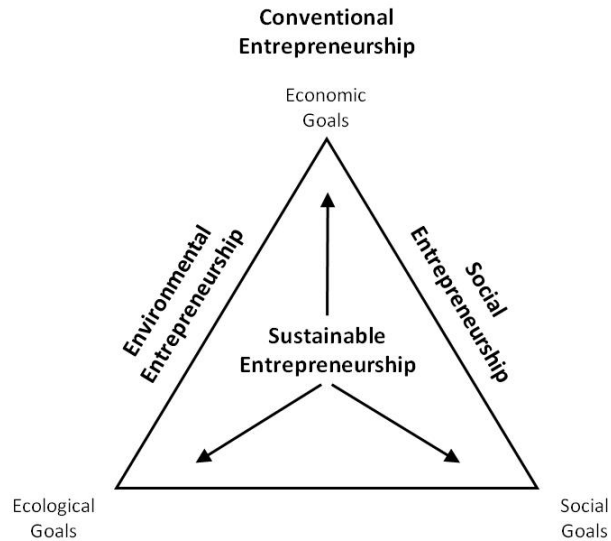
as a whole.

Parrish and Foxon (2009) also assign sustainable entrepreneurship the important role of a catalyst for far-reaching socio-economic transformations. However, the authors refer to the corresponding challenge of immediately satisfying customer needs while at the same time creating and promoting the technologies needed to achieve sustainability. Their research builds on findings of a case from the renewable energy market, which they identified as a catalyst for wider socio-economic transition. Besides the catalytic function, the authors suggest that sustainable enterprises are also taking over the role of gap fillers. Accordingly, these enterprises are important in filling the socio-ecological gaps that have been left by industry and government.

In conclusion, there is support from research that sustainable entrepreneurship plays a decisive role in the transition towards a sustainable society. Limited empirical evidence in the form of two case studies has been found to support this assumption (Parrish and Foxon, 2009; Plieth et al., 2012). However, most of the research to date remains conceptually (e.g. Gibbs, 2009; Hockerts and Wüstenhagen, 2010; Schaltegger and Wagner, 2011). Hall et al. (2010) criticize that this type of literature is more prescriptive than descriptive and might as well be too confident regarding the transformative power of sustainable entrepreneurs.

### ***Sustainable Entrepreneurship and Related Concepts***

In the beginning of this book chapter we introduced the related concepts of sustainable entrepreneurship. In this section we have provided the results of the systematic review of sustainable entrepreneurship, aiming to contribute to our understanding of ‘what it is’. To conclude with this section, we will provide a comparison of the three related concepts and sustainable entrepreneurship. At first glance, conventional, environmental and social entrepreneurship share some commonalities with sustainable entrepreneurship, yet when looking at the core of the concepts, the heterogeneity becomes apparent particularly with regards to the goals and the aspired value creation (figure 6).



**Figure 6 – Sustainable entrepreneurship and related concepts**

A crucial point of differentiation between conventional and sustainable entrepreneurship are the normative goals. While conventional entrepreneurship is mainly driven by the normative goal of profit, sustainable entrepreneurship is in support of the normative goal of sustainable development, meeting the triple bottom line of economic, social and ecological goals. The different goals also translate into differences in the evaluation of the success of the enterprise. Accordingly, the expected value of conventional entrepreneurship is measured primarily in monetary terms such as profit and return on investment. Sustainable entrepreneurship, on the other hand, is driven by its mission to create socio-ecological value, while at the same time ensuring the profitability of the venture. Consequently, the value is not purely measured in financial terms, but also in the contributions to society and the environment, which are difficult to quantify and aggregate.

Environmental entrepreneurship and sustainable entrepreneurship are two concepts that are closely interrelated. Both focus on making a profit while aiming at improving environmental conditions with their business. Yet, sustainable entrepreneurship goes one step further by emphasizing the creation of social value in addition to the economic and environmental benefits of the enterprise. This is also the major point of difference, as environmental entrepreneurship can be categorized as two-dimensional (“double-bottom line”), while sustainable entrepreneurship employs the well-known focus on and balance of the triple bottom line goals.

For social entrepreneurship the social mission is fundamental and driven by the motivation to benefit the society. Sustainable entrepreneurship, on the other hand, is driven by the mission to solve socio-ecological problems while at the same time is motivated to realize economic gains. The discrepancy in the mission results in differences in the value creation of the two concepts as well. Putting the social mission at the heart of the business, social entrepreneurs will consequently strive for creating social value by e.g. creating social capital, promoting social change or addressing social needs (ends). The main value creation of social entrepreneurship is only one of three aspects in the value creation of sustainable entrepreneurs, as value created in sustainable entrepreneurship needs to incorporate an environmental and economic value as well (ends and means). This results in a greater complexity and higher requirements for sustainable entrepreneurs, who will have to balance the triple bottom line in their value creation. The vast majority of literature in social entrepreneurship focuses on the not-for-profit sector. Although some researchers have posited that social entrepreneurship can occur in the not-for-profit and for-profit sector, the majority of literature remains in the context of not-for-profit. In contrast to that sustainable entrepreneurship focuses solely on for-profit organizations, which aim to meet the triple bottom line of economic, ecological and social goals.

### 3.1.6 Summary

The findings of the systematic literature review show that sustainable entrepreneurship is an emerging stream of entrepreneurship literature, indeed. The first articles on the topic appeared in the end of the 1990s. However, between 1998 and 2008 only 15 articles were published in international journals. Since 2009, the number of articles published on sustainable entrepreneurship has increased significantly. Although the number of published articles has increased in recent years, sustainable entrepreneurship is still a nascent stream of research. Not surprisingly, there is an array of different definitions used for sustainable entrepreneurship, adding to the creativity in the field, but also leading to confusion. However, a notable result of our literature review is that the articles published in mainstream entrepreneurship journals found some common ground for defining sustainable entrepreneurship. As a result of the systematic review, our suggested definition emphasizes the following five aspects:

- The *source of opportunities*, referring to both, the discovery and creation of sustainable entrepreneurial opportunities.
- A *process-focused perspective* on sustainable entrepreneurship by examining how opportunities are recognized, developed, and exploited.
- Examining *by whom* opportunities are recognized, developed, and exploited, integrating the individual sustainable entrepreneur as a unit of analysis.
- Balancing the *economic, social and ecological gains* of the sustainable venture.
- *Future goods and services*, referring to the transformative power of sustainable entrepreneurship.

The common definition and understanding of the phenomenon under study is an important step towards the establishment of sustainable entrepreneurship as a new stream of research. We hope that our contribution helped clarifying what sustainable entrepreneurship is in order to enhance research with relevance and rigour in this field. Against the background of our literature review we see ample research opportunities. First of all, we see the need for theory development. Although there are a high number of conceptual papers on sustainable entrepreneurship (figure 5), there are very few authors developing theoretical models. A notable exception is Patzelt and Shepherd (2011), who develop a theoretical model for recognizing opportunities for sustainable development in a deductive way. Based on existing theories and previous empirical studies they suggest a causal model with the recognition of sustainable development opportunities as a dependent variable, the knowledge natural/communal environment as well as motivation as independent variables, and entrepreneurial knowledge as a moderating variable. Another example is Belz and Binder (2013), who develop a theoretical model in an inductive way. Based on a multiple case study design (Yin 2008) they suggest a process model of sustainable entrepreneurship, including five main activities: recognizing socio-ecological problems; recognizing entrepreneurial opportunities; developing an integral sustainable opportunity; funding and forming a sustainable enterprise; creating and entering sustainable markets (Belz and Binder, 2013). This is a start to describe the process of sustainable entrepreneurship and give an answer to “how?” and “what?” questions. Here we see the need to look into each phase of the sustainable entrepreneurial process and give answers to “why?” questions to develop variance and causal models as well. As sound theoretical models are developed there is a need to test them with large-scale surveys. Here it might not be easy to draw



the sample, since the population of sustainable enterprises is still evolving and not officially registered. Another challenge is the measurements of the triple bottom line, pursued in sustainable entrepreneurship. Social and ecological goals are difficult to quantify and aggregate. However, we are certain that these hurdles will be overcome. We hope that our systematic literature review and the suggested definition of sustainable entrepreneurship is a step forward to enhance relevant and yet rigorous research in this nascent field.

## 3.2 Essay II – Sustainable Entrepreneurship – A Convergent Process Model

### Abstract

Sustainable entrepreneurship pursues a triple bottom line approach of economic, social and ecological goals. The main aim of this paper is to add to our understanding of the process of sustainable entrepreneurship. Since the field of sustainable entrepreneurship is in a nascent stage, we conduct a qualitative study. We employ a multiple case study design to build theory. Based on four case studies we develop a model, which describes the process of sustainable entrepreneurship, including six phases: 1) recognizing a social or ecological problem; 2) recognizing a social or ecological opportunity; 3) developing a double bottom line solution; 4) developing a triple bottom line solution; 5) funding and forming of a sustainable enterprise; 6) creating or entering a sustainable market. By developing a convergent process model with two pathways, we make theoretical contributions to the emerging fields of sustainable entrepreneurship and social entrepreneurship. A key finding is that the triple bottom line of ecological, social and economic goals is integrated sequentially, not simultaneously.

*Key words:* Entrepreneurial process; entrepreneurship; social entrepreneurship; sustainable development; sustainable entrepreneurship; triple bottom line

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### 3.2.1 Introduction

Entrepreneurship plays an important role in the transformation towards a more sustainable future (Belz, 2013; Hall et al., 2010). Unlike traditional entrepreneurship, which mainly focuses on economic development (Kirzner, 1973; Schumpeter, 1942), sustainable entrepreneurship aims at balancing the triple bottom line of economic, social and ecological goals (Cohen et al., 2008; Schaltegger and Wagner, 2011; Thompson et al., 2011). Sometimes these goals are mutually reinforcing, but often there are trade-offs (Hahn et al., 2010), highlighting the ambiguities and complexities of sustainable entrepreneurship. In recent years, the notion and the concept of sustainable entrepreneurship have received increasing attention in the academic literature (Binder and Belz, 2014; Thompson et al., 2011). However, empirical studies are limited. There remain major gaps in our knowledge as to whether and how the process of sustainable entrepreneurship might unfold (Hall et al., 2010). In this paper we seek to add to the understanding of sustainable entrepreneurial processes (SEP). Our main research question is: How do entrepreneurs recognize, develop and exploit opportunities in the context of sustainable development? Since the field of sustainable entrepreneurship is still in a nascent stage, we conduct a qualitative study appropriate for theory building. We employ multiple case studies to develop a process model of sustainable entrepreneurship.

In the following sections, we review the literature on sustainable entrepreneurship, particularly regarding the process of opportunity recognition, development, and exploitation in the context of sustainable development. We include the literature on social entrepreneurship, which is related to sustainable entrepreneurship. We outline the research methodology, describing the multiple case study design for theory development. Based on the empirical results, we suggest a process model of sustainable entrepreneurship, which includes six generic phases and distinctive activities. By developing a convergent process model with two pathways, we contribute to the emerging fields of sustainable entrepreneurship and social entrepreneurship. One of the main findings of our study is that the triple bottom line of ecological, social and economic aspects of sustainable entrepreneurship is integrated successively, not simultaneously.

### 3.2.2 Literature Review

#### **Sustainable Entrepreneurship**

Sustainable entrepreneurship is a nascent stream of research at the intersection of sustainable management and entrepreneurship. In recent years it has received increasing interest by researchers with different academic backgrounds (Binder and Belz, 2014; Thompson et al. 2011). Not surprisingly for a new research field, there are various definitions of sustainable entrepreneurship. Generally, there are two perspectives: One group of scholars publishing in sustainable management journals emphasize the concepts of sustainable development and the triple bottom line, while entrepreneurial activities remain subordinate to these (e.g. Parrish and Foxon, 2009; Schlange, 2009; Young and Tilley, 2006). Another group of scholars publishing in mainstream entrepreneurship journals align the notion of the triple bottom line with the process perspective of entrepreneurship (e.g. Cohen and Winn, 2007; Dean and McMullen, 2007; Patzelt and Shepherd, 2011), emphasizing the nexus of individuals and opportunities. In line with the latter we define sustainable entrepreneurship as the recognition, development and exploitation of opportunities by individuals to bring into existence future goods and services with economic, social and ecological gains (e.g. Cohen and Winn, 2007). The recognition, development, and exploitation of opportunities describe the generic process and activities of (sustainable) entrepreneurship. Economic, social and ecological gains refer to the triple bottom line, which has to be balanced in the face of ambiguities, contradictions, and trade-offs (Cohen et al., 2008; Dyllick and Hockerts, 2002; Hahn et al., 2010).

Social entrepreneurship is a prominent, albeit contested concept (Choi and Majumdar, 2014), which has many features in common with sustainable entrepreneurship. In an often-quoted article, Mair and Marti (2006) propose a broad definition of social entrepreneurship, building on established research in entrepreneurship and studies on social entrepreneurship. They define it as ‘a process involving the innovative use and combination of resources to pursue opportunities to catalyse social change and/or address social needs’ (Mair and Marti, 2006, p. 37), emphasising the process perspective, the centrality of opportunities and social value. Taking such a view, social entrepreneurship may be employed by: business oriented non-profit organisations; for-profit organisations with a social mission; or hybrid organisations that mix social and

entrepreneurial practices and objectives (Choi and Majumbar, 2014; Dorado, 2006; Lumpkin et al., 2013; Short et al., 2009; Zahra et al., 2009). Most studies on social entrepreneurship focus on social issues (e.g. Corner and Ho, 2010; Perrini et al., 2010), while some also include environmental problems (e.g. Robinson, 2006). Hence, we could subsume sustainable entrepreneurship under the umbrella term of social entrepreneurship (Kury, 2012). While acknowledging the similarities between social entrepreneurship and sustainable entrepreneurship, we also see some differences between the two concepts regarding: (1) the multiplicity of goals; (2) the notion of equity; and (3) the type of organisations analysed. First, sustainable entrepreneurship aims at balancing the triple bottom line of economic, social and ecological goals, while social entrepreneurship usually pursues a double bottom line of social and economic goals. The simultaneous pursuit of economic viability, social equity, *and* environmental stability distinguishes sustainable entrepreneurship from social entrepreneurship (Thompson et al., 2011). The multiplicity of goals adds to the complexity of the entrepreneurial endeavour, and may have consequences for the process of opportunity recognition, development and exploitation in the context of sustainable development. Second, the root of the term ‘sustainable’ entrepreneurship stems from the concept of sustainable development, defined as ‘development that meets the needs of the present without comprising the ability of future generations to meet their own needs’ (WCED, 1987). This definition implies the principles of intragenerational equity (present generations) and intergenerational equity (future generations). While sustainable entrepreneurship includes both principles, social entrepreneurship mainly focuses on intragenerational equity, that is, problems that affect people today (Thompson et al., 2011). Third, sustainable entrepreneurship is limited to the study of for-profit organisations with a social mission and hybrid organisations, while social entrepreneurship also encompasses non-profit organisations. Notwithstanding the differences between the two concepts there is considerable overlap between sustainable and social entrepreneurship. Both concepts take a process perspective, that is, the recognition, development and exploitation of entrepreneurial opportunities in the context of social and environmental problems. Interestingly, few studies delve into the question of how and why sustainable entrepreneurship and social entrepreneurship respectively will happen. A number of authors conclude that the process of sustainable/social entrepreneurship remains largely unexplored (e.g. Lumpkin et al., 2013; Nicolopoulou, 2014; Perrini et al., 2010; Robinson, 2006).

### **Sustainable Entrepreneurship Process**

Despite the prominence of the process perspective in the definitions of sustainable entrepreneurship, and social entrepreneurship (Dacin et al., 2010), we found only six empirical studies investigating the recognition, development, and/or exploitation of opportunities in social and environmental contexts (Choi and Gray, 2008; Corner and Ho, 2010; Keskin et al., 2013; Perrini et al., 2010; Robinson, 2006; Shaw and Carter, 2007). Table 6 provides an overview of these studies, including the research question, research design, organisational goals, phases of the SEP, and the main empirical findings. All studies follow a qualitative research strategy, with most of them employing a multiple case study design. This is typical for a nascent field of research. The primary source of empirical evidence is semi-structured, open interviews with the founders, who are intimately familiar with the SEP. With the exception of Choi and Gray (2008), all of the studies investigate organisations pursuing the double bottom line of economic and social or ecological goals.

Choi and Gray (2008) examine the development of sustainable ventures. Since they have a number of mature, well-established companies in their sample (e.g. Migros and Patagonia), they focus less on opportunity recognition, but rather on opportunity exploitation. One of their key findings is that most sustainable ventures are positioned at the high end of the market, which allows them to pass on the higher costs of sustainable practices to consumers, and balance the triple bottom line. Another finding in their study is that most sustainable entrepreneurs have little or no business experience. Against this background, these authors speculate that sustainable entrepreneurs might not have founded their businesses knowing about the complexities and trade-offs of profits and principles (Choi and Gray, 2008).

Corner and Ho (2010) analyse the process of opportunity development through the example of a New Zealand fair-trade company. According to their findings, opportunity development is predominated either by effectual processes (Sarasvathy, 2001) or by rational/economic processes (Shane, 2003), or a mixture of the two (Corner and Ho, 2008). Furthermore, these authors suggest that “experience corridors” of the sustainable entrepreneurs shape opportunity development. Experience corridors encompass life experiences, which provide information of and awareness about particular areas that shape opportunity development (Corner and Ho, 2010).

<b>Authors</b>	<b>Research Question</b>	<b>Research Design</b>	<b>Number of organisational goals</b>	<b>Focus SEP</b>	<b>Main Empirical Findings</b>
<b>Choi and Gray 2008</b>	How does the venture development of sustainable entrepreneurs look like?	Qualitative (multiple case studies)	DBL or TBL	Opportunity exploitation	Positioning in the high-end of the market to pass on higher prices for sustainable practices to consumers, and balance the triple bottom line; Little or no business experience of sustainable entrepreneurs
<b>Corner and Ho, 2010</b>	How do opportunities develop in social entrepreneurship?	Qualitative (multiple case studies)	DBL	Opportunity development	Opportunity development is predominated by: either effectual or rational processes; “Experience corridors” of founders shape opportunity development
<b>Keskin et al., 2013</b>	How does the product innovation process of sustainable ventures look like?	Qualitative (multiple case studies)	DBL	Opportunity development	Translation of sustainability goals into products features that add customer value as key in opportunity development (design phase)
<b>Perrini et al., 2010</b>		Qualitative (single case study)	DBL	All phases	A process-view of social entrepreneurship; Opportunity scaling up to enhance social change
<b>Robinson, 2006</b>	How do social entrepreneurs find social entrepreneurial opportunities?	Qualitative (multiple case studies)	DBL	Opportunity recognition	Experience and interest of social entrepreneurs influence opportunity identification; Social and institutional factors shape opportunity evaluation
<b>Shaw and Carter, 2007</b>	How do emerging practises of social entrepreneurship look like?	Qualitative	DBL	Opportunity recognition	Unmet social needs on a local level initiate opportunity recognition

**Table 6 – Synthesis of Empirical Studies on SEP**

Keskin et al. (2013) explore the phase of opportunity development, particularly eco-design. Their findings indicate that it is challenging to transform sustainability goals into product features that contribute to customer value. In order to succeed, sustainable ventures have to align clearly defined (prioritised) sustainability goals with customer benefits (Keskin et al., 2013).

Perrini et al. (2010) study the entire SEP, including opportunity identification, opportunity evaluation, opportunity formalization, opportunity exploitation, and opportunity scaling-up. In line with the previously mentioned studies, Perrini et al. (2010) also suggest that the first phase of opportunity identification is fostered by the entrepreneur's sensitivity towards a social problem. The last phase is a unique feature of the SEP, different from conventional entrepreneurship. Based on their empirical findings, Perrini et al. (2010) argue that social entrepreneurs address the scalability of their organisational model in order to increase impact and induce social change.

Robinson (2006) focuses on the front end of the SEP, that is, opportunity identification and evaluation. His findings also suggest that social entrepreneurs have relevant experience or a long and deep interest in the areas, in which they eventually create a venture. When evaluating opportunities, social entrepreneurs will consider the social and institutional factors (e.g. social movements and laws) that enable or hinder the success and the impact of a venture (Robinson, 2006).

Shaw and Carter (2007) examine the practices and the process of social entrepreneurship, particular opportunity recognition, finding, *inter alia*, that unmet social needs on a local level are starting points for opportunity recognition in the context of social entrepreneurship.

Acknowledging the empirical results and interesting insights into the SEP, our literature review indicates two gaps. With the notable exception of Perrini et al. (2010), all of these studies focus on one or two phases of the SEP, including opportunity recognition, development, and exploitation in the context of sustainable development. The single case study by Perrini et al. (2010) analyses a not-for-profit organisation (social enterprise), which pursues the double bottom line of social and economic goals. To the best of our knowledge, there is not any extant empirical study examining the entire SEP in the context of for-profit organisations. Except for Choi and Gray (2008), all studies focus on sustainable ventures pursuing the double bottom line of economic and social



(or ecological) goals. Consequently, we have little understanding of how sustainable ventures integrate the triple bottom line throughout the SEP. Our study seeks to address this gap, and add to the understanding of the entire SEP in the context of for-profit organisations.

### 3.2.3 Research Methodology

#### Multiple Case Study Design

Since research on the SEP is still in a nascent stage, we conducted a qualitative study. We employed a multiple case study design (Eisenhardt, 1989; Yin, 2008) to develop a process model of sustainable entrepreneurship. We used the following criteria to select the case studies:

1. The enterprise offers a sustainable product or service, or a combination of the two, which creates economic, ecological *and* social value-added (triple bottom line). We neither consider enterprises, which offer conventional products nor enterprises, which offer green products and/or social products. The former represent conventional enterprises, while the latter meet the double bottom line, but not the triple bottom line of economic, social and ecological goals.
2. The end of the SEP is marked by entry to the market. Hence, we exclude sustainable enterprises, which are still in the development phase, but not yet present on the market.
3. The sustainable enterprise was established during the last ten years. Otherwise, it might be difficult to capture the SEP in retrospect.

<b>Enterprise</b>	<b>Founder(s)</b>	<b>Industry</b>	<b>Sustainable Offer</b>	<b>Market Entry</b>
<b>Coffee Circle</b>	Martin Elwert Robert Rudnick Moritz Waldstein	Food & Beverage	Direct, fair trade, organic coffee	2010
<b>Fairnopoly</b>	Felix Weth	Retail	Sustainable products and services	2013
<b>Globe Hope</b>	Seija Lukkala	Clothing	Used fabric redesigned	2003
<b>Polarstern</b>	Jakob Assmann Florian Henle Simon Stadler	Energy	Renewable energies	2011

**Table 7 – Description of Selected Case Studies**

Accordingly, we selected four case studies, including Coffee Circle, Fairnopoly, Globe Hope, and Polarstern. Table 7 summarizes the main characteristics of the selected cases.

The cases come from different industries (food & beverage, retail, clothing, and energy) and countries (Germany and Finland), which enhances the external validity of the study. The heterogeneous set of sustainable enterprises offers firmer grounding of theory than a more homogeneous one (Santos & Eisenhardt, 2009). The unit of analysis is the sustainable enterprise. The key informants are the (co-) founders, who are intimately familiar with the entrepreneurial journey from the first idea to entering the market.

### **Data Collection**

A major source of information was face-to-face interviews with the (co-) founders. Personal interviews allow for an in-depth understanding of decision-making processes and for gaining relevant background information from key informants (e.g. Oberhofer and Dieplinger, 2014). The semi-structured, open interviews consisted of three sections: (1) personal background of the (co-) founder; (2) entrepreneurial process from the first idea to the market entry; and (3) weighting of economic, social and ecological goals. The questions focused on activities, events and outcomes, rather than hearsay, which reduced the potential for retrospective bias. The interviews were conducted during March 2013 in Germany and Finland. Typically, they lasted between 30 and 45 minutes. All were digitally recorded, transcribed, and documented in a standardized form, which enhances the reliability of the study. Before and after the face-to-face interviews with the (co-) founders we gathered archival data from internal and external sources, including the websites of the sustainable enterprises, blogs of the (co-)founders, and press releases, social and print media dealing with the SEP. The blog entries by the (co-) founders and press releases were written in the course of events. Take, for instance, Fairnopoly, which posted the following blog entries during 2013, among others: “*Crowdfunding finished: € 213,363*” (March 1, 2013), “*We are registered!*” (May 10, 2013), “*Fairnology goes online: Beta Phase started*” (July 31, 2013), and “*We are online!*” (September 24, 2013). The detailed descriptions of key activities in written form represent real-time archival data, which allow a triangulation with the personal account of the sustainable entrepreneurial journey as told by the (co-)

founders in the interviews. This triangulation increases the internal validity of the study and reduces the potential for retrospective bias (Santos & Eisenhardt, 2009). To enhance the external validity of the study we asked the co-founders to review drafts of their case study report (Yin, 2008).

### **Data Analysis**

We documented and coded the empirical data with Maxqda 12, a software package for qualitative data analysis. We followed an inductive coding process, focusing on the main activities associated with the SEP. In the coding process we pursued a “negotiated agreement” approach (Campbell et al., 2013) involving two steps. In the first stage, the principal investigators, two senior researchers, independently coded 37 transcripts with 151 pages. Initially, the inter-coder reliability (IR) across all transcripts was 52%. In the second stage we compared all codings and discussed the disagreements in an effort to reconcile them, resulting in an inter-coder agreement (IA) of 99%. These numerical values are comparable to other studies following the same approach (e.g. Garrison et al., 2006; Campbell et al., 2013).

In the data analysis we employed time-ordered and concept-ordered displays as suggested by Miles and Huberman (1994). Time-ordered displays are appropriate to describe and analyse how events and activities unfold over time. Furthermore, we conducted a systematic cross-case study comparison (Eisenhardt, 1989), focusing on the SEP. The search for the progression of activities was assisted by selecting pairs of sustainable enterprises and by listing similarities and differences between each pair. After the development of tentative sequences, each case was revisited and analysed, whether it confirmed them or not. After a number of iterations between data and propositions we used existing literature to discuss the insights yielded from the inductive process.

### **3.2.4 Empirical Results**

The empirical results suggest that there are generally six phases of the SEP, including: recognizing a social or ecological problem; recognizing a social or ecological opportunity; developing a double bottom line solution; developing a triple bottom line solution; funding and forming of a sustainable enterprise; and, finally, creating or

entering a sustainable market. In the following section we present the six phases, with their activities, based on the empirical evidence.

### **Recognizing a Social or Ecological Problem**

Our data indicate that the recognition of a social or ecological problem, which the prospective sustainable entrepreneurs encountered and experienced in their private or professional lives, is a potential beginning of the SEP. Moritz Waldstein and Martin Elwert, the co-founders of Coffee Circle, became aware of the low incomes of coffee farmers during a stay in Ethiopia. They realized: *“While large retail chains make peak sales with high quality beans, the income of coffee farmers is not sufficient to feed their families and send their children to school.”* Felix Weth, the initiator of Fairnopoly, came across the social problem of corruption during his internship at Transparency International. The internship motivated him to become personally active in combatting corruption. He states: *“Corruption is the main reason why there are many social problems worldwide. Often it is an obstacle for the success of good initiatives.”* Seija Lukkala, a long-time clothing entrepreneur, was confronted with the problem of overconsumption and waste in her business. She started feeling frustrated with ‘fast fashion’, with its seasons and trends, and the amount of waste it produces. Jakob Assmann, the co-founder of Polarstern, experienced the consequences of climate change first-hand when going on hikes in the mountains and observing the retreat of glaciers. Despite the similarities of the four case studies with regards to the recognition of a problem as the starting point of the SEP, there is also a difference: while the SEPs of Coffee Circle and Fairnopoly were triggered by a social problem, Globe Hope and Polarstern started off with an ecological problem. This has consequences for the subsequent phases of the SEP.

### **Recognizing a Social or Ecological Opportunity**

Our empirical data suggest that the second phase of the SEP is the recognition of a solution to the problem at hand, which also offers an opportunity in the market. We refer to the link between the two as “social or ecological opportunity”. The basic idea of Coffee Circle is to establish direct links between producers and consumers, eliminating the high number of middlemen and retailers. That is why it is called “Coffee Circle”. As a consequence, the Ethiopian coffee farmers receive a fair income,

which is sufficient to feed their families and lead a decent life. Due to the coffee's good flavour, the co-founders saw the opportunity to export the coffee beans from Ethiopia to Europe, process them and sell it to the high-quality segment, especially to the target group of *LOHAS*, which stands for Lifestyle of Health and Sustainability. In the case of Fairnopoly, the core idea is to create a fair online market, which lies in the hands of a large number of users, and which offers a high level of transparency in all business activities. The founder looked at large online market places like Amazon and eBay and realized that they have quasi-monopolistic positions in the market, which is neither fair nor transparent. After his informal market research he came to the conclusion that there is a niche market for people who long for a fair economy and e-commerce. To reduce the amount of textile waste, Seija Lukkala wanted to recycle and upcycle discarded clothes. She anticipated demand from socially responsible young adults. To tackle climate change and global warming, a transformation from CO<sub>2</sub>-intensive to CO<sub>2</sub>-low energies is a condition sine qua non. That is why Jakob Assmann and Florian Henle decided to offer green biogas from residuals, which is CO<sub>2</sub>-neutral. While eco-electricity was widely available in the German energy market, there was not any biogas offering for heating houses in 2010.

### **Developing a Double Bottom Line Solution**

As a solution to a particular social or ecological problem becomes feasible, and as market needs become more precise in terms of value sought by selected customer groups, the initial idea progresses and a business concept emerges. A notable finding is that the founders were quite structured in their progress from transforming the identified opportunity into a business concept. All of them formulated a detailed business plan, including values sought and resources deployed. A crucial element of this plan is the translation of a social or ecological goal into customer benefits. Despite the motivation to tackle a social problem, the co-founders of Coffee Circle put the customer at the heart of their business. They state: *"In Germany, it is not sufficient to appeal to the bad conscience as a business base. The product has to be right. If the good cause is central, it will not work in the long term."* Besides price, the most important buying criterion for food in general and coffee in particular is taste. That is why Coffee Circle emphasizes the great taste of its various coffee blends. Fairnopoly launched a beta version of its fair online market place to get feedback from potential

customers and the benefits they seek. As a consequence, Fairnopoly: enhanced the convenience of online shopping on the new platform; decreased commission prices for the purchase and the sale of traded articles; and provided special conditions for providers of fair traded products. Despite prior knowledge and previous experience as an entrepreneur, the alignment process may take quite some time, as expressed and evidenced by Seija Lukkala. The upcycled textile products by Globe Hope offer high functional benefits, uniqueness and design. Thus, they meet the expectations of (mainstream) customers in the fashion industry. In order to compete with conventional offerings on the market, Polarstern developed renewable energy offers with the customer in mind. Besides the ecological advantage of their product, Polarstern focused on developing an attractively priced, convenient and transparent offering. During the third phase, the development is limited to the double bottom line of social and economic goals (e.g. CoffeeCircle and Fairnopoly), or the double bottom line of ecological and economic goals (e.g. Globe Hope and Polarstern).

### **Developing a Triple Bottom Line Solution**

By definition, sustainable enterprises pursue the triple bottom line of economic, social and ecological goals (e.g. Binder and Belz, 2014; Cohen and Winn, 2007; Patzelt and Shepherd, 2011). Our empirical data suggest that only two goals are pursued in the early stages of the development process (third phase of the SEP). In the later stages of the development process (fourth phase of the SEP), the third goal is integrated as well. The findings indicate that the development of the triple bottom line solution takes place successively, not simultaneously. Coffee Circle puts a strong emphasis on direct and fair trade. As the founders developed the sustainable business concept further they decided to purchase organic coffee beans only, which were grown without any pesticides in forest gardens. The coffee is picked by hand, ensuring that only ripe and red coffee berries are harvested. In addition to that, the CO<sub>2</sub> emissions of the transportation processes from coffee producers in Ethiopia to coffee consumers in Germany are compensated by means of verified emission reduction certificates. These certificates enable the reforestation of a national park in Mozambique. The focus of Fairnopoly is the fight against corruption by being transparent, open and honest. In principle, any kind of product can be traded on the online platform. However, against the background of the philosophy of the cooperative a great variety of “fair” products

are offered. Additionally, a wide range of “eco” products in the non-food sector is offered on the online platform. Similar to eBay, Fairnopoly also enables the trading of used, discarded products, which prolong their life cycle and possibly reduces overall consumption. The main emphasis of Globe Hope is the upcycling of used, discarded textile products. Globe Hope also ensures ethical working conditions for subcontracted sewing houses in Finland and Baltic countries. The co-founders of Polarstern assume the ecological and social responsibilities of fighting climate change on a global scale and contributing to intragenerational equity, respectively. Polarstern endorses a micro biogas plant for a family in a developing country for each new customer. In all four cases, the integration of the third dimension is not a necessity driven by legal requirements or market demand. Rather, the sustainable entrepreneurs think in an ethical and holistic way. For them, ecological and social issues go hand-in-hand. The integration of the third dimension rounds up the sustainable offering. Interestingly, this takes place before market entry, which adds to the credibility of the sustainable offerings.

### **Funding and Forming of a Sustainable Enterprise**

According to the empirical results across the four case studies, the funding and forming of a sustainable enterprise describe the fifth stage of the SEP. Here we will focus on the funding of sustainable enterprises before market entry, that is, seed-capital. Based on detailed sustainable business plans, all four case studies managed to acquire external funding in the early, pre-revenue stage before market entry. Interestingly, each case obtained a different type of seed-capital. Coffee Circle, for example, received a new-business founder loan from *KfW*, a German government-owned bank. This special start-up loan with favourable conditions is eligible up to €100,000. Within six months after the approval of the loan, Coffee Circle managed to get online and generate its first revenues. As part of the vision to integrate users throughout the entire SEP, Fairnopoly successfully initiated two rounds of crowdfunding at *startnext*, Germany’s largest crowdfunding platform for creative projects. Altogether, Fairnopoly managed to raise more than €200,000 this way. Globe Hope mainly relied on personal assets and some private funding from family and friends. In contrast, Polarstern received public funding from the German Federal Ministry of Economics and the Environment, enabling it to conduct research and develop its integral sustainable service solution.

The incorporation and registration of the sustainable enterprises took place before market entry. Coffee Circle, Polarstern and Globe Hope chose the legal form of a limited company. Fairnopoly is an exception to the rule. After developing an open, transparent and interactive business model, the founders came to the conclusion that a cooperative was the most appropriate legal form for their vision of a fair business venture. Felix Weth refers to it as “cooperative 2.0”, and remarks: *“We want to engage a high number of users and limit the access of major investors.”* Thus, a high level of transparency and participation is incorporated in Fairnopoly.

### **Creating or Entering a Sustainable Market**

The market creation or market entry is the sixth phase of the SEP. It is the moment in time when the sustainable innovation is commercialized and can be accessed in the market. Coffee Circle entered the German coffee market in December 2010 by offering organic, fair traded coffee online. Instead of going through conventional retailers, it directly sells sustainable coffee to end consumers who value the quality of the product. The sustainable brand “Coffee Circle” indicates the direct link between coffee producers and coffee consumers. It is the circle, which connects two market partners in one world. The co-founders say about the market entry phase: *“We perceive Coffee Circle as a pioneer in terms of a new Fair Trade model and the use of the internet. There are a growing number of people, who trust in online shopping and who demand transparency from enterprises.”* Fairnopoly also puts a lot of emphasis on transparency and trust. It entered the German online market for new and used products in September 2013. The focus is on sustainable products. The two successful crowdfunding campaigns also created a hype, which enhanced the market introduction. Despite the positive resonance in online and offline media, however, its growth has been slow. Globe Hope entered the Finish textile market during summer 2003. The sustainable enterprise created a new niche. At that time, sustainable fashion was just emerging and the idea of upcycled textiles was virtually unknown to suppliers and consumers. In the beginning, Seija Lukkala approached small fashion stores in the greater Helsinki area and beyond to sell her products. The novel products created a lot of hype. However, it did not turn into sales. Polarstern entered the German energy market in July 2011. During the launch, the main customer groups were end users who were sensitive to sustainability issues and who wanted to make a change in the energy market. In 2011



eco-electricity was widely available in the German energy market, offered both by new entrants and by incumbents, however, green biogas and the social dimension were new to the market. The novelty is difficult to communicate to the end users, as emphasized by the co-founder Florian Henle: *“One of the greatest challenges is the communication of our sustainable energy offering. It is difficult to explain, why we go beyond the national market and why we pursue a transformation of the energy sector worldwide. Since we are the first sustainable energy provider on the market to do so, we have to make an extra effort to sensitize consumers to the issues on a global scale.”*

Table 8 synthesizes the main empirical results, including the six phases of the SEP, including exemplary statements by the (co-) founders.

	<b>Recognizing Social or Ecological Problem</b>	<b>Recognizing Social or Ecological Opportunity</b>	<b>Developing Double Bottom Line Solution</b>	<b>Developing Triple Bottom Line solution</b>	<b>Funding and Forming Sustainable Enterprise</b>	<b>Creating or Entering Sustainable Market</b>
<b>Coffee Circle</b>	Social problem of unfair wages	Direct, fair trade coffee	Social value aligned with taste and coffee experiences	Ecological value of organic coffee and CO2 neutral transportation	New business founder loan with special conditions from KfW; Limited company	Entering growing sustainable niche
<b>Fairnopoly</b>	Social problem of corruption	Transparent online market	Social value aligned with convenience of online shopping	Ecological value in form of eco products (new and used)	Two crowdfunding campaigns; “cooperative 2.0”	Entering growing sustainable niche
<b>Globe Hope</b>	Ecological problem of ‘fast fashion’ and textile waste	Used fabrics redesigned	Ecological value aligned with functionalities, design and uniqueness	Social value of ethical working conditions	Personal assets, family and friends; Limited company	Creating new sustainable niche
<b>Polarstern</b>	Ecological problem of climate change	Renewable energies	Ecological value aligned with price attractiveness, transparency and service quality	Social value of endorsing biogas plants in developing countries	Public funding EXIST; Limited company	Entering growing sustainable market segment

**Table 8 – Synthesis of Empirical Results**

### 3.2.5 Discussion

In the prior section we sketched the process of sustainable entrepreneurship that emerged from our data. In this section, we will discuss the six phases against the background of existing literature and make a proposition for each phase. As a synthesis of this part, we will suggest a convergent process model of sustainable entrepreneurship with two pathways.

#### **Recognizing a Social or Ecological Problem**

A notable finding of our empirical results is that the prospective sustainable entrepreneurs recognize a particular social or ecological problem they encounter in their private or professional lives. Moritz Waldstein and Martin Elwert recognized the problem of unfair wages during their sabbatical in Ethiopia. Felix Weth became familiar with the problem of corruption during his internship for Transparency International. Seija Lukkala worked as a textile designer and was frustrated with ‘fast fashion’ and the waste it produces. Jakob Assmann recognized the consequences of climate change first-hand during his hiking trips in the Austrian Alps. The data suggest that first-hand experiences are important for the recognition of a particular problem as a potential starting point for the SEP. These findings resonate with the literature and empirical studies in the context of social entrepreneurship (e.g. Corner and Ho, 2010; Dorado, 2006; Perrini et al., 2010; Robinson, 2006; Shaw and Carter, 2007). In this respect, Corner and Ho (2010) introduce the notion of *experience corridors*, which is an extension of *knowledge corridors* (Shane, 2000). The latter refers to information and know-how that entrepreneurs have gained from formal education and past work experience (Shane, 2000). This concept remains more narrowly focussed on commercial work experiences (Carter and Ho, 2010), including prior knowledge of customer problems, markets, and how to serve markets (Shane, 2000). The former is used in a broader sense, acknowledging that personal life experiences also shape opportunity recognition (Carter and Ho, 2010). Both types of knowledge and experiences enhance the absorptive capacity necessary for opportunity recognition (Ardichvili et al. 2003; Patzelt and Shepherd, 2011; Shane 2000).

One interesting difference between our and other studies is the scale of the problems recognized and tackled by sustainable entrepreneurs and social entrepreneurs. While

the latter seem to focus on unmet social needs on a local level (e.g. Perrini et al., 2010; Robinson, 2006; Shaw and Carter, 2007), the former tend to have a broader scope, including particular social and ecological problems on a global scale as well (e.g. climate change, corruption). This is in line with the global concept of sustainable development, as defined by the World Commission on Environment and Development (WCED, 1987). We therefore conclude:

***Proposition 1:** A potential starting point of the SEP is a particular social (ecological) problem on a local or global scale which prospective sustainable entrepreneurs encounter first-hand in their private or professional lives.*

### **Recognizing a Social or Ecological Opportunity**

Cohen and Winn (2007) argue that market imperfections lead to socio-ecological problems and at the same time provide entrepreneurial opportunities. Different forms of market imperfections include inefficient firms, externalities, flawed pricing mechanisms, and information asymmetries (Cohen and Winn, 2007). The typology sheds light on the nexus of socio-ecological problems and entrepreneurial opportunities. Hence, it represents a useful instrument for the analysis of the four case studies. Coffee Circle deals with the social problem of low wages. The Ethiopian coffee farmers hardly earn enough to feed their families and send their children to school (negative externalities). There is evidence to support the assumption that hard labour of the Ethiopian coffee farmers is undervalued (flawed pricing mechanism). By building direct links between coffee producers and consumers, Coffee Circle sees the opportunity to pay higher wages and implement a new fair trade model. Fairnopoly tackles corruption, which hinders fair competition and incurs external costs for third parties (e.g. competitors driven out of business, higher prices for end customers). Usually, consumers do not know about the kinds and the levels of corruption across different countries and industries leading to uninformed buying decisions (information asymmetry). By enabling participation and ensuring a high level of transparency, Fairnopoly sees the opportunity for a fair online market model. Globe Hope tackles the problems of 'fast fashion' and textile waste. Low prices for 'fast fashion' make consumers buy more and produce a lot of textile waste, which is often discarded on the dump. On the one hand, the low prices for fast fashion are examples of a flawed pricing mechanism and negative externalities (e.g. toxification of land used for cotton farming).

On the other hand, it is also a typical example of inefficient firms, which produce waste and do not reuse their products at the end of the life cycle. By upcycling discarded clothes, Globe Hope sees the opportunity to reduce waste, while meeting a latent market demand. Polarstern takes up the problem of climate change. There is mounting scientific evidence that the high use of non-renewable, CO<sub>2</sub>-intensive energies, such as coal and oil, leads to climate change (IPCC, 2013), resulting in external costs for the natural environment as well as present and future generations (e.g. increasing the number of extreme weather conditions and natural disasters). By offering green biogas, which is CO<sub>2</sub>-neutral, Polarstern tries to meet latent market demand. Our findings are in line with Dorado (2006) and Lumpkin et al. (2013), who suggests that the recognition of social entrepreneurial opportunities might be driven by the perception of relevant market failures. We assume:

***Proposition 2:** Market imperfections contribute to ecological and social problems, which are perceived as opportunities by prospective sustainable entrepreneurs.*

### **Developing a Double Bottom Line Solution**

The creation of a new sustainable venture largely depends on the ability to translate the sustainability goals into product features, which are valued by customers (Choi and Gray, 2008; Keskin et al., 2013). In the same vein, Berchicci and Bodewes (2005) emphasize the importance of incorporating both environmental and traditional attributes, such as price and quality, in the development of new environmental products. Similarly, Belz and Peattie (2012) argue that the alignment of social or ecological attributes with core purchasing criteria such as functionality, performance, design, durability, taste, freshness, etc., is a key factor in sustainability marketing, that is, the successful marketing of sustainable products and services. Our empirical findings indicate that the original problem detected in the beginning of the SEP is aligned first with values sought by particular customer groups to develop a double bottom line solution (see Keskin et al. 2013 for similar results). Coffee Circle combined the fair share of income for the Ethiopian farmers with the great taste of the coffee, the pride in expertise, and the possibility of participation. Fairnopoly aligned transparency and anti-corruption with customer values such as online convenience, price and special conditions. Globe Hope matches the waste reduction and upcycling with high functional benefits, uniqueness and design, which are important purchasing criteria for

mainstream customers regarding textiles. The renewable energies offered by Polarstern are price-attractive, convenient, and transparent. As resources become more precisely defined in terms of potential uses and as market needs become more precisely defined in terms of customer benefits, the entrepreneurial opportunity progresses from its basic form and a business concept begins to emerge (Ardichvili et al., 2003). We therefore assume:

***Proposition 3:*** *A key activity in the development of a double bottom line solution is the alignment of social or ecological goals with values sought by particular customer groups.*

### **Developing a Triple Bottom Line Solution**

Related concepts to sustainable entrepreneurship are social entrepreneurship and ecopreneurship. Typically, social entrepreneurship considers the double bottom line of social and economic value (e.g. Dancin et al., 2010; Short et al., 2009), while ecopreneurship aspires to ecological and economic goals (e.g. Larson, 2000; Schaltegger and Wagner, 2011). As described and discussed, a double bottom line solution is developed in the third phase of the SEP. If co-founders decide to skip the fourth phase of the SEP, and enter the market without integrating the third dimension of sustainable development, we may refer to it as social entrepreneurship and ecopreneurship, respectively. Thus, we would argue that the process model of the SEP also has some value for the process of social entrepreneurship and ecopreneurship, including five instead of six phases.

The development of a triple bottom line solution is characteristic of sustainable entrepreneurship. A cross-case comparison indicates that there are strong and loose ties between the triple bottom line of economic, social and ecological goals. Take Polarstern as an example of a strong tie. The sustainable venture puts an equal emphasis on economic, ecological and social dimensions. Unlike other green companies offering renewable energies, they also emphasize the social and global dimension of the energy turnaround. The endorsement of micro biogas plants for families in developing countries is an integral part of its sustainable offering, and it is a unique selling proposition in online and offline communications. Globe Hope is an example of a loose tie. While ethical aspects are vital in the sustainable supply chain management and an important part of the sustainable business concept, the main

emphasis is placed on the link between economic and ecological goals. Ecological issues are at the core of the concept, while social aspects are rather complementary.

Notwithstanding the differences in the weighting of the goals, the four case studies have two aspects in common with regard to the development of the triple bottom line. First, the integration of the third dimension is less driven by external pressures or conditions (e.g. market demand, regulations), but rather by the internal motivation of the sustainable entrepreneurs. We may assume that the interviewed sustainable entrepreneurs have a paradoxical cognitive frame, which is complex and characterized by a combination of multiple attributes with different rationalities (Hahn et al., 2014). Second, our empirical data suggest that the development phases of a triple bottom line solution takes place sequentially, not simultaneously. The integration of sustainability issues into the development process is quite a challenging task considering the lack of knowledge and uncertainty regarding sustainability problems (Keskin et al., 2013), and the multiplicity of goals. The successive order in the development process reduces the complexity of the challenging task, makes the integration and balancing process easier and manageable for the co-founders. Hence we assume:

***Proposition 4:** The development of a triple bottom line solution takes place successively, not simultaneously, to reduce the complexity of the challenging task.*

### **Funding and Forming a Sustainable Enterprise**

Funding an entrepreneurial venture is a critical activity in the formation of a new business (Shane, 2003). Empirical studies show that entrepreneurs have limited access to financial resources (Ebben and Johnson, 2006; Jonsson and Lindbergh, 2013). In the context of sustainable entrepreneurship, Choi and Gray (2008) identify personal resources, such as family and friends, as primary sources for funding the business. According to these authors, sustainable entrepreneurs have to rely on the financial support from family and friends as their non-traditional business view might lead to difficulties in attracting funding from banks or professional investors. In our cases, the sustainable entrepreneurs relied on a variety of different sources for obtaining seed-capital. Contrary to the assumptions made by Choi and Gray (2008), Coffee Circle did not encounter difficulties in receiving a bank loan to finance their first round of investments. This might be due to their well-elaborated business plan, reflecting these

sustainable entrepreneurs' ability to conduct business, besides their social and environmental aspirations. Fairnopoly succeeded in running two crowdfunding campaigns with a total sum of more than € 200,000. Crowdfunding is a novel source of funding. As the example of Fairnopoly shows, crowdfunding is a well-fitting source of funds for sustainable entrepreneurs, as their focus on socially relevant aspects is likely to attract the interest from a large number of crowdfunders, who are motivated to invest in the social good (Mollick, 2014). Globe Hope supports the findings by Choi and Gray (2008) that sustainable entrepreneurs are likely to bootstrap capital from family and friends. To get her business running, Seija Lukkala relied on personal assets as well as investments from friends. A notable finding is that Polarstern received public funding to support the research and development of their idea. Their focus on environmental and societal value creation opened the door for public funding by the German Federal Ministry. As the results of our cases imply, sustainable entrepreneurs can draw on a variety of potential sources for obtaining seed-capital due to their focus on the triple bottom line. In comparison to conventional entrepreneurs, hybrid organisations do not seem to be at a disadvantage in raising external funding (Dorado, 2006). We conclude:

***Proposition 5:*** *Sustainable enterprises pursuing a triple bottom line approach can draw on a variety of potential sources for seed-capital, including family, friends, bank loans, crowdfunding, and public funding.*

### **Creating or Entering a Sustainable Market**

Entering the market is the point of time when the novel sustainable product or service is offered publically and can be acquired by customers. By definition, it marks the end of the SEP. The cross-case study analysis shows that there are some notable differences regarding the status of sustainable markets. Coffee Circle entered the niche of sustainable coffee, which accounts for approximately 3-4 percent of the total coffee market in Germany, in 2010. This niche has been growing, and is mainly driven by customer demand. Coffee Circle offers its products for premium prices, targeting customer groups which value high quality, flavor, and country of origin, along with social and ecological attributes. The sustainable enterprise realizes cost savings by means of direct trade between coffee producers and consumers, employing e-commerce and eliminating a number of middlemen along the coffee supply chain. Interestingly, the cost savings are not passed on to consumers in order to gain competitive advantage,



but are used to pay premium prices for quality beans, providing a higher income for coffee farmers in Ethiopia. Similar to Coffee Circle, Fairnopoly entered a growing niche in 2013. This sustainable enterprise aims at establishing a new business model and enhancing the market for fair-trade, organic and used products. The prices vary according to the product categories and products offered (sustainable products vs. conventional products as well as new products vs. used products). Special price conditions favor the sale of sustainable products over conventional products. Globe Hope is an exception to the rule. It did not enter an already-established niche. Instead, the Finnish sustainable venture created a new niche. About ten years ago, sales of sustainable textiles were still low and the concept of upcycled fashion was virtually unknown in Finland and other European countries. The prices of Globe Hope products offer good value for money in the mid-range of the market. Polarstern entered the growing market segment of renewable energies in Germany in 2011. It is mainly driven by regulation and accounts for more than 20 percent of the total energy market. Polarstern offers eco-electricity and green biogas for similar prices to competitors in this market segment. In contrast to its competitors, Polarstern also offers a social value-added by supporting micro biogas plants in developing countries.

Hockerts and Wüstenhagen (2010) argue that new sustainable ventures usually enter sustainable niches with high environmental and social standards. Our empirical results offer a more differentiated picture. Against the background of our case studies, we would argue that there are at least three different market situations sustainable enterprises face as they offer their new sustainable products and services. First, there is not any established sustainable niche in the market. It has to be created by the new sustainable venture (e.g. Globe Hope). Since customers are unfamiliar with the new sustainable products, this situation is quite challenging. The new sustainable enterprise does not face any competition, but high customer-related market entry barriers exist (e.g. unawareness of related sustainability issues, consumer skepticism regarding performance of sustainable innovation). Second, there is an established sustainable niche, which is entered by the newly-founded sustainable enterprises (e.g. Coffee Circle and Fairnopoly). In this situation primary, consumer-related market entry barriers are lower, while secondary competitor-related market entry barriers are higher (Belz and Peattie, 2012). Third, there is a sustainable market segment, which sustainable enterprises enter (e.g. Polarstern). It accounts for more than a 5 percent share of the

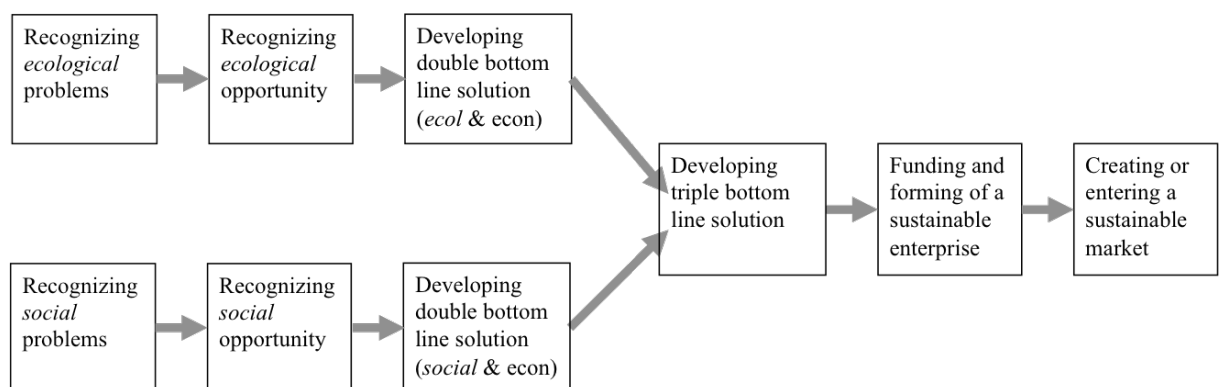
total market, and can be driven by a shift in demand or new regulations (e.g. renewable energy market in Germany).

Regardless of the niche or the segment, the positioning of novel sustainable products or services is similar in the four case studies we investigated. Accordingly, they position their sustainable offerings in the upper segment of the market. They compete on quality, not on price. Thus, they do not enter the lower end of the (mass) market. This resonates with the empirical findings of Choi and Gray (2008), who conclude that most sustainable ventures are positioned in the high end of the market to pass on the higher cost for sustainable practices to consumers, and balance the triple bottom line. It is also in line with two quantitative studies on sustainability marketing strategies (Belz and Schmidt-Riediger, 2010; Buil-Carrasco et al., 2008). We conclude:

**Proposition 6:** *Sustainable enterprises create new sustainable niches or enter established sustainable niches and segments in the higher end of the market.*

### A Process Model of Sustainable Entrepreneurship

Based on the empirical results, we suggest a convergent process model of sustainable entrepreneurship, including the following phases: (1) recognizing a social or ecological problem; (2) recognizing a social or ecological opportunity; (3) developing a double bottom line solution; (4) developing a triple bottom line solution; (5) funding and forming a sustainable enterprise; and (6) creating or entering a sustainable market (see Figure 7).



**Figure 7 – Sustainable Entrepreneurship Process**

The findings suggest that there is not just a single pathway towards triple bottom line solutions. Depending on the particular problem as the starting point of the entire process, there are at least two different SEP pathways. The first is exemplified by the two case studies Globe Hope and Polarstern. It starts off with a particular ecological problem perceived by the prospective sustainable entrepreneurs, proceeds with the alignment of the ecological problem with the opportunity with a double bottom line solution, and eventually ends up with the integration of a social dimension. The second is represented by the two case studies Coffee Circle and Fairnology. It begins with a particular social problem, the alignment of the social problem with a market opportunity, and the integration of an ecological dimension. Ultimately, both pathways result in a triple bottom solution. In organizational literature, this is discussed under the concept of *equifinality* (Fiss, 2007), meaning that ‘a system can reach a final state from different initial conditions and by a variety of different paths’ (Katz and Kahn, 1978, p. 30). In the present study, the system is a for-profit organization with a social mission, or a hybrid organization, which pursues the triple bottom line of economic, social and ecological goals. The suggested process model implies that sustainable enterprises evolve over time. The integration of the triple bottom line is a complex process, which takes place sequentially, not simultaneously. All three dimensions of economic, social and ecological goals are considered and at least partly integrated before market entry, which adds to the credibility of the new venture and its sustainable offering. Choi and Gray (2008) assume that sustainable entrepreneurs with little or no business experience would not have started a sustainable venture if they had known the challenges involved. Our findings tell a different tale. Most of the co-founders had formal education and/or experience in business. They were and are aware of the difficulties and trade-offs between economic, social and ecological goals. Nevertheless, they decided to follow this path and their passion. The reasons why are subject to further research.

### 3.2.6 Conclusions

The aim of the paper was to add to our understanding of the SEP. Based on the empirical findings, we suggest a convergent process model of sustainable entrepreneurship with two pathways. Thereby, we make a theoretical contribution to the emerging field of sustainable entrepreneurship research. We suggest that the process model also holds true for the processes of social entrepreneurship, and

ecopreneurship. In these cases, the process model includes five instead of six phases, leaving out the development of the triple bottom line solution (fourth phase). Furthermore, we make a theoretical contribution to the general theory of entrepreneurship by highlighting the role of social and ecological problems as potential sources of entrepreneurial opportunities, which are largely unexplored in the literature.

The study is limited to four case studies for theory development. A number of open questions remain, providing opportunities for further research. Does every problem present an entrepreneurial opportunity? Does the SEP always start with the recognition of a social or ecological problem? Does the triple bottom line approach of sustainable enterprises attract some funders and put off others? How do sustainable enterprises evolve after market entry? Another limitation of the present study is the focus on the nature and the sequence of the SEP. Thus, it is largely descriptive. In further research studies, we suggest investigating the influence of individual attributes (e.g. sensitivity to sustainability issues, entrepreneurial knowledge) as well as micro and macro environments (see e.g. Cohen, 2006) on each phase of the SEP. This implies to move from process models to variance models, which focuses on relationships between independent and dependent variables of fixed entities at a certain moment of the time (e.g. creation of a new sustainable venture). These types of variance models would enable us to test hypotheses regarding the SEP with a large-scale, quantitative study.

This study suggests five implications for present and prospective sustainable entrepreneurs. First, social and ecological problems may be a potential source of entrepreneurial opportunities, however, to succeed in creating a new sustainable venture and competing in the market, it is vital to align socio-ecological attributes with customer benefits. Second, it may be useful to develop a sustainable solution meeting the triple bottom line sequentially, as it helps to reduce complexities and set priorities in the challenging development process. Third, seed-capital for sustainable enterprises is not limited to personal resources and bank loans. The social and environmental good of sustainable enterprises opens up the door to public funding and new unconventional forms of funding, such as crowdfunding. Fourth, the social and ecological value aligned with customer benefits suggests a sustainable positioning at the upper end of the market. Sustainable niches or segments represent a growing market in many sectors. Fifth, if a sustainable niche is not yet established it has to be created, which takes a lot of time and effort, increasing the danger of failing.

### 3.3 Essay III: Framing is a Double-Edged Sword: Sustainable Entrepreneurs' Cognitive Efforts to Break the Mold of Social and Ecological Problems

#### Abstract

Sustainable business solutions constitute an effective vehicle to address some of our world's most pressing problems. Yet individuals and organizations interested in such pursuits must first overcome an important challenge: that of identifying positive solutions for the otherwise dire circumstances they seek to address. In this study, we develop and test a model of cognitive efforts to reframe negative social and ecological problems into positive solutions. Drawing from a verbal protocol study conducted with 24 experienced sustainable entrepreneurs, we investigate the reasoning strategies they mobilize when facing social or ecological issues, and examine the extent to which framing and re-framing processes facilitates their identification of creative solution ideas. From a research standpoint, our study contributes new insights into the nature of reframing. More specifically, our work shows that reframing is a cognitive process that consists of a combination of frame breaking, representational changes, and new frame constructing. All in all, our study casts light on the cognitive dynamics that underpin entrepreneurs' efforts to reframe problems into solutions, providing empirical evidence that reframing is a relevant cognitive feat of managerial thinking and reasoning when addressing the grand societal challenges of our time.

*Key Words:* Framing theory, reframing, sustainable entrepreneurship

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### 3.3.1 Introduction

The roles enterprises take over in society are changing. In the past, businesses' primary contributions were mainly evaluated in terms of economic output, employment and financial performance. More recently, however, businesses have been challenged to take over responsibility for societal and environmental issues (Aguilera & Rupp, 2007). Responses to such calls have varied. While many organizations continued doing business 'as usual' and merely sought to adjust their practices to new regulations and stakeholder demands, others have approached these challenges as opportunities and have thus been working on innovative solutions to do business in ways that also addresses pressing issues (Weaver et al., 1999; Aragon-Correa & Sharma, 2003; Cohen & Winn, 2007).

Yet doing so is not easy (Miller et al., 2012). The more a social or ecological issue appears crucial to solve, the more it tends to be shrouded in a negative aura of crisis, disease, misery, pollution, suffering and other dire consequences. This implies that in practice, the potentially most-impactful individuals must overcome the dual challenge of coming-up with insightful innovative ideas while also battling the negative dread that surrounds the very problems they seek to address.

Considering avenues how to overcome such difficulties, recent studies have drawn attention to the particular importance of cognitive frames and the associated processes of framing and reframing (Cornelissen & Clarke, 2010; Hahn et al., 2014). Cognitive frames are knowledge structures that steer individuals' cognitive attention and mental representations about reality. Accordingly, frames are mental shortcuts that serve as important reference points for making sense of information, triggering particular expectations and guiding individual's behavior (Starbuck, 1983). From a cognitive standpoint, the notion of 'frame' refers to how the human mind represents knowledge – and notably, more generic forms of knowledge such as categories, concepts and other ideal types (see Minsky, 1975; Shank & Abelson, 1977). By extension, such cognitive models postulate that individuals can mobilize frames to make sense of new information – such as when one compares new stimuli to existing frames – or when one attempts to give meaning to his/her social experiences (see Goffman, 1974). Past research on managerial cognition has shown that cognitive frames can serve as important filters in individuals' efforts to make sense of new information – and in their efforts to determine appropriate strategic responses (Porac & Thomas, 2002; Weick,

1995). For example, Hahn et al. (2014) revealed how differences in managers' cognitive frames determined their interpretation and response to sustainability issues as either pragmatic or prudent.

But framing is a double-edge sword. While many studies portray frames as helpful cognitive resources, cognitive frames may also lead to rash and false evaluations of a situation (Maitlis & Sonenshein, 2010; Weick, 1993; Weick & Sutcliffe, 2005). Along this line, a number of psychologists, sociologists and organization theorists have drawn attention to the cognitive feat of frame breaking or reframing, referring to the conscious effort of individuals to deliberately break or change an activated frame of reference (Cornelissen & Clarke, 2010; Fauconnier & Turner, 2002). In essence, reframing refers to the cognitive processes of activating or constructing alternative frames that allow for a more meaningful interpretation of a situation (Cornelissen et al., 2014). As such, reframing is particularly important for novel situations that require individuals to think out of the box and to derive behavioral responses that are tailored to a particular situation. Drawing on this reasoning, processes of frame-breaking and reframing appear particularly germane to examine the unique achievements of individuals – both within organizations or acting on their own – who manage to identify promising innovative ideas from otherwise dire circumstances.

Building on recent advances in cognitive sciences, organizational cognition and entrepreneurship research, we develop a model of how, when, and why individuals engage in reframing, and the effects this has on their effective identification of promising solutions to address social or ecological issues. We then test this model empirically by conducting a series of verbal protocol exercises with 24 entrepreneurial individuals, thereby exploring the reasoning strategies they mobilize when faced with social or ecological issues, and examining the extent to which their framing and re-framing efforts enable them to identify promising solution ideas.

In terms of value-added contributions to extant research, the present study advances theorizing on managerial cognition by casting light on the underlying cognitive dynamics of reframing, suggesting that cognitive reframing is a process of frame breaking, representational change and new frame constructing. In this particular vein, our empirical findings reveal that reframing is an important and impactful reasoning strategy underpinning entrepreneurs' efforts to address the grand societal challenges of our time. More pointedly, our results unpack the cognitive chain of reasoning processes

through which reframing enables the identification of creative solution ideas. In doing so, our cognitive model opens the black box of individuals' reasoning about sustainability issues, suggesting that reframing is a relevant explanatory angle explaining why some individuals (and not others) are able to identify solution ideas for pressing social and environmental problems. As such, this study provides novel insights into the question where solutions to sustainability challenges might come from.

### 3.3.2 Theoretical Developments

#### **Pro-Social Organizing**

Regardless of their particular orientation and status as for profit or not, business organizations have the potential to provide solutions to important social and ecological problems (Cohen & Winn, 2007; Pacheco, Dean & Payne, 2010; Jay, 2013). While most organizations respond reactively to changing legislations and/or stakeholder pressure, other businesses have started to proactively integrate social practices in their corporate strategy and core business activities (Aragon-Correa & Sharma, 2003; Bansal & Roth, 2000). In parallel to these efforts, increasing numbers of emerging new ventures have proactively embraced the integration of social practices, which aim at creating sustainable businesses, equally valuing and pursuing profitability and societal value as part of their organizational strategy and identity (Miller et al., 2012; Patzelt & Shepherd, 2011).

According to past research, opportunities to create sustainable market solutions find their sources in market failures and imperfections (Dorado, 2006; Cohen & Winn, 2007; Dean & McMullen, 2007; Lumpkin et al., 2013), unmet social needs (Shaw & Carter, 2007), as well as social and ecological problems (Dees, 1998; Belz & Binder, 2015). For Cohen and Winn (2007), market imperfections occur when firms are inefficient, when externalities exist, when pricing mechanisms are imperfect and in cases of imperfect distribution of information. Adding to Cohen and Winn (2007), Dean and McMullen (2007) suggest that public goods, monopoly power, and inappropriate government interventions can also explain market failures. For these authors, the emergence of market shortcomings and malfunctions effectively constitute opportunities – in the sense that these situations ‘open the doors’ for individuals to



‘come in’, think of potential solutions to address the problems and try implementing them.

Yet, thinking about solutions to pressing social and environmental problems and integrating these into a firm’s activities is difficult, primarily because of the high complexity and uncertainty involved in achieving economic, social, and ecological value gains simultaneously (Gao & Bansal, 2013). Past research has shown that enterprises’ strategic responses to pro-social organizing depends on the top managers and entrepreneurs within these organizations, who act in accordance with their mental representation of a given situation. Indeed, extant research on the topic has highlighted the importance of studying managerial cognition to understand organizational responses to external cues (Daft & Weick, 1984; Hambrick & Mason, 1984; George et al., 2006). Yet, empirical studies conducted in the context of corporate sustainability pursuits show that managers and entrepreneurs face difficulties in cognitively processing the ambiguity inherent to the multidimensional concept of sustainability (Andersson & Bateman, 2000; Sharma, 2000).

Interestingly, extant research has started to highlight the role of framing for overcoming the challenges of pursuing the multiple and sometimes conflicting goals of economic profitability, social welfare and natural compatibility (Andersson & Bateman, 2000; Hahn et al., 2014). Most of this research has explored the role of framing along a dichotomy of opportunity and threat (Dutton & Jackson, 1987), thereby reducing the complexity of framing to a simplified representation of sustainability issues as either opportunities to embrace or threats to avoid (Andersson & Bateman, 2000; Sharma, 2000). Aiming to shed light on the underlying cognitive dynamics of framing sustainability issues, Hahn et al. (2014) suggested that managerial sensemaking for corporate sustainability relies on two different cognitive frames: a business case frame and a paradoxical frame, which guide manager’s response to social and environmental issues as either pragmatic or prudent. More generally, a number of authors have begun drawing attention the particular importance of cognitive framing processes to interpret sustainability-related information, which is in line with the growing popularity of the framing construct in management and organizational research (Cornelissen & Werner, 2014).

## **Framing Theory**

Frame analysis dates back to at least 1958, when James March and Herbert Simon published ‘Organizations’ – their influential monograph on organization theory. According to these authors, ‘frames of reference’ consist of simplified cognitive representations that often guide individual perceptions, and can eventually serve as means for action (March & Simon, 1958). Goffman (1974) later revived the notion of frames by referring to the centrality of frames for human interpretation and sensemaking. According to this author, individuals possess several frames, which serve as interpretative frameworks to make sense of a situation. The assumption is that frames serve as knowledge structures that support thinking, reasoning and sensemaking, which in turn direct the interpretation and behavioral responses to stimuli (Starbuck, 1983).

In their recent review, Cornelissen and Werner (2014) highlight the substantial body of management and organization research on framing. At the micro level, the authors highlight the advances of framing in organization and management research as having key explanatory power for understanding individuals’ sensemaking processes (Weick, 1995; Weick et al., 2005; Maitlis & Sonenshein, 2010). Accordingly, if a cognitive frame is primed or activated, it will serve as an important reference point for interpreting information and drawing inferential links between new information and individuals’ experience.

Building on this observation, a substantial part of Cornelissen and Werner’s (2014) review concerns the growing body of literature that explores individuals’ strong commitment to their extant frames (Weick, 1993; Levinthal & Rerup, 2006, Tripsas & Gavetti, 2000). More than anything else, this literature points to the constraining influence of cognitive frames on people’s interpretation of new and ambiguous stimuli. These studies demonstrate how individuals’ strong commitment to their initial cognitive frames may result in their mis-interpretation of particular events and situations. In his seminal analysis of the Mann Gulch fire Disaster, for instance, Weick (1993) exemplified how the smokejumpers’ overreliance on a fire-brigade frame caused them to interpret the initially small fire as a “ten o’clock fire”: this misreading of the terrain, weather and rapidly-changing circumstances resulted in a fatal misinterpretation of the situation – not to mention their misunderstanding of their chief’s last-ditch but out-of-the-box attempt to save their life (he lit a small escape fire in the tall grasses in

front of the advancing inferno and then lied faced down in the warm ashes with an handkerchief on his face: with no fuel to consume in the burnt area of the escape fire, the main fire simply went over him and continued up the hill). Not able to understand what was happening, thirteen young men ended up dying further up the hill. Together with a host of other studies of fatal decision (Weick, 1988, 1990, 2010), Weick highlighted the limits of cognitive frames. More generally, these studies convincingly demonstrate that an overreliance on frames of references can severely impede meaningful interpretation of otherwise relevant information (Maitlis & Sonenshein, 2010). And this appears particularly important in new or ambiguous situations, situations that depart from circumstances individuals already know and understand (Cornelissen & Werner, 2014).

The realization that frames may be overly rigid motivated research to investigate how individuals change their frames or construct new frames altogether (Cornelissen & Werner, 2014). These authors define the mental process of reframing as “*the ability of sensemakers to query an initial frame and commitments, and to mobilize instead an alternative frame from background knowledge or make novel associations as a way of structuring expectations and make inferences*” (Cornelissen et al. 2014, p.703). In essence, then, reframing concerns the challenging task of breaking an activated cognitive frame to construct a new frame, which allows for a more meaningful interpretation of stimuli (Cornelissen & Clarke, 2010; Cornelissen & Werner, 2014). In this regard, cognitive research on framing has shown that when facing reasoning or decision-making situations, expert problem-solvers often engage in cognitive strategies that re-define elements of the situations they face. For instance, in their study about the evolution of the digital camera, Brenner and Tripsas (2012) showed how manufactures from different industry backgrounds (e.g. photography, consumer electronics) made sense of the technological change by analogically extending their prior industry experience to the new product market, thereby applying elements of their old frame to a new frame. While drawing analogies between one’s previous experience and novel situations depicts efforts to change or extend frames, other studies have focused on cognitive strategies to construct new cognitive frames altogether. On that basis, Cornelissen & Clarke (2010) theorized that entrepreneurs evoke images of future entrepreneurial opportunities by means of inductive reasoning, thereby constructing a new cognitive frame.

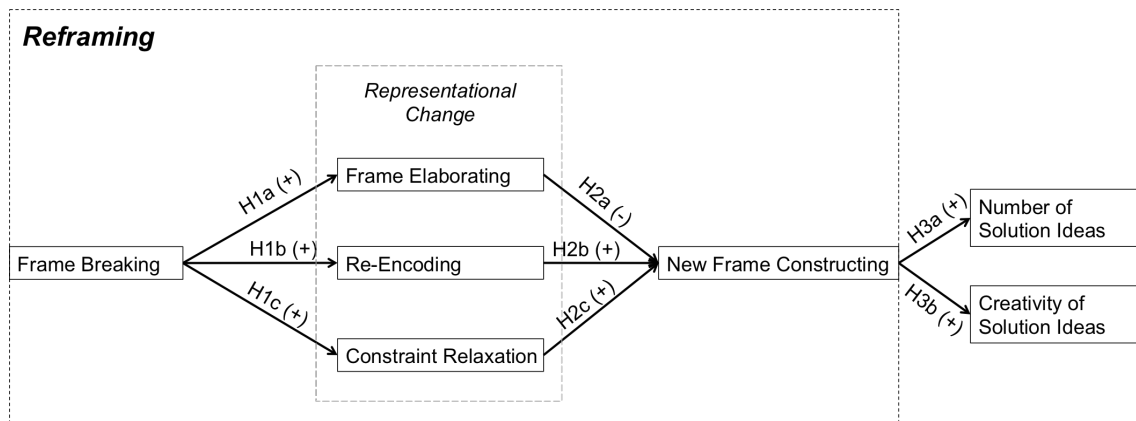
With current work documenting the importance of reframing for situations that depart from the usual, changes in the external environment of a firm may require individuals to actively break and/or change their cognitive frame. As such, the increasing pressure on businesses to integrate sustainability practices can be seen as a particular drastic change in the external environment of a business (Jay, 2013). It requires managers and entrepreneurs to break away from a “business-as-usual” frame and to construct a new cognitive frame that allows for a more meaningful interpretation of the complex and ambiguous challenges they are facing.

### **From Problem Framing to Solution Insight: A Reframing Process**

Expanding on these notions, we propose that extant research on framing provides a useful basis to advance scholarly understanding of businesses’ responses to sustainability issues – and more pointedly, on sustainable entrepreneurs’ unique cognitive achievements of identifying insightful promising solutions in the face of dire circumstances.

Yet as we noted in the introduction, framing is a double-edge sword. On the one hand, framing can enable faster, more precise understanding of particular situations. In this regard, framing can be eminently useful. But to the extent that it channels one’s interpretation of a new (problem) stimulus in terms of an older, well-known, but not necessarily optimal model, framing can also make it more difficult for people to identify possible ways forward. By contrast, reframing processes allow people to break the mold of social and ecological problems.

But reframing is cognitively difficult. With this respect, we posit that the way social and environmental problems are presented in media and everyday conversations activates cognitive frames related to negative crisis, insolubility and threat. In this regard, we postulate that the more one engages in framing (in the sense of committing to an existing ‘model’ of interpretation), the less likely it becomes that this person will engage in the kind of reframing that can lead to the identification of promising solution ideas. In order to think about solutions to the problems presented in the primed frame, we believe that individuals benefit from their efforts to ‘change’ the problem frame – thereby transforming negatively-framed problems into positively-framed solutions. (Benner & Trispas, 2012; Cornelissen & Werner, 2014). We summarize these notions in Figure 8.



**Figure 8 – Proposed cognitive model of reframing**

### 3.3.3 Hypotheses Development

Building on extant research synthesized in the previous section, we propose that cognitive reframing offers a relevant theoretical basis for exploring top managers and entrepreneurs' efforts to identify promising solution ideas from social and environmental problems. In this respect we build on framing research, which we enrich with insights from sensemaking and problem solving literature, to develop hypotheses about the cognitive process of reframing. Accordingly, we divided reframing into three phases: 1) frame breaking, 2) representational change, and 3) new frame constructing. This conception is consistent with Cornelissen et al. (2014), who defined reframing as the cognitive task of breaking an activated frame in order to mobilize an alternative frame and/ or to create a new frame.

#### **Frame Breaking**

In order to escape an activated frame and to think about alternative interpretations, individuals are faced with the challenge to break their activated cognitive frame. In sensemaking research this has been referred to as “adaptive sensemaking”, i.e. individuals' ability to question an initial frame and their commitments to this frame (Matilis & Sonenshein, 2010; Weick, 1996). Accordingly, questioning elements of a frame reduces an individual's commitment to this frame, which in turn triggers the search for alternative or novel mental representations. Further framing and

sensemaking research showed that a critical attitude towards a frame triggers more careful forms of sensemaking that may result in novel interpretations of the situation (Sonenshein, 2009; George and Jones 2001; Maitlis and Sonenshein, 2010). According to this research, doubt is an essential prerequisite to critically approach and question a salient cognitive frame, as it encourages individuals to search for alternative understandings of an issue (Christianson et al., 2009; Locke et al., 2008; Maitlis & Sonenshein, 2010; Weick, 2010; Yanow & Tsoukas, 2009).

Building on these insights we posit that frame breaking occurs when individuals question or doubt elements of the frame, for instance because the information in the frame conflict with strongly held knowledge structures and beliefs. By questioning the usefulness of a frame for a given situation individuals break from this frame, thereby changing their representation of the situation. Consistent with these considerations, we propose that the more an entrepreneur questions the accuracy or usefulness of social and environmental problem frames in terms of insolubility and threat, the more likely s/he will restructure this initial problem frame. Building on Ohlsson (1984) such representational change can be expressed by either adding novel information to the frame, engaging in re-encoding, or by relaxing the constraints of the frame. Thus

*H1a-c: The more one engages in breaking a primed problem frame, the more cognitive effort this person will devote to a) elaborate/ b) re-encode/ c) relax the constraints of the primed frame.*

### **Representational Change**

Engaging in frame breaking triggers the mobilization of alternative frames and mental representations (Cornelissen et al., 2014). In cognitive studies of problem solving, Ohlsson (1984) referred to this process as one of “restructuring”, whereas Knoblich and colleagues advanced the related terms of “representational change” (Knoblich et al., 1999; Knoblich et al., 2001). Building on Gestalt psychology, Ohlsson posits that restructuring involves two different processes: 1) retrieving concepts to re-interpret a problem space, and 2) applying this new interpretation to the problem space. In a later work, Ohlsson (1992) further distinguished three mechanisms underlying this process: he termed these 1) elaborating, 2) re-encoding, and 3) constraint relaxation. To the extent that representational change in problem solving can be applied to cognitive

reframing, we propose that the more individuals engage in restructuring key elements of the problem frame, the less sufficient the initial problem frame is for drawing meaningful inferences. As a result, individuals are motivated to create a new frame that facilitates their mental representation. While all three forms of representational change result in a change of the initial mental representation, they differ in the extent of change. Accordingly, we develop separate hypotheses for each form.

Because frames represent mental shortcuts, they are hardly ever comprehensive enough to account for all extra information. Thus, elaboration refers to the cognitive process of adding new information to the problem frame, which complements or changes an individual's interpretation of the situation. According to Ohlsson (1992), elaborating represents a monotonic form of representational change, as it does not reflect a change of the problem space per se, but rather complements and extends the initial representation (Ohlsson, 1992). In other words, individuals succeed in extending their frame, yet by doing so the initial frame remains unchanged (Watzlawick et al., 1974). Based on these considerations we argue that individuals who elaborate on the problem frame, for instance by verbalizing aspects, characteristics or other elements of the received problem frame, engage in restructuring their representation of the problem. However, as elaborating essentially refers to putting further cognitive attention to the problem frame, it does not result in further attempts to build a new representation of the issue. Building on the above rationale, we therefore propose the following hypothesis:

*H2a: The more one engages in elaborating a primed problem frame, the less one will devote cognitive effort to building a new interpretative frame for the problem presented.*

Perceived limitations of an activated frame trigger the mobilization of alternative frames (Maitilis & Sonenshein, 2010). By re-encoding elements of the problem frame individuals mobilize alternative mental representations. This second form of representational change, which Ohlsson (1992) termed re-encoding, involves the rejection of some components of the current representation of the problem to create a new interpretation of the situation. As such, re-encoding reflects a non-monotonic form of restructuring by more radically changing elements of the problem frame. Such "second-order changes", i.e. changes that make a difference in mentally representing

the problem (Watzlawick et al 1974), represent a relevant step in activating alternative frames that allow for a more meaningful interpretation of the issue at hand. Consistent with this, Bardwell (1991) argued that the ability to re-define a problem frame, thereby allowing for different perspectives on the issue, results in an increase of individuals' effort to find a solution and creatively address the problem. Accordingly, we argue that after breaking the problem frame, individuals search their mental space for alternative explanations of the issue, thereby drawing from different cognitive frames and re-defining key elements of the problem frame. Doing so motivates the construction of a new frame, which reflects individuals' unique conceptualization of a given situation and leads to more cognitive attention spend on finding a solution. Thus:

*H2b: The more one engages in re-encoding a primed problem frame, the more one will devote cognitive effort to building a new interpretative frame for the problem presented.*

In some cases, the reason why individuals cannot find a solution to a problem lies in the perceived conditions the solution has to fulfill. With this respect, Watzlawick et al. (1974) referred to self-imposed limits that constrain an individual's ability for finding solutions to a problem. Applied to our study, self imposed limitations may refer to instances in which individuals constrain their imagination because of their profound knowledge of the multitude of conditions a solution to social and environmental problems needs to fulfill. Consequently, individuals find it hard to think about potential solutions, when facing overly constrained solution spaces, which is why they engage in relaxing the constraints of that solution space (Knoblich et al., 1999). According to Ohlsson (1992), constraint relaxation is a form of non-monotonic representational change, which loosens some of these limitations. As such, constraint relaxation changes the representation of a goal or desired outcome rather than the problem frame itself (Ohlsson, 1992). Building on these arguments we suggest that when they encounter difficulties in their efforts to find a solution to social and environmental problems, some individuals will engage in relaxing their initially self-imposed constraints. For instance, someone who initially believed that all causes of climate change have to be tackled by one solution might eventually relax their strong position; this will allow them to start looking for different solutions to address some of the different causes of



climate change. Seen in this light, constraint relaxation represents a form of representational change that directly affects the construction of a new interpretative frame. Accordingly, we postulate the following hypothesis:

*H2c: The more one engages in constraint relaxation with respect to a potential solution, the more one will devote cognitive effort to building a new interpretative frame for the problem presented.*

### **New Frame Constructing**

To positively frame the issue and think about potential solutions, individuals can engage in creating a new, more appropriate frame that allows for a representation of the problem in positive, solution-oriented terms, thereby providing a more meaningful reference point to interpret the issue. Thus, frame constructing refers to individual's attempt to build a frame that allows for a representation of potential solutions to the problem. In essence, such a newly constructed frame can either be a blend, which combines elements of different frames (Fauconnier & Turner, 2002), or a novel frame that more iteratively emerged throughout the restructuring process (Cornelissen & Werner, 2014). Several empirical studies have since showed how individuals create new cognitive frames by aligning or blending different frames that have previously been separated (Cornelissen & Clarke, 2010; Glynn & Lounsbury, 2005). Building on these studies, we argue that engaging in new frame building results in more successful efforts to 'think of' promising solution ideas. As such new frame building may result in insights of how to solve the problem (Ohlsson, 1992). To the extent that individuals manage to build a new frame that conceptualizes the problem in terms of its solubility, the likelihood to come up with concrete solution ideas increases. Along this line, the more an individual frames the initial situation in positive terms, the more solution ideas are likely to be identified. Thus:

*H3a: The more one engages in new frame building, the more solution ideas one will identify to address the problem at hand.*

By the same token, we propose that by framing the issue in terms of its solubility will also have a positive influence on the perceived qualities of the solution ideas thereby

identified. According to Ohlsson (2011), problem solving through insight (as opposed to analytical problem solving), is directly related to creativity. Thus we argue that by drawing from different frames and combining these in novel ways, individuals are more likely to come up with creative solution ideas. Accordingly, the more an individual engages in building a new representation, the more creative the solution should be. We argue that the more time an individual spends in building a novel representation of the issue at hand, the higher the perceived creativity of the solution idea. Thus:

*H3b: The more one engages in new frame building, the higher the perceived creativity of the solution ideas this person has identified.*

### 3.3.4 Data and Methods

To examine the above questions and test our hypotheses, we conducted a verbal protocol study (Ericsson & Simon, 1993) with experienced sustainable entrepreneurs. More specifically, we presented participants with three short newspaper articles describing a social and/or environmental problem, and asked them to “think out loud” as they interpreted the issues at play. Verbal protocol techniques are well suited for our purpose, as they allow for observing participants’ cognitive strategies in real time (see Ericsson & Simon, 1993; Gregoire, Barr & Shepherd, 2010; Isenberg, 1986; Melone, 1994).

#### **Sample**

Three reasons motivated our choice to conduct the study with experienced sustainable entrepreneurs. First, external validity concerns demanded that we collect data about the mobilization of reframing strategies with individuals for whom the social and/or environmental issues we used as stimuli were at least of minimal interest. After all, the real-life phenomena that interest us is not the extent to which distantly-concerned individuals (like workers in a shipyard or nurses in a city hospital) might reason about climate change or biofuel issues but rather, to investigate how more directly concerned individuals transcend the negative overtones of such issues to identify positive solutions to them. Second, it was also desirable to conduct our study with individuals who had some prior experience in addressing the general kind of social and

environmental issues we focused on. Focusing on such individuals minimized the risk that participants' verbalizations might be tainted by their lack of experience with the tasks and challenges of trying to address such issues (see Grégoire, Barr & Shepherd, 2010; Williams & Grégoire, 2015). Third and last, we deemed it important to focus our observations on a somewhat homogenous group of social actors – to prevent our observations to be affected by broad disparities among the kind of participants we had. At the same time, we reasoned that it was also important to conduct our study with individuals who had experience using business and business-related means to confront such issue. Experienced sustainable entrepreneurs met all three criteria – hence our choice to conduct our study with such individuals.

We identified potential participants from a publicly available list of sustainable new ventures compiled by scholars from the EU-InnovatE research project (<http://eu-innovate.com/deliverables/>). We selected all the entrepreneurs from a single European country, and began contacting them via e-mail with a detailed explanation of the research and procedures. Of 46 entrepreneurs invited, 27 agreed to take part in the study. The most common reason to decline was a lack of time. And though we met with all 27 entrepreneurs, idiosyncratic issues at the time of the interview prevented us from obtaining a full set of observations from three entrepreneurs (for instance, one entrepreneur had to leave mid-way). As a result, our analyses focused on the 72 protocols obtained from 24 participants (a 52% completion rate).

### **Research Material: Newspaper Stimuli**

To augment the validity of our observations, we articulated the research stimuli in terms of newspaper articles that highlighted real-life social and environmental issues. In direct line with past research on strategic issue diagnostic (see Dutton & Jackson, 1987; Julian & Ofori-Dankwa, 2008), we reasoned that such newspaper articles could trigger various sensemaking efforts – included but not limited to participants' efforts to comment on the articles, deny, modify or reinforce their main points, to draw parallels with other situations, or to start thinking of potential ways to address the highlighted issues. In this regard, it is important to highlight that our research procedures did *not* specifically call for participants to immediately start talking about potential solutions to address these problems. We left this completely open for the first protocol – only following up with additional question if a participant spontaneously mentioned a

possible solution to these problems. It is only during the second and third protocol that we specifically asked participants what they might do to address the situation depicted in the newspaper stimuli. Naturally, we examine the potential effects of such differences in our analyses below.

To augment the external validity of our study, we developed three newspapers articles on the basis of published pieces, and worked with two professional journalists to ensure that their style and overtones were consistent with practice. The first stimulus described the problem of climate refugees – individuals who are forced to migrate because of important changes in their local environment, which compromises their livelihood and/or well-being (see Hartmann, 2010; Myers, 2002). The second focused on the well-documented and intensively debated phenomenon of climate change, referring to an increase in global average temperatures and the devastating impacts this change has on the planet (Parmesan & Yohe, 2003; Thomas et al., 2004). The third stimulus presented the market imperfections of biofuel, which promised to be a low-carbon alternative to fossil fuels, yet often resulted in an increase of carbon dioxides by converting agricultural land into land for biofuel production (Fargione et al., 2008). The three stimuli take account of different kinds of socio-ecological maladministration and market failures (Dean & McMullen, 2007). Please see Appendix 5 for a copy of the research material we used.

### **Research Design: A Framing Manipulation**

In order to further examine the effects of participants' framing/reframing efforts (under different conditions), we manipulated the emotional valence of the different scenarios. This is important – and practically relevant – because in the 'real world', entrepreneurs do not control the manner how different stimuli will be presented to them. We articulated the text of our stimuli to either convey a neutral, a positive or a negative valence. Owing to a long tradition going back to early philosophers and psychologists (see Goffman, 1974), valence framing refers to the notion that couching a message in either a positive or negative tone leads to markedly different responses (cf. Brendl & Higgins, 1997; Tversky & Kahnemann, 1981), because it prompts an emotional processing of the information at hand (see DeMartino et al., 2006).

Consistent with Levin et al. (1998), we articulated our valence manipulation by either

emphasizing the possible *gains* that would be realized by addressing the problems (therefore using positive terms, formulations and sentences), or the possible *losses* that would ensue by not addressing them (using negative terms, formulations and sentences). In order to initially observe participants' cognitive efforts net of any order, priming or valence effects, we showed each participant the same first scenario (climate refugee), and kept its emotional valence neutral. Conversely, we focused our manipulations on the second and third stimuli, creating alternate positive and negative versions of the climate change and biofuel articles. To establish the soundness of our proposed manipulations, we consulted with an academic expert who has published several papers on the effects of media framing, using this kind of manipulations: this expert confirmed that our manipulations were of a form and magnitude consistent with what s/he had seen in this literature. We also pilot-tested the proposed manipulation with 8 academics and observed that newspapers, which emphasized the potential gains, were perceived more positively and less difficult to solve, than newspapers, which were manipulated to emphasize the potential losses.

In order to disentangle the effects of our valence-framing manipulation from other priming effects associated with the particular 'stories' highlighted in each scenarios, we created four alternative order designs, and randomly assigned participants to either one. Note that in all orders, the neutral 'climate refugees' is blocked and always presented as the first stimulus: this implies that if this story has a priming effect, this effect is going to be the same across all designs. Although this prevents us from disentangling potential priming effects associated with this particular study (however unlikely), this strategy allows us to modulate our data collection efforts to initially target participant's 'free' and otherwise 'natural' responses to that first scenario, before we subsequently present them with different scenarios, more specific questions and the valence manipulations. Please note that we did not develop any particular hypotheses to this effect, but that we are controlling for how the different scenarios are presented. Table 9 summarizes how we operationalized the resulting valence manipulations in our different newspaper scenarios.

Scenario	Valence	Positive	Negative
<b>Climate refugees</b>	n/a		n/a
<b>Climate change</b>		So, do we have to expect worse destructions? Climate scientists agree on the fact that measures specifically targeted at global warming can hinder the rapid increase of storms of this type. Radical steps against climate change are long overdue. Countries benefiting the most from these measures would be developing countries such as the Philippines, which suffer the most from the consequences of climate change.	So, do we have to expect worse destructions? Climate scientists agree on the fact that without measures specifically targeted at global warming, the rapid increase of storms of this type cannot be hindered. However, a quick solution to this problem is not in sight. The victims of these missing measures would be developing countries such as the Philippines, which suffer the most from the consequences of climate change.
<b>Biofuel</b>		The report stresses the need to prevent a further increase in food prices in order to safeguard the basic nutrition of people affected by poverty. Quick and specifically targeted measures are necessary to solve this issue. Even the United Nations warn about the consequences of excessive biofuel cultivation for human nutrition and therefore demand concrete measures. "With a restriction of cultivation areas for energy crops, a food shortage with the consequence of dramatically increasing prices can be prevented", UN secretary Gustav Brest states.	The report points to the danger of rising food prices, as in this case the basic nutrition of people affected by poverty cannot be safeguarded. Without quick and specifically targeted counteractions, the issue would be further aggravated. Even the United Nations warn about the consequences of excessive biofuel cultivation for human nutrition and therefore demand concrete measures. "Without a restriction of cultivation areas for energy crops, a food shortage with the consequence of dramatically increasing prices can hardly be prevented", UN secretary Gustav Brest states.

**Table 9 – Summary of Framing Manipulations**

### Data Collection Procedures

Consistent with standard practices of verbal protocol research, we met each participant separately to conduct the research, oftentimes traveling to meet them at their place of work. After explaining them the study's parameters and obtaining their consent to record the interview, we asked participants to complete a short pre-exercise questionnaire where we collected data about their affect, altruism, and to report their general knowledge of social and environmental issues. Moving to the verbal protocol exercises proper, we presented participants with a short practice example to ensure that they understood the procedures, and were comfortable with the idea of "thinking out-loud" (Ericsson & Simon, 1993). We then verified that participants agreed to continue, and proceeded with the first stimulus.

For this first neutral scenario (climate refugees), we simply asked participants to report any thoughts or observations they might have with respect to newspaper article they had just read. As noted above, participants were completely free to discuss any topic they deemed relevant – and had complete liberty to discuss (or not) potential solutions to address the issues at hand. It's only to the extent that participants brought up a particular solution themselves that we asked follow-up questions designed to investigate their perceived solution and/or any knowledge they might have of the situation depicted.

For the second scenario (either climate change or biofuel, with positive or negative valence framing), we once again asked participants to first report their initial reaction to the newspaper article. We then followed with questions asking more specifically about potential solutions they might have to the problem they had just read about. Once participant had finished talking, we asked them to indicate their self-perceived knowledge of the problem we had just presented them. To the extent that they had identified one or more solution(s), we also asked them to report their knowledge of this (these) solution(s). For the last scenario, participants were directly asked for a potential solution to the problem described in the newspaper article, without asking for first impressions (still many participants started their verbalization by reporting initial observations and feelings). We then followed with the situation/solution knowledge questions, if applicable. Table 10 summarizes the overall data collection procedures and research design.

	<b>Stimulus 1</b>	<b>Stimulus 2</b>	<b>Stimulus 3</b>
<b>Story</b>	Climate refugees	Climate change or biofuel	Biofuel or climate change (opposite to Stimulus 2)
<b>Valence manipulation</b>	Neutral	Positive or negative	Negative or positive (opposite to Stimulus 2)
<b>What do you think? (open-ended first impressions)</b>	First question asked	First question asked	Not asked
<b>What could one do to address this particular problem?</b>	Not asked	Asked	Asked
<b>Follow up questions on proposed solution(s)</b>	Only if a solution is spontaneously forwarded	If a solution is forwarded	If a solution is forwarded

**Table 10 – Research Design, Manipulations, and Interview Procedures**

Once they had completed the third exercise, we invited participants to complete another short written questionnaire: this is where we collected information about their background and other control variables. On average, the entire procedures lasted between 40 and 50 minutes. The first author transcribed the recordings in the days following each interview. These transcriptions provided the raw data from which we extracted the measures for participants' reasoning strategies.

### **Independent Variables: Documenting Participants' Reasoning Strategies**

Consistent with other verbal protocol studies, we used content analysis techniques (Krippendorff 2013; Saldaña, 2012) to document *what* the participants are talking about (i.e., the topic of their cognitive attention), and *how* they are talking about it (i.e., the reasoning strategies they are mobilizing to make sense of the stimuli and sometimes identify possible solutions). To compile such things, we followed Ericsson and Simon's advice (1993: 205) and articulated our content analyses at the level of 'semantic chunks' – generally a sentence or groups of clauses reflecting a cohesive unit of meaning. In the normal flow of conversation, short breath or pauses often separate different units of thoughts. We used these (and our judgments) as markers separating different chunks, resulting in the identification of some 2,601 semantic chunks (an average of about 36 chunks per protocol). In turn, we associated each particular 'chunk' to one or more categories of topics and reasoning strategies relevant for our analyses. We describe below the particular coding schemes we developed to do this (see also Table 11), followed by a description of the procedures we followed to code each protocol.

*The focus of participants' attention.* The first coding scheme targets participants' attention to different topics. We approached this first round of coding somewhat inductively – in an effort to better understand what elements of the problem space captured participants' attention, as well as the kinds of solutions they spontaneously came up with. As such, we broadly distinguished between "problem" and "solution" categories of topics, and further refined these on basis of the protocol data until we were confident that the coding scheme aptly captured participants' verbalizations. In concrete terms, we coded whether each segment reflected a participant's attention to an element, explanation, knowledge, or opinion of the target problem; to an element, explanation, knowledge or problem of a potential solution; or to the characteristics of a specific solution idea.



Number/ Label	Definition	Examples	Related readings
<b>1</b> <b>Frame Breaking</b>	The statement denotes an instance where the participant raises a question, doubts or inquires 'out loud' about an aspect of the situation, and that to challenge information in the problem statement, with the explicit effect of changing the overall interpretation of the problem space (for the participant).	"I'm not sure whether this is correct, from my perspective it is more complex than it is depicted here, at least that's what I think."	Fleck & Weisberg, 2004; Matilis & Sonenshein, 2010; Ohlsson, 1984/1992; Patrick et al, 2015; Weick, 1996/ 2010
<b>2</b> <b>Represent- ational Change</b>	The individual analyses the situation in order to determine if there is a new way of representing the problem (elaboration, re-encoding, constraint relaxation).		Ohlsson, 1984, 1992
<b>2,1</b> <i>Frame Elaboration</i>	The statement denotes an instance where the participant adds information by studying the problem and observing previously unnoticed features	"This is correct, but at the same time it's a problem of the global market, because wheat is subject to a global market price, which has risen tremendously in the past 10 years."	Ohlsson 1984/ 1992; Fleck & Weisberg, 2004
<b>2,2</b> <i>Re-Encoding (New Problem Framing)</i>	The statement denotes a situation where the participant is talking about a new problem, which is not/ not strongly related to the target problem.	"At the end it's a problem that results from our consumer culture, where we always need to possess the newest stuff and can't take care of our stereo system, or need to buy a new one every three years because the old one doesn't have a USB port."	Bardwell, 1991; Ohlsson 1992
<b>2,3</b> <i>Re-Encoding (Own-Business Framing)</i>	The statement denotes a situation where the participant is talking about his/ her own business, without directly relating it to the target problem or a potential solution.	"On a product level we have the customers who might buy our product because they have heard or read about it, or because it looks attractive from a design perspective or something like that and then you have an impulse purchase, but what I want is that they buy again, otherwise it's pointless."	Bardwell, 1991; Ohlsson 1992
<b>2,4</b> <i>Re-Encoding (Miscellaneous Framing)</i>	The statement denotes a situation where the participant is talking about information and stories without directly relating it to the target problem or a potential solution. This information does not fall in any other re-structuring category.	"Last week I received a call from someone who told me that he has to decide whether he should become professor or found a jam business, I didn't even know him in person, but he wanted to get my opinion on this, which I thought was cute."	Bardwell, 1991; Ohlsson 1992

2,5	<i>Constraint Relaxation</i>	The statement concerns participants' efforts to explain/ 'make sense of/ understand, 'give sense' / explain and/or further articulate / develop a solution that is not/ not strongly related to the target problem.	“We need to redistribute wealth completely different and radically reallocate these 98% of money, which are currently in the possession of an absolute minority.”	Fleck & Weisberg, 2013; Knoblich et al., 1999; Ohlsson, 1992
3	<b>Frame Constructing</b>	The statement concerns participants' efforts to propose/ 'make sense of/ understand, 'give sense' / explain and/or further articulate / develop a proposed solution.	“I think on the one hand it's about political measures, which could trigger a change from one day to the other and on the other hand it's about local initiatives, which can contribute decisively to a mindset shift.”	Cornelissen & Clarke, 2010; Fauconnier & Turner, 2002; Glynn & Lounsbury, 2005
4	<b>Miscellaneous</b>	Other, miscellaneous statements that do not fall into the above categories	“So, that's what I would say.”	

**Table 11 – Coding Scheme for Reasoning Strategies**

*The focus of participants' cognitive framing.* The second coding scheme we developed captures participants' mobilization of different cognitive strategies for addressing the problem we presented them – that is, the explanatory variables for our hypotheses. Based on prior research on framing, reframing, and problem solving, we coded whether each segment denoted participants' mobilization of the particular sub-processes of our overall model of reframing. More specifically, we distinguished between instances of frame breaking, the different forms of representational changes noted above (frame elaboration, re-encoding based on new problem, own-business and miscellaneous framing, and constraint relaxation), as well as that of new frame constructing.. Consistent with prior research (Cornelissen et al., 2014; Maitlis & Sonenshein, 2010; Ohlsson, 1992), and to better understand participants' effective use of reframing strategies (if any), we also sought to identify different processes of reframing. To this aim, we coded each “reframing” segment according to whether a participant questioned elements of the problem frame, thereby breaking a frame. Furthermore, we coded for participants' representational changes as either elaborating upon the target problem frame thereby adding previously unnoticed feature, or re-encoded elements of the target problem frame to talk about a new problem/ his own business/ miscellaneous events. In some instances, participants changed their mental representation of a potential solution, for instance rather than searching for solutions to prevent climate change (as suggested in the second newspaper), they engaged in relaxing the constraints to search for

solutions to overconsumption. Lastly, we coded for instances of new frame constructing, which reflects participants' attempts to conceptualize the problem in terms of potential solutions, thereby engaging in building a new representation of the problem.

### **Coding Procedures**

Two independent coders performed the content analyses – including one coder blind to the study's motivations, design and analyses. Results of the two rounds of coding exhibited adequate levels of agreement among the coders (86.9% and 82.9%, with Cohen's values of .853 and .805 for the first and second round of coding, respectively). The two coders resolved the discrepancies before we proceeded with further analyses.

To measure participants' mobilization of the different reasoning strategies underlying our coding categories, we noted the total duration (in seconds) of each segment. This allowed us to calculate the total cognitive attention time participants devoted to different categories prior to a particular event (such as their mobilization of other cognitive strategies, or their proposal of an eventual solution). Consistent with prior verbal protocol studies (see Grégoire et al., 2010; Williams & Grégoire, 2014), this measurement strategy assumes that the more a participant talks about a particular form of reasoning, the more it is cognitively important in his/her effort to complete the task at hand.

### **Dependent Variables**

In order to test our hypotheses, we needed to capture data about two distinct outcome variables: 1) whether a participant identified (or not) one or more possible solution ideas for addressing a problem we had presented him or her (see H3a), and 2) a measure of the perceived qualities of these solution ideas (see H3b). We derived the first measure (for whether or not a participant identified a solution or not) directly from each participant's protocol, at the time when the data was collected. To validate this measure, we asked an independent coder blind to the study's motivations, design and hypotheses to read the transcriptions, and assess whether a participant had identified one or more solution idea(s) – and at what point during a protocol. Consistent with

Hypothesis 3a's formulation, two independent coders (including one blind to the study's model and hypotheses) read all the protocols independently, and coded whether any semantic chunks described above corresponded to a possible solution for addressing the issues associated with a particular stimulus.

We derived the second measure (for a solution's perceived qualities) by asking five independent third-party experts to evaluate each proposed solution in terms of their creativity. This method of asking independent experts to assess the qualities of a proposed solution is very much akin to Teresa Amabile's consensual assessment technique for evaluating the creativity of different objects, products, performances, etc. (cf. Amabile, 1993; Hennessey, 1994; Hennessey & Amabile, 1999; Kaufman et al., 2008). Consistent with this approach, and in order to obtain assessments from different kinds of expertise, we recruited three business people actively involved in evaluating and pursuing sustainability projects and two academics with a track record of doing research on social entrepreneurship.

Each of these experts independently rated each 172 solution identified by the 24 participating entrepreneurs during the 72 protocols. We asked these experts to assess the creativity of each solution on a 7-point Likert scale anchored 1='Very un-creative', 4='Undecided' and 7='Very creative'. Consistent with the terminology advocated by LeBreton and Sentner (2008), statistical analyses revealed moderate levels of agreements among the experts. The experts' mean  $r_{wg}$  values (using a uniform distribution) was .68, whereas values for Brown and Hauenstein's (2005)  $a_{wg}$  was .63. Separate calculations using Burke, Finkelstein and Dusig's (1999) *Average Deviation (AD) index* show a value of .84 – well below their recommended threshold of 1.2 for 7-point scales (lower values are desirable in this index). More pointedly, the  $ICC_{(1)}$  value of .25 reflects a 'large' effect-size differences between the solution ideas – in the sense that differences between ratings appear to have a lot more to do with the ideas than with the raters. For its part, the  $ICC_{(K)}$  value of .63 suggest an adequate level of reliability.

Are these values problematic for our analyses? Not as much as could be thought at first glance. Asking for experts' assessments of the different 'qualities' of creative artifacts (using Amabile's consensual assessment techniques) does not serve the same methodological aims and purposes as one's efforts to capture team-members' agreement of their team's working climate (Anderson & West, 1998; Van der Vegt et al., 2000). As such, we respectfully offer that the statistics reported above not only

indicate that the data we obtained are valid and adequate for our purposes – but they are consistent with prior uses of consensual assessment techniques in State-of-the-Art creativity papers (see Baer et al., 2004; Hennessey, 1994; Kaufman et al., 2008; ).

### **Control Variables: Individual Differences**

*Prior Knowledge.* Patzelt and Shepherd (2011) drew attention to the importance of *prior knowledge of the natural and/or communal environment* as an important factor for recognizing sustainable development opportunities. According to the authors, prior knowledge of social and ecological problems helps to channel entrepreneurs' attention toward opportunities for sustainable development – a notion that is consistent with extant research on the important role of prior knowledge of markets and market solutions in identifying 'for profit' entrepreneurial opportunities (cf. Shane, 2000 vs. Shepherd and DeTienne, 2005). Similarly, Munoz and Dimov (2015) found that prior knowledge in form of an understanding of economic, environmental and social problems is a relevant precondition for developing sustainable development opportunities. In a related field of interest, Schaltegger and Wagner (2011) postulate that for ecopreneurs, knowledge of environmental problems is a key asset for identifying entrepreneurial opportunities. For this study, we have operationalized sustainable knowledge by means of an objective evaluation in form of a sustainable knowledge test. The test consisted of three sections, each covering one of the scenarios, and was aimed at assessing the extent of their specific sustainable knowledge for each 'stories'. We developed this objective test of participants' sustainable knowledge test on basis of the NASA questionnaire on climate change (<http://climate.nasa.gov>), which we complemented with questions concerning the topics of refugees and biofuel.

*New Venture Experience.* Some founders initiate multiple ventures in their life. Such founders have been referred to as habitual, multiple business or serial entrepreneurs (Hall, 1995) and essentially describe individuals who for varying reasons engage in founding and managing more than one business throughout their professional career (Westhead & Wright, 1998). Interestingly, prior research has emphasized the effect of entrepreneurial experience on entrepreneurs' cognitive processes, highlighting advantages of serial entrepreneurs in processing information and coming up with creative ideas (Westhead et al., 2005) To control for prior entrepreneurial experience,

we asked participants to report the number of new ventures they had started in the past. To correct for the skewed distribution of this left-censored measure, we used the natural log of this data in our analyses.

*Gender.* Entrepreneurship remains largely dominated by male founders. Interestingly, extant research found woman to be more likely to engage in social than mainstream entrepreneurship, and also the gap between female and male founder is smaller in the case of social entrepreneurs (Harding, 2004). To ensure that differences in cognitive processing did not result from such differences, we controlled for individual variations in gender using a simple contrast code (female = +1; male = -1).

### **Control Variables: Protocols**

Consistent with the fact that our research design asked participants to complete three different verbal protocol exercises where the different stimuli varied not only in their content, but also in their emotional valence and different order effects, our analyses include a series of control variables associated with our research design. These include:

- 1) A contrast code distinguishing the effects of the first neutral stimulus of climate refugee (+2) with that of the other two scenarios (-1);
- 2) A contrast code distinguishing the particular issue of the other two scenarios (+1 = climate change; -1=bio-diesel);
- 3) A contrast code capturing the effect of the emotional valence of the different scenarios (+1=positive; -1=negative);
- 4) A contrast code to account for the order effect of the manipulated scenarios (+1=last scenario; -1=second scenario);
- 5) And a contrast code for the number of nudging encouragement the interviewer used with the respondents, to encourage them to continue thinking out loud.

### **Data Analyses**

Given the particular structure of our data, we investigated our hypotheses with multilevel analysis techniques (see Hox, 2010; Snijders & Bosker, 2012). More specifically, we used a series of two-level repeated-measures hierarchical linear models whereby the relationships between different reasoning strategies within particular

research protocols and stimuli (Level 1) were nested under different individuals (Level 2). Consistent with extant recommendations (see Aguinis et al., 2013; Heck et al., 2014), we conducted our analyses using different model specifications – including null models (Step 1), controls-only models (Step 2), as well as fixed and random coefficient models that is, models that estimate average coefficients across our participants (Step 3), and models that allow parameters of interest to vary across participants (Step 4). We ran our analyses on IBM’s SPSS Statistics (version 24.0), using the linear mixed-method sub command.

## **Results**

Table 12 reports the means, standard deviations and correlations for the variables in our analyses. The Table shows that on average, participants of our verbal protocol exercises did not necessarily spend a lot of time breaking their first frames (mean of 18.78s) or engaging in some form of constraint relaxation (mean of 26.57s). Yet, average results suggest that they spent considerably more time elaborating on their frames (mean of 89.99s), re-encoding these frames (mean of 109.9s) or engaging in new frame building (mean of 113.1s). Correlation analyses further suggest that of all the control variables in our analyses, only our nudging of participants to think of solutions (solution prime) and participants’ new venture experience appear related to some of the reasoning strategies that interest us in this study (see columns 6 and 8). The Table also provides preliminary evidence for relationships amongst the time spent mobilizing some of these reasoning strategies. More importantly, finally, results suggest that the time spent mobilizing most of these reasoning strategies is related to the two outcomes of interest in this study that is, the number of solution ideas identified by each participant, and the perceived quality of these (lines 14 and 15). We examine these relationships in more details in the paragraphs below.

Variables	Mean	St Dev	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>Level 1 (within subject)</i>																
1. Neutral stimulus	.00	1.42														
2. Stimulus issue	.00	.82	.00													
3. Stimulus valence	.00	.82	.00	.00												
4. Stimulus order			.00	.00	.00											
5. Objective knowledge	.00	.87	.00	.00	-.01	-.05										
6. Solution prime	.67	.75	-.59**	.02	-.02	.07	.08									
<i>Level 2 (between subjects)</i>																
7. Gender	.67	.75	.00	.00	.00	.00	.11	.20								
8. NV experience (ln)	.00	.90	.00	.00	.00	.00	.10	-.11	.07							
<i>Reasoning (L1)</i>																
9. Frame questioning	18.78	28.96	-.20	.18	-.02	.04	-.22	.10	-.01	.32**						
10. Frame elaborating	89.99	79.63	-.05	.06	.04	-.02	.13	.26*	.12	.17	-.07					
11. Re-encoding	109.9	175.2	-.18	.00	.22	-.20	.01	-.12	-.17	.31**	.41**	-.08				
12. Constraint relaxation	26.57	76.56	-.19	.09	.19	-.00	.12	-.01	-.13	.01	.27*	-.07	.56**			
13. New frame building	113.1	108.0	-.46**	.01	-.01	.10	.04	.34**	-.22	.19	.21	.04	.27*	.20		
<i>Idea outcomes (L1)</i>																
14. Number solution ideas	2.36	2.18	-.50**	.06	.03	-.02	.05	.32**	-.17	.06	.24*	.01	.34**	.51**	.73**	
15. Creativity solution ideas <sup>†</sup>	3.97	1.00	-.23**	-.05	-.06	-.05	.02	.06	.10	.25**	.23**	.08	.21**	.19*	.21**	n/a

**Table 12 – Descriptive statistics for variables included in subsequent analyses**



### The Relationships Between Frame-Breaking and Frame Re-Structuring

Table 13 reports the results of our tests for Hypothesis 1a. Results for the Null Model (Step 1) provide significant evidence that there is sufficient variance across protocols (5 253.1;  $p < .001$ ), but the evidence is not significant for the amount of variance between individuals (1 119.4;  $p = .22$ ). These numbers suggest that some 82.4% of the total variance occurs across protocols ( $ICC_{\text{protocols}} = 5\,253.2 / (5\,253.12 + 1\,119.4)$ , leaving the balance to occur between individuals). Consistent with expectations, results from the Control Model (Step 2) provide significant evidence of a relationship between our nudging of participants to discuss what they would do to solve the problem (solution prime), and the reasoning of interest, in this case, elaborating ( $b = 41.45$ ;  $p = .01$ ). This relationship holds across model specifications. That being said, evidence for a fixed relationship (Step 3) between the time spent questioning the initial frame discussed and the time spent elaborating on that frame is not significant, denying support for H1a ( $b = -.54$ ;  $p = .15$ ). In the same vein, random-coefficient analyses (Step 4) do not suggest that this relationship varies across participants.

Level and variables	Null model (Step 1)		Control model (Step 2)		Random- intercept and fixed slope (Step 3)		Random- intercept and random slope (Step 4)	
<i>Level 1 (within)</i>								
Intercept	90.00	(<.001)	60.69	(<.001)	60.45	(.001)	60.21	(.001)
Neutral stimulus			10.23	(.19)	8.29	(.28)	8.11	(.27)
Manipulated stimuli			5.14	(.62)	8.47	(.42)	10.57	(.30)
Stimuli valence			4.55	(.66)	4.07	(.69)	8.60	(.39)
Stimulus order			-4.09	(.70)	-3.63	(.72)	-5.19	(.60)
Objective knowledge of stimuli			5.71	(.60)	1.02	(.93)	.77	(.95)
Solution prime			41.45	(.01)	42.12	(.008)	40.70	(.009)
<b>MC_TimeQuest</b>					<b>-.54</b>	<b>(.15)</b>	<b>-.53</b>	<b>(.25)</b>
<i>Level 2 (between)</i>								
Gender			2.49	(.87)	2.18	(.89)	3.10	(.85)
NV experience			17.95	(.16)	23.93	(.08)	29.72	(.04)
<i>Variance components</i>								
Intercept (L1)	5 253.2	(<.001)	5 070.3	(<.001)	4 851.0	(<.001)	4 212.5	(<.001)
Intercept (L2)	1 119.4	(.22)	1 064.7	(.25)	1 253.5	(.20)	1 359.3	(.18)
Cov inter-slope (L1)							-4.73	(.85)

Slope MC_TimeQuest (L1)				.89	(.45)
<i>Additional information</i>					
-2 log likelihood	825.4	761.9	760.0	759.3	
N estimated parameters	3	11	12	14	

*Note.* N = 72 verbal protocols (L1) nested in 24 respondents (L2). All variables were mean-centered prior to analyses. The table report unstandardized estimates, with p-values in parentheses.

Dependent variable: Time Frame Elaborating (in seconds)

### Table 13 – Hierarchical Linear Modeling Analyses for H1a

Table 14 reports the results of our tests for Hypothesis 1b. Results for the Null Model (Step 1) provide significant evidence that there is sufficient variance across protocols (26 346.8;  $p < .001$ ), but the evidence is not significant for the amount of variance between individuals (4 458.8;  $p = .30$ ). These numbers suggest that some 85.5% of the total variance occurs across protocols ( $ICC_{\text{protocols}} = 26\,346.8 / (26\,346.8 + 4\,458.8)$ , leaving the balance to occur between individuals). Results from the Control Model (Step 2) suggest that participants spent less time engaging in re-encoding the stimuli during the neutral stimulus than during the other ones ( $b = -39.21$ ;  $p = .02$ ). This results holds across other models. Interestingly, analyses reveal significant evidence for a valence effect, such that participants spent more time re-encoding the stimuli in the case of positive-valence scenario, and *less* time in the case of the negative-valence scenario ( $b = 45.38$ ;  $p = .05$ ). This results holds across protocols. There is also evidence of an habituation effect, such that participants' mobilization of re-encoding strategies decreased across protocols ( $b = -38.66$ ;  $p = .09$  in Step 2,  $b = -40.58$ ;  $p = .05$  in Step 3 and  $b = -46.73$ ;  $p = .03$  in Step 4). For its part, the significant evidence for a positive effect of new venture experience on participants' mobilization of re-encoding strategies observed in Step 2 ( $b = 45.38$ ;  $p = .05$ ) is no longer significant in subsequent models. In support of Hypothesis 1b, however, results of Step 3 provide significant evidence of a positive relationship between the time spent questioning a frame and the time spent re-encoding a stimulus ( $b = 2.28$ ;  $p = .002$ ). Analyses of a random-coefficient model (Step 4) did not converge, preventing us from commenting on the varying nature of this relationship. Nevertheless, results from Step 3 provide support for H1b.

Level and variables	Null model (Step 1)		Control model (Step 2)		Random-intercept and fixed slope (Step 3)		Random-intercept and random slope (Step 4) <sup>†</sup>	
<i>Level 1 (within)</i>								
Intercept	109.93	(<.001)	168.73	(<.001)	170.11	(<.001)	167.38	(.02)
Neutral stimulus			-39.21	(.02)	-31.19	(.05)	-29.49	(.06)
Manipulated stimuli			2.06	(.93)	-12.14	(.56)	-16.99	(.42)
Stimuli valence			45.38	(.05)	47.40	(.03)	42.96	(.04)
Stimulus order			-38.66	(.09)	-40.58	(.05)	-46.73	(.03)
Objective knowledge of stimuli			1.65	(.94)	20.73	(.33)	16.26	(.47)
Solution prime			-53.71	(.10)	-57.39	(.06)	-53.13	(.10)
<b>MC_TimeQuest</b>					<b>2.28</b>	<b>(.002)</b>	<b>2.18</b>	<b>(.22)</b>
<i>Level 2 (between)</i>								
Gender			-34.48	(.22)	-32.87	(.21)	-38.65	(.30)
NV experience			57.26	(.02)	31.78	(.17)	34.35	(.47)
<i>Variance components</i>								
Intercept (L1)	26	(<.001)	23	(<.001)	19	(<.001)	18	(<.001)
	346.8		060.8		851.5		697.7	
Intercept (L2)	4 458.8	(.30)	1 679.1	(.62)	1 585.9	(.60)	.0	(1.00)
Cov inter-slope (L1)							135.3	(.03)
Slope MC_TimeQuest (L1)							2.8	(.50)
<i>Additional information</i>								
-2 log likelihood	937.9		851.4		840.2		838.8	
N estimated parameters	3		11		12		14	

Note. N = 72 verbal protocols (L1) nested in 24 respondents (L2). All variables were mean-centered prior to analyses. The table report unstandardized estimates, with p-values in parentheses.

<sup>†</sup> Iteration terminated before convergence was attained: validity of results is uncertain.

Dependent variable: Time Reframe1 (in seconds)

**Table 14 – Hierarchical Linear Modeling Analyses for H1b**

Table 15 reports the results of our tests for Hypothesis 1c. Results for the Null Model (Step 1) provide significant evidence that there is sufficient variance across protocols (5 842.9;  $p < .001$ ), but the evidence is not significant for the amount of variance between individuals (18.6;  $p = .98$ ). These numbers suggest that some 99.7% of the total variance occurs across protocols ( $ICC_{\text{protocols}} = 5\,842.9 / (5\,842.9 + 18.6)$ ). Results from the Control Model (Step 2) do not suggest that participants' mobilization of constraint-

relaxation strategies varies with the control variables we considered. That being said, the Step 3 random-intercept and fixed-slope model provides significant evidence for a positive relationship between the time spent questioning their initial frame and participants' use of constraint-relaxation strategies, thereby supporting H1c ( $b=.84$ ;  $-=.02$ ). Analyses of a random-coefficient model (Step 4) did not converge, preventing us from commenting on the varying nature of this relationship. Nevertheless, results from Step 3 provide support for H1c.

Level and variables	Null model (Step 1)		Control model (Step 2)		Random-intercept and fixed slope (Step 3)		Random-intercept and random slope (Step 4) <sup>†</sup>	
<i>Level 1 (within)</i>								
Intercept	26.57	(.007)	36.44	(.007)	36.23	(.006)	48.40	(.001)
Neutral stimulus			-10.22	(.11)	-6.84	(.28)	-5.35	(.15)
Manipulated stimuli			8.46	(.44)	3.19	(.77)	-2.15	(.75)
Stimuli valence			17.58	(.11)	18.36	(.09)	16.02	(.02)
Stimulus order			.49	(.96)	-.31	(.98)	-1.39	(.83)
Objective knowledge of stimuli			11.78	(.27)	18.76	(.08)	5.76	(.41)
Solution prime <sup>††</sup>								
<b>MC_TimeQuest</b>					<b>.84</b>	<b>(.02)</b>	<b>1.10</b>	<b>(.09)</b>
<i>Level 2 (between)</i>								
Gender			-14.80	(.24)	-14.48	(.24)	25.82	(.01)
NV experience			.25	(.98)	-9.02	(.40)	2.32	(.79)
<i>Variance components</i>								
Intercept (L1)	5 842.9	(<.001)	5 656.9	(<.001)	5 248.7	(<.001)	1 660.0	(.000)
Intercept (L2)	18.6	(.98)	105.3	(.89)	93.3	(.89)	1 382.1	(.08)
Cov inter-slope (L1)							78.5	(.04)
Slope MC_TimeQuest (L1)							4.5	(.02)
<i>Additional information</i>								
-2 log likelihood	821.8		768.3		762.7		720.1	
N estimated parameters	3		10		11		13	

Note. N = 72 verbal protocols (L1) nested in 24 respondents (L2). All variables were mean-centered prior to analyses. The table report unstandardized estimates, with p-values in parentheses.

† Iteration terminated before convergence was attained: validity of results is uncertain.

†† Inclusion of this variable prevented model estimation: it is therefore omitted.

Dependent variable: Time New Sol(s) (in seconds)

**Table 15 – Hierarchical Linear Modeling Analyses for H1c**

### **The Relationships Between Frame Re-Structuring and Frame Constructing**

Table 16 reports the results of our tests for Hypothesis 2a, 2b and 2c. Analyses for the Null Model (Step 1) do not allow us to draw valid conclusions about the variance at the different levels, because the final Hessian matrix was not positive definite – though preliminary observations suggest that most of the variance was across protocols, and not between participants. Results from the Control Model (Step 2) suggest that participants spent less time mobilizing frame-constructing strategies during the neutral stimulus than during the other ones ( $b=-24.98$ ;  $p=.01$ ). This results holds across other models. Interestingly, analyses reveal significant evidence for a gender effect, such that women systematically spent *less* time engaging in frame constructing strategies than men ( $=-41.23$ ;  $p=.02$ ) – a result that holds across model specifications. For its part, evidence of a positive relationship for new venture experience observed in Step 2 ( $b=28.06$ ;  $p=.05$ ) varies in significance across models, and falls down when including all reasoning strategies under considerations (in Step 3, last column to the right). With respect to the hypotheses we formulated, however, neither of the model specifications considered provides significant evidence in support of the hypothesized effects – including when these effects were considered separately or together. These observations deny support for H2a, H2b and H2c.

Level and variables	Null model (Step 1) <sup>†</sup>		Control model (Step 2)		Random-intercept and fixed slope (Step 3)		Random-intercept and fixed slope (Step 3)		Random-intercept and fixed slope (Step 3) <sup>†</sup>		Random-intercept and fixed slope (Step 3) <sup>††</sup>	
<i>Level 1 (within)</i>												
Intercept	113.1	(<.001)	120.00	(<.001)	118.21	(<.001)	112.83	(<.001)	117.48	(<.001)	110.71	(<.001)
Neutral stimulus			-24.98	(.01)	-23.83	(.02)	-20.69	(.05)	-22.49	(.03)	-20.01	(.06)
Manipulated stimuli			.88	(.95)	.31	(.98)	1.43	(.92)	-1.08	(.94)	1.86	(.89)
Stimuli valence			-.65	(.96)	-.21	(.99)	-6.13	(.65)	-3.17	(.82)	-6.04	(.67)
Stimulus order			11.25	(.40)	10.86	(.43)	15.95	(.24)	10.90	(.43)	15.42	(.27)
Objective knowledge of stimuli			6.23	(.64)	7.75	(.58)	5.46	(.69)	3.98	(.78)	5.32	(.71)
Solution prime			30.88	(.11)	33.24	(.11)	37.77	(.06)	32.60	(.10)	40.75	(.06)
<b>MC_TimeQuest</b>					<b>.15</b>	<b>(.74)</b>	<b>-.13</b>	<b>(.79)</b>	<b>.10</b>	<b>(.82)</b>	<b>-.18</b>	<b>(.72)</b>
<b>MC_TimeElab</b>					<b>-.07</b>	<b>(.67)</b>					<b>-.07</b>	<b>(.67)</b>
<b>MC_TimeRefram 1</b>							<b>.12</b>	<b>(.15)</b>			<b>.11</b>	<b>(.24)</b>
<b>MC_TimeNewSol</b>									<b>.15</b>	<b>(.36)</b>	<b>.03</b>	<b>(.88)</b>
<i>Level 2 (between)</i>												
Gender			-41.23	(.02)	-40.91	(.02)	-37.36	(.04)	-39.17	(.01)	-37.18	(.04)
NV experience			28.06	(.05)	27.60	(.07)	22.69	(.13)	27.17	(.05)	24.89	(.13)
<i>Variance components</i>												
Intercept (L1)	11 671.8	(<.001)	8 303.3	(<.001)	8 582.1	(<.001)	8 118.0	(<.001)	8 804.0	(<.001)	8 306.6	(<.001)
Intercept (L2)	.00	--	390.2	(.74)	339.1	(.80)	567.2	(.68)	.0	--	652.0	(.67)
<i>Additional information</i>												
-2 log likelihood	870.7		785.7		787.0		786.5		786.3		789.7	
N estimated parameters	3		11		13		13		13		15	

**Table 16 – Hierarchical Linear Modeling Analyses for H2abc**

**Relationships With Relevant Outcomes of Interest**

Hypothesis 3a concerned the relationship between the participants' mobilization of frame-constructing strategies, and the number of solutions they identified for the different stimuli we presented them (table 17). Analyses for the Null Model (Step 1) do not allow us to draw valid conclusions about the variance at the different levels, because the final Hessian matrix was not positive definite – though preliminary observations suggest that most of the variance was across protocols, and not between participants. As with prior hypotheses, and consistent with our expectations, results from the Control Model (Step 2) provide significant evidence that participants imagine less solution ideas in the first neutral stimulus than in the other ( $b=-.64$ ;  $p=.02$ ), but evidence for this effect is no longer significant in subsequent steps, when we include the effects of reasoning strategies. Likewise, the Control Model does not provide evidence that participant's ability to come up with solution ideas varied systematically with any of the control variables we considered.

Interestingly, results from Step 3 (fixed coefficients) and Step 4 (random coefficient) provide significant evidence in support of a non-hypothesized relationship between participants' mobilization of constraint relaxation strategies and the number of solutions they identified ( $b=.0117$ ;  $p<.001$  in Step 3;  $b=.0091$ ;  $p=.02$  in Step 4). More importantly, we note that even controlling for this particular effect, there is also significant evidence of a relationship between participant's cognitive attention to construct new frames and the number of solutions they identified ( $b=.0120$ ;  $p<.001$  in Step 3), supporting H3a. In terms of effect sizes, these results imply that all else equal, it takes an average participant some 80 seconds mobilizing new-frame constructing strategies (or constraint relaxation strategies) to identify one additional idea. Analyses of a random-coefficient model (Step 4) did not converge, preventing us from commenting on the varying nature of this relationship. Nevertheless, results from Step 3 provide support for H3a.

Level and variables	Null model (Step 1) <sup>†</sup>		Control model (Step 2)		Random-intercept and fixed slope (Step 3)		Random-intercept and random slope (Step 4) <sup>††</sup>	
<i>Level 1 (within)</i>								
Intercept	2.36	(<.001)	2.50	(<.001)	2.29	(<.001)	2.27	(<.001)
Neutral stimulus			-.64	(.002)	-.21	(.15)	-.10	(.58)
Manipulated stimuli			.16	(.54)	.03	(.86)	.24	(.33)
Stimuli valence			.09	(.72)	-.07	(.72)	-.02	(.93)
Stimulus order			-.06	(.83)	-.24	(.21)	-.19	(.46)
Objective knowledge of stimuli			.18	(.50)	-.05	(.80)	-.20	(.52)
Solution prime			.39	(.32)	.09	(.75)	.43	(.29)
MC_TimeQuest					.0021	(.77)	-.0078	(.85)
MC_TimeElab					.0005	(.83)	-.0014	(.62)
MC_TimeRefram 1					-.0008	(.55)	-.0003	(.87)
MC_TimeNewSol					.0117	(<.001)	.0091	(.02)
<b>MC_TimeRefSo</b>					<b>.0120</b>	<b>(&lt;.001)</b>	<b>.0127</b>	<b>(.15)</b>
<i>Level 2 (between)</i>								
Gender			-.60	(.11)	.02	(.95)	-.10	(.76)
NV experience			.20	(.52)	-.11	(.63)	-.06	(.82)
<i>Variance components</i>								
Intercept (L1)	4.74	(<.001)	3.15	(<.001)	1.46	(<.001)	2.00	(<.001)
Intercept (L2)	.00	--	.62	(.28)	.25	(.33)	.00	--
Cov inter-slope (L1)							.00	--
Slope MC_TimeRefSo (L1)							.00	--
<i>Additional information</i>								
-2 log likelihood	316.3		296.2		293.5		346.9	
N estimated parameters	3		11		16		18	

*Note.* N = 72 verbal protocols (L1) nested in 24 respondents (L2). All variables were mean-centered prior to analyses. The table report unstandardized estimates, with p-values in parentheses. † The final Hessian matrix is not positive definite: validity of results cannot be ascertained. †† Iteration terminated before convergence was attained: validity of results is uncertain.

Dependent variable: Number of solution ideas identified

**Table 17 – Hierarchical Linear Modeling Analyses for H3a**

Lastly, Table 18 reports the results of our tests for Hypothesis 3b. Results for the Null Model (Step 1) provide significant evidence that there is sufficient variance across protocols (.9300;  $p < .001$ ), but the evidence is not significant for the amount of variance between individuals (.0756;  $p = .19$ ). These numbers suggest that some 92.5% of the total variance occurs across protocols ( $ICC_{ideas} = 5\,253.2 / (5\,253.12 + 1\,119.4)$ ), leaving



the balance to occur between individuals. Results from the Control Model (Step 2) suggest that the expert-rated creativity of the solution ideas identified for the neutral stimulus was lower than in other stimuli ( $b = -.21$ ;  $p = .01$ ), but the evidence for this relationship is not significant with other model specifications, when including other reasoning strategies.

In support of Hypothesis 3b, results of fixed-coefficient analyses (Step 3) provide significant evidence of a positive relationship between participants' mobilization of new-frame constructing strategies and the expert-rated creativity of the solution ideas they identify ( $b = .0020$ ;  $p = .03$ ). This implies that the perceived creativity will increase by a full point (on a 7-point scale) for every 50 seconds a participant spends in mobilizing frame-constructing reasoning strategies. Analyses of a random-coefficient model (Step 4) did not converge, preventing us from commenting on the varying nature of this relationship. Nevertheless, results from Step 3 provide support for H3b.

Level and variables	Null model (Step 1)		Control model (Step 2)		Random-intercept and fixed slope (Step 3)		Random-intercept and random slope (Step 4) <sup>†</sup>	
<i>Level 1 (within)</i>								
Intercept	3.95	(<.001)	3.77	(<.001)	3.87	(<.001)	3.82	(<.001)
Neutral stimulus			-.21	(.01)	-.13	(.12)	-.13	(.14)
Manipulated stimuli			-.10	(.22)	-.21	(.02)	-.19	(.04)
Stimuli valence			-.07	(.41)	-.13	(.12)	-.11	(.18)
Stimulus order			-.08	(.32)	-.10	(.22)	-.10	(.24)
Objective knowledge of stimuli			.04	(.73)	-.04	(.73)	-.03	(.76)
Solution prime			.03	(.82)	-.08	(.60)	-.03	(.87)
MC_TimeCommit					-.0043	(.11)	-.0046	(.10)
MC_TimeQuest					.0041	(.25)	.0027	(.46)
MC_TimeElab					.0010	(.45)	.0009	(.51)
MC_TimeRefram 1					-.0002	(.75)	-.0002	(.80)
MC_TimeNewSol					.0020	(.09)	.0018	(.12)
<b>MC_TimeRefSo</b>					<b>.0020</b>	<b>(.03)</b>	<b>.0019</b>	<b>(.08)</b>
<i>Level 2 (between)</i>								
Gender			.04	(.75)	.15	(.21)	.13	(.27)
NV experience			.24	(.01)	.10	(.36)	.14	(.22)
<i>Variance components</i>								
Intercept (L1)	.9300	(<.001)	.8994	(<.001)	.8521	(<.001)	.8533	(<.001)
Intercept (L2)	.0756	(.19)	.0287	(.53)	.0240	(.69)	.0155	(.81)
Cov inter-slope (L1)							.0002	(.60)
Slope (L1)							.0000	--

<i>Additional information</i>				
-2 log likelihood	482.5	487.1	540.6	540.8
N estimated parameters	3	11	17	19

*Note.* N = 170 ideas from 72 verbal protocols (L1) nested in 24 respondents (L2). All variables were mean-centered prior to analyses. The table report unstandardized estimates, with p-values in parentheses.

† Iteration terminated before convergence was attained: validity of results is uncertain.

Dependent variable: Expert-rated creativity of solution ideas identified

**Table 18 – Hierarchical Linear Modeling Analyses for H3b**

### 3.3.5 Discussion

The aim of this study was to open the black box of individuals' use of reframing strategies in their cognitive efforts to identify positive solutions from the otherwise dire circumstances of social and ecological issues, thereby casting light on the cognitive processes and enabling factors underlying the phenomenon. Our results provide evidence that reframing is a relevant cognitive tool for identifying promising solution ideas to pressing social and environmental problems. The primary research implications of our findings are thus to reinforce the view that reframing is an integral part of managers' sensemaking efforts (Cornelissen & Werner, 2014), and particularly with respect to the identification of hitherto novel and insightful solution ideas (Cornelissen & Clarke, 2010).

#### **Implications for Research on Reframing**

Our study's primary contribution is to unpack – both theoretically and empirically – what the notion of reframing can entail for the particular challenges of identifying promising solutions to pressing social and environmental problems. Extant research on framing has emphasized the importance of cognitive frames for steering cognitive attention and as a basis for sensemaking (Maitlis & Sonenshein, 2010; Weick et al., 2005). Yet, such research also found that framing is a double-edged sword: while cognitive frames can be helpful cognitive tools, they can also mislead individuals' representation of an issue thereby impeding their ability to draw meaningful inferences (Maitlis & Sonenshein, 2010; Weick & Sutcliffe, 2007). Building on framing research, which we enrich with insights from sensemaking and problem-solving literature, we

develop a theoretical model whereby reframing consists of three separate groups of processes, namely frame breaking, representational change, and new frame constructing – and we examine the influences these process may have on another, and on relevant outcomes. The primary research implication of our findings is thus to reinforce the view that reframing is an integral part of managerial sensemaking (Cornelissen & Werner, 2014). Furthermore, we augment current research by showing that the extent of reframing affects not only the number of solution ideas identified but also the creativity of such ideas.

Extant research has extensively focused on the role of frames and framing in management and organizations research (Cornelissen & Werner, 2014). This research has emphasized that once activated, frames powerfully guide individuals' reasoning, thinking, and behavior (Benner & Tripsas, 2012; Kaplan, 2008; Labianca et al., 2000). Our results challenge the commonly accepted assumption that frames exert strong influence on individuals by default. More precisely, we find that individuals can break activated frames, change their frames, and create new frames altogether. Thereby, our results contribute to the emergent research stream investigating frame changes (Cornelissen & Clarke, 2014; Gavetti et al., 2005). Yet, according to this research, reframing is one big black box. Our findings change this perception by revealing that reframing is a cascade of related reasoning processes.

By revealing that frame breaking and representational change are upstream processes of new frame constructing, we address Turner's (2001) concern that extant research has largely neglected the question where frames come from before they are manifested. Accordingly, we find that frame breaking, i.e. questioning and doubting the usefulness of an activated frame, can be a powerful cognitive mechanism to overrule an activated frame. In addition, our results highlight that representational change, in form of re-encoding and constraint relaxation (Ohlsson, 1992), is a pertinent antecedent of new frame constructing. With current work documenting the role of conceptual blending and inductive reasoning in new frame construction (Cornelissen & Clarke, 2014, Fauconnier & Turner, 2002), essentially referring to a process of blending previously separate frames, our findings thereby show how entrepreneurs actually transform the initial frame as a basis for new frame construction.

By shedding light on the cognitive process of reframing, our results provide a cognitive basis to explore a number of promising lines of research. Such research could fruitfully

contribute to advance our understanding of the three separate groups of reframing-related processes. Essentially, the question why some and not others engage in frame breaking could greatly contribute to our understanding. Which situations trigger frame breaking? Could frame breaking have negative side effects in the sense that individuals break meaningful frames, thereby impeding their own thinking and reasoning?

Furthermore, the question why some individuals engage in greater cognitive efforts to change their mental representation than others deserves greater attention. How do individuals re-encode elements of an activated frame? What are the underlying mechanisms of re-encoding (e.g. analogical reasoning)? What determines whether and how individuals engage in relaxing mental constraints?

With our findings documenting the positive effect of reframing on identifying promising solution, pertinent insight can be expected from studying potential negative side effects. Can individuals engage in too much reframing? Could too much representational change confuse individuals' cognitive processes?

These and other questions can be expected to further advance our understanding of the cognitive feat of reframing.

### **Implications for Research on Pro-Social Organizing**

Additionally, a relevant contribution of our study relates to the role of reframing in individuals' efforts to overcome the negativity of world's worst social/ environmental problems and to identify non-insightful solutions to address them.

The importance of a transition towards a sustainable future and the role of businesses in such transformation processes have been extensively documented (Hall et al., 2010; Shrivastava, 1995). Despite the increased interest, academic understanding of how managers and entrepreneurs identify solutions to address pressing social and environmental problems has remained limited. Extant research on pro-social organizing has mainly focused on identifying the sources of opportunities to be found in market failures and problems (Cohen & Winn, 2007; Dean and McMullen, 2007; Shaw & Carter, 2007), yet this literature does not provide an answer to *how* and *why* some individuals appear particularly adept at identifying positive solutions from dire circumstances.

In this regard, one of the most relevant findings of our study is to show that reframing does affect whether an individual is able to come up with potential solutions to the problems at bay. This is an important finding because it draws attention to the relevant role of managerial cognition for engaging into pro-social organizing. What our results show more pointedly is that by engaging in reframing, more solution ideas are identified and better yet, that the more one engages in reframing the more creative these solution ideas are.

By highlighting the importance of reframing we provide an additional angle to prior work on managerial framing for pro-social organizing (Andersson & Bateman, 2000; Hahn et al., 2014; Sharma, 1997). We augment works in this area by showing that rather than relying on existing cognitive frames, individuals break frames and create new ones in an attempt to draw more meaningful inferences and identify solution ideas.

These results have important implications for future research. Accordingly, future research might find it valuable to address the occurrence and extent of reframing efforts among seasoned managers, and in established organizations that may not particularly care for pursuing sustainable benefits. Do such managers engage in reframing, but simply don't care to draw the implications of what they find? Or do such managers refrain from engaging in fruitful reframing efforts because they are un-motivated or have no incentives to do so? If so, what could change the situation? And would this result in the identification of more and better entrepreneurial ideas for addressing social and ecological problems?

### **Practical Implications**

Our findings not only demonstrate the importance of reframing for research, they also provide practical implications for individuals who prepare for finding solutions to the challenges of a sustainable future. Ultimately, our hope is that by augmenting academic knowledge of the cognitive underpinnings that lead to the emergence of promising solution ideas to address some of the world's worst social and ecological problems, we are in a better position to support entrepreneurs and managers to not only come up with such ideas, but to also come up with better, more effective ideas, to develop them more efficiently, and to share and communicate these ideas with all the passion and engagement they deserve.

First and foremost, our results highlight the usefulness of engaging in reframing for managers and entrepreneurs striving to proactively integrate sustainability in their managerial and entrepreneurial activities. Accordingly, our results encourage managers and entrepreneurs to think about the problems they encounter in new ways. Furthermore, when encountering a setback they might benefit from drawing on other ideas to flip things around. As our results have shown, engaging in the cognitive process of reframing can lead to novel and creative solution ideas. With this respect, our findings provide an important basis for developing consulting tools that encourage managers and entrepreneurs to engage in reframing.

For educational purposes our study provides further evidence for the relevance of enhancing students' critical thinking skills. Without a critical mind, engaging in reframing is highly unlikely, as individuals tend to rely on the negatively framed information provided rather than questioning such information and searching for alternative representations. Thus, our results can serve as a basis for developing pedagogical strategies teaching students how to reframe problems into solutions.

### **Limitations**

Needless to say, our study is not without limitations. Despite all the advantages a verbal protocol study offered to explore the research question under study, an apparent limitation is the small sample size of 24 sustainable entrepreneurs. We acknowledge this concern. At the same time, the design of our research allowed us to collect three protocols per entrepreneur, resulting in 72 analyzable protocols. This sample size not only meets, but exceeds the number of protocols in comparable verbal protocol studies in management research (Grégoire & Shepherd, 2012; Williams & Grégoire, 2015). Furthermore, the verbal protocol study allowed for unique insights into the reframing processes of entrepreneurs in real time, thus minimizing the potential for retrospective bias to a minimum. In turn, we believe that the advantages of conducting a verbal protocol study outweigh the limitations, allowing us to make rigorous and valid empirical observations.

A further concern may relate to our sample of sustainable entrepreneurs, which we approached in their role as entrepreneurs, thereby potentially influencing their mental representation of the task we asked them to perform, and of the newspaper articles we

asked them to read and think about. This might have caused participants to put greater cognitive attention on frame breaking and representational changes, thereby affecting the results of the time spent on reframing. However, one might argue that it is not unusual that entrepreneurs face social/ environmental problems in their role as sustainable entrepreneurs, minimizing the risk that this limitation has affected our observation of individuals' cognitive processing.

Furthermore, the individuals in our sample had a generally high sustainable orientation and all had founded at least one sustainable venture. As a result, it might be that their generally positive attitude and experience with sustainability issues resulted in more readily available forms of reframing. While we acknowledge such concerns, we want to highlight that our intent was to observe the mental process of reframing, in order to reveal what reframing is and entails, rather than trying to make a statement about the likelihood that one engages in reframing. Relying on this sample therefore allowed us to focus our attention on the actual reframing process, rather than individual differences. As mentioned above, our rationale was not so much to investigate *if* individuals engage in reframing, but rather to explore the effects that this reframing has on their mental representation of the problem and potential solution ideas. From this point of view, the chosen sample can be seen as allowing for the most insightful and relevant observations.

## **Conclusion**

While framing is an established concept, the notion of reframing has only recently evoked scholarly interest in management and organization research (Cornelissen & Werner, 2014). By shedding light on the underlying cognitive underpinnings of reframing as a process consisting of frame breaking, representational change, and new frame constructing, we provide novel insights into the nature and mechanism of reframing and lay a theoretical basis for further research into the phenomenon. In addition, our examination of the effects that reframing has on entrepreneurs' strategic responses to social and environmental problems provides pertinent indication for the relevance of reframing for meeting the grand challenges of our time.

### 3.4 Essay IV: Shades of Gray: Negational Categorizations of Founder Identity

#### ABSTRACT

Founder identity plays an important role in entrepreneurship. Research to date into founder identity has focused mainly on in-groups and affirmational categorizations (Who am I?). In this paper, we stress the role of out-groups and negational categorizations (Who am I *not*?). Based on six case studies with sustainable entrepreneurs, we explore the salient social identities of firm founders, more specifically their negational categorization. Our analysis suggests different “shades of gray,” which transcend the simple “black and white” dichotomy of in-groups and out-groups. Accordingly, negational categorizations of founder identity include out-group separation, out-group mitigation, and in-group differentiation. This classification complements prior research on founder identity and provides a more nuanced picture of the salient social identities of firm founders and their key decisions in new firm creation.

*Key Words:* Entrepreneur; founder identity; social identity theory; self-categorization theory; optimal distinctiveness theory

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### 3.4.1 INTRODUCTION

Founder identity plays an important role in entrepreneurship, affecting core strategic decisions (e.g., Fauchart and Gruber, 2011; Powell and Baker, 2014; York et al., 2016). Drawing on social identity theory, Fauchart and Gruber (2011) explore the identities, behaviors, and actions of founders in new venture creation. Powell and Baker (2014) analyze the influence of founder identity on the strategic responses to adversity. Their findings suggest that founders enact distinctly different definitions of adversity, and that they use the firms as vehicles to defend who they are (Powell and Baker, 2014). York et al. (2016) explore hybrid founder identities (e.g., Darwinian and missionary identities) in the context of environmental entrepreneurship, which pursues the double bottom line of economic and ecological goals (York et al., 2016). Overall, the small but steadily growing body of literature on founder identity mainly focuses on in-groups and affirmational categorization. Affirmational categorization refers to the process whereby the self and the in-group are defined (Zhong et al., 2008). It seeks to answer the fundamental question “Who am I?”.

In this paper we stress the role of out-groups and negational categorization of founder identity. Negational categorization refers to the process by which out-groups define an individual’s identity (Zhong et al., 2008). It raises the question “Who am I *Not*?”. In social psychology, out-group differentiation is typically seen as a derivative of in-group identification (e.g., Karniol, 2003). Recent experimental research, however, suggests that an individual's social identity can form around out-groups, and that common non-membership can motivate intergroup behavior as much as common membership (Zhong et al., 2008). In line with these findings, we investigate the role of negational categorization regarding founder identity. The importance of founder identity, more specifically negational categorization, emerged over time through our fieldwork and analysis of new sustainable ventures, which pursue the triple bottom line of economic, ecological, and social goals (Patzelt and Shepherd, 2011). Sustainable ventures represent hybrid organizations (Battilana and Dorado, 2010), which are in between for-profit organizations and not-for-profit organizations (Hockerts and Wüstenhagen, 2010). We assume that founders of new sustainable ventures are a promising area of research into founder identity, particularly negational categorization, because they feel a need to differentiate themselves from others (e.g., conventional entrepreneurs, mainly seeking individual gain). Our research questions are: How does negational

categorization influence the salient social identities of firm founders? How do these negational categorizations affect core strategic decisions in new firm creation? Focusing on negational categorization regarding social founders' identities complements our prior research. Our theoretical contributions are twofold: First, we propose that the dual perspective of affirmational and negational categorizations provides a more holistic picture of the founder's distinct self-concepts, and enhances the understanding of why differences in firm creation processes and outcomes exist. Second, we provide a more nuanced picture of social founders' identities beyond simple schemes of black and white, offering different shades of gray. Drawing on optimal distinctiveness theory, our study reveals how a founder's opposing needs for assimilation and differentiation are satisfied on the same group level, through a self-categorization process for which we have coined the terms in-group differentiation and out-group mitigation.

In the following, we introduce the original ideas of social identity theory and the subsequent development of self-categorization theory. Then we provide an overview of the burgeoning literature on founder identity, which focuses mainly on in-groups and affirmational categorization (Who am I?). A gap in this type of research is out-groups and negational categorization (Who am I *Not*?). The research section describes the theoretical sampling of multiple case studies, as well as collection and analysis of the qualitative data. In the empirical section, we present our findings on the self-categorizations of in- and out-groups, and their influence on core strategic decisions in new venture creation. In the discussion section, we go beyond the dichotomy of in-groups versus out-groups, transcending schematic thinking in terms of black and white. We suggest various "shades of gray," including in-group differentiation and out-group mitigation. This provides a more nuanced picture of the salient social identities of firm founders, and his or her behavior during new firm creation.

### 3.4.2 SOCIAL IDENTITY AND SELF-CATEGORIZATION

Henri Tajfel and John Turner originally formulated social identity theory in the late 1970s and the early 1980s (Tajfel and Turner, 1979; Tajfel, 1981). The theory is rooted in social psychology and tries to explain intergroup relations. It deals with how

individuals see themselves as members of one social group (in-group) in contrast to being nonmembers of another (out-group). A social group is generally defined as a set of individuals who hold a common social identification or view themselves as members of the same social category (e.g., entrepreneurs). Direct social interaction among the individuals of the social group is not required. It is rather the orientation and belonging to the social category or group that matters. Social identity allows human behavior and action to be predicted (Tajfel and Turner, 1979; Tajfel, 1981). Individuals strive to engage in behaviors and actions that are consistent with a highly salient identity (Hogg, Terry, and White, 1995; Stets and Burke, 2000). Salience refers to the probability that an identity will be activated in a situation (Stryker, 1980).

The formation of a social identity involves two important processes: self-categorization and social comparison (Turner et al, 1987). Self-categorization is based on the individual's subjective perception of himself or herself. It accentuates perceived similarities between the self and other in-group members as well as perceived differences between the self and out-group members. Social comparison involves the selective application of the accentuation effect: The in-group and the out-group are evaluated along dimensions that favor the in-group's being judged more positively and the out-group's being judged more negatively (Stets and Burke, 2000). One's self-esteem is thereby enhanced. The cognitive processes of self-categorization and social comparison are not based on unique individuals, but rather on group prototypes (Hogg, Terry, and White, 1995; Turner et al, 1987). They involve a high degree of depersonalization as well as underlying group phenomena such as social stereotyping, group cohesiveness, and collective action (Turner et al, 1987).

Most research into social identity and self-categorization processes to date has involved in-groups and what could be called affirmational categorization (Leonardelli et al, 2010). A notable exception is Zhong et al (2008), who stress the role of negational categorization. In their experimental research they show that an individual's identity can form around out-groups and that common non-membership can motivate intergroup behaviors as much as common membership (Zhong et al, 2008). By distinguishing negational categorization from affirmational categorization, they draw a more complete picture of social identity and intergroup behavior.

### 3.4.3 FOUNDER IDENTITY

The role of founder identity in establishing a new venture and influencing entrepreneurial decision-making has only recently entered the entrepreneurship research debate. The literature draws on both social identity theory and role identity theory. Both theories address the social nature of self as constituted by society. Whereas social identity theory is a social psychological theory that sets out to explain group processes and intergroup relations, role identity theory is a sociological theory that focuses on individuals' role-related behavior (Hogg et al, 1995; Stets and Burke, 2000).

Drawing on social identity theory, Fauchart and Gruber (2011) describe a typology of founders' identities and examine how differences in founders' social identities are reflected in their core strategic decisions. Using the sports-related equipment industry as the context of the study, the authors distinguish three pure types of founders: Darwinians, communitarians, and missionaries, as well as a hybrid founder identity, which combines elements of the pure types. In keeping with common practice of social identity theory, Fauchart and Gruber (2011) categorize the founders among individuals' basic social motivation, basis of self-evaluation, and frame of reference, thereby focusing strongly on the founders' perceived in-groups. The particular relevance of distinguishing between these different founder types is exemplified by the core strategic decisions that the entrepreneurs make, namely market segments served, customer needs addressed, and resources deployed (Abell, 1980). Based on their typology, Fauchart and Gruber (2011) outline how identity differences affect entrepreneurial decision-making and provide evidence for the significant role of founders' social identities in shaping new ventures. Drawing on social identity theory and the three pure types of founders (Darwinians, communitarians, missionaries), Sieger et al (2016) have recently developed and tested a scale to measure the social identity of entrepreneurs, which helps advance theoretical understanding and empirical research in this area.

Powell and Baker (2014) set out to explore how differences in the structure of founder identities drive strategic responses to adversity. Bridging social identity theory and role identity theory, the authors show how previously separate theoretical understandings might be mutually influential in identifying differences in founders' identity structures, which can be incongruent, congruent, or singular. Their findings are particularly

relevant to predicting whether founders perceive adversity as an opportunity to be seized, a challenge to antagonize, or a threat to be adapted to, which in turn predicts the founder's strategic response as either transforming, sustaining, or accepting (Powell and Baker, 2014).

Complementary to this work, several papers on founder identity in entrepreneurship research draw mainly on role identity theory (e.g., Cardon, et al., 2009; Shepherd and Haynie, 2009; Hoang and Gimeno, 2010; Murnieks et al., 2014; Wry and York, 2016; York et al., 2016). In a recent empirical study, York et al (2016) explore founder identities in the context of environmental entrepreneurship. Their findings suggest that identities based in both commercial and ecological logics motivate environmental entrepreneurs, which has consequences for firm founder behavior. The prioritization of commercial and/or ecological goals in the new venture depends on the coupling strength between the two identity types. Each entrepreneur holds a hybrid identity that couples elements of potentially conflicting logics. However, the identity coupling is more or less loose, resulting in three different types of hybrid founder identities: commercial dominant, ecological dominant, and blended (York et al, 2016).

Overall, the entrepreneurship research on founder identity focuses on affirmational aspects of social and role identities. Interestingly, negational aspects are hardly considered despite their importance for the founders' social identities. Past research into entrepreneurship shows that being different is idiosyncratic for firm founders who have been characterized as having remarkably stronger needs for autonomy (Hornaday and Bunker 1970; Sexton and Bowman, 1986, Shepherd and Haynie, 2009) and independence (DeCarlo and Lyons, 1979; Hornaday and Aboud, 1971), while having a weaker need for conformity (Sexton and Bowman 1986). Based on that, we assume that negational categorization plays an important role in founder identity. To close this gap, we explore the role of firm founders' negational categorizations and their consequences for decision making in the context of new firm creation.

### 3.4.4 RESEARCH METHODS

We sought to understand the influence of negational categorization on founder identity, and the link between founder identity and core strategic decisions in new venture

creation. Given some theory on founder identity (e.g., Fauchart and Gruber, 2011; Powell and Baker, 2014; York et al, 2016), we employed a multiple case study design for theory elaboration (Eisenhardt, 1989; Lee, Mitchell, and Sablynski, 1999; Yin, 2013). We relied on theoretical sampling instead of random sampling (Eisenhardt, 1989; Patton, 1990). We selected cases based on their power to illuminate aspects of theory rather than on the extent to which they are typical in the field (Flyvberg, 2011; Yin, 2013). The main unit of analysis is the individual and his or her salient social identities. We used the following criteria to select our cases: Since we were interested in founder identity and the link to core strategic decision in new venture creation, we chose individuals who had founded a new venture during the past eight years, using an approach resembling that of prior research (e.g., McDougall et al, 1994; Fauchart and Gruber, 2011). More specifically, we focused on individuals who had founded a new sustainable venture pursuing economic, ecological, and social goals (e.g., Cohen and Winn, 2007; Dean and McMullen, 2007; Patzelt and Shepherd, 2011). The six selected cases were part of larger study on sustainable enterprises, which sensitized us to the important role of founder identity, including affirmational *and* negational categorizations. Sustainable enterprises are hybrid organizations positioned between for-profit organizations and not-for-profit organizations (e.g., Battilana and Dorado, 2010; Pache and Santos, 2010). They operate in the market economy alongside conventional businesses (Hockerts and Wüstenhagen, 2010), and yet they clearly differ from the latter insofar as they are deliberately designed to create not only economic value, but also social and ecological value (Belz and Binder, 2015). Considering that new sustainable ventures often present themselves as offering products counter to existing products, we assumed a stronger need for negational categorization to reflect their counter positioning and to cope with the different, sometimes conflicting, institutional demands that accompany hybrid organization (Battilana et al., 2015; Pache and Santos, 2013). Table 19 summarizes the characteristics of the firm founders and their new sustainable ventures in the food, beverage, energy, and services industries. Studying the influence of social founder identity on a diverse set of new ventures offers firmer grounding for theory than studying a more homogeneous set (Harris and Sutton, 1986). We changed the names and details of the people and firms in the table and throughout the paper to maintain confidentiality.

Case	Founder	Vocation	Firm	Industry	Offer	Legal form
1	Andrew Taylor	Landscape gardening	B&B Beverages	Beverages	Fair trade, organic beverage	Charitable limited liability company
2	David Underhill	Advertising and marketing	Veggie Nearby	Food	Community supported agriculture	Cooperative
3	George Cooper	Industrial design	Local Food Net	Services	Service provider for local food	Limited liability company
4	Justin Adams	Business administration	Global Energy Star	Energy	Renewable energies with social value	Limited liability company aligned with association
5	Jason Lee	Political management	Better Together	Services	Purposeful co-working space	Limited liability company
6	Tracy Holmes	Law	Raw Food	Food	Raw vegan organic food	Limited liability company

**Table 19 – Case descriptions**

### Data Collection and Analysis

One of the main sources of our research is semi-structured, open interviews with firm founders. The first round of interviews was more general addressing 1) the founder's background, 2) the process of sustainable entrepreneurship from the first idea to market entry, and 3) the balance of the triple bottom line. After we were sensitized to the great importance of founder identity in the creation of new sustainable ventures, we conducted a second round of follow-up interviews, focusing on the perceived similarities between the self and other in-group members as well as the perceived differences between the self and out-group members. We employed graphic illustrations to elicit the mapping of themselves to social groups. This is a kind of elicitation technique, which allows people to talk about ideas, emotions, and relations that they don't usually talk about (Bagnoli, 2009; Barton, 2015). More specifically, we provided the interviewees with a white piece of paper bearing their name in the middle and asked them to make a drawing or mapping relating themselves to other people, and groups of people respectively. In addition to the interviews, we included archival data from internal and external sources, such as presentations of firm founders in social

networks (e.g., LinkedIn), personal blogs, company websites, press releases, and media articles focusing on the identity of the founder and the nature of the new sustainable venture. We triangulated the written data with the verbal data to enhance and to deepen our understanding of the salient identities of firm founders. Regarding the core strategic decisions, we focused on the firm-creation phase. More specifically, we investigated how negational categorizations affect key entrepreneurial decisions about which market to enter, which products to develop, and which form of governance to establish (Abell, 1980; Williamson, 1991; Shepherd et al., 2015). We employed multiple sources and archival data to cope with retrospective bias, as Golden suggested (1992). We used different versions of the sustainable venture's websites present during the founding phase, which are available in the Internet archive.

We analyzed the interview transcriptions (138 single-spaced pages) and secondary data (55 single-spaced pages) in a two-step process. In the first round, we analyzed each case by itself as Eisenhardt recommended (1989). We listed and analyzed the social groups that were salient for firm founders during new venture creation. As part of the within-case analysis, we explored the self-categorizations of in-groups and out-groups from the firm founder's viewpoint. In the second round of analysis, we applied case-ordered displays to conduct a systematic cross-case comparison as suggested by Miles and Huberman (1994). In this cross-case analysis, we focused on patterns in the negational categorizations of firm founders, and investigated the consequences of the identified self-categorization processes on core entrepreneurial decisions in new firm creation.

### 3.4.5 FINDINGS

Self-categorization accentuates the perceived similarities between the self and other in-group members and the perceived differences between the self and out-group members. We begin with the self-categorization of *in-groups* from the firm founder's point of view and its influence on core strategic decisions in new venture creation. We then continue with the self-categorization of *out-groups* from the firm founder's point of view and its influence on core strategic decisions. We explore what firm founders decide to do and what they decide *not* to do.



## **Self-categorizations of In-groups**

### ***Affirmational Categorization of In-groups***

In line with previous research, our empirical findings show that in-groups play an important role in defining the social identity of firm founders. In-groups are social groups with which an individual identifies. In most of our cases, vocational groups such as landscape gardener, advertiser, or designer form salient social identities. However, hobbies and avocational groups may also shape the social identity of firm founders. Take for instance, David Underhill, who is a dedicated beekeeper and initiated a project revolving around city beekeepers.

*“When I talked to my friends about beekeeping in the city, they showed great interest. I started a blog on the topic, which led to the formation of a social group. Most city beekeepers are people like me, who live in urban areas and who seek nature.” (David Underhill)*

The affirmational categorization of different types of in-groups supports and augments other empirical studies on founder identity (e.g., Fauchart and Gruber, 2011, Powell and Baker, 2014; York et al, 2016).

### ***Negational Categorization of In-groups***

A surprising and interesting finding is the negational categorizations of in-groups as expressed by most of our interviewees. We refer to it as in-group differentiations, whereby firm founders identify with, and yet differentiate themselves from a social group. Take the following statements regarding vocational groups:

*“I was trained as a landscape gardener. For me landscape gardening is more than a profession – it is a calling. I love trees, and the natural elements of stone, water, soil, and plants. I had a difficult time working for a landscape gardener, who put profits over plants.” (Andrew Taylor)*

*“Although I see myself as an advertiser, I became increasingly dissatisfied with conventional advertising enhancing materialistic lifestyles. I realized that I have some (ecological and social) values, I want to live up to – both in my private and professional life.” (David Underhill)*

*“I was not happy with the idea of producing and shaping products. What we industrial designers normally do, your mission is to change the desire of society by giving good design and designing products enhancing consumption. Thanks to*

*a project I became interested in food and design, where I have worked ever since.” (George Cooper)*

The three founders quoted learned a profession they were interested in. However, as they worked in their jobs, they developed a critical attitude toward the negative aspects of their profession, which puts profits over principles, and exacerbates unsustainable consumption patterns. Instead of leaving their profession and entering new fields, all three of them reinterpreted their jobs and started using their skills to advance sustainable production and consumption patterns. While they still identify with their vocational groups, they differentiate them further. Similarly, Justin Adams reflects on his entrepreneurial identity. Whereas he is an entrepreneur with all his heart, he mainly identifies with social entrepreneurs, who make money while having a positive impact on society:

*“... you’re growing older and start thinking: what do I want to achieve in life? I saw from my brother how hard it is to found a business. The pain, the uncertainty, the breakup of relationships, and so on. So, I did some soul-searching, and I realized that while I still wanted to be an entrepreneur and make money, I also wanted to have impact.” (Justin Adams)*

The negational categorization of in-groups may also be relevant for avocational groups. Tracy Holmes is a dedicated raw foodist. However, she differentiates herself from David Wolfe, one of the promoters of a raw food diet, who takes quite an extreme stance.

*“In retrospect I think the book by David Wolfe (‘The Sun Food Diet Success System’) is not very scientific, and quite extreme. There is not just one group you may categorize as raw foodists. Every raw food person is doing his own way of diet, and living his own way of life. Raw foodists are quite heterogeneous.” (Tracy Holmes)*

While acknowledging the importance of affirmational categorizations and in-groups, the empirical results show that negational categorizations and in-group differentiations are also relevant for the salient identities of firm founders.

### ***Core Strategic Decisions***

A key premise of social identity theory is the influence of a salient identity on individual behavior. The importance of in-group categorization for entrepreneurial decision-making has been described in great detail elsewhere (e.g., Fauchart and Gruber, 2011; Powell and Baker, 2014, York et al, 2016). Based on our empirical data, we can also establish a link between the affirmational categorization of in-groups and core strategic decisions—more specifically, products and services offered. Take the example of David Underhill, who identifies with beekeepers. He initiated a project and formed a social group revolving around city beekeepers, communicating issues of urban-rural gap, locality, seasonality, and others. Accordingly, he co-founded “Veggie Nearby,” a form of community-supported agriculture (CSA), which produces local, seasonal vegetables from the nearby area for the city, closing the gap between urban and rural areas.

An interesting finding emerging from our cases is that the negational categorization of in-groups also has an influence on founders’ core strategic decisions, including products (not) offered and market segments (not) targeted. Take for instance George Cooper, who identifies with the world of design. He was trained as an industrial designer at a well-known and highly reputed French school. Against this background, we would expect him to found a new venture relating to industrial design. However, George Cooper takes a critical stance toward his vocation. He argues that a key role of industrial designers has become to design meaningless products enhancing mass consumption. Being dissatisfied with this perspective on design, he aims at using his skills to show how design can benefit societal goals. Instead of as an industrial designer, he sees himself as a designer of social processes and food products. Thus, he founded “Local Food Net,” a novel social design and innovative service bringing local food producers and consumers together.

*“I was concerned about the social and economic issues of food. I enjoy inventing new social processes, invent new ways of doing and wanted to do something a little bigger than what was being done. I come from the world of creativity and I imagined an innovative technological tool, very transparent and equitable. The vision of the platform is to change the globalized food system by enabling customers to buy their food locally.”*

The influence of in-group differentiation on the market segments served also becomes apparent in the case of Tracy Holmes. In her interview, the founder emphasized how she literally became a raw foodist overnight. For some time, she completely identified with the growing group of raw foodists. However, after a while she became more critical towards the group of extreme raw foodists. Although Tracy Holmes still associates herself with the raw food movement, the importance of an individual interpretation of raw foodism became of utmost importance for her. This in-group differentiation was very strongly reflected when she started her business “Raw Food,” particularly because her raw food products were targeted toward a broader market segment rather than the raw food niche. Her new venture offers a wide range of raw vegan food, which is healthy, organic, and convenient, reaching out to different kinds of customer groups (health conscious, ecologically conscious, convenience oriented, sports people, and the like).

*“I wanted to share all the flavors and all the goodness that you can find in raw food. I wanted to share that with other people. That’s why I created ‘Raw Food’: to produce something good and to spread it to a wider audience. And of course, we are not just trying to sell to raw-food people. We are trying to sell to anybody who is at least a little bit interested in anything healthy, because that is the main concept.”*

Table 20 gives an overview of the empirical results regarding the self-categorization of *in-groups* with exemplary statements for the affirmational and the negational categorizations of in-groups and their influence on core strategic decisions in new venture creation.

<b>Founder</b>	<b>In-group</b>	<b>Affirmational Categorization</b>	<b>Negational Categorization</b>	<b>=&gt; Core Strategic Decision</b>
Andrew Taylor	Landscape gardeners	“I was trained as a landscape gardener. For me landscape gardening is more than a profession – it is a calling.”	“I love trees, and the natural elements of stone, water, soil, and plants. I had a difficult time working for a landscape gardener, who put profits over plants.”	=> No conventional landscape gardening service => Baobab tree as the ultimate source of unique beverage (product)
David Underhill	Advertisers  Beekeepers	“I hold a diploma from the Bavarian Academy of Advertising and Marketing. I worked for a (conventional) advertising agency for several years, and I identify with the world of media and communications.”  “When I talked to my friends about beekeeping in the city, they showed great interest. I started a blog on the topic, which led to the formation of a social group. Most city beekeepers are people like me, who live in urban areas and who seek nature.”	“Although I see myself as an advertiser, I became increasingly dissatisfied with conventional advertising enhancing materialistic lifestyles. I realized that I have some (ecological and social) values that I want to live up to – both in my private and professional life.”  ---	=> No conventional advertising and customers => Personal communication and prosumers (segment)  => Community supported agriculture, producing local food from the nearby area for the city (product)
George Cooper	Designers	“I am originally an industrial designer. I was in a public French school, which was really, really good.”	“I was not happy with the idea of producing and shaping products. What we (industrial) designers normally do, your mission is to change the desire of society by giving good design and designing products enhancing consumption. Thanks to a project I became interested in food and design, where I have worked ever since.”	=> No industrial design => Novel design of social processes and services bringing together local food producers and consumers (product)

Justin Adams	For profit entrepreneurs	“I am an entrepreneur with all my heart. During my study time at university I founded my first business with my brother to make some money. And later on, I used to meet with friends to talk about ideas and potential business plans. Business modeling is a kind of hobby for me.”	“... you’re growing older and start thinking: what do I want to achieve in life? I saw from my brother how hard it is to found a business. The pain, the uncertainty, the breakup of relationships, and so on. So, I did some soul-searching, and I realized that while I still wanted to be an entrepreneur and make money, I also wanted to have impact.”	=> No conventional energies in liberalized market => Sustainable energies, aiming at ecological <i>and</i> social impact (product)
Jason Lee	Visionaries  Social Volunteers	“I like being surrounded by visionary people, who think in terms of opportunities and possible futures.”  “Early on, I’ve started to care about social injustice and questions surrounding equality. Hence, I became a social volunteer working for a NGOs in India.”	---  “Volunteering is absolutely important. But in a strong civil society we need people who do this professionally and they need good payment. Good work costs money. This applies to economy, but not for the social sector, where people get punished for their social engagement. It is a misconception that solving social problems and earning money are mutually exclusive.”	=> Purposeful co-working space as a service to transform the nature of work and to foster new forms of economic activity, thereby shaping society (product)  => Co-working space targeted toward everyone who aims to employ economic means for realizing social ends (market segment)
Tracy Holmes	Raw foodist	“My sister called my attention to ‘The Sun Food Diet Success System’ by David Wolfe. I managed to read the thick book in one week. As a consequence of that, I stopped eating meat from one day to another, and I became a raw foodist.”	“In retrospective, I think the book by David Wolfe is not very scientific, and quite extreme. There is not just one group you may categorize as raw foodists. Every raw food person is doing his own way of diet, and living his own way of life. Raw foodists are quite heterogeneous.”	=> No raw food ingredients, targeting niche (product/segment) => Tasty, healthy, and convenient raw vegan food, targeting different kinds of customer groups (product/segment)

**Table 20 – Self-categorizations of in-group**

## **Self-categorizations of Out-groups**

### ***Negational Categorization of Out-groups***

In this paper we stress the role of out-groups and negational categorization in forming the social identities of firm founders. Out-groups are social groups that individuals do not identify with. In general, the interviews with the founders of new sustainable ventures show that they do not identify with groups of people who narrowly seek to serve their own interests. In classical economic theories, this type of person is characterized as the *homo oeconomicus* or economic man, who attempts to maximize profit as producer or utility as consumer. The distinction from these social groups is not just idle talk. For some, it had far-reaching consequences for their life and career paths.

*“I differentiate myself from profit-maximizing companies ... For a while I worked as property manager for a large international investment fund, which made profits from ‘bloody’ business. When I became aware of it, I quit my well-paid job.” (Andrew Taylor)*

*“I distinguish myself from high-income people with sports cars, suits, and such. They lead a material lifestyle I do not want to lead.” (David Underhill)*

*“I studied law, and worked for some law offices during my studies. I figured out that this is not for me. It is something I do not want to do. I’m not going to serve anybody, who is trying to bend the law and make money on somebody else.” (Tracy Holmes)*

The separation from these different kinds of out-groups plays an important role for the firm founders’ self-concepts. The statements indicate that out-groups serve as a reference point in terms of who the founders do not want to be. In addition to the groups of people who narrowly seek their self-interest, sustainable entrepreneurs also mentioned other out-groups like athletes or politically radical people. They might have some relevance for the individual’s self-concept in general, but they are not regarded as relevant for the salient identities of the individuals as firm founders.

*“I do not identify with political radicals of any kind (although I was a bit left-wing in my youth myself). I try to understand them and their situation, but I disapprove of their deeds.” (Andrew Taylor)*

*“I could have listed athletes as an out-group too, but I do not consider them as relevant, because they have nothing to do with me as a firm founder.” (Jason)*

Lee)

*An extreme form of separation is the non-identification with any kind of social group, as expressed by one the firm founders.*

*“I do not identify with anybody or any social group. I just do my thing.” (Tracy Holmes)*

### ***Affirmational Categorization of Out-groups***

A notable finding is that the interviewees move beyond simple negational categorization, mitigating the separation from out-groups to some extent. Take the following statements regarding profit-maximizing people:

*“I differentiate myself from profit-maximizing companies and business people, who are only focused on money ... However, I identify with business people who value goods and sustainable relations with their suppliers.” (Andrew Taylor)*

*“I do not identify with profit maximizing entrepreneurs, neither do I identify with social entrepreneurs, who are too social. I rather identify with normal entrepreneurs, who behave responsibly, and with social entrepreneurs, who act entrepreneurially.” (Justin Adams)*

The mitigation of negational categorizations also applies to other out-groups, including high-income people leading fancy lifestyles, politicians, administrators, and activists.

*“I have an ambiguous relationship to high-income people. On the one hand I feel uneasy in their presence, and I do not know what to talk about with them. On the other I somehow admire their fancy lifestyles, which inspires our communication” (David Underhill)*

*“I’m not the type of guy, who would wave a ‘Stop nuclear power’ sign in the streets or something like that ... However, while the means are different, the ends are alike. I am also against fossil fuels, and I want the turnaround to renewable energies. Raising awareness for these issues and changing society are key elements of our venture.” (Justin Adams)*

The empirical results indicate that negational categorizations of out-groups play an important role in forming the social identity of firm founders. Out-group separation helps sustainable entrepreneurs define who they are not, and who they do not want to be. However, most interviewees mitigate the distinction from the out-groups to some extent, which is an interesting and unexpected finding from our inductive research.



Out-group mitigations provide a more nuanced picture, which goes beyond the simple categorizations of out-groups and in-groups.

### ***Core Strategic Decisions***

An assumption in social identity theory is the influence of a salient identity on individual behavior. In the following, we explore the link between out-group categorizations of firm founders and core strategic decisions in new venture creation, particularly governance employed. A case in point is Andrew Taylor, who was negatively affected by his previous experience as a real estate manager. His negative experience with profit-maximizing organizations resulted in the rejection of growth-and-profit aspirations, which is clearly reflected in the legal form and governance of the new sustainable venture B&B Beverage. By means of a charitable limited liability company, Andrew Taylor wants to ensure that the company will never pursue profit-maximizing objectives for personal gain only.

*“I’ve consciously chosen the legal form of a charitable limited liability company. Why charitable? Because I wanted to legally commit myself, and the company to the higher purpose of fair trade, excluding the aim of profit maximization. Despite a decent income for myself as the founder and CEO, all business profits are reinvested in the company to build the company and to support its social activities.” (Andrew Taylor)*

As outlined above, the separation from the out-group is mitigated to a certain degree in some interviews. Accordingly, founders separate themselves from an out-group, but mitigate their strong feelings towards small parts of the perceived out-groups. The influence of out-group mitigation on the governance employed is also represented in the case of David Underhill. The founder distinguishes himself from “*high-income people with sports cars, suits and such,*” which he perceives as a representation of the current capitalistic system. In line with his negational categorization, he wanted to differentiate “Veggie Nearby” from any capitalistic interests, despite the personal benefits and possibilities a limited liability company or stock company would offer. Through a process of sequential elimination he and his co-founder came up with the legal form of a cooperative, which strives for societal goals and enables its members to participate in decision-making processes. With regard to the systematic consideration

and evaluation of various legal forms for the new sustainable ventures, he elaborated in the personal interview:

*”Basically, there are four legal forms: association, cooperative, limited liability company, and stock company. We did not want an association, because our initiative is not a hobby. Neither did we want a stock company, because it has the touch of capitalism. A limited liability company would have been the best for us personally, but we wanted to serve the public good, and overcome the classical divide between producers and consumers. That is why we chose the legal form of a cooperative, where all members can take part in the decision making process.”*  
(David Underhill)

Justin Adams always had high entrepreneurial intentions. However, he neither identifies with profit maximizing entrepreneurs nor with social entrepreneurs, who are too social. And despite sharing the goal of fighting climate change, he does not identify with activists who demonstrate and take it to the streets. Instead he wants to use the mechanisms of capitalism to foster change toward sustainability. He opted for the conventional legal form of a limited liability company in combination with an association, which aims at enhancing sustainable energies and life quality in developing countries. This also aligns with his concept of customers and products. He perceives private and professional customers as a movement and sustainable energy as an institutional vehicle to hasten the national and global energy turnaround.

*“I fight climate change, and I want the turnaround to renewable energies. Raising awareness for these issues and changing society are crucial parts of Global Energy Star. Our philosophy is ‘Genuinely better energy. Genuinely sustainably produced. Genuinely fairly produced. Genuine change.’ You can only master the energy turnaround if you’re operating on all these different levels and be economically viable at the same time.”*

The empirical results suggest that the self-categorization of out-groups by firm founders has an influence on core entrepreneurial decisions. It apparently affects what they do *not* do and what they do. Table 21 presents exemplary statements for the negational and the affirmational categorizations of out-groups, and their influence on strategic decisions in new venture creation.

<b>Founder</b>	<b>Out-group</b>	<b>Negational Categorization</b>	<b>Affirmational Categorization</b>	<b>Core Strategic Decision</b>
Andrew Taylor	Profit-maximizing managers	“I differentiate myself from profit-maximizing companies and business people, who are only focused on money. For a while, I worked as property manager for a large international investment fund, which made profits from ‘bloody’ business. When I became aware of it, I quit my well-paid job.”	“However, I identify with business people who value goods and sustainable relations with their suppliers.”	=> No profit-maximizing company => Charitable limited liability company that pursues fair trade with African suppliers (governance)
David Underhill	High-income people	“I distinguish myself from high-income people with sports cars, suits and such.”	“I have an ambiguous relationship to high-income people. On the one hand I feel uneasy in their presence, and I do not know what to talk about with them. On the other I somehow admire their fancy lifestyles, which inspires our communication.”	=> No fancy food products for high-income people => Local, affordable food products with urban-lifestyle appeal (product/segment) => No profit-maximizing company => Cooperative (governance)
George Cooper	Conventional agrifood groups	“In agriculture there are extremely scandalous groups, in the chemical industry, all these consolidations, there are extremely scandalous groups in medicine and the chemistry sector with regards to food, and all of this is crazy.”	“There are some agricultural groups in France, which are pretty amazing, and which contribute to new more sustainable food practices.”	=> No conventional, national food product => Novel service bringing local food producers and consumers together (product)
Justin Adams	Profit-maximizing/ social entrepreneurs	“I do not identify with profit maximizing entrepreneurs, neither do I identify with social entrepreneurs, who are too social.”	“I rather identify with normal entrepreneurs, who behave responsibly, and with social entrepreneurs, who act entrepreneurially.”	=> Neither profit-maximizing nor non-profit organization  => Limited liability company combined with an association (governance)

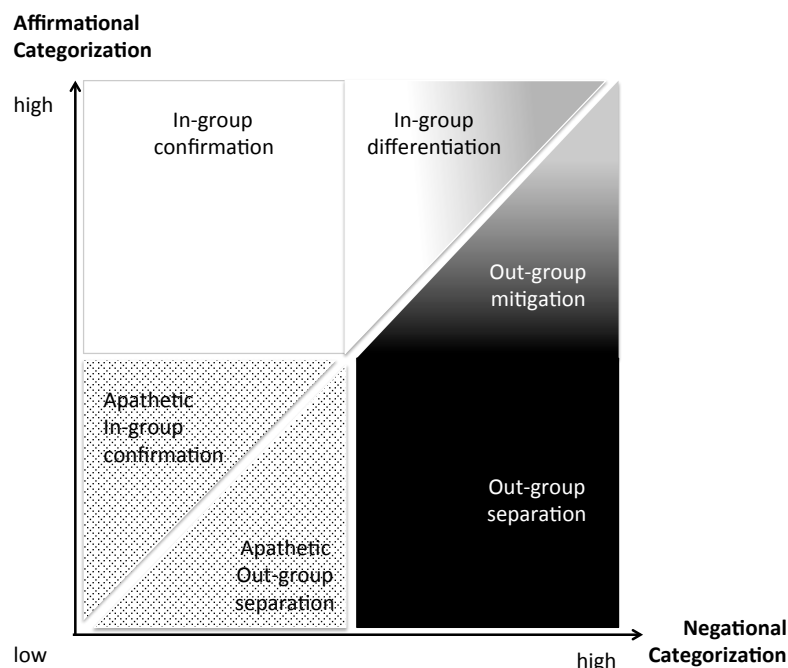
	Activists	“I’m not the type of guy who would wave a ‘Stop nuclear power’ sign in the streets or something like that.”	“However, while the means are different, the ends are the same. I am also against fossil fuels, and I want the turnaround to renewable energies. Raising awareness for these issues and changing society are key elements of our venture.”	=> No activism => Customers as members of a movement promoting renewable energies as an institutionalized vehicle to hasten national and global power-generation-technology transition (product)
Jason Lee	Politicians and social workers	“Generally, I dislike politicians, administrators, and social workers. Politicians make big words, but fail to live up to the expectation. The same holds true for social workers, who are involved in political games and seek their interests.”	“However, what connects me with these people and institutions is that we care for the same topic, the shaping of society, which I respect and value.”	=> No involvement in and funding from public or political institutions => Independent governance of company without any financial support from politics, foundations, or big companies (governance)
Tracy Holmes	Lawyers  Social groups	“I studied law, and worked for some law offices during my studies. I figured out that this is not for me. It is something I do not want to do. I’m not going to serve anybody who is trying to bend the law and make money on somebody else.” “I do not identify with anybody or any social group. I just do my thing.”	---  “Of course, you share a lot of things with certain people ... But it’s not that you belong to that group or that you feel part of it. It’s about sharing, not belonging or identifying yourself.”	=> No law firm (product)  => No entrepreneurial team => Single firm founder, limited liability company (governance)

**Table 21 – Self-categorizations of in-group**

### 3.4.6 DISCUSSION

When we started our research, we were interested in complementing existing research into founder identity, more specifically in investigating the role of out-groups and negational categorization. The importance of out-groups has long been a crucial part of social identity theory and self-categorization (Turner et al., 1987; Stets and Burke, 2000). This importance is not, however, reflected in the small but steadily growing stream of literature on founder identity (e.g., Fauchart and Gruber, 2011; Powell and Baker, 2014; Wry and York, 2016). To date, this literature has mainly focused on the role of in-groups and affirmational categorization. Self-categorization theory, which describes the classification of others as member of one's own group (in-group) or as members of another group (out-group), can explain affirmational and negational categorizations (Tajfel and Turner, 1979).

The results of our study confirm the assumption that out-groups play an important role in the social identity of firm founders. However, our empirical results also suggest that in-group confirmation and out-group separation are two extreme poles of a spectrum, which represents a black-and-white image of founder identity. Accordingly, classifying founders' self-categorization processes along the two dimensions of affirmational and negational categorizations, allows for a much more nuanced picture of their social identity (Figure 9).



**Figure 9 – Affirmational and negational categorizations**

**Black and White: Affirmational and Negational Categorization**

*In-group confirmation.* In line with previous research on founder identity, we find that in-groups, be they in form of vocational or avocational social groups, greatly affect founders' self-perceptions and in turn their social identity (Fauchart and Gruber, 2011; Powell and Baker, 2014). Although affirmational categorizations have not been the focus of our research, the importance of affirmational categorization for a founder's identity became apparent in all interviews. Accordingly, founders perceive themselves as members of a group, which serves as an important reference point (Fauchart and Gruber, 2011). We coin the expression in-group confirmation to denote this categorization of oneself as a member of a group.

Besides this affirmational categorization into in-groups, we observed a form of "apathetic in-group confirmation" as well. Apathetic in-group confirmation involves social groups to which a founder relates superficially (e.g., artists), which implies that the relevance for the self-concept of, and therefore the influence on, a founder's identity is very low.

*Out-group separation.* More interestingly, our results support the assumption that out-groups affect founder identity. Across all cases, founders identified a number of out-groups from which they wanted to set themselves apart. We refer to this non-identification as out-group separation. It is notable, however, that these out-groups still greatly influence founders in that the former provide an important reference point for how the latter do not want to be. Our results support the findings of Elsbach and Bhattacharya (2001), who revealed that individuals have out-groups from which they deliberately want to disidentify themselves and this disidentification affects their social identity. Accordingly, such an informed disidentification results from negative personal perceptions about a perceived out-group and this negative perception is salient for one's identity (Elsbach and Bhattacharya, 2001). This informed disidentification is the case for the out-group categorizations of the founders in our study and reflects how out-groups and negational categorization are salient for their self-concept as a firm founder. In cases of informed disidentification, founders make a great effort to visibly set themselves apart from a certain out-group, as the out-group is perceived as threatening for the founder's self-concept.

In line with Zhong et al. (2008), the results of our study indicate that the prominence of

negational categorization arises from entrepreneurs' stronger needs for uniqueness and individuality, which prompt them to express their distinctiveness from others (DeCarlo and Lyons, 1979; Sexton and Bowman, 1986, Shepherd and Haynie, 2009). Accordingly, our study supports the assumption that the salience of negational categorization increases at times when the need for distinctiveness is strong (Zhong et al. 2008). By exemplifying the role of out-group separation, our findings contribute to a holistic picture of a founder's identity, exploring the dual shaping of affirmational and negational categorization on a founder's social identity. Firm founders in general and sustainable firm founders in particular therefore represent an ideal sample for studying the phenomenon of negational categorization, as their need to differentiate themselves from non-members, but also members with different values, is significantly elevated.

Besides the separation of out-groups, we noticed a form of apathetic non-identification. This apathetic out-group separation refers to situations in which the person does not care about the linking and non-linking with a social group. This was expressed in several interviews with the founders, who indicated that there are several groups with which they do not identify (e.g., sports people, right wing extremists); however, as no friction point with these out-groups exists, they are not perceived as relevant for their self-concept as a founder.

### **Shades of Gray: “Being Same and Different at the Same Time”**

*In-Group Differentiation.* A very interesting finding was that in all cases founders felt a need to differentiate themselves from parts of their in-groups. Whereas the in-group was perceived as important for a founder's self-concept, sharing many similarities and obviously satisfying their need for inclusion (Brewer, 1991), all founders expressed a certain differentiation from parts of their in-groups. Accordingly, founders felt a need for intragroup distinctiveness. In-group differentiation serves the purpose of reaching optimal distinctiveness in the form of a negative delimitation within the in-group. In this case, the founder's need for self-differentiation increases with increasing intragroup inclusiveness. In comparison to non-entrepreneurs, the need for differentiation can be expected to be stronger on all levels of group inclusion, which might result from entrepreneurs' stronger need for uniqueness. Whereas the need for assimilation is still much stronger than it is in cases of out-group mitigation, in-group differentiation reflects a founder's motivation to be different and can be seen as a quest

for individuality. In-group differentiation was observed across all cases, supporting the assumption that firm founders have a strong need for distinctiveness and uniqueness even within in-groups.

*Out-Group Mitigation.* At the same time, in all but one case, the founders mitigated their out-group separation to some extent as well. While the degree to which they mitigated their out-group varied among founders, the unexpected observation is that founders feel some form of identification even with minor parts of their out-group. Out-group mitigation, i.e., a positive limitation of the out-group, satisfies a founder's need to be different from a large part of the social group that is perceived to be unfavorable to a founder's self concept. At the same time out-group mitigation allows some form of inclusion with a small fraction of that out-group to remain. Although the need for conformity can be expected to be weaker than it is for non-entrepreneurs, satisfying it satisfies founders' basic need for assimilation. Whereas differentiation is still the primary motivation for out-group categorization, our results indicate that out-group mitigation contributes to a feeling of relatedness to some parts of the out-group.

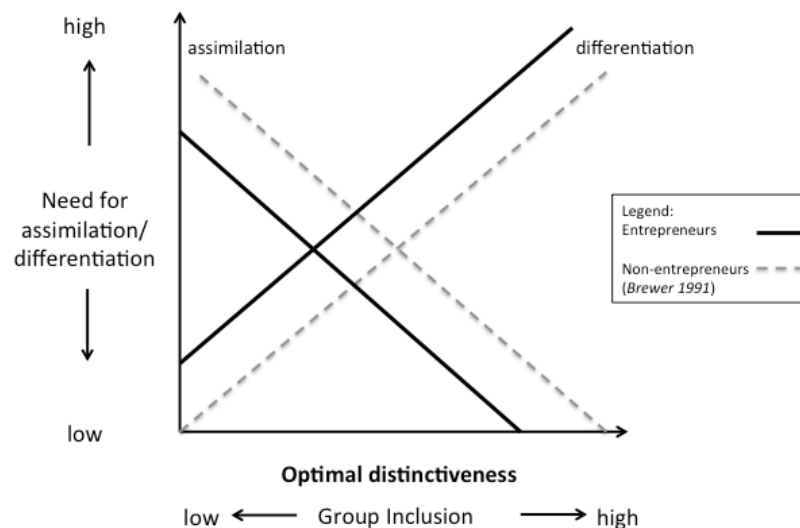
An explanation for out-group mitigation might be that it forms a bond against a third group that both the in-group and the out-group reject, leading to a mitigation of the former out-group categorization (Zhong et al., 2008). Our results admit an alternative explanation by showing that founders explicitly differentiate themselves from social groups that are superficially related to their self-concept. This aligns with the notion of informed disidentification, as founders are well informed about the behavior, characteristics, and attitudes of the out-group and perceive the out-group as negative for, sometimes even as threatening to, their self-concept (Elsbach and Bhattacharya, 2001). Yet interestingly, our results imply that despite all of the differentiation, the founders experience some sort of alignment with some of the behaviors or attitudes of the out-groups, which is, despite all of the disagreement and differing world-views, a bonding factor mitigating the out-group categorization to some extent.

Building on optimal distinctiveness theory, we suggest that in-group differentiation and out-group mitigation can be seen as shades of variation between the two extreme poles of in-group confirmation and out-group separation. Optimal distinctiveness describes a form of self-categorization in which "social identity is viewed as a reconciliation of opposing needs for assimilation and differentiation from others" (Brewer, 1991, p. 477). According to the theory, an individual has a fundamental need for inclusion and



sharing similarities with others, while at the same time having a need for uniqueness and being distinct from others (Brewer, 1991). As entrepreneurs have stronger needs for autonomy and uniqueness and weaker needs for conformity, their need for group inclusion can be expected to be weaker than that of non-entrepreneurs and optimal distinctiveness is reached at a different level than at those of non-entrepreneurs (Figure 10).

Relating our observations of in-group differentiation and out-group mitigation back to optimal distinctiveness theory indicates that founders satisfy their inclusion and distinction needs on the same group level. This supports Leonardelli et al. (2010) who posit that optimal distinctiveness can be reached within the same groups “through identification with groups that are both sufficiently inclusive and sufficiently distinct to meet both needs simultaneously” (p. 67). Our data supports this assumption by showing how founders satisfy both needs, their need for distinction, as well as their need for inclusion, via a form of in-group differentiation and out-group mitigation. Taken together, our results suggest that an optimal balance cannot only be achieved across different in- and out-groups, but also *within* the same in-and out-groups, thereby allowing for “*being same and different at the same time*” (Brewer, 1991).



**Figure 10 – Optimal distinctiveness of entrepreneurs**

This simultaneous identification and non-identification within a group might be referred to as “schizo-identification,” a term suggested by Elsbach (1999) in the context of identifying with an organization. According to the author, schizo-identification

describes a state in which individuals actively identify and disidentify with (parts of) the organization at the same time, which might result in mixed feelings toward the organization. This self-categorization process is very similar to the one identified for the founders in our study who, through a process of in-group differentiation and/or out-group mitigation, reflect a state of schizo-identification with certain in- or out-groups. In turn, the line between what constitutes an in-group and out-group becomes increasingly blurred.

### **Negational Categorization and its Influence on Entrepreneurial Decision Making**

According to social identity theory, individuals strive for behaviors and actions that are consistent with their salient identities (Hogg et al., 1995; Stets and Burke, 2000). In line with this, Fauchart and Gruber (2011) showed how differences in founders' identities shape core strategic decisions of new firm creation. In the same vein, Powell and Baker (2014) identified how identities affect new firms' goals and strategies. Complementing such work, we theorized that negational categorizations would influence entrepreneurial decision-making just like affirmational categorizations do. Looking at the selected key decisions of products offered, market segments served, and governance employed (Abell, 1980; Williamson, 1991; Mair et al., 2015; Shepherd et al., 2015), our study suggests that negational categorizations affect entrepreneurial decision-making in the opportunity-exploitation phase.

*Products.* In the study by Fauchart and Gruber (2011), the authors investigate founder identity with the sports-related equipment industry as the example. Due to the very positive association of many sports with hobbies, fun activities, and enhancement of communal spirit, it's hardly surprising that affirmational categorizations play an important role in the sports industry. The products offered by the founders in our study can be similarly regarded as reflecting the founder's self. Across cases, the sustainable products offered reflect the founders' pro-social and pro-environmental orientation. In the context of sustainable products and services, this reflection is not, however, always a positive one. Accordingly, it's important to observe that sustainable products also reflect the anti-consumerism and anti-commercialism mindset of the founders.

Mirroring the founders attitudes and perceptions, the sustainable products offered by the founders in our sample can therefore be seen as providing a sustainable alternative

on the one hand, but also a counter-offer to conventional products on the other. Consider for instance Veggie Nearby or Local Food Net, which provide a concrete, sustainable alternative to buy and consume regional food products. Yet at the same time, the products are offensively positioned as conspicuous alternatives to globalized food products, which are seen as a major contributor to environmental and social problems. In these cases, negational categorizations are important because they provide an important negative reference point and strongly influence the perception of what is considered to be a good product *and what is not*.

Our findings build on and expand well-established consumer research, which shows that products convey social meaning. Accordingly, products are particularly important in the expression of identities in a social context and in defining one's social realities (Solomon, 1983). Just as possessions are seen as a reflection of consumers' identities (Belk, 1988), the products offered by the founders can be regarded as reflecting the founder's self. Thus, products transport not only meaning for those who adopt them, but also for those who offer them.

*Market Segments.* The environmental and social impact of products varies across market segments and some industries, including food, mobility, and energy, are consistently found to be responsible for the greatest consumption-related impacts (Tukker and Jansen, 2006). A key finding is that the market segments served by the firm founders in our sample are deliberately chosen to address the social and environmental maladministration of this market and to challenge the current actors in the system. This observation corresponds with findings from previous research, which identified market failures in general and social or ecological problems in particular to be an important impetus for sustainable entrepreneurship (Belz and Binder, 2015; Cohen and Winn, 2011; Dean and McMullen, 2011). Across cases, the market segments served by the sustainable ventures are congruent with founders' negational categorizations, be it to deliberately reflect their out-group separation and mitigation or their in-group differentiation. Accordingly, the founders in our sample perceived certain market failures, such as the use of non-renewable energies or the practice of unfair trade, as mistakes committed by certain market actors (e.g., producers, suppliers, or consumers). Their rejection of such unsustainable production and/or consumption practices prompted them to found businesses with the prospect to provide a viable alternative at the market.

*Governance.* An interesting observation was made regarding the governance of new ventures. Whereas the choice of governance of a new venture is a critical decision for all of them, it becomes a real balancing act between non-profit aspirations and self-financed business activities in the case of hybrid organizations (Battilana and Lee, 2014). Across cases, founders indicated a heightened awareness of fulfilling both their social welfare and commercial logics (Battilana and Dorado, 2010; Battilana et al., 2015; Pache and Santos, 2013), and the resulting conflicting demands for organizing and managing their firms.

In its most visible form, this quest for hybrid governance becomes apparent in the choice of legal form. As Delmar and Shane (2004) emphasize, establishing the legal identity of a business is a critical activity for a new venture to gain legitimacy. Furthermore, the authors claim that creating a legal entity will affect the internal organization of activities as well as the external perception of the business by its stakeholders. Interestingly, the founders in our sample based the choice of governance on a systematic evaluation of all possibilities and employed a variety of legal forms, reflecting the diversity and uniqueness of hybrid ventures.

On the one hand, several cases in our sample relied on the traditional legal form of a limited liability company (Better Together, Raw Food, Local Food Net). While this legal form does not reflect the sustainable aspirations of their founders and the hybridity of the venture, it was deliberately chosen to gain legitimacy on the mass market and to reach out to the average customer. On the other hand, we also had a multitude of new legal forms and combinations in our case sample. For instance, the parallel *legal limited liability company and association* was chosen by Global Energy Star to combine a classical for-profit and a classical non-profit legal form. The two legal forms employed reflect the two poles of a sustainable venture in its most extreme form and can be regarded as a form of schizo-identification on the organizational level. B&B Beverages employed one of the newly introduced legal forms: a *charitable limited liability company*. The clear aim of this choice is to commit the firm to a charitable purpose internally and to communicate its orientation toward sustainability externally. In doing so, the start-up signals an optimal distinctiveness from the extreme legal forms of charities and associations on the one hand, and capitalistic organizations such as stock companies on the other hand. Sustainable-food provider Veggie Nearby relied on the organizational form of a *cooperative* to reflect the communal, co-

determinant and co-participatory character of their sustainable venture. As a cooperative, Veggie Nearby intends to separate itself from any non-profit as well as any capitalistic forms of business, thereby reflecting the founder's out-group separation.

### **Theoretical Contributions**

*Entrepreneurship Research.* The findings of our study hold important implications for entrepreneurship research. First, we complement prior research on founder identity by introducing the concept of negational categorization. Our findings from studying negational categorization provide novel insights into the social identity of firm founders. By showing that a founder's identity is shaped not only by in-groups but also by out-groups, our study transcends current conceptualizations of a founder's social identity (Fauchart and Gruber, 2011; Powell and Baker, 2014). Whereas previous research provided intriguing insights into the role that affirmational social groups play for founders and their decision-making, it doesn't take entrepreneurs' specific characteristics into consideration. Our results manifest the assumption that negational categorization and disidentification with certain groups can provide relevant insights into entrepreneurs' identity and decision-making. Whereas affirmational categorization provides important insights into favorable decisions and behavior of the entrepreneur, it falls short when explaining why founders decide against a certain action or behavior. We intend the findings of our study to contribute to our understanding by showing why entrepreneurs refuse to engage in a certain behavior.

Second, we provide a more nuanced picture of a founder's identity, which is not black or white but exhibits different shades of gray when it comes to a founder's self-categorization. From the vantage point of optimal distinctiveness theory, our study reveals how a founder's opposing needs for assimilation (although less pronounced) and differentiation are satisfied on the same group level, through a self-categorization process that we have termed in-group differentiation and out-group mitigation. Accordingly, our results show that self-categorization is a much more differentiated process, which affects entrepreneurial decision-making. It might be that this form of "schizo-identification" is particularly pronounced in the case of founders operating a hybrid venture, since hybrid ventures are also known for their partial membership in different institutional environments—just like the entrepreneurs in our sample, who differentiated themselves from parts of their in-groups and mitigated their out-group to

some extent, hybrid ventures can be seen as a reflection of their founders' optimal distinctiveness achieved by combining different logics in their organizational identity and by being situated *between* institutionally legitimate types of organizations (Battilana and Dorado, 2010; Pache and Santos, 2013).

Third, the findings of our study enrich understanding of entrepreneurial decision making at the early stages of new venture creation. Relating our findings of negational categorization and optimal distinctiveness to key decisions about exploiting opportunities, we are able to provide an understanding of how self-categorization affects entrepreneurs' evaluation of strategic choices and in the case of sustainable or social entrepreneurs, influences their balancing of economic and social considerations when making decisions (Shepherd et al. 2015). The three investigated decisions at the early venture stage strongly reflect an influence of negational categorization on the decision about which products to offer, markets to enter, and form of governance to employ—*or not*.

*Social Identity Theory.* We relied on social identity theory to understand the negational categorization of firm founders (Tajfel and Turner, 1979). The findings of our study back the results of Zhong et al (2008), who found negational categorizations to be important for the understanding of an individual's identity. Furthermore, we find support for the authors' claim that the relevance of negational categorizations might differ among contexts, and elaborate on their finding by identifying entrepreneurship as such a relevant context. Our results contribute to research on optimal distinctiveness by introducing the self-categorization processes of in-group differentiation and out-group mitigation (Brewer, 1991; Leonardelli et al., 2010).

### **Limitations and Future Research**

Building on Fauchart and Gruber (2011), we assumed that a venture is a reflection of a founder's self. As such, our study relied on a sample of sustainable entrepreneurs, as their identities promised to hold interesting insights into negational categorization. Future research might look into more diverse founder types (e.g., user entrepreneurs, family entrepreneurs, and female entrepreneurs) to investigate the role that negational categorization plays for their self-concept. Furthermore, founder identity research is still in its infancy and new insights are just beginning to emerge. The aim of this study was to complement the one-sided focus on founder identity by introducing the concept

of negational categorization. Future researchers might find it fruitful to combine the two perspectives and investigate the dual shaping of affirmational and negational categorization and their prevalence across situations. In addition, the results of this study are based upon a qualitative study, with the common limitation of being unable to predict causal relationships and to guarantee generalizability. Thus, our results might serve as a promising departure point for developing a valid scale to measure the social identity of entrepreneurs (Sieger et al. 2016) that focuses on negational categorization and its influence on entrepreneurial decisions. Furthermore, our study does not focus on identity development but investigated founder identity during the new venture creation phase. While we are confident that the data we have collected reflects a valid representation of the founder's identity in recent times, a promising avenue for future research could explore the dynamics of a founder's identity, by showing how the identities have developed and how they have changed over time (Fauchart and Gruber, 2011; Sieger et al, 2016). Lastly, our study puts forward the argument that entrepreneurs' assimilation/differentiation needs differ from those of non-entrepreneurs, with the ultimate result that optimal distinctiveness is reached at different levels. This observation relies on the data of our cases and was backed by research on the characteristics of entrepreneurs; yet systematic data collection and comparison with non-entrepreneurs would be required to support the observations made in our study.

### 3.4.7 CONCLUSION

Founder identity plays an important role in entrepreneurship. While acknowledging the importance of in-groups and affirmational categorizations (Who am I?), we stress the role of out-groups and negational categorizations (Who am I *not*?). Drawing on social identity, self-categorization, and optimal distinctiveness theories, we explore negational identity of firm founders relative to affirmational identity. Our exploration indicates three forms of negational categorizations: out-group separation, out-group mitigation, and in-group differentiation. The various shades of gray give reasons to believe that negational categorization is not just a derivative of affirmational categorizations. We would like to suggest that negational categorization is a different perspective than affirmational categorization, though complementary to it. Together, these two perspectives provide a more holistic, nuanced picture of firm founders, their salient social identities and behaviors.

### 3.5 Essay V: Be the Change You Want to See in the World: The Value Creation Processes of Sustainable Entrepreneurs

#### ABSTRACT

The promise of entrepreneurship as a catalyst for sustainable development has attracted increasing scholarly interest. Yet, little is known about the value creation process of enterprises that go beyond a pure profit focus to realize pro-social value gains. As opportunities for sustainable development are characterized by their triple bottom line focus of economic, social, and ecological value, they have a much higher complexity and ambiguity than opportunities aiming at creating economic value only. By conceptualizing the value creation process of sustainable opportunities as the interplay between entrepreneurs and structure, linked by scripts, the aim of this study is to provide insights into how entrepreneurs cope with and efficiently master the intricacy involved in developing opportunities that create economic, social, and ecological value. Our results reveal that there are three value creation processes: applying common scripts, recombining common scripts, and creating uncommon scripts. While the first two reproduce existing structure, the latter creates novel structure. A striking finding relates to a founder's social identity, which largely affects the scripts employed in the value creation process of new sustainable ventures.

*Key Words:* Sustainable entrepreneurship, value creation process, structuration theory, social identity theory

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### 3.5.1 Introduction

Solving grand societal challenges by means of entrepreneurial activity has become a central topic in entrepreneurship research (Hall et al., 2010). Albeit expressed under different labels, it has been found that entrepreneurs have the potential to act on opportunities that mitigate social and environmental problems as diverse as poverty and social inequality (Zahra et al., 2009; Mair et al., 2012), or biodiversity loss and climate change (Cohen and Winn, 2007; York and Venkataraman, 2010). Thereby, entrepreneurs are perceived as challenging established structure and act as agents of change for society and environment (Battilana et al., 2009; Pacheco et al., 2010; Shepherd and Patzelt, 2011).

Structure can be defined as the rules and resources of a social system, thereby organizing and guiding social life (Giddens, 1984). Yet, considering the multitude of social and environmental problems, current structures are not sustainable (COP 21, 2015). Accordingly, a change in structure is a necessity for achieving the transition towards sustainable lifestyles. Yet, we know very little about the processes entrepreneurs employ to create opportunities that actually change structures. As opportunities for sustainable development are characterized by their triple bottom line focus of economic, social, and ecological value, they may have the potential to challenge current economic-driven structures and change some of the commonly held rules and belief systems. At the same time, entrepreneurs pursuing opportunities for sustainable development face a much higher complexity and ambiguity than entrepreneurs aiming at creating economic value only (Cohen et al., 2008). As a result, opportunities for sustainable development are not recognized but need to be developed in complex value creation processes (Cohen et al., 2008).

But how do entrepreneurs cope with and efficiently master the intricacy involved in developing sustainable entrepreneurial opportunities? According to Chiasson and Saunders (2005) opportunities are formed and created on basis of scripts, i.e. institutionally acknowledged templates that help individuals to get things done. Building on structuration theory (Giddens, 1984), the authors conceptualize opportunities as the outcome of the interaction between agent (entrepreneurs) and structure. By adopting a structuration lens, we aim at answering the following research question: how and why do opportunities for sustainable development come into

existence? The answer to this question is expected to yield relevant insights into the agent-structure dynamics underlying the value creation processes of entrepreneurs and more pointedly, to provide insights into the emergence of opportunities for sustainable development.

Considering the subjective and evolutionary dynamics of the opportunity experience, we conducted a qualitative study with 20 entrepreneurs to explore how sustainable entrepreneurial opportunities co-evolve by means of individual action and structure over time (Sarason et al., 2006). By abductively analyzing the data, a relevant pattern emerged regarding the importance and centrality of a founder's social identity. Accordingly, a founder's identity is a key factor in determining the value creation process adopted, which can be differentiated as either 1) applying common scripts; 2) recombining common scripts, or 3) creating uncommon scripts.

The findings of our study contribute to entrepreneurship research in three ways. First, we contribute to the emerging stream of literature on social, green, sustainable and hybrid entrepreneurship by showing how individual action and structure affect processes of opportunity recognition, development, and exploitation. Second, we provide a dynamic and interactive perspective on opportunities by recapturing the process of developing opportunities for sustainable development as the interplay between individual agency, structure and scripts. Third, by introducing social identity theory as an additional theoretical lens and merging it with structuration theory, we are able to capture the idiosyncratic perspective of entrepreneurs and delineate the key role of founders' identities in developing transformative opportunities.

### 3.5.2 Theoretical Background

#### **Opportunities for Sustainable Development**

Sustainable entrepreneurship is a phenomenon that has recently received increasing attention by entrepreneurship scholars (e.g. Cohen and Winn, 2007; Hall et al., 2010; Munoz and Dimov, 2015; Shepherd and Patzelt, 2011). It is closely related to social entrepreneurship (Grimes et al., 2013; Mair et al., 2012; Miller et al., 2012), environmental entrepreneurship (Meek, et al., 2010; York and Venkataraman, 2010), and more broadly literature on hybrid organizing (Battilana and Lee, 2014; McMullen

and Warnick, 2016). Characteristic for sustainable entrepreneurship is the emphasis on the triple bottom line of economic, social, and ecological value rather than the double bottom line.

In line with the high importance attached to entrepreneurial opportunities in conventional entrepreneurship research, literature on sustainable entrepreneurship has started to turn its attention to sustainable opportunities (Cohen and Winn, 2007; Dean and McMullen, 2007; Patzelt and Shepherd, 2011). Patzelt and Shepherd (2011) define sustainable opportunities as “*opportunities that sustain the natural and/ or communal environment as well as provide development gain for others*”. In this sense, development gain for others encompasses the triple bottom line of economic gain (e.g. economic wealth), environmental gain (e.g. diminished air pollution) and social gain (e.g. increased child survival). Compared to conventional opportunities, which mainly aim at economic gain, sustainable opportunities are characterized by a higher complexity, involving dilemmas and trade-offs (Cohen et al., 2008).

Striving to contribute new insights into the value creation process of sustainable entrepreneurs, we explored how opportunities evolve over time. A relevant finding was that opportunities emerge in the interplay between entrepreneurial agency and structure, pointing to structuration theory as a relevant theoretical lens for fostering understanding of the phenomenon.

### **Structuration Theory in Opportunity Research**

Opportunities occupy a central role in entrepreneurship research. The subject of the most heated debates thereby addresses the ontological and epistemological perspectives on the nature of opportunities as either discovered or created. The discovery view is mainly associated with Shane and colleagues (e.g. Eckhardt and Shane, 2003; Shane, 2000; Shane and Venkataraman, 2000) and presumes that opportunities objectively exist but have to be discovered and exploited by individuals possessing the necessary information (Companys and McMullen, 2007). The creation view is most clearly expressed by Alvarez and colleagues (e.g. Alvarez and Barney, 2007; Alvarez et al., 2013). They refer to the endogenous nature of opportunities, which do not objectively exist, but need to be created by the actions of the entrepreneur over time. While the former view accentuates the role of structure, the latter highlights the agency of entrepreneurs.

Structuration theory dissolves the dichotomy between structure and agent (Giddens, 1984) and can therefore be seen to bridge the opposing discovery and creation views. The main tenet of the theory is the *duality of structure* that is the recursive and interactive nature of structure and agent: On the one side, structure constrains and enables the agent; on the other, the agent reproduces structure (Giddens, 1984). Key concepts of structuration theory include structure, agents, and scripts, which can be skillfully employed in opportunity research (Chiasson and Saunders, 2005; Jack and Anderson, 2002; Sarason et al., 2006). *Structure* refers to rules and resources that guide entrepreneurial action. *Agents* may be entrepreneurs or entrepreneurial teams, who are viewed as active, knowledgeable, purposeful, and reflexive (Sarason et al., 2006). *Scripts* link structure and entrepreneurial action. Generally, scripts are recipes, followed and modified by individuals to get things done (Barley and Tolbert, 1997). They include mental models and behavioral regularities, which enable entrepreneurs to respond in particular situations (Chiasson and Saunders, 2005). Opportunity research considers both the recognition of established, common scripts and the development of new, uncommon scripts (Chiasson and Sanders, 2005). While the selection of common scripts (e.g. seeking profits) is legitimate, competent and relatively risk-free in a particular situation, the production of uncommon scripts (e.g. balancing triple bottom line) is more risky and may have to overcome initial perceptions of incompetence and illegitimacy. However, if uncommon scripts succeed, they have the potential to be more powerful and transformative in the long term (Chiasson and Saunders, 2005).

Structuration theory also provides a theoretical foundation for the process and dynamics of entrepreneurship. Accordingly, opportunities co-evolve over time in the recursive interaction between structure and the entrepreneur (Sarason et al., 2006). Structure both constrains and enables entrepreneurs in the process of opportunity recognition, opportunity development, and opportunity exploitation (e.g. Ardichvili et al, 2003; Shane, 2003; Shane and Venkataraman, 2000; Venkataraman, 1997). The opportunities are not objectively given, but rather idiosyncratic to the individual (Sarason et al., 2006). To conceptualize the unique, subjective interpretation and perspective of the entrepreneur, the concept of social identity emerged during our data analysis, which we will introduce in the following.

### **Social Identity of Founders**

Social identity theory was first described by Tajfel and Turner (1979), although experimentation and reasoning on the psychology of intergroup relations commenced much earlier (Dollard et al., 1939; Tajfel and Wilkes, 1963). The central premise of social identity theory is that the psychology of individuals does not form and is not expressed in isolation, but is embedded in its socio-economic context (Tajfel and Turner, 1979). In extension, self-categorization was introduced to conceptually complement social identity theory by showing that social categorizations build the basis for subsequent group relations and behavior (Hogg and Terry, 2000).

Social identity theory only recently entered the entrepreneurship scholarly debate. In their pioneering work, Fauchart and Gruber (2011), explore the social identities of firm founders in the sports-related equipment industry. Based on the three dimensions of basic self motivation, basis of self-evaluation, and frame of reference, the authors create a typology of three pure identity types: darwinian, communitarian, and missionary. While darwinians are driven by strong profit-maximization motives and are oriented towards their competitors, communitarians primarily seek to benefit known others, i.e. members of their community and perceive their entrepreneurial activity as a collective effort for developing their communal goals. Missionaries are mainly driven by their vision of advancing a cause, thereby using their entrepreneurial power to contribute to the common good for unknown others, i.e. society and/ or the environment at large.

Despite the three pure identities, Fauchart and Gruber (2011) draw attention to the possibility of hybrid identities, in their case a combination of the darwinian and communitarian identity, yet the authors do not provide any further detail with regard to the hybrid identity. The importance of hybrid identities has later been manifested in the study of Sieger et al. (2016) who found a significant part of their founder sample to be classified as some form of hybrid identity. The authors emphasize that more research on hybrid identities is required to enhance our understanding of the consequences that hybrid identities have on individual action.

The notion that a founder's social identity can provide relevant insights into differences in the value creation processes of entrepreneurs emerged during the first round of data analysis. By merging social identity theory with structuration theory, we attempt to shed light on the question of "how and why do opportunities for sustainable development come into existence?"

### 3.5.3 Research Methodology

To explore the value creation processes of sustainable entrepreneurs, we conducted a qualitative study, which is appropriate for the investigation of nascent, subtle phenomena and to empirically investigate questions from a subjective epistemological perspective (Guba and Lincoln, 1994; Sarason et al., 2006).

#### **Sample**

Purposeful sampling focuses on the selection of data that generates insights relevant for developing theory. It is an appropriate form of sampling for qualitative inquiries as it represents a recurrent process, which is directed towards identifying information-rich cases (Patton, 1990). Based on predetermined selection criteria, we purposefully selected entrepreneurs who 1) had identified a sustainable opportunity that creates economic, ecological and social value; 2) who had been on the market for no longer than eight years (Fauchart and Gruber, 2011); and 3) who had been the driving force in recognizing, developing, and exploiting the opportunity. The 20 selected entrepreneurs come from seven different industries, six different European countries and differ with regard to their composition (individual/ team). The heterogeneous set of entrepreneurs enhances the external validity of the study and offers firmer grounding of theory than a more homogeneous one (Harris and Sutton, 1986; Santos and Eisenhardt, 2009).

#### **Data Collection**

In our qualitative study, we relied on three types of data (verbal, visual, and written data) and methods (in-depth interviews, structure laying technique, and secondary data). The use of data and method triangulation is well established in social sciences, as a greater variety of data and method generally allow for drawing stronger inferences than single sources (Scandura and Williams, 2000).

*Semi-structured interviews.* Major sources of information were in-depth interviews with the entrepreneurs. The semi-structured open interviews consisted of three main sections: 1) personal background and self-perception; 2) value creation process starting from the very first idea until market entry; 3) weighting of importance of economic, ecological and social goals. The in-depth interviews were conducted during March 2013 and October 2014. Typically, they lasted between 35 and 90 minutes. All of them were digitally recorded, transcribed, and documented in a standardized form, which enhances the reliability of the study.

*Structure laying technique.* To visualize and (re-) construct the process of value creation, a graphic representation, the structure laying technique (SLT) was employed, which allows for an insight into the subjective reflection and the reconstruction procedure of the interviewee (Groeben, 1990). The process of the SLT was structured as follows: during the interview we wrote down key activities of the value creation process on small cards, based on the statements of the founder. After the interview, we handed over the cards to the founders in random order and asked them to reconstruct the process with the help of the cards. As the interviews were of retrospective nature, the SLT method was used as an effort to reduce the retrospective bias by going over the statements several times, thereby providing the entrepreneurs with the possibility to rearrange and re-structure their thoughts. Even more important, the SLT allows for a dialogue consensus validation (Groeben, 1990), which is particularly valuable for the reconstruction of complex phenomena, as was the case for the research phenomenon under study.

*Secondary data.* Prior and after the interviews we used publicly available data, blogs and social media sites, as well as (archival) websites to identify materials related to the value creation process, to prepare the interviews and to triangulate the results.

### **Data Analysis**

We analyzed the data based on abductive reasoning, which, in essence, refers to a creative process of linking surprising observations to theory in a recursive cycle (Timmermans & Tavory, 2012). Abductive reasoning is best addressed by qualitative research methods, as they promise to provide a rich set of data and the openness and flexibility necessary for making surprising observations. For the data analysis we followed a three stage analysis process consisting of 1) coding and mapping the value creation process of each case, 2) profiling founders' identities, and 3) cross-case analyzing the value creation processes under consideration of founders' identities.

*1<sup>st</sup> Phase: Coding and Visual Mapping Opportunity Development.* As a first step we immersed ourselves in the data by analyzing each interview separately and running through every line several times, marking all aspects that appeared to have some relevance for the value creation process. This was a lengthy process, not driven by theoretical considerations. By going back and forth between the data, labels and categories in relation to the individual and the opportunity were developed. The

emerging categories were then compared to existing theoretical frameworks and at this stage structuration theory emerged as a relevant theoretical lens for interpreting our data. On basis of this continuous comparison between data and theory, the emerged categories were judged against the data again. This step included the search for further statements relevant for the developed categories, as well as the identification of relationships between categories. At this stage, we followed Chiasson and Saunders (2005) by analytically separating individual actions of the entrepreneurs, scripts, and structure. After several rounds of rereading the data, a robust conceptualization of categories had been developed and we coded each transcript accordingly.

Besides the abductive theorizing by means of continuously circling between data and theory, a visual mapping strategy was employed to gain an understanding of the sequence of events from the first idea to the exploitation of a sustainable opportunity (Langley, 1999). Thus the time-ordered displays were essential for the synthesis and interpretation of the process as a sequence of events. The SLT laid out by the founders was the starting point for the time-ordered displays, which are particularly helpful for describing and understanding the flow of activities and events (Miles and Huberman, 1994). The time-ordered displays according to the SLT were triangulated with the verbal statements made during the interview and the archival data. The visual mapping strategy was particularly helpful for recapturing the temporal sequence of events for each entrepreneur's value creation process.

*2<sup>nd</sup> Phase: Profiling Founders' Identities.* During this first phase, a relevant observation was made regarding differences in individual action and the perception of structure. Accordingly, we found that not all structures are salient for all founders at all times, but that structures are perceived and interpreted very differently, depending on the subjective interpretations of the founders. Based on our abductive analysis, we soon found a relation between a founder's motivation and frame of reference and the interpretation and engagement with structure, clearly linking to social identity theory. To capture this link more systematically, we started to reread and code all transcripts, highlighting all statements that allowed for some information with regard to the founders' identities. In line with Fauchart and Gruber (2011), we identified three dimensions that showed to be relevant for the entrepreneur's social identity: an individual's motivational driver, i.e. the basic social motivation that drives their entrepreneurial journey, as well as an individual's frame of reference, the so-called



relevant others, and basis of self-evaluation showed to affect the founder's identity. As part of the latter, an individual's sustainable orientation, i.e. a concern and sensitivity for issues of sustainability (Kuckertz and Wagner, 2010), appeared to play an important role for the founder's self-evaluation. We coded all transcripts on the basis of these three dimensions and then created identity profiles for each founder. Following our abductive coding approach, we were able to identify two pure identity types as suggested by Fauchart and Gruber (2011), as well as two mixed and one hybrid identity type.

*3<sup>rd</sup> Phase: Cross Case Analysis.* Classifying the different value creation processes along the founder identities then allowed us to conduct a systematic cross-case comparison of the value creation processes under consideration of the agent-structure duality in the last stage of our analysis and interpretation. The search for the progression of activities was assisted by categorizing the entrepreneurs into their identity types (see 2<sup>nd</sup> Phase), which was then followed by a case-by-case comparison of similarities and differences in the value creation process (see 1<sup>st</sup> phase). Here we followed a temporal bracketing strategy as proposed by Langley (1999). Langley (1999) refers to Giddens's (1984) structuration theory in explaining that two or more processes (in our case those of agent, structure/ scripts, and opportunity) are difficult to capture at the same time. Therefore, the strategy of bracketing essentially refers to a decomposition of the processes into sequential periods, to explore how structure leads to scripts, which in turn influence individual action, and how by acting on scripts individuals reinforce or change scripts, subsequently affecting structure (Langley, 1999). For the purpose of this study, we decomposed the value creation process into the three periods of opportunity recognition; opportunity development; and opportunity exploitation (Ardichvili et al., 2003, Sarason et al., 2006). We compared and contrasted individual action, their application/ modification of scripts and the effect of these scripts on the opportunity to reveal common themes and topics across cases. To do so, we employed concept-and time-ordered displays (Miles and Huberman, 1994). After the development of tentative sequences, each case was revisited and analyzed, whether it confirms them or not. Our findings of the cross-case analysis will be presented in the findings section below.

### 3.5.4 Findings

In the following, the results of the cross-case analyses will be presented. We will start by describing the social identity of entrepreneurs, which is followed by a description of the agent-structure duality that leads to the development of an opportunity for sustainable development.

#### **Sustainable Founder Identities**

During our data analysis, we found that the identity of the founders influences how structures are interpreted and how opportunities are developed. Building on this observation, we analyzed each interview with regard to the meaning that founders associated with being a firm founder (Fauchart and Gruber, 2011). An important observation was made regarding the hybridity of identities, which can be twofold in nature: 1) a mixed hybrid identity, which combines different pure types across the three dimensions of basic social motivation, frame of reference, and basis of self evaluation; or 2) a balanced hybrid identity, which combines different pure types on each of the three dimensions. Accordingly, we were able to identify the following identity types: The pure identity types of darwinian and missionary (Fauchart and Gruber, 2011), a mixed hybrid identity of darwinian/ missionary, as well as a balanced hybrid composition of identities in form of a communitarian/darwinian/missionary (Table 22). In the following, we will describe each sustainable founder identity type in more detail.

Identity Type	Pure		Hybrid	
Founder Identity	Pure Darwinian	Pure Missionary	Mixed Hybrid Darwinian/ Missionary	Balanced Hybrid Communitarian/Darwinian/ Missionary
<b>Number of Firm Founders</b>	5	3	6	6
<b>Basic Social Motivation</b>	Egoistic motives: personal well-being, self-enhancement	Altruistic motives: contribute to a common good	Mixture of egoistic and altruistic motives: get rewarded for doing good	Change-driven motives: advancing sustainable cause by changing status quo
	<i>I have to say, founding a business was an economic interest for me. I just wanted to do something and make a living. So, a purely economic motivation. I wasn't giving a damn about the rest, in other words, 100 points economic.</i> (R.K., mobility firm founder)	<i>My initial motivation was societal concern and the desire to create societal value.</i> (D.B., food firm founder)	<i>I was talking with a friend about different ecological problems and overall the reasons to work. When you do TV commercials, your job is to encourage consumption or create more waste in the sense of you know, "buy more" types of messages and then we started to think ok, we should do less of this and be more efficient.</i> (O.R., mobility firm founder)	<i>For me, this was always the search for the lever or the pivot where one can really find something to change something...and this is really the purpose: to bring about change.</i> (D.S., energy firm founder)
<b>Frame of Reference</b>	Market	Society	Market and/ or Society	System (Community, Society, Market)
	<i>In my case, it was the will to have an own brand that would be unique in comparison to the products by the competition and which has a relatively high entry barrier for others.</i> (T.P., textile firm founder)	<i>I'm part of the civil society and with this project I want to address a civic societal concern.</i> (D.B., food firm founder)	<i>The competition is huge, but we wanted to face the competition of the conventional textile market. As we cannot compete with the dumping prices of the fast fashion producers, we need to be competitive with the brands that compete in terms of quality and lifestyle.</i> (M.H. textile firm founder)	<i>You can only master the energy turnaround if you're operating on different levels: We want to have the best product on the market. Then it's about customer relations: we can't master the energy turnaround if we're not taking the customers along with us. And then change happens on the macro level.</i> (J.A., energy firm cofounder)

<b>Basis of Self-Evaluation</b>	Economic success	Responsible behavior	Success/ Responsibility	Sustainable impact
	<p><i>I just wanted to see whether I succeed in establishing a business in a new market. So I thought about different options for business ideas. In the end, I decided to focus on energy, as this is where I have the strongest background knowledge.</i></p> <p>(K.K., energy firm founder)</p>	<p><i>If you have an idea, you should believe in it and have the courage to implement it. If you see what you can achieve for society, this is pretty amazing.</i></p> <p>(A.B., textile firm founder)</p>	<p><i>It's about scaling and having real (social) impact. And that's why it's called "business", you have to use economic market mechanisms and there needs to be a real market and you need to survive with your business economically.</i></p> <p>(M.W., beverage firm cofounder)</p>	<p><i>The second that you have a real vision, everyone thinks you are kind of a do-gooder who perceives earning money as reprehensible. Quite the opposite – I think we need to be or become a successful company to realize our (sustainable) vision. And in the end it's about social hack, so changing people's behavior (...).</i></p> <p>(D.S., energy firm cofounder)</p>
<b>Basis of Self-Evaluation: Sustainable Orientation</b>	<p>Superficial knowledge of sustainability issues, low concern</p> <p><i>It would be a lie to say that I had an ecologically motivated background that prompted me to do something like this.</i></p> <p>(T.P., textile firm founder)</p> <p><i>I had absolutely nothing to do with sustainability at the time I was founding the business.</i></p> <p>(T.R., mobility firm founder)</p>	<p>In-depth knowledge of specific ecol./soc. problems, very high concern</p> <p><i>In the sustainability sector I influenced, or maybe fed potentially 0.01% of the population. A couple hundred people a day, a couple thousand people a week, but it's a drop in the ocean, when it comes to alleviating the huge issues of sustainability, food security, and food poverty.</i></p> <p>(A.D., food firm cofounder)</p>	<p>Good knowledge of specific ecological/ social problem, high concern</p> <p><i>From my working experience, I was well aware of all the problems related to child nutrition and have seen many statistics and reports on the topic. Nevertheless, it is a topic that is extremely ignored in our society and it is simply shocking how many children suffer from obesity.</i></p> <p>(A.N., food firm founder)</p>	<p>Broad knowledge about inter-dependencies of sustainability issues, very high concern</p> <p><i>This three-pillar structure is completely obsolete. I consider it to be more appropriate to depict sustainability as three concentric circles: The outermost circle represents environment, and a viable environment is the premise for society. To nurture society, we need economic activity. And if one looks at the set theory logic of these three circles, there is a golden triangle in the middle and this is the area of sustainability.</i></p> <p>(D.U., food firm cofounder)</p>

**Table 22 – Typology of Sustainable Founder Identities**

### **Pure Founder Identities**

***Darwinian.*** The darwinian identity is the type of founder identity that would likely dominate in a sample of conventional firm founders, reflecting a strong economic focus (Fauchart and Gruber, 2011). We were surprised to see that founders with a darwinian identity played a significant role in the context of our sustainable firm founder sample as well. Darwinians are primarily driven by self-interest motives, which is why entrepreneurial profit appeared to be one of the main reasons to engage in the entrepreneurial activity. In line with Fauchart and Gruber (2011), our results show that darwinians perceive market actors, first and foremost competition, as the most relevant external reference point. Keeping with their market-oriented frame of reference, these founders evaluate themselves on the basis of whether they are successful and professional business people. As described by Fauchart and Gruber (2011), darwinians approached entrepreneurship rationally and emphasized, that they could have founded their business in a different industry or with a different product as well. Thus, darwinians reflect a low concern and interest for sustainability issues.

***Missionary.*** Contrary to the darwinian, we identified entrepreneurs who can be categorized as holding a purely missionary identity as described by Fauchart and Gruber (2011). To our surprise, only three founders could be identified as holding a pure missionary identity. This type of sustainable founder identity was driven by the aspiration to advance an ecological or social cause by means of their entrepreneurial activity. In the case of the missionary, the motivation to contribute to the common good was identified as the primary entrepreneurial motivation. For the missionary, society was seen as the most important reference point. As pointed out by Fauchart and Gruber (2011), missionaries are not focused on a specific group of people, rather they perceived society at large as their relevant others. In keeping with their strong focus on society, the founders evaluated themselves in terms of their responsible behavior and achievements for society. While missionaries might have a concern about sustainability issues in general, they focused their attention on a specific ecological or social problem.

### **Hybrid Founder Identity**

***Mixed Hybrid Darwinian/ Missionary.*** This hybrid type combines elements of the darwinian and missionary identity. Mostly darwinian/missionaries mentioned the desire to do something meaningful as the most important motivational driver, which is

reflected by both, the altruistic motive to contribute to a common good, as well as the egoistic motive to earn money with this activity and to feel good about it. For the darwinian/missionaries, the hybridity of their identity is reflected in their frame of reference. While some perceive the market as the most important external reference point for their entrepreneurial activity, others see society, or a mixture of the market and society as most relevant. Accordingly, darwinian/missionaries evaluate themselves along the two dimensions of running a successful business on the one hand, and their contribution to society on the other. While the importance of each contribution is differently pronounced among the founders, all evaluated themselves on both dimensions. Similar to the founders with a purely missionary identity, the sustainable orientation of the darwinian/missionaries was focused on a specific social or environmental problem.

### **Balanced Hybrid Founder Identity**

***Balanced Hybrid Communitarian/Darwinian/Missionary.*** The last type of hybrid identity identified in our sample reflected an interesting combination of all three pure identities. Accordingly, founders who have been categorized as holding this extreme form of a hybrid identity reflected an identity composition that can be allocated at the intersection of the darwinian, missionary, and communitarian identity. The most frequently observed motivational driver was the motivation to bring about change towards sustainability, which was perceived to affect all levels: society, market, and community. Accordingly, the founders strongly emphasized the prospect of change as a key trigger for their entrepreneurial activity. The hybrid founders strived for bringing about radical changes in a system, which is why their frame of reference can be seen to be distributed among all levels: on a macro level, the founders perceived society as the most relevant point of reference, on a meso level, the market and market actors were articulated as important frames of reference, on the micro level, fellow community members were highlighted as relevant others. This systemic approach is reflected in their basis of self-evaluation as well. The hybrid founders wanted their businesses to have a positive impact on society and environment at large and deliberately aimed at achieving structural change. For these hybrid founders, sustainable orientation represents a crucial part of their self-concept. Rather than focusing on one problem in particular, these founders perceived sustainability as a holistic concept and acknowledged the interdependencies of different social and environmental problems.

## Value Creation Processes of Sustainable Entrepreneurs

The main research question of our study addressed the question on how opportunities for sustainable development come into existence. Taking a structuration perspective (Giddens, 1984), we followed the opportunity starting from the first idea and explored how the opportunity co-evolved in a recursive process between individual action and structure. Building on Sarason et al. (2006), we conceptualized the agent-structure relationship by looking at the duality of entrepreneur and structure. Based on our observation that differences in founders' identities affected the development of the opportunity, we structured our cross-case analysis along the different founder identities (see chapter 4.1). In the following, we will describe the value creation process of each founder identity type in more detail.

***Pure Identity Darwinian.*** Founders with a darwinian identity perceived current capitalistic market structure as generally positive. The capitalistic market economy is the dominant market structure in Europe. Most characteristic for capitalistic structure is the focus on economic performance (profit, sales, revenue), competitiveness and private property. Common scripts include (among others) market studies, business plans, and analyses of profitability, market growth etc.

In line with their identity, the darwinians in our sample formed an opportunity belief to create primarily economic value.

***Opportunity Recognition.*** Driven by their egoistic and self-enhancing motives, founders with a darwinian identity had a strong desire to found their own business and were actively looking for business opportunities. By studying the market, they were alert to finding market gaps that had relevance for a particular market or customer group and started occupying themselves with the topic. Based on the experiences in their professional lives, these founders perceived the market potential of satisfying an unmet customer need.

*We were talking to the farmers in the Amazonas and they told us what they really needed was a de-centralized energy supply. So I made a market study and tried to define how much a product can cost, that's called design to cost approach. Back then I didn't know a lot about Green-Tech, but was focusing on distributed generation only. (K.K., energy firm founder)*

*Opportunity Development.* The recognized opportunity was further developed based on the intensive engagement with the market, for instance by conducting market tests, collecting market studies or writing a business plan. Based on the engagement with the market, the founders decided to include social and environmental bottom lines based on the strategic consideration that this would result in a competitive advantage and to maximize economic returns.

*It is likely that it would have worked conventionally as well. However, when we really engaged ourselves with the market it made sense in three ways: organic was trend, so we did a taste testing with our friends and realized that organic performed much better and also the look of the product is much better. And third, because the market for organic products was growing quite well. (M.W., food firm cofounder)*

Yet, the social and environmental bottom lines remained only very loosely coupled as the following quote illustrates.

*We are including social standards as well, as this is part of our sustainable image. But it doesn't always work, for instance we had to relocate our production to Asia once, as we had to produce high volumes. But in general we produce locally, this also increases the speed of production. (T.P., textile firm founder)*

*Opportunity Exploitation.* Darwinians interpret and perceive structure from a traditional capitalistic market lens. Personal development is the goal of their entrepreneurial activity, while ecological and social values are means to reach this goal. By means of their entrepreneurial activity, darwinians reinforce current capitalistic structure, yet may unintentionally contribute to small improvements due to the social and ecological value inherent in their opportunity.

*First and foremost we are starting a business here. This is the goal and the meaning. We've founded a business and not a charity. Clearly we are following economic goals, the nice thing is that the others [ecological and social] come out on top and this makes it a cool case. (T.R., mobility firm founder)*

***Pure Identity Missionary.*** In stark contrast to the darwinians, founders with a missionary identity were motivated to create ecological or social value from the outset. As such, these founders were strongly embedded in structure of the social sector and perceived current capitalistic structure as a major cause of social and environmental problems. The social sector refers to social and economic activity directed towards a



social purpose (common good of society, environment). Characteristic is its charitable organization and that it is non-profit/ not profit maximizing. Common scripts include (among others) donations, assistance, education, and collaboration.

*Opportunity Recognition.* Based on their personal experience, the missionaries in our sample were alert to very specific ecological and social problems, which resulted in the strong desire to contribute to a solution to the encountered problem. These founders were motivated by the prospect to contribute to a common good, which is why they were searching for an opportunity to create primarily societal value.

*We have a problem and this is the ecological problem of meat overconsumption which results in problems of a secondary nature: high meat consumption is unhealthy and there are ethical concerns when it comes to factory farming. (D.B., food firm founder)*

*Opportunity Development.* The missionary founders focused on established means such as education, support and collaboration to address the problem and develop their solution.

*The idea was that if people learn together, if people understand why food costs what it costs, if people understand how far it travels, that's the only way to get people to really understand. (A.D. food firm cofounder)*

Accordingly, the opportunity was mainly perceived in terms of its ecological and social value, which could have been exploited by means of a non-governmental organization as well. Yet, the development of the opportunity did not end there, rather building an economic viable business is based on the consideration that by becoming a responsible business they have the potential to mitigate market failures.

*Everything started with the environmental aspect and the social aspects soon followed, once we realized what else is connected to this topic. The increasing importance of the social aspect, this was a continuing process. And after founding the business, there was also the economic side. Of course we want to survive on the market, because otherwise you can't achieve anything. (A.B., textile firm founder)*

*Opportunity Exploitation.* Thus, for missionaries, sustainable development is the goal of their entrepreneurial activity while the economic bottom line can be seen as a means for reaching these goals. As apparent in our empirical data, the founders strategically included the economic opportunity to sustain their ecological and social impact, but not

to maximize their personal benefit. The entrepreneurial activity is therefore seen as contributing to an improvement of the situation of a specific disadvantaged group, animal species, or environmental issue, but not as an attempt to bring about radical changes in structure.

*“It started as an experiment, but now that it is on the market I feel some responsibility towards the business and I want to grow the business. From an economic perspective, the main thing is that it is self-financing and doesn’t generate deficits.” (D.B., food firm founder)*

### ***Value Creation Process of Founders with a Mixed Hybrid Identity***

Founders with a mixed identity of darwinian and missionary were embedded in structure, yet perceived such structure rather critically. Characteristic for founders with a mixed identity was their rather fluid self-concept, which seemed to change back and forth between the two identity types. Interestingly, these changes between identities were reflected in opportunity development as well. Founders with a darwinian/missionary mixed identity perceived current structure critically, reflecting a missionary mindset in their interpretation of social systems.

*Opportunity Recognition.* In line with their mixed identity, the founders had a desire to be self-employed, but wanted to invest their energy in doing something meaningful. In most cases, the search for opportunities was driven by the rather egoistic motive to achieve a good feeling by means of their pro-social/environmental entrepreneurial activity. Accordingly, the founders were searching for economic opportunities with an inherent societal value (ecological or social).

*We saw this economic opportunity of trading coffee and from the beginning we knew that we would support the coffee farmers with our business. So the social value was always inherent in the business model. (M.W., beverage firm founder)*

*Opportunity Development.* Although, they could have focused on their double bottom line solution, the development of the opportunity revealed related ecological and social problems. In all cases, the integration of the third bottom line seemed to be rooted in the missionary rather than the darwinian identity of the hybrid founders.

*We’ve started with fair trade, but soon realized what other social and environmental problems are connected to textile production. So we increased our ecological value by following the global organic textile standard and later got certified with their label as well. (M.H., textile firm cofounder)*

To create a holistic sustainable opportunity, the founders engaged in aligning the different bottom lines, but doing so proved to be difficult. Accordingly, the perceived trade-offs resulted in a rather effectual approach towards blending the different bottom lines, resulting in changes in the prioritizations of the bottom lines throughout the development of the opportunity.

*Opportunity Exploitation.* Accordingly, the founders strive for creating financial and societal value, yet they perceive the challenges in balancing these goals, which is why they tend to follow the path of least resistance.

*Trying to address everything at once is difficult. You should bear all three [bottom lines] in mind but sometimes it's hard to combine them. (A.N., food firm cofounder)*

Unlike founders with a pure identity, the mixed entrepreneurs perceive a potential to align current capitalistic structures with more ethical conducts of business. While they do not necessarily attempt to change structure, they perceive an opportunity to combine current capitalistic structure with a greater emphasis on social and ecological value.

*We promote a vegan lifestyle, no harm to animals,, and sustainable living. At the same time, this is a company, it's not a charity and it's not a non-profit company. It has to work. It has to run. On the other hand, since we are now able to generate some kind of money, we support charity projects as well. (T.H., food firm founder)*

### ***Value Creation Process of Founders with a Balanced Hybrid Identity***

Founders holding a hybrid identity faced the highest complexity in their self-concept and development of an opportunity. At the same time, these founders were the ones that were least embedded in current structure, reflecting a very critical stance towards structure and the strong belief that structures need to change. Founders with a balanced hybrid identity recognized and embraced the interdependency of social, ecological and economic values, and aimed at creating holistic sustainable value.

*Opportunity Recognition.* The founders of this balanced hybrid identity were actively looking for opportunities to create holistic sustainable change, as they perceived current structure as a systemic failure.

*I realized that this kind of strategic [sustainable] consumption cannot be the solution because consumption per se is the problem. Neither this ecological, sustainable, green growth at corporate level can be the solution because growth per se is the problem. (D.U. food firm cofounder)*

Interestingly, entrepreneurial opportunities were often seen as a means to achieve changes in structure and could have taken many different forms as well.

*We had already collected many ideas for novel sustainable business models. And we always said that we would need to make some of these ideas tangible by implementing a few of them. And then one day we just said, ok let's start with the mushrooms first. (A.K., food firm cofounder)*

*Opportunity Development.* The recognition of the different possibilities to create economic, ecological and social value resulted in an integrated approach to develop the opportunity. This is not an easy proposition, as it requires entrepreneurs to think 'out of the box' and find novel ways that have the potential to bring about the much needed change while at the same time gain legitimacy on the market and society.

*Our first concept was aimed at end customers and to enable them to trade gas certificates so that they would be able to customize their own energy product. But during our market surveys we realized that this kind of thinking was just too far ahead, we would overstrain the whole market and people just wouldn't understand it. So we had to take a step back and be more traditional, offering an all-round package, gas and electricity. What we did is look at: what does the maximum change look like, where do we buy our products from, how do we calculate our prices and so on. (J.A., energy firm founder)*

*Opportunity Exploitation.* The sustainable opportunities of the balanced hybrid founders can be understood in terms of an all-embracing concept, i.e. the entrepreneur strives for developing a truly sustainable solution in which economic goals played an equally important role as ecological and social ones. Interestingly, for the entrepreneurs themselves, the entrepreneurial activity was seen as mean to realize their vision of creating structural change.

*For me the objective is to build a successful business – successful in the sense that it grows and is self-financing, but the goal really is to bring about change (D.S., energy firm founder).*

### 3.5.5 Discussion

According to Cohen et al. (2008), sustainable entrepreneurs have complex, multi-dimensional value creation processes. By exploring the different value creation processes of the entrepreneurs in our sample, we shed light on these strategies and show how differences in value creation processes are shaped by and shape structure (Chiasson and Saunders, 2005). According to Sarason et al. (2006), opportunities are idiosyncratic to the entrepreneur, which is why structure cannot be understood independent from the individual. In a similar vein, Chiasson and Saunders (2005) emphasized that structure and scripts are only important in instances where entrepreneurs believe in their legitimacy, competence and power. Accordingly, the subjective perception and interpretation of structure can be seen as a key factor in analyzing the agent structure duality in opportunity research. On basis of our analysis, we find that founders' social identities largely affected their interpretation of structure and in turn their value creation processes. Exploring the founders' social identities (Fauchart and Gruber, 2011) therefore provided us with an explanation of why differences in value creation processes exist and how this affected the resultant opportunities.

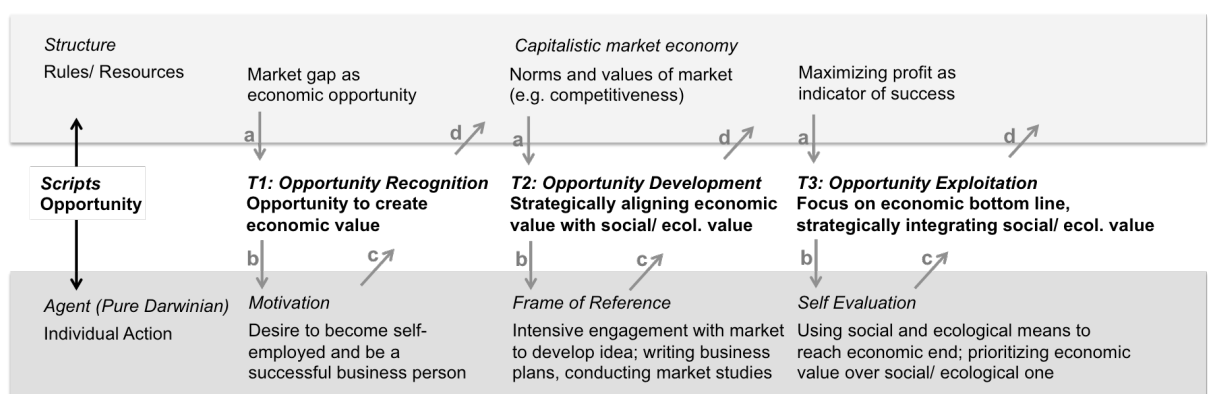
Building upon Barley and Tolbert (1997), we suggest that value creations strategies for sustainable opportunities are subject to a dynamic and continuous process. Inspired by the sequential model of institutionalization/ structuration (Barley and Tolbert, 1997, p.101; Chiasson and Saunders, 2005, p.755), our model of the different value creation processes is focused on the scripts that determine the characteristics of an opportunity. In addition, the opportunity does not develop in isolation but is embraced by upper and lower boundaries, i.e. structure and individual action. In line with the assumption that structuration is a process (Barley and Tolbert, 1997; Chiasson and Saunders, 2005; Sarason et al., 2006) we follow the opportunity as it moves through the three temporal stages of opportunity recognition, development and exploitation.

By linking our empirical observations to structuration theory and more specifically the study by Chiasson and Saunders (2005), we can distinguish between three value creation processes that the sustainable entrepreneurs in our sample adopted: 1) *applying common scripts*, i.e. a value creation process based on common scripts, reflecting a behavior that is consistent with current structure. This value creation process results in opportunities that replicate and thereby reinforce structure. 2) *recombining common*

*scripts*, i.e. a value creation process based on recombining common scripts from different structure. This strategy is rather effectual and may result in unintentional or intentional changes of scripts. 3) *creating uncommon scripts*; i.e. a value creation process aimed towards uncommon scripts, referring to entrepreneurs that behave inconsistently with current structure. The result of such a value creation process is an intentional alteration of structure.

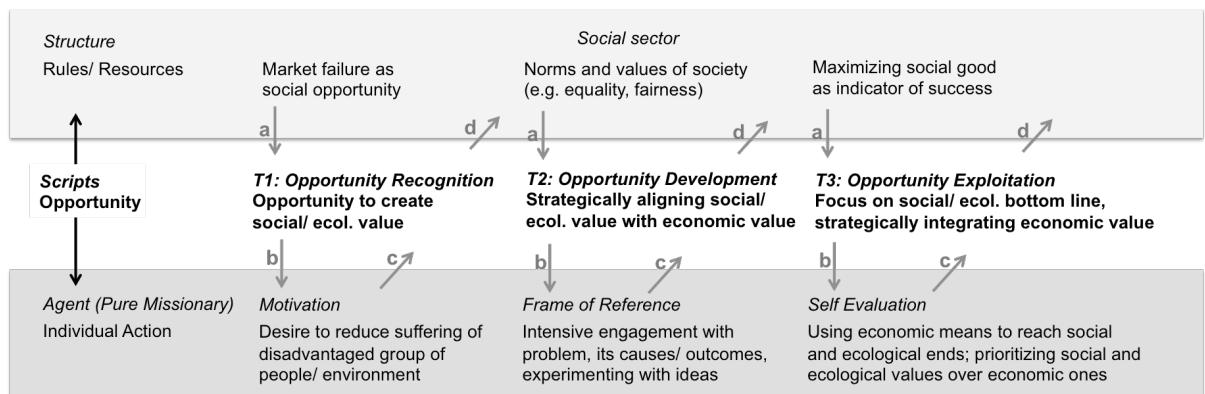
### Value Creation Process Based on Applying Common Scripts

**Pure Darwinian.** Founders with a pure darwinian identity are strongly embedded in the structure of a capitalistic market economy (figure 11). Darwinians encode capitalistic market structure in scripts, which serve as a template for doing business (a). For scripts to have power and legitimacy, darwinians need to enact on business scripts, affecting their motivation to be directed towards egoistic motives, their frame of reference in form of the market, as well as their basis of self-evaluation in terms of maximizing profits (b). Founders with a pure identity of darwinians are likely to replicate common scripts (c), thereby intentionally or unintentionally reinforcing capitalistic market structure (d). What the value creation process of the darwinian founder shows more pointedly is that market gaps are perceived as a rationale for founding a business (T1). The reason why darwinians integrate social and ecological values during the development stage is based on the capitalistic consideration that this will be a competitive advantage (T2). In line with common scripts, the entrepreneurial activity is aimed at maximizing profits (T3).



**Figure 11 – Value Creation Process Based on Applying Common Capitalistic Market Scripts**

**Pure Missionary.** Founders with a pure identity of a missionary are embedded in social sector structure (figure 12). These social sector structures are encoded in scripts and serve as a template for all activities geared towards charitable purposes (a). These scripts become powerful guides for behavior, if missionaries enact these scripts, affecting their motivation to be altruistic, their frame of reference to be directed towards society and their basis of self-evaluation in terms of maximizing social good (b). Founders with a pure identity of the missionary showed to replicate common scripts of the social sector in their value creation process (c), thereby unintentionally or intentionally reinforcing common social sector structure (d). In line with common social sector scripts, missionaries recognized an opportunity to create social/ ecological value (T1). In developing the opportunity, missionaries align their social/ ecological opportunity with an economic business model, based on the consideration that providing an alternative on the market may increase the societal returns (T2). Acting in accordance with common scripts, missionaries evaluate themselves and their opportunity in terms of the potential to maximize social good and having a social impact (T3). Missionaries do not appear to be prone to become business people and rather use the business as a mean to achieve their societal goals.



**Figure 12 – Value Creation Process Based on Applying Common Social Sector Scripts**

Darwinians and missionaries reflect two polar types of sustainable entrepreneurs. On the one hand, the pure darwinians with their focus on capitalistic market structure, on the other hand, the missionaries with their focus on social sector structure. Accordingly, they can be seen as reflecting two extreme identity types in the context of hybrid organizing. Interestingly, their value creation processes can be seen as two sides of the same coin: In mimicking common scripts, darwinians and missionaries act in accordance with the common rules of the game (capitalistic market economy and social

sector structure respectively), thereby reducing uncertainty and complexity. This allows darwinians and missionaries to quickly develop their opportunities and gain legitimacy, competence and power (Chiasson and Saunders, 2005). As such the process of developing their opportunity can be seen as a reflection of their embeddedness in structure (Jack and Anderson, 2002; Chiasson and Saunders, 2005; Grimes et al., 2013). According to Jack and Anderson (2002) embeddedness essentially refers to entrepreneurs' involvement in current structure, providing them with important networks, knowledge, resources, and support. The founders act within the structure they know well due to their professional, private or use experience (Shah and Tripsas, 2012). Thereby, the structure of a social system function as boundary conditions of what is possible, which is reflected in their value creation process as well.

While Jack and Anderson (2002) emphasize the advantage of entrepreneurs' embeddedness for developing opportunities that fit specific structure, relying on common scripts may at the same time impede an entrepreneur's ability to be mindful in context and to engage in conscious alteration of structure (Uzzi, 1997). This constraining influence of structure is particularly noteworthy in the case of sustainable entrepreneurship, where a change in scripts and structure must be seen as a prerequisite for achieving the transition towards sustainability. While it is important to highlight that the opportunities based on common scripts may still unintentionally revise some scripts or structure, such an accidental structural deviation is unlikely to trigger radical change (Boisot and Child, 1988; Barley and Tolbert, 1997). Particularly in the context of sustainable development, such opportunities are therefore likely to reflect only incremental improvements towards sustainability.

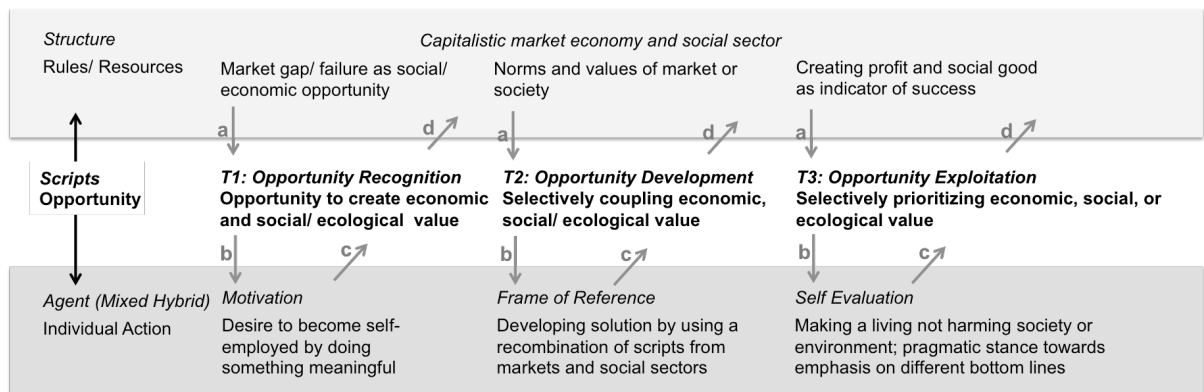
*Proposition 1: Founder's with a pure identity rely on a value creation process based on applying common scripts, thereby reinforcing current structure.*

### **Value Creation Process Based on Recombining Common Scripts**

***Mixed Hybrid Darwinian/Missionary.*** As figure 13 shows, founders with a mixed identity of darwinian and missionary perceive both structures, those of a capitalistic market economy as well as those of social sectors. As a result, the mixed hybrid founders encode capitalistic market structure and social sector structure in scripts, trying to combine these behavioral guidelines (a). This script combination affects the



enactment on such scripts, resulting in the varied motivation to become self-employed with something meaningful, their frame of reference directed to both, market and society, as well as their basis of self-evaluation in terms of making profits in an ethical way (b). Founders with a mixed identity of darwinian/ missionary are likely to combine common scripts from market and social sector structure in their opportunity (c), thereby modifying common scripts (d). As a result, the mixed hybrid founders are alert towards opportunities that might combine economic and social/ ecological value (T1). Yet, such opportunities are not simply recognized but need to be created based on combining scripts from different structure. This development process is approached rather effectual in the sense that founders will decide for those scripts that promise the least trade-offs (T2). In combining common scripts, the entrepreneurial activity is geared at creating profits that promise a societal added value as well (T3).



**Figure 13 – Value Creation Process Based on Recombining Common Scripts**

On the basis of our empirical results, we find that founders with a mixed hybrid identity adopt a value creation process that relies on a recombination of common scripts. Accordingly, founders with a mixed hybrid identity are likely to combine common scripts from capitalistic market structure and social sector structure in new ways, thereby modifying current scripts. Through recombining common scripts, mixed hybrids act at the frontier to what is perceived legitimate, as they may engage in combining legitimate scripts in such a novel way that they might become risky scripts (Chiasson and Saunders, 2005). However, their entrepreneurial activity is not directed towards intentionally changing structure, but rather to use those scripts that promise the best outcome. As such, their value creation process resembles the process of effectuation, as proposed by Sarasvathy (2001). The author referred to effectuation as the “processes that take a set of means as given and focus on selecting between possible

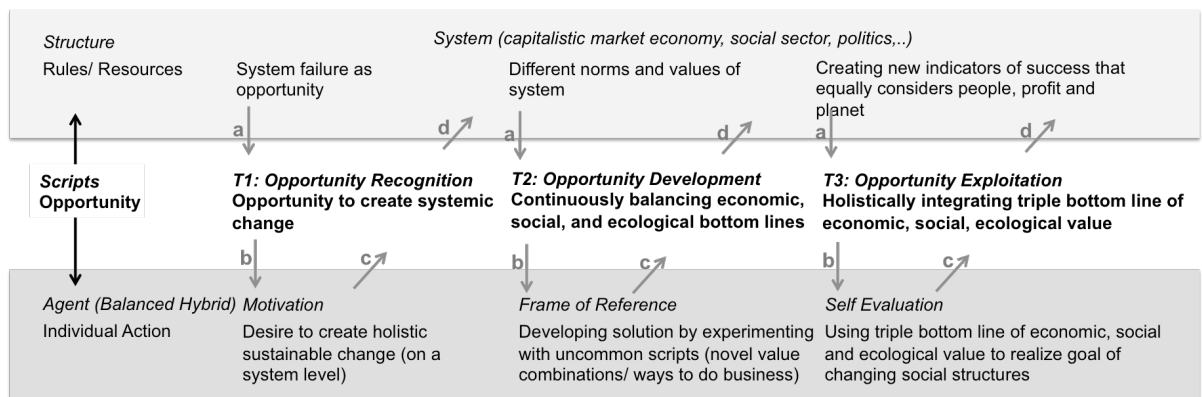
effects that can be created with that set of means” (p.245). Similarly, the mixed hybrid founders in our sample perceived a set of scripts derived from capitalistic market and social sector structure as given and engaged in combining those scripts. This finding confirms Chiasson and Saunders (2005), who stated that entrepreneurs, who engage in effectuation, use scripts that are easily and readily available to create novel opportunities that promise a better-than-average return. Accordingly, opportunities that result from a recombination of common scripts may result in unintentional or intentional script change (Barley, 1986). Such script change will affect structure if they gain legitimacy on the market and start to affect common scripts (Chiasson and Saunders, 2005). In essence, opportunities resulting from recombining common scripts can therefore be expected to have a more profound influence in shaping the transition towards sustainability.

*Proposition 2: Founder’s with a mixed hybrid identity rely on a value creation process based on recombining common scripts, thereby intentionally or unintentionally changing scripts.*

### **Value Creation Process Based on Creating Uncommon Scripts**

***Balanced Hybrid Communitarian/Darwinian/Missionary.*** Founders with a balanced hybrid identity perceive structure as systemic and interdependent (figure 14). For these founders, the current socio-economic system is regarded as faulty and harmful, with markets being seen as the primary contributor to environmental degradation and social inequalities. Scripts are therefore seen as a reference point for how to not engage in entrepreneurial activity (a). Rather than enacting on these scripts, they consciously deviate from these scripts, which strongly affects their motivation to bring about change, their negative frame of reference in form of current market and societal norms and values, as well as their basis of self-evaluation, which is determined by their success in changing structure (b). By experimenting with uncommon scripts, the founders engage in an innovative, yet risky process of departing from what is commonly perceived as legitimate (c), thereby balanced hybrid founders aim at intentionally and radically modifying structure (d). Founders with a balanced hybrid identity perceive an opportunity to bring about change in a specific system (e.g. energy, food, mobility) (T1). To do so, the founders engage in lengthy experimentations with

uncommon scripts, for instance by testing novel ways of doing business. This is not an easy proposition, as the radical change of scripts and the disembedding of the opportunity can be too radical and far ahead for achieving legitimacy and power (Chiasson and Saunders, 2005). Thus, the development of the opportunity reflects a continuous experimentation process with uncommon scripts to create scripts that have the potential to achieve legitimacy and power (T2). In creating uncommon scripts, founders aim at creating a holistic and systemic solution that has the potential to bring about radical changes in scripts and even attempting to change structure (T3).



**Figure 14 – Value Creation Process Based on Creating Uncommon Scripts**

For founders with a balanced hybrid identity, their identity can be seen as a reflection of their holistic and systemic state of mind. As a result, founders with a balanced hybrid identity of communitarian/darwinian/ missionary engaged in using uncommon scripts with the overall aim to intentionally change structure (Wry and York, 2015). Not surprisingly, the value creation process based on creating uncommon scripts reflects the most risky and complex undertaking. By experimenting with uncommon scripts, entrepreneurs may face questions of legitimacy, competence, and power (Chiasson and Saunders, 2005), thereby increasing the danger of entrepreneurial failure. In extension, the attempt to alter structure may threaten incumbent firms, which benefit from existing templates and thus have an interest in retaining the status quo (Battilana and Lee, 2014). Yet, if the new scripts are successful, the opportunity can be expected to have a strong competitive advantage and the strongest effect on triggering a change in structure.

Chiasson and Saunders (2005) pointed out that we know rather little about the intentional change of structure. Our results show how entrepreneurs with a balanced hybrid identity deliberately set out to change structure to bring about a change in the

socio-economic system. The conscious alteration of structure has been referred to as path creation, which has been described as an attempt of entrepreneurs to self-differentiate and to allow for more radical innovation, by moving beyond past and current scripts (Garud and Karnoe, 2001). Thereby, path creation relates most closely to Schumpeter's concept of creative destruction, which refers to the process of destructing old structure and creating new ones, in an attempt to revolutionize the economic system from within (Schumpeter, 1942; Chiasson and Saunders, 2005). The necessity for such radical innovations may on the one hand be spurred by faulty structure and scripts (Cohen and Winn, 2007; Dean and McMullen, 2007), on the other hand it might be required because of institutional voids, which in essence reflect an absence of relevant scripts and structure (Mair et al., 2012). In the context of sustainable entrepreneurship, a value creation process based on uncommon scripts can therefore be expected to have the strongest transformative power.

*Proposition 3: Founder's with a balanced hybrid identity rely on a value creation process based on creating uncommon scripts, thereby intentionally trying to change structure.*

### **Theoretical Contributions**

In light of the grand social and environmental challenges society is facing, research on pro-social organizing has gained momentum in entrepreneurship research. Sharing the excitement, we aimed to shed light on the value creation process of sustainable entrepreneurs. Our findings extend current understandings of value creation processes by conceptualizing the recognition, development and exploitation of opportunities as the result of the agent structure duality. By merging structuration and social identity theory, our research enables a move away from the dominant perspectives of opportunities as either discovered or created, to allow for a more dynamic perspective on the emergence and development of opportunities.

The main contribution of our findings is the documentation of the existence and relevance of three different value creation processes. Accordingly, our study provides evidence for value creation processes that 1) *apply common scripts*, thereby acting within pre-existing templates and structure; 2) *recombine common scripts*, which may result in script changes and the emergence of new ways of doing business; and 3)

*create uncommon scripts*, the most complex and transformative value creation process intending to bring about (radical) changes in existing systems. Thereby our results support and critically extend the findings of Munoz and Dimov (2015), who identified two relevant paths in the development of sustainable ventures: on the one hand, the conformist path, on the other hand the insurgent path. We find support for these two paths in our data, yet augment their work by providing a more nuanced picture on such processes depending on the identity of the founder on the one hand and his/ her interpretation and enactment on structure on the other.

Previous studies referred to the desire to change the world as an important reason for individuals to engage in sustainable entrepreneurship (Linnanen, 2002; Munoz & Dimov, 2015). According to McMullen and Warnick (2016), sustainable entrepreneurs engage in intentionally and deliberately changing market structure. By delineating how and why some sustainable entrepreneurs actually create a change in the world while others do not, our findings address a common misconception of sustainable entrepreneurship as being transformative by default. Our results provide a more nuanced picture of such intentions, by showing that only some sustainable entrepreneurs actually attempt to transform structure deliberately. While our analysis shows that differences in founders' motivations affect value creation processes (Shepherd, 2015), it is important to highlight that our results challenge the assumption that pro-social motivations are an indispensable antecedent for engaging in pro-social organizing (Dacin et al., 2010; Renko, 2012). As the founders with a pure darwinian identity have demonstrated, pro-social organizing can result from egoistic and self-driven motives as well.

Working with the typology of Fauchart and Gruber (2011), we find support for the applicability of different identity types rooted in the pure identities of the darwinian, missionary, and communitarian. However, we also find that there is a need to further refine their typology by describing the different combinations of hybrid identities. Our finding that founders' identities can be classified into pure, mixed hybrid, and balanced hybrid is reminiscent of identity studies by Wry and York (2015) as well as York et al. (2016). Thus, we suggest that depending on the context (e.g. hybrid organizing), a more differentiated analysis of the hybrid identity types might be required to enhance the explanatory power of founders' identities (Sieger et al., 2016).

## **Limitations**

Our study is not without limitations. The first concern relates to the retrospective nature of our data, making our data vulnerable to recall and common-method biases. We acknowledge this concern and have tried to mitigate this issue by relying on extensive data and method triangulation, such as the structure laying technique and archival web sites. A second concern may relate to our sample of 20 sustainable entrepreneurs, which are subject to similar institutional conditions in Europe. While this sampling strategy does not allow us to draw generalizable inferences (please note that this was not our intent), it enabled us to analyze the dominant structure in these countries and to meaningfully analyze their influence on the value creation process. Further research may usefully explore whether and how different or less developed scripts and structure in developing countries affect processes of value creation. In extension, a third concern may relate to our analysis of structure and scripts, which reduces complex structure into capitalistic market economy and social sector structure, without fully analyzing all dynamics of the external environment. While we acknowledge this limitation, we argue that it is not so much the objectively verifiable analysis of structure that matters for opportunity research, but rather the subjective interpretation of the entrepreneurs that will play a role in the entrepreneurial process (Chiasson and Saunders, 2005; Sarason et al., 2006). Put differently, structure only affect individuals if they are perceived as personally relevant, and it is this personal interpretation of structure that is taken account for in our study by the in-depth analysis of founders' social identities.

### **3.5.6 Conclusion**

We contribute to the emerging stream of research on pro-social organizing by exploring the value creation processes of sustainable entrepreneurs. Our findings reveal three different processes, including 1) applying common scripts, 2) recombining common scripts, and 3) creating uncommon scripts. A relevant finding is that not all processes have the potential to bring about radical structural changes and that the reason why some engage in more complex and riskier value creation processes can be found in their social identity.

# 4 CONCLUSIONS

Entrepreneurship has the potential to play a pivotal role in the transition towards a sustainable future. Mirroring the rising societal awareness of sustainability issues, research on sustainable entrepreneurship has witnessed an upsurge of interest in recent years. This thesis sought to delineate the key assumptions of sustainable entrepreneurship and to advance theory around the core drivers and relationships of the phenomenon. This chapter presents the concluding remarks of the thesis.

To proceed, this chapter provides a concise summary of the results, theoretical contributions and practical implications for each of the five essays. This is then followed by a discussion of the limitations of the studies, together with a presentation of avenues for future research. The chapter concludes with an outlook for the future of sustainable entrepreneurship research, highlighting three important developments in the research of sustainable entrepreneurship that have the potential to further advance understanding of the phenomenon and contribute to its establishment in the field of entrepreneurship.

## 4.1 Key Findings, Contributions and Implications

In fulfilling the aim of delineating key assumptions and advancing theory about the core drivers and relationships of sustainable entrepreneurship, this thesis presented five essays, including one systematic literature review and four empirical studies. Combined, these essays have helped to define the key assumptions and boundary conditions of the sustainable entrepreneurship field and to advance theory on this phenomenon. In enriching our understanding of sustainable entrepreneurship, pertinent insights from sociological, cognitive and socio-psychological perspectives have been integrated. In turn, this thesis and its constituent essays provide important contributions to the field of sustainable entrepreneurship, and in a broader sense, research in entrepreneurship and management. Furthermore, this thesis demonstrates how multiple case studies can be effectively utilized to examine and explore nascent phenomena. This research design may be considered by sustainable entrepreneurship researchers in the future as well, including more novel methodologies such as the verbal protocol study which has helped to illuminate sustainable entrepreneurs' cognitive processes and strategies.

In addition, the results of this thesis hold important implications for entrepreneurs, managers, policy-makers, and educators in stimulating, harnessing and managing sustainable entrepreneurship in the future.

In this section an overview and summary of the key findings for each essay will be presented (in addition to the discussions and conclusions within each essay presented in chapter 3), with consideration of the theoretical contributions and practical implications. A summary of the main points is provided in table 23.



	<b>Research Question</b>	<b>Key Findings</b>	<b>Theoretical Contributions</b>	<b>Practical Implications</b>
<b>Essay I</b>	What is sustainable entrepreneurship?	Sustainable entrepreneurship is: 1) ..addressing triple bottom line 2) ..a process 3) ..focused on opportunities 4) ..driven by the individual 5) ..transformative	Delineation of the key assumptions and boundary conditions of sustainable entrepreneurship	Encourage entrepreneurs to go beyond an economic focus aiming towards triple bottom line solutions; providing a basis for sustainable ent. education
<b>Essay II</b>	How do entrepreneurs recognize, develop, and exploit opportunities in the context of sustainable development?	1) Social and ecological problems as opportunities; 2) Triple bottom line is integrated sequentially not simultaneously	Development of a six stage convergent process model with two pathways for sustainable and social entrepreneurship	Problems as sources for opportunities; integrating triple bottom line value sequentially reduces complexities; new funding options
<b>Essay III</b>	How, when, and why do entrepreneurs succeed in overcoming the negative framing of social and ecological problems?	1) Re-framing is a cognitive process consisting of frame breaking, representational change, new frame constructing 2) The more entrepreneurs engage in reframing the more solution ideas they identify and the more creative these are	Cast light on what re-framing actually is and means and delineate the role of re-framing for identifying opportunities from problems	Encourage managers, entrepreneurs and students to think about the problems they encounter in new ways
<b>Essay IV</b>	How do negational categorizations influence the salient social identities of firm founders?	Negational categorizations affect strategic decisions and appear in different „shades of gray“: 1) out-group separation 2) out-group mitigation 3) in-group differentiation	Complement and advance prior research on founder identity and affirmational categorizations	Encourage (prospective) entrepreneurs to reflect on their identity and decisions based on negational categorizations
<b>Essay V</b>	How and why do opportunities for sustainable development come into existence?	Three different value creation processes, depending on identity: 1) applying common scripts; 2) recombining common scripts; 3) creating uncommon scripts	Merger of structuration and social identity theory provides dynamic perspective on value creation processes	Suggesting three different value creation processes to develop opportunities for sustainable development

**Table 23 – Summary of Key Findings, Contributions and Implications**

*Essay I.* The starting point of “*What is sustainable entrepreneurship*” formed the basis of Essay I which provides an affirmative answer to this research question. The systematic analysis and synthesis of past research on sustainable entrepreneurship revealed five key assumptions underlying the phenomenon. First, sustainable entrepreneurship is directed at the triple bottom line of economic, social, and ecological value. Balancing the different value propositions can pose a major challenge and has an increased complexity as compared to ventures striving to create single bottom line value only. Second, past research has emphasized the procedural nature of sustainable entrepreneurship, referring to a dynamic and evolving perspective on the phenomenon. Third, the synthesis revealed the centrality of opportunities for studying sustainable entrepreneurship. This is in line with general entrepreneurship research, which has traditionally seen opportunities as a core driver for entrepreneurial activity. Fourth, an important driving force for sustainable entrepreneurship is the individual entrepreneur. Fifth, sustainable entrepreneurship is characterized by its potential to bring about a transformation. The transformative impact might be direct, referring to customers, communities, and regions; or indirect, by changing structures and institutions.

A key contribution of Essay I lies in the synthesis of literature to produce a comprehensive definition for sustainable entrepreneurship research. Particularly in demarking sustainable entrepreneurship from related concepts such as social and environmental entrepreneurship, the definition allows sustainable entrepreneurship research to become more distinct and emerge from what was an apparent identity crisis. Furthermore, in framing the boundaries of its domain (Busenitz, et al., 2003), a basis is formed from which future empirical studies and conceptual models can be built, to advance the field.

For (prospective) entrepreneurs, the results highlight the possibilities of creating ventures that go beyond a profit focus to achieve multiple value gains simultaneously. Such practical implications allow entrepreneurs to combine profit and purpose, thereby achieving societal, communal and environmental value. It is suggested that policy makers support sustainable entrepreneurs, for instance by providing entrepreneurial ecosystems, financial and administrative support and by incentivizing triple bottom line innovations. As the results have shown, sustainable entrepreneurship can be expected to have transformative power and should therefore be a key consideration in policy makers’ attempt to foster sustainable lifestyles. For entrepreneurship education the

results are useful to enlighten students about the possibility to create triple bottom line value and to provide a basis for educators to develop courses around the more distinctive field of sustainable entrepreneurship.

*Essay II.* The aim of Essay II was to explore the sustainable entrepreneurship process from the first idea until market entry. More precisely, the study sought to provide an answer to the question of “*how entrepreneurs recognize, develop, and exploit opportunities in the context of sustainable development?*” The convergent process model provides novel insights into the process as a sequence of events, consisting of the six core activities of 1) recognizing a social or ecological problem; 2) recognizing a social or ecological opportunity; 3) developing a double bottom line solution; 4) developing a triple bottom line solution; 5) funding and forming of a sustainable enterprise; 6) creating or entering a sustainable market. A key finding is that social and ecological problems can be sources of opportunities and the starting point of the entrepreneurial process.

The suggested convergent process model with two pathways makes an original contribution to the emerging field of sustainable entrepreneurship research. Thereby we follow up on the recent call by McMullen and Dimov (2013) who emphasized the need for empirical studies that investigate processes as a series of events in the entrepreneurship literature. By casting light on the process of sustainable entrepreneurship we are able to identify key variables and assumptions that drive the phenomenon of sustainable entrepreneurship (Langley, 1999). McMullen and Dimov (2013) suggest that the entrepreneurial process commences with a desire to make profit. Our data extends this theorizing by showing that for some individuals the process starts with the desire to solve a social or ecological problem. The results imply that market failures and imperfections contribute to environmental and social degradation, but they also provide ample entrepreneurial opportunities (Cohen & Winn, 2007; Dean & McMullen, 2007). In addition, the process model holds implications for research on social entrepreneurship, and ecopreneurship. In these cases, the process model includes five instead of six phases, excluding the development of the triple bottom line solution (fourth phase).

Besides advancing research on sustainable entrepreneurship, the study holds relevant

insights for (prospective) entrepreneurs by highlighting the source of entrepreneurial opportunities to be found in social and ecological problems. For present and prospective entrepreneurs, the model provides an overview and systematization of the process of recognizing and developing entrepreneurial opportunities. Specific attention should be paid to the initial stages of the process as the model proposes a paradigm shift in the perception of social and ecological problems: they are not just problems to be solved by policy and non-governmental organizations, but they also provide (profitable) entrepreneurial opportunities for social, ecological or sustainable solutions. Furthermore, the analysis points to a sequential integration of the triple bottom line in the overall value proposition. For entrepreneurs this result suggests to integrate and align the triple bottom line stepwise, thereby reducing the complexities involved in starting a sustainable new venture. It also shows that single or double-bottom line opportunities can be further developed to create triple bottom line value at later stages in the entrepreneurial process. Lastly, by referring to alternative funding options such as public funding or crowdfunding, the results show how engaging in sustainable entrepreneurship may open up new funding sources. While it is generally assumed that sustainable entrepreneurs face greater challenges in attracting seed funding (mostly referring to venture capital), this finding suggests that entrepreneurs who develop triple bottom line solutions should consider applying for public funds or engaging the community by starting a crowdfunding or crowdinvesting campaign.

*Essay III.* Building on the finding that social and ecological problems can be a source of opportunity, Essay III aimed to shed light on the underlying cognitive dynamics that enabled sustainable entrepreneurs to identify positive solutions from negative circumstances. More pointedly, the essay was designed to provide an answer to the following research question: “*How, when, and why do entrepreneurs succeed in overcoming the negative framing of social and ecological problems?*” In contrast to prior research on framing (see Cornelissen & Werner, 2014 for an overview), this essay explored how entrepreneurs change (rather than rely on) frames and how this reframing affects their thinking and reasoning. The findings provide empirical evidence for the relevance of reframing in identifying promising solution ideas to social and ecological problems. Building on framing research, which we enrich with insights from sensemaking and problem-solving literature, a theoretical model for reframing is

developed, which consists of three separate groups of processes, Accordingly reframing consists of frame breaking, representational change, and new frame constructing. More pointedly, the results evince that the more individuals engage in cognitive efforts to re-interpret particular elements of a social or ecological problem, the more likely they are to identify promising solution ideas. Better yet, engaging in such reframing seems to augment the perceived creativity of the solution ideas identified.

The main contribution of Essay III is reinforcement of the view that reframing is an integral part of managers' sense-making efforts (Cornelissen & Werner, 2014), and particularly with respect to the identification of innovative and insightful solution ideas upon which to launch new entrepreneurial ventures (Cornelissen & Clarke, 2010). More concretely, the results of this study contribute to the emerging body of research on reframing (Cornelissen & Clarke, 2014; Gavetti et al., 2005) by casting light on what reframing actually is and means in the specific context of creative and innovative endeavors. By revealing three separate groups of processes, namely frame breaking, representational change, and new frame constructing, our results provide a cognitive basis for further research. Furthermore, by relying on a verbal protocol experiment it was possible to observe individuals' reframing processes in real time. Based on our empirical data, it is suggested that verbal protocol experiments are especially well suited for observing cognitive framing processes. Thus this essay makes a methodological contribution in demonstrating the use of verbal protocols as a research instrument and providing insights into the procedure and administration of the method. Surprisingly little research has made use of verbal protocols in managerial framing research (e.g. Dew et al., 2009), thereby leaving ample research opportunities to study framing and reframing process across a number of strategic decisions in real time, in the future.

By exploring how such endeavors may help to address social and environmental problems, the results hold important practical implications for (prospective) entrepreneurs and managers, by encouraging such individuals to deliberately engage in critically examining and searching for alternative representations of problems. Furthermore, the importance of representational change can be seen as a relevant tool for managers to look at a situation from different angles, thereby potentially opening up a novel perspective on a situation. In practice, this finding may be implemented in the form of workshops, encouraging managers and entrepreneurs to take a different

perspective on a problem. For instance, by means of an exercise like the “six thinking hats”, which prompts individuals to look at a situation from six different perspectives.

*Essay IV.* Remaining on the individual level of analysis, Essay IV was designed to provide insights into the identity of sustainable firm founders and, more specifically, to explore the role of founder’s negational self-categorizations for their identity and in making key strategic decisions. Thus, we raised the question “*how negational categorization influence the salient social identities of firm founders?*” The findings of the multiple case study analysis provide support for the relevance of negational categorizations for a founder’s identity. Interestingly, the results transcend the dichotomous black and white perspective on identity, as either relating to in- or to out-groups, by revealing that a founder’s identity has different shades of gray. More precisely, the empirical analysis provides evidence for a more nuanced self-categorization process of sustainable entrepreneurs, which we have termed out-group separation, out-group mitigation, in-group differentiation, and in-group confirmation. From the vantage point of optimal distinctiveness theory (Brewer, 1991; Leonardelli et al., 2010), the study therefore revealed how a founder’s opposing needs for assimilation and differentiation can be satisfied on the same group level by the self-categorization processes of out-group mitigation and in-group differentiation. Relating the different forms of self-categorizations to key entrepreneurial decisions, we are able to provide an understanding of how negational categorizations affect entrepreneurs’ evaluation of strategic choices, particularly with regard to balancing economic, social, and ecological considerations when making decisions.

The findings of Essay IV offer a detailed account of negational categorizations, a topic previously overlooked by academic researchers, thereby complementing and advancing prior research on founder identity (Fauchart & Gruber, 2011; Powell & Baker, 2014). By introducing the concept of negational categorization, our findings provide novel insights into the social identity of firm founders, uncovering that both, in-groups *and* out-groups shape a founder’s identity, thereby complementing the unilateral perspective on affirmational categorizations. More importantly, the findings of this study show that negational categorizations affect founder’s key strategic choices, thereby enriching understanding of entrepreneurial decision making at the early stages of new venture creation (Shepherd et al., 2015). The findings of our study provide support for the

results of Zhong et al. (2008), who suggested that in certain contexts negational categorizations are important for understanding an individual's social identity, and elaborate on their study by identifying entrepreneurship as such a relevant context. Furthermore, our results advance research on optimal distinctiveness by introducing the self-categorization processes of in-group differentiation and out-group mitigation (Brewer, 1991; Leonardelli et al., 2010).

For entrepreneurs these results offer a starting point to reflect on their identity, emphasizing that perceived in-groups and out-groups might not just be black or white but can be more nuanced. Accordingly, being aware of out-groups is important to visibly separate oneself from certain groups. Yet, at the same time, considering to mitigate an out-group to some extent, might open up new possibilities for firm development, e.g. in the form of collaborations with previously excluded out-groups. Similarly, our results draw attention to in-groups, showing that allowing some differentiation even within in-groups might be worth considering. Such in-group differentiation might open up new opportunities to differentiate oneself and in turn one's business from competing products and ventures in the market, thereby gaining profile as an entrepreneur and establishing a unique selling proposition.

*Essay V.* The last essay of this thesis, Essay V, was designed to provide a holistic overview on the value creation processes of sustainable entrepreneurs. Considering the complexity involved in creating triple bottom line value, an answer to the question “*how and why opportunities for sustainable development come into existence*” is highly relevant (Cohen et al., 2008). Taking a structuration perspective, Chiasson and Saunders (2005) posit that opportunities are the outcome of the interaction between entrepreneur and structure, and that opportunities are formed and created on the basis of scripts. That is, institutionally acknowledged templates that help individuals to get things done. Extending such theorizing, the findings reveal three different value creation processes in the context of sustainable entrepreneurship, including: 1) applying common scripts; 2) recombining common scripts; and 3) creating uncommon scripts. The results show that not all processes have the potential to bring about radical structural changes: while processes of applying common scripts show a strong embeddedness of the opportunity in existing structures, the recombination of scripts has the potential to bring about changes in scripts, which in turn may result in incremental

alterations of structures. The most transformative power is reflected by processes of creating uncommon scripts, referring to entrepreneurs who deliberately set out to behave inconsistently with current structures, thereby aiming for radical changes. An interesting finding was that the reason why some engage in more complex and riskier value creation processes can be found in their social identity (Fauchart & Gruber, 2011). Accordingly, founders with a pure identity of darwinian or missionary engage in applying common scripts, while founders with a mixed hybrid identity set out to recombine common scripts, and founders with a balanced hybrid identity intentionally create uncommon scripts.

Our results hold important contributions for the entrepreneurship discipline. By uncovering how individual action and structure affect processes of opportunity recognition, development, and exploitation, we offer a novel perspective on the emergence and transformative power of opportunities for sustainable development. Furthermore, by recapturing the opportunity process as the interplay between individual agency, structure and scripts, we provide a more dynamic and comprehensive perspective on processes of opportunity emergence, going beyond the intensively debated opportunity discovery versus creation views (e.g. Alvarez and Barney, 2007; Alvarez et al., 2013; Eckhardt and Shane, 2003; Shane, 2000). In addition, by introducing social identity theory as a complementary theoretical lens to structuration theory we are able to capture the idiosyncratic perspective of entrepreneurs (Dimov, 2011; Sarason et al., 2006) and delineate the key role of founders' identities in developing opportunities for sustainable development. With this respect our study advances understanding of hybrid founder identity types, extending previous work by Fauchart and Gruber (2011). An interesting and practically relevant finding is that our results challenge the assumption that pro-social motivations are an indispensable antecedent for engaging in pro-social organizing (Dacin et al., 2010; Renko, 2012), by revealing that entrepreneurs may engage in sustainable value creation processes based on economic considerations only.

For entrepreneurs interested in starting a sustainable venture our results delineate three different value creation processes, revealing how common scripts can be applied, combined, or created in the process of developing opportunities for sustainable development. Thus, the results of this study have practical relevance for entrepreneurs and managers, aiming to realize multiple value propositions. Our findings reveal the



difficulties in creating multiple value propositions and suggest three potential value creation processes for integrating the different value dimensions in an exploitable opportunity. While applying common scripts is well suited for resolving contradictions and developing a sustainable business case, the creation of uncommon scripts requires creative solutions and might face stronger resistance. Although the creation of uncommon scripts requires more effort during the value creation process, they are more innovative and have stronger transformative power.

## 4.2 Limitations and Recommendations for Future Research

The essays of this thesis are, inevitably, not without limitations. With the exception of the systematic literature review (Essay I), all empirical studies relied on a qualitative research design. Qualitative research was deemed well suited for exploring the research questions under study, as it is an appropriate form for the investigation of nascent, subtle phenomena and to empirically investigate questions from a subjective epistemological perspective (Guba and Lincoln, 1994; Sarason et al., 2006). While qualitative research allows for rich insights into phenomena that are poorly understood, common limitations relate to external validity, reliability and generalizability. At the same time it is argued that qualitative data is better judged by alternative criteria as proposed by Guba and Lincoln (1994): credibility, transferability, dependability and confirmability. These were borne in mind in the design and conduct of the research, to maintain the focus on gathering rich insights into the phenomenon of sustainable entrepreneurship. Furthermore, it is worth restating that the qualitative methodologies serve as a promising departure point for quantitative inquiries into the phenomenon. In the following the essay-specific limitations will be discussed along with avenues for future research (the latter of which are summarized in Table 24).

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**Avenues for Future Research on Sustainable Entrepreneurship**

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<b>Key Assumptions</b>	Extending/ refining key assumptions by synthesizing insights from related school of thoughts (e.g. social/ green entrepreneurship, hybrid/ pro-social organizing)
<b>Entrepreneurial Process</b>	<p>Developing a variance model of the entrepreneurial process, taking internal and external influences into consideration</p> <p>Investigating entrepreneurial processes beyond market entry and the effects different processes have on running/ harvesting the venture</p> <p>Contrasting entrepreneurial process of single founder, entrepreneurial teams, entrepreneurial communities (e.g. by means of qualitative comparative analysis)</p> <p>Advancing methodological approaches to better account for the dynamics of the entrepreneurial process (e.g. longitudinal studies, experience sampling methodology)</p>
<b>Entrepreneurial Reframing</b>	<p>Investigating antecedents of reframing processes (e.g. individual differences in affect, identity, emotions, entrepreneurial intention)</p> <p>Exploring the role of reframing throughout the different stages of the entrepreneurial process</p> <p>Studying the importance of (re)framing for core strategic decisions, management of crisis</p>
<b>Entrepreneurial Identity</b>	<p>Studying how founder identity is formed, how it develops and changes over time</p> <p>Investigating influence of founder identity on different phases of the entrepreneurial process</p> <p>Accounting for the dynamics of affirmational and negational categorizations across different strategic decisions</p> <p>Uncovering founder identity in entrepreneurial teams: do team members show high overlaps in their identities or are team founders' identities different to complement each other? What are the effects of different identity compositions on decision making, team coherence?</p>
<b>Entrepreneur-Structure Duality</b>	<p>Exploring effects of entrepreneurial activity on structure over time</p> <p>Investigating how entrepreneurial scripts become manifested as common scripts and the effect such script manifestation has on structures</p> <p>Relating entrepreneurial activity to structures of signification, domination, legitimation</p> <p>Advancing methodological approaches to better account for the dynamics of agent-structure duality and scripts (e.g. longitudinal studies, experience sampling methodology)</p>

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**Table 24 – Avenues for Future Research on Sustainable Entrepreneurship**

*Essay I.* The aim of Essay I was to derive the key assumptions of sustainable entrepreneurship. As such, a particular focus was put on differentiating the phenomenon from related schools of thought, including social or environmental entrepreneurship, as well as hybrid or pro-social organizing. This demarcation was useful for delineating the boundary conditions and key assumptions, yet it is limited in that it does not integrate and synthesize findings from the related schools of thought, which could hold important implications and advance understanding of sustainable entrepreneurship. A promising avenue for future research is therefore to systematically synthesize findings from related fields of research, focusing on how the fields, which have so far developed in parallel, might inform each other. Such a synthesis might reveal further relevant insights into key assumptions that distinguish research on pro-social organizing from conventional enterprising with the overall result of integrating different schools of thought thereby establishing a common ground for a mutual development of this important subfield.

*Essay II.* The focus of Essay II was on providing insights into “how” opportunities for sustainable development are recognized, developed and exploited. While this approach allowed for obtaining relevant insights into the sustainable entrepreneurship process in a sequence of events, it did not provide sufficient detail into “why” the process unfolds. Thus, a pertinent avenue for further research is to move from a process model to a variance model, integrating micro- and macro-level variables (e.g. founder identity, external environment) in the analysis. Furthermore, in this study, the entrepreneurial process was defined as the time when the very first idea emerged until the product or service was introduced at the market. Further research should investigate the process beyond the market entry phase. Alternatively, the effects that different processes have on the running and harvesting of the venture could be a promising and fruitful area for further research.

A limitation relating to the sample applied in Essay II concerns the sample composition, consisting of single founders as well as entrepreneurial teams. A concern could therefore be that we do not disentangle the effect different team compositions have on the entrepreneurial process. While we did not observe striking differences with this respect, further research could usefully elaborate on this study by systematically contrasting the entrepreneurial processes of single founders, entrepreneurial teams, and

even entrepreneurial communities. An interesting method with this respect might be qualitative comparative analysis (QCA), which allows for systematic analysis of a larger sample of case studies.

Lastly a limitation of Essay II relates to the primary data source, which is based on retrospective self-reported data, which might therefore be subject to common-method and retrospective biases. By relying on method and data triangulation, we attempted to reduce this limitation as much as possible. Furthermore, by applying a graphic representation, the structure laying technique (SLT) to our process research, we sought to reduce retrospective bias as well as the difficulties in reconstructing subjective realities. By visualizing the interviewees' responses, we aimed for a dialogue consensus with the respondents as well as a thorough reflection of their own words. The interviewees were asked to re-order and re-construct their thoughts until they were highly confident that the displayed process model accurately reflected the experienced events. For the purpose of our research, the SLT proved to be a valuable tool, which is why we would encourage other researchers to consider this technique in their future qualitative research endeavors as well. In addition, further research would benefit from applying real-time data (e.g. experience sampling method) and longitudinal data to even better account for the dynamic and evolving nature of entrepreneurial processes.

*Essay III.* The verbal protocol experiment in Essay III allowed gathering of valuable insights into the cognitive processes of entrepreneurs when facing social and environmental problems. However, this study was limited by the small sample size of 24 sustainable entrepreneurs. While we acknowledge this concern our research allowed us to collect three protocols per entrepreneur, resulting in 72 analyzable protocols, exceeding the number of protocols in comparable verbal protocol studies in management research (Grégoire & Shepherd, 2012; Williams & Grégoire, 2015). A further concern related to our sample might be that we approached the sustainable entrepreneurs in their role as firm founders, thereby potentially steering participants' cognitive attention towards frame breaking and representational changes. While this might have had an effect on the time participants spent on reframing, we would posit that sustainable entrepreneurs frequently engage with social and environmental problems, minimizing the risk that this affected their cognitive processing.

Another concern might be raised with regard to the influences on the cognitive processes. While we control for the framing of the newspaper article, prior knowledge, new venture experience, gender and solution primer, future research could usefully advance our findings by showing how further individual differences affect cognitive processes, e.g. individual differences in altruism. With this respect a particularly fruitful area of research would be to investigate individuals' "hot cognition", that is the role of emotions in cognitive processing.

Lastly, with our work documenting the importance of reframing problems into solutions, a promising area for further research might be to explore the role of reframing for different strategic decisions. Thus, relevant open questions relate to the role of reframing in the subsequent stages of the entrepreneurial process. Similarly, relevant insights could be obtained by exploring the role of reframing for different core strategic decisions. For instance, reframing appears to be eminently suited in making sense of and determining appropriate reactions to situations of crisis.

*Essay IV.* The study exploring the social identity of sustainable firm founders in Essay IV revealed surprising insights about the role of negational categorizations for a founder's identity and decision-making. With regard to limitations, it is important to note that the study does not allow for observing how identities are formed and therefore no inferences about the antecedents of negational categorizations can be made. Future research that can provide insights into how identity is formed, how it develops and changes over time can therefore be expected to critically advance our understanding of founder's identity and self-categorizations. For instance, a particular promising avenue would be to explore the role of founder's identity and self-categorizations throughout the entrepreneurial process. Furthermore, by focusing on negational categorizations, the aim of Essay IV was to complement the one-sided focus on founder identity. A fruitful advancement of this study would be to combine the two perspectives and investigate the dual shaping of affirmational and negational categorization and their prevalence across different strategic decisions. In addition, relevant insights can be gained by studying founder identity in entrepreneurial teams. More specifically, the question of whether the team founder's identity is similar or different and the effect different identity compositions have on decision making and team coherence could be expected to yield a relevant contribution to research on founder identity.

*Essay V.* Aiming to shed light on the value creation processes of sustainable entrepreneurs, Essay V explored the duality of entrepreneur and structure. A limitation of Essay V may relate to our analysis of structure and scripts, which reduces complex structure into capitalistic market economy and social sector structure, without fully analyzing all dynamics of the external environment. While acknowledging this limitation, it is important to highlight that it is not necessarily the objectively verifiable analysis of structure, but rather the subjective interpretation of the entrepreneurs that plays a role in the value creation process. Nevertheless, this limitation opens up a research opportunity for scholars to investigate structures in greater detail, and explore differences in structures of signification, legitimation, and domination and their effect on scripts and in turn on value creation processes. Another limitation of this study relates to the retrospective nature of the empirical data, which may result in recall and common-method biases. Similar to Essay II we have tried to mitigate this issue by using extensive data and method triangulation, such as the structure laying technique and archival web sites. Notwithstanding, future research should advance this methodological approach by applying real-time and longitudinal data, thereby accounting for the dynamic nature of opportunities and fully capturing the interactions of the value creation process. Lastly, a key finding is the difference in value creation processes, which apply, combine or modify common scripts. With regard to the latter, future research could critically extend this study's results by exploring the transformative effects of entrepreneurial activity on structure. More pointedly, such research should attempt to reveal whether entrepreneurial action could have lasting and radical effects on structure and how entrepreneurs achieve an imitation and manifestation of their newly created scripts.

### 4.3 An Outlook for Sustainable Entrepreneurship Research

Academic enquiry into sustainable entrepreneurship is opportune and relevant, at a time where sustainability issues are at the fore of global, governmental and organisational agendas. Special issues on sustainable entrepreneurship in dedicated entrepreneurship journals (see for example the *Journal of Business Venturing* 2010), as well as the increasing number of sustainable entrepreneurship-related research published in top

management journals (such as Battilana & Dorado, AMJ 2010) are visible signs that the phenomenon is receiving recognition in the entrepreneurship and management scholarly community.

While the first decade of sustainable entrepreneurship was marked by phenomenon-driven enquiries, which were critical in laying the fundament and making the case for entrepreneurship that is more pro-social and environmentally conscious, future research is now called upon to establish sustainable entrepreneurship as a relevant and legitimate subdomain in the field of entrepreneurship. To do so, research needs to build upon these foundations and more clearly define its boundary conditions, while at the same time engage in an exchange with mainstream entrepreneurship research and organizational studies (Busenitz et al., 2003). Although many different avenues are conceivable to achieve such goals, I want to highlight three potential future avenues that I believe are vital in advancing sustainable entrepreneurship research. These avenues include a transition 1) from phenomenon-based to theory-building research; 2) from static to dynamic methodological approaches; and 3) from individual agency to collective action. These are considered in turn.

### From Phenomenon-Based to Theory-Building Research

During the time of this PhD thesis, the field of sustainable entrepreneurship has evolved to be more grounded in established theories and frameworks (Munoz & Dimov, 2015; Kibler et al., 2015). The essays in this thesis further exemplify such attempts to theorize the phenomenon of sustainable entrepreneurship and aspects of it. With increasing academic interest in hybrid organizing, which can be seen as an umbrella term for different forms of pro-social organizing, including sustainable entrepreneurship, theorizing on the phenomenon has advanced, particularly focusing on multiple institutional logics on an organizational level of analysis (Besharov & Smith, 2014; Mair et al., 2015; Pache & Santos, 2013). In developing this field, it is necessary that conceptual and theoretical frameworks are proposed, empirically tested and developed to provide a solid basis on which to build upon. There are ample opportunities for future theory-building around sustainable entrepreneurship. This may involve initially exploratory research utilizing more established theories and concepts to determine their applicability to sustainable entrepreneurship, moving towards construction of

theoretical models around growth and management of sustainable enterprises.

Promising theories, among others, in the context of sustainable entrepreneurship, which link entrepreneurial action and the macro environment, might be structuration theory (Giddens, 1974), institutional theory (Meyer & Rowan, 1977; Scott, 1987) and the multi-level perspective on socio-technical transitions (Geels, 2002). These theories appear to be interesting theoretical lenses for advancing understanding about the dynamics of sustainable entrepreneurship, as well as the impact of entrepreneurial activities on broader meso and macro environments. Thereby, a general movement towards theorizing that is more interactive and which takes the dynamics between individuals and their environment into consideration is a desirable way forward (Shepherd, 2015).

### From Static to Dynamic Methodological Approaches

The future of sustainable entrepreneurship research may further rely on the development of methodological approaches and research instruments which best captures this phenomenon. This is with regard to both data collection and data analysis procedures. As the systematic review has shown, the majority of papers on sustainable entrepreneurship are either conceptual or qualitative, with the latter often building upon one-person/ one-time insights. This rather static approach towards collecting data results in a number of limitations, including common-method or retrospective biases. Many of the key assumptions delineated in this thesis, would therefore benefit from moving beyond such static approaches, towards more dynamic research designs, for instance by using longitudinal or experimental data.

Longitudinal studies thereby allow for repeated observations over extended periods of time, allowing for important insights into unfolding developments. With this respect, digital technologies have opened up new possibilities for making repeated observations, for instance by using smartphones to collect data at several points in time. This so-called “experience sampling method” has been successfully applied in mainstream entrepreneurship research (Foo et al., 2009; Uy et al., 2010) and provides a promising methodological advancement for capturing the dynamics of sustainable entrepreneurship over an extended period of time, whether these relate to the individual



entrepreneur (e.g. affect, motivation, decision-making), or the development of the opportunity and venture (e.g. process, changes, balancing triple bottom line).

In addition, experimental methods could fruitfully be applied to the phenomenon of sustainable entrepreneurship. Experimental methods are characterized by their rigor and are especially powerful in testing cause and effect relationships (Colquitt, 2008). Furthermore, experiments allow for pertinent insights into complex relationships (e.g. Vandor & Franke, 2016), which is why the method appears to be particularly well suited for investigating sustainable entrepreneurship. This can form the basis for development of conceptual models and frameworks which map out the intricacies of sustainable entrepreneurship.

Moreover, data analysis approaches have the potential to better account for the dynamics of sustainable entrepreneurship, including qualitative comparative analysis (QCA), which allows for larger numbers of qualitative cases to be compared and contrasted on the basis of Boolean algebra. This can reveal different combinations of causal and necessary conditions for reaching a certain outcome (Ragin, 1987) and may provide previously untapped insights into the diversity of entrepreneur experiences. For a small but in-depth sample of qualitative cases, event structure analysis represents a promising tool to systematically map processes and to draw inferences about how particular events shape an outcome (Heise, 1989). These and other analytical methods can further advance our understanding of the key driving forces and relationships of the phenomenon.

## From Individual Agency to Collective Action

Entrepreneurship has frequently been conceptualized as an effort of singular, heroic individuals. The data that has been collected as part of this thesis draws a different picture, with the majority of sustainable ventures being founded by entrepreneurial teams or even communities. This observation is reflected in the results of the project EU-InnovatE as well, predominantly in findings from future scenarios which predict a move towards more collective efforts in innovating and venturing. The role of collective action might therefore be seen as particularly relevant in the case of sustainable entrepreneurship, where the motivation to found a business is not

necessarily driven by egoistic, self-enhancing motives, but rather by the prospect to foster sustainable development gains for humanity itself. As such, the move from individual agency towards collective action holds the promise to advance sustainable entrepreneurship research. More precisely, there are three promising avenues for how collective action can be operationalized, namely as 1) co-founding; 2) co-creating; or 3) collaborating.

With regard to collective action in founding a business, recent research has emphasized the prospect of studying community-based enterprises (Peredo & Chrisman, 2006). Accordingly, community entrepreneurship reflects a form of entrepreneurship, which focuses on local problems and aims to contribute to improving the living conditions of a specific group of people. Thereby, community members collectively establish, own, and manage businesses in pursuit of a common good for their community. Future research that sheds light on the dynamics and the effects that such collective action has on the entrepreneurial activity can greatly enhance and even challenge our current understanding of some of the key relationships of sustainable entrepreneurship.

Moreover, collective action in form of co-creation deserves closer scholarly attention. An intriguing finding in our data was that many of the sustainable entrepreneurs approached their entrepreneurial activity very openly, trying to integrate others in the development process of a sustainable solution. The dynamics and process of co-creation would be interesting to illuminate, particularly in different contexts to chart the coming together of different actors or groups. Further research revealing how such co-creation affects the entrepreneurial process, but also the running and harvesting of the venture (e.g. stakeholder management) promises to shed light on this developmental aspect of sustainable enterprises. .

Lastly, collective action in the form of collaborations refers to sustainable ventures that get together to collectively reach overarching objectives, for example in raising awareness for certain topics of sustainability. Such collaborations are characterized by their openness and transparency, thereby challenging some of the common held assumptions of mainstream entrepreneurship research (for example, intellectual property, competitive advantage). It would be interesting to examine further how these collaborations or clusters form as this would yield insights into how to cultivate them in the future.

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# 6 APPENDICES

## APPENDIX 1

### Science Direct

Search string	Scope	Date of search	Number of entries
"sustainable entrepreneurship" OR "sustainability entrepreneurship"	Title, Abstract, Keywords	04.09.2013	93
(sustainable OR sustainability) AND entrepreneur*	Title, Abstract, Keywords	04.09.2013	191
Total Science Direct			284

### EBSCO Business Source Premier

Search string	Scope	Date of search	Number of entries
"sustainable entrepreneurship" OR "sustainability entrepreneurship"	Title, Abstract, Keywords	04.09.2013	42
(sustainable OR sustainability) AND entrepreneur*	Title, Abstract, Keywords	04.09.2013	250
Total EBSCO			292

## APPENDIX 2

### Science Direct

Search string	Sustainable	Irrelevant
"sustainable entrepreneurship" OR "sustainability entrepreneurship"	13	80
(sustainable OR sustainability) AND entrepreneur*	15	176

### EBSCO Business Source Premier

Search string	Sustainable	Irrelevant
"sustainable entrepreneurship" OR "sustainability entrepreneurship"	21	21
(sustainable OR sustainability) AND entrepreneur*	59	191

## APPENDIX 3

Summary of the systematic review of journal articles retrieval and analysis	Number of documents
Stage one: database analysis	
Science Direct	284
EBSCO - Business Source Premier	292
Total database analysis	576
Stage two: title and abstract analysis	
Categorized as irrelevant	468
Categorized as sustainable entrepreneurship	108
Duplicates in the category „sustainable entrepreneurship”	41
Total title and abstract analysis	67
Stage three: relevance analysis	
Sustainable entrepreneurship	67
Not relevant	24
Total relevance analysis	43

## APPENDIX 4

Author	Title	Journal	Year	Definition of SE
Berglund, Karin; Wigren, Caroline	Soci(et)al Entrepreneurship: The Shaping of a Different Story of Entrepreneurship	Journal of Critical Postmodern Organization Science	2012	No definition of SE provided
Choi, David Y.; Gray, Edmund R.	The venture development processes of "sustainable" entrepreneurs	Management Research News	2008	No definition of SE provided; focus on the individual sustainable entrepreneur
Cohen, Boyd	Sustainable valley entrepreneurial ecosystems	Business Strategy & the Environment	2006	No definition of SE provided; focus on sustainable entrepreneurial ecosystems
Cohen, Boyd; Winn, Monika I.	Market imperfections, opportunity and sustainable entrepreneurship	Journal of Business Venturing	2007	We define sustainable entrepreneurship as the examination of how opportunities to bring into existence future goods and services are discovered, created, and exploited, by whom, and with what economic, psychological, social, and environmental consequences.
Cohen, Boyd; Smith, Brock; Mitchell, Ron	Toward a sustainable conceptualization of dependent variables in entrepreneurship research	Business Strategy & the Environment	2008	Under this concept, entrepreneurship research is concerned with discovering (1) why, when, and how opportunities for the creation of goods and services in the future arise in an economy; (2) why, when, and how some are able to discover and exploit these opportunities while others cannot or do not; and finally (3) what are the economic, psychological, social <i>and environmental</i> (added) impacts of this pursuit of a future market not only for the pursuer but also for the other stakeholders and for society as a whole.
Dean, Thomas J.; McMullen, Jeffery S.	Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action	Journal of Business Venturing	2007	Sustainable entrepreneurship is defined to be: the process of discovering, evaluating, and exploiting economic opportunities that are present in market failures which detract from sustainability, including those that are environmentally relevant.
De Clercq, Dirk; Voronov, Maxim	Sustainability in entrepreneurship: A tale of two logics	International Small Business Journal	2011	No definition of SE provided
Dixon, Sarah E. A.; Clifford, Anne	Ecopreneurship - a new approach to managing the triple bottom line	Journal of Organizational Change Management	2007	No definition of SE provided

Gibbs, David	Sustainability Entrepreneurs, Ecopreneurs and the Development of a Sustainable Economy	Greener Management International	2009	No definition of SE provided; focus on the individual sustainable entrepreneur
Hall, Jeremy K.; Daneke, Gregory A.; Lenox, Michael J.	Sustainable development and entrepreneurship: Past contributions and future directions	Journal of Business Venturing	2010	No definition of SE provided
Hall, Jeremy; Wagner, Marcus	Editorial: The Challenges and Opportunities of Sustainable Development for Entrepreneurship and Small Business	Journal of Small Business & Entrepreneurship	2012	No definition of SE provided
Hart, Stuart L.; Milstein, Mark B.	Global Sustainability and the Creative Destruction of Industries	Sloan Management Review	1999	No definition of SE provided
Hockerts, Kai; Wüstenhagen, Rolf	Greening Goliaths versus emerging Davids — Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship	Journal of Business Venturing	2010	We thus define sustainable entrepreneurship as the discovery and exploitation of economic opportunities through the generation of market disequilibria that initiate the transformation of a sector towards an environmentally and socially more sustainable state.
Isaak, Robert	The Making of the Ecopreneur	Greener Management International	2002	No definition of SE provided
Kardos, Mihaela	The Relationship between Entrepreneurship, Innovation and Sustainable Development. Research on European Union Countries	Procedia Economics and Finance	2012	The notion of sustainable entrepreneurship (...) has been raised to address the contribution of entrepreneurial activities to solving societal and environmental problems, to sustainable development in a more comprehensive way.
Keijzers, Gerard	The transition to the sustainable enterprise	Journal of Cleaner Production	2002	No definition of SE provided
Kuckertz, Andreas; Wagner, Marcus	The influence of sustainability orientation on entrepreneurial intentions — Investigating the role of business experience	Journal of Business Venturing	2010	Refer to the definitions of Cohen and Winn (2007) and Dean and McMullen (2007)
Kury, Kenneth Wm	Sustainability Meets Social Entrepreneurship: A Path to Social Change through Institutional Entrepreneurship	International Journal of Business Insights & Transformation	2012	Sustainable and environmental entrepreneurship are more macro in focus and seek to describe interactions in the institutional realm that create opportunities from market failures and work to develop a more sustainable future.
Larson, Andrea L.	Sustainable innovation through an entrepreneurship lens	Business Strategy & the Environment	2000	No definition of SE provided



Lordkipanidze, Maia; Brezet, Han; Backman, Mikael	The entrepreneurship factor in sustainable tourism development	Journal of Cleaner Production	2005	No definition of SE provided
Lorne, Frank T.	Macro-entrepreneurship and sustainable development: the need for innovative solutions for promoting win-win interactions	Environmental Economics & Policy Studies	2009	No definition of SE provided
Mathew, Viju	Sustainable Entrepreneurship in Small-Scale Business: Application, Concepts and Cases	ICFAI Journal of Entrepreneurship Development	2009	Sustainable entrepreneurship can be defined as the continuing commitment by businesses to behave ethically and contribute to economic development while improving the quality of life of the workforce, their families, the local and global community as well as future generations
Morrish, Sussie C.; Miles, Morgan P.; Polonsky, Michael Jay	An exploratory study of sustainability as a stimulus for corporate entrepreneurship	Corporate Social Responsibility & Environmental Management	2011	Firms that have adopted SCE must exhibit: ...evidence of all three sustainability components – responsible environmental management, social accountability, and long-term economic performance – as well as the presence of significant innovation with respect to the firm’s products, processes, strategies, domain or business model. (Based on Miles et al., 2008)
Nagler, Jürgen	Entrepreneurs: The world needs you	Thunderbird International Business Review	2012	No definition of SE provided
O'Neill Jr, Gerald D.; Hershauer, James C.; Golden, Jay S.	The Cultural Context of Sustainability Entrepreneurship	Greener Management International	2009	Sustainability entrepreneurship is a process of venture creation that links the activities of entrepreneurs to the emergence of value-creating enterprises that contribute to the sustainable development of the social-ecological system. An enterprise resulting from this process can be referred to as a sustainability venture.
Pacheco, Desirée F.; Dean, Thomas J.; Payne, David S.	Escaping the green prison: Entrepreneurship and the creation of opportunities for sustainable development	Journal of Business Venturing	2010	We view sustainable entrepreneurship as the discovery, creation, evaluation, and exploitation of opportunities to create future goods and services that is consistent with sustainable development goals.
Parrish, Bradley D.; Foxon, Timothy J.	Sustainability Entrepreneurship and Equitable Transitions to a Low-Carbon Economy	Greener Management International	2009	Sustainability-driven entrepreneurship describes those entrepreneurial activities in which the central guiding purpose is to make a substantial contribution to sustainable development. More specifically, sustainability entrepreneurs design ventures with the primary intention of

				contributing to improved environmental quality and social well-being in ways that are mutually supportive.
Parrish, Bradley D.	Sustainability-driven entrepreneurship: Principles of organization design	Journal of Business Venturing	2010	No definition of SE provided
Pastakia, Astad	Grassroots ecopreneurs: change agents for a sustainable society	Journal of Organizational Change Management	1998	No definition of SE provided; focus on the individual sustainable entrepreneur
Patzelt, Holger; Shepherd, Dean A.	Recognizing Opportunities for Sustainable Development	Entrepreneurship: Theory & Practice	2011	Sustainable entrepreneurship is the discovery, creation, and exploitation of opportunities to create future goods and services that sustain the natural and/or communal environment and provide development gain for others.
Plieth, Hanna; Bullinger, Angelika C.; Hansen, Erik G.	Sustainable Entrepreneurship in the Apparel Industry: The Case of manomama	Journal of Corporate Citizenship	2012	No definition of SE provided
Potocan, Vojko; Mulej, Matjaz	Entrepreneurship: between sustainable development and reality	Public Finance & Management	2003	No definition of SE provided
Rodgers, Cheryl	Sustainable entrepreneurship in SMEs: a case study analysis	Corporate Social Responsibility & Environmental Management	2010	No definition of SE provided
Schaltegger, Stefan; Wagner, Marcus	Sustainable entrepreneurship and sustainability innovation: categories and interactions	Business Strategy & the Environment	2011	Defined more widely, sustainable entrepreneurship can thus be described as an innovative, market-oriented and personality driven form of creating economic and societal value by means of break-through environmentally or socially beneficial market or institutional innovations
Schick, Hildegard; Marxen, Sandra; Freimann, Jürgen	Sustainability Issues for Start-up Entrepreneurs	Greener Management International	2002	No definition of SE provided
Schlange, Lutz E.	Stakeholder Identification in Sustainability Entrepreneurship	Greener Management International	2009	In other words, entrepreneurial ventures driven by sustainability may be defined by their distinct approach to balance the requirements of the triple bottom line.
Shepherd, Dean A.; Patzelt, Holger	The New Field of Sustainable Entrepreneurship: Studying Entrepreneurial Action Linking 'What Is to Be Sustained' With 'What Is to Be	Entrepreneurship: Theory & Practice	2011	Sustainable entrepreneurship is focused on the preservation of nature, life support, and community in the pursuit of perceived opportunities to bring into existence future products, processes, and services for gain, where gain is broadly construed to include economic and non-economic gains to

	Developed'			individuals, the economy, and society.
Spence, Martine; Ben Boubaker Gherib, Jouhaina; Ondoua Biwolé, Viviane	Sustainable Entrepreneurship: Is Entrepreneurial will Enough? A North- South Comparison	Journal of Business Ethics	2011	An innovative, market oriented and personality driven form of value creation by environmentally or socially beneficial innovations and products exceeding the start-up phase of a company. (Based on Schaltegger and Wagner, 2007)
Sullivan Mort, Gillian; Hume, Margee	Special Issue: Sustainability, social entrepreneurship and social change	Australasian Marketing Journal	2009	No definition of SE provided; focus on social entrepreneurship
Tilley, Fiona; Young, William	Sustainability Entrepreneurs	Greener Management International	2009	No definition of SE provided; focus on the individual SE entrepreneur
Wagner, Marcus	Ventures for the Public Good and Entrepreneurial Intentions: An Empirical Analysis of Sustainability Orientation as a Determining Factor	Journal of Small Business & Entrepreneurship	2012	The teleological process aiming at the achievement of sustainable development, by discovering, evaluating and exploiting opportunities and creating value that produces economic prosperity, social cohesion and environmental protection. (Based on Katsikis and Kyrgidou, 2008)
Wagner, Marcus; Schaltegger, Stefan	Classifying Entrepreneurship for the Public Good: Empirical Analysis of a Conceptual Framework	Journal of Small Business & Entrepreneurship	2010	The term “entrepreneurship for sustainable development” (...) is characterized by some fundamental aspects of entrepreneurial activities which are less oriented towards management systems or technical procedures and focus more on the personal initiative and skills of the entrepreneurial person or team to realize market success with environmental or societal innovations.
Young, William; Tilley, Fiona	Can businesses move beyond efficiency? The shift toward effectiveness and equity in the corporate sustainability debate	Business Strategy & the Environment	2006	This paper argues that sustainable entrepreneurship is the incorporation of all elements of sustainable development, not just some.

## APPENDIX 5

### Research stimuli for verbal protocols

Dienstag, 15. Oktober 2013 - Nr. 239/42 R 1

HERAUSGEGEBEN VON WERNER D'INKA, BERTHOLD KOHLER, GÜNTHER NONNENMACHER, FRANK SCHIRRMACHER, I

## Die neuen Flüchtlinge

Von Matthias Wingart

Das Bundesamt für Migration und Flüchtlinge hat die Bilanz über Asylanträge in 2014 veröffentlicht: Danach haben im vergangenen Jahr über 200.000 Bewerber in der Bundesrepublik ihren Antrag auf Asyl gestellt, das sind etwa 60 Prozent mehr als im Vorjahr. Auch die Zahl der illegalen Einwanderer in der Europäischen Union (EU) hat sich im vergangenen Jahr mehr als verdoppelt. Neben Hunger, Armut, Krieg und Menschenrechtsverletzungen ist die Zerstörung der Umwelt zur Ursache von Flucht und Abwanderung geworden. So genannte Umweltflüchtlinge werden in den aktuellen Bilanzen über Flüchtlinge und Asylanträge gar nicht erst erfasst. Noch nicht - denn Umweltflüchtlinge werden die EU künftig zunehmend vor Herausforderungen stellen. Schon heute sind 26 Millionen Menschen auf der Flucht vor Dürren, Wüstenbildungen oder Überschwemmungen. Experten gehen davon aus, dass es bis zum Jahr 2050 rund 200 Millionen Flüchtlinge geben könnte, die aufgrund von Umweltproblemen ihre

Heimat verlassen müssen. „Die Gründe, das Heimatland zu verlassen, sind mannigfaltig und reichen von Klimaveränderungen bis hin zu leergefischten Ozeanen“, umschreibt Janos Bogardi, Direktor und Forscher der United Nations University die Problematik. "EU-Fischereiflotten fischen beispielsweise vor der Küste Westafrikas in großem Stil die Meere leer. Wenn die Lebensgrundlage der Menschen dort nicht mehr vorhanden ist, sind sie gezwungen, ihr Land zu verlassen", sagt der Experte. Zudem könnten die zunehmenden Umweltprobleme als Katalysator wirken – also ohnehin existierende wirtschaftliche, soziale oder politische Probleme verschärfen und damit auch den Migrationsdruck in vielen Ländern entscheidend beeinflussen. Bereits 1990 befand der Weltklimarat IPCC, dass neue Völkerwanderungen die womöglich wichtigste Auswirkung des Klimawandels sein werden. 25 Jahre später scheint diese These angesichts steigender Flüchtlingszahlen und ungebremsster Erderwärmung wahrscheinlicher denn je.

## Waldeinsam



## Sorgen in P. Wahlerfolg

mic. PARIS, 14. Oktobe Republik“ haben die reg den Wahlerfolg der rechts

## Klimawandel verschärft Unwetter

Klimabericht der WMO beunruhigt Meteorologen und Extremwetterexperten

Auf der Erde wird es wärmer - und immer deutlicher zeigen sich die Folgen des Klimawandels. Wetterextreme wie Dürren, Stürme und Überschwemmungen prägten auch das Jahr 2013. Die Auswirkungen des Klimawandels seien überall auf der Welt spürbar gewesen, sagte der Generalsekretär der Weltorganisation für Meteorologie (WMO) Michel Jarraud bei der Vorstellung des WMO Klimaberichts. Als Beispiel nannte Jarraud den Taifun

"Haiyan", der im November die Philippinen verwüstet und eine Schneise der Zerstörung hinterlassen hat. Es war der stärkste jemals an Land gemessene Sturm, der mit tsunamiantigen Sturmfluten im Gefolge mehr als 7350 Menschen in den Tod riss. Stürme mit extrem hohen Windgeschwindigkeiten häufen sich auf den Philippinen seit Beginn dieses Jahrtausends, erklärt Klimaforscher Manila Esteban Godilano. In der Vergan

heit haben wir Taifune mit Windgeschwindigkeiten von mehr als 250 Kilometern pro Stunde nie erlebt. In den letzten fünf Jahren jedoch fegten gleich drei solche Stürme über unser Land hinweg. Und weil viele unserer Gebäude nur auf Windgeschwindigkeiten von bis zu 200 Kilometern pro Stunde ausgelegt sind, müssen wir wohl große Teile unserer Infrastruktur neu konzipieren." Sind also schlimmere Zerstörungen zu

erwarten? Klimaforscher sind sich einig, dass gezielte Maßnahmen gegen die steigende Erderwärmung eine rasante Zunahme an Unwettern dieser Art verhindern können. Radikale Schritte gegen den Klimawandel sind längst überfällig. Die Profitierenden solcher Maßnahmen wären vor allem Entwicklungsländer wie die Philippinen, die am meisten unter den Folgen des Klimawandels zu leiden haben.

Wolfgang Janda

## Neue Studie bestätigt: Biosprit macht Hunger

Anbau der Energiepflanzen verdrängt Flächen für Lebensmittelproduktion

Michaela Kaiser

Gehören Feldfrüchte in den Tank oder auf den Teller? Darüber streiten Politik, Umweltverbände und Mineralölkonzerne. Durch die Einführung von Biosprit ist der Bedarf an Energiepflanzen drastisch gestiegen. Befürworter des Biosprits verweisen auf die wirtschaftspolitischen Chancen, da so die landwirtschaftliche Tätigkeit angeregt werde und zudem das Geld, das bisher zum Kauf von Treibstoff ins Ausland floss, nun der lokalen Landwirtschaft und Manufaktur zugutekommen könne. Biosprit aus Weizen, Mais oder Zuckerrüben ist jedoch umstritten, denn für den Anbau der Energiepflanzen müssen weltweit Wälder und Moore weichen. In Deutschland rechnet man mit einer Fläche von rund 23.000 Quadratkilometern, die dem Anbau von Energiepflanzen auf Kosten von Futter- und Lebensmittelpflanzen bis 2020 weichen werden. Kritiker monieren zudem, dass der Anbau von Monokulturen höchst schädlich für die Böden und die biologische Vielfalt sei. Zudem warnt der Bund für Umwelt und Naturschutz Deutschland (BUND) vor den Folgen einer größeren

Konkurrenz zwischen dem Anbau von Lebensmitteln und Biomasse. Die Ergebnisse der gerade veröffentlichten Studie des World Resource Institute (WRI) bestätigen nun: Die Vorwürfe sind richtig. Die Forscher gehen sogar so weit zu sagen, dass die Förderung von Biosprit dazu beigetragen hat, die Nahrungsmittelpreise auf der ganzen Welt steigen zu lassen und die Luftverschmutzung zu verschlimmern.

Der Bericht verweist auf die Notwendigkeit einen weiteren Anstieg der Lebensmittelpreise zu verhindern, um die Ernährung der von Armut Betroffenen sicherzustellen. Schnelle und zielgerichtete Gegenmaßnahmen seien für die Lösung dieser Problematik erforderlich. Auch die Vereinten Nationen mahnen vor den Folgen eines exzessiven Biomasseanbaus für die Ernährung und fordern konkrete Maßnahmen. „Durch eine Einschränkung der Anbauflächen von Energiepflanzen kann eine Lebensmittelknappheit mit der Folge stark steigender Lebensmittelpreise verhindert werden“, stellte UN-Sekretär Gustav Brest klar.