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## THE CURRENT STATE OF RESEARCH ON SUSTAINABLE ENTREPRENEURSHIP

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### ABSTRACT

*This article outlines the emerging research concerned with sustainable entrepreneurship. To advance this research field and to highlight potential future directions for research, this article reviews and explores the present state of research on the field by means of a structured literature review. It facilitates comparisons of past developments, and uncovers areas where research is still needed. By synthesizing the present body of literature and focusing on sustainable environmental, societal and economic developments in the field of entrepreneurship, we conclude the paper by proposing three potential directions for future research.*

**Key words:** *sustainable entrepreneurship; entrepreneurship; sustainability; sustainable development*

### 1. INTRODUCTION

The aim of this article is to generate an overview of the structure and development of the field of sustainable entrepreneurship by the means of a structured review of extant literature. Global sustainability disputes lead to an increasing awareness of sustainable entrepreneurship as a phenomenon and a research area (Cohen and Winn, 2007). Entrepreneurs are gradually more confronted with social and environmental challenges, while stakeholders expect them to create economic, environmental and social value (Urban and Nikolov, 2013). Worldwide, reaping accompanying opportunities requires companies to come up with innovative ideas (Spitzeck et al., 2013). In addition, there appears to be an increasing political debate for sustainable entrepreneurial initiatives (Dyllick and Hockerts, 2002; Pei et al., 2010; Weiss and Welsh, 2013).

This study offers two relevant contributions. First, our analysis comprises a synthesis of the main three clusters within this research field, thereby critically evaluating literature related to the above mentioned environmental, *societal and economic developments*, as well as highlighting open research gaps in these most promising areas for future research. Second, it is one of the first studies that provides a broad and multifaceted view of sustainable entrepreneurship on the basis of a systematic review. While there is a growing academic interest in this “triple-bottom line”, there is also a clear need for greater ties between the more environmentally-oriented sustainable development and entrepreneurship literature, represented by this paper. No systematic review exists with a focus on sustainable development and entrepreneurship practices. Hereby, a better understanding of entrepreneurial dynamics within these segments will provide a more accurate picture of sustainable development, including a robust literature overview on the role of sustainable entrepreneurship with respect to future research questions.

### 2. METHODOLOGY

Aiming at a consolidation of the literature across domains, our methodology is a systematic, evidence-informed literature review (Tranfield et al., 2003). A first classification scheme of applied research methods in sustainable entrepreneurship literature as part of a comprehensive literature review is presented in order to uncover, classify, and interpret the current research (Behzadian et al., 2010). Our structured review of extant literature on the field is used to help analyze the relationships between research clusters and methodology of publications in this adolescent research field. This is an influence that is based on the fact that the different clusters provide essential findings based on different research design, which are in turn influential for the scientific work in the whole academic field. By dividing the research field into three different sub-sections, we can determine to what extent literature has dealt with an application focus and finding in a further step. We herewith follow other quantitative-oriented literature reviews in the field such as e.g. ones on strategic orientations (Hakala, 2011), entrepreneurial marketing (Kraus et al., 2012), social entrepreneurship (Kraus et al., 2013) or family business research (Xi et al., 2013).

## 2.2 Data

Using the search items "entre\*" and "sustain\*" in the article titles, the electronic databases Scopus, EBSCO Business Source Premier, EconLit (EBSCO), ingentaconnect, ScienceDirect, ABI/Inform Global/ T&I ProQuest, Wiley Online Library, Web of Science, Google Scholar, SpringerLink, as well as Social Science Research Network (SSRN) were scanned for publications in peer-reviewed academic journals. By this, an initial amount of 499 articles was identified. After exclusion of duplicates in the different electronic databases, the final review resulted in 218 articles being published until the end of 2013. To guarantee the quality of the analysis process of sustainable entrepreneurship-related literature, a team of three researchers scanned the articles multiple times. The individual assessments were compared and discussed, and the analysis is based on the insights from all involved researchers.

## 3. A REVIEW OF RESEARCH

### 3.1. Terminology sustainable development

To deduce relevant key words for the literature review, it is necessary to first specify the terminology which here results from the intersection of sustainability and entrepreneurship. Based on the notion that all natural systems have limits, the term "sustainable development" implies that renewable resources should be used wherever possible and that non-renewable resources should be reduced and recycled (WCED, 1987). The sustainable development debate is based on the assumption that societies need to manage three types of non-substitutable capital, namely economic, social, and environment (Dyllick and Hockerts, 2002). Awareness of sustainable development grows in society, which is expected to increasingly realize the value of natural and social resources boosting economic value (Cohen and Winn, 2007). Such an entrepreneurial renaissance will spur innovation and economic growth (Audretsch, 2004; Wagner and Lutz, 2012).

### 3.2. Scope and breadth of research

Since 1951, the number of scientific articles has been growing constantly, which is the result of increased attention paid to research on sustainable entrepreneurship in certain scientific journals (Hockerts and Wüstenhagen, 2010). In 2010, the "Journal of Business Venturing" devoted an entire special issue to the topic "Entrepreneurship for Sustainable Development" (Volume 25, Issue 5). As indicated, a proportionally large number of studies, 218 in total, have been published entitled with sustainable entrepreneurship. The sample from the source Scopus with 156 results shows a continuously growing publishing rate since 1951, which is confirmed by our sum of 218 results from all reviewed electronic databases.

To explore the breadth of sustainable entrepreneurship, we analyzed the fields represented by the journal articles in our systematic literature review. To this end, we made use of the Scopus categories, which classify journals and their corresponding articles based on certain topical areas. Based on the tripled research areas of sustainable development (environment, social and economic), sustainable entrepreneurship is most prominent in the following research streams or subject areas as well, namely Business Management and Accounting (114 articles), Social Sciences (80 articles), Environmental Science (38 articles), and Economics Econometrics and Finance (34 articles). Here, according to Scopus dedicated journals are the *Journal of Business Venturing* with eight articles, the *Greener Management International* with six articles, the *Journal of Cleaner Production* with five articles, the *Business Strategy*, and the *Environment* with five published articles entitled with sustain\* entre\* since 1951. At the same time, sustainable entrepreneurship has been analyzed in a wide range of different fields, such as engineering, medicine, energy, agricultural and biological sciences, computer science, decision sciences, and psychology.

In addition to the topical diversity, the studies in our review applied a variety of qualitative and quantitative methodological approaches. Table 1 and Table 2 are based on both the dominating applied research methods and the central research streams. A well-structured approach to the problem of matching research technique to research question will specify which techniques of investigation are appropriate to what key questions in the field (Hindle, 2004). Given the complex nature of sustainable entrepreneurship and its nascent theoretical understanding, as shown in Table 1 and Table 2, 62% of reviewed articles have opted for a qualitative approach, including 45% conceptual papers, reviews or similar, in order to systematically and deeply understand the research objectives. In addition to economic theories, conceptual frameworks have been used to approach the issue of sustainable entrepreneurship (e.g. Vázquez, 2011; Ziegler et al., 2014). Quantitative research methods have been applied rarely with 38% dominated by 70 % descriptive analysis or similar. On the whole, when explaining the phenomenon of sustainable entrepreneurship, scholars have relied on

different theoretical viewpoints and the resource-based view (e.g. Mention, 2011; Ritala and Sainio, 2014; Widding, 2007; Hassan et al., 2014).

**Table 1:** Summary of review results of the research topic sustainable entrepreneurship

Qualitative methods	Articles	Quantative methods	Articles
Conceptual papers, reviews or similar (qual_1)	61	Descriptive analysis or similar (quan_1)	58
Case studies, interviews or similar (qual_2)	51	Regression analyses, correlation or similar (quan_2)	13
Exploratory study, questionnaires or similar (qual_3)	19	Structural equation model or similar (quan_3)	9
Behaviour models or similar (qual_4)	4	Cluster or factor analysis or similar (quan_4)	3
Articles based on qualitative methods	<b>135</b>	Articles based on quantative methods	<b>83</b>
<b>Number of peer-reviewed articles found for "sustain*" AND "entre*" in article's title</b>			<b>218</b>

Table 2 aims to build the basis for a potential further bibliometric citation analysis which might uncover which research streams appear to be the most influential among those publications in the research field of sustainable entrepreneurship. Previous findings on research concerning quality criteria for quantitative, qualitative and mixed methods provide insights into variations in the support for different kinds of research quality criteria and the contexts of their application (Bryman et al., 2008; Honold, 2000). The findings in Table 2 including the abbreviations for each research method of Table 1 demonstrate that specific purposes, priorities, implementation of data collection and designs dominate in different research clusters of sustainable entrepreneurship literature. In line with Table 1, throughout all research clusters the conceptual papers and reviews (28%) or the descriptive analysis (27%) are dominating. This Table is used to ensure a complete picture of the phenomenon under study.

**Table 2:** Summary of review results of the research clusters

Research cluster / stream	Qualitative methods				Quantative methods				Number of articles
	qual_1	qual_2	qual_3	qual_4	quan_1	quan_2	quan_3	quan_4	
Economic	17	14	4	2	15	3	4	0	59
Entrepreneurship	14	18	5	0	19	6	2	2	66
Environment	30	19	10	2	24	4	3	1	93
<b>Number of articles</b>	<b>61</b>	<b>51</b>	<b>19</b>	<b>4</b>	<b>58</b>	<b>13</b>	<b>9</b>	<b>3</b>	<b>218</b>
	<b>135</b>				<b>83</b>				

So far totally missing in sustainable entrepreneurship research, mixed methods are becoming increasingly popular in different research fields. These in-depth mixed-research methods are used to ensure a complete picture of the phenomenon under study. Different levels of abstraction of a multilayered world demand different methods (Zachariadis et al., 2013).

Mixed methods help to improve sustainable entrepreneurship research addressing challenges emphasized in earlier studies (Molina-Azorín et al., 2012). Although mixed methods research won't be a panacea for sustainable entrepreneurship research, mixed methods designs provide a contribution to this research field. Thus, related research issues in the field of sustainable entrepreneurship can be adequately addressed by this approach. Moreover, specific questions may best be answered through a mixed methods study, and this approach can also stimulate to analyze questions better (Molina-Azorín et al., 2012).

### 3.3 Central themes

Sustainable entrepreneurship is about a combination of economic, social and environmental value creation (Cohen and Winn, 2007; Dean and McMullen, 2007; Schaltegger and Hansen, 2013). With this "triple-bottom line", we will present greater ties between the more environmentally-oriented sustainable development and entrepreneurship literature in the following lines.

#### 3.3.1 From social & environmental entrepreneurship to sustainable entrepreneurial innovation

To contribute to sustainability, innovation is an important driver (e.g. Djellal and Gallouj, 2009; Ben Mahmoud-Jouini et al., 2010; Hockerts and Wüstenhagen, 2010; Schaltegger and Wagner, 2011; Kardos, 2012; Spitzack et al., 2013; Gabrielsson et al., 2014). The debate on companies directing their business activities toward sustainability through innovation was initially focused on eco-

innovations (e.g. Gibbs, 2006; Gallis, 2010). While social and environmental aspects of sustainable development are linked, an essential part of the academic literature on sustainability entrepreneurship deals with either one or the other. A first group of literature contributions put environmental innovation at the heart of their work around the theme of eco-innovation (e.g. Martinsons et al., 1996; Aluko, 2006; Dean and McMullen, 2007; Huțu and Avasilcăi, 2009; Gomez Santrich and Leon Saavedra, 2012). A second group of authors deals with innovations aiming at social improvements like health, energy, or education, where the term social innovation refers to product or process innovations with a social purpose (e.g. Shukla et al., 2010; Janssen and Moors, 2013; Lourenço et al., 2013; Lans et al., 2014). Sustainable entrepreneurship and sustainability innovation emerge spontaneously (Schaltegger and Wagner, 2011).

Social innovation is also used to refer to the process of starting and improving social enterprises (Spitzeck et al., 2013). An important subtheme of sustainable entrepreneurship is the focus on and growing literature on start-up ventures motivated by social innovation. However, the concept of social entrepreneurship has emerged in the late 1990s (Nicholls-Nixon et al., 2000) it has only recently reached the academic literature (Hockerts and Wüstenhagen, 2010). One recent systematic review focused on sustainability-oriented innovation (e.g. Klewitz and Hansen, 2014).

### **3.3.2 From an economic point of view to corporate sustainability**

Authors have responded with new investigations dedicated to sustainable entrepreneurship with the subtheme social corporate responsibility. A review of Muhammad and Mine (2013) and Atiq and Karatas-Ozkan (2013) focused on the corporate social responsibility perspective. To date, the majority of the corporate sustainability literature has been focused on how established companies can reduce their environmental impacts and how sustainable development affects competitive advantage (e.g. Vidal, 2008; Majumdar and Nishant, 2008; Atiq and Karatas-Ozkan, 2013; Muhammad and Mine, 2013). As with so many scholarly efforts, measurement often predetermines outcomes, and the empirical evidence is mixed. Nonetheless, in an overview of the literature, environmental responsibility presents a number of unique opportunities to create value (Finon, 2008; Carayannis, 2009; Schein, 1978). Similarly, research in the area of sustainable entrepreneurship, provides insight into the interplay between companies with other economic actors for industrial transformation toward sustainability (Hockerts and Wüstenhagen, 2010). Literature on sustainable supply chain management (e.g. Ageron and Spalanzani, 2010) is important in this endeavor. Additionally, the literature review has revealed some attempts to determine the dynamics of sustainable entrepreneurship interactions from the perspective of education (e.g. Ion and Viorica, 2011; Vungkhanching and Black, 2012; Nwaigburu and Eneogwe, 2013; Kever, 2014).

Despite controversies surrounding it, sustainable development has emerged as an increasingly influential concept in managerial and academic settings. Sustainability has become a mainstay of corporate strategy. In many circles, the term “corporate sustainability” is used as synonym for “corporate social responsibility” (Muhammad and Mine, 2013).

### **3.3.3 Sustainability as an integral part of entrepreneurship**

The idea of sustainable entrepreneurship is rather novel and its definition is still emerging. This paper is clearly based on the Schumpeterian (1962) notion of entrepreneurship as an innovative process of creating market disequilibria (Schumpeter, 1934). With a focus on market failures sustainable entrepreneurship is defined 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 (Cohen and Winn, 2007). Sustainable entrepreneurship is linked to product and process innovation (Hockerts and Wüstenhagen, 2010).

Fewer scholars have explored sustainable development from an entrepreneurship orientation and provide detailed discussions of Schumpeterian dynamics (1942) of “creative destruction”. They argue that sustainability opens up opportunities for new entrants (Cohen and Winn, 2007). With entrepreneurial opportunities market failures such as environmental and social disruptions can be ameliorated (Hockerts and Wüstenhagen, 2010; York and Venkataraman, 2010). Firms which want to successfully commercialize sustainable innovation need to make special efforts in convincing customers that the product they are offering is not just good for society, but also good for them (Jakšić et al., 2014). Furthermore, government policy is playing an important role in commercializing sustainable innovation. Therefore, innovating firms in the realm of sustainability need to understand government policy in the context of sustainable entrepreneurship (Snelgrove et al., 2012; Davidson, 2013; Andreopoulou et al., 2014).

#### 4. FUTURE RESEARCH DIRECTIONS

One central aim of this systematic literature review is to propose issues for future research, which we will do in the present section. Based on a systematic review of 218 scientific peer-reviewed articles, this work provides a profound picture of the current state of sustainable entrepreneurship research with a focus on the applied research methods within the field so far. While this paper offers considerable insights, there remain opportunities for further research in this emerging area. To advance the research field, we derived three potential research gaps from the review, which can be used as input for future research. Each gap will be discussed subsequently.

First, and drawn from the first central theme of this literature review – *from social and environmental entrepreneurship to sustainable entrepreneurial innovation* – the relationship between sustainable development and entrepreneurship is not clear. Hence, it remains an open question why some entrepreneurs have the potential for creating sustainable economies and others do not. Do sustainability-oriented entrepreneurs differ from traditional entrepreneurs? Answering this question with a mixed research design will require insights into a number of related questions, some of which are fundamental to entrepreneurship. Mixed methods show great promise for addressing sustainable entrepreneurship questions adequately (Molina-Azorín et al., 2012). This study helps in improving the understanding of this research topic to contribute to the further development of the sustainable entrepreneurship field. Research by Kraus et al. (2013) concerning social entrepreneurship builds a basis for this open research gap. Previous studies have started but did not close this debate (e.g. Diochon et al., 2005; Einar Lier, 2007; Čorič et al., 2011). Discussing these important questions will help us to make progress in the field of sustainable entrepreneurial thinking. The growing literature on “entrepreneurial opportunity” (e.g. Ardichvili et al., 2003; Harms et al., 2009; Kraus et al., 2011) promises new theoretical frameworks with direct application to the above-mentioned questions. Clearly, those questions require additional theoretical and empirical work.

Secondly, and based on the second discussed central theme – *from an economic point of view to corporate sustainability* – future research could try a more differentiated look at the influence of firm's size in a geographical comparison. When it comes to the diffusion of sustainable innovation, firms are faced with additional challenges and barriers (Čorič et al., 2011; Pinkse and Groot, 2013). Only a few cross-country (e.g. Slonimski and Pobol, 2010) and cross-industry studies (e.g. Pirson, 2010) have been conducted so far which is a clear limitation as the obtained results are at least partly influenced by characteristics and not generalized. Indeed, the entrepreneurial economics literature offers considerable insights into how sustainable development may be achieved with respect to the strategic and entrepreneurial implications of sustainable development (Griskevicius et al., 2012). In terms of entrepreneurship more broadly, the influence of firm size on innovation is almost a classic theme (Koe et al., 2014). However, differences between sustainable entrepreneurship in large or small firms have rarely been discussed in the academic literature (Crals and Vereeck, 2005).

Third, and based on the third central theme of this research review – *sustainability as an integral part of entrepreneurship* – under what conditions can entrepreneurship simultaneously create economic growth, while advancing social and environmental objectives? Noticeably absent among the papers in this literature review is exploration of entrepreneurial dynamics. Additionally, 62% of reviewed articles have opted for a qualitative approach, including 45% conceptual papers or reviews in order to systematically and deeply understand the research objectives (e.g. Schlange, 2009; De Palma and Dobes, 2010; Spence et al., 2011; Jolink and Niesten, 2013; Spitzbeck et al., 2013) Classification matrix (e.g. Schaltegger and Wagner, 2011; Cîrstea and Dobre, 2013) aimed at building models such as practical experience decision making (e.g. Hofstra, 2007; Andersone and Gaile-Sarkane, 2012). Their primary goal has been to explore and describe the field of sustainable entrepreneurship for which in-depth qualitative analyses are generally used (Eisenhardt, 1989). The fact that few studies - 38% dominated by 70 % descriptive analysis - have worked with quantitative methods (e.g. Igarashi et al., 2010; Günzel and Holm, 2013) demonstrates the infancy stage of sustainable entrepreneurship research. Deeper research based on larger quantitative samples including mixed research method approach is needed to test and prove the existing theories and hypotheses, and to advance the research field as a whole (Zachariadis et al., 2013).

#### 5. CONCLUSION AND LIMITATIONS

The last two decades witnessed a constant growth of publications dedicated to sustainable entrepreneurship. While sustainable entrepreneurship still remains ambiguously defined and

controversial, it has emerged as an influential concept for entrepreneurship. However, while entrepreneurship has been cited as a significant instrument for a more sustainable society, there remains considerable uncertainty regarding the fundamental basis. At this point, research is needed to overview and critically evaluate what has been studied in this field and what has been left out up until now. In this vein, this study has taken a broad look at present accomplishments in sustainable entrepreneurship research resulting in three future research streams, which need to be addressed in forthcoming projects to advance our understanding about sustainable entrepreneurship.

To examine the field's current state, we conducted a systematic literature review, which was based on a profound amount of 218 scholarly peer-reviewed journal articles. The results of our review illustrated a strong focus on the three central themes of sustainable environmental, societal and economic developments. Without claiming that these are the only streams in sustainable entrepreneurship research, we believe that these three paths are major avenues in the current literature base. Based on our findings, we point out some weaknesses of current research methods and suggest three research directions including a mixed method approach for the future. There is a need for greater ties between the more environmentally-oriented sustainable development and entrepreneurship literature, which ultimately, this paper delivers with a better understanding of entrepreneurial dynamics for sustainable development by outlining a more accurate picture of sustainable entrepreneurship. In essence, the analyses show that further research is needed which would apply more quantitative research methods based on large samples to test the existing theory. Qualitative methods are often portrayed as less reliable, less accurate, less powerful and less credible than quantitative methods. The central message of the paper is that well-done work based on mixed research method can provide scientifically valuable and intellectually helpful ways of adding to the stock of knowledge (Starr, 2014). Using a mixed methods design to research on sustainable entrepreneurship would increase reliability to reach a better understanding of the interdisciplinary research field (Hohenthal, 2006). We also propose research designs for studying both novel phenomena and for developing established theory through a combination of case studies and structural equation modeling. Recent methodological developments in research have established guidelines for mixed methods. The use of different levels of abstraction is vital in order to identify relations. In this paper, we contribute a deeper understanding of the role of sustainability in entrepreneurship literature (Zachariadis et al., 2013).

As every other study, this article has limitations that should be acknowledged. First of all, although being comprehensive in its kind, the systematic literature review could be criticized for not including all relevant work on sustainable entrepreneurship, hence being limited in the publications selected as a starting point for the analyses. However, through the rigorous procedure of our systematic data collection, an as complete as possible literature base representing the prevailing and influential thoughts within sustainable entrepreneurship research was being developed. Therefore, the probability of having omitted critical studies that would have strongly altered the main conclusion is limited. Additionally, this review does not pretend to have incorporated all existing conceptual and empirical findings on specific areas within the research field of sustainable entrepreneurship. In point of fact, this paper portrays the central structure, foundations and the main avenues of sustainable entrepreneurship research. Moreover, we recognize the limitations concerning the objectivity of the analyses' results. Clearly, the interpretations of the results are subjective. Other researchers might have conducted these steps in a different manner, based on their individual and subjective assessments. To decrease this issue of subjectivity, the multiple assessor method was applied. The individual assessments of all assessors were discussed until agreement was reached and the present analysis and interpretation represents the point of view of all linked researchers.

In essence, the results of this literature review lend credibility to the notion that sustainable entrepreneurship gained increasing interest. Nevertheless, the research field is still fragmented and limited in the sense that studies have been published in a wide range of scientific journals and have dealt with a variety of research questions with respect to numerous industries.

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