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Article:

Munoz, P and Cohen, B (2018) Sustainable Entrepreneurship Research: Taking Stock and Looking Ahead. *Business Strategy and the Environment*, 27 (3). pp. 300-322. ISSN: 0964-4733

<https://doi.org/10.1002/bse.2000>

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Muñoz, P. Cohen, B. (in press) Sustainable Entrepreneurship Research: Taking Stock and Looking Ahead.
Business Strategy and the Environment

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SUSTAINABLE ENTREPRENEURSHIP RESEARCH: TAKING STOCK AND LOOKING AHEAD

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Sustainable Entrepreneurship Research: Taking Stock and Looking Ahead

Abstract

The recognition of entrepreneurship as a solution to, rather than a cause of, environmental degradation and social inequality moved the field to identify a new type of entrepreneurial activity, namely sustainable entrepreneurship. Scholarly interest has spiked in recent years, however, aside from its aspirational appeal, there remains a lack of understanding of the nature of the phenomenon and the future of sustainable entrepreneurship in theory and practice. This review seeks to provide a conceptual basis for stimulating scholarly thought and improving our collective understanding of sustainable entrepreneurship as a distinct subdomain within entrepreneurship research. Based on boundary definition and delineation of main features, this review critically discusses the main challenges ahead and elaborates on the research implications and future research directions beyond current, dominant approaches to entrepreneurial action.

Keywords: sustainable entrepreneurship; sustainable development; systematic literature review; triple bottom line; sustainable value creation, sustainability opportunities; sustainable entrepreneur.

1. Introduction

In the past decade, sustainable entrepreneurship research has emerged as one of the most vibrant subdomains reflecting the surge of entrepreneurial solutions to social and environmental problems, as evidenced by the emergence of for-profit purpose-driven businesses (Stubbs 2016). Most of the theories and normative frameworks proposed so far have drawn from well-established domains, such as social entrepreneurship and environmental economics. Since sustainable entrepreneurship research has attracted attention from scholars across a growing range of disciplines, we are starting to witness the surge of new studies pushing the discussion beyond the idea that sustainable entrepreneurship is simply a particular form of social or environmental entrepreneurship.

The central idea behind sustainable entrepreneurship is that the activities performed by entrepreneurs in the pursuit of opportunities must not undermine the ecological and social environments in which they operate (Shepherd and Patzelt 2011); and when possible, they must restore or nurture such environments towards recovering the balance between nature, society and economic activity (Parrish 2010). Schaefer et al., (2015) frames this emergent activity within the idea of sustainability-as-flourishing, where sustainable entrepreneurship has the potential to create radical, not merely incremental change. In this sense, sustainable entrepreneurs seek to combine the best of both worlds, i.e. initiating those activities and processes that lead to the development of profitable opportunities while contributing to sustainable development (Lans et al., 2014).

Although our understanding of sustainable entrepreneurship has evolved through two separate streams, i.e. social and environmental entrepreneurship, ultimately sustainable entrepreneurship is the only approach capable of combining economic, social and environmental value creation, with an overall concern for the well-being of future generations

(Hockerts and Wüstenhagen 2010). In this sense, Shepherd and Patzelt (2011) emphasize that sustainable entrepreneurship is indeed a new field of research and “is needed to explore the role of entrepreneurial action as a mechanism for sustaining nature and ecosystems while providing economic and non-economic gains for investors, entrepreneurs and societies” (p.138).

Sustainable entrepreneurship appears to be gaining a level of maturity as a sub-field within the entrepreneurship domain. The first special issues dedicated to sustainable entrepreneurship in a leading sustainability and entrepreneurship journals were published in 2009 and 2010 in the *Greener Management International Journal* (Tilley and Parrish 2009) and the *Journal of Business Venturing* (Hall et al., 2010). Sustainable entrepreneurship has gone through a boundary delineation and definitional phase, and as result this sub-field started gaining institutionalized traction in academia. There are academic centers in sustainable entrepreneurship¹ are even entire MBA and MSc programs dedicated exclusively to sustainable entrepreneurship².

Dedicated journals focused on the theme have emerged in recent years such as *Entrepreneurship and Sustainability Issues* and the *Journal of Asia Entrepreneurship and Sustainability*. More recently other leading management and entrepreneurship journals have also initiated special issues on related themes such as the *Journal of Management Studies* (Markman et al., 2016) and *Small Business Economics* (Demirel et al., 2017). Finally, *Business Strategy and the Environment*, the leading journal in business and sustainability, has published 17 papers which reference entrepreneur(s) or entrepreneurship in the abstract (nine of which have been included in our review following exclusion criteria).

¹ Base Center for Sustainable Enterprise at the University of North Carolina and the Franz Center in Sustainable Entrepreneurship at the University of Portland

² Pinchot University (formerly Bainbridge Graduate Institute) founded in 2002 in Seattle, Washington and acquired in 2016 by Presidio Graduate School, the Sustainable Entrepreneurship MBA at the University of Vermont and the MSc in Sustainability & Business at the University of Leeds.

While the field seems to have emerged as a legitimate sub-field of entrepreneurship, we believe there is also a risk that it runs the risk of premature terminological closure (Marti, 2006; Parkinson and Howorth 2008), primarily with respect to the triple bottom line (3BL) framing (Elkington 1994; 1999). More than ten years have passed since the publication of the first seminal works on sustainable entrepreneurship (e.g. Young and Tilley 2006; Cohen and Winn 2007; Dean and McMullen 2007), yet there remains a lack of understanding of the nature of the phenomenon and the future of sustainable entrepreneurship in theory and practice. Therefore, there is a need to assess the status of the field, identify key themes from the extant research and identify challenges for future research in sustainable entrepreneurship. Our goal with this review was to assess the progress over the past ten years as the field has seen substantial growth in peer-reviewed publications while also challenging the field's collective acceptance of the emerging paradigmatic framings.

2. Review approach

This review encompasses research on sustainable entrepreneurship and draws on scholarly work from across the fields of management, entrepreneurship and environmental studies. The articles were selected through a stepwise process (Figure 1).

--- Insert Figure 1 about here ---

After establishing the boundaries of sustainable entrepreneurship based on key research, we built on Doherty et al.'s (2014) review of hybrid enterprising research and a recent review framework utilized by Ansari and Kant (2017), and began our review by leveraging the search engine of Web of Knowledge to apply a list of pre-defined keywords, which we selected from titles, abstracts and keywords from six key papers identified in the 2009 and 2010 special issues on sustainable entrepreneurship (Tilley and Parrish 2009; Hall et al.,

2010) and seminal papers published in *Business Strategy and the Environment*. Appendix A presents the papers selected and keywords. The search was delimited to articles published between 1995 and 2016.

Our first search aimed at gathering research articles from *primary and secondary areas* and included the following keywords: "sustainability" AND "entrepreneurship" OR "sustainability" and "innovation" OR "sustainable" and "entrepreneurship" OR "sustainable" and "innovation". Instead of requiring the words to always be paired together, we first separated the terms since researchers were likely to incorporate these terms in their research without necessarily combining them into a single, paired word construct. This is especially likely prior to the formal introduction of definitions and terms like sustainable entrepreneurship between 2006 and 2010. This initial search generated 8,085 research papers, and allowed us to gather and observe articles across a wide range of fields, e.g. management and broader social sciences, environmental science, political science, etc.

Given that the focus of the review is on the conjunction of sustainable and entrepreneurship, we narrowed the scope to focus only on *primary subject areas* and conducted a second search using more precise keywords, now paired together: 'sustainable*entrepreneurship', 'sustainability*entrepreneurship', 'sustainable*venturing', 'sustainable*start-ups' and 'sustainable*innovation'. This second search generated 297 research articles. In refining our sample, we selected full-length journal articles or research notes from ABS (Association of Business Schools) ranked journals (Academic Journal Quality Guide Version 4) and other specialized hybrid journals such as *Greener Management International* and *Journal of Cleaner Production*, which fall outside the ABS classification.

In a final stage, we manually selected papers that explicitly investigate sustainable entrepreneurship and make reference, directly or indirectly, to the presence of individuals pursuing entrepreneurial opportunities while simultaneously seeking to create social,

environmental and economic value (Tilley and Parrish 2009; Hall et al., 2010). We do not consider eco-entrepreneurship to be within the core focus of this study because that form of entrepreneurship is focused primarily on profit-seeking behavior in environmental areas. Nor do we consider papers dealing with entrepreneurship and sustainability in the corporate context, such as corporate sustainability, corporate social responsibility, environmental management or similar works, which focus on primarily mature firms or large corporations (e.g. Provasnek et al., 2016). When it comes to sustainability, sustainable new enterprises and sustainable multinational corporations not only differ in size but also in the way they articulate their sustainable strategic plans, which affect organizational processes, business models and how they react to competitive forces (Moore and Manring 2009).

This procedure yielded 81 research articles, which we first grouped and then categorized by source. Reviewed papers belong to 13 different countries, based on the first author's affiliation. However, nearly 80% of the papers are concentrated in five countries: United States (27%), United Kingdom (23%), Canada (10%), Germany (10%) and The Netherlands (8%); reflecting a (unavoidable) bias towards Western countries. Most of the research reviewed is theoretical / conceptual (40%) or qualitative (31%) based on case-study methodology. As with any field under emergence, inductive theorizing is required before engaging in testing causal relationships, as reflected in the fact that only 19% of the sample draws on quantitative methodology. Table 1 provides an overview of the papers reviewed grouped and categorized by source and methodological approach.

--- Insert Table 1 about here --

Out of the 27 journals reported in Table 1, just five journals – *Journal of Business Venturing* (JBV), *Greener Management International* (GMI), *Business Strategy & the Environment* (BSE), *Journal of Cleaner Production* (JCP) and *Academy of Management Journal* (AMJ) – account for 56% of the published papers in the 17-year period. JBV and

GMI lead the group, mostly due to two specials issues published in 2010 and 2009 respectively and the subsequent responses to those articles. Although both issues are led by western scholars (American and British scholars respectively), we do observe differences in terms of epistemology and theoretical and methodological approaches. While the former mostly draws on entrepreneurship literature (derived from economic and institutional theories), the latter presents a broader scope of literatures ranging from corporate sustainability to ecological modernisation.

We observe two different streams prompting the development of the field, by either bringing sustainability into entrepreneurship or entrepreneurship into sustainability. This cross-pollination enables the emergence of richer sustainable entrepreneurship theorising, but also increases the (inevitable) tensions between disciplines. However, as evidenced in recent studies (e.g. Muñoz and Dimov 2015; Belz and Binder 2017; Poldner et al., 2015), both streams are in process of finding a common ground, which is mostly being led by European scholars publishing in a wide range of hybrid journals such as *Business Strategy and the Environment*, *Journal of Cleaner Production*, *Organization & Environment* or *Business & Society*, moving slowly away from the American-entrepreneurship realm. These papers tend to reflect on the socio-political and ecological underpinnings of the field and the actual impact of this activity in fostering a sustainable world, in comparison to their counterparts that mostly focus on the strategic, organizational and market factors leading to the emergence of competitive, green companies and industries.

3. Framing the phenomenon: taking stock

3.1 Defining sustainable entrepreneurship

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 individuals, the economy, and society” (Shepherd and Patzelt 2011:137). Similarly to social entrepreneurs, scholars have demonstrated that sustainable entrepreneurs also seek to achieve multiple objectives (De Clercq and Voronov 2011), going beyond rent-seeking behavior that entrepreneurial theories drawn from economics have attributed to entrepreneurs. Yet there are significant differences between social and sustainable entrepreneurs. This approach to venturing ultimately enables the development of commercially viable ventures that advance the causes of both environmental protection and social justice (Muñoz and Dimov 2015). This hybridity, in Doherty et al.'s (2014) is a distinguishing feature of such emergent forms of entrepreneurship. The authors defined hybrid organizational forms as structures and practices that allow the coexistence of values and artifacts from two or more categories. In this vein, Jolink and Niesten (2015) stress that this duality (environment and markets) is indeed revealed in the identification of business models of sustainable entrepreneurs, which support the balancing act of “planet and profit” of sustainable entrepreneurship. As such, hybrid organizational forms draw on at least two different sectorial paradigms, social welfare and commercial logics (Pache and Santos 2013) and value systems, which relates to “the emergence of novel institutional forms that challenge traditional conceptions of economic organizing” (p.418).

Applying the definition of hybrid forms enables the hybridity construct to apply to sustainable entrepreneurship, which has historically been associated with a 3BL of profit,

social good and environmental protection. However, there are meaningful differences between social and sustainable entrepreneurs which have been delineated in prior research. By comparing extant research insights pertaining to motivations, goals and challenges, (Schaltegger and Wagner 2011) perhaps provided the clearest demarcation amongst eco entrepreneurship, social entrepreneurship, institutional entrepreneurship and sustainable entrepreneurship, based on four defining dimensions: core motivation; aims; role of economic goals; role of non-market goals and organizational development change. In the authors' view, sustainable entrepreneurship contributes to solving societal and environmental problems through the realization of a successful business, uses economic goals as both means and ends; and integrates sustainable development into goal setting and organizational processes.

In exploring the inception of business sustainability and the practical implications and experiences of the eco and socio-entrepreneurs, Young and Tilley (2006) draw on 3BL models to conceptualize the phenomenon of sustainable entrepreneurship. The authors subsequently define the sustainable entrepreneur as “the individual who holistically integrates the goals of economic, social and environmental entrepreneurship into an organization that is sustainable in its goal and sustainable in its form of wealth generation.” (Tilley and Young 2009:88). This and other definitions of sustainable entrepreneurship (Table 2) have been anchored in Brundtland's (1987) *Our Common Future* and involve the mutual need for environmental protection and development and at the same time the necessity of equity within and between generations.

-- Insert Table 2 about here --

Sustainable enterprises are not only about social and ecological entrepreneurship, whereby only social and environmental missions drive action; nor are these ventures only focused on the financial aspects of entrepreneurship, although they usually seek to obtain

economic returns (Rodgers 2010). In its more pure and perhaps utopian form Tilley and Young (2009) argue that this approach to entrepreneurship combines all components of sustainable development equally and holistically, which means that this type of entrepreneurial activity is about achieving all three objectives, while committing to securing the well-being of future generations, and preservation of ecological services.

In introducing this new field, Shepherd and Patzelt (2011) provide support to this definition. In their view, the practice of sustainable entrepreneurship entails sustaining and developing six elements: three constructs informed by sustainable development literature, i.e. sustain nature, life support systems and communities; and three constructs informed by entrepreneurship literature, i.e. develop economic gains, non-economic gains to individuals and non-economic gains to society. Although Tilley and Young (2009) and Shepherd and Patzelt (2011) draw on different theoretical perspectives (i.e. business sustainability and entrepreneurship research respectively), they agree that this kind of entrepreneurial activity is not about pursuing social, economic or environmental objectives independently, but rather it combines all components of sustainability in a systemic fashion.

3.2 Boundaries of sustainable entrepreneurship

Given that the purpose of this article is to develop a systematic review and analysis of sustainable entrepreneurship research, we build on Sahlman's (1996) framework to capture those factors that are deemed to be critical for observing and analyzing the entrepreneurship phenomenon, and therefore exploring the boundaries of sustainable entrepreneurship. The framework emphasizes the creation of a dynamic fit among four interrelated factors, i.e. people, context, deal, and opportunity, which we label: the sustainable entrepreneur, the context for sustainable entrepreneurship, the sustainable entrepreneurship outcome (i.e. value

creation) and the sustainability opportunity. Below we provide insights into each of these four inter-related factors gleaned from the conducted review and provide a critical discussion of each of these four factors, identifying failures in extant research and including recommendations for future research. In table 3, we provide an organized view of the field highlighting key categories, subthemes and illustrative papers.

--- Insert Table 3 about here ---

The sustainable entrepreneur is defined as the individual who participates in the development of the sustainable venture. As can be observed in Table 3, we discovered six themes associated with the sustainable entrepreneur: knowledge and skills, entrepreneurial self-efficacy, motivation and intention, values and attitudes, business orientation and moral cognition. Among these, prior knowledge and orientation – essential entrepreneurial skills - are central explanatory variables in sustainable entrepreneurship and entrepreneurship research in general (Ardichvili et al., 2003). Extant models suggest that entrepreneurs vary in their ability to recognize opportunities for sustainable development based on their prior knowledge of ecological and social environments, the perceived threats to such environments and an altruistic attitude towards others (Patzelt and Shepherd 2010). Compared to individuals whose attention is more focused on the business environment, those individuals focused on ecological and social environments are more likely to form beliefs about opportunities for sustainable development even if they show no intention to personally pursue such opportunities (Shepherd and Patzelt 2011).

Together with prior knowledge, entrepreneurial self-efficacy also emerges as an essential element of entrepreneurial intention and action (Drnovšek et al., 2010). Self-efficacy, defined as the person's belief in his or her capability to perform a task (Bandura 1982), develops from the gradual acquisition of cognitive, social, linguistic, and/or physical skills through experience (Gist 1987). In Shepherd and Patzelt's (2011) view, self-efficacy may play a

central role in sustainable entrepreneurial action, in that the evaluation of one's knowledge, and skills to exploit a sustainability opportunity will be different than the evaluation involving those opportunities that are simply for personal economic gain. The authors emphasize that the knowledge structure of sustainable entrepreneurs, which gives support to entrepreneurial self-efficacy, may be more complex than of purely commercial entrepreneurs, in the sense that the former may require not only knowledge of markets but also of natural and social environments.

Drawing on cognitive psychology, some authors argue that the variance regarding the integration of sustainability in the formation of new ventures is explained to a great extent by the entrepreneur's motivation (Font et al., 2014) and intention, which constitute the basis of entrepreneurial decisions (Shane et al., 2003). Given the variety of purposes behind the development of sustainable ventures (De Clercq and Voronov 2011), the explanation of sustainable entrepreneurship based on the motivational structure of the entrepreneur requires more than usual explanatory factors such as self-realization, financial success, innovation, or independence (Carter et al., 2003), or the examination of the willingness of people to play the entrepreneurship game (Shane et al., 2003). Linnanen (2002), for example explains this variance based on the fact that these entrepreneurs follow a predominant desire to 'change the world', which is operationalized by prioritizing multiple business goals (Schaltegger 2002). A particular type of entrepreneurial, transformative mind-set drives sustainable decisions and actions (Walley and Taylor 2002), operating as a mechanism through which these entrepreneurs elaborate vision of a sustainable future that envisages hard structural change.

Along with motivation, intentions have proven the best predictor of any planned behavior, including entrepreneurship (Krueger et al., 2000). Entrepreneurial intentions depend on the perception of desirability and feasibility of the venture opportunity and the interaction between these two kinds of perceptions (Fitzsimmons and Douglas 2011). If the

opportunity at hand is complex and its evaluation involves more factors than simply the potential of economic gain (Shepherd and Patzelt 2011), the perceptions of desirability and feasibility of that opportunity, hence the entrepreneurial intention and the formation of a first-person sustainability opportunity belief (McMullen and Shepherd 2006) are also likely to be more complex.

In this vein, Schlange (2006) proposes that the main driver of sustainable entrepreneurs is their willingness or intention to combine and balance their desire to change the world with their desire to make money. Drawing on Schlange (2006), Gibbs (2009) widens the scope and proposes a model of agent-structure, where agency emerges as a result of a combination of green, ethical and social motives. Schaltegger and Wagner (2011) draw upon this cognitive approach to indicate that, attached to the existence of sustainable entrepreneurship, there is a desire to contribute to solving societal and environmental problems through the pursuit of entrepreneurial opportunities. In other words, the main goal is creating sustainable development through the realization of a successful business.

Sustainable entrepreneurship can also emerge as a result of particular behavioral responses. Klewitz and Hansen (2014) identify five practices leading to sustainable venturing ranging from resistant, reactive, anticipatory, and innovation-based to sustainability-rooted. Underlying cognitive mechanisms and behavioral responses, specific values and attitudes exist. In understanding individuals who are interested in supporting initiatives and forming businesses that support the idea of sustainability, Kuckertz and Wagner (2010) examine the relationship between sustainability orientation and entrepreneurial intention. The presence of a positive relationship between these two factors is only partially supported; nevertheless, the empirical evidence is sufficiently strong to argue, in the authors' view, that sustainability orientation does indeed influence entrepreneurial intention in particular groups of individuals. Therefore, part of the explanation of why a given individual decides to start a sustainability-

oriented new business relies on attitudes and convictions towards environmental protection and social responsibility. These entrepreneurs, as Leiserowitz et al., (2006) argue, mobilize several sustainability values, such as equality, solidarity, freedom, tolerance, respect for nature, and shared responsibility, which guide their ambitions, frame their attitudes, and provide standards against which their behavior can be observed and assessed. This is consistent with a recent empirical work that uncovers value alignment as one of the key drivers behind formalizing sustainable behavior (Stubbs 2016). This leaves some authors to conclude that, in the case of sustainable entrepreneurs, the only alternative orientation is one that combines all three principles: economic, ecological and social-ethical sustainability (Walley and Taylor 2002).

Maintaining the balance between these three dimensions derives from particular identities (Fauchart and Gruber 2011) and requires generative rules or a specific orientation capable of guiding the venture design process (Parrish 2010). This approach reveals essential values and beliefs of sustainable entrepreneurs, and gives support and guidance to their role as wealth generators (Tilley and Young 2009), to the integration of sustainability into daily practices (De Clercq and Voronov 2011), to the setting of boundary conditions in the formation of market interactions (Pacheco et al., 2010; Keskin et al., 2013) and to the development of social and symbolic capital (Fuller and Tian 2006).

The context for sustainable entrepreneurship is defined as those elements outside the control of the entrepreneur that will affect the development of the venture. Contextual factors include formal and informal institutional structures that frame the opportunity process and the risks that aspiring entrepreneurs and their new ventures face. It also involves mechanisms whereby the agent interacts with the structure, including relationships with stakeholders (Schlange 2009), market-entry strategies (Hockerts and Wüstenhagen 2010), technologies

(Brown et al., 2007) and legitimacy building (De Clercq and Voronov 2011; Pacheco et al., 2010).

Drawing from institutional entrepreneurship theory, scholars have demonstrated that entrepreneurs are in fact embedded agents who seek to change institutions, through for example corporate political activity (Pinkse and Groot 2015) or the mobilization of particular values, capabilities and sustainability growth agendas (Vickers and Lyon 2014).

Several contributors emphasize that sustainable entrepreneurs require major changes in prevailing institutional arrangements to succeed (Hall et al., 2010). They need a cultural context and social norms capable of fostering or nurturing the creation of environmentally responsible economic activity (Pacheco et al., 2010), which is instrumental in generating entrepreneurial value beyond profit and market penetration (O'Neill et al., 2009). Likewise, unwritten rules of conduct have an effect on the creation of new sustainability ventures. Socially determined institutions, such as consumption patterns, norms of conformity and of family interdependence, not only impact the individual-level decision-making of entrepreneurs towards pursuing sustainably responsible opportunities, but also mediate the effect of government incentives on sustainable firm foundings (Meek et al., 2010). Indeed, in Muñoz and Dimov 's (2015) view, both the presence and absence of a supportive social context can trigger differing behaviors throughout the venturing process. While its presence can positively affect the formulation of sustainability-oriented business ideas, its absence leads to sustainable entrepreneurial action against an establishment that is not conducive to sustainability.

Formal institutions also play a role in nurturing sustainability-oriented entrepreneurial activity. Policy intervention is conducive to a climate for experimentation and learning with promising (i.e. sustainable) technologies and the emergence of sustainable businesses (Caniëls and Romijn 2008; Silajdžić et al., 2015). Government-led knowledge transfer

initiatives have also proven successful in improving environmental standards and competitiveness of new firms (De Palma and Dobes 2010). Likewise, Caniëls and Romijn (2008) argue that incentive policies such as tax and reward systems can make emerging technologies (momentarily) more attractive by changing relative prices of different options. Due to their newness, sustainable ventures usually emerge with (or as a result of) the formation of industries, where centralized planning activities have proven to play an important role, in particular through decentralized market incentive policies, central directives and direct network formation activities (Kemp et al., 1998).

Due to the relative inefficiency of new sustainable business at the time they are first recognized as such, support from formal institutions ensures surviving the early stages of development (Geels and Kemp 2007). This is particularly relevant in emerging sustainable markets, which usually present highly unregulated environments, such as the carbon offsetting markets (Dhanda and Murphy 2011). Support usually entails protection and nurturing in the form of incentives, tax exemptions or subsidies (Schot and Geels 2008). Indeed, policy interventions, through subsidies and regulatory adaptations, play a central role in the introduction of sustainable business solutions in that they help bridging the entrepreneurial ‘valley of death’ between sustainable innovation and market introduction (Verbong et al., 2008).

In sum, only appropriate conditions may lead to producing social, environmental and economic wealth; however, the extant market incentives compel entrepreneurs to environmentally degrading behaviors (Pacheco et al., 2010). If the appropriate conditions do not prevail, social, environmental and economic wealth will not be produced, and entrepreneurs could end up creating unproductive or destructive forms of entrepreneurship (Harbi and Anderson 2010).

The sustainable entrepreneurship outcome, or value proposition can be framed as the “deal”. “Deal is the substance of the bargain that defines who in a venture gives what, who gets what, and when those deliveries and receipts will take place” (Austin et al., 2006:5). Each deal requires value creation and it needs to deliver a set of values, including in the case of sustainable entrepreneurship, economic, social and environmental benefits to relevant stakeholders. In reviewing the extant research pertaining to the sustainable entrepreneurship outcome, we identified two primary streams of research: value creation and strategic returns.

Sustainable entrepreneurs have also been characterized by the value they create at both organizational and societal levels. By means of articulating a holistic value proposition (O'Neill et al., 2009) they have proven capable of reconciling the dual goals of sustainable development and wealth accumulation, thereby resolving the dualistic divide between opportunistic business and altruistic charity (Tilley and Young 2009; Parrish 2010). When used effectively, entrepreneurial strategic behaviors can create value for societies, organizations, and individuals (Hitt et al., 2011), which resonates with the notion of hybrid organizing (Doherty et al., 2014). By using their ventures as a vehicle for contributing to environmental quality and social well-being, in addition to satisfying their own interests, they fulfill two central functions: together with creating economic value, sustainability entrepreneurship activities can have a major impact on larger-scale structural shifts towards a more sustainable society (Parrish and Foxon 2009). In doing so, this form of entrepreneurship extends the role of business beyond market success to initiating societal change and changing market conditions and regulations (Schaltegger and Wagner 2011).

Since sustainable business research emerged, management scholars have focused on the financial implications for corporations transitioning towards a sustainability paradigm. Several scholars have sought to determine under what conditions might a commitment to sustainability generate financial rewards to the corporation and how long does it take for

different sustainability initiatives to generate a financial return on investment. In the past several years, scholars have generally found a positive relationship between sustainability transformations and firm financial performance. The consistency of the results to the question Does it pay to be green? (Orlitzky et al., 2003) illustrates this point. For example, in a meta-analysis of 29 studies dealing with returns over sustainability, Dixon-Fowler et al., (2012) demonstrate a positive relationship between the development of proactive environmental initiatives and financial performance. In a similar vein, Wang and Bansal (2012) show that when it comes evaluating the impacts of socially responsible activities, new ventures whose strategic decisions have a long-term, sustainable orientation are able to counteract their liability of newness and generate net positive economic returns.

Sustainability opportunities. At the heart of entrepreneurship, be it social, environmental, commercial or sustainable, is the notion of opportunity (Doyle and Ho 2010). If one is to undertake the task of framing sustainable entrepreneurship, understanding what sustainability opportunities are and how do they unfold becomes a central matter. Entrepreneurial opportunities encompass a social, learning process whereby new knowledge continuously emerges to resolve the uncertainty inherent to each stage of opportunity development” (Dimov 2007:714). Therefore, the sustainability opportunity is one which enables the pursuit of new combinations in order to simultaneously address economic, environmental and social outcomes. Despite the natural overlaps between commercial and sustainability opportunities, it has been argued that the latter possesses unique features that deserve further attention. In Patzelt and Shepherd's (2010) view, these opportunities enable sustainable entrepreneurs to sustain the natural and/or communal environment as well as provide development gain for the entrepreneur and others. This perspective transcends the business case for sustainable development (Dyllick and Hockerts 2002; Young and Tilley 2006), which aims primarily at improving the efficiency of businesses by reducing their negative impact on nature and

people. Rather, it seeks to generate social and environmental goods towards satisfying society's most pressing quality-of-life needs, which in turn constitute an extensive source of venture opportunities (Dean and McMullen 2007).

In this vein Cohen and Winn (2007), recognize four market imperfections leading to environmental degradation, which provide at the same time relevant entrepreneurial opportunities for the development of sustainable, innovative business solutions. In their view, inefficient firms, externalities, flawed pricing mechanisms and information asymmetries enable sustainable entrepreneurs to obtain rents while simultaneously improving social and environmental conditions. In other words, the existence of pervasive natural-environment-related market imperfections generates various entrepreneurial opportunities in the marketplace, which, when exploited through the process of opportunity development, have the potential to create financial profits for the entrepreneur. Furthermore, alongside creating gains for investors, entrepreneurs and economies, the pursuit of such opportunities can enhance education, productivity, socioeconomic status, physical health, and self-reliance of individuals and societies (Wheeler et al., 2005). Dean and McMullen (2007) review five categories of market failure (i.e. public goods, externalities, monopoly power, inappropriate government intervention, and imperfect information) and conclude that the key to achieving sustainable entrepreneurship lies in 'overcoming barriers to the efficient functioning of markets' for environmental resources. The idea that sustainable entrepreneurs create and improve markets for such resources through entrepreneurial action suggests that not only the nature of such opportunities is different, but also the process through which entrepreneurs seize the opportunities that are inherent in socially and environmentally relevant market imperfections.

4. Expanding the boundaries: looking ahead

4.1 Looking ahead in the study of sustainable entrepreneurs

It is not surprising that early sustainable entrepreneurship scholars have focused significant early work in uncovering who a sustainable entrepreneur is and what might distinguish them from more traditional entrepreneurs. The emergence of entrepreneurship as a field of research also followed a similar path (Gartner 1988) focusing primarily on personality traits, which led the field to embrace cognition theories grounded in cognitive psychology (Mitchell et al., 2002).

Sustainable entrepreneurship scholars benefitted from following the advances in entrepreneurship research and quickly embraced cognition as well. While progress has been made in understanding the cognitive orientation of sustainable entrepreneurs, as evidenced in recent works described above (e.g. Kuckertz and Wagner 2010), the role of ethics and moral cognition in the context of sustainable entrepreneurs has been under-explored in the extant literature. Understanding the factors affecting the development of sustainability opportunities beyond the traditional notions of market failure (Cohen et al., 2008) and prior knowledge (Patzelt and Shepherd 2010), requires attending to chance events (Gray et al., 2014) and to the moral nature of individual decisions concerning sustainability (Leiserowitz et al., 2006; Surie and Ashley 2008).

Biodiversity loss, climate change, land use changes, water scarcity (Jerneck et al., 2010) and other sustainability problems represent serious threats to humans and other forms of life over the next decades. Any endeavor aimed at solving these problems entails making decisions that involve two sometimes-conflicting dimensions: scientific facts and moral principles (Garvey 2008). Committing to sustainability seems therefore not only about applying the right formulas and strategies to help improve our current wealth, but also about

taking responsibility for equally distributing well-being, sacrifice and risks between rich and poor, humans and non-humans and present and future generations (Barry 1999).

In the context of ecological and social problems, recent exploratory research indicates that the moral intensity of the sustainability problem at stake plays an instrumental role in guiding perceptions and inspiring entrepreneurial action. Authors argue that the relationship between prior knowledge and opportunity intention materializes only under conditions of high moral intensity (Muñoz and Dimov 2017). In the absence of high enough levels of moral intensity, entrepreneurs do not activate their knowledge relevant to the issue at hand and, furthermore, do not find it compelling enough to address the issue in the name of sustainable development. Through an exploratory experiment Muñoz and Dimov (2017) open the door to argue that individuals with prior knowledge intend to pursue a sustainability opportunity only to the extent that they faced high level of moral intensity.

This nascent research stream on entrepreneurial sustainability ethics and behavior suggests that these entrepreneurs apply a moral lens to their ventures with greater emphasis than those entrepreneurs focused primarily on economic outcomes, in that ethical and moral values may be of more importance to founders of sustainable ventures compared with their traditional counterparts (Wempe 2005; Surie and Ashley 2008; Harris et al., 2009; Spence et al., 2010; Muñoz and Dimov 2017). The call for future research around entrepreneurial sustainability ethics and behavior resonates with Shepherd (2015), who observes an expansion of the entrepreneurship domain towards one that is more compassionate, pro-social and capable of articulating a kind of action that has the potential of alleviating the suffering of others. This entrepreneurial approach, as well as the convictions propelling sustainable entrepreneurial action, is not morally neutral and further examination of the moral cognitive underpinnings of such mental predisposition is required.

This also takes roots in the notion that purely commercial entrepreneurs are often confronted with numerous opportunities to sacrifice ethical and moral values in their individualized pursuits of profits (Fisscher et al., 2005; Surie and Ashley 2008; Fassin 2005), which may move purely commercial entrepreneurs away from social equity and environmental protection, compared with a sustainable entrepreneur whose set of motives comprises such desired outcomes. Furthermore, the majority of scholarly work in the field of entrepreneurship to date has been based on positivist research questions and methodologies (McMullen and Dimov 2013), which has left a gap in our understanding of the more profound, morally-driven intentions and motivations of this particular type of sustainable entrepreneur. This opens the field to new interpretative methods, beyond case-study research, that are instrumental to understand how sustainable entrepreneurs make sense of the perceived opportunities for sustainable development.

4.2 Looking ahead in the study of context for sustainable entrepreneurship

Of the 41 papers presented in Table 3, 14 had a primary focus on context. While the number of papers focused on context may seem low, we suspect it represents a much higher percentage than would be found in mainstream entrepreneurship research. Nevertheless, as evidenced above, sustainable entrepreneurship literature so far has overemphasized the role of (formal and informal) institutions in fostering or constraining action, and the impact of the entrepreneur on the institutional context. This overemphasis, we argue, is detrimental if the field is to achieve a more profound understanding of the role of context.

Firstly, the interaction between the different actors animating the context is missing. In any sustainable entrepreneurial ecosystem, a number of players need to coexist, such as competitors, suppliers, local government, civil society, and NGOs (Gibb and Adhikary 2000).

The complex interactions between them create a dynamic geo-social space that requires attention beyond structural accounts. In this context, we believe complexity science approaches (McKelvey 2004) are needed to advance the field of sustainable entrepreneurship. Although problem solving in complex, real-life situations may benefit from splitting the problem apart into tractable pieces (Baumann and Siggelkow 2013), explaining complex social phenomena requires tackling the issue at hand as a whole. This suggests that future empirical research on sustainable entrepreneurship should seek to leverage methodologies which enable system level analysis that captures as much of the whole of the phenomenon and the interactions within as possible.

Secondly, in moving system level analysis forward, the field needs to acknowledge that sustainable entrepreneurs are not only embedded in markets but also social systems and territories (Steyaert and Katz 2004). Urban and regional geographers have been early adopters in the application of complexity science to territorially-embedded social phenomenon (Byrne 2001). Sustainable entrepreneurship research can benefit from such approaches. The field should seek to explore how entrepreneurs are embedded in markets, social systems and territories, what factors influence priorities for the entrepreneur embedded in multiple contexts, and how the embeddedness influences the venturing process. Only three of the papers we reviewed addressed territorial-embeddedness of sustainable, purpose-driven entrepreneurs (Shrivastava and Kennelly 2013; Kibler et al., 2015; Cohen and Muñoz 2015). This is somewhat surprising given the strong relationship between sustainability and local development. The territorial embeddedness of sustainable entrepreneurs and their ventures requires significant further study.

4.3 Looking ahead in the study of the sustainable entrepreneurship outcome

Given the prominence and practical relevance of knowing whether sustainability leads to performance in SMEs (e.g. Orlitzky et al., 2003; Dixon-Fowler et al., 2012; Wang and Bansal 2012), it is not surprising that many sustainable entrepreneurship scholars have also pursued this line of research. From an entrepreneur's lens, sustainability may appear in itself as a business opportunity (Hart and Milstein 2003), as a strategic orientation (Garner and Stead 2000), and as a central driver in the development and maintenance of competitive advantage (York 2008), in that it offers new revenue streams and avenues for lowering cost and risk (Porter and Kramer 2011). The idea of strategic returns of sustainability may therefore affect the perception of aspiring entrepreneurs regarding the feasibility and desirability of a third-person opportunity (McMullen and Shepherd 2006) towards forming a first-person opportunity that both sustains and develops (Shepherd and Patzelt 2011). This can of course create conflicts as the perception of the profitability of sustainability initiatives may attract rent-seeking entrepreneurs with less regard for the moral, social and environmental benefits of their business activity.

As evidenced above, the majority of sustainable entrepreneurship scholars seem to have accepted the 3BL as the primary paradigm for a more holistic treatment of entrepreneurs and their socio-economic and ecological impacts (e.g. Belz and Binder 2017). Yet the 3BL is inherently driven by economic theories treating entrepreneurs as agents of the economy who make intentional decisions about trade-offs amongst economic, social and environmental objectives. The framing of sustainable entrepreneurship outcomes as being measurable through the 3BL (Cohen et al., 2008) has perpetuated the economics bias in sustainable entrepreneurship and, we argue, the flawed assumption that sustainable entrepreneurs must balance the needs of the three aspects of the 3BL.

A broader perspective of value creation in sustainable entrepreneurship may explore alternative viewpoints. For example, we suggest theory development related to a triple-embedded view as opposed to the 3BL. Such a view may suggest that there are multiple economies including market, informal economy and the sharing economy in which sustainable entrepreneurs may act and create value. Unlike 3BL, it would recognize that sustainable entrepreneurs are embedded in social and natural systems, pushing the field beyond the prevailing accounting-based orientation by encouraging scholars to embrace the complexity of the phenomenon and would require unique approaches to measuring the value creation of sustainable entrepreneurs. We suggest that rather than treating each of the three dimensions as independently measurable constructs, a more complex approach to measuring the interdependence of ecological, social and economic systems would push the field further.

4.4 Looking ahead in the study of sustainability opportunities

In a context where the development of sustainability opportunities is understood more complex than the development of opportunities driven solely by economic gain for the entrepreneur (Hall et al., 2010), the empirical challenge is certainly compelling. Current conceptualizations of the phenomenon (e.g. Cohen and Winn 2007; Patzelt and Shepherd 2010; Dean and McMullen 2007) also lack operability and offer little in terms of understanding how entrepreneurs achieve environmental protection, social justice and intergenerational equity while pursuing venture opportunities. These factors affect firms directly, in that they involve evolving ethical values that demand a transition to new entrepreneurial practices (Keijzers 2002).

While the phenomenon of sustainable entrepreneurship is well described, current theory used to explain its emergence is ill suited to capture its complex nature. Current piecemeal

approach focusing on isolated factors provides insights that are neither unique nor sufficient to explain the development of sustainability opportunities. This calls for a shift in perspective capable of treating the process of sustainable venturing as a holistic analytical unit, rather than a set of decomposable chunks (Muñoz and Dimov 2015).

The difficulties in understanding sustainability opportunities not only stem from the limitations of the predominant methodological approaches, but also from the economics bias in entrepreneurship research, as observed in early conceptual work (Cohen and Winn 2007; Dean and McMullen 2007). Yet we believe many sustainability opportunities form outside of traditional market economies. Sustainable entrepreneurship scholars have largely overlooked opportunities in informal economies (Webb et al., 2013). Similarly, the emergence of the sharing economy, where frequently there may be an absence of monetary exchange, presents another important opportunity space for sustainable entrepreneurs.

Previously we discussed territorial and social embeddedness of sustainable entrepreneurs. We believe that viewing sustainable entrepreneurs as embedded, not just in economies, but also in social and ecological systems (Muñoz and Cohen 2017b), could give rise to new insights regarding the formation of sustainable entrepreneurial opportunities. Take, for example, natural disasters that have ravaged communities around the world. Sustainable entrepreneurs embedded in local communities affected by such devastation are likely to be particularly cognizant of the challenges which arise (Linnenluecke and McKnight 2014) and develop new businesses focused primarily on social, economic and environmental recovery. In order to facilitate a more intuitive understanding of the challenges as well as the opportunities as we look ahead, in Table 4 we provide an overview with our suggestions for expanding the boundaries in the study of sustainable entrepreneurship.

---Insert Table 4 about here---

5. Implications and future directions

5.1 Methodological implications

Our review and identification of challenges and potential avenues for empirical research in sustainable entrepreneurship leads naturally into questions regarding the methodologies used in sustainable entrepreneurship research.

Despite recent attempts to provide guidance on potential dependent variables for sustainable entrepreneurship research e.g. (Cohen et al., 2008), empirical research on sustainable entrepreneurs and their ventures has been allusive. Of the 81 original articles reviewed in this research, only 45 were empirical, with only 14 utilizing quantitative methodologies. It is common for a greater emphasis on pre-theory conceptual work and theory building in the nascent stages of a new academic field. Yet, we believe that after a decade of inductive theorizing, it is time to see advances in empirical research, which seeks to solidify our understanding of the four areas covered by our review. Given the complexity and uniqueness of sustainable entrepreneurship as a phenomenon, we believe new methodological approaches are needed.

Due to the fact that the sustainable entrepreneur is not as prevalent or as easily identifiable as economic, social or environmental entrepreneurs who can be found throughout the world, studying the phenomenon presents particular difficulties in terms of defining sampling frames and selecting cases. Questions of morality and values are not easily measured through surveys. We believe that more interpretative approaches should be considered, if one wants to truly understand morality drivers for sustainable entrepreneurs. Interpretative methods (Smith et al., 2009) or aesthetic inquiry (Poldner et al., 2015), for example, offer promising avenues for future sustainable entrepreneurship research to move beyond description. Interpretative analyses, for instance, permits studying the meanings of

phenomena and human experiences in specific situations. Through this lens, researchers can observe the meanings and explanations that sustainable entrepreneurs attribute to their experiences and how these individuals make (moral) sense of the perceived opportunities.

We have previously argued that sustainable entrepreneurship is a complex social phenomenon requiring methodological approaches capable of dealing with the whole not just the explanatory pieces. Only recently, entrepreneurship research has embraced configurational methods (Muñoz and Dimov 2015) opening the black box of the entrepreneurial process by highlighting the equifinal nature of sustainable ventures.

Event structure analysis (Griffin 1993) or process tracing methodology (Bennett 2010), for example, could be applied to the journeys of sustainable entrepreneurs in order to understand how seemingly random events are interconnected in shaping the mindsets of sustainable entrepreneurs. Process-sensitive methods can equip the researcher with robust methodological tools to understand sequential events and how events are connected logically and subsequently structure and model this particular process (Stevenson and Greenberg 1998). Echoing McMullen and Dimov (2013), we emphasize that only by investigating an entrepreneurial journey over time, could we track how the business opportunity developed through co-evolving social dynamics in sustainable ventures.

5.2 Conceptual and theoretical development

Looking ahead, sustainable entrepreneurship scholars need to situate empirically-informed theoretical development in the center of attention. In reflecting on the current state of the field and potential avenues for further research we stress that there is a major definitional challenge that needs to be addressed.

In examining the phenomenon, we frequently leveraged the 3BL framework to assist in establishing the boundaries and uniqueness of sustainable entrepreneurship as a sub-discipline within entrepreneurship research. Yet, after completing the thorough review of extant work in sustainable entrepreneurship, we are left wondering if researchers have missed a bigger opportunity that goes beyond treating sustainable entrepreneurs as a unique species of entrepreneur who pursues a balance of 3BL outcomes.

Despite the relevance of some of the definitions and conceptual models presented in the literature review, we observe that their final construction is still based on corporate sustainability principles, which by nature pay attention to variables within extant enterprises. These models do reconcile the economic, social and environmental dimensions of entrepreneurship; yet they disregard a number of processes preceding enterprise formation, which are inherent to entrepreneurial action. Shepherd and Patzelt (2011) illustrate this point when defining what sustainable entrepreneurship is not. They stress that we cannot consider as sustainable entrepreneurship scholarship the research that simultaneously considers social, environmental and economic dimensions but does not involve the recognition, evaluation and exploitation of opportunities. When the link between the opportunity process and the three dimensions of sustainability is absent we may be dealing with sustainable development research but not sustainable entrepreneurship research.

In addition, introducing sustainable entrepreneurship as a configuration of elements that must be present in some degree to validate its empirical existence has major implications for entrepreneurship research. In studying the phenomenon, current conceptualizations neither consider the complexity of sustainable entrepreneurship nor reflect on the necessity and sufficiency of potential causes, central to explaining how the process unfolds. Moreover, some elements seem to be missing in the definitions outlined in the prior section, for example

an overarching goal or logic whereby economic, social, and environmental sustainability can be put together with intergenerational equity under a unifying conceptualization.

A more comprehensive approach would allow for overcoming the limitations of the triple bottom-line mentality (Elkington 1999), one that continues to exacerbate problems we have identified in entrepreneurship research (Muñoz and Cohen 2017a). While it does seek to integrate social, environmental and economic dimensions into the field, the 3BL approach suggests that sustainable entrepreneurs seek to balance conflicting bottom lines, where trade-offs are inevitable. These conflicts emerge naturally in the process of combining private and public interests, with social, environmental and economic interests (Florin and Schmidt 2011) in one business proposition. Sustainable entrepreneurs seek and strive to balance, not to make sacrifices, amongst economic, environmental and social objectives (Muñoz and Cohen 2017b). An integrated conception of entrepreneurial action and impact invites a rethinking of current assumptions and normative frameworks that have guided entrepreneurship research so far.

Taking our call for more integrated approaches one step even further, there is another argument to be made. As with any paradigmatic development, cementing foundations and achieving legitimacy requires an evolutionary process that involves variation and selection. Influenced by other disciplines (e.g. environmental science and development studies), entrepreneurship as a scholarly field has diverged significantly in recent decades, emerging as one of the most vital, dynamic, and relevant in management, economics, regional science, and other social sciences (Wiklund et al., 2011:1). It has witnessed a significant increase in interest in multiple forms of (purpose-driven) entrepreneurship, including sustainable entrepreneurship, and researchers continue to explore these phenomena and treat them as independent entrepreneurial forms. Despite our efforts to build unique research communities around these fields, commonalities exist and perhaps we have overemphasized the

dissimilarities. At their core, all of these new proposed subfields suggest that some venturing occurs beyond rent-seeking behavior in market economies expected in mainstream entrepreneurship research.

We recognize this argument may seem contradictory, since we dedicated significant effort here to delineate sustainable entrepreneurship as a unique subfield, but rather seeks to stimulate scholarly thought towards advancing the field upon the most comprehensive approach of all, one that includes social equity, environmental protection, economic viability and intergenerational justice. Perhaps the notion of sustainable entrepreneurship needs some rewording (or reframing), and transitioning from divergence to convergence in the subfields will require a focus on purpose-driven entrepreneurship as an umbrella that integrates these subdomains, i.e. social, environmental and sustainable entrepreneurship. The field of entrepreneurship has the intellectual building blocks in place that are necessary for the creation of a strong paradigm in entrepreneurship (Davidsson 2003), in reality however, we have been getting more pieces of the puzzle, but no clear picture seems to be emerging (Davidsson and Wiklund 2007)

The idea of purpose-driven entrepreneurship (Cohen and Muñoz 2015) has emerged across several new streams of research as highlighted by Hollensbe et al., (2014). We believe this conceptual angle offers a real opportunity for a meta-theory of purposeful entrepreneurship to emerge, which moves from attempts to distinguish each discipline to finding their commonalities. We believe such a meta theory would require a reframing of the challenge and the opportunity away from the 3BL thinking which presumes balance, whereby sacrifice is often required by entrepreneurs who aspire to also achieve positive social, environmental and local economic outcomes. Such a (meta) theory would need to recognize that all entrepreneurs are embedded in economies, society and ultimately natural systems. This embedded view, such as a triple embedded view we suggested earlier, implies

something different than balancing trade-offs between economic, social and environmental systems. Instead it seeks, as McDonough and Braungart (2002) emphasize, to reframe the sustainability challenge from balancing the supposedly competing interests of the 3BL, towards optimizing aggregate outcomes using innovative approaches which can actually restore environmental, social and economic systems. Future entrepreneurship scholars truly focused on sustainable entrepreneurship will stretch the boundaries of entrepreneurship in ways that will effectively challenge assumptions of entrepreneurs as rent-seekers.

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Tables and figures

Table 1. Identified Sustainable Entrepreneurship articles published in the period 2000–2016

Journal	Number of papers	Editorials - reviews	Qualitative	Quantitative	Mix methods	Theory - conceptual
Academy of Management Journal	7	2	3	2		
Academy of Management Perspectives	2			1		1
Academy of Management Annals	1					1
Business & Society	1		1			
Business Horizons	1					1
Business Strategy and the Environment	9		4		1	4
Corporate Environmental Strategy	1		1			
Corporate Social Responsibility and Environmental Management	1		1			
Entrepreneurship: Theory and Practice	3		1			2
Entrepreneurship & Regional Development	2		1			1
Geoforum	1		1			
Greener Management International	11	1	4	1		5
International Small Business Journal	3		2			1
Journal of Business Ethics	4		1	2		1
Journal of Business Research	1			1		
Journal of Business Venturing	10	1	1	2	1	5
Journal of Business Venturing Insights	2		2			
Journal of Cleaner Production	8	1	2	3		2
Journal of Economic Psychology	1			1		
Journal of Organizational Change Management	2		1			1
Journal of Small Business Management	1		1			
Management Research News	1		1			
MIT Sloan Management Review	1		1			
Organization & Environment	3	1				2
Strategic Management Journal	1			1		
Technology Analysis and Strategic Management	2	1				1
World Review of Entrepreneurship, Management and Sustainable Development	1					1
Total	81	7	29	14	2	29

Table 2. Recent Definitions of Sustainable Entrepreneurship

Authors	Definition
Crals and Vereeck 2004	Sustainable entrepreneurship is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce, their families, local communities, the society and the world at large as well as future generations (1)
Cohen and Winn 2007	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 (35)
Dean and McMullen 2007	Sustainable entrepreneurship is 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 (58)
Katsikis and Kyrgidou 2007	Sustainable entrepreneurship is 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 (2)
Parrish and Foxon 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 (48)
Tilley and Young 2009	Sustainability entrepreneur is the individual who holistically integrates the goals of economic, social and environmental entrepreneurship into an organization that is sustainable in its goal and sustainable in its form of wealth generation (88)
O'Neill et al. 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 (34)
Hockerts and Wüstenhagen 2010	Sustainable entrepreneurship is 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 (482)
Pacheco et al. 2010	Sustainable entrepreneurship is the discovery, creation, evaluation, and exploitation of opportunities to create future goods and services that is consistent with sustainable development goals (471)
Kuckertz and Wagner 2010	Sustainable development-oriented entrepreneurs are those individuals with entrepreneurial intentions who aim to manage a triple bottom line (527)
Patzelt and Shepherd 2010	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 (2)
Shepherd and Patzelt 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 individuals, the economy, and society (137)
Schaltegger and Wagner 2011	Sustainable entrepreneurship can 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 (226)
Lans et al. 2014	Sustainable entrepreneurship is seen as a way of generating competitive advantage by identifying sustainability as new business opportunities, resulting in new and sustainable products, methods of production or ways of organizing business processes in a sustainable way (37)

Table 3. Sustainable Entrepreneurship research: categories, subthemes and illustrative papers.

Main Category	Subthemes	Key Papers	Focus
Sustainable Entrepreneur	Knowledge and skills	Patzelt and Shepherd 2010	Develop a model of how sustainable development opportunities are recognized based on the individual's prior knowledge and motivation.
		Shepherd and Patzelt 2011	Review of the field, including an exploration of the complexity of sustainable entrepreneurs' knowledge structures which gives rise to potentially unique self-efficacy
	Motivation and intention	Linnanen 2002	Analyze typical environmental business features and its main segments and presents a typology of ecopreneurs.
		Walley and Taylor 2002	Develop a typology of green ventures focused on those founded on the principle of sustainability and those that are opportunistically or accidentally green
		Schlange 2006	Understand the nature, motivation and drivers of so-called ecopreneurs, green entrepreneurs, or sustainable entrepreneurs.
		Schaltegger and Wagner 2011	Analyze which actors are most likely to bring about sustainability innovation under different conditions and develop a framework to position sustainable entrepreneurship in relation to sustainability innovation.
	Values and attitudes	Stubbs 2016	Explores the emergence of B Corps as unique form of sustainable venture, in particular the motivations behind becoming a B Corp.
		Shepherd et al., 2009	Explore the nature of sustainability values and develop a reliable and valid measure of values underlying sustainable development.
	Business orientation	Kuckertz and Wagner 2010	Study how sustainability orientation and entrepreneurial intentions are related in practice.
		Parrish 2010	Investigate the organization design expertise necessary for sustainability-driven entrepreneurs to succeed in a competitive market context.
Moral cognition	De Clercq and Voronov 2011	Explore how the characteristics of the field, as well as entrepreneur characteristics and actions, influence the legitimacy derived from adhering to the field-prescribed balance between sustainability and profitability.	
	Shepherd et al. 2013	Investigate what conditions influence the role of moral disengagement in decisions by founding entrepreneurs holding pro-environmental values to actively pursue opportunities that will generate outcomes inconsistent with these values.	
Context for sustainable entrepreneurship	Relationships with stakeholders	Muñoz and Dimov 2017	Test the relationship between prior knowledge, perceived moral intensity and opportunity intention in sustainable entrepreneurship
		Wheeler et al. 2005	Examine successful, self-reliant and sustainable enterprise-based activities in developing countries, and develop a model of Sustainable Local Enterprise Network
		Schlange 2009	Explore how sustainability-driven entrepreneurs perceive their stakeholder relationships
		Hockerts and Wüstenhagen 2010	Analyze the interplay between incumbents and new ventures, and theorizes about how it is their compounded impact that promotes the sustainable transformation of industries.

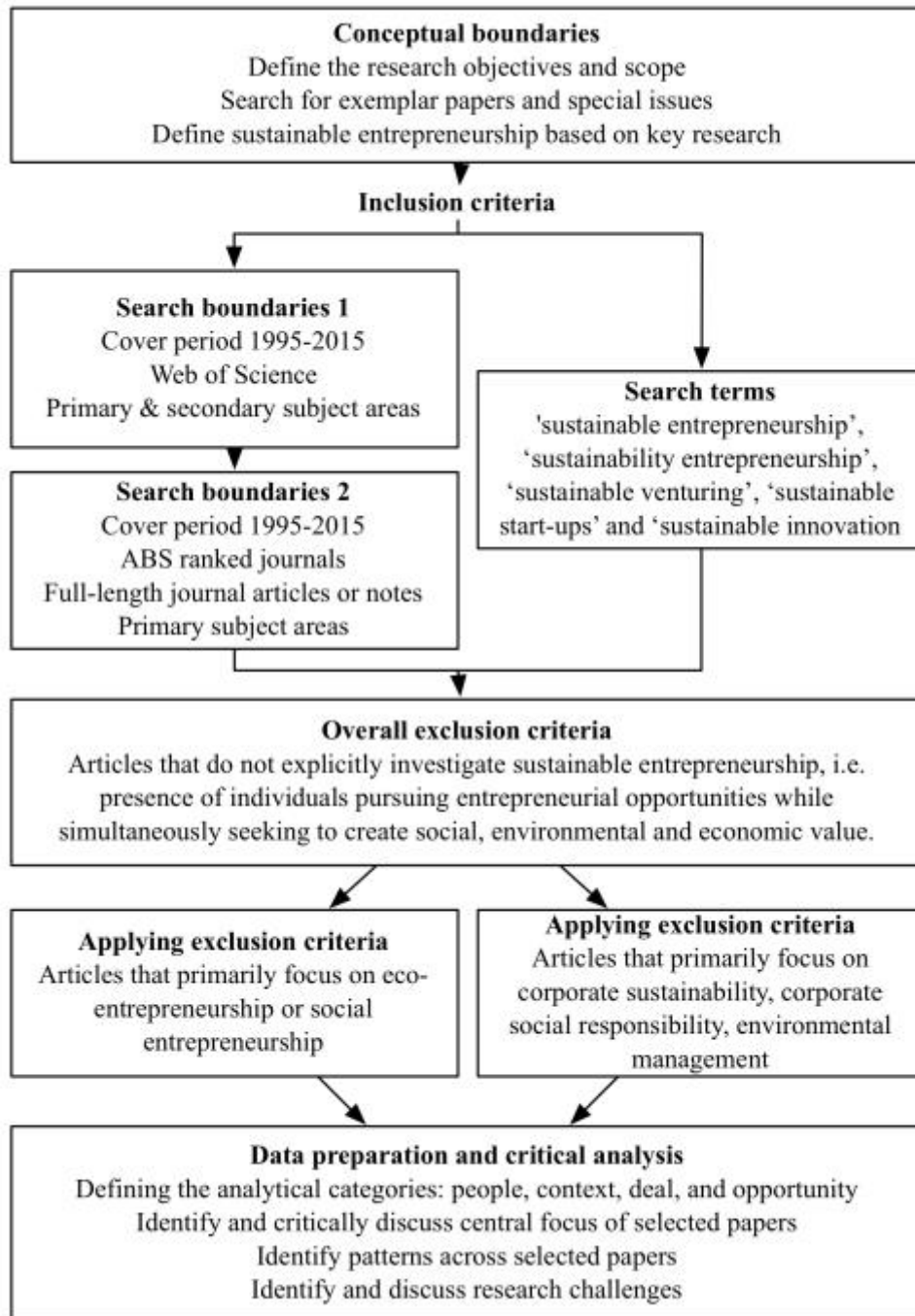
Influence of formal institutions		Clemens 2006	Investigate the relationships among green performance, financial performance and green economic incentives for small firms. Investigate green economic incentives that encourage green practice.
		York and Venkataraman 2010	Examine the conditions under which entrepreneurial action will address the opportunity of resolving environmental issues while creating economic and ecological value.
Influence of formal and informal institutions		Meek et al. 2010	Develop and test a model of the relationship between centralized and decentralized institutions on entrepreneurial activity.
		Spence et al. 2011	Determine the fundamentals of sustainable entrepreneurship and shed light on the potential impact of economic, institutional, and cultural dimensions upon diverse levels of sustainability in SMEs
Influence of informal institutions		O'Neill et al. 2009	Examine sustainability entrepreneurship within a specific cultural setting. It discusses sustainability entrepreneurship from the perspective of value creation by focusing on the holistic value proposition (HVP) created by a sustainability venture.
Impact on context		Katsikis and Kyrgidou 2007	Provide a holistic approach to the entrepreneurial phenomenon by introducing the concept of Sustainable Entrepreneurship.
		Pacheco et al. 2010	Explore how entrepreneurs can engender institutional incentives to sustainable development and achieve the normative expectations implied in the concept of sustainable entrepreneurship.
Legitimacy		De Clercq and Voronov 2011	Explore how the characteristics of the field, as well as entrepreneur characteristics and actions, influence the legitimacy derived from adhering to the field-prescribed balance between sustainability and profitability.
Embeddedness		Shrivastava and Kennelly 2013	Discuss the “placeless” character of enterprise sustainability research and introduce the concept of the place-based enterprise.
		Kibler et al. 2015	Revisit the sustainable entrepreneurship journey by introducing a ‘place-based’ sustainable venture path model.
		Cohen and Muñoz 2015	Extend theory on place-based entrepreneurship by highlighting the uniqueness of cities and the interplay between purpose-driven, sustainable entrepreneurs and the urban places where they operate.
Sustainable entrepreneurship outcomes	Value creation and impact	Young and Tilley 2006	Develop an integrated approach that links in the social and natural cases.
		Cohen et al. 2008	Provide an expanded view of the consequences of entrepreneurship by broadening the scope of entrepreneurship research to include economic, environmental and social value.
		Gibbs 2009	Investigate the role that sustainability entrepreneurship may have in engendering a shift in the practices and operations of contemporary capitalism.
		Parrish and Foxon 2009	Investigate the possible catalytic role of sustainability entrepreneurship in the equitable transition to a low-carbon economy.

		Jolink and Niesten 2015	Delineates business model in sustainable entrepreneurship as consisting of different combinations of environmental scope and a focus on the mass market and profitability.
	Value creation and strategic returns	Tilley and Young 2009	Develop a model of sustainability entrepreneurship by articulating a broad view of wealth creation away from ecological modernization theory.
Sustainability opportunities	Process	Larson 2000	Understand how environmental and sustainability considerations can be successfully integrated into business strategy of new venture.
		Hostager et al. 1998	Understand how can ventures take advantage of environmental opportunities.
		Schick et al. 2002	Identify the points where environmental management could be incorporated into the start-up process
		Cohen 2005	Enhance collective knowledge of how sustainable innovations may come about.
		Choi and Gray 2008	Examine the venture development processes of sustainable entrepreneurs by investigating decisions and management practices through key stages of companies' growth.
		De Clercq and Voronov 2011	Explore how the characteristics of the field, as well as entrepreneur characteristics and actions, influence the legitimacy derived from adhering to the field-prescribed balance between sustainability and profitability.
		Muñoz and Dimov 2015	Examine the development process of sustainable ventures by focusing on three substantive markers, namely the ideas, actions, and exchange relationships.
		Muñoz and Cohen 2017	Introduce the notion of entrepreneurial synchronicity within social-ecological systems, which sets the basis to better understand the connection between the sustainable venture and its surrounding human and biophysical contexts.
		Sources of opportunities	Cohen and Winn 2007
	Dean and McMullen 2007		Understand the concept and domain of sustainable entrepreneurship, and explain how entrepreneurship can help resolve the environmental problems of global socio-economic systems.

Table 4. An overview for looking ahead

Area	Challenge	Looking ahead
Sustainable entrepreneurs	Overemphasis on personality traits, disregarding the role of ethics and moral cognition. When ethics are taken into account, decisions and actions are assumed morally neutral.	Turn attention to decision-making in the context of conflicting dimensions: scientific facts and moral principles. Embrace emerging ideological debates in sustainable entrepreneurship.
Context for sustainable entrepreneurship	Overemphasis on institutions, agency and institutional change. Interaction between actors is virtually inexistent. Overemphasis on markets as primary operating fields.	More emphasis should be placed on complex, real-life situations and interactions. Embrace system-level analyses. Recognize and examine the relevance of, embeddedness and interactions with social systems, territories and geophysical spaces as enablers and constrains of sustainable entrepreneurial actions.
Sustainable entrepreneurship outcome	Overemphasis on strategic orientation, performance and returns, which has led to recognize and use 3BL as primary paradigm, despite the fact that 3BL is inherently driven by economic theories	Embrace a broader perspective of value creation, capable of recognizing and studying the multiple economies, social and ecological systems where sustainable entrepreneurs are embedded and operate in.
Sustainability opportunities	Oversimplification of the process whereby sustainable entrepreneurs develop sustainability opportunities. Current theory (mostly derived from economic theory) used to explain its emergence is ill suited to capture its complex nature.	Embrace alternative perspectives capable of treating the process of sustainable venturing as a holistic analytical unit, rather than a set of decomposable chunks. Examine how sustainability opportunities form and can be pursued outside of traditional market economies.

Figure 1. Summary of the Review Process



Appendix A. Papers selected for the delineation of search conceptual boundaries

Journal	Authors, year and title	Keywords
Business Strategy and the Environment	Schaltegger and Wagner 2011. Sustainable Entrepreneurship and Sustainability Innovation: Categories and Interactions.	sustainability; innovation; institutional; sustainable; social
Business Strategy and the Environment	Young and Tilley 2006. Can businesses move beyond efficiency? The shift toward effectiveness and equity in the corporate sustainability debate.	sustainable; social; environmental; entrepreneurship; entrepreneur; business; corporate; sustainability
Business Strategy and the Environment	Cohen et al., 2008. Toward a sustainable conceptualization of dependent variables in entrepreneurship research.	sustainable entrepreneurship; dependent variables; entrepreneurship research
Greener Management International	Tilley and Young 2009. Sustainability Entrepreneurs: Could They Be the True Wealth Generators of the Future?	Entrepreneurship; Sustainable development; Wealth; Ecological modernisation; Sustainability entrepreneurship
Greener Management International	O'Neill et al., 2009. The Cultural Context of Sustainability Entrepreneurship.	Sustainability; Entrepreneurship; Sustainable development; Holistic value proposition
Greener Management International	Schick et al., 2002. Sustainability issues for start-up entrepreneurs.	Start-up; Start-up process; Entrepreneurship; Entrepreneurs; Sustainability; Sustainable business practices; Green start-ups; Business advisers
Journal of Business Venturing	Cohen, B. and Winn, M.I., 2007. Market imperfections, opportunity and sustainable entrepreneurship.	Opportunities; Sustainability; Market imperfections
Journal of Business Venturing	Dean and McMullen 2007. Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action.	Entrepreneurship; Opportunity; Market failure; Environment; Sustainability
Journal of Business Venturing	Hall et al., 2010. Sustainable development and entrepreneurship: Past contributions and future directions.	Entrepreneurship; Sustainable development