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Conceptualizing Strong Sustainable Entrepreneurship

Abstract

This conceptual article focuses on the environmental dimensions of sustainable development, which are essential for satisfying current and future human needs. It assesses ecological economics (EE) as an alternative base for a “strong” version of sustainable entrepreneurship (SE). EE recognizes the biophysical base of economic activity, critical natural capital (non-substitutability) and limits to market valuation and exchange. Contemporary entrepreneurial definitions, however, as well as recent SE framings, pre-suppose that functioning markets will achieve sustainable development. As discussed in this paper, because natural processes are non-linear and critical, and as thresholds are impossible to anticipate, markets are unreliable and principally at odds with the objectives of sustainable development. Our proposed alternative constitutes a way forward.

Keywords: conceptual framework, sustainable entrepreneurship, ecological economics, definition, sustainable development, critical natural capital

Introduction

“Corporate greening”, “Triple Bottom Line”, and other business approaches to sustainable development have proven to be too slow or even inappropriate to address the pressing issues of global climate change (IPCC, 2014), mass extinction of species (Barnosky et al., 2011) and satisfaction of basic human needs (UN, 2013). In the case of climate change, Nicholas Stern (2006, p. i) described it as the “the greatest and widest-ranging market failure ever seen”. Nevertheless, expectations for a “greening” of the economy remain high (The Global Commission on the Economy and Climate, 2014; OECD, 2011), a hope that relies, not least, on the potential of innovation and entrepreneurship (Hall et al., 2010). When it results in creative destruction and radical innovation (Schumpeter, 1934), entrepreneurship is a potent force for societal transformation, and if this force could be geared towards sustainable development, necessary transformations could be initiated or supported. Here, sustainable entrepreneurship (SE) has emerged as a stream of research combining an entrepreneurship perspective with the objectives of sustainable development, i.e., to meet “the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987: 43; Cohen & Winn, 2007; Dean & McMullen, 2007).

As entrepreneurs are generally assumed to react to opportunities (e.g., Shane & Venkataraman, 2000), it appears critical to understand how opportunities relate to such objectives. If, on the one hand, substantial opportunities cannot be discovered or created in relation to sustainability, entrepreneurship may not be relevant in this context. An ability to perceive opportunities rather than environmental or poverty problems may, on the other hand, represent a particular advantage of entrepreneurship in the light of the need for pervasive societal transformation. Here, SE’s view regarding opportunities can be exemplified by Cohen and Winn (2007: 31) who argue that “market imperfections contribute to environmental degradation but that they also provide significant opportunities for the creation of radical technologies and innovative business models”. Similarly, Dean and McMullen stress (2007: 53) “the presence of entrepreneurial opportunities in environmentally relevant market failures” and aim to correlate “those opportunities to the magnitude of environmental problems or, at least, the economic value lost due to environmental degradation”. Following from the latter interpretation, we could expect increasing opportunities for entrepreneurship, mirroring the tragic development of many of Earth’s ecosystems.

However, these emergent framings of SE, conceptually based upon environmental economics, contain problematic assumptions. One concerns the delimited approach to sustainability problems (and opportunities) as market failures, and others concern the more or less explicit ideas of utility and substitutability.

The market failures perspective promotes the creation of property rights and relevant prices, to get functioning markets that include the value of formerly non-priced services (Dean & McMullen, 2007). Entrepreneurs take part in this process, pushing for new rules of the game both through display of sustainable solutions and through innovative ways to drive exploitation further. Hence, this perspective implies that also the sustainable type of entrepreneurs would act within the conventional economic framework of private property and market exchange. This would drive them towards problems with market solutions, where super-normal profits, entrepreneurial rents, can be generated. Such processes could lead as far as to the interest in geoengineering (to address climate change), as shown by entrepreneur superstar Sir Richard Branson and others. This type of solution, which builds on taking the human planetary control even further, could have more commercial potential, despite its massive ecological risks, than trying to get the world's most powerful fossil dependent companies to change their business model (Klein, 2014). One risk with current framings is that this is the kind of SE that will be promoted.

Whereas market-based entrepreneurship can certainly contribute to more sustainable solutions through improvement of efficiency, reduction of externalities, advancement of information or the creation of new markets (Cohen & Winn, 2007), an exclusive focus on markets and market failures would omit addressing problems and needs where relevant market mechanisms cannot easily be created (Foster, 1997). Unfortunately, these are the problems that form the core of the sustainability challenges, not least large scale, multiple source and effect problems such as biodiversity loss and climate change. Such problems can be explained as concerning common-pool resources, from which a user can reap the benefits of his or her use while the costs, as environmental degradation, is shared by all (Ostrom et al., 1999; Soroos, 1998).

The proven difficulty in creating relevant markets for this type of resources, together with the expectation that the entrepreneur-user, as a market actor, should seek growth, maximize profits and focus economic interests near in space and time (Bonnedahl & Eriksson, 2007), will continue to nurture the relevance of Garrett Hardin's (1968) "tragedy of the commons" metaphor. Subsequent research also give reasons to add the problems of developing markets that can deal with non-linear and irreversible processes in nature (Rockstrom et al., 2009), and provide market signals related to "the ability of future generations to meet their needs" (Gardiner, 2002).

While the latter concern the intergenerational dimension of sustainability, markets fail on the intragenerational dimension too, by letting demand steer "efficient allocation" when fundamental needs normally correlate with no monetary power to signal demand. Hence, the market as a preferred allocation mechanism is principally at odds to Brundtland's suggestion of allocating according to needs (WCED, 1987).

Moreover, the combination of market-defined value (basically determined by consumer demand, production costs and competition) and the idea that natural and man-made capital is substitutable (characterizing a “weak” position on sustainability; Hopwood et al., 2005; Kallio & Nordberg, 2007) makes profitable market-led transformation of “natural capital” imperative, and therefore drives environmental degradation. Internalization of environmental costs, as suggested by environmental economists, only cuts the top of this process. In the real world, economic activities are inevitably linked to physical throughput – i.e. economic value cannot be created without some input of capital originating in nature (Daly, 2005). This exhausts critical ecosystem functions and triggers threshold effects, thereby accentuating the ecological problems of today’s economy.

From this follows that, although economic information, cost/benefit analysis, and market allocation may be pieces of the puzzle on how to achieve sustainability, opportunities for SE cannot be equated to market failures. For sustainable entrepreneurship to leverage its potential to address the objectives of sustainable development, it needs an alternative framing, including an understanding of what opportunities could consist of. Following Patzelt and Shepherd (2011), we perceive that there is room for theoretical pluralism within the emerging field concerning SE, and a need for a “strong” version of its conceptualization. “Strong” here refers to the established distinction between strong and weak sustainability, where the former recognizes the impossibility of substituting natural for man-made capital (Hopwood et al., 2005).

In this conceptual paper we focus on the environmental dimensions of sustainable development, which are essential for satisfying current and future human needs, and assess ecological economics (EE) as an alternative base for such a “strong” version of sustainable entrepreneurship. EE recognizes the biophysical base of economic activity, critical natural capital (non-substitutability) and limits to market valuation and exchange (Georgescu-Roegen, 1971; Daly, 1977; 2005; Costanza, 1991).

Ecological economics

EE is founded on the works of economists such as Georgescu-Roegen (1971), Daly (1977; 2005) and Costanza (1991), scholars who reacted against the absence of the natural environment in neo-classical economic models. They argued that organizing economic practices upon the teachings of a discipline that ignored their embedding within the natural environment would have dire consequences. The growing prevalence of environmental stress, and the rise of issues such as massive biodiversity loss, eco-system collapse and global climate change, is certainly evidence of this. Hence, EE’s main project has been that of trying to conceptualize the interaction between economic and ecological systems (Potts et al., 2010). Georgescu-Roegen (1971), for instance, underlined the physical metabolism of the

economy by discussing entropy and economic transformation – introducing the second law of thermodynamics to economics.

EE is distinctly different from environmental economics, where the latter is basically a branch of neoclassic economics describing environmental problems as market failures. For instance, climate change is viewed as an externality problem where the costs of an unstable climate are not borne by those actors directly involved in the economic exchange which causes emissions (Tietenberg, 1994). As a consequence, markets cannot determine an efficient level of resource use and emissions. Environmental economists then, for instance engage themselves in calculating global carbon taxes that will help the markets to bring emissions to a level which reflects related costs and benefits.

Although EE is far more diverse and interdisciplinary than environmental economics, a few more or less agreed upon principles exist. First, the economic system is seen as a subsystem of the biosphere; i.e., it is both dependent and inflicting on a biophysical base, why nature cannot be “assumed away” in models of economic activity (Røpke, 2005). Rather, nature should be viewed as economy’s life-support system, and as the foundation for fulfilling present and future needs (Arrow et al., 1995; Costanza & Daly, 1992). Second, and subsequently, EE insists on the importance of physical flows, throughput, that are inseparable from the economic flows in society. What mainstream economists and entrepreneurship scholars present as value creation, production activities that meet consumer demand, corresponds to the transformation of materials and energy (and labor, animals and ecosystem services) into marketable goods and services (Dietz & O’Neill, 2013; Foster, 1997). This means that low entropy matter and energy (resources) is transformed into high entropy matter and energy (waste), which contradicts the idea of continuous growth of economic value, for instance income or GDP, as this depletes the natural capital stock which supports the economic flows (Georgescu-Roegen, 1971; Wackernagel & Rees, 1996).

Third, man-made and natural resources are complements rather than substitutes (Chiesura & de Groot, 2003; H. Daly, 1990). While conventional scholars would see the rise in aquaculture as proof for the efficient move from marine fishing through entrepreneurship and technology, denying Daly’s (2005) words about the value in the fishing boat being dependent on the existence of fish, EE would explain this as moving the problem between systems. Although the economy in this vein has been able to exchange the output from one system for another, the Earth presents critical natural capital that has to be sustained (Ekins, 2003) and ecological boundaries that cannot be transgressed over time (Rockstrom et al., 2009). This is further complicated as ecosystems do not develop linearly (Koven et al., 2011); there are tipping points and thresholds that are difficult to anticipate (which, with another famous example from fishing, was seen in the Newfoundland cod collapse). Fourth, non-substitutability and non-linearity means that the value of man-made and natural resources cannot always be measured by

a single, unified (monetary) metric (Chiesura & de Groot, 2003; Martinez-Alier, Munda, & O'Neill, 1998). Beyond the problems of creating markets and prices for environmental services, this would not guarantee that consumers would demand “the right” thing: Trees cannot be replaced with IT-stocks or travel insurances, even if this would reflect the demand of consumers. This accentuates the notion of critical natural capital (CNC), a “capital” that has value and utility beyond market demand (Brand, 2009; Chiesura & de Groot, 2003; Ekins, 2003).

These realistic assumptions about the world are relevant for a conceptualization of “strong” sustainable entrepreneurship (SSE) (see Table 1). Hence, entrepreneurs should envision new ways of defining value that at least partly is separate from market demand, and organize value creation, for instance sustainable business models, that operate beyond conventional markets (Stubbs & Cocklin, 2008).

Principles of ecological economics	Implications for entrepreneurship
1) The economic system is a subsystem of the biosphere	1) Entrepreneurial acts should be aligned with the biosphere
2) Economic activity and economic value are dependent on physical throughput	2) Value creation cannot depend on transformation of virgin material or non-renewable energy
3) Man-made and natural capital are complements, but non-linearities and critical levels in nature pose limits to exploitation	3) All activities must respect the interdependency of systems and species, and biophysical constraints over time and space
4) Man-made capital and natural resources cannot be fully compared using the same metric	4) Alternatives to markets are needed for the creation and distribution of value

Table 1: Strong sustainable entrepreneurship

Opportunities and Entrepreneurship

To further examine how the principles for strong sustainability – built upon ecological economics – can be introduced to entrepreneurship, we start out with a definition of the latter as “the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated and exploited” (Shane & Venkataraman, 2000, p. 218). In their seminal paper, Shane and Venkataraman argued that entrepreneurship occurs at the nexus where opportunities meet enterprising individuals. Hence, recognizing the above discussed limitations of market based definition of opportunity, this begs the question of what opportunities that can drive strong sustainable entrepreneurship can consist of.

Previous definitions of entrepreneurial opportunity

The roots of entrepreneurship in economics (e.g., Schumpeter, 1934; Kirzner, 1997), is visible when Shane and Venkataraman (2000, p. 220), reference Casson (1982) and define entrepreneurial opportunities as “those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater cost than their production”. Reviewing 56 articles for the definition of opportunity, Hansen et al. (2011) also concluded that a composite definition that

would unify the most common elements from the review was that “an opportunity is the possibility of introducing a new product to the market at a profit” (ibid, p. 292).

The field however contains a variety of positions, and Hansen et al. (2011) found no less than 49 slightly different versions of opportunity through their review. From these, they suggested two alternative composite definitions that seem rather independent of the market contexts; one where opportunity is “an ability to create a solution to a problem”, and another where “opportunity is a situation in which entrepreneurs envision or create new means-ends framework”.

A focus on new means-ends frameworks separates entrepreneurial opportunities from those possibilities to increase economic returns that exist through optimization among known means and ends, referring to management practices where calculation, rather than creativity, enables a production system to be trimmed and incrementally improved over time. Thus, sustainable entrepreneurship goes beyond firms implementing eco-efficiency measures.

Opportunities as market failures

Irrespective of being open for new means-ends relationships, the emerging SE literature shares the more or less taken-for-granted assumption within conventional entrepreneurship theory that entrepreneurs are motivated by the possibilities of obtaining entrepreneurial rents (Schaltegger & Wagner, 2011). These rents are above-normal profits which are possible because entrepreneurs perceive opportunities that other market actors miss, and because the risks and opportunity costs of pursuing them are high (Venkataraman, 1997). Entrepreneurs are generally assumed to have a lower opportunity cost for risk in relation to industry incumbents (York & Venkataraman, 2010).

The SE literature focuses on a particular subset of opportunities, those that arise because of environmentally relevant market failures. These emerge out of enduring market disequilibrium, which persists as a result of certain obstacles (Cohen & Winn, 2007; Dean & McMullen, 2007). When obstacles are overcome by individual actors, the potential for generating entrepreneurial rents presents itself, and, at the same time, markets become more efficient and closer to equilibrium. This development is assumed to mitigate environmental problems in the same manner as other problems are solved. Of course, entrepreneurs could, and often do, leverage market failures to accelerate environmental degradation, but the SE literature does not refer to that type of entrepreneurial activities (Hall et al., 2010; York & Venkataraman, 2010).

Cohen & Winn (2007) suggest four market imperfections that generate opportunities for SE (and environmental problems): firms are not perfectly efficient, externalities exist, pricing mechanisms are flawed and information is not perfectly distributed. For instance, firms often use resources in inefficient ways, and technological innovation, promoted by entrepreneurs, could reduce both waste

and resource usage in various industries (Lovins et al., 1999). In this context, however, the implication of waste must go beyond the inefficiency connotation; waste and emissions are even more important as externalities, which, as Cohen & Winn (2007: p. 40) argue “represent one of the largest deviations from the neoclassical economic assumptions”. Mitigating externalities, for instance by substituting current practices for cleaner ones, represent an opportunity if new business models, including payment schemes, can be generated through collaborations with the various stakeholders that suffer from the externality (ibid). Currently, environmental resources, not least of the common pool type, are typically undervalued, and opportunities for SE resides in developing alternative resource use that also influence pricing or are combined with new systems of valuation and exchange. Lastly, SE could improve information by creating standards and eco-labels that inform consumers about environmental impacts of production (ibid).

Dean & McMullen (2007) discuss market failures within the categories of public goods, externalities, monopoly power, inappropriate government and imperfect information. Key for public goods is that they are non-excludable, a feature which engenders overuse. This is the case for a variety of common resources, such as when polluters are exhausting the carbon budget or taking all the fish out of the sea (cf. Hardin, 1968). The market oriented solution is to develop and enforce some kind of property rights-regime that restricts use by implementing prices that reflect scarcity. Here sustainable entrepreneurs could act through technological innovation to create such a system, and thereby privatize a previously public good (Dean & McMullen, 2007). Obviously, political action is also needed for persuading governmental agencies to implement and enforce the system. However, while privatization could lead to more efficient use of the resource, it would not guarantee that CNC would be sustained as the entrepreneur may not be able to determine correct boundaries of use.

While the SE literature seems to entail the notion of entrepreneurs acting in contexts outside the market, for instance using political *means*, the (intermediate) *end* is a market-based system for allocation which, finally, will enable entrepreneurial rents that compensate them for their efforts. Subsequently, although the SE literature makes the role of the natural environment explicit and establishes links between opportunity and the biosphere, links are mediated through markets. Markets are understood as both the problem, when they are inefficient, and as an end, when they become efficient. This ignores the possibility that markets, even when they are functioning according to their assumed principles, could systematically counteract the objectives of sustainable development by allocating away from basic needs towards purchasing power and being unable to internalize ecological boundaries.

Opportunity according to “strong” sustainable entrepreneurship

A crucial step in conceptualizing an alternative version of opportunity for SSE is to describe an alternative link between the biosphere and entrepreneurship. One way to do this would be to adhere to the second principle (see table 1), i.e., focus on the physical flows involved in a particular entrepreneurial enterprise. Incorporating such an analysis can be pictured as developing the entrepreneurial *means*. Evaluating material links would show the interaction between economic activity and ecosystems, for instance in terms of environmental footprints, and potentially reveal opportunities within ecological limits. The notion of extending means beyond the commercial ones adheres to the suggested fourth principle of SSE (see Table 1). Means inspired by the biosphere could refer to the type of circular or closed loop models discussed within the industrial ecology literature (Gregson et al., 2015). Another example of extending entrepreneurial means suggests that sustainable entrepreneurs could act through institutional means, where new norms and regulations are pursued (Schaltegger & Wagner, 2011). As described above, this is also suggested within SE.

However, discovering and implementing *ends* through studies of the biosphere would constitute a decisive change that would move entrepreneurs away from trying to establish markets, to instead focus on protecting and enhancing CNC (Brand, 2009; Shepherd & Patzelt, 2011). Here, CNC relates to the objectives of sustainability, as it provides a way of defining the natural resources required in order to give future generations a chance to have their needs fulfilled (Ekins et al., 2003; Ekins, 2003). Stressing CNC also aligns with the third principle implying that opportunities are bounded (see Table 1). With these types of ends, another type of means/ends frameworks than those discussed within SE are relevant. Instead of choosing pricing and property-rights as the solution for “the tragedy of the commons”, these type of ends point towards changes such as the establishment of communal arrangements where actors use democratic, rather than economic, means to determine use (Dietz et al, 2003; Ostrom et al, 1999). This conceptualization of opportunity, as situations in which new means to sustain and enhance CNC are created, indicates that entrepreneurship could have a proactive role to play in sustainable transformation, rather than simply respecting ecological boundaries. Subsequently, this more proactive role redirects the *ends* of entrepreneurship, from obtaining entrepreneurial rents through establishing market-based allocation, onto the natural environment and establishes an alternative link between entrepreneurship and ecological boundaries. The added value of SSE, compared with other environmentally relevant actors, would be to construct an extended toolbox in terms of means.

Discovery or creation of opportunities

There has been considerable debate whether opportunities are created or – just – discovered by the entrepreneur (Sarasvathy, 2001). For instance, Dutta and Crossan (2005) assume a deterministic

position as they define entrepreneurial opportunity as “a set of environmental conditions that lead to the introduction of one or more new products or services in the marketplace by an entrepreneur or by an entrepreneurial team through either an existing venture or a newly created one”. This signals that opportunities can be understood as causal mechanisms that “pull” entrepreneurial action. Chiasson and Saunders (2005), in turn, discuss six different theoretical perspectives upon opportunity, ultimately suggesting that structuration theory can offer a way to reconcile these perspectives, as actions give rise to structures that at the same time mediate new actions.

Generally, whether opportunities are discovered or created has practical implications for conventional entrepreneurship: If opportunities are discovered, entrepreneurs should focus on analyzing markets and industries, which usually means delving into planning techniques (Alvarez & Barney, 2007). Entrepreneurs need to be equipped with the skills that allow them to seize and make the most of existing – externally given – opportunities (Dutta & Crossan, 2005). On the other hand, if opportunities are created, entrepreneurs should rather avoid too much planning at an early stage or at least recognize that planning is mainly a communicative tool to convince stakeholders, raise legitimacy and thereby being a part of the social process of creating an opportunity (Sarasvathy, 2001).

While the SE literature describes opportunities as a consequence of market failures, thereby objectively existing, they are considered to be beyond the “pull” of existing markets (Hall et al., 2010). There is a risk with trying to discover opportunities in the market context, as the obstacles of conventional markets, where untapped market demand for sustained CNC is hard to find, may frustrate potential entrepreneurs. To obtain entrepreneurial rents out of environmental degradation, these entrepreneurs often have to act to create the markets that they can act upon (or at least improve existing market arrangements).

However, while creation/discovery has been discussed in relation to market failures, it could also be useful, despite being overly dichotomous, for an understanding of how opportunities emerge within SSE. As discussed above, new means in terms of novel solutions could be discovered by focusing attention on the material side of entrepreneurial activities, and its link to the biosphere, as when waste is recognized as possible to recirculate. Hence, entrepreneurs need to become knowledgeable regarding nature in order to envision this type of opportunities (Patzelt & Shepherd, 2011). However, as the creation of value from waste is already described within SE as part of addressing the market failure of firms being inefficient, SSE needs to move further. This includes implementing closed loops where nothing is wasted and systems for reuse and recycling are fully implemented (Jackson, 2011). While the blueprints for such models can be discovered by studying nature, for instance as in the field of industrial ecology, it usually calls for the creation of new business models that include a

wider collection of stakeholders, beyond traditional market actors (Bocken et al., 2014; Stubbs & Cocklin, 2008).

Processes related to entrepreneurial opportunity

To better understand how sustainable entrepreneurs could create new means/ends frameworks, it could be useful to describe in more detail those activities that entrepreneurs are assumed to perform. According to the literature, such activities incorporate several elements, most common is that of being cognitive, being new, and linked to business ideas or business forms. Here, Hansen et al. (2000) arrive at a composite definition as “a cognitive process of recognizing an idea and transforming it into a business concept”. However, they also suggest process definitions that are more independent of the market context, for instance; “a creative process of generating new alternatives” or “a special case of problem solving” (ibid).

Although definitions are fragmented, cognitive and creative elements appear central to the activities of entrepreneurs. Combining these with the principles of EE would entail, on the one hand, recognizing the biosphere as a new source of both means and ends, but perhaps also increasingly recognizing the boundedness of creativity. The promise of entrepreneurship as a panacea for the massive challenges of sustainability partly rests upon tapping into this creative potential (e.g., Hall et al., 2010), but strong sustainable entrepreneurship incorporates an element of skepticism regarding the potential of human ingenuity. This skepticism is inherent in the idea of CNC that cannot be replaced with technological innovations, for instance a man-made system for climate regulation. Moreover, the notion of non-linear processes in nature stresses the limits to the human ability to create value in terms of sustaining and enhancing CNC and thus calls for a somewhat humble approach.

Table 2: Opportunities for strong sustainable entrepreneurship

Theme	Contemporary view on entrepreneurship and SE	Strong sustainable entrepreneurship
Understanding entrepreneurial opportunity	Opportunities arise because of market failures and entrepreneurs are motivated in order to obtain entrepreneurial rents. This understanding makes entrepreneurs dependent upon markets/market mechanisms.	Entrepreneurs are directed towards the end of sustaining CNC, using new means. New means/ends frameworks are created. Rather than being dependent upon market-related means, entrepreneurs could enable other types of institutional arrangements as means for allocating and sustaining CNC.
Discovery or creation	Opportunities are either recognized or created. The SE literature points towards opportunities beyond existing market pull.	Discovery may be more useful in the entrepreneur-biosphere nexus than on markets. Creation describe processes resulting in new business models, norms and institutions. Strong sustainable entrepreneurs will generally have to create facilitating conditions beyond existing markets.
Processes related to entrepreneurial opportunity	Cognitive and creative processes are involved in problem solving	Creative problem solving based on an EE perspective recognizes the need for humility, respecting that creativity

Discussion and conclusions

The aim with this paper has been to develop an alternative framing of sustainable entrepreneurship aligned with the principles of ecological economics. One of the problems with arriving at such a framing is that contemporary entrepreneurial definitions, as well as recent SE framings, pre-suppose that sustainable development will be achieved through functioning markets. As we have argued, because natural processes are non-linear and critical, and as thresholds are impossible to anticipate, markets are unreliable. Thus, this suggested end of SE is principally at odds with the objectives of sustainable development.

The construction of a strong version of SE that is not dependent upon the market context, in terms of either discovering, creating or enacting opportunities, challenges both central terminology and principles within conventional and sustainable entrepreneurship. On the other hand, such radical reframing of means and ends does resonate with some of the themes within entrepreneurship: the particular form of problem-solving, suitable for uncertain and complex issues (Sarasvathy & Venkataraman, 2011; York & Venkataraman, 2010), and the idea of innovation as a radical break with existing modes of value creation (Hall et al., 2010; Schumpeter, 1934). To leverage this potential, we have suggested some ways that the biosphere can be included in entrepreneurship without first subjecting it to the market context (through market failures). Our suggestions also contribute to the ecopreneurship-stream of literature, which currently lacks some conceptual underpinning beyond discussing the motivations and impacts of ecopreneurs (Shaper, 2002, Schaltegger, 2002).

Broadening the context of where opportunities arise, to address critical and non-tradable functions in the biosphere, and defining it as a situation in which entrepreneurs envision or create new means-ends frameworks to sustain or enhance CNC moves sustainable entrepreneurship beyond the market context. Markets and market mechanisms could certainly be included in those means-ends frameworks, as when boundaries of CNC are used to set a cap, and market actors trade within those limits to achieve allocative efficiency (Daly & Farley, 2010). However, using or creating markets would not be the end for SSE, but one out of several different potential means that these entrepreneurs could utilize.

Instead, the means of sustainable entrepreneurs could move across and beyond the boundaries between civil society, politics and markets, for instance enabling actors on these different arenas (York & Venkataraman, 2010). Some entrepreneurial activities will result in policy, some will relate

to markets, for instance by regulating them and reducing their scope or by influencing consumers. Others will take the form of institutional arrangements based on communities that regulate the use of natural capital through a mix of formal and informal rules, norms and social structures. As regards the key contemporary role of humans as consumers on markets, when applying a broader perspective on welfare, sustainability should not be reduced to monetary units but different value dimensions need to be considered simultaneously (Martinez-Alier et al., 1998). New means should also move beyond the individualistic focus upon the entrepreneur and other market actors. Rather, effective allocation could occur through democratic decision processes that are transparent and involve a collective of actors and views (ibid). Obviously, when market mechanisms cannot be relied upon to allocate and establish levels of CNC use, other principles, aligned with sustainable development, need to be envisioned.

To summarize, our discussion shows that “strong” sustainable entrepreneurs could act as creative problem-solvers, but they have to be motivated towards a value creation that relates to the sustaining and enhancement of CNC, aligned with the objectives of sustainable development, rather than serving consumer demand and obtaining entrepreneurial rents. If the primary drive of a sustainable entrepreneur is the latter, it would appear that this type of actor is less suited for contributing to sustainable development. The principles that we have suggested for a strong sustainable entrepreneurship highlights this problem. They could potentially induce an alternative perspective, and call attention to the insufficiencies in current conceptualizations.

Limitations and concluding remarks

Being of a conceptual nature, this paper is limited in terms of examples of actual entrepreneurial acts. We have thus discussed principles rather than, for instance concrete hurdles that exist in various industries, political contexts or cultures. Also, in defense of the SE literature, it is emerging, and hence there is room for more discussions regarding the different assumptions and principles that it may or may not adhere to. Much literature regarding sustainable development utilize the same “triple-bottom-line”-metaphor to translate the high-toned principles of sustainable development into the corporate context. However, given the high aspirations attached to entrepreneurship, as a panacea for radical and necessary transformation, a set of stronger principles are needed. Thus there is need for continued conceptual work in developing the implications from EE, and testing them in terms of what they mean for diverse entrepreneurial ventures.

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