SUSTAINABLE ENTREPRENEURSHIP: ENTREPRENEURIAL MECHANISMS LINKING WHAT IS TO BE SUSTAINED WITH WHAT IS TO BE DEVELOPED

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Who can argue against sustainable entrepreneurship? Scholars have claimed that sustainable entrepreneurship can preserve ecosystems, counteract climate change, reduce environmental degradation and deforestation, improve agricultural practices and freshwater supply, and maintain biodiversity (e.g., Cohen and Winn, 2007; Dean and McMullen, 2007). Moreover, sustainable entrepreneurship can, particularly in developing countries, enhance education, productivity, socioeconomic status, physical health and self-reliance of individuals and societies (e.g., Wheeler et al., 2005). Last but not least, there are numerous examples of where sustainable entrepreneurship creates economic gains for investors, entrepreneurs, and economies (e.g., Easterly, 2006).

However, there appears to be considerable heterogeneity in the scholarly understanding of what constitutes sustainable entrepreneurship. For example, at a recent entrepreneurship conference sustainable entrepreneurship was used as an umbrella term to refer to a host of studies. These studies differed in their dependent variables, independent variables, research methods, and so on. As the number of presentations grew we became more and more excited but also more and more uneasy. Excited by the scholarly interest in making a difference but uneasy about the different implicit meanings given to sustainable entrepreneurship and to the consensus that more sustainability is unambiguously better. Without clearer conceptual definitions and boundary conditions it is difficult to accumulate knowledge across these “so-called related” studies. Furthermore, a “more is better” approach belies the nuances and conflicts that are likely present between what is to be “sustained” and what is to be “developed”, and how the two are linked and managed.

Two recent papers on sustainable entrepreneurship are clear about what is being sustained, being developed and the link between the two. Cohen and Winn (2007) focused on the economic and environmental components of sustainability. Specifically, the existence of pervasive natural-environment-related market imperfections generate numerous entrepreneurial opportunities that, when exploited provide rents (economic profits) to the entrepreneurs. Presumably, this entrepreneurial action reduces the pervasiveness of natural-environment-related market imperfections helping to “sustain” the natural environment. Although differing in the precise role of market failure, Dean and McMullen (2007) offered an overarching framework of sustainable entrepreneurship similar to that of Cohen and Winn (2007). Unlike for the recent conference experience described above, we could compare and contrast these two papers. It was the natural environment to be sustained, profits to be gained, and linked through entrepreneurship in the context of market failure. Therefore 1) the domains were clear, 2) assumptions stated, 3) theoretical
framework established, and 4) mechanisms offered, which allows scholars to compare apples with apples. Each study, and together, advanced our understanding of sustainable entrepreneurship from an economics perspective.

Are perspectives other than economics able to yield new insights into this area of study? For example, perhaps psychology, sociology, anthropology, and so on can provide a theoretical footing for sustainable entrepreneurship studies. While an economics-based approach is highly appropriate for the above models and for some scholars, it is likely that scholars using different theoretical perspectives will not focus on market failures. In this paper we explore the scope by which research from different theoretical perspectives can contribute to the building of knowledge about sustainable entrepreneurship, even if that body of knowledge is initially highly fragmented. We do this by exploring further this notion of what is to be sustained, what is to be developed, and the entrepreneurial mechanism linking the two. To inform this discussion we refer to the dialogue that has been “negotiated” in the field of sustainable development. In doing this we are not simply switching Dean and McMullen’s (2007) theoretical, economic perspective with an alternate theoretical perspective. Rather, our approach in this paper is to explore the dialogues of interested parties to sustainable development in order to inform our discussion of what can be considered the scope of sustainable entrepreneurship.

With a clearer indication of the scope of the phenomenon, the “scene” is set for a more diverse body of theory-based studies that, even where there is little to no overlap in the dependent variables, independent variables and theory, there is some chance for knowledge accumulation because any study can be “located” as sustainable entrepreneurship or not and if considered to be sustainable entrepreneurship, which aspect of the phenomenon it is investigating. For example, two studies might be explaining different aspects of sustainable entrepreneurship, each driven by its own distinct theoretical roots, but each contributing to our understanding of the broader sustainable entrepreneurship phenomenon. Our purpose is not to end with “the” definitive dependent variable, key independent variables, and crucial mechanisms connecting the two but to allow and promote multiple theoretical perspectives to the study of sustainable entrepreneurship, and embrace the considerable variation in terminology, data, and methods. That is, while some scholars are keen for rapid convergence on these issues in new areas of study, we believe that, at least for the time being, diversity, within a broader framework, is beneficial. We now attempt to lay out this broader framework of sustainable entrepreneurship.

SUSTAINABLE ENTREPRENEURSHIP

The purpose of this paper is not to introduce a new definition of entrepreneurship but we do want to offer a definition of sustainable entrepreneurship that is consistent with the dialogue on sustainable development, consistent with the notions of entrepreneurship, and is not constrained by, or contained within, a single theoretical perspective. We believe entrepreneurship provides an indication of what is to be developed and/or the mechanism that links what is to be sustained with what is to be developed. Venkataraman (1997) defined entrepreneurship as a scholarly field that “seeks to understand how opportunities to bring into existence future goods and services are discovered, created and exploited, by whom and with what consequences” (120). The discovered, created and exploited goods and services are the mechanism and the consequences are economic, psychological and social for the pursuer, other stakeholders and society. Cohen and Winn (2007) extended these consequences to the environment. Building on these works, we offer the following definition:

Sustainable entrepreneurship is scholarship focused on the preservation of nature, life support, and community in the pursuit of perceived opportunities to bring into existence future
products and services for profit, where profit is broadly construed to include gains to individuals, the economy, and society.

As reflected in the above definition, the dialogue among academics, at world fora, and in policies, suggest that what is to be sustained is 1) nature, 2) life support, and 3) community (for a review see Parris and Kates, 2003), what is to be developed are broadly construed gains to 1) individuals, 2) the economy and 3) society. We will label these “constructs to be sustained” and “constructs to be developed”, respectively. We chose the word “construct” in order to indicate that each can be decomposed into a range of different variables, which will again be further detailed through specific operationalizations, depending on the specific research question and level of analysis. Linking “constructs to be developed” and “constructs to be sustained” are entrepreneurial mechanisms involved in the pursuit of perceived opportunities to bring into existence future products and services. In the next section we detail the “constructs to be sustained” before moving on to the “constructs to be developed” and the entrepreneurial mechanisms linking them. We acknowledge that within each set, there is likely to be some overlap between the different constructs.

Sustainability of Sustainable Entrepreneurship

Sustaining Nature

Nature is to be sustained. **Nature** refers to the phenomena of the physical world and includes the earth, biodiversity and ecosystems (Parris and Kates, 2003). In this category nature is acknowledged for its intrinsic value over and above it as simply a life support system (see Martinez Cobo, 1987; Muehlebach, 2001).

The **earth** refers to our planet, which provides the requisite conditions of liquid water, an environment where complex molecules can assemble, and sufficient energy to sustain metabolism and human life (Dole, 1970). The Global Scenario group emphasized the need to preserve the “beauties of the earth” and similarly others have highlighted the importance of protecting natural resources and open/green space (Boston Indicators Project, 2007). If these are not sustained, the life of many species living on the earth including humans is threatened. For example, studies have found that exposure to natural green places significantly improves human health (Pretty, Hine and Peacock, 2006). Moreover, the destruction of the ozone layer as part of the earth’s atmosphere has led to enhanced exposure of UV irradiation and increased rates of cancer (Slaper et al., 1996), and the transformation of the earth’s surface in coastal zones through enhanced population, building of infrastructure, levees, canals, and oil and gas pipelines has caused the decline of many species in these regions (Cincotta and Engelman, 2000; Duxbury and Dickinson, 2007).

**Biodiversity** refers to “variation of life at all levels of biological organization” (Gaston and Spicer, 2004). That is, “the variability among living organisms from all sources, including, ‘inter alia’, terrestrial, marine, and other aquatic systems, and the ecological complexes of which they are a part: this includes diversity with species, between species and of ecosystems’ (United Nations Convention on Biological Diversity, Article 2). Biodiversity is eroded as species become extinct. Loss of biodiversity can have severe and uncontrollable negative effects for all living organisms including humans (Chapin et al., 2000). For example, the decline of biodiversity diminishes the recovery potential, ecological stability, water quality, and food production capacity of marine systems (Worm et al., 2006). Moreover, declining biodiversity of soil bacteria can influence the conversion of organic matter and therefore the composition and fertility of soil, which in turn can impact the composition of growing plants, leading to changes of microclimates (Chapin et al., 2000).

An **ecosystem** is a self-sustaining association of plants, animals, and the physical environment in which they live (Christopherson, 1997), and sustaining ecosystems therefore involve preserving plants, animals and their physical environment. If an ecosystem is not sustained the balance can be disrupted leading to the death of many species previously in that ecosystem, which
can affect other ecosystems and humans as well. For example, the degradation of coastal marine ecosystems through over-fishing can result in the decline of bird populations that need fish for feed (Becker and Beissinger, 2006), and disturbing the forest ecosystems can lead to soil erosion and contamination of adjacent fisheries (Mainville et al., 2006) as well as climatic changes (Gullison et al., 2007).

Therefore, nature can be sustained if individuals, organizations and nations can act in ways to preserve the earth, biodiversity and ecosystems. Can entrepreneurial action sustain nature? Anecdotal evidence suggests that the answer might be yes. For example, non-aerosol products were created, introduced and marketed to reduce the release of chlorofluorocarbons to the atmosphere, and in doing so has contributed to the protection of the ozone layer (Jacob et al., 2005); new fertilizer products were discovered and offered to the market that reduce the emissions of the greenhouse gas nitrous oxide to the atmosphere and thus counteract climate change (Tilman et al., 2002); and the development of and improvements in commercial fish farms has reduced over-fishing and thus is a step towards preserving coastal marine ecosystems (Marra, 2005). Sustainable entrepreneurship research is needed to explore the role of entrepreneurial mechanisms in sustaining nature.

Sustaining Life Support

Sources of life support are to be sustained. **Sustaining life support** refers to the environment as “a source of resources and services for the utilitarian life support of humankind” (Costanza et al., 1997; Daily, 1997). This life support appears to be sustained through preserving the environment, natural resources, and ecosystem services.

**Environment** refers to both natural and managed environmental systems (Esty et al., 2005) which include air, biodiversity, land, and water. The Environmental Sustainability Index emphasizes the importance that “vital environmental systems are maintained at healthy levels, and to the extent to which levels are improving rather than deteriorating [and] “levels of anthropogenic stress are low enough to engender no demonstratable harm to its environmental systems” (Esty et al., 2005: 11). If environmental systems are not sustained, life support for humans can be severely threatened. For example, pollution of air leads to psychological (Downey and van Willigen, 2005) and physical (Smith and Ezzati, 2005) health problems that cost the US health care system several billions $US a year (Marris, 2006). Similarly, the pollution of water with infectious agents, bacteria and chemicals causes millions of deaths per year, particularly in third-world countries (Montgomery and Elimelech, 2007).

**Natural resources** refers to renewable and non-renewable resources that are found in nature and are useful for humans such as, for example, minerals, fossil oil and gas, fertile soil, rivers and fisheries, and woodlands and tropical forests (Swanson, 1996). Preserving resources applies to clean air, fresh water, and the productivity of land and oceans (United Nations Commission on Sustainable Development, 2001). Over the last few decades, many natural resources have been overexploited with a severe impact on the life support for humankind. For example, overexploitation of minerals through mining has made large portions of land uninhabitable (Swanson, 1996), and overfishing of oceans has led to decline of fish stocks and marine biodiversity (Sala and Knowlton, 2006). This reduced productivity of ocean resources has economic consequences of more than 1 billion $US annually in the US alone (Pew Oceans Commission, 2003).

**Ecosystem services** refer to “components of nature, directly enjoyed, consumed or used to yield human well-being” (Boyd and Banzhaf, 2007: 619). This notion of the life support and preserving ecosystem services is reflected in the wellbeing index: “A condition in which the ecosystem maintains its diversity and quality – and thus its capacity to support people and the rest of life – and its potential to adapt to change and provide a wide change of choices and opportunities for
the future” (Parris and Kates, 2003: 567). Ecosystem services include purification of air and water, cycling and movement of nutrients, mitigation of droughts and floods, detoxification and decomposition of wastes, and the generation of soils and the renewal of their fertility (Daily, 1997), which are all important ingredients of a life supporting environment. Declining ecosystem services have a direct impact on human life support, for example, when the reduced purification capacity of aquatic habitats due to contamination leads to a shortage of drinking water (Zedler and Kercher, 2005), or when erosion of soil diminishes its fertility leading to lower crop yields (Schröter et al., 2001). In economic terms, the value of global ecosystem services has been estimated to average about 33 trillion $US annually (Costanza et al., 1997).

Therefore life support can be sustained if individuals, organizations and nations can act in ways to preserve the environment, natural resources, and ecosystem services. Can such actions be entrepreneurial? In a recent presentation, C.K. Prahalad (2007) described how entrepreneurial actions lead to ovens that drastically reduce particle pollutants in households and a process that converts polluted water to drinking water for a couple of cents per person per day. Advancements have also been made in mining products that preserves more natural resources (Bridge, 2004) and waste water treatments that detoxify sewerage (Sonune and Ghate, 2004). More sustainable entrepreneurship research is required to understand the entrepreneurial mechanisms for sustaining life support.

Sustaining Communities

Communities are to be sustained. Communities refer to a complex web of relationships between a set of individuals who share values, norms, meanings, history, and identity (Etzioni, 1996). What makes communities distinctive (and therefore contribute to identity) is their culture, groups and places, and to the extent these are threatened community might be loss.

Culture refers to “a coalescence of discrete behavioral norms and cognitions shared by individuals within some definable population” (Lehman, Chiu, and Schaller, 2004: 690). Culture is a central aspect of communities, and it is believed that “human beings have a right to culture – not just any culture, but to their own” (Margalit and Halbertal, 2004). This is detailed in research on indigenous people, for example, the rights of native Canadians (Kymlicka, 1989). Culture provides a comprehensive way of life that encompasses a group, such as an ethnic, religious or national group (Margalit and Raz, 1990) and in doing so defines people’s activities and influences most things that they do. By being able to maintain a comprehensive way of life within the larger society, individuals can secure their personal identity. Cultures are preserved to the extent that cultural heterogeneity is maintained. The negative impact of disrupting culture on human well-being has been well documented. For example, the loss of cultural identity has been associated with enhanced alcoholism among American Indians (Spicer, 2001), and diminished physical health and life expectancy in Australian Aborigines (McDermott et al., 1998).

Groups are often an important aspect of communities. Groups denote a social entity with shared norms and a common identity that arise from the interaction between group members. For example, families are groups that are believed to be a basis for a well developed community, and there is a substantial literature on the importance of sustaining families (Williams, 2003, 2004). Studies report that the disintegration of the family means that individuals are less capable of assuming social responsibilities that enhance community development (Stevens, 1994), and that disruption of families diminishes individual well-being (Forste and Heaton, 2004). Research has also shown that membership in religious groups can foster the development of social relationships and enhance emotional (Wuthnow, 2000), psychological, and physical (Frankel and Hewitt, 1994) well-being of individuals highlighting the need to preserve these groups as well.
Places refer to historical sites “where different sorts of historically legitimated authenticities are represented and not just simply compositories of objects, architecture, or landscape from the past” (Olwig, 1999: 370). Places can serve as important public symbols of culture and history (Borer, 2006) and provide a sense of identity to people’s lives (Padua, 2007). Places can help people understand themselves, their cultures, other cultures and the nature of people. For example, Anne Frank’s House in Amsterdam is a place people visit to gain a deeper understanding of their own heritage (Poria, Reichel and Biran, 2006). Therefore, there is a strong tradition of efforts to preserve places (Paulsen, 2007). However, the efforts of sustaining places are not always successful. For example, tourism is one activity that potentially threatens places, such as the Great Wall of China (du Cros, Bauer, Lo and Rui, 2005), and air pollutants continue to have pernicious effects on places such as cultural heritage sites in Florence (Monforti et al., 2004).

Therefore, culture can be sustained if individuals, organizations and nations can act in ways to preserve the distinctiveness of culture, groups and places. What role does entrepreneurship play in sustaining culture? Research on indigenous entrepreneurship represents an important step in addressing this question. For example, Foley (2003: 138) found that Aboriginal entrepreneurs in Australia founded businesses in order to maintain their original culture and provide a “place where school kids can come learn of our culture, break down the barriers of racism”. Entrepreneurship has the potential of capitalizing on, and reinforcing the distinctiveness of a group (Shepherd and Haynie, 2007), which is a key element to group identity and continued existence (Brewer, 1991; Snyder & Fromkin, 1980). In addition, entrepreneurial action has the potential for sustaining places, such as the entrepreneurial services offered by sustainable tourism (Cole, 2004).

Implications for Research on Sustainable Entrepreneurship

The above determinations of what is to be sustained have a number of implications for research on sustainable entrepreneurship. First, a sustainable entrepreneurship study must involve something to be sustained. There appears to a host of potential candidates of “constructs to be sustained”, all of which can be the topic of sustainable entrepreneurship research (as long as they fulfill the other requirements of the definition above and detailed in the sections that follow). Although there is some overlap between these different aspects to be sustained, there are a number of distinct constructs. That is, we appear to be beyond the notion of the environment as a single construct and it is unlikely that a single index will be developed and universally accepted and used (Parris and Kates, 2003). Which is the construct of interest that is to be sustained? As with all good research, clearly articulating a study’s key constructs is important.

Second, which “sustainable” construct is chosen for a study can be driven by theory, depending on, for example, the theoretical perspective and researchers’ idiosyncratic knowledge and/or personal motivations. It can also be driven by data and method issues (like any other study). Different theoretical perspectives provide the opportunity to shine new light on the phenomenon. That is, while we are sure scholars of economics can still explain the sustainability of communities (cultures, groups, and places) in terms of market failure, we think it is also interesting to learn from other perspectives, such as sociology, psychology, anthropology, and so on. For example, sociologists may shed more light on the mechanisms that efficiently preserve communities, whereas psychologists can evaluate the values that motivate entrepreneurs to sustain an ecosystem.

Third, sustainable entrepreneurship scholars can more easily (appropriately) build off previous research that has focused on the same construct to be sustained. For example, studies within the topic of climate change are likely more comparable than across sustainability constructs such as studies of preserving climate temperatures and studies of preserving communities’ cultures. However, the inter-relationship between these “constructs to be sustained” is likely a topic of future research important to our understanding of sustainable entrepreneurship. Such studies (will) provide
the basis for connecting a research stream involving one "construct to be sustained" with a research stream involving a different "construct to be sustained." For example, how does entrepreneurial action aimed at sustaining ecosystems influence the preservation of climate temperature? Does the preservation of culture influence the sustaining of natural resources? It is known that some cultures are more materialistic than other cultures (Ger and Belk, 1996; Schmuck, Kasser and Ryan, 2000), and may thus pay less attention to the actual consumption of resources at the expense of future resource scarcity (Norgaard, 1995). To which extent can the former culture be preserved when natural resources are to be sustained? Indeed, scholars have argued that in order to preserve the environment some cultures need to change their values (Lamm, 2006), and research has documented that entire societies can fail if they do not succeed in achieving sustainability of ecosystems (Diamond, 2005). It appears an important avenue for future research to study the tension between "constructs to be sustained" and "constructs to be developed" and the role entrepreneurial action plays in this relationship.

Fourth, in some ways the arguments appear to simply propose for finer-grained constructs of the natural environment. But it is more than a focus simply on the "natural" environment. Although the notion that community is something to be sustained might not automatically be imagined or accepted by scholars when they think about sustainable entrepreneurship, based on the on-going dialogues in the sustainable development literature it is an important part of what some people see as requiring preservation (see, for example, research on indigenous cultures, Kymlicka, 1989; McIntosh, 2004). Expanding beyond the traditional focus of the natural environment to include socially constructed environments provides the opportunity for sustainable entrepreneurship research to go in a "new" direction and encompass a body of entrepreneurship research not normally associated with sustainability (for example see Fairchild, 2007; Peredo and Chrisman, 2006). To label these community-based studies as sustainable entrepreneurship is not by itself important, but recognizing that they are studying an aspect of sustainable entrepreneurship positions these studies in a broader context where they can be connected with (in developing and in interpreting) other studies in sustainable entrepreneurship. Perhaps, for example, theoretical frameworks for entrepreneurship and sustaining ecosystems can inform, and be informed by studies of community-based entrepreneurship (Peredo and Chrisman, 2006). For instance, how are ecosystems and communities connected by entrepreneurship?

The implications of the various "constructs to be sustained" are numerous and exciting. Although some of these constructs are at the center of most people’s conceptualization of what needs to be sustained, others are more at the periphery which likely highlights the bounds of social entrepreneurship. In the next section we explore the "entrepreneurship" of sustainable entrepreneurship.

THE ENTREPRENEURSHIP OF SUSTAINABLE ENTREPRENEURSHIP

Sustainable entrepreneurship makes an important distinction in the "consequence" aspect of defining the distinctive domain of entrepreneurship. The consequence needs to be explored in terms of "constructs to be sustained" and the "constructs to be developed." Although Venkataraman (1997) allows for the former, entrepreneurship research has focused on the later and in doing so has taken primarily an economics perspective. Combining economic gains with the development of other non-economic gains is also well within most conceptualizations of entrepreneurship. More controversial are the development of non-economic gains in the absence of economic gains. Whether in conjunction with, or independent of the development of economic gains, research on the development of non-economic gains is likely to shed new light on the phenomenon of sustainable entrepreneurship. Many entrepreneurship scholars accept the notion that individuals and organizations are developed for purposes other than simply maximizing economic profits (Baum and
Locke, 2004; Cardon et al., 2005; Schindehutte, Morris and Allen, 2006; Shane, Locke and Collins, 2003). Specifically, besides economic gains, entrepreneurship can develop gains for people and for society; each is now explored.

**Development of Sustainable Entrepreneurship**

**Developing Economy**

Venkataraman (1997) and Shane and Venkataraman (2000) in defining the distinctive domain of entrepreneurship take an economics perspective. An economics perspective emphasizes the development of economic outcomes; the most prevalent is firm performance focusing on market inefficiencies that provide “opportunities for enterprising individuals to enhance wealth by exploiting these inefficiencies” [and are driven by] “the lure of profits” (Venkataraman, 1997: 121).

Entrepreneurial action can develop economic profits for an individual. Developing an individual’s economic gain is part of entrepreneurship (Shane and Venkataraman, 2000; Venkataraman, 1997) and part of sustainable entrepreneurship (Cohen and Winn, 2007; Dean and McMullen, 2007).

The notion of the development of economic gain can also be applied more broadly to other aspects of the economy. An economy exists, and is developed by entrepreneurship at many different levels. Entrepreneurship research has focused on the economic profit gained by entrepreneurial individuals (e.g., Amit et al., 2000; Baron, Markman and Bollinger, 2006) and organizations (e.g., Ensley, Pearson and Amason, 2002; George, Zahra and Wood, 2002; Wiklund and Shepherd, 2005). Even communities (e.g., Kabundi and Loots, 2007; Smith, 2006) and nations (e.g., Audretsch, Keilbach and Lehmann, 2006; Wennekens and Thurik, 1999) have been characterized as more or less entrepreneurial to explain variation in economic performance.

Less scholarly attention, however, has focused on the development of economic gain for those not directly engaged in the entrepreneurial action. Perhaps the developed gain of interest could be the mean salary of employees in a region with a burgeoning cluster of entrepreneurial firms (Berkowitz and Jackson, 2006), the improved productivity of a particular sector transformed by entrepreneurial action (Baumol, 1990), the enhanced buying power of customers generated by innovations that are driving down prices (Adner and Levinthal, 2001), and so on. The development of these economic gains is likely to be readily accepted as a consequence of entrepreneurship and therefore, when combined with a construct of “what is to be sustained” accepted as sustainable entrepreneurship. The development of non-economic outcomes (developing people and society) have been less researched but are an important area of sustainable entrepreneurship requiring future research.

**Developing People**

The gains to be developed in people include child survival, life expectancy, education, equity, and equal opportunity (Board Sustainable Development, 1999; Parris and Kates, 2003). Increasing the likelihood that a child will survive to adulthood is a gain that can be developed. Perhaps entrepreneurship can explain variability in developing child survival. For example, in low-income countries one out of every 10 children dies before the age of five and the United Nations aims to reduce this by two thirds (Millenium goals, United Nations). The primary causes of these deaths are pneumonia, diarrhea, malaria, measles, and AIDS (www.childinfo.org). The discovery, creation and exploitation of new products and services might be able to develop low-cost antibiotics, low cost desalination products to produce more fresh water, more effective protection against mosquito bites, and so on. Similarly, most people want to live longer (at least controlling for a certain quality of life) and entrepreneurial action can lead to the discovery, creation and exploitation of products and services that meaningfully extend individuals’ lives. For example, new products could enhance mobility (wheelchairs that can go upstairs and over rugged terrain), help self-regulate
Furthermore, some people are exploited such that their “true” value is not recognized or rewarded. The central question of stakeholder research seems to be “for whose benefit and at whose expense should the firm be managed?” (Freeman, 1994: 67). Research has focused on the means of ensuring that resources are deployed fairly between the firm and its stakeholders. If resource deployment is not fair then a stakeholder is being exploited by the firm. Venkataraman’s (2002) review of the stakeholder literature reveals three dominant perspectives on how resources can be deployed fairly so that no one stakeholder is used as a means to some other party’s ends – the moral manager, the bargaining process, and the visible hand. To these three perspectives Venkataraman (2002) offers a fourth - the entrepreneurial process. He proposes that entrepreneurship represents both a weak and strong value equilibrating process. The weak one involves the redeployment of the victimized stakeholder’s resources such that value supplied and value received are equilibrated. The strong process involves destroying value anomalies through fundamental rearrangements in how resources and stakeholders are combined. Therefore, entrepreneurial action can “shake up” exploitive relationships and provide exploited individuals and groups equity and equal opportunity (Venkataraman, 2002). For example, Nobel Laureate Mohammad Yunus discovered that very poor people in Bangladesh were exploited by loan providers who charged over 100 percent interest. The poor people had to accept these conditions because they had to buy bamboo for producing stools and earn their living, and nobody else offered loans. Based on this observation, Yunus founded the famous Grameen bank which provides the poor with low interest micro credits to buy raw materials for their trade. This ended the exploitative relationships between suppliers and receivers of loans and led to equilibrated resource deployment (Duggan, 2002).

These new products and services may or may not produce economic profits for the entrepreneurial actor but a gain has been developed in people – that when combined with sustaining nature, life support and/or community, based on the presented definition, forms part of the phenomenon of sustainable entrepreneurship, which requires greater scholarly attention.

Developing Society

Societies can gain through the development of “well-being and security of national states, regions and institutions and, more recently, the valued social ties and community organizations” (Board of Sustainable Development, 1999: 25). The well-being of nations and regions refers to the life-satisfaction and happiness of their inhabitants (Diener et al., 1995; Vemuri and Costanza, 2006), and security denotes both, protection against threats from outside, e.g. by other nations (e.g. Steinbruner, 1978), and threats from inside, e.g. through economic (Parkhe, 1992) or environmental (Porter, 1995) decline. Entrepreneurial action can contribute to the well-being and security of nations. Specifically, national well-being can be developed by building human and social capital (Vemuri and Costanza, 2006), and there are several examples of entrepreneurs who founded schools and universities in third-world countries to develop the human capital of that country’s inhabitants (see Easterly, 2006). Entrepreneurs have also created organizations that enhance a nation’s social capital such as the OneWorldHealth Institute. OneWorldHealth was founded by Victoria Hale and promotes ties between third-world nations and pharmaceutical companies to facilitate the delivery of medicine to the poor and sustain their life support (Seelos and Mair, 2005). Moreover, entrepreneurial actions can contribute to enhance national security, for example by ensuring national technological leadership in innovative technologies such as nanotechnology, which can help to build up the national defense system (Vandermolen, 2006).

physical health (e.g., needleless blood sugar level monitors for those with diabetes), and provide educational services for retired persons.

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Developing Society

Societies can gain through the development of “well-being and security of national states, regions and institutions and, more recently, the valued social ties and community organizations” (Board of Sustainable Development, 1999: 25). The well-being of nations and regions refers to the life-satisfaction and happiness of their inhabitants (Diener et al., 1995; Vemuri and Costanza, 2006), and security denotes both, protection against threats from outside, e.g. by other nations (e.g. Steinbruner, 1978), and threats from inside, e.g. through economic (Parkhe, 1992) or environmental (Porter, 1995) decline. Entrepreneurial action can contribute to the well-being and security of nations. Specifically, national well-being can be developed by building human and social capital (Vemuri and Costanza, 2006), and there are several examples of entrepreneurs who founded schools and universities in third-world countries to develop the human capital of that country’s inhabitants (see Easterly, 2006). Entrepreneurs have also created organizations that enhance a nation’s social capital such as the OneWorldHealth Institute. OneWorldHealth was founded by Victoria Hale and promotes ties between third-world nations and pharmaceutical companies to facilitate the delivery of medicine to the poor and sustain their life support (Seelos and Mair, 2005). Moreover, entrepreneurial actions can contribute to enhance national security, for example by ensuring national technological leadership in innovative technologies such as nanotechnology, which can help to build up the national defense system (Vandermolen, 2006).
The importance of developing appropriate and stable institutions for the well-being of societies has often been emphasized. These institutions can be either formal (political and legal frameworks) or informal (e.g., social values) (North, 1990). With respect to formal institutions, it is known that strengthening of democratic (Diener and Seligmann, 2003) and human rights (Diener, Diener and Diener, 1995) enhance national well-being, and that the development of an appropriate legal framework may contribute to well-being by sustaining the natural environment (Vemuri and Costanza, 2006). For example, subsidizing sustainable energy technologies or introducing appropriate laws and taxes to promote them can reduce emissions of greenhouse gases (Gallagher, Holdren and Sagar, 2006), and it appears that entrepreneurial action can contribute to develop these institutions (North, 2005). Specifically, Dean and McMullen (2007) state that “political entrepreneurs” can motivate changes in the legal system and facilitate sustainable development, for example, by government petition and persuasion to reduce subsidies for environmentally harmful technologies or degradation of natural resources. This can create entrepreneurial opportunities for technologies that are environmentally friendly and not dependent on the consumption of natural resources such as solar (Yokell, 1979) and wind (Breukers and Wolsink, 2007) energy. Entrepreneurial action may also cause informal institutional changes that develop societies. For example, the National Organization for Rare Disorders (NORD) was founded by patients with rare disorders and their families and achieved the introduction of the Orphan Drug Act, a legal framework that provides incentives for pharmaceutical companies to develop drugs for rare disorders (Austin, Stevenson and Wei-Skillern, 2006).

Finally, societies can gain if social ties and interpersonal relationships between individuals are developed. Weak social norms, low interpersonal trust, corruption and violence are more common in poor nations and regions with lower levels of human well-being (Narayan and Petesch, 2002) and represent obstacles for societal development (Easterly, 2006). Entrepreneurial action may help to overcome these obstacles. For example, founding a fair trade organization for agricultural products in developing countries can not only develop the economic wealth of these societies but also create more solidarity among members and develop their trust in trade organizations (Pirotte, Pleyers and Poncelet, 2006). Indeed, Diamond (2005) found that developing social capital in terms of friendly trade partner and neighboring state relationships are among the key factors determining the sustainable trajectories of human societies.

Entrepreneurial Mechanisms Linking Sustainability to Development

Sustainable entrepreneurship involves entrepreneurial action as a mechanism that links what is to be sustained to what is to be developed. It is an important mechanism given the uncertainty of sustainable development and the willingness and abilities of entrepreneurial individuals and organizations to deal with this uncertainty (Knight, 1921; Lumpkin and Dess, 1996; McMullen and Shepherd, 2006). For example, the Board of Sustainable Development (1999) concluded that the “hope for successfully navigating the transition to the future lies in conceptualizing sustainable development not as a knowledgeable destination or computable trajectory, but rather as a process of social learning and adaptive response amid turbulence and surprise” (48). It has to be navigated adaptively through trial-and-error experimentation.

Scholars of sustainable entrepreneurship are well positioned to develop and provide a deeper understanding of the processes involved in linking what is to be sustained and what is to be developed in a decision making environment of high uncertainty that requires learning and adaptive response to trial-and-error experimentation. For example, idiosyncratic knowledge is a cornerstone concept in explaining who discovers (or creates) and exploits which types of opportunities (Shane, 2000) and appears to be highly relevant in sustainable development. Region-specific knowledge is crucial in ensuring that “science” is translated into products and services tailored to a geographically
located user group. Efforts to develop and sustain improvements in agricultural productivity around the world have suggested that simply transferring technologies in one part of the world to other regions has generally not succeeded (Board of Sustainable Development, 1999: 222). What is required is "location specific" knowledge and know-how. For instance, Easterly (2006) noted that developmental organizations tried to introduce smoke-free stoves in African houses in order to reduce the smoke exposure people experience from traditional cooking practices within their homes which causes about 1.8 million deaths annually. These stoves, however, were not accepted by the African population who continued to cook based on their traditional practices. This changed when the Shell foundation followed a more market-based approach in providing micro credits to hundreds of local micro-entrepreneurs who manufacture smoke-free stoves accustomed to the local needs and traditions of the African population. Research on sustainable entrepreneurship can provide a deeper understanding of how, why and by whom innovations are adapted, improved upon, and exploited in other regions.

The above also assumes the existence of the initial opportunity such as, for instance, a new technology that maintains or increases agricultural productivity while preserving the environment, or a way of tourism that sustains local ecosystems, which are discovered and exploited by entrepreneurs. For example, innovative organizations have developed new soil fertilizers that release less nitric oxides to the atmosphere thereby counteracting smog and preserving human health and the environment (Tilman et al., 2002), and there are many examples of entrepreneurs in the so-called “ecotourism” sector who run tourism businesses aimed at preserving natural resources, environments, and biodiversity (e.g., Hawkins, 2004; Lordkipanidze, Brezet and Backman, 2005; Silva and McDill, 2004). How and why is such an opportunity initially discovered (or created), evaluated and exploited? In what way does this opportunity simultaneously sustain and develop? And ultimately how and why is it diffused?

Research on sustainable entrepreneurship can address the above questions. For example, the dialogue on sustainable development points to the important role that science must play in sustainable development yet acknowledges that the transfer of science on sustainable development to user groups is mixed (see van Kerkhoff and Lebel, 2006). Rather than assuming science will “trickle down” to user groups to achieve sustainable development, sustainable entrepreneurship can shed new light on this process. For example, entrepreneurship research has already increased our knowledge about technology transfer; from university laboratories to products for customers (Cohen, Nelson and Walsh, 2002; Mowery and Shane, 2002; Zucker, Darby and Brewer, 1998; von Hippel, 1988). While this research on tech transfer applies to sustainable development as with the commercialization of all science, there is something unique here that calls for sustainable entrepreneurship research.

Entrepreneurship research has focused transfer on what is to be developed; sustainable entrepreneurship must investigate transfer on both what is to be sustained as well as what is to be developed. Research will tell us the extent to which they are the same or dissimilar. Specifically, transferring sustainable technologies to users could face more and/or different problems than transferring technologies that were developed specifically for user and market needs. For sustainable technologies, the transfer appears to essentially depend on convincing users that sustaining nature, life support and communities is worth the associated monetary or non-monetary costs. For example, research has shown that local social acceptance of wind energy parks is sometimes difficult to achieve - - although the attitude of people towards this sustainable technology is generally favorable, they often oppose the installation of wind mills in their neighborhood because of their negative visual impact (Jobert, Laborgne and Mimler, 2007). Sustainable entrepreneurship research can make important contributions to theory and to practice by investigating the similarities
and differences between transferring sustainable and non-sustainable technologies. In a similar way, sustainable entrepreneurship has an opportunity to develop and test new theories of tech transfer. Perhaps some tech transfer strategies which are highly appropriate for development are less appropriate for sustainable development.

By moving beyond a single dependent variable of what is to be developed – that is, some variant of economic gain – there are a number of implications for sustainable entrepreneurship scholars.

First, the study must involve both something to be developed and something to be sustained. Although the aspects of economic gain are similar and can be related to the development of people and society, we cannot assume that one is a proxy for all others, and scholars have noted that “commercial and social dimensions within the enterprise may be a source of tension” (Austin, Stevenson and Wei-Skillern, 2006). That is, a sustainable entrepreneurial endeavor can be very successful in fulfilling its mission without creating any economic gain. For example, some of the organizations mentioned above such as NORD or OneWorld Health are non-profit organizations and are very successful in developing non-economic gains for people and society. Other entrepreneurial organizations successfully develop both non-economic and economic gains. For example, the Grameen bank has enhanced the well-being of the poor in Bangladesh while being profitable from the beginning, and Sekem creates economic, social and cultural gains for the Egyptian society (Seeilos and Mair, 2005). Sustainable entrepreneurship research can move beyond investigations of economic gain to acknowledge entrepreneurs’ motivations to develop more than simply their own and the economy’s bottom (financial) line (not that there is anything wrong with that). Such research can dispel what we believe to be a myth about entrepreneurs, their actions, and the consequences of those actions.

It appears that the vast portion of entrepreneurship research has focused on economic gain as the “what is being developed”. Dean and McMullen (2007) proposed that such an economic gain is not diametrically opposed to, and can be consistent with, sustaining the environment. They make an excellent point (see Venkataraman, 2002 for a similar point), and an important point because it “taps into” well-established assumptions underlying a large body of entrepreneurship research. But it is not the only point. Sustainable entrepreneurship research does not need to be constrained to economic gain as the only variable that is being developed. Above, and based on the sustainable development dialogue, people can be developed, society can be developed, and these developments do not need to occur on the way to, or as a bi-product of, the development of economic gain. We speculate that, and future research may confirm that for some entrepreneurs their primary motivations are not economic. There is some anecdotal evidence to suggest this might be the case. For example, when Muhammad Yunus started the Grameen Bank, his purpose was not to maximize profits but to develop the people in Bangladesh in a way that enables them to overcome poverty (www.grameed-info.org), and Victoria Hale’s motivation to found OneWorld Health was to provide life support for the very poor. Indeed, Austin, Stevenson and Wei-Skillern (2006: 3) state that “differences in mission will be a fundamental distinguishing feature between social and commercial entrepreneurship”. Future research may come to show entrepreneurial action as a mechanism for developing gain in worthwhile outcomes that are not economic.

Second, sustainable entrepreneurship research can explore the inter-relationship between the different “constructs to be developed”. For example, how do entrepreneurial actions toward educating people in the developing world impact child survival, life expectancy, equity and equal opportunity? How do they influence institutions, states and regions? Initial evidence suggests that these interdependencies exist. For example, raising maternal educational levels in developing countries leads to improved child health (Boyle et al., 2006), and improved child health in turn
enhances the education of children because they are better able to attend school and learn (Easterly, 2006). Moreover, both education and human health depend on the development of human social rights and institutional frameworks (Gauri, 2004). A multi-dimensional approach to what is being developed by entrepreneurial mechanisms is likely to enable sustainable entrepreneurship to make important contributions to our knowledge and, hopefully, to people, economies and society.

Third, the choice of “development” construct(s) is likely driven by theory. Freeing scholars from the constraint of focusing on the development of economic gain should “free up” some interesting theories that could be brought to bear on, and developed within, sustainable entrepreneurship. Indeed, interdisciplinary research in practice appears particularly important in the sustainable development context as has been highlighted in the literature. For example, scholars from technological disciplines, social psychology, and environmental sciences were involved in a successful project on sulfur dioxide emissions, and researchers with disciplinary backgrounds in economics, sociology, environmental science, and psychology can simultaneously contribute to develop future scenarios for energy consumption and carbon dioxide production (Uiterkamp and Vlek, 2007). We would therefore like to encourage scholars from disciplines other than economics to make a contribution to sustainable entrepreneurship. Scholars from medicine, child development, education, ethics, public policy, geography, and so on will hopefully be drawn to studying the entrepreneurial mechanism by which a particular construct can be developed (in the presence of sustainability). Cross discipline research provides opportunities for the development of some new, interesting and important theories.

Finally, entrepreneurial action also represents a mechanism for connecting what is to be sustained with what is to be developed. First, the mechanism is typically investigated in terms of the discovery, creation and exploitation to bring into existence future goods and services (Venkataraman, 1997). What are the sources of these opportunities that simultaneously sustain and develop? This likely depends on what is to be sustained and what is to be developed. Dean and McMullen (2007) provided an important step towards understanding the sources of such opportunities when the environment is to be sustained and an individual’s personal wealth is to be developed. Specifically, they state that sustainable economic opportunities arise from market failure referring to people’s willingness to pay for sustaining the environment. Are the sources of opportunities different when the development is non-economic? For example, Austin, Stevenson and Wei-Skillern (2006) argued that opportunities for social entrepreneurs arise from “social-market failure”, which is often based on people’s inability rather than their willingness to pay for needed social services. A finer-grained treatment of what is to be sustained (e.g., which aspect of the environment) and what is to be developed (e.g., child survival) is likely to lead to more fine-grained theories of the source of opportunities for sustainable entrepreneurship.

Second, entrepreneurship can occur at the intersection of opportunity and enterprising individuals. Why, when and how are some individual’s more motivated to discover, create and exploit sustainable entrepreneurial opportunities than others? Scholars have argued that environmental entrepreneurs are motivated by both beliefs that environmental problems require action and by economic gains (Beveridge and Guy, 2005). It appears that these individuals combine their entrepreneurial skills with some environmental passion (Schaper, 2002). Future research on the ability, knowledge and/or motivation to discover, create and exploit sustainable entrepreneurial opportunities will likely find important differences to current research focused solely on entrepreneurial opportunities (without consideration of sustainability and/or non-economic gains).

Third, these differences between sustainable entrepreneurial and environmental opportunities could be a trigger for future research on the modes of organizing. Perhaps the unique...
characteristics of a sustainable entrepreneurial opportunity and/or the enterprising individual and/or the stakeholders to the sustainable entrepreneurial venture lead to different organizational forms. For example, some suggest that the choice of mode is driven by the desire for transaction cost efficiencies (Mosakowski, 1991; Williamson, 1975). Does this apply for those forms of sustainable entrepreneurship that are not focused on developing economic gain? Perhaps these theories still apply but the subject or nature of the efficiency is different. For example, there appear to be fundamental differences in the resource mobilization and compensation practices between economically oriented organizations and non-profit organizations aimed at sustaining, for example, the environment without gaining economic profits. While entrepreneurs developing economic gains can access the private and public capital markets and provide monetary compensation to their employees, sustainable non-profit entrepreneurs depend on the philanthropic capital market and can often provide no or below market compensation (Oster, 1995). For instance, Ducks Unlimited, one of the world’s largest wetland conservation organizations, draws on over 50,000 volunteers who hold several thousand fundraising events annually to finance their activities (Austin, Stevenson and Wei-Skillern, 2006). Future research into the modes of organizing that balance constructs to be sustained with constructs to be developed is likely to make important contributions to sustainable entrepreneurship and more broadly to theories of organizing.

Fourth, the distinctive domain of entrepreneurship has also included research on accessing resources, including equity capital from business angles and venture capitalists (Venkataraman, 1997). Recently, sustainable entrepreneurial ventures have become a major investment focus of venture capitalists. For example, global investments in sustainable energy ventures amounted to more than 500 million $US in 2003, and there are venture capital firms emerging that exclusively focus on this technology (www.nthpower.com). In Germany, five major venture capital firms including Techno Venture Management, 3i, and Atlas Venture recently formed a special interest group (the “Munich Network”) with the goal “to create the right ecosystem” and “attract, encourage and create new companies developing world class technologies” (www.tvm-capital.com). Building on the considerable work on the decision policies of venture capitalists in assessing the performance of potential portfolio companies (Shepherd, 1999; Zacharakis and Meyer, 2000), future research may analyze whether venture capitalists use a different decision policy when assessing sustainable entrepreneurial ventures. That is, do they consider what is being sustained and non-economic factors being developed, and how are these combined in assessing whether or not to invest in a particular venture? There is considerable scope for future research on the decision making of entrepreneurs, potential investors, and potential stakeholders in assessing the conjoint influence of sustainability and development. The unique aspects of sustainable entrepreneurship represent a complex and interesting decision task.

CONCLUSION

Using multiple dialogues on sustainable development, this paper offers a conceptual definition of the phenomenon of sustainable entrepreneurship. Its purpose is to hopefully open up this phenomenon to research from multiple theoretical perspectives but at the same time provide a framework for organizing, integrating and accumulating knowledge across these future studies. We believe that many social entrepreneurship scholars feel “pigeon-holed” by entrepreneurship’s close relationship to economic gain. Hopefully this paper helps to unshackle these scholars to allow them the freedom to explore alternate theories, variables and research methods. As a community of entrepreneurship scholars we have the opportunity to make unique contributions to the literatures on sustainability, development, and sustainable development. In doing so, we may be able to help sustain the environment and enrich people’s lives.
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