

Entrepreneurial orientations and their impact on trade-off decisions in sustainability

the case of sustainable fashion entrepreneurs

Author(s)

DiVito, Lori; Bohnsack, René

DOI

[10.13140/RG.2.1.3595.0483](https://doi.org/10.13140/RG.2.1.3595.0483)

Publication date

2016

Document Version

Other version

[Link to publication](#)

Citation for published version (APA):

DiVito, L., & Bohnsack, R. (2016). *Entrepreneurial orientations and their impact on trade-off decisions in sustainability: the case of sustainable fashion entrepreneurs*. Amsterdam School of International Business, Amsterdam University of Applied Sciences.
<https://doi.org/10.13140/RG.2.1.3595.0483>



General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please contact the library: <https://www.amsterdamuas.com/library/contact/questions>, or send a letter to: University Library (Library of the University of Amsterdam and Amsterdam University of Applied Sciences), Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/299834158>

Entrepreneurial orientations and their impact on trade-off decisions in sustainability: the case of sustainable...

Research · April 2016

DOI: 10.13140/RG.2.1.3595.0483

CITATIONS

0

READS

104

2 authors, including:



Lori DiVito

Amsterdam University of Applied Sciences

9 PUBLICATIONS 4 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Collaborating with competitors to improve sustainability in denim production [View project](#)

Entrepreneurial orientations and their impact on trade-off decisions in sustainability: the case of sustainable fashion entrepreneurs

Lori DiVito

Amsterdam School of International Business, Amsterdam University of Applied Sciences
Alliance Manchester Business School, University of Manchester
l.e.d.divito@hva.nl

René Bohnsack

UCP Católica-Lisbon
r.bohnsack@ucp.pt

*Working paper, please do not cite or distribute without authors permission.
8 February 2016*

Abstract

Our paper investigates the microfoundations of sustainable entrepreneurship and aims to shed light on trade-offs made in decisions about social, ecological and economic sustainability. Balancing the three dimensions of sustainability (social, ecological and economic) inherently requires choices in which one dimension or another has less optimal outcomes. There is not much known about the rationale that sustainable entrepreneurs use for making such trade-offs. Thus, we ask how does entrepreneurial orientation affect decisions and trade-offs on sustainability impact? Our study is an exploratory, qualitative study of 24 sustainable entrepreneurs. We collected data about entrepreneurial orientation and sustainability trade-offs and held in-depth interviews with a subsample of six firms. We conducted a cluster analysis based on four entrepreneurial orientations (innovativeness, proactiveness, riskiness and futurity) and three sustainability trade-off dimensions (environmental, social and economic). From the findings, we derive a typology of three types of sustainable entrepreneurs: green-conflicted, humanitarian-oriented and holistically-oriented. We uncover salient characteristics and aspects of entrepreneurial orientation in relation to trade-off decisions. We find that the entrepreneurs accept slower economic growth or lower performance in order to maintain the integrity of their social and ecological principles and values.

Keywords: sustainable entrepreneurship; entrepreneurial orientation; sustainability trade-offs; environmental entrepreneurship; social entrepreneurship

JEL: L26 Entrepreneurship

1. Introduction

Continuous economic growth and the established model of capitalism seem to conflict with objectives of sustainability (Balakrishnan, et al, 2003; Pacheco et al, 2010). Recently, scholarship has pointed to the promise of sustainable entrepreneurs, the focus of this study, to reconcile these opposing views of sustainable development and economic growth ([Dean and McMullen, 2007](#); [York and Venkataraman, 2010](#)). Scholars have called attention to entrepreneurs to drive innovative and sustainable industry transformations through entrepreneurship, creating meaningful organizations, practices and routines ([Cohen and Winn, 2007](#); [Hall, Daneke and Lenox, 2010](#); [Hockerts and Wüstenhagen, 2010](#)).

The notion that entrepreneurship can contribute to solving complex and difficult social and ecological issues is very promising, but hotly debated in the literature. The assumption that entrepreneurs are motivated by social or ecological motives contrasts sharply with the assumption from economic perspectives that is predominant in the entrepreneurship literature, namely that entrepreneurs are driven by self-interest, profit-seeking motives ([Parrish, 2010](#)). This suggests that sustainable entrepreneurs need to balance ecological, economic and social sustainability, the triple bottom line, and also might need to trade-off one for the other in order to reach overall sustainability. This is in sharp contrast with the general win-win rhetoric that is often present in the sustainability literature ([Margolish & Walsh, 2003](#); [Hahn et al., 2010](#)).

Our paper investigates the microfoundations of sustainable entrepreneurship and aims to shed light on trade-offs made in decisions about social, ecological and economic

sustainability in business models and strategy. The entrepreneurial orientation (EO), the “propensity to act autonomously, a willingness to innovate and take risks, and a tendency to be aggressive towards competitors and proactive relative to opportunities“ ([Lumpkin & Dess, 1996: 136-137](#)), plays a salient role in the decision-making process. Thus, the question we ask is: how does entrepreneurial orientation affect decisions and trade-offs in sustainability?

This question is important to investigate, as it is widely believed that 100% sustainability is unachievable. Balancing the three dimensions of sustainability (social, ecological and economic) inherently requires choices in which one dimension or another has less optimal outcomes. There is not much known about the rationale that sustainable entrepreneurs use for making such trade-offs.

Our study is an exploratory study of 24 sustainable entrepreneurs. We collected data about entrepreneurial orientation and sustainability trade-offs using likert-scale questions and held in-depth interviews with a subsample of six firms. We conducted a cluster analysis based on four entrepreneurial orientations (innovativeness, proactiveness, riskiness and futurity) and three sustainability trade-off dimensions (environmental, social and economic). From the findings, we derive a typology of three types of sustainable entrepreneurs: green-conflicted, humanitarian-oriented and holistically-oriented. We uncover salient characteristics and aspects of entrepreneurial orientation in relation to trade-off decisions. We find that the entrepreneurs accept slower economic growth or lower performance in order to maintain the integrity of their social and ecological principles and values.

2. Theoretical background

2.1. Sustainable entrepreneurship

The literature on sustainable entrepreneurship is a recent and emerging field of study building on previous work in the areas of social entrepreneurship and environmental (eco or green) entrepreneurship (Schaltegger and Wagner, 2011). Much of the work to date has focused on defining sustainable entrepreneurship and delineating the field of study. Shepherd and Patzelt (2010, p. 142) provide a definition of sustainable entrepreneurship that includes the “preservation of nature, life support and community in the pursuit of perceived opportunities”, resulting in products, processes or services that bring both “economic and non-economic gains to individuals, the economy and society”. Sustainable entrepreneurship encompasses the fields of ecopreneurship and social entrepreneurship, yet these two remain distinctive. The literature on ecopreneurship does not explicitly focus on social gain, although there is a discernible relationship between environmental preservation and social gain. Here, the goal of the ecopreneur is to preserve nature. In social entrepreneurship, where the goal is to enhance social wealth, the venture need not be profit-driven but rather mission-driven and may not involve entrepreneurial action to exploit opportunities ([Dean and McMullen, 2007](#); [Mair and Marti, 2006](#)). Sustainable entrepreneurship overlaps with these two fields but is distinct in that it claims that entrepreneurial action is needed to identify opportunities, create innovations and generate economic rents while addressing ecological and social challenges ([Cohen and Winn, 2007](#)), in other words to initiate transformational and systemic change in industry and societal practices ([Hall et al, 2010](#); Schaltegger and Wagner, 2011).

The literature on sustainable entrepreneurship is fragmented and diverse, allowing for multiple theoretical perspectives and broader dialogue (Shepherd and Patzelt, 2010). Prior work in sustainable entrepreneurship has looked at entrepreneurial action in terms of seeking and exploiting opportunities. Cohen and Winn (2007) and Dean and McMullen (2007) argue that the allocation of environmental resources is particularly prone to market failures and that various types of market failure provide a source of opportunities for sustainable entrepreneurs to exploit, ultimately restoring efficiency in the market and resource allocation. Scholars have also used an institutional perspective to show how sustainable entrepreneurs create and change institutions and social norms to positively influence environmental entrepreneurship (Meek, Pacheco and York, 2009; Pacheco, Dean and Payne, 2010).

Other studies have focused on transformational change and innovation ([Hockerts and Wüstenhagen, 2010](#); Muñoz and Dimov, 2015; [Parrish, 2010](#); Schaltegger and Hansen, 2013), reflecting a Schumpeterian economics perspective of dynamic industrial change driven by risk taking and profit seeking individuals ([Dosi, 1982](#); Utterback and Suarez, 1993). Sustainable entrepreneurs challenge the established industrial order through innovation of more sustainable practices (e.g. alternative technologies, waste conservation policies, recycled materials) and effect enduring change and transformation ([Hall, Daneke, & Lenox, 2010](#); Hockerts and Wüsterhagen, 2010; Tilley & Young, 2006), the so-called Panacea Hypothesis. Indeed there are high-profile examples of these types of sustainable entrepreneurs, such as Elon Musk, founder of Tesla Motors. If sustainable entrepreneurship is a competitive challenge to incumbents with (socially and ecologically) unsustainable practices of economic organization, then it has far-reaching

implications for human welfare and well-being. It is a compelling argument but sustainable entrepreneurship requires further in-depth investigation if we are to truly exploit its potential.

2.2. Trade-offs in social, ecological and economic sustainability

Trade-offs – defined as “compromise [in] situations when a sacrifice is made in one area to obtain benefits in another” ([Byggeth and Hochschorner, 2006](#), p. 1420) – have been studied in various fields regarding sustainability, such as product development ([Byggeth and Hochschorner, 2006](#)), sustainable tourism ([Moeller et al., 2011](#)) or corporate sustainability ([Figge & Hahn, 2012](#); [Hahn et al., 2010](#)). However, despite the fact that sustainable entrepreneurs are regarded as a panacea to improve “local and global social and environmental conditions” ([Cohen & Winn, 2007](#), p.29), little is known about how they deal with trade-offs in sustainability, giving the impression that there are win-win situations to be created. Yet, the burgeoning and thematically close debate in corporate sustainability, argues that despite some win-win situations in sustainability, this perception is too simplistic ([Hahn et al., 2010](#)). Scholars found for instance that firms with low environmental performance have high quality reporting and engage more in pollution prevention ([Delmas & Blass, 2010](#)). Pinkse and Kolk (2010) also found that corporations face trade-offs with regard to climate change influencing their technology, commercialization and collaboration strategies.

This is not to say that trade-offs lead to less sustainable development. In fact, a little lower economic performance may result in a greater increase of sustainable development ([Hahn et al., 2010](#)). To that end [Hahn et al. \(2010\)](#) encourage conflict and

pro-active management of trade-offs and to accept trade-offs in order to reach sustainability gains on a societal level. Put differently, from a normative perspective sustainability should be treated as an end not a means. However, despite the increasing interest of sustainability trade-offs for corporations, we know very little about the sustainable entrepreneur's trade-off decision making. Thus, following the call by Margolis and Walsh (2003, p. 284) to “undertake the task of working out the principles and guidelines for managing tradeoffs”, we aim to understand trade-off decisions decision of sustainable entrepreneurs.

2.3. Sustainability and entrepreneurial orientation

Many scholars have used entrepreneurial orientation (EO) (Anderson, [Covin and Slevin, 2009](#); [Green, Covin and Slevin, 2008](#); Lumpkin and Dess, 2001, Wiklund and Shepherd, 2003) to study the performance of entrepreneurial firms, decision making styles of entrepreneurs, or internationalization in entrepreneurship. Entrepreneurial orientation is a multi-dimensional measure of innovativeness (the tendency to experiment and depart from established practice), proactiveness (the propensity to act aggressive towards rivals and take initiative) and risk taking (the willingness to assume high risks for high rewards or losses) ([Lumpkin and Dess, 1996; 2001](#)). There is a current debate as to whether EO is a uni-dimensional or a multi-dimensional measure of orientation ([Hansen et al, 2011](#)) but it is commonly argued that EO is critical to firm survival and the entrepreneurial process of development.

Recent work has used EO to study the differences between men and women entrepreneurs and firm performance. In a study of Chinese women entrepreneurs, Tan

(2008) found that although women's entrepreneurial decision making is based on similar factors as men, the women were prone to take greater risks and that their firms outperformed their male counterparts. Li and colleagues (2014) studied the affect of EO on the internationalization process and found that the dimensions of innovativeness and proactiveness (both high and low levels) increased the firms' internationalization scope. They used a uni-dimensional measure of EO, which had only a positive effect on internationalization. The use of the separate multi-dimensional measure of EO provided more nuance and richer relationships.

Scholars have looked much less at the relation between EO and sustainability decision making. [Gerlach \(2003\)](#) systematically reviewed the literature on social-, eco- and sustainable entrepreneurship and the role that these entrepreneurs play in implementing innovation for sustainable development. But this does not uncover the individual entrepreneur's propensity to innovate. In a similar vein, Hall and Wagner (2012) examined how innovation leads to more sustainable development, but the underlying entrepreneurial process is ambiguous. Scholars have also looked at the sustainability orientation of entrepreneurs and their ability to pursue sustainability related opportunities (Wagner, 2012) and how it is related to entrepreneurial intentions ([Kuckertz and Wagner, 2010](#)). Kuckertz and Wagner (2010) studied a sample of business school students and found an inverse relationship between sustainability orientation and business knowledge. As the level of business knowledge increased, the entrepreneur's sustainability orientation decreased.

[Hall and Wagner \(2012\)](#) point out the need to further understand entrepreneurial decision making for sustainability. While prior studies have provided insight into

entrepreneurial orientation, sustainable entrepreneurship and sustainability orientation, few have bridged the gap in the literature and linked entrepreneurial orientation to sustainability decision making. This is noteworthy since sustainability decision making involves making complicated trade-offs based on the entrepreneur's ideals and values. Our study addresses this gap and poses the question: *How does entrepreneurial orientation affect decisions and trade-offs on sustainability?*

3. Methodology

Our study is a qualitative, exploratory study of sustainable entrepreneurship. This is an appropriate approach given the lack of empirical studies on sustainable entrepreneurship and our desire to build theory and uncover the mechanisms underlying trade-offs rather than examining their relation with performance outcomes. We followed a multiple-case study approach in order to answer our overarching research question. A multiple case research design involves data collection and comparison on two or more cases ([Yin, 1994](#)). The advantage of having multiple cases is the potential to augment within-case analysis with cross-case comparisons ([Eisenhardt, 1989](#)) and to strengthen results through pattern matching, thereby increasing confidence in the robustness of theoretical results ([Yin, 1994](#)).

Using a case study method, we gained deep insights into the cases and the contexts in which they operate. It allowed us to look for clear links between small firms that position their businesses on sustainability principles or values, publicly communicating this position to various stakeholder groups (customers, employees,

suppliers), and patterns of sustainability trade-offs. We applied several strategies to enhance and test validity and reliability as summarized in Table 1.

Table 1: Tests of Validity and Reliability (Yin, 1994)

	Case Study Tactic	Research Phase
Construct validity	Establish chain of evidence through the use of original data in presenting results; develop case study database	Data collection
Internal validity	Pattern matching ¹ ; explanation building ² ; address rival explanations (sources of causation)	Data analysis
External validity	Use replication logic (multiple cases)	Research design
Reliability	Multiple case studies; use case study protocol and coding scheme; develop case study database; assess interrater reliability for cluster analysis	Data collection

We drew our sample of firms from the fashion or apparel industry, which faces complex sustainability issues throughout the value chain. On the production side, examples include water and waste management in growing cotton and dyeing fabric, along with hazardous chemical discharge and worker safety. On the consumer side, examples include overconsumption and excess waste due to short product lifecycles, along with a lack of industry infrastructure to recycle and reuse discarded textiles. Fashion brands are under increasing public scrutiny and pressure to reduce the ecological and social impact of textile production, which is highly fragmented and outsourced to foreign suppliers exacerbating control and transparency issues. Additionally small and medium sized firms have weak leverage over suppliers due to their lower volumes. The conditions in the industry have spawned many niche ‘sustainable fashion’ firms,

¹ Pattern matching refers to the comparison of empirically based patterns with a predicted (theoretical) one (Yin 1994).

² Explanation building refers to an iterative process that starts with a theoretical statement, refines and revises it on the basis of data (Yin 1994).

providing an excellent research setting for our exploratory study. For these firms, sustainability is a strategic asset but at the same time might inhibit their growth. Also, these ventures are often owned and managed by their original founders, hence facilitating the collection of rich data on a range of entrepreneurial orientations.

For data sampling, we used a theoretical sampling approach ([Strauss & Corbin, 1998](#)). We compiled a list of sustainable fashion firms from exhibitors at the Green Orange Fashion Fair, held annually in Amsterdam, and by conducting web searches with the key words ‘sustainable fashion’. We screened firms based on the visibility and communication of their sustainability values as part of their business model. This yielded a list of 67 firms. Our selection criteria included being incorporated as a firm, active in the fashion or apparel industry and a focus on sustainability. Out of the 67 firms 26 agreed to participate in the study, but we discarded two cases due to incomplete data (N=24). Table 2 provides an overview of the characteristics of the sampled firms.

For data collection, we held structured telephone interviews with the founders of the 24 firms. In two cases, the founders were unavailable and we interviewed the production or corporate social responsibility managers. The number of employees in these firms is very limited and these managers accurately reflect the views and ethos of the company’s founders. In the structured interviews we gathered information about the firm (founding date, size, sales turnover), the entrepreneur (education, previous employment, motivation and orientation) and decision making challenges and trade-offs. We followed examples in prior literature on EO and employed a multi-dimensional approach (Covin and Slevin, 1989; Li et al, 2014; [Tan, 2008](#)), devising a set of questions

Table 2: Overview of sample cases

Case	Product Segment	Country	Firm Age	Nr. of founders	Still in business
1	Women's dresses	NL	2	1	Yes
2	Women's casual wear	NL	3	2	Yes
3	Children's wear	NL	6	1	No
4	Web shop	NL	8	2	Yes
5	Web shop	NL	7	2	Yes
6	Casual wear	NL	9	1	Yes
7	Handbags	NL	1	1	No
8	Women's casual wear	NL	32	1	Yes
9	Women's casual wear	NL	9	1	Yes
11	Jeans	UK	8	2	Yes
12	Women's casual wear	FR	2	2	Yes
13	T-shirts	FR	2	1	Yes
14	Work clothing	NL	2	1	Yes
15	Women's casual wear	NL	2	2	Yes
16	Jeans	NL	4	1	Yes
17	Textile	NL	27	1	Yes
18	Women's casual wear	NL	5	1	Yes
19	Women's casual wear	UK	7	2	Yes
20	Children's wear	NL	2	1	Yes
21	Knitted products	NL	2	2	Yes
22	Women's casual wear	NL	10	1	Yes
24	Women's casual wear	NL	2	1	Yes
25	Women's casual wear	UK	2	1	Yes
26	Women's casual wear	UK	7	1	No

NL= Netherlands, UK= United Kingdom, FR=France

to probe the features of entrepreneurial orientation (innovativeness, proactiveness, risk taking and future orientation) and sustainability trade-offs (environmental, social and economic) (Venkatraman, 1989; [Kuckertz, 2010](#); Elkington, 1996). We measured the different aspects of entrepreneurial orientation and trade-offs using Likert scales. After an initial analysis of the structured telephone interviews, we conducted six semi-structured in-depth interviews with a subsample of firms in order to understand in more depth the challenges involved in making trade-offs in decisions. The recorded in-depth interviews were transcribed and coded. We coded the rich transcripts by selecting phrases, sentences or groups of sentences that provided information about trade-off decisions and

environmental orientations. Furthermore, we used archival data, firm documents, press articles and publicly available sustainability reports for triangulation (Denzin, 1978).

The data analysis followed an iterative process. In the first step, we analyzed the descriptive statistics that emerged from the telephone interviews. We were particularly interested in the link between the constructs ‘entrepreneurial orientation’ (EO) and ‘trade-off decisions’ (TO). We first conducted an explorative factor analysis. A rotated varimax factor analysis identified four factors for EO and three factors for TO. For extraction of the factors we used the maximum likelihood method. For item commonality we used 0.4 as a cut-off point. Although 0.7 is often regarded as indicating high commonality, social science methodologists find that this is unlikely to occur in real data and therefore magnitudes of 0.4 are justified to assume relatedness ([Costello & Osborne, 2005](#)). This is in line with [Meek et al. \(2010\)](#) who state that lower reliabilities are justified in early stage scale development. Table 3 and 4 summarize the results of the component analyses.³ These standardized factors were subsequently used in a cluster analysis (Table 5 and Figure 1) to explore whether they formed a clear typology of sustainable entrepreneurs. To display the clusters, the standardized factor scores of the case companies were averaged per cluster.

From the semi-structured interviews, we created case narratives and, following the cluster analysis, we compared the narratives to the clusters that emerged. The rich data from the narratives and the coded constructs of trade-offs and entrepreneurial orientation allowed us to conduct within- and across-case analysis and search for patterns

³ Two items in table 4 have lower loadings than .4. Despite the low commonality we decided to keep the factors due to the fact that they were related and loaded highest on the factor. In separate analyses we dropped the items to see whether more meaningful clusters would emerge which was not the case.

and emergent themes within the clusters. This analysis provided a deeper understanding of the relation between entrepreneurial orientation and sustainability trade-offs in the emergent clusters.

Table 3: Entrepreneurial Orientation survey questions and factor loadings

Entrepreneurial Orientation	Loadings			
Innovativeness (INN)				
We always look for new opportunities and introduce new products to the market.	.836	.184	.190	.074
Investments that will provide us with a competitive advantage are emphasized.	.779	-.020	.071	.090
When making strategic decisions we respond to opportunities quickly.	.664	.187	.006	-.136
Pro-Activeness (PRO)				
New projects are approved without an approval process of various stages.	.034	.973	-.162	.160
We always strive to improve our position in the market and simultaneously challenge my competitors.	.216	.508	.182	-.063
Future orientation (FUT)				
Long term profitability gains precedence over short term profitability.	.052	-.080	.991	.082
We think about the future when making strategic decisions.	.311	.323	.485	-.158
Risk orientation (RISK)				
We act on opportunities regardless the uncertainty of the outcome.	.074	.049	.207	.974
The strategic decisions we make with a focus on investment include high risk and high return.	-.033	.005	-.123	.575

Table 4: Trade-off decision survey questions and factor loadings

Trade-off decisions	Loadings		
Economic (ECON)			
We often face the challenge of being less sustainable but make more money.	.968	.033	.247
We would accept less profit rather than offer less sustainable products.	.253	-.022	.005
Social (SOC)			
We (would) employ people who share the same values instead of individuals who are less willing to act sustainable.	-.127	.883	-.028
We (would) choose high delivery and transport costs to support local communities in emerging countries rather than produce locally or nearby.	-.511	.360	.242
Environmental (ENV)			

We (would) use less sustainable production methods and materials if it saves costs.	-.274	-.395	.707
We sometimes use air freight to transport goods instead of sea freight.	.027	.351	.584
When consumer demand is greater than my production capacity, we choose for a less environmentally sustainable factory and offer a less sustainable product	.150	-.001	.476

Table 5: Hierarchical cluster analysis of entrepreneurial and trade-off factors

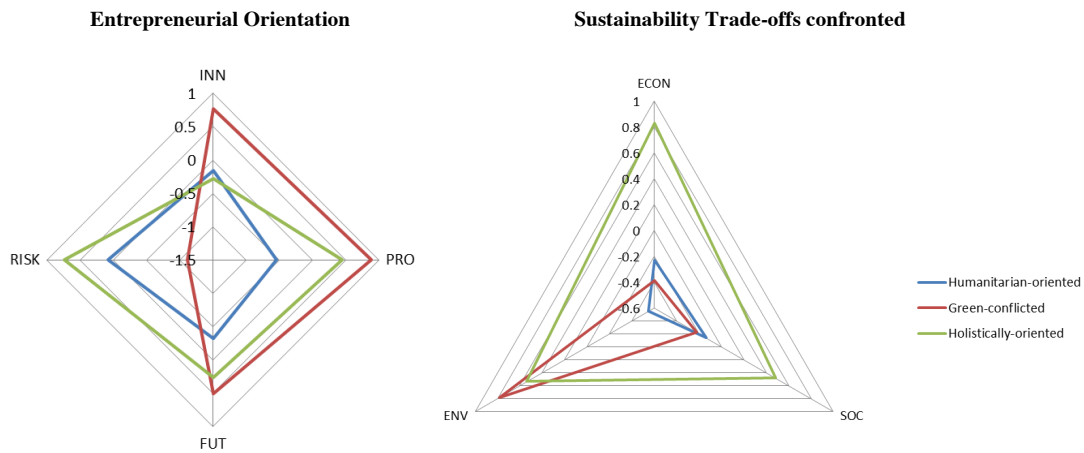
Cluster	Entrepreneurial Orientation					Trade-offs		
	N	INN	PRO	FUT	RISK	ECON	SOC	ENV
Green-conflicted	13	-0,16	-0,54	-0,32	0,08	-0,23	-0,14	-0,55
Humanitarian-oriented	6	0,76	0,88	0,51	-1,10	-0,38	-0,22	0,78
Holistically-oriented	5	-0,28	0,43	0,26	0,74	0,83	0,48	0,54

We subsequently verified the clusters by discussing them with experts in the fashion industry, including consultants specialized in textile sustainability and representatives from the Dutch association of apparel and textile firms. We also held follow up interviews with five firms from the ‘holistically-oriented’ cluster to clarify and verify our understanding of this particular cluster because it exhibited most trade-off decisions.

4. Analysis of findings

Our cluster analysis reveals three distinct types of sustainable entrepreneurs based on the dimensions of entrepreneurial orientation and sustainability trade-off (Figure 1). We first highlight the differences between the three clusters (see table 6) and then provide additional qualitative data to augment the cluster analysis and typology.

Figure 1: Visual representation of clusters



Entrepreneurs in the cluster *green-conflicted* have high EO scores for innovativeness, proactiveness and future orientation. They also have the lowest score of all three clusters for the risk-taking dimension. This suggests that entrepreneurs in this cluster are risk averse. In regards to sustainability trade-offs, these entrepreneurs score the highest on compromising their ecological standards, which suggests their sustainability trade-off decisions focus on environmental concerns.

Another clear cluster that emerged is what we term *humanitarian-oriented*. These entrepreneurs are the near mirror image of the green-conflicted. Humanitarian-oriented entrepreneurs score the lowest on proactiveness and seem to be more oriented to innovativeness and risk taking. This suggests that these firms are willing to accept higher risks and uncertainty but are possibly more ad hoc in their strategic actions. These entrepreneurs score remarkably low on the environmental dimension of sustainability trade-offs. While this does not rule out their concern about ecological impact, it does show that they face more trade-off decisions in the social and economic dimensions. This suggests that their trade-offs are compromises between their firms' financial performance and the social conditions or well-being of their production/supplier communities.

In contrast to the other clusters, the entrepreneurs in the *holistically-oriented* cluster have more evenly balanced scores on the dimensions of sustainability trade-offs and EO, with the exception of innovativeness which is moderately low. They appear to be well rounded in their EO but face compromises on all of the dimensions of sustainability trade-offs. This suggests that the dimensions of sustainability are seen as an integrated whole and as such there is compromising and satisficing on all of the sustainability dimensions. Table 6 provides an overview of the typology and the characteristics of each type.

Table 6: Typology of sustainability entrepreneurs

	Green-conflicted	Humanitarian-oriented	Holistically-oriented
Entrepreneurial orientation			
Innovativeness (INN)	High	Moderate	Moderate
Proactiveness (PRO)	High	Low	High
Future orientation (FUT)	High	Moderate	Moderate
Risk orientation (RISK)	Low	High	High
Sustainability trade-offs confronted			
Economic (ECON)	Low	Low	High
Social (SOC)	Moderate	Moderate	High
Environmental (ENV)	High	Low	High
Cases	2, 3, 6, 7, 11, 13, 15, 17, 18, 19, 22, 25, 26	1, 4, 5, 14, 20, 21	8, 9, 12, 16, 24

4.1. *'Green-conflicted' sustainable entrepreneurs*

From our sample, there are 13 entrepreneurs that fall into this category. Our argument is not that these sustainable entrepreneurs lack ecological principles or values but rather that they face greater or more complicated challenges in making decisions pertaining to ecological impact. For these entrepreneurs, they may not be as environmentally sustainable as they aim to be or they may make sacrifices in other dimensions (primarily

economic) to maintain a high level of ecological standards. The data we collected from semi-structured interviews supports our argument. We draw on qualitative data from three cases to illustrate in greater depth the ecological trade-offs of this cluster.

The entrepreneur from case 3 described this trade-off as “constantly difficult”. She gave an example as follows:

“We have a ‘sand suit’ for small children and we had to choose between an organic textile [or a functional textile]. The textile with more density has a coating so that no sand, dirt or mud can get through. ... Actually, there was no option for an organic textile ... we would have had to purchase large quantities and our company is not big enough and we cannot afford it. We had to look for the second best option.”

The above quotation illustrates the economic constraints of case 3 and the unavoidable compromise they made in the ecological dimension. This stance was echoed in other cases. The entrepreneur from case 22, who uses knitted fabrics, explained her trade-off.

“The most difficult choice is between yarns that are considered sustainably produced, like from bamboo, and yarns that are less sustainable, like from viscose or polyamide. I first used bamboo but discovered that in actual wear the sustainability was less. The bamboo yarns formed pills [little yarn clumps] more easily and were therefore less sustainable. Eventually I chose to use yarns from polyamide/viscose blends from a certified supplier. This yarn lasts longer in wear.”

These examples illustrate that the rationale for making trade-offs in the environmental dimension is complex. Although both decisions were based on

maintaining a level of desired product quality, the rationale for the decision in case 2 focused on financial limitations and in case 22 on product durability limitations.

To contrast these examples, case 13 shows that when product quality is not jeopardized, then the ecologically superior material is chosen. In case 13, a web-shop specialized in eco-friendly t-shirts, the entrepreneur stated that the selection of fabrics and printing techniques were very important. Even though they could have chosen cheaper fabrics to increase profits, they did not because they had “the goal to prove that working ethically is possible”. A key point to consider in this example is that case 13 is positioned in the market as ‘eco-friendly’. Compromising on ecological principles would bring into question the integrity of the brand. Cases 2 and 22 are not positioned as eco-friendly or sustainable. In fact, the entrepreneur in case 22 explained that she is “a fashion designer first” and using sustainable practices is “logical”, “common sense” and “normal”. It is not a “unique selling point” and in her opinion positioning her company as eco-friendly “reduced her as a fashion designer”.

Even though entrepreneurs in the ‘green-conflicted’ cluster compromised or struggled to maintain their ecological standards, they used their innovative and proactive orientation to find ways, however incremental, to reduce their ecological impact. Again, case 3 provides an example:

“We are very creative. We do not want to discount [leftover stock] because that would [negatively affect our image]. It is better to [create] another sweater or something so that it becomes a new set to buy, or we promote it to increase consumers’ attention to it.”

In a similar way, case 22 bought leftover stock from suppliers and integrated this into her design process, making unique and different styles and helping other companies reduce inventory and ultimately reduce waste.

4.2. *Humanitarian-oriented sustainable entrepreneurs*

This cluster contains six of the 24 firms. Here, we argue that for this type of sustainable entrepreneur, there are no compromises in the social dimension. These ‘humanitarian-oriented’ sustainable entrepreneurs have strong societal ideals and tend to make economic compromises to uphold their strong social principles. This does not mean they neglect environmental sustainability, but rather that social sustainability is integral to their values and non-negotiable. This is reflected in their entrepreneurial orientation, as these sustainable entrepreneurs are greater risk takers than the ‘green-conflicted’ sustainable entrepreneurs. Their strong conviction may motivate them to make decisions that have higher risks, but also higher rewards, if not economic rewards then rewards that are shared with communities/society. To illustrate the humanitarian emphasis of this type of sustainable entrepreneur, we draw on evidence from publicly available material about our cases and an in-depth interview from case 1.

The entrepreneur in case 1 explained how she searched for a material to work with and how integral the conditions under which it was produced were to that decision. She decided to use silk from Indian sari fabric. She travelled to India and discovered “they were not for sale on the market [and] there was a whole story and culture behind saris”. Purchasing sari fabric from individual Indian families was too complicated and

she eventually found an Indian couple who dealt in second-hand textiles: “I work with them. The line is direct. I know how they do it and I know what they get paid.”

A main concern for the entrepreneur in case 1 was to be certain that those with whom she worked received a fair wage for their products or services. Sourcing fabric in India, her initial plan was to also produce in India and support Indian women. But she was concerned about child labor and working conditions. She explained the trade-off:

“I thought I finally found people to work with, who understood what I was doing, who also had kids; I had a strong positive feeling. However, as it turned out, the communication through Internet was very troublesome. And delivery was unreliable. I’d send something by mail and it took weeks until it got there. One time the delivery was good and then the other time it wasn’t. I don’t have the scale or size to organize this well.”

Due to her limited resources, she realized that she needed to move production closer to home but using an agent as an intermediary would increase costs and decrease transparency: “I wanted something near home ... [and] I wanted to pay a fair salary.” She found a local studio dedicated to helping reintegrate marginalized workers into the labor market by offering them production work and education. Even though the entrepreneur in case 1 had to stop producing in India, she didn’t compromise on her ideals of paying a fair price and helping others maintain their livelihood.

“...producing in India sounded so perfect, a circle, everyone in the chain could earn something. The labor in India would receive a fair salary and could buy their necessities ... perhaps this might be something I could do in the future if I have more consumers ...”.

Other firms in this cluster also show signs of a more humanitarian orientation. Cases 4 and 5 are both retailers, web shops that offer only sustainably produced products. Even though these firms do not design or produce products, they take great care in knowing how and where the products they sell are produced. In case 4, fair trade is central to its purpose and its mission states “pay people a fair price for their products and labor so that they can provide for their own livelihoods”. The founder of case 5 emphasized how the handbags in their assortment are produced by cooperative handicraft studios in emerging economies such as Brazil, Columbia and Ecuador. However, case 5 also expressed that the retail price of the products in their assortment posed difficulties and explained how:

“In the beginning we only carried high-end brands but ... [they are] too expensive and we had to stop. You could say [that we should] take less margin, but we also have our own costs and are a commercial company.”

Firms in this cluster struggle to balance their deep commitment to have a positive social impact and run a profitable, commercial business.

4.3. *Holistically oriented sustainable entrepreneurs*

From our sample, there are five cases that are in the cluster labelled ‘holistically-oriented’. These entrepreneurs recognize the interdependency of all three sustainability dimensions. For holistically-oriented sustainable entrepreneurs, each separate sustainability dimension is equally as challenging to maintain as the other. Arguably, all three types of sustainable entrepreneurs are affected by the interdependencies of the three dimensions; however, it appears that holistically-oriented entrepreneurs face higher levels

of sacrificing in balancing their trade-offs. However, their high EO in both risk-taking and proactiveness may help them in making these difficult and risky decisions regarding sustainability and to take action quickly when needed. To exemplify the characteristics of the holistically-oriented sustainable entrepreneur, we draw on evidence from three cases.

Case 8 is the largest and oldest firm in our sample. Founded in 1982 and still under the leadership of the original founder, sustainability practices within the firm have evolved throughout its history. Originally focusing on the social dimension and worker conditions in factories, case 8 was an early member of the Fair Wear Foundation (FWF).⁴

A production department representative explained the reason for joining FWF:

“At that time, lots of companies were moving production to China, and there was actually a system [FWF] to check and control the working conditions there. First we had a lot of production in Poland and Tunisia, and then we moved a lot to China and it was important to control the working conditions.”

Additionally, case 8 elaborated on the decisions they make regarding the ecological impact of their products and emphasized that the biggest challenge is finding organically produced cotton for the “right price and quality”. She explained further the decision making and judgments made about chemical use:

“... what you can do as a company is actively test for banned chemicals. On the other hand, if you go for high quality then you know already that you don't have to test because it is often the case that the fabric is just good. Finding a balance between the fabric standards that you source, and if you have some standards or some quality that is inferior you test those. Or you

⁴ FairWear Foundation is a non-profit organization that provides advice and support to its member firms on textile factory working conditions and conducts audits of textile factories in various countries.

work with a supplier agreement that is signed that they do not use any of the banned chemicals on the REACH list.”

For case 8, the challenge in balancing the sustainability trade-offs is in maintaining an acceptable price-quality ratio.

“If the quality is the same and it is maybe a few cents more expensive, then we choose the organic cotton. If the quality is inferior, then that is a different story because quality goes above everything else.”

Similar to the cases 2 and 22 from the green-conflicted cluster, product quality is the main rationale for making sustainability decisions and trade-offs. However, in this cluster of holistically-oriented sustainable entrepreneurs, the firms recognize more explicitly the interrelation of the sustainability dimensions, as case 8 illustrates, “... it is striking, the better the quality [of the material], the more the supplier is willing to collaborate and that is often paired with better working conditions. It goes hand-in-hand.”

This is also echoed in two other cases, case 16 and case 12. In case 16, the firm has been working with the same small set of suppliers since its founding. These suppliers are selected based on their ability to source sustainably produced materials and their adherence or certification to comply with environmental production standards. Case 16 also works very closely with their suppliers, cooperating closely in the planning and forecasting process and supervising parts of the production process. From their experience and close cooperation with their suppliers, they also see that their suppliers are willing to improve factory working conditions when issues are spotted. The entrepreneur also explained in Case 16 that in the past they had focused heavily on

ecological sustainability but, since recently joining Fair Wear Foundation, more emphasis was moving towards social sustainability in the areas of paying fair wages, working conditions and reducing overtime.

In the extreme case 12, the firm has a ‘no trade-off’ policy and the sustainable entrepreneurs were unwilling to sacrifice social and ecological sustainability for profit, stating, “... our values interfere with our survival ... We sometimes lose our confidence in our values ...”. They explained that their growth is slow because of the high price of their products, yet these entrepreneurs are steadfast in holding to their principles and recognize the difficulty.

“The most difficult situation is our actual one; we don’t sell a lot of products since we started, mainly because of price. Since the beginning people tell us to stop organic and recycled fabric or to produce in foreign countries and get lower cost. But we don’t want to change our DNA, we really want to produce our collections in French factories and use eco-friendly fabrics. [It is] more difficult is to find good suppliers who can do what we need, and sometimes we prefer to drop an idea, because we can’t do it in France instead of go somewhere else. But maybe one day we will have to move our production, because French factories are closing one by one...”

To sum up, the two most cited trade-off choices involved decisions about production location and raw material quality. For the former, location, our data show that entrepreneurs search extensively for sustainable supply partners and do not switch easily. Our data also show that sustainable entrepreneurs accept lower economic gain for greater ecological and social sustainability in their production suppliers (assembly of product). This trade-off was apparent for firms in all three clusters. For the latter, product quality,

our data show that sustainable entrepreneurs do not make trade-offs in the quality of raw materials. Product quality is paramount and not easily sacrificed for more sustainably produced alternative materials. If the quality of sustainable materials is acceptable, then price of the material plays a role; an unjustifiable higher cost of sustainably produced material negatively affects its use. This trade-off was most apparent in the green-conflicted and holistically-oriented clusters, in which the sustainable entrepreneurs sacrificed greater ecological sustainability to maintain a desired level of product quality and economic benefit.

5. Discussion

The analysis of our findings shows that there are clear distinctions between the three types of sustainable entrepreneurs, their entrepreneurial orientation and their sustainability trade-off decisions. We contribute to the entrepreneurship and sustainability literatures by bridging entrepreneurial orientation and sustainability trade-offs and develop a novel typology of sustainable entrepreneurs that highlights salient characteristics.

Following prior work that uses entrepreneurial orientation to study entrepreneurial decision making, performance or internationalization (Li, et al, 2014; [Tan, 2008](#)), we looked separately at the sub-dimensions of entrepreneurial orientation to better understand the links to decisions involving sustainability trade-offs. First we see that entrepreneurs that have a high propensity to experiment (innovativeness) face the highest trade-offs in the ecological dimension of sustainability. This may be explained by the need to continuously search and experiment with new, eco-friendly materials in an effort

to adhere to their ecological sustainability values. At the same time, these entrepreneurs are less willing to take risks. This may be explained by the fact that these entrepreneurs will avoid risks in producing products that negatively affect their brand image due to poor quality or are difficult to sell due to higher costs. This finding is in line with the results of Li et al (2014) and Kreiser et al (2013), both studies showing positive effects from innovativeness and proactiveness on, respectively, internationalization scope and perceived sales growth, as well as a negative effect from a high or low position on risk taking. This finding is also aligned with the literature on green entrepreneurship (York and Ventakaraman, 2010), which claims that there are entrepreneurial opportunities in the environmental field that innovative entrepreneurs can exploit, gaining not only economic rents but also non-economic rents in the area of preserving nature ([Dean and McMullen, 2007](#)).

Secondly, another stark contrast among our sample of entrepreneurs is in the risk-taking dimension. Entrepreneurs that score high on risk taking are faced with making trade-offs in all three dimensions of sustainability (economic, social and ecological). However these entrepreneurs also score moderately low on innovativeness. This implies that they are less likely to experiment with new materials, methods, processes or partners. However, they do take risks. The willingness to assume high risks may be reflected in the need to make greater economic trade-offs, which possibly puts the continuity of the business at risk. These entrepreneurs also have a high propensity to take initiative (proactiveness), which may offset their risk taking because they are able to react quickly and change directions.

Perhaps the most striking finding is the moderately low innovativeness of the holistically-oriented cluster. In this cluster where an entrepreneur has chosen to integrate both social and ecological sustainability in their business, we would have expected, based on prior literature ([Dean and McMullen, 2007](#); Hockerts and Wüstenhagen, 2010; York and Ventakaraman, 2010), a higher level of innovativeness and for these entrepreneurs to be disruptive change agents transforming established, unsustainable industry practices to more sustainably accepted ones. To understand this incongruent finding better, we conducted follow up interviews with all of the firms in this cluster. We explain this result by the entrepreneurs' perception of innovation. As 'sustainable fashion' entrepreneurs, innovation and change in products goes against their principles of slow fashion with long lasting design and durability. These entrepreneurs did not engage in innovative and emerging trends, such as clothing with digital sensors or technology. They did however incrementally experiment with process technology in production, such as 3D scanning for pattern making and cutting or 3D printing for trimming, such as buttons, or eco-friendlier washes for dyeing. However, they did not consider this experimentation in production as innovative. As small firms, they acknowledged their limited capability to change supplier production processes. This corresponds with the literature on sustainable entrepreneurship, which states that incumbent firms are essential to the incremental and co-evolutionary process of transformation to sustainable practices (Schaltegger and Hansen, 2013).

Furthermore, we see that trade-offs in the three dimensions are not mutually exclusive and our data show that decisions about social and/or ecological impact are influenced by factors in the economic dimension, namely costs, time and quality. The

causal direction of this relation is ambiguous and contingent on the firm's values and mission. We also see that entrepreneurs do not need to be completely ecologically and socially sustainable to be engaging in sustainable entrepreneurship. This seems to be contingent on the entrepreneur's business model and the unique challenges associated with it that shifts the balance of compromise towards one pillar or another. In fact, our findings show that a trade-off in one of the dimensions can increase overall sustainability, a result that corroborates studies in corporate sustainability ([Hahn et al., 2010](#)). However, our findings may indicate an evolution in which firms may initially focus on balancing trade-offs in one sustainability dimension, social or ecological, and over time integrate their trade-off decisions across more dimensions.

Moreover, our findings on the three categories of entrepreneurial orientation and respective trade-off decisions link into the sub-streams of sustainable entrepreneurship (Schaltegger & Wagner, 2011). We observe that the green-conflicted and humanitarian-oriented sustainable entrepreneurs inform the emerging and growing literature on ecopreneurship and social entrepreneurship respectively. Whereas the holistically-oriented category relates strongly to the sustainable entrepreneurship stream. Overall, our findings show that sustainable entrepreneurship is complex and needs integrated study across the three dimensions of the triple bottom line.

Our findings have implications for practitioners, particularly in assessment of entrepreneurial orientation and sustainability decision making. We provide insights for aspiring sustainable entrepreneurs into the type of trade-offs that sustainable entrepreneurs face and the corresponding entrepreneurial orientation. As sustainable entrepreneurs develop their firms along slow growth trajectories, it becomes important to

be aware of entrepreneurial orientations that may affect making sound sustainability trade-off decisions.

Our findings also have strong implications for policy makers in developing schemes and policies to increase positive ecological and social impact. First, fiscal policies (e.g. tax credits) could provide incentives for firms to choose more ecological-friendly material and for consumers to purchase more ecologically sustainable products. Policy makers could also provide more support in the form of grants, contests or networking to increase collaboration between suppliers and firms to produce novel eco-friendly materials or improve production processes. Secondly policy makers could stimulate sustainable social and economic development in impoverished regions by incentivizing firms to employ workers that have been marginalized in the labor market, or in emerging markets by providing tax credits or international development funds to firms who work with community cooperatives, small holder farmers and the like. All in all, policy makers should create policy schemes to support and stimulate long-lasting sustainable entrepreneurship taking into account the slow growth trajectory that is typical for these firms.

This study was designed to study a group of entrepreneurs in a specific setting, the textile/apparel industry, which may pose limitations to the generalization of the findings to a broader group of firms and entrepreneurs. However, we believe that the findings are applicable to a wide range of manufacturing industries that have complex, fragmented or outsourced value and production chains. This pertains to various agriculture industries (e.g. cacao, coffee, cotton), durable goods products (e.g.

automobiles, computer hardware) and other high technology industries (e.g. renewable energy, nanotechnology).

Our study is also an initial step in understanding the microfoundations of sustainable entrepreneurship. We offer insights into trade-off decisions but there is much more to uncover about this type of entrepreneurship and the relation between sustainability objectives, values and motivations and entrepreneurial processes such as growth or capability development. As a nascent field more in-depth qualitative studies are needed as well as more large-scale quantitative studies to uncover causal and relational variable performance.

6. Conclusion

We asked the question: *How does entrepreneurial orientation affect decisions and trade-offs on sustainability impact?* We used a multiple case qualitative study and gathered data from 24 sustainable entrepreneurs in the fashion/apparel industry. We used a multi-dimensional measure of entrepreneurial orientation (innovativeness, proactiveness, risk-taking and future orientation) and a multi-dimensional measure of sustainability trade-offs in decision making (economic, social and environmental). From cluster analysis and augmented in-depth case analysis, we derived a novel typology of three types of sustainable entrepreneurs: ‘green-conflicted’, ‘humanitarian-oriented’ and ‘holistically-oriented’. We find that the ‘green-conflicted’ sustainable entrepreneurs have an EO that is high on innovativeness and low on risk taking and face the most trade-off challenges in the ecological dimension of sustainability. The ‘humanitarian-oriented’ sustainable

entrepreneurs have a high risk-taking EO and also exhibit high social ideals. Lastly the ‘holistically-oriented’ sustainable entrepreneurs have well-rounded EO but score the highest on innovativeness and proactiveness. They also experience the most challenges in all of the sustainability dimensions. Overall, we find that sustainable entrepreneurs accept slower economic growth or lower performance in order to maintain the integrity of their social and ecological principles and values. This paper contributes to the growing literature that bridges the sustainable development and entrepreneurship fields. The findings have practical implications for sustainable entrepreneurs as well as strong implications for policy makers to provide support and incentives for sustainable entrepreneurship.

Acknowledgements

We gratefully acknowledge the research assistance of Tuanh Lam and Carlijn van Drenthe and the admirable sustainable entrepreneurs in this study who dedicated time to participate in this study.

References

[Anderson, B. S., Covin, J. G., & Slevin, D. P. 2009. Understanding the relationship between entrepreneurial orientation and strategic learning capability: an empirical investigation. *Strategic Entrepreneurship Journal*, 3\(3\), 218-240.](#)

Angus - Leppan, T., Benn, S., & Young, L. 2010. A sensemaking approach to trade - offs and synergies between human and ecological elements of corporate sustainability. *Business Strategy and the Environment*, 19(4), 230-244.

Balakrishnan, U., Duvall, T., and Primeaux, P. 2003. Rewriting the Bases of Capitalism: Reflexive Modernity and Ecological Sustainability as the Foundations of a New Normative Framework. *Journal of Business Ethics* 47, no. 4: 299–314.

Bryant, P.T. 2014. Imprinting by design: The microfoundations of entrepreneurial adaptation. *Entrepreneurship Theory and Practice*, 38 (5), 1081–1102.

Byggeth, S., & Hochschorner, E. 2006. Handling trade-offs in ecodesign tools for sustainable product development and procurement. *Journal of Cleaner Production*, 14(15), 1420-1430.

Cohen, B., and Winn, M.I. 2007. Market Imperfections, Opportunity and Sustainable Entrepreneurship. *Journal of Business Venturing* 22, no. 1: 29–49.

Costello, Anna B. & Jason Osborne 2005. Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation*, 10(7).

Daneke, G. A. 2001. Sustainable Development as Systemic Choices. *Policy Studies Journal* 29, no. 3: 514–32.

Dean, T. J., & McMullen, J. S. 2007. Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of Business Venturing*, 22(1), 50-76.

Delmas, M., & Blass, V. D. 2010. Measuring corporate environmental performance: the trade - offs of sustainability ratings. *Business Strategy and the Environment*, 19(4), 245-260.

Dosi, G. 1982. Technological Paradigms and Technological Trajectories: A Suggested Interpretation of the Determinants and Directions of Technical Change. *Research Policy* 11, no. 3: 147–62.

Eisenhardt, K. 1989. Building Theory from Case Study Research. *Academy of Management Review*, 14/4, pp 532–550.

Elkington, J. 2004. Enter the triple bottom line. *The triple bottom line: Does it all add up*, 11(12), 1-16.

Figge, F., & Hahn, T. 2012. Is green and profitable sustainable? Assessing the trade-off between economic and environmental aspects. *International Journal of Production Economics*, 140(1), 92-102.

Gerlach, A. 2003. Sustainable entrepreneurship and innovation. *Corporate Social Responsibility and Environmental Management*, 29-30.

Green, K. M., Covin, J. G., and Slevin, D. P. 2008. Exploring the relationship between strategic reactivity and entrepreneurial orientation: The role of structure–style fit. *Journal of Business Venturing* 23.3: 356-383.

Hahn, T., Figge, F., Pinkse, J., & Preuss, L. 2010. Trade - offs in corporate sustainability: you can't have your cake and eat it. *Business Strategy and the Environment*, 19(4), 217-229.

Hall, J. and Wagner, M. 2012. Editorial: The Challenges and Opportunities of Sustainable Development for Entrepreneurship and Small Business, *Journal of Small Business & Entrepreneurship*, 25:4, 409-416.

Hall, J. K., Daneke, G. A., and Lenox, M. J. 2010. Sustainable Development and Entrepreneurship: Past Contributions and Future Directions. *Journal of Business Venturing* 25, no. 5: 439–48.

Hansen, J. D., Deitz, G. D., Tokman, M., Marino, L. D., and Weaver, K. M. 2011. Cross-national invariance of the entrepreneurial orientation scale. *Journal of Business Venturing*, 26(1), 61-78.

Hockerts, K., and Wüstenhagen, R. 2010. “Greening Goliaths versus Emerging Davids — Theorizing about the Role of Incumbents and New Entrants in Sustainable Entrepreneurship.” *Journal of Business Venturing* 25, no. 5: 481–92.

Kuckertz, A., & Wagner, M. 2010. The influence of sustainability orientation on entrepreneurial intentions—Investigating the role of business experience. *Journal of Business Venturing*, 25(5), 524-539.

Li, D. Vladislav, M., Bret, A.G and Fernhaber, S.A. 2014. The differential roles of innovativeness, proactiveness, and risk-taking, *Journal of Business Venturing*, 29:511–524.

Lumpkin, G. T., and Dess, G. G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135-172.

Lumpkin, G. T, and Dess, G. G. 2001. Linking Two Dimensions of Entrepreneurial Orientation to Firm Performance: The Moderating Role of Environment and Industry Life Cycle. *Journal of Business Venturing* 16, no. 5: 429–51.

Mair, J., & Marti, I. 2006. Social entrepreneurship research: A source of explanation, prediction, and delight. *Journal of World Business*, 41(1), 36-44.

Margolis, J. D., & Walsh, J. P. 2003. Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly*, 48(2), 268-305.

Meek, W. R., Pacheco, D. F., & York, J. G. 2010. The impact of social norms on entrepreneurial action: Evidence from the environmental entrepreneurship context. *Journal of Business Venturing*, 25(5), 493-509.

Moeller, T., Dolnicar, S., & Leisch, F. 2011. The sustainability–profitability trade-off in tourism: can it be overcome?. *Journal of Sustainable Tourism*, 19(2), 155-169.

Pacheco, D. F., Dean, T. J., and Payne, D. S. 2010. Escaping the Green Prison: Entrepreneurship and the Creation of Opportunities for Sustainable Development. *Journal of Business Venturing* 25, no. 5: 464–80.

Parrish, B. D. 2010. Sustainability-Driven Entrepreneurship: Principles of Organization Design. *Journal of Business Venturing* 25, no. 5: 510–23.

Pinkse, J., & Kolk, A. 2010. Challenges and trade - offs in corporate innovation for climate change. *Business Strategy and the Environment*, 19 (4), 261-272.

Schaltegger, S., Wagner, M., 2011. Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business Strategy and the Environment*. 20 (4), 222–237.

Schaltegger, S. and Hansen, E.G. 2013. Industry transformation through sustainable entrepreneurship, examples in the apparel and energy industries, in: McIntosh, M. (Ed.): *The Necessary Transition. The Journey towards the Sustainable Enterprise Economy*, Sheffield: Greenleaf Publishing. 182-197.

Shepherd, D. A., & Patzelt, H. 2011. The new field of sustainable entrepreneurship: studying entrepreneurial action linking “what is to be sustained” with “what is to be developed”. *Entrepreneurship Theory and Practice*, 35(1), 137-163.

Strauss, A., & Corbin, J. 1998. *Basics of qualitative research: Procedures and techniques for developing grounded theory*. ed: Thousand Oaks, CA: Sage.

Tan, J. 2008. Breaking the “bamboo curtain” and the “glass ceiling”: the experience of women entrepreneurs in high-tech industries in an emerging market. *Journal of Business Ethics*, 80(3), 547-564.

Tilley, F., and Young, W. 2006. Sustainability Entrepreneurs. *Greener Management International* 2006, no. 55: 79–93.

Utterback, J. M., and Suárez, F. F. 1993. Innovation, Competition, and Industry Structure. *Research Policy* 22, no. 1: 1–21.

Venkatraman, N. 1989. Strategic orientation of business enterprises: The construct, dimensionality, and measurement. *Management Science*, 35(8), 942-962.

Wagner, M. 2012. *Entrepreneurship, Innovation and Sustainability*. Greenleaf: Sheffield.

Wiklund, J., and Shepherd, D. 2003. Research notes and commentaries: knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24(13), 1307-1314.

Yin, R. 1994. *Case study research: Design and methods* . Beverly Hills.

York, J. G., & Venkataraman, S. 2010. The entrepreneur–environment nexus: Uncertainty, innovation, and allocation. *Journal of Business Venturing*, 25(5), 449-463.