

Article

Biofuels are (Not) the Future! Legitimation Strategies of Sustainable Ventures in Complex Institutional Environments

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Abstract: Sustainable ventures often lack legitimacy (perceived to be desirable and appropriate) because various stakeholder groups use contradictory institutions (rules and norms) to make their judgements, which leads to there being fewer resources available and higher failure rates. Using an institutional theory framework and a multi-case research design with 15 biofuel ventures operating in the Netherlands, this study asks how sustainable entrepreneurs attempt to gain legitimacy in these circumstances. Analysis reveals that the entrepreneurs use a combination of rhetorical, reconciliatory and institutional change strategies to obtain legitimacy from different stakeholder groups. These findings further our understanding of sustainable entrepreneurial behavior by revealing how and why different legitimation strategies are used in complex institutional environments.

Keywords: sustainable entrepreneurship; institutional embeddedness; legitimation strategies; institutional entrepreneurship; biofuels

1. Introduction

Global climate change is a “super wicked” problem [1], requiring not only drastic cuts in carbon emissions, but the introduction and diffusion of alternative pro-environmental innovations. To answer this call, a number of scholars have recently argued that entrepreneurial action is a vital mechanism for counteracting climate change and reducing environmental degradation whilst providing economic gains for investors and societies [2–4]. By developing new business models, sustainable entrepreneurs help diffuse pro-environmental technologies, products and processes [5,6] that usher in sustainable societies. A growing number of scholars recognize that sustainable entrepreneurship does not occur in a vacuum, but depends on various stakeholder groups (e.g., investors, governments and customers) to lend financial and political support. Nevertheless, stakeholder groups often use different institutions—norms, values and rules—to guide their legitimacy judgements (defined as appropriateness and desirability) [7]. Thus, sustainable entrepreneurs operate in complex institutional environments in which stakeholder groups often withhold legitimacy, which prevents ventures from obtaining the financial and political capital needed to survive. This problem can be seen clearly when considering innovative biofuel ventures. Guided by pro-environmental national legislation, many local governments have granted permits for entrepreneurs to commercialize various biofuels (e.g., biodiesel, biogas, biocoal and others), even while investors, NGOs and local communities often withhold legitimacy and resources due to market competitiveness, or environmental and safety concerns [8,9]. Consequently, the research problem that motivates this study is how and why biofuel ventures try to gain legitimacy in complex institutional environments.

Unfortunately, we know little about how sustainable entrepreneurs attempt to gain legitimacy in these settings. While existing research acknowledges formal and informal institutions as both

enabling and constraining the emergence, survival and growth of sustainable ventures [10,11], there is a lack of knowledge on the ways in which sustainable entrepreneurs strategically respond. For example, research investigating the positive and negative influences of policy, economics or culture on the development of sustainable enterprises [12] often downplays or overlooks the creative agency and strategic action of entrepreneurs [13]. On the other hand, recent research has found that rather than be passive players, sustainable entrepreneurs are active agents in convincing important stakeholder groups [14,15]. This research has made recent gains by arguing sustainable ventures are more likely to survive when they: synchronize their activities with socioeconomic and biophysical context [16]; use resistant, reactive, anticipatory, and innovation-based behavior [17]; gain expertise in normative, interpersonal and strategic competencies [18]; or attempt to change institutions themselves [14,19,20]. Nevertheless, this literature has yet to uncover the unique legitimation strategies that sustainable entrepreneurs deploy in their quest to gain resources.

Accordingly, the research question of this article is “how and why do sustainable entrepreneurs enact legitimation strategies in complex institutional environments?” To answer this research question, this study executes a qualitative analysis of 15 biofuel ventures operating in the Netherlands over the course of two years. Data consisting of 30 in-depth interviews with founders, secondary interviews, newspaper and magazines, and site visits is examined using the Gioia Method of thematic analysis [21]. The findings reveal a number of novel legitimation strategies that sustainable entrepreneurs deploy when confronting institutional complexity. In particular, they use a combination of rhetorical, reconciliation and institutional change strategies to convince stakeholder groups of their legitimacy. The results of the study have theoretical implications in terms of demonstrating the value of deploying an institutional theory-led research design through which it is possible to reveal legitimation strategies from within institutional settings. These findings in turn further a number of recent studies on sustainable entrepreneurial behavior by demonstrating that they are not only politically active [14,19,22,23], but also use unique rhetorical and internal management strategies to gain legitimacy with external stakeholder groups. Moreover, there are practical implications for sustainable entrepreneurs in that it shows three forms of legitimating strategies that can be deployed. Applying this knowledge may help avoid costly confrontations, enabling the survival and growth of sustainable ventures into stable companies able to exert a much larger positive influence on the preservation of the natural environment.

This study proceeds with a literature review of core concepts, namely sustainable entrepreneurship, institutional embeddedness, institutional complexity and institutional entrepreneurship. This is followed by a methodology section in which information about the research context, sample, data collection and analysis is described. The results section reports core themes that emerged from the qualitative data. The article ends with a discussion of the theoretical and practical implications of the study.

2. Literature Review

This section reviews the literature to define and clarify the core concepts of this study, namely, sustainable entrepreneurship, institutional embeddedness and institutional complexity. It ends with a problem statement that motivates this research.

2.1. Sustainable Entrepreneurship

Dean and McMullen [2] and Cohen and Winn [4] posit that persistent market failures, such as environmental degradation, provide opportunities for entrepreneurs to take an active role in restoring economic and environmental sustainability [24]. Evidence of a growing number of new business models succeeding in harmonizing profit and environment, whilst diffusing novel innovations, products and processes throughout society, has led to a developing scholarly literature on sustainable entrepreneurship [5,6,13]. Sustainable entrepreneurs are motivated to decrease environmental degradation by simultaneously focusing on environmental, social, and economic issues [23]. These entrepreneurs have been found to be motivated by personal values [25] that are often

linked to ethical standards [26], making them “true idealists” [24]. Hence, sustainable entrepreneurs are a distinctive group of entrepreneurs [27] who view environmentalism as a bedrock of the company’s day-to-day activities [28,29]. In the Netherlands, biofuels have gained interest as an alternative way to produce sustainably-sourced fuels for energy and transportation. The most common in the country are biogas digester ventures, which aim to collect agricultural and consumer waste biomass to produce high-quality biogas. A number of other ventures have explored more innovative opportunities, such as trying to commercialize biocoal (partially charcoaled waste biomass that can be co-fired with coal) and biomethanol (chemical methanol produced using biogas). These ventures are increasingly recognized as a vehicle for exploiting emerging opportunities associated with societal needs [30] and the implementation of environmentally superior business methods [31]. At the same time, failure remains common among sustainable ventures as a whole, and as a result, there remains major gaps of whether and how this process will actually unfold [5,32].

2.2. *The Institutional Embeddedness of Sustainable Entrepreneurship*

In the broader entrepreneurship literature, there is growing scholarly recognition that entrepreneurship is intimately linked to the institutional context in which it occurs [33]. While institutions are often conceptualized at the (supra)national-level in sustainable development discussions, such as national regulatory and policy regimes [12,34], sociological-institutional theorists often research institutions at the sector-level to better understand their nature and influence. The core premise of institutional embeddedness is that values, rules, norms and expectations within sectors often shape legitimacy judgements by essential stakeholder groups (investors, governments, customers). In turn, entrepreneurial decision-making and practices are not individualistic or rationalistic, but rather are influenced by existing institutions [35]. In particular, institutional theory applied to sustainable entrepreneurship suggests that, on one hand, sustainable entrepreneurs must conform to existing institutions in order to gain endorsement and legitimacy and resources from important stakeholder groups [11,36]. For example, a biofuel venture must register and obtain permits from necessary officials, demonstrate financial health to obtain investment from investors and convince consumers of the safety and desirability of their products. Sustainable entrepreneurs may be enabled by certain institutions that support their market entry, such as formal laws that aim to reduce the effects of climate change by creating a demand for renewable energy. Other institutions may prevent their development, such as norms and rules of markets that reduce competitiveness and utility of biofuels compared to fossil fuels. Alongside formal institutions, values, attitudes, and norms of a sector constitute informal institutions. Meek et al. [10] found that social norms favorable to sustainability objectives appear to partially predict higher levels of new venture foundation in the solar energy sector. On the other hand, NGOs have challenged biofuel ventures for their role in reducing biodiversity due to unsustainable use of food crops for energy (the so-called food versus food debate) [37]. As a result, institutional environments influence the nature of decision-making and the behavior of stakeholder groups and sustainable entrepreneurs.

2.3. *Institutional Complexity*

A common obstacle to the survival and growth of entrepreneurial ventures generally is the complex, and often contradictory, institutional environment [38]. At the sector level, institutional scholars emphasize that the institutional environment is not a monolithic concept, but a set of complex institutions that guide various stakeholder groups and sustainable entrepreneurs in complicated ways [39]. Hence, institutional complexity foremost suggests that perceived legitimate goals and objectives may conflict between stakeholder groups. For example, investors often use market incentives to guide their investments in sustainable ventures, while local communities use notions of safety and aesthetics when deciding on whether to lend legitimacy. Conflicts or disagreements between legitimate goals and objectives are particularly challenging for sustainable entrepreneurs since their reconciliation requires them to overtly recognize the incompatibility of the various demands on goals,

which may, in turn, jeopardize stakeholder support [40]. Biofuels remain highly contested as various investment, public, and activist groups question these ventures' true financial and environmental sustainability [41]. Biofuels either get labeled a "scam" [42] or "savior" [43] in the media, suggesting that different outsiders prioritize, and remain skeptical of, biofuel entrepreneurs' attempts to blend commercial and social value [44]. Consequently, institutional complexity often leads to inconsistent and conflicting systems of norms and rules, which produces incompatible stakeholder expectations of sustainable entrepreneurs [45–47]. This conflict thus reduces the chances of garnering crucial legitimacy and resources, which further reduces the survival and growth prospects of sustainable ventures [40]. It follows that sustainable entrepreneurs operating in these contexts often experience a complex arrangement of various institutions through which they must navigate to obtain legitimacy and resources.

2.4. Research Problem

As mentioned previously, although legitimacy is essential to gaining resources, many sustainable entrepreneurs struggle to obtain positive legitimacy judgements, which reduces resource acquisition and creates high rates of failure for these ventures. Little empirical research exists that uses an institutional theory framework to add insight into the broad proposition that sustainable entrepreneurs either conform or attempt to change institutions in order to gain legitimacy. Muñoz and Cohen [16], for example, suggests that the degree of embeddedness in social and natural systems depends on how synchronized the entrepreneur and the venture's rhythm are with the social and natural systems that support the venture's existence. Nevertheless, which strategies in an institutional context are used to gain legitimacy, i.e., to synchronize the venture with socioeconomic and biophysical cycles, is not elaborated upon. Similarly, Klewitz [17] argues that sustainable entrepreneurial behavior ranges from resistant, reactive, anticipatory, and innovation-based. However, the content of these behaviors, as well as their links to the institutional environment, remain unclear. Ploum et al. [18] develop a list of competencies for sustainable entrepreneurs—namely, normative, interpersonal and strategic management. While informative, the links to institutional environment are unclear. For example, normative competencies—the ability to map, apply, and reconcile sustainability values, principles, and targets with internal and external stakeholders—does not shed light on the actual legitimation strategies sustainable entrepreneurs deploy.

Recently, Pacheco et al. [22] and Schaltegger and Wagner [23] propose that sustainable entrepreneurs are not only institutionally embedded, and therefore passively following pre-existing institutions, but are active agents in developing and championing institutional innovations. Sustainable entrepreneurs have been found to take active steps in creating a favorable institutional context for sustainable development [19,48], by stimulating changes to market regulations, and societal norms and values towards a more pro-environmental condition, helping new sustainable products to become more competitive and legitimate [27]. For instance, sustainable entrepreneurs may help develop property rights, reduce transaction costs, disseminate new information, and even motivate government action that supports the sustainable allocation of environmental resources [22]. Pinkse and Groot [19] and Thompson et al. [14] find that sustainable entrepreneurs in the Netherlands often act as institutional entrepreneurs—defined as "organized actors who envision new institutions as a means of advancing interests they value highly" [49]. Sustainable entrepreneurs act as institutional entrepreneurs when they attempt to institutionalize new practices, beliefs, values, and assumptions [50] that alters existing institutions or creates new ones [51]. Institutional entrepreneurs thus lead efforts to identify political opportunities, frame issues and problems, and mobilize constituencies [51]. Sustainable entrepreneurs act as institutional entrepreneurs when they try to change existing institutions using various collective action strategies [52], including: framing and developing a vision; lobbying local and national governments; negotiating new contractual forms and certification schemes; and defining new product standards [14]. While this literature advances our understanding of sustainable entrepreneurial strategies for gaining legitimacy, it does not elaborate on those strategies that do not attempt to change

institutions. As such, there is a need to inductively investigate the various legitimization strategies that sustainable entrepreneurs deploy. The remainder of this study details the research methods and findings from inductive case studies.

3. Research Methods

This section describes the sample selection, data collection and data analysis. This research uses a multiple case study design that allows for between-case analyses, increasing the reliability and validity of the inductive analyses [53].

3.1. Sample Selection

Biofuel ventures contribute to the construction of a collective awareness that the natural environment is vulnerable (e.g., scarce and finite). Thus, biofuel ventures work to replace carbon-emitting fuels, like coal, oil and natural gas, with sustainably-sourced and carbon-negative (or neutral) fuels, like biocoal, bioethanol, biogas, biodiesel, and biomethanol. To do so, biofuel ventures also adopt aspects of commercial business, which facilitates exchanges through price mechanisms based on legal property rights, consumer demand, and resource competition [54]. However, biofuels are often uncompetitive, financially, relative to incumbent fossil fuels, as they price in “environmental externalities” [55]. Moreover, these ventures are increasingly being criticized by NGOs and governments for their perceived role in environmental degradation. This claim asserts biofuel ventures’ practices may lead to biodiversity loss or competition with arable land for food production (so-called fuel versus food debate) [37].

Given this complex institutional environment, cases of active, new and small sustainable entrepreneurs (as opposed to successful cases) were sought by creating a list of biofuel projects across the Netherlands in the idea, implementation, and production stages from the Dutch Chambers of Commerce, Dutch Ministry of Economics, Agriculture, and Innovation, and augmented these lists with online industry association listings, networking with other scholars and internet searches. This resulted in a comprehensive list of 50 current projects being identified. In order to select a relevant sample, a number of criteria were set—participants must be entrepreneurs of independent organizations, and their main business activity must be the production of biofuels for energy or transportation—which resulted in 15 sustainable ventures meeting the criteria and agreeing to participate. Focusing on these 15 cases helped to reach a satisfactory level of theoretical saturation and handle more dense and in-depth qualitative material. On average, there is a five-year lag time between organizational founding and the production of biofuels. Table 1 provides an overview of the sample, including founding date and business description (including failure) over the research timeframe. The names of the organizations and members have been changed to pseudonyms in order to protect privacy.

Table 1. Overview of cases.

Organization Pseudonym	Year Founded	Size-Employees (2012)	Size-Balance Sheet EUR (2012)	Description	Exit Market
A-Biodiesel	2009	17	21,968,564	Biodiesel & Biogas—Produces biodiesel and biogas made from recycled organic waste collected locally and internationally	No
BioCoal	2008	10	5,897,610	BioCoal—Converts woody biomass to bio-coal through torrefaction	No
EcoCoal	2007	4	11,572,514	BioCoal—Converts wood biomass to biocoal through torrefaction	Yes, 2013
EcoEthanol	2008	1	34,789	Biogas—Plans to convert organic waste into bio-liquefied gas	No
EcoGas	2009	~10	355,255	Biogas—Produces biomethane from residual food and waste	No

Table 1. Cont.

Organization Pseudonym	Year Founded	Size-Employees (2012)	Size-Balance Sheet EUR (2012)	Description	Exit Market
GreenCoal	2006	1	2869	BioCoal—Plans to use paper and cardboard residues to produce biocoal through torrefaction	Yes, 2013
GreenEnergy	2007	2	150,643	Biodiesel & Biogas—Produces biogas from organic waste; aims to build biodiesel facility based on waste oils/fats	No
GreenGas	2009	6	865,440	Biogas—Plans to produce biogas from waste organic material	No
GreenLink	2006	~10	45,143	Biodiesel—Cultivates algae with goal of producing alternative aviation fuel	No
GreenPower	2009	93	100,067,000	Biomethanol—Converts waste crude glycerin in order to produce biomethanol	No
K-Biodiesel	2000	13	23,518,870	Biodiesel—Converts used frying oils into biodiesel	No
NewCoal	2007	12	12,983,420	BioCoal—Converts woody biomass into biocoal through torrefaction	No
NewEthanol	2005	~7	17,996	Bioethanol – Cooperation that cultivates regionally grown rapeseed and then produces bioethanol	Yes, 2012
Aldiesel	2009	8	478,063	Biodiesel—Plans to produce biodiesel based on algae cultivation technology	Yes, 2013
SunFuel	2007	2	115,157	Bioethanol—Cultivates regionally grown rapeseed to convert into bioethanol	Yes, 2012

3.2. Data Collection

Beginning in May 2011, a first round of face-to-face interviews of 60 and 90 min was conducted with all 15 sustainable entrepreneurs. Each first-round interview was recorded and transcribed. After asking a series of questions about the characteristics of the business and entrepreneurs, the main questions included: what are the issues (subjects, matters) that they feel are important for their venture to gain legitimacy; why this is necessary and significant; and whether this is general to other biofuel start-ups. Between September 2011 and May 2012, initial findings were sharpened by re-interviewing founders and co-founders of the 15 ventures by telephone, which lasted between 30 and 90 min. These interviews were again transcribed and analyzed. Entrepreneurs were asked to express their views and comments on the findings of the first round of interviews, and what they do currently to resolve conflicts; why they felt these steps were necessary and significant; and whether they have seen changes in other biofuel start-ups. Additionally, data was collected from many secondary sources (websites, trade journals, newspaper articles, and magazine articles, presentations and videos) for all 15 ventures through August 2013. Finally, to end data collection, activities were observed through tours of facilities and handwritten notes as the entrepreneurs sought out to explain the purposes and techniques they employ at the production site over the period September 2011 to May 2012.

3.3. Data Analysis

Using NVivo software, data analysis was carried out using established qualitative data analysis techniques [56], specifically a form of thematic analysis called the Gioia Method [21]. The Gioia Method is a method common in organization studies for identifying, analyzing and reporting patterns (themes) within data using open and axial coding. First, each empirical source was carefully read and coded into first order codes (a quotation or observation in a reduced number of words) that signified behavior to gain legitimacy. First-order coding adhered closely to an open coding technique where respondent vocabulary and terminology is prioritized, and interpretation or evaluation is limited. This resulted in 175 first-order codes being generated that dealt with talk or behaviors to gain legitimacy.

For example, quotes were coded in vivo when a sustainable entrepreneur tries to convince an audience (e.g., investors, governments, customers or researcher) of the desirability and appropriateness of their project. Second, first-order codes were matched into second-order codes looking for repetition and commonality using axial coding—identifying relationships among the first-order codes. This resulted in 5 second-order codes (counter-rationalizing, time-to-conflict, creation of sub-units, re-organizing and institutional entrepreneurship). Finally, these 5 second-order codes were combined into aggregate themes of “rhetorical”, “reconciliatory” and “institutional change” strategies as shown in Figure 1. These are discussed in more detail in the findings section.

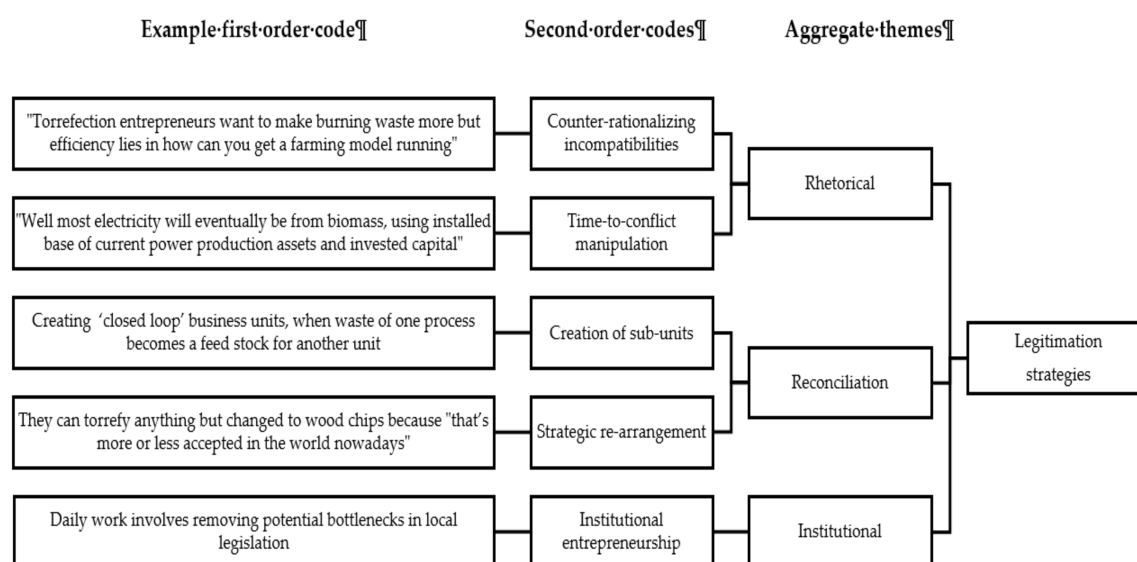


Figure 1. Coding procedure of source data.

3.4. Limitations of Research Design

Despite using between-case analysis, multiple forms of source data and the Gioia Method to inductively reveal themes, this study does have a number of limitations. First, the sample was purposefully selected by identifying new biofuel ventures; however, a common issue in entrepreneurship research is survival bias. In short, it is not possible with this research design to infer whether these legitimation strategies significantly improved chances of venture survivability. Future studies should aim to test the findings from this study with a larger sample of nascent ventures. Such a body of research could lead to general knowledge of various responses that are likely to increase the survival and growth of sustainable venture. Second, interviews are subject to possible respondent bias. This bias occurs when participants try to influence the researcher by providing responses that they think the researcher would like to hear, but which may not correspond to their actual behavior. This problem was partially addressed by using multiple sources of data, including second-hand videos of entrepreneurs presenting to various audiences. Finally, biofuels are operating in a sector with specific institutions, which has implications for their legitimation strategies. This may not be the case for sustainable entrepreneurs operating in other industries with different institutions present. Future research should investigate the transferability of the findings to other contexts, particularly looking for similar or different legitimation strategies across different sectors and different countries.

4. Results

This section presents findings of the data collected and analyzed above. In particular, this section describes how sustainable entrepreneurs navigate institutional complexity in their attempts to gain

legitimacy through rhetorical, reconciliatory and institutional change strategies. Table 2 provides an overview of the findings.

Table 2. Legitimation strategies in complex institutional environments.

Rhetorical Strategies	Explanation	Examples
<i>Counter-rationalizing incompatibilities</i>	Identify and convince stakeholders of complementary goals and objectives by claiming conflicting goals and objectives of others	“That’s pretty unique because you have other biofuel companies and very often there is maybe one or two downsides or some future risk potential. For example if you have other biofuel feed stocks like palm oil or whatever, then sooner or later you may bump into the problem of lack of arable land, so you have foods versus fuel dilemmas and controversies, deforestation in some cases, etc. There are great stories to talk about but also some downsides or even potential show stoppers at some point. Algae does not have that risk.” (Dex—GreenLink—Interview)
<i>Time-to-conflict manipulation</i>	Pushing the time-to-conflict into some incalculable future	“Electricity is an efficient and essential form of energy. Today, most electricity is produced from coal. ET believes that in the future most electricity will be produced from biomass. This will cause a major leap forward in the decarbonization of energy production while leveraging the enormous installed base of current power production assets and invested capital, making this major leap forward affordable and fast.” (Elliot—NewCoal—Press Release)
Reconciliation Strategies		
<i>Creation of sub-units</i>	Create sub-business units to overcome conflicts	“We provide truly green energy! The company is comprised of four units that separately and together ensure the processing of vegetable oils, fats, and food waste to renewable energy such as biogas and biodiesel.” (Gerald—GreenEnergy—Website)
<i>Strategic re-arrangement</i>	Avoiding institutional conflicts by changing the venture goals	“We started with first generation bioethanol then went to biogas since it is already second generation because it’s residual streams. When it’s possible we go to the second generation. We made the energy integration and there were no objections (to permits by environmental NGOs, government or community)” (Robin—GreenGas—Interview).
Institutional Change Strategies		
<i>Institutional entrepreneurship</i>	Collectively working to change institutions	“Then we made a letter to the government. The letter was signed by all three companies who are involved with rapeseed and who had the tax-free agreement. We stood up together against the government.” (Freeman—SunFuel—Interview)

4.1. Rhetorical Strategies

Sustainable entrepreneurs were found to use two main rhetorical strategies—counter-rationalization and time-to-conflict—to try to gain legitimacy from different stakeholder groups.

Counter-rationalization is used to identify points of institutional contradiction that make other biofuel projects neither feasible nor desirable. By doing so, sustainable entrepreneurs aim to marginalize one or more competing sustainable ventures with the objective of convincing stakeholder groups their project does not have such issues. For example, Horace (Aldiesel) identifies problems with other sustainable entrepreneurs attempting to create biofuel from recovered waste materials. Horace argues that incentives and expectation provided by the market make these entrepreneurs “only interested in burning waste”, which only creates a demand for more waste. Instead, Horace argues that biofuel entrepreneurs should follow his venture and focus on an algae farming model, so as to produce bio-crops efficiently and sustainably.

Time-to-conflict manipulation is a rhetorical strategy used to push conflicting legitimate goals and objectives into some incalculable future. Sustainable entrepreneurs argued that observable challenges to legitimacy today do not necessarily mean conflict in the future. For example, Elliot (NewCoal) aims to process woody biomass materials, cultivated and harvested from forests, into a coal-like substance

that can be co-fired with coal using new torrefaction technology. His background as an engineer and in business, however, has made him keenly aware of the difficulties that his product would have with competing on price and quantity with coal. Elliot rhetorically responds by pushing the price concerns of stakeholder groups into the future through a rhetorical concept he calls “relevant pricing”. He states that it “doesn’t necessarily mean that you need to be as cheap as today’s coal or gas, but if you think you’re able to help them within the next three to four years, which is more our thing, then you should be able to convince them that within three or four years’ time you’re about to help them with a relevant fuel that will compete somehow with the alternatives”. Elliot stresses that this is important because at the end of the decade, there are as many trees as in the beginning, which makes them an unlimited energy crop, while the amount of fossil fuel coal is limited. The result is that prices will make his venture competitive in the future.

These two rhetorical strategies were found to be deployed simultaneously to respond to the various challenges by different stakeholder groups. For instance, an investor that raises concerns over financial viability, or a government official who raises concerns about sustainability, are replied to using the same rhetorical strategies. In this sense, each of the respondents were found to have a well-developed rhetorical claim as to why their venture is attractive for any and all stakeholder groups. Additionally, since counter-rationalization is used to explain why other biofuel ventures are unattractive, each of the respondents were critical of each other, suggesting entrepreneurship in this sector remains a very contentious space. In fact, many of the respondents asked which other biofuel ventures were participating in this study, and then went on to explain why that project was going to fail despite the researcher stating it was not the purpose to identify which ventures were legitimate and which were not.

4.2. Reconcilatory Strategies

Respondents went beyond rhetoric by creating new sub-business units and strategically re-arranging their ventures in attempts to gain legitimacy.

The creation of sub-business units aims to gain legitimacy from stakeholder groups by improving the market feasibility, scale of production and sustainability judgements. For example, GreenEnergy created one business unit that focuses on local collection of food waste and uses a bio-digester to produce biogas and heat. Investors, who were approached to help the venture with financing, however, stated the project is only competitive when natural gas prices remain high and, therefore, is not a good candidate for investment. In response, a second business unit was created that purchases waste oils from across Europe to produce biodiesel at a large-scale. This business unit then ships the biodiesel to large oil companies across Europe. Complementing the two units is a policy of processing residue material from waste oils in the bio-digester so that the venture can use all aspects of waste materials. This allows the venture to overcome challenges to market feasibility and scale of production expectations. For instance, when prices of biodiesel are not encouraging, the venture sells the waste oil to other producers and buffers negative market conditions by relying selling biogas. Furthermore, the creation of sub-units qualifies the venture for new financial incentives from government programs aimed at large-scale renewable energy producers.

Strategic re-arrangement occurs as sustainable entrepreneurs experience institutional conflicts in terms of incompatible goals and objectives and decide to re-organize the venture. Robin (GreenGas), for example, aimed to produce bio-gas from a selection of crops (in this case, tomatoes, corn, beets, among others). Robin aims to provide an alternative market for farmers growing agricultural crops. During his planning, he aimed to show clearly compatibilities between cultivation of crops to produce biogas and market institutions by completing feasibility reports. However, early on in his planning, he was confronted with challenges voiced by the local community and NGO leaders: using food crops as a source of energy is highly contentious, as many believe this to be linked to higher food prices globally. In order to avoid being held up by this conflict, Robin decided to re-organize input streams,

sign new contracts, and organize transportation of waste agricultural crops for production of biogas only, enabling him to side-step the conflict.

4.3. Institutional Change Strategies

Contrary to the reconciliation strategies, sustainable entrepreneurs may not have the option of creating another business unit or re-organizing without compromising their core business model. In these cases, respondents took a more confrontational route by trying to alter the institutions themselves. Sustainable entrepreneurs took an active role in institutional change by directing attention and resources towards collective action efforts. For instance, Jack (EcoGas) aims to produce a high-quality “green” biogas that can be directly inserted into the infrastructure built for natural gas. He works with a vision of “an industry size of 20,000 little energy factories in Holland”. However, Jack learned that there was no legislation that would allow biogas to be inserted into the natural gas infrastructure—“you can enormously believe in sustainable energy but if legislation does not allow you on that net, then have you nothing, then you are finished”. To deal with this conflict, Jack worked together with other biogas entrepreneurs to contact members of the Dutch Parliament, specifically the parliamentary commission of energy. After several meetings, Jack succeeded in garnering support, whereby policy was developed that favored the introduction of high-quality bio-gas into the national gas infrastructure.

Institutional change strategies were found to be quite common across the sample of biofuel ventures. Many of the ventures coordinate with each other, and with national and EU associations, such as European Biofuel Association, to lobby local and national governments for more biofuel-friendly policies. These actions provide further evidence suggested by Thompson et al. [14] that sustainable entrepreneurs are politically active and thus key drivers of changes to institutional arrangements towards sustainability. And yet, institutional change strategies create an implicit tension between rhetorically criticizing other biofuel ventures to legitimate their venture, while simultaneously collaborating with them to change institutions. When asked about this tension, respondents suggested that collaboration typically happens between entrepreneurs who have similar business models (e.g., biocoal), while counter-rationalization is targeted at other business models (e.g., biogas). As a result, there exist small bands of biofuel entrepreneurs in the country that try to change local and national institutions in their favor, whilst relying on broad-based biofuel associations to affect change to EU policy.

5. Discussion

This section unpacks the implications for theory and practice, as well as avenues for future empirical research.

5.1. Implications for Theory

This study contributes to the growing literature on sustainable entrepreneurship in a number of ways. First, although scholars have noted that policy, norms and values have implications for the success of sustainable ventures [10,11], few studies have inductively focused on sustainable entrepreneurial behavior in their institutional setting. The majority of theory development around sustainable entrepreneurship overlooks the role of sector-level formal and informal institutions in attempts to theorize topics such as competencies, strategies, or behavior generally. Klewitz [17] and Muñoz and Dimov’s [57] review of sustainable SMEs and entrepreneurship shows that few studies take institutional context into account. On the other hand, this study suggests sustainable entrepreneurial behavior is intimately linked to the institutional context in which it occurs. As such, the a priori removal of sustainable entrepreneurship from an institutional context during research design likely undermines one’s ability to explain why sustainable entrepreneurs are behaving in certain ways and not others. Consequently, this contributes to the literature by specifically deploying

an institutional theory-led design through which it is possible to reveal legitimation strategies from within institutional complexity.

Second, these findings add further insight into recent studies on sustainable entrepreneurship. A tentative link with Ploum et al.'s [18] list of competencies for sustainable entrepreneurs can be established. The respondents in this study all were competent with respect to the existing institutions that stakeholder groups use to make their legitimacy judgements, had well-developed rhetorical claims, and managed their ventures strategically. Yet, the findings of this study further detail three forms of legitimation strategies—rhetorical, reconciliatory and institutional change—in order to provide more detail than Ploum et al.'s categorization. For instance, these findings suggest that sustainable entrepreneurs use rhetorical strategies to elevate their particular organizational form (e.g., biogas) above other organizational forms (e.g., biocoal), which creates small bands of rhetorically competitive entrepreneurs. Moreover, these findings are similar to recent studies that have argued sustainable entrepreneurs are politically active [14,19,22,23], but goes a step further by also detailing how and why rhetoric and internal management can also be used to gain legitimacy with external stakeholder groups. This resonates with Muñoz and Cohen's [16] theory of sustainable entrepreneurship as being synchronized with socioeconomic and biophysical environments. In particular, the three legitimation strategies can be understood as aims to synchronize the venture with the socioeconomic environment by convincing stakeholders to lend their financial and political support.

5.2. Future Empirical Research

To assist in the development of theory, research is needed that operationalizes legitimation strategies with all of their subcomponents. Although the conceptualization proposed here is related to prior empirical work, there are substantial differences that nonetheless exist between what is conceived of here and existing measures of sustainable entrepreneurial behavior. Specifically, future research could develop a scale that captures the rhetorical, organizational and institutional components of legitimation strategies, while also capturing dimensions related to institutional context, such as the number of institutions, degree of compatibility, and centrality [38]. The latter could be done by measuring the number of instances that debates within sectors occur over time, for example, biofuels have seen the food versus food debate exist in the media for at least a decade. Furthermore, research could measure the impact of these behavior on other constructs, such as survival and performance among sustainable entrepreneurs. Additionally, scholars may try to measure the amount of use of these legitimation strategies per case, and link this with performance and survival over time. This could be done by qualitative content analysis of presentations (for rhetoric), annual reports (reconciliation) and legal challenges (institutional). Finally, future empirical research should examine the transferability of the findings in this study for sustainable entrepreneurs in other sectors and/or other institutional settings to reveal similarities and differences.

5.3. Implications for Practitioners

Finally, this study has a few practical implications for sustainable entrepreneurs. As the knowledge base of institutional environments at the sector-level increases, it is possible to know in advance common institutional contradictions that persist in different fields and in different locations. This knowledge base will enable sustainable entrepreneurs to understand the likely negative or positive responses by media, community, stakeholder or governments across various fields, or in similar fields in different countries. This study reveals common options that biofuel entrepreneurs have chosen to respond to institutional-based stakeholder conflicts. Knowledge of the advantages and disadvantages of these options can help sustainable entrepreneurs make informed strategies of whether to amplify rhetoric, engage in institutional entrepreneurship or alter their own organization to conform to institutions. Applying this knowledge would help avoid costly confrontations and enable the growth of sustainable ventures into stable companies that have a much larger positive influence on the preservation of the natural environment.

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References

1. Levin, K.; Cashore, B.; Bernstein, S.; Auld, G. Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change. *Policy Sci.* **2012**, *45*, 123–152. [[CrossRef](#)]
2. Dean, T.J.; McMullen, J.S. Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *J. Bus. Ventur.* **2007**, *22*, 50–76. [[CrossRef](#)]
3. Patzelt, H.; Shepherd, D.A. Recognizing Opportunities for Sustainable Development. *Entrep. Theory Pract.* **2011**, *35*, 631–652. [[CrossRef](#)]
4. Cohen, B.; Winn, M.I. Market imperfections, opportunity and sustainable entrepreneurship. *J. Bus. Ventur.* **2007**, *22*, 29–49. [[CrossRef](#)]
5. Hall, J.K.; Daneke, G.A.; Lenox, M.J. Sustainable development and entrepreneurship: Past contributions and future directions. *J. Bus. Ventur.* **2010**, *25*, 439–448. [[CrossRef](#)]
6. Shepherd, D.A.; Patzelt, H. The New Field of Sustainable Entrepreneurship: Studying Entrepreneurial Action Linking What Is to Be Sustained With What Is to Be Developed. *Entrep. Theory Pract.* **2011**, *35*, 137–163. [[CrossRef](#)]
7. Suchman, M.C. Managing legitimacy: Strategic and institutional approaches. *Acad. Manag. Rev.* **1995**, *20*, 571–610.
8. Farla, J.; Alkemade, F.; Suurs, R.A.A. Analysis of barriers in the transition toward sustainable mobility in the Netherlands. *Technol. Forecast. Soc. Chang.* **2010**, *77*, 1260–1269. [[CrossRef](#)]
9. Foxon, T.; Pearson, P. Overcoming barriers to innovation and diffusion of cleaner technologies: Some features of a sustainable innovation policy regime. *J. Clean. Prod.* **2008**, *16*, S148–S161. [[CrossRef](#)]
10. Meek, W.R.; Pacheco, D.F.; York, J.G. The impact of social norms on entrepreneurial action: Evidence from the environmental entrepreneurship context. *J. Bus. Ventur.* **2010**, *25*, 493–509. [[CrossRef](#)]
11. Sine, W.D.; Haveman, H.A.; Tolbert, P.S. Risky Business? Entrepreneurship in the New Independent-Power Sector. *Adm. Sci. Q.* **2005**, *50*, 200–232. [[CrossRef](#)]
12. Girod, B. Product-oriented climate policy: Learning from the past to shape the future. *J. Clean. Prod.* **2016**, *128*, 209–220. [[CrossRef](#)]
13. Gast, J.; Gundolf, K.; Cesinger, B. Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions. *J. Clean. Prod.* **2017**, *147*, 44–56. [[CrossRef](#)]
14. Thompson, N.A.; Herrmann, A.M.; Hekkert, M.P. How sustainable entrepreneurs engage in institutional change: Insights from biomass torrefaction in the Netherlands. *J. Clean. Prod.* **2015**, *106*, 608–618. [[CrossRef](#)]
15. de Leeuw, T.; Gössling, T. Theorizing change revisited: An amended process model of institutional innovations and changes in institutional fields. *J. Clean. Prod.* **2016**, *135*, 435–448. [[CrossRef](#)]
16. Muñoz, P.; Cohen, B. Towards a social-ecological understanding of sustainable venturing. *J. Bus. Ventur. Insights* **2017**, *7*, 1–8. [[CrossRef](#)]
17. Klewitz, J.; Hansen, E.G. Sustainability-oriented innovation of SMEs: A systematic review. *J. Clean. Prod.* **2014**, *65*, 57–75. [[CrossRef](#)]
18. Ploum, L.; Blok, V.; Lans, T.; Omta, O. Toward a Validated Competence Framework for Sustainable Entrepreneurship. *Organ. Environ.* **2017**. [[CrossRef](#)]
19. Pinkse, J.; Groot, K. Sustainable entrepreneurship and corporate political activity: Overcoming market barriers in the clean energy sector. *Entrep. Theory Pract.* **2015**, *39*, 633–654. [[CrossRef](#)]
20. Gasbarro, F.; Rizzi, F.; Frey, M. Sustainable institutional entrepreneurship in practice: Insights from SMEs in the clean energy sector in Tuscany (Italy). *Int. J. Entrep. Behav. Res.* **2018**, *24*, 476–498. [[CrossRef](#)]
21. Gioia, D.A.; Corley, K.G.; Hamilton, A.L. Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organ. Res. Methods* **2013**, *16*, 13–31. [[CrossRef](#)]
22. Pacheco, D.F.F.; Dean, T.J.J.; Payne, D.S.S. Escaping the green prison: Entrepreneurship and the creation of opportunities for sustainable development. *J. Bus. Ventur.* **2010**, *25*, 464–480. [[CrossRef](#)]
23. Schaltegger, S.; Wagner, M. Sustainable entrepreneurship and sustainability innovation: Categories and interactions. *Bus. Strategy Environ.* **2011**, *20*, 222–237. [[CrossRef](#)]

24. Hockerts, K.; Wüstenhagen, R. Greening Goliaths versus emerging Davids—Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *J. Bus. Ventur.* **2010**, *25*, 481–492. [CrossRef]
25. Schaltegger, S.; Wagner, M. Types of sustainable entrepreneurship and conditions for sustainability innovation: From the administration of a technical challenge to the management of an entrepreneurial opportunity. In *Sustainable Innovation and Entrepreneurship*; Wüstenhagen, R., Hamschmidt, J., Sharma, S., Starik, M., Eds.; Edward Elgar Publishing Limited: Cheltenham, UK, 2008; pp. 27–48.
26. Lenox, M.; York, J.G. Environmental Entrepreneurship. In *Oxford Handbook of Business and the Environment*; Hoffman, A.J., Bansal, T., Eds.; Oxford University Press: Oxford, UK, 2011.
27. Thompson, N.A.; Kiefer, K.; York, J.G. Distinctions not dichotomies: Exploring social, sustainable, and environmental entrepreneurship. In *Social and Sustainable Entrepreneurship (Advances in Entrepreneurship, Firm Emergence and Growth)*; Emerald Books: Bingley, UK, 2011; Volume 13, pp. 201–229.
28. Dixon, S.; Clifford, A. Ecopreneurship—A new approach to managing the triple bottom line. *J. Organ. Chang. Manag.* **2007**, *20*, 326–345. [CrossRef]
29. Boutillier, S.; Ryckelynck, P. Sustainable-entrepreneurs: Quantifying opportunities and social networks, case study on sustainable entrepreneurs in a heavy industrial area. *Int. J. Entrep. Small Bus.* **2017**, *31*, 85–102. [CrossRef]
30. Blok, V.; Gremmen, B.; Wesselink, R. Dealing with the Wicked Problem of Sustainability in advance. *Bus. Prof. Ethics J.* **2016**. [CrossRef]
31. Parrish, B.D. Sustainability-driven entrepreneurship: Principles of organization design. *J. Bus. Ventur.* **2009**, *25*, 510–523. [CrossRef]
32. Hockerts, K.; Muñoz, P.; Janssen, F.; Nicolopoulou, K. Advancing sustainable entrepreneurship through substantive research. *Int. J. Entrep. Behav. Res.* **2018**, *24*, 322–332.
33. Bruton, G.D.; Ahlstrom, D.; Li, H.-L. Institutional Theory and Entrepreneurship: Where Are We Now and Where Do We Need to Move in the Future? *Entrep. Theory Pract.* **2010**, *34*, 421–440. [CrossRef]
34. Patterson, J.; Schulz, K.; Vervoort, J.; van der Hel, S.; Widerberg, O.; Adler, C.; Hurlbert, M.; Anderton, K.; Sethi, M.; Barau, A. Exploring the governance and politics of transformations towards sustainability. *Environ. Innov. Soc. Transit.* **2017**, *24*, 1–16. [CrossRef]
35. Tolbert, P.S.; David, R.J.; Sine, W.D. Studying Choice and Change: The Intersection of Institutional Theory and Entrepreneurship Research. *Organ. Sci.* **2010**, *22*, 1332–1344. [CrossRef]
36. Thompson, N.A. Institutional Logics and Entrepreneurship: Struggling for Legitimacy in the Emerging Bioenergy Field. Ph.D. Thesis, Utrecht University, Utrecht, The Netherlands, 2013.
37. Koh, L.P.; Ghazoul, J. Biofuels, biodiversity, and people: Understanding the conflicts and finding opportunities. *Biol. Conserv.* **2008**, *141*, 2450–2460. [CrossRef]
38. Besharov, M.L.; Smith, W.K. Multiple institutional logics in organizations: Explaining their varied nature and implications. *Acad. Manag. Rev.* **2014**, *39*, 364–381. [CrossRef]
39. Greenwood, R.; Raynard, M.; Kodeih, F.; Micelotta, E.R.; Lounsbury, M. Institutional complexity and organizational responses. *Acad. Manag. Ann.* **2011**, *5*, 317–371. [CrossRef]
40. York, J.G.; Hargrave, T.J. Coverging winds: Logic hybridization in the Colorado wind energy field. *Acad. Manag. J.* **2016**, *59*, 579–610. [CrossRef]
41. Wright, W.; Reid, T. Green dreams or pipe dreams? Media framing of the U.S. biofuels movement. *Biomass Bioenergy* **2011**, *35*, 1390–1399. [CrossRef]
42. Grunwald, M. The Clean Energy Scam. *TIME Magazine*, 27 March 2008.
43. Sussman, P. Biofuel: Green Savior or Red Herring? Available online: <http://edition.cnn.com/2007/TECH/science/04/02/biofuel.debate/> (accessed on 3 April 2018).
44. Van Renssen, S. A biofuel conundrum. *Nat. Clim. Chang.* **2011**, *1*, 389–390. [CrossRef]
45. Binder, A. For love and money: Organizations' creative responses to multiple environmental logics. *Theory Soc.* **2007**, *36*, 547–571. [CrossRef]
46. Purdy, J.M.; Gray, B. Conflicting logics, mechanisms of diffusion, and multi-level dynamics in emerging institutional fields. *Acad. Manag. J.* **2009**, *52*, 355–380. [CrossRef]
47. Dunn, M.B.; Jones, C. Institutional logics and institutional pluralism: The contestation of care and science logics in medical education. *Adm. Sci. Q.* **2010**, *55*, 114–149. [CrossRef]

48. Woolthuis, R.K.; Hooimeijer, F.; Bossink, B.; Mulder, G.; Brouwer, J. Institutional entrepreneurship in sustainable urban development: Dutch successes as inspiration for transformation. *J. Clean. Prod.* **2013**, *50*, 91–100. [[CrossRef](#)]
49. Greenwood, R.; Suddaby, R. Institutional entrepreneurship in mature fields: The Big Five accounting firms. *Acad. Manag. J.* **2006**, *49*, 27–48. [[CrossRef](#)]
50. Pacheco, D.F.; York, J.G.; Dean, T.J.; Sarasvathy, S.D. The coevolution of institutional entrepreneurship: A tale of two theories. *J. Manag.* **2010**, *36*, 974–1010. [[CrossRef](#)]
51. Battilana, J.; Leca, B.; Boxenbaum, E. How Actors Change Institutions: Towards a Theory of Institutional Entrepreneurship. *Acad. Manag. Ann.* **2009**, *3*, 65–107. [[CrossRef](#)]
52. Gasbarro, F.; Annunziata, E.; Rizzi, F.; Frey, M. The Role of Sustainable Entrepreneurs within Sustainable Energy Action Plans. In *Academy of Management Proceedings*; Academy of Management: Briarcliff Manor, NY, USA, 2015.
53. Eisenhardt, K.M.; Graebner, M.E. Theory Building From Cases: Opportunities and Challenges. *Acad. Manag. J.* **2007**, *50*, 25–32. [[CrossRef](#)]
54. Thornton, P.H.; Jones, C. Institutional logics and institutional change in organizations: Transformation in accounting, architecture, and publishing. *Res. Sociol. Organ.* **2005**, *23*, 125–170.
55. Gardner, B.; Tyner, W. Explorations in biofuels economics, policy, and history: Introduction to the special issue. *J. Agric. Food Ind. Organ.* **2007**, *5*, 1–8. [[CrossRef](#)]
56. Mayring, P. Qualitative content analysis. In *Empirical Methods for Bioethics: A Primer*; Emerald Group Publishing Limited: Bingley, UK, 2004; pp. 266–269.
57. Muñoz, P.; Dimov, D. The call of the whole in understanding the development of sustainable ventures. *J. Bus. Ventur.* **2015**, *30*, 632–654. [[CrossRef](#)]



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