

Hörisch, Jacob

Article

The role of sustainable entrepreneurship in sustainability transitions: A conceptual synthesis against the background of the multi-level perspective

Administrative Sciences

Provided in Cooperation with:

MDPI – Multidisciplinary Digital Publishing Institute, Basel

Suggested Citation: Hörisch, Jacob (2015) : The role of sustainable entrepreneurship in sustainability transitions: A conceptual synthesis against the background of the multi-level perspective, Administrative Sciences, ISSN 2076-3387, MDPI, Basel, Vol. 5, Iss. 4, pp. 286-300, <https://doi.org/10.3390/admsci5040286>

This Version is available at:

<https://hdl.handle.net/10419/239759>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Article

The Role of Sustainable Entrepreneurship in Sustainability Transitions: A Conceptual Synthesis against the Background of the Multi-Level Perspective

Jacob Hörisch

Department of Business Economics, Faculty of Human Sciences and Social Sciences,
Alanus University of Arts and Social Sciences, Villestraße 3, Alfter 53347, Germany;
E-Mail: jacob.hoerisch@alanus.edu; Tel.: +49-222-293-211-671;
Fax: +49-222-293-211-642

Academic Editor: Joseph Roberts

Received: 24 August 2015 / Accepted: 9 November 2015 / Published: 17 November 2015

Abstract: This paper conceptually synthesizes prior studies on sustainable entrepreneurship against the background of the multi-level perspective. It thereby relates separate streams of literature on sustainable entrepreneurship, sustainability transformations and ecopreneurship, which have previously not been systematically connected and synthesized, to the multi-level perspective. The paper furthermore provides suggestions on how the multi-level perspective can be advanced based on the inspirations of these previously only sparsely-connected streams of literature. Finally, implications for entrepreneurs, academia and politics are presented: means to increase the contribution of sustainable entrepreneurship to sustainability transitions are suggested, and the importance of growth and degrowth is discussed in the context of sustainable entrepreneurship.

Keywords: sustainable entrepreneurship; multi-level perspective; sustainability transitions; ecopreneurship; sustainable development; degrowth; transformation

1. Introduction

Numerous environmental problems remain unsolved, such as climate change or resource scarcity, and many global social grievances, which hinder current generations in developing countries to meet

their needs, persist, such as compulsory work. Therefore, researchers from various disciplines emphasize that a shift towards a more sustainable development has become inevitable. Sustainable development can be described as “a development which meets the needs of current generations, without compromising the ability of future generations to meet their own needs” [1]. Given the severity of sustainability-related challenges, scholars increasingly agree that not only incremental changes are required, but entire socio-technological transitions, e.g., [2–4]. Such transitions are defined as “major, non-linear changes in societal cultures, structures and practices [...] that arise from the coevolution between economy, society and ecology” [4], (p. 22). Consequently, sustainability transitions are defined as transitions that lead to more sustainable systems of production and consumption [5].

While literature increasingly deals with sustainability transitions and emphasizes the necessity of transitions to take place, e.g., [3], a common criticism concerning this literature is its neglect of agency and actors [6–9]. However, actors are a crucial leverage point for sustainability transitions, because transitions will be brought forward by actors and their interactions. As the business-related literature on sustainability transitions and transformations has primarily focused on large companies, e.g., [4,10] (for recent exceptions, see, for example, [11,12]), this paper uses the multi-level perspective (MLP) [3,4] to examine how sustainable entrepreneurship can support sustainability transitions. With reference to Patzelt and Shepherd [13] (p. 632), sustainable entrepreneurship can be defined as “the discovery, creation and exploitation of opportunities to create future goods and services that sustain the natural and/or communal environment and provide development gain for others.” The MLP is used as the theoretical framework, as it combines different theoretical streams ranging from long-wave theory on techno-economic paradigms to sociological theories, such as new institutionalism or evolutionary economics [3], and, thus, provides an inclusive framework that allows one to comprehensively assess the contribution of an actor group to sustainability transitions and to include further theoretical considerations. Thus, using the MLP allows analyzing the influence of these actors with regard to different dimensions of sustainability transitions (e.g., technology, culture, policy).

The paper proceeds as follows: The next section summarizes the literature on sustainable entrepreneurship and sustainability transitions. In Section 3, the theoretical framework of the MLP is introduced. Section 4 synthesizes the existing knowledge on sustainable entrepreneurship to analyze the role sustainable entrepreneurship can play for sustainability transitions. Finally, the discussion and conclusions in Section 5 provide implications on how entrepreneurs, politics and academia can support sustainability transitions.

2. Literature Review

The literature has identified factors that play a crucial role for transitions to take place (technology, science, consumer preferences, policy, socio-cultural regimes) and emphasizes that changes concerning all of these aspects are needed to create transitory processes [3]. These factors in turn can be influenced by different societal actors. In the case of sustainability transitions, the importance of large companies is frequently emphasized, e.g., [3,4,14]. Geels [3] (p. 25), for example, states that “the empirical domains where sustainability transitions are most needed [...] are characterized by large firms”. This poses the question of whether entrepreneurship and start-ups are, in turn, unimportant for sustainability transitions.

Hockerts and Wüstenhagen [15] discuss the contributions of small, emerging firms (entrants) and large, established firms (incumbents) to sustainability transformations. However, this debate on sustainability transformations [15–17] has so far not systematically been linked to the existing knowledge on the MLP of sustainability transitions [3,4]. While the sustainability transformation literature is primarily concerned with the transformation of industries, e.g., [15,16], the transition literature takes a somewhat broader perspective, which includes other spheres, as well, such as ecology and society, e.g., [3,4]. In the context of sustainability transformations, Hockerts and Wüstenhagen [15] (p. 481) find that smaller, less established businesses, *i.e.*, entrants, are more likely to “pursue sustainability related opportunities”. As entrants do not need to fear destroying their own, established business models, they are able to bring about radical sustainability-oriented innovations (SOI) and, thus, put pressure on incumbents. According to Hockerts and Wüstenhagen [15], entrant companies are frequently run by idealistic entrepreneurs. These ventures thus experience high levels of credibility and set high sustainability standards. Therefore, they usually do not aim at the mass market, but act within their market niche. Klein Woolthuis [18] identifies two drivers of SOI by new businesses: First, the public awareness for sustainability creates market opportunities. Second, sustainability-oriented entrepreneurs need to be convinced that these opportunities can be pursued in a profitable manner. In contrast, common barriers that lead to the failure of sustainable start-ups are the dominance of large, incumbent firms that act in closed networks, a lack of vision and ambition in regulation, as well as old routines and beliefs among business actors [18]. Hockerts and Wüstenhagen [15] (p. 488) conclude their description of entrants by stating that they are particularly important to “kick off sustainability transformation”.

In contrast, according to Hockerts and Wüstenhagen [15], incumbents, *i.e.*, large, established firms, are unlikely to bring about radical, transformative sustainability-oriented innovations. Due to past investments, they are bound to their existing assets, which are not related to sustainability transformation. As incumbents are usually reluctant to bring about their own sustainability-oriented innovations, they are challenged by the new products and services of entrants. The strength of incumbents, however, is their ability to pursue process innovations, which enable these actors to copy existing products and services of entrants in an economically-efficient manner.

Connecting the transformation [15–17] with the transitions literature [3,4] allows addressing the criticism of Hockerts and Wüstenhagen’s [15] approach that large companies themselves are also able to pro-actively address sustainability challenges, e.g., [19], as the MLP identifies different possible roles for large companies [10].

Similar to the discussion brought forward by Hockerts and Wüstenhagen [15], the literature on ecopreneurship deals with the role of entrepreneurship for sustainability, e.g., [20,21]. The term ecopreneurship is defined as entrepreneurial, market-oriented activity that places the solution of environmental problems at the core of the respective business activity and strives for market leadership [20]. Schaltegger [20] (p. 46) describes ecopreneurship as the most consequent form of environmental management as ecopreneurial companies and actors create “new products, services, techniques and organizational modes that substantially reduce environmental impacts and increase the quality of life” and thus go beyond incremental improvements, which are frequently characteristic of environmental management in large companies. In addition to ecopreneurship, the following two forms of sustainability-oriented entrepreneurial activity (*i.e.*, alternative actors; bioneers) are

distinguished in the ecopreneurship literature, based on their market impact and environmental orientation [20,21]. All three forms of sustainability-oriented entrepreneurial activity (alternative actors; bioneers; ecopreneurs) show high degrees of environmental orientation, which is usually “assessed on the basis of environmental goals and policies, the ecological profile of the range of products and services, the organization of environmental management in the company and the communication of environmental issues” [20] (p. 45). However, these types of entrepreneurial activity differ with regard to their market impact, which is reflected in the level of sales and market shares. Alternative actors, sometimes also referred to as activists, are characterized by low levels of market impact, *i.e.*, for instance, low market shares, but high degrees of environmental orientation. They are described as strongly motivated by ethical values and as opposing the establishment. Marketing is frequently rejected, and trade (if at all) is restricted to a clearly-defined community (e.g., personal contacts, bartering clubs) [20]. Bioneers share the alternative actors’ high degree of environmental orientation. Their goods and services are traded on conventional, but usually small markets (e.g., local communities, strongly environmentally-oriented milieus) [20]. As bioneers frequently follow the idea of “small is beautiful”, *cf.* [22], bioneers show only moderate levels of market impact, even though their venture may be based on a well-functioning business model [20]. In contrast to alternative actors and bioneers, ecopreneurs combine high degrees of environmental orientation with the ambition to create high market impacts [20].

In addition to the ecopreneurship literature, which values and supports the growth of sustainability-oriented ventures, a debate on degrowth [23–25] has emerged, which considers economic growth as one of the core barriers to sustainable development. Schneider *et al.* [26] (p. 511) define degrowth as an “equitable downscaling of production and consumption”. Others, e.g., [27,28], emphasize that a selective degrowth is needed, which not only entails economic shrinkage, but also a shift towards a qualitatively different economy.

The above literature review documented that a growing level of knowledge on entrepreneurship explicitly aiming at sustainability has been created. However, these previously distinct streams of literature have only recently been examined together, primarily in the context of strategic niche management, e.g., [29,30]. Thus, further research is needed to systematically connect sustainable entrepreneurship with the sustainability transitions debate. The ecopreneurship literature, for example, has not yet been analyzed against the backdrop of the MLP on sustainability transitions. Consequently, Loorbach and Wijsmann [4] (p. 27) emphasize that “the relationship between societal transitions and the role of business needs further exploration” and continue that within this context, special attention should be drawn to how the size of the firm influences “its possibilities to play an active role” in sustainability transitions. The next section will therefore summarize the theoretical approach of the MLP to enable a theory-led analysis of the role of entrepreneurship in sustainability transitions in Section 4.

3. Theoretical Background: The Multi-Level Perspective

To analyze and synthesize prior studies on entrepreneurship and sustainability in this article, the MLP, e.g., [3,4,31], serves as a theoretical framework for investigating the role of entrepreneurship in sustainability transitions. The early works on the MLP, which form the basis of the theoretical

approach, do not focus on sustainability transitions, but deal with sociotechnical transitions in general, e.g., [31,32]. Today, the MLP receives growing attention, particularly in the context of sustainability. Geels [3] highlights specific characteristics of so-called “sustainability transitions” (see also [10]): First, sustainability transitions are goal-oriented. In contrast, most of the past transitions emerged as open-ended. Second, the goal of sustainability transitions is a collective good. Thus, the individual user benefits from sustainability-oriented innovations, and new sustainable solutions can frequently be hidden from the consumer or pose only indirect benefits, which not only serve the consumer, but also the wider community. Therefore, in the context of sustainability transitions, regulations that set legal and economic incentives are of particular importance [3]. Third, many authors highlight the importance of not only technological, but also behavioral change and grassroots innovations for sustainability transitions, especially for the context of renewable energy transitions, e.g., [33–35].

Like conventional transitions, sustainability transitions result from interaction processes between three different socioeconomic levels, which build a nested hierarchy: micro-level niches, meso-level regimes and macro-level landscapes (see Figure 1) ([3]; see also [10]). Regimes are frequently described as the dominant structure among these three levels [4]. Geels [3] (p. 26) defines them as “established practices and associated rules that stabilize existing systems”. Micro-level niches are “practices or technologies that deviate substantially from the existing regime” [3] (pp. 26–27) and provide protected room for learning processes and radical innovations [3]. Lastly, the sociotechnical landscape is described as the “external environment that influences interactions between niche(s) and regime” [3] (p. 27). Exemplary features at the landscape level are societal values, political ideologies or macro-economic patterns [3].

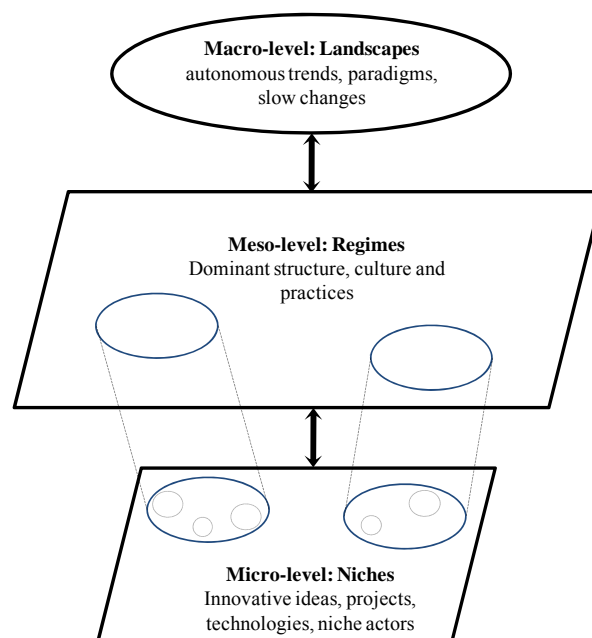


Figure 1. The multi-level perspective (MLP) framework, based on Loorbach and Wijsman [4] (p. 23).

Loorbach and Wijsman [4] describe three dominant mechanisms of change that transitions can follow, *i.e.*, system innovation, optimization and reconfiguration. System innovation, which transforms the entire system and thus creates rapid, radical and transformative changes, is usually created at the niche level [3]. Due to their stabilizing function, changes at the regime level usually occur

incrementally. Similarly, at the landscape level, slow changes dominate. Therefore, optimization, which increases stability, and reconfiguration, which is adaptive and dynamic, are usually found at the macro-level of landscapes and the meso-level of regimes [3].

A frequent criticism of the MLP is its alleged lack of agency, e.g., [6–8]. Proponents of the MLP, such as Geels [3] (p. 29), responded that “the MLP is shot through with agency”, as, for example, the interactions between the different levels, and the routines the MLP describes are always created by the activities of actors. However, the roles of specific actors, particularly those in the micro-level niches, have only scarcely been discussed explicitly. Lawhon and Murphy [14], as well as Loorbach and Wijsman [4] argue that large companies are central actors for transitions. They not only act at the dominant meso-level of regimes, but are also found to frequently govern these regimes. According to Lawhon and Murphy [14] and Loorbach and Wijsman [4], large companies are able to support transitions by accelerating sustainability-oriented innovations.

Start-ups are expected to be important actors at the niche level [3,31]. However, the role of entrepreneurship and start-ups in the MLP has only been discussed in a few publications, which build on case studies of specific industries. Gibbs and O’Neill [36] analyzed the role of green entrepreneurship in the green building sector. They found that the boundary between green and conventional entrepreneurship is not that clear-cut in the green building sector and highlighted that differing interests might exist within micro-level niches. Similarly, Witkamp *et al.* [37] investigated the phenomenon of social entrepreneurship in The Netherlands against the backdrop of the MLP to analyze how strategic niche management can be applied in the context of social innovation. They identified a social entrepreneurship niche in The Netherlands and forecast the growing importance of this niche. Additionally, they highlighted that the MLP too strongly focuses on technological innovations, as numerous radical sustainability-oriented innovations are rather social innovations than technological ones. Other studies, e.g., [38,39], investigate the role of grassroots initiatives at the niche-level (e.g., car clubs, wind energy initiatives). However, these studies have not been conducted against the background of, or been systematically connected with, the MLP. Consequently, these primarily industry-specific case studies do not systematically answer the general questions (and do not aim at doing so) of what kind of changes sustainable entrepreneurship and sustainable start-ups are most likely to bring about when considered from the MLP, what the MLP can tell about the role of sustainable entrepreneurs and start-ups in sustainability transitions, what contribution these phenomena can deliver to sustainability transitions and how this contribution can be increased.

4. Analysis: The Role of Start-Ups in Sustainability Transitions

Synthesizing the existing knowledge on sustainable entrepreneurship against the background of the MLP allows one to position start-ups within the MLP framework (Figure 2). Earlier works on the MLP identified and graphically conceptualized actors at the regime level, *i.e.*, producer networks, suppliers, user groups, societal groups, public authorities, research networks and financial networks [31]. In contrast, the actors operating at the niche level are usually not graphically included in the MLP framework. Based on Geels [3], start-ups, as well as R&D departments and spin-offs of large companies can be expected to primarily operate at the niche level. However, even though it is these actors at the niche and at the regime level whose interactions will cause sustainability transitions, they

have not been integrated in the most common MLP framework before (compare Figure 1). Figure 2 addresses this issue and incorporates actors in the MLP framework. As documented in Figure 2, sustainability-oriented start-ups can be expected to primarily operate within micro-level niches. Obviously, start-ups might also act at the regime level (e.g., supplying larger companies with inputs), but the innovating, creatively destructing role of sustainable start-ups [15,20,21] is most likely to be fulfilled at the niche level.

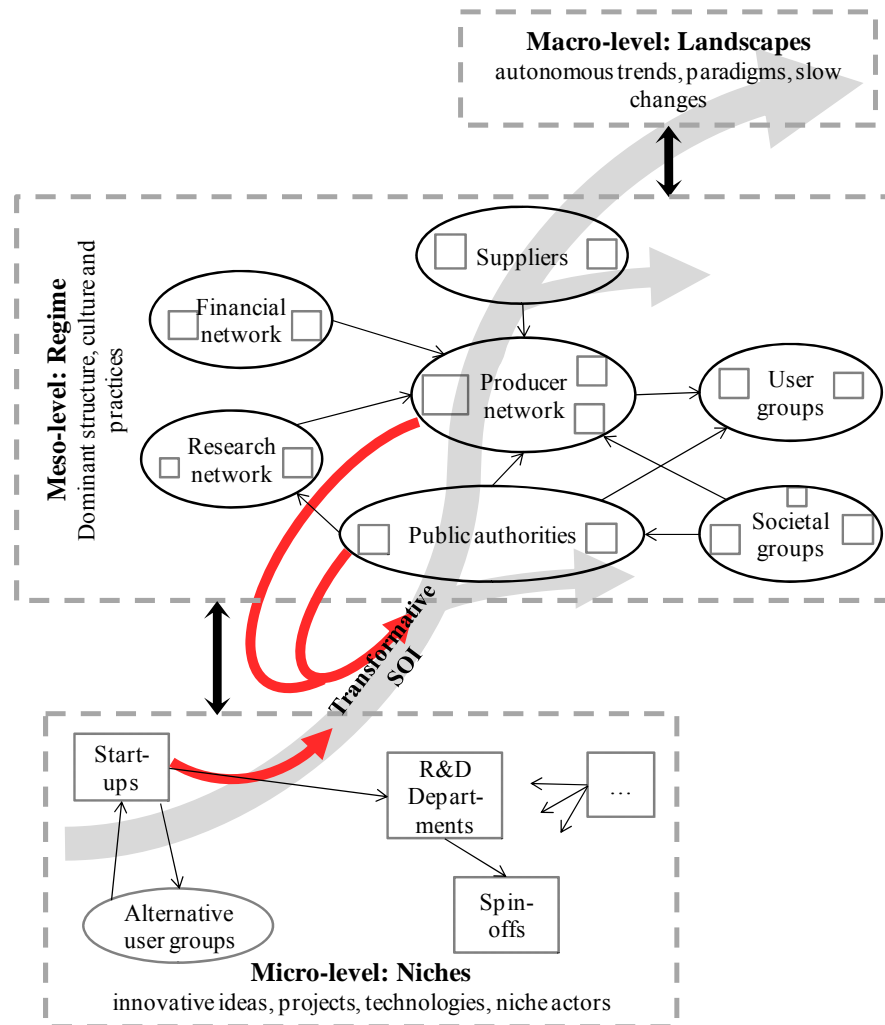


Figure 2. Actor perspective on the MLP framework. Notes: Own illustration based on Geels [31] (p. 1260) and Loorbach and Wijsman [4] (p. 23). The circles represent different groups of actors; the squares specific actors. The grey arrow in the background depicts a typical course of transitions. The red arrows show the potential influences of exemplary actors on pushing or pulling SOIs. The boundaries of the three levels are shaded in grey to signal their permeability.

Analyzing the existing ecopreneurship and sustainable entrepreneurship literature furthermore allows exploring how start-ups can support sustainability transitions. Thereby, such an analysis offers additional insights to the MLP (which are incorporated in Figure 2): First, due to their past investments and path dependencies, large companies cannot be expected to bring about transformative SOIs [15]. This provides start-ups with the potential to fulfill this function of generating transformative SOIs

(primarily product and service innovations). However, generating such SOIs will not support sustainability transitions if these transitions are only taken up to an irrelevant degree. This highlights the importance of the second mechanism of how sustainable start-ups can support sustainability transitions, *i.e.*, increasing the market effect.

The ecopreneurship literature identifies two dimensions of entrepreneurial activity that can also be applied to sustainable entrepreneurship, *i.e.*, the market impact and the sustainability effect, *cf.* [20,21]. Analyzing the interplay between these two dimensions reveals interesting implications. For start-ups that provide products or services with positive sustainability effects (*i.e.*, positive environmental and/or social externalities), the overall contribution to sustainability transitions amplifies with increasing market shares as the sustainable products and services of ecopreneurs replace comparatively unsustainable products and services. This highlights important consequences for sustainability activists and bioneers. Sustainability activists frequently supply products or services with positive sustainability effects or significantly lower negative effects than conventional competitors (e.g., organic allotments, which increase local biodiversity, or neighborly car sharing, which reduces the pollution created by other actors). However, the market effect of such activities is clearly limited, because trading is restricted to clearly-defined communities, such as personal contacts, and marketing is usually rejected. As typically a no profit orientation is chosen, or this is at least not the motivation for starting the venture, there is no monetary incentive to increase the market effect, and the positive sustainability effect is thus limited to a quantitatively marginal group. Similarly, bioneers usually also follow high sustainability standards, but deliberately restrict the market impact of their venture to small user groups, such as local communities, without the ambition to extend the market impact to further groups. Thus, for bioneers, as well as for activists, it is unlikely that they can put market pressure on actors at the meso-level. In contrast, ecopreneurs aim at increasing their market share and achieving market leadership while still having high sustainability standards. Thereby, they frequently make use of economies of scale and provide sustainable products to consumers who have not consumed sustainable products before. The German organic lemonade “Bionade”, for example, is nowadays not only distributed in organic supermarkets, but also in conventional supermarkets in Germany, targeting broader groups of consumers [40,41]. This highlights that if ecopreneurs who create positive sustainability effects aim at market leadership, they will be able to increase their market impact, as well as their overall sustainability effect and eventually become part of the meso-level regime. Thus, if sustainable entrepreneurs aim at supporting sustainability transitions, this aim will most likely be met with an ecopreneurial perspective if market leadership and, finally, reaching the meso-level regime are envisaged. In conclusion, analyzing the interplay between the sustainability effect and market impact highlights that both dimensions are strongly interlinked and that both dimensions are needed to meaningfully contribute to sustainability transitions. Therefore, sustainable entrepreneurs are first challenged to create products and services with positive sustainability effects (or at least substantially lower negative sustainability effects as competing products and services) and second to distribute and sell these products and services as widely as possible to develop a large overall sustainability effect and a significant contribution to sustainability transitions. This goes to show that besides generating transformative SOIs, start-ups can also support sustainability transitions through pushing transformative SOIs to the mass market if they take an ecopreneurial perspective. Obviously, start-ups are not the only actors that can shift SOIs from niches to the regime level. Additionally, actors at the

regime level, such as public policies and producer networks, are able to (and maybe even required to) use their resources to pull SOIs to the mass-market of regimes (e.g., if large retailers include sustainability-oriented products in their assortments). These phenomena are depicted by the red arrows in Figure 2.

The current German debate on animal welfare displays typical characteristics of this mechanism [42–44]. Since 2009, it can be observed that eggs produced by dual-purpose farms are increasingly merchandised on the mass market. On these dual-purpose farms, the cocks are not shredded immediately after birth, but raised for meat production. Obviously, farms that produce such eggs for their local markets have existed ever since. However, recently, the products of dual purpose farms were pushed to the mass market. In 2009 interpreneurs, *i.e.*, entrepreneurial actors who build networks [45], started to realize the market potential for marketing such products on the national scale [42]. Soon, one of the biggest German organic supermarket chains, Alnatura, got interested in the new products [44], and in 2015, the German minister of food and agriculture even announced that he will legally abandon shredding new born cocks by 2017 [46]. Thus, the sustainability-oriented interpreneurial initiative succeeded to push the innovation to the meso-level by aiming at market growth.

Another such example where ecopreneurial actors push SOIs to the market is the renewable energy transition. Again, start-ups, such as Solar-World [47] or EWS [48], developed the ambition to leave their niche and to push their products and services to the mass market. They successfully increased their market share by replacing less sustainable means of energy production. Again, their push was supported by a pull of regime-level actors, such as the German federal government introducing the Renewable Energies Act [49], and large-scale energy companies, which started offering renewable energy, as well (after many years of fighting the transition).

Third, these examples demonstrate that, besides creating direct contributions to sustainability transitions by selling sustainable products and services (and thus, replacing unsustainable products and services), sustainable entrepreneurship can support sustainability transitions by influencing other important actors. Here, actors at the meso-level regimes, such as large companies, are of crucial importance, as the meso-level regime is the dominant structure in sustainability transitions, and it is frequently found to be governed by large companies [3]. Sustainable start-ups, in contrast, primarily operate at the niche level. However, sustainable start-ups bear the potential to influence processes at the meso-level of regimes if they influence actors at the meso-level.

Sustainable entrepreneurship can, for example, put pressure on large companies and their research and development (R&D) departments by offering customers more sustainable (or substantially less unsustainable) products. Thereby, start-ups can create a benchmark for competitors and increase the sustainability expectations of user groups. This urges large companies to improve their own sustainability performance and the sustainability effect of their products and services in order to be able to cope with the new challenges created by sustainable start-ups. Large companies in meso-level regimes might, for example, imitate the products and services of sustainable start-ups, which increases the indirect market impact and the sustainability effects of sustainable start-ups.

Similarly, public authorities and standardizing bodies, such as the ISO (International Organization for Standardization), are frequently influenced by sustainable entrepreneurship through the new state of the art that sustainable start-ups introduce. Fair trade labels can serve as a good example for this process, as they were first developed in and for a relatively small niche, but over time have become a

standard that is also recognized by actors at the regime level. Additionally, sustainable entrepreneurship can even act as a role model for the governmental welfare function. The concept of micro-credits is a good example for this process, as it is nowadays applied by governmental institutions after it had successfully been introduced and scaled by the Grameen Bank.

Fourth, applying an actor perspective to the MLP offers additional insights concerning its conceptual framework (compare Figure 1). Earlier work on the MLP highlighted the existence of numerous interactions between the micro-, meso- and macro-level [3,4,31]. An analysis of the role of sustainable entrepreneurship in sustainability transitions reveals that the boundaries between the different levels might be less clear-cut than expected in the current MLP literature, *cf.* [3,4,31].

Start-ups, for example, can be placed at the meso-level, e.g., if they supply or support large, established companies. As described above, sustainable start-ups are, however, more likely to be part of micro-level niches, bringing about radical, disruptive product or service innovations. Similarly, while large companies belong to and might even govern meso-level regimes, their R&D departments may be placed in a sustainability-oriented niche. While this article suggests that, even within niches, established companies are unlikely to promote disruptive innovations, it can be in a company's interest to have connections to an innovative niche in order to be aware of new products and services and to be able to pick up such new trends. To accelerate transitions, actors that are able to connect the different levels, such as ecopreneurs or spin-offs of established companies, are of central importance, as they can shift sustainable products and services to the meso-level regimes. This suggests that the three levels of the MLP framework are not clear-cut, but that their boundaries are rather permeable. These new insights into the MLP propose a few adaptations to Figure 1, such as the integration of the micro- and meso-level actors and the permeability of the boundaries of the three levels (shaded in grey in Figure 2).

While the graphical conceptualization in Figure 2 highlights the potentials of start-ups to contribute to sustainability transitions, an important barrier exists that might hinder sustainable start-ups from contributing to sustainability transitions, *i.e.*, time. Based on the empirical investigations of past transitions, e.g., [31], the process of transitions can very roughly be estimated to endure an entire century. Sustainable start-ups, in contrast, usually face the challenge of surviving the first years after market entry and will therefore most likely not be the actors that continuously support the lastingness of a transition.

5. Discussion and Conclusions

The above analysis provides numerous implications for entrepreneurs, academia and politics. First, the analysis of the ecopreneurship literature from the theoretical lens of the MLP highlights the importance of the market effect for sustainable entrepreneurship. Thus, sustainable entrepreneurs with the ambition to support sustainability transitions are challenged to envisage increasing their market impact in order to achieve a meaningful overall sustainability effect and to be able to unfold positive indirect effects (e.g., through putting pressure on competitors and public authorities). Thereby, it is important to create individual user benefits through improving the sustainability performance in order to set individual incentives for customers (without strong sustainability preferences) to consume sustainable products. In contrast, entrepreneurs applying the principle of “small is beautiful”, *cf.* [22],

to their businesses are unlikely to influence sustainability transitions. Consequently, sustainability activists and bioneers are challenged to rethink their strategies, as within these groups, many innovative, sustainable ideas exist that embody the potential to create solutions to sustainability problems. However, frequently, a reluctance towards marketing and scaling these ideas can be found among sustainability activists and bioneers, who are often motivated by strong commitments towards the principles of sustainability and sometimes also by the idea of degrowth, *cf.* [15,20]. In addition to these idealistic reasons, Hockerts and Wüstenhagen [15] provide the economic motives of sustainable entrepreneurs to keep their market niches small. Sustainable start-ups might fear that strong growth of their ventures and the respective niche might attract established companies. As these companies bear the economic potential to supersede and marginalize start-ups, the prospect of sustainable start-ups to increase their market share and contributions to sustainability transitions might thus be overruled by the fear of a loss of security. Consequently, the potential contributions of sustainability activists and bioneers to sustainability transitions cannot fully unfold, due to skepticism towards growth.

However, many authors demonstrate the potential of the degrowth paradigm. Johannisova *et al.* [50], for example, highlight that “economic growth correlates with growth of energy and material throughput”. Additionally, they argue that the paradigm of growth is “deeply ineffective due to its many negative social and environmental externalities”. However, Johannisova *et al.* [50] also highlight that some companies, such as social enterprises, do not create negative, but positive externalities. The German organic supermarket chain Alnatura, for example, claims to create positive externalities, as the cultivation of organic vegetables following the company’s standards does not decrease, but improves the quality of the soil [51]. This goes to show that, while the concept of degrowth might entail important potentials to contribute to a more sustainable development on a societal or even global level, it should not be misunderstood by sustainable entrepreneurs. If sustainable entrepreneurs follow a degrowth logic in the sense that they limit the market effect of their own venture and the respective positive externalities to small niches, the paradigm is picked up by those very businesses whose growth will support a more sustainable development. Therefore, Rockström [25] correctly argues that we need to deal with the issue of growth with great care, but that in some sectors, such as renewable energies, economic growth is needed to achieve a more sustainable development. While the concept of degrowth certainly has its merits, *e.g.*, [28], it is important that it is not just picked up by those entrepreneurs, *i.e.*, sustainable entrepreneurs, whose entrepreneurial activity requires growth to have a significant positive impact on sustainable development.

Besides the challenge to grow, sustainable start-ups face the challenge to communicate the sustainability effect connected to their products and services. Otherwise, these start-ups will only unfold the direct sustainability effects linked to the products or services sold, but will miss unfolding indirect effects. If, for example, the use of fair trade inputs or organic ingredients is not communicated, it will not cause pressure on established competitors or standard setting organizations to adopt the new state of the art and is also unlikely to create increased expectations among consumers.

Furthermore, the analysis provides implications for politics, as it highlights the necessity to politically support the growth of sustainable start-ups. In this context, subsidized loans for sustainable start-ups can be a promising tool to support sustainability transitions. However, start-ups will not be able to bring about sustainability transitions on their own. Politics is therefore challenged to adapt the

legal infrastructure, e.g., by internalizing externalities through pricing pollutions, *cf.* [52,53], which in turn can create potential for new sustainable start-ups.

From an academic perspective, the findings challenge the idea of degrowth in the context of sustainable entrepreneurship, as the analysis suggests that the concept is no promising approach for entrepreneurs aiming at contributing to sustainability transitions. Furthermore, synthesizing the sustainable entrepreneurship literature against the backdrop of the MLP reveals new conceptual insights to the MLP's conceptual framework, which should be addressed more comprehensively in future empirical research. Lastly, the analysis highlighted that several similar academic debates in the realm of the MLP on sustainability transitions, e.g., [3,4], sustainability transformations, e.g., [15], and ecopreneurship, e.g., [20,21] co-exist, which have so far not been systematically connected. This paper therefore aimed at synthesizing the existing debates and integrating them into the MLP. To fully use the potential of existing theoretical and empirical knowledge for sustainability transitions, it is of utmost importance to build bridges between different theoretical and academic debates and inclusively consider insights from various debates.

Besides the insights and implications that this analysis offers, there are some important limitations that should not go unmentioned. First, while ecopreneurial ventures that create positive externalities and aim at increasing their market effect are able to significantly contribute to sustainability transitions, it is by no means an easy task for entrepreneurs to realize such ecopreneurial ventures. Second, while such ventures are able to support sustainability transitions, their contribution will by no means be a sufficient condition for sustainability transitions to take place. Additionally, contributions from many other actors and organizational forms, such as politics, large companies or the creation of completely new actors or organizational forms, will be required. Last, the proposed concept of how sustainable entrepreneurship can contribute to sustainability transitions builds on and integrates two concepts, which still deserve more empirical investigations. Future research should therefore address the concepts of ecopreneurship and the MLP and strengthen the empirical basis of both concepts.

Conflicts of Interest

The author declares no conflict of interest.

References

1. World Commission on Environment and Development. *Our Common Future*; Oxford University Press: Oxford, UK, 1987.
2. Russo, M.V.; Fouts, P.A. A resource-based perspective on corporate environmental performance and profitability. *Acad. Manag. J.* **1997**, *40*, 534–559.
3. Geels, F.W. The multi-level perspective on sustainability transitions: Responses to seven criticisms. *Environ. Innov. Soc. Transit.* **2011**, *1*, 24–40.
4. Loorbach, D.; Wijsman, K. Business transition management: Exploring a new role for business in sustainability transitions. *J. Clean. Prod.* **2013**, *45*, 20–28.
5. Markard, J.; Raven, R.; Truffer, B. Sustainability transitions: An emerging field of research and its prospects. *Res. Pol.* **2012**, *41*, 955–967.

6. Smith, A.; Stirling, A.; Berkhout, F. The governance of sustainable socio-technical transitions. *Res. Pol.* **2005**, *34*, 1491–1510.
7. Shove, E.; Walker, G. Caution! Transitions ahead: Politics, practice, and sustainable transition management. *Environ. Plann. A* **2007**, *39*, 763–770.
8. Genus, A.; Coles, A.M. Rethinking the multi-level perspective of technological transitions. *Res. Pol.* **2008**, *37*, 1436–1445.
9. Bakker, S. Actor rationales in sustainability transitions—Interests and expectations regarding electric vehicle recharging. *Environ. Innov. Soc. Transit.* **2014**, *13*, 60–74.
10. Hörisch, J. The Role of Large Companies in Sustainability Transitions. Ph.D. Thesis, Leuphana University, Lüneburg, Germany, 16 May 2014.
11. Wells, P. Economies of Scale Versus Small Is Beautiful: A Business Model Approach Based on Architecture, Principles and Components in the Beer Industry. *Organ. Environ.* **2015**, doi:10.1177/1086026615590882.
12. Schaltegger, S.; Hansen, E.G.; Lüdeke-Freund, F. Business Models for Sustainability: Origins, Present Research, and Future Avenues. *Organ. Environ.* **2015**, doi:10.1177/1086026615599806.
13. Patzelt, H.; Shepherd, D.A. Recognizing Opportunities for Sustainable Development. *Enterpren. Theor. Pract.* **2011**, *35*, 631–652.
14. Lawhon, M.; Murphy, J.T. Socio-technical regimes and sustainability transitions: Insights from political ecology. *Progr. Hum. Geogr.* **2012**, *36*, 354–378.
15. Hockerts, K.; Wüstenhagen, R. Greening Goliaths versus emerging Davids—Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *J. Bus. Venturing* **2010**, *25*, 481–492.
16. Erlinghagen, S.; Markard, J. Smart grids and the transformation of the electricity sector: ICT firms as potential catalysts for sectoral change. *Energ. Pol.* **2012**, *51*, 895–906.
17. Sommer, A. *Managing Green Business Model Transformations*; Springer: Heidelberg, Germany, 2012.
18. Klein Woolthuis, R.J. Sustainable Entrepreneurship in the Dutch Construction Industry. *Sustainability* **2010**, *2*, 505–523.
19. Choueke, M. Where the seeds of revolution are sown. *Market. Week* **2011**, *34*, 3.
20. Schaltegger, S. A framework for ecopreneurship: Leading bioneers and environmental managers to ecopreneurship. *GMI* **2002**, *38*, 45–58.
21. Petersen, H. The Competitive Strategies of Ecopreneurs: Striving for Market Leadership by Promoting Sustainability. In *Making Ecopreneurs: Developing Sustainable Entrepreneurship*; Schaper, M., Ed.; Gower: Farnham, UK, 2010; pp. 223–236.
22. Schumacher, E.F. *Small is Beautiful: Economics as if People Really Mattered*; Abacus: London, UK, 1973; p. 64.
23. Quilley, S. System Innovation and a New “Great Transformation”: Re-embedding Economic Life in the Context of “De-Growth”. *J. Soc. Enterpren.* **2012**, *3*, 206–229.
24. D’Alisa, G.; Demaria, F.; Kallis, G. *Degrowth: A Vocabulary for a New Era*; Routledge: New York, NY, USA, 2014.

25. Rockström, J. Bounding the Planetary Future: Why We Need a Great Transition. 2015. Available online: <http://www.greattransition.org/publication/bounding-the-planetary-future-why-we-need-a-great-transition> (accessed on 13 November 2015).
26. Schneider, F.; Kallis, G.; Martinez-Alier, J. Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue. *J. Clean. Prod.* **2010**, *18*, 511–518.
27. Latouche, S. *Farewell to Growth*; Polity Press: Cambridge, UK, 2009.
28. Kallis, G. In defence of degrowth. *Ecol. Econ.* **2011**, *70*, 873–880.
29. Schot, J.; Geels, F.W. Strategic niche management and sustainable innovation journeys: Theory, findings, research agenda, and policy. *Tech. Anal. Strat. Manag.* **2008**, *20*, 537–554.
30. Raven, R.; van den Bosch, S.; Weterings, R. Transitions and strategic niche management: Towards a competence kit for practitioners. *Int. J. Tech. Manag.* **2010**, *51*, 57–74.
31. Geels, F.W. Technological transitions as evolutionary reconfiguration processes: A multi-level perspective and a case-study. *Res. Pol.* **2002**, *31*, 1257–1274.
32. Kemp, R. Technology and transition to environmental sustainability: The problem of technological regime shifts. *Futures* **1994**, *26*, 1023–1046.
33. Elzen, B.; Hofman, P. Exploring Future Transition Pathways—The Socio-Technical Scenario Approach. Paper presented at the International Summer Academy on Technology Studies—Transforming the Energy System, The Role of Institutions, Interests & Ideas, Deutschlandsberg, Austria, 27–31 August 2007.
34. Praetorius, B. Optimising the Framework for Innovation in the Electricity System—Lessons from Five Case Studies in Germany. *GAIA* **2009**, *18*, 221–228.
35. Seyfang, G.; Haxeltine, A.; Hargreaves, T.; Longhurst, N. Energy and communities in transition: Towards a new research agenda on agency and civil society in sustainability transitions. CSERGE Working Paper EDM 10-13. 2010. Available online: http://cserge.ac.uk/sites/default/files/edm_2010_13.pdf (accessed on 13 November 2015).
36. Gibbs, D.; O'Neill, K. Rethinking sociotechnical transitions and green entrepreneurship: The potential for transformative change in the green building sector. *Environ. Plann. A* **2014**, *46*, 1088–1107.
37. Witkamp, M.J.; Raven, R.; Royakkers, L. Strategic niche management of social innovations: The case of social entrepreneurship. *Tech. Anal. Strat. Manag.* **2011**, *23*, 667–681.
38. Seyfang, G.; Smith, A. Grassroots Innovations for Sustainable Development: Towards a New Research and Policy Agenda. *Environ. Polit.* **2007**, *16*, 584–603.
39. Hargreaves, T.; Hielscher, S.; Seyfang, G.; Smith, A. Grassroots innovations in community energy: The role of intermediaries in niche development. *Global Environ. Change* **2013**, *23*, 868–880.
40. Mussey, D. Global highlight: Bionade. *Advert. Age* **2007**, *78*, 40.
41. Landi, H. A Refreshing Change. *Beverage World* **2008**, *127*, 12.
42. Bruderhahn Initiative Deutschland. Available online: www.bruderhahn.de (accessed on 6 October 2016).
43. Halder, K. Wir bringen den Gockel nicht ums EGG—Für eine faire Hühneraufzucht. Available online: <http://www.hennengockelei.de/idee.html> (accessed on 6 October 2015).

44. Alnatura. Was ist ein Zweinutzungshuhn. Available online: <http://www.alnatura.de/de-de/panorama/faq/bio-eier-fragen-und-antworten/8-was-ist-ein-zweinutzungshuhn> (accessed on 6 October 2015).
45. Mottiar, Z.; Ingle, S. Broadening the Entrepreneurial Perspective. *Int. Small Bus. J.* **2007**, *25*, 667–680.
46. German Federal Ministry of Food and Agriculture. *Schmidt forciert Forschung zum Ausstieg aus der Kükentötung*; Berlin, Germany, 2015. (In German)
47. Solar World. The Company. Available online: <http://www.solarworld.de/en/group/global-strength/locations-worldwide/> (accessed on 6 October 2015).
48. Elektrizitätswerke Schönau. Introducing the Elektrizitätswerke Schönau (EWS). Available online: http://www.ews-schoenau.de/fileadmin/content/documents/Footer_Header/2012-03_presentation__EWS_english_.pdf (accessed on 6 October 2015).
49. Jacobsson, S.; Lauber, V. The politics and policy of energy system transformation—explaining the German diffusion of renewable energy technology. *Renew. Energy Policies Eur. Union* **2006**, *34*, 256–276.
50. Johanisova, N.; Crabtree, T.; Fraňková, E. Social enterprises and non-market capitals: A path to degrowth? *J. Clean. Prod.* **2013**, *38*, 7–16.
51. Rehn, G. Verzicht—Keine Einschränkung, sondern die Entscheidung für weniger, aber in besserer Qualität. Available online: <http://www.alnatura.de/de-de/panorama/kultur-und-gesellschaft/gesellschaft/verzicht-als-chance> (accessed on 6 October 2015).
52. Steurer, R.; Martinuzzi, A.; Margula, S. Public Policies on CSR in Europe: Themes, Instruments, and Regional Differences. *Corp. Soc. Responsib. Environ. Manag.* **2012**, *19*, 206–227.
53. Hörisch, J. Combating climate change through organisational innovation: An empirical analysis of internal emission trading schemes. *Corp. Govern.* **2013**, *13*, 569–582.