

Born sustainable SMEs: A systematic literature review

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Introduction

Addressing grand challenges like climate change and poverty requires sustainable transitions. While large firms often receive attention for sustainability efforts, SMEs also play a crucial role due to their innovation capacity and flexibility. This study focuses on Born Sustainable SMEs (BS SMEs), which integrate sustainability principles from inception, distinguishing them from traditional firms. These firms balance profitability with environmental and social goals, representing a novel paradigm in entrepreneurship and business strategy.

The pressing need to solve “grand challenges” such as climate change, poverty, migration, and health (Buckley et al., 2017) calls for sustainable transition on a broad scale. In addressing the UN’s Sustainable Development Goals (SDGs), many well-established companies are pursuing sustainability programs aimed at ambitious social and environmental outcomes. While the focus on sustainability often has been set on large, multinational firms (e.g., Elg et al., 2012; Ghauri, 2022), there is less focus on smaller firms (SMEs) that are actively transitioning towards sustainable business practices. This is surprising, given that SMEs are often viewed as major innovators, where their flexibility and specificity drive these firms’ innovation capacity (Rovira Nordman and Melén, 2008). From a policy perspective, SMEs are also considered central to enabling a shift towards a more sustainable economy (e.g., European Commission, 2022). At the European level, it has been emphasized that SMEs “bring innovative solutions to challenges like climate change, resource efficiency, and social cohesion and help to spread innovation throughout Europe’s regions” (European Commission, 2024).

This study stresses the need to learn more about the unique characteristics and innovative approaches of those smaller firms (SMEs) that are actively transitioning towards sustainable business practices, on a national and international scope. Our study departs from the understanding that SMEs and new ventures are not to be seen as scaled-down versions of large firms. SMEs function differently from large firms in their capacity to innovate and engage in social and environmental issues, and SMEs might even entail unique advantages in support of sustainable-oriented innovations (Klewitz and Hansen, 2014; Iturrioz et al., 2015). While larger, multinational firms tend to focus on compliance and risk mitigation related to

sustainability issues, this paper builds on the assumption that smaller firms that operate on sustainable business models from the outset have the capacities to innovate and drive change proactively on a national and international scope. In the literature, this special breed of SME has been labelled “Born Sustainable Firms” (BSFs) (Knoppen and Knight, 2022). Drawing on the concept of Born Global firms, and the understanding of how such small firms can expand abroad from inception (Knight and Cavusgil, 2004), the Born Sustainable firms have been characterized by their inherent commitment to sustainability principles from inception. The BSFs represent a novel paradigm in entrepreneurship and business strategy (Knoppen and Knight, 2022). Unlike traditional businesses that adopt sustainability practices in response to external pressures or as part of a strategic pivot, BS SMEs integrate these practices into the very fabric of their organizational culture based on principles of sustainability, collaboration, and innovation (Isensee et al., 2020; Todeschini et al., 2017). These firms are anchored in the explicit strategic intent to operate sustainably, often reflected by the innate structures of their business models (Ostermann et al., 2021). They often lack the legacy of operating on a traditional business logic based on profitability concerns. Rather, they may be led by a corporate purpose to, besides making profits, also realize social and/or environmental goals. This means in practice that BSFs seek to excel in their environmental and social impact and drive change in their respective industries while achieving sufficient and not superior financial performance, thus uncoupling the notion of advantage from profit. Their primary focus on achieving environmental and social impact implies the need to rethink the meaning of sustainable competitive advantage and triple bottom line as a balance of goals (Knoppen and Knight, 2022).

The emergence of BSFs marks a pivotal shift in the entrepreneurial and international business landscape, intertwining sustainability with core business functions from inception. While there are other similar concepts in the literature, e.g., Born Green, Born Circular as well as green startups, sustainability entrepreneurs, eco-enterprises (Demirel et al., 2017; Briguglio et al., 2021; Muo and Azeez, 2019), our focus on the BS SMEs concept recognizes these firms’ genuine sustainability spirit embracing all three pillars of sustainability which are considered equally important. As BSFs seek a balance of profitability and environmental and social objectives (Demirel et al., 2017; Hall et al., 2010), this creates specific challenges for these resource-scarce and small firms while at the same time allows them to capitalize on the specific organizational characteristics, brand values, and innovative practices.

As much as the BSFs are relevant to the circular economy as such, to sustainability and international business research, our knowledge of these types of companies is still extremely limited (Demirel et al., 2017; Ostermann et al., 2021). Although there is a growing number of theoretical and empirical studies across a variety of journals and platforms, the body of literature is very fragmented as regards the deeper insights into the mechanisms through which BSFs contribute to economic, social, and environmental sustainability, on a national and international level.

The purpose of this study is to address this knowledge gap by conducting a systematic review of the literature and exploring the organizational characteristics, innovative practices, and ecosystems of partners that distinguish BS SMEs. Our review aims to uncover how these firms embed environmental and social considerations into their DNA, the innovative approaches they adopt to address sustainability challenges, and how their network of partners supports or constrains their sustainable development objectives. We have chosen to focus our review on these three themes as these are recognized by the literature as key attributes of these firms (e.g.,

Knoppen and Knight, 2022; Ostermann et al., 2001). Hence, with this study, we can contribute to research by developing deeper insights into the mechanisms through which BSFs contribute to economic, social, and environmental sustainability. By mechanisms here we mean the ways these firms use their organizational characteristics and innovative practices in combination with the involvement of their vast network partners, to drive the environmental and social change in their respective industries. Moreover, by integrating these three themes, this literature review provides a comprehensive overview of the current state of research on BS SMEs. Finally, this study contributes to research by identifying the underlying tensions within each of the chosen themes and providing directions for further research on BS SMEs.

Method

This study departs from an understanding that our knowledge of BSFs is limited, despite these types of firms being relevant and important for the circular economy as such, and to sustainability and international business research. Moreover, the existing body of literature that covers knowledge related to BSFs is fragmented. To address the purpose of this study and deepen our understanding of these firms, a systematic literature review has been conducted. The literature review followed the principles of a systematic review approach to develop a broad and unbiased summary of papers covering BS, BC firms (BCF), sustainable entrepreneurship, circular business models, and sustainable SMEs. A systematic literature review has been argued to provide the most efficient and high-quality method for identifying and evaluating extensive literature (Tranfield et al., 2003). Such a review is guided by a scientific and replicable procedure, which is protocol-driven, to be conducted in a rigorous and transparent manner.

Guided by previous systematic literature reviews (Gallardo-Gallardo and Thunnissen, 2016) and reviews of CSR literature (Tarnovskaya, Tolstoy, and Melen, 2022) we have followed five distinct steps, which show how we ended up with the final sample of articles. Figure 1 outlines the five steps.

1. Setting the criteria for selecting studies: We restricted our search of articles to conceptual and empirical studies covering different combinations of themes about BS, Born Circular Firms (BCF), sustainable entrepreneurship, circular business models, and sustainable SMEs. Even though BS SME is the key concept used throughout our study, we have selected studies using BCFs, Sustainable Entrepreneurship, Circular Business Models in the context of SMEs. We have restricted the choice to peer-reviewed journals and included all journals featured by the academic databases Google Scholar, the Directory of Open Access Journals (DOAJ), ScienceDirect, Emerald Insight, and JSTOR. Given our intention to review broad and contemporary literature on BS SMEs, we considered the period ranging from January 1997 (Elkington, 1997) up to and including January 2024.
2. Identifying relevant studies: The second step included identifying relevant studies that concern the broader phenomenon under study – BS firms. We have used the keywords: "BS SMEs," "BC SMEs," "sustainable entrepreneurship," "circular economy business models," and "SME sustainability/circularity." This approach helped us locate a broader variety of studies than we could have reached by just focusing on BS SMEs firms. The

selected thirty-five articles provide both theoretical insights and practical examples of how these types of firms implement sustainability and circular economy principles.

3. **Selecting relevant studies:** The third step was about selecting articles that were deemed most relevant for content analysis. Based on the purpose of the study, we have focused on selecting articles that develop insights on the following three themes: 1) how the BS SMEs embed environmental and social considerations into their DNA (their organizational characteristics), 2) the innovative approaches they adopt to address sustainability challenges, and 3) how their network of partners supports or constrains their sustainable development objectives. An initial manual analysis of the thirty-five articles was done by two researchers, where the focus was on identifying those articles that contributed insights on one or several of the selected three themes. At this step, we arrived at thirty-two articles (see Table 1). It should also be mentioned that by no means does this review claim to cover all publications dealing with either the foundational organizational characteristics of BS SMEs, or their innovative approaches and their network of partners. Based on our inclusion criteria, we still argue that the literature included in our review enables us to give a broad and unbiased summary of papers contributing to our understanding of BS SMEs.
4. **Extracting the data:** In the fourth step, we carried out content analysis to identify key findings across the articles and the three themes. At this step, we manually made an in-depth review of each article and classified whether it primarily contributes to one or several of the studied themes. Table 2 presents the content analysis of the selected literature. It should be mentioned that the key themes identified are not seen as mutually exclusive nor collectively exhaustive. As a final step in this systematic review, we have synthesized our findings from the content analysis by presenting a conceptual model on the mechanisms through which BSFs contribute to economic, social, and environmental sustainability.
5. **Synthesis of findings:** Conceptual models of a) pathways through which BSFs drive change and b) tensions involved in driving social and environmental change.

Theoretical underpinnings

The concepts of Born Sustainable Firms and Born Circular Firms To learn more about Born Sustainable SMEs, we start by outlining the theoretical underpinnings and key definitions used to denote Born Sustainable (BS) firms and Born Circular (BC) firms. We choose to introduce the concepts of BS and BC firms to highlight the closeness of these concepts and the importance of sustainability and circularity in the current economic and environmental context. Moreover, understanding the major similarities and differences between these concepts helps us to more deeply understand the firms classified as Born Sustainable.

Knoppen and Knight (2022) defined born sustainable firms as those which are established with the explicit strategic intent to operate in a sustainable manner from the outset. In their article from 2017, Todeschini et al. described what they labelled born sustainable firms, which were start-ups conceived to develop a new business model leveraging sustainability at its core. BS firms are thus understood as businesses that are founded with a core mission to address

environmental or social issues through their products, services, and operations. Their sustainability goals are embedded in their business models from the start.

Born Circular firms have been defined as ventures that have been founded originally adhering to circular economy principles (Re and Magnani, 2022). BC SMEs incorporate circular economy principles at the foundation of their business model (Zucchella and Urban, 2020). This approach seeks to design out waste, keep products and materials in use, and regenerate natural systems. It represents a shift from a traditional linear economy of "take, make, dispose" to a more sustainable, circular model.

To conclude, both BS and BC firms are rooted in the recognition of environmental limits and the need for sustainable development. While BS firms have a broader focus that can include social and ethical concerns, BC firms concentrate specifically on resource use and waste minimization within the circular economy framework. This review focuses on enhancing our understanding of BS firms, thus recognizing these firms' genuine sustainability spirit embracing all three pillars of sustainability. In that effort, we still include studies on BC firms, to reach a broader variety of empirical and theoretical work on how these types of firms implement sustainability and circular economy principles.

Themes from the literature review

We have content analyzed the 32 articles based on the three themes of focus in this study. Table 2 presents the classification of each article, based on which theme(s) each article primarily contributes knowledge to. Below we go through the key findings of each theme. Based on the content analysis of the articles and each theme, we also conclude each theme with an analysis of the underlying tensions that might emerge when BSFs aim to continue developing and driving social and environmental change.

Theme 1: Foundational Organizational Characteristics of BS SMEs

In our content analysis, we find several articles that contribute key insights about the foundational organizational characteristics of BS SMEs (see Table 2). These articles add to our understanding of the characteristics of BS SMEs, in terms of their size, structure, culture, leadership, and strategic orientation towards sustainability and circular economy principles.

Several of the articles in this theme start out by describing how SMEs in general (Klewitz and Hansen, 2014) and BS SMEs (Knoppen and Knight, 2001) are characterized by resource poverty, lack of formalized planning with little specialization in roles. Some of the studies emphasize that instead of identifying these as disadvantageous characteristics, which have been the view most often adopted in SME studies, the focus should be on how such organizational characteristics can turn into unique advantages of BS SMEs. Todeschini et al. (2017) for example show how entrepreneurs of born-sustainable start-ups leveraged the startup's flexible state to design sustainability-oriented business models.

The articles within this theme emphasize and show how the owner-founder plays a key pivotal role in strategic decision-making for BS SMEs (Williams and Schaefer, 2012; Knoppen and Knight, 2021). Moreover, the startups' commitment to promoting social and environmental sustainability tends to be key values and motivations of founders and partners (Todeschini et al., 2017). Hence, a BS SME's engagement with environmental and climate issues is strongly

connected to their founders' and managers' personal values and beliefs. Lynch and Ferasso (2023) also show how founders' values and vision shape the growth of company values. Hence, founders' values related to sustainability can shape a business's values toward sustainability (Lynch and Ferasso, 2023). Based on the content analysis, we also see that BS SMEs often are characterized by a special organizational culture. A culture characterized by an entrepreneurial and innovative approach to solve environmental and social problems through business activities (Adams et al., 2016; Klewitz and Hansen, 2014). In such an organizational culture, sustainability is not regarded as an add-on, but rather becomes embedded within the firm, its strategies, and the purpose of the business (Adams et al., 2016; Klewitz and Hansen, 2014).

Already back in 2017, Todeschini et al. introduced the term “born sustainable” to acknowledge those startups that are originally conceived to develop a new business model leveraging sustainability as its core. Later, Ostermann et al. (2021) pointed out that born-sustainable companies are businesses designed to be sustainable from birth, based on the values and principles of sustainability, collaboration, and innovation. The BS firms' operation considers social and environmental objectives equal to economic purpose and performance. It is important to note that the sustainability term refers to all three pillars of sustainability; meaning that a born-sustainable company follows the environmental, social, and economic principles of sustainability. This could be seen in contrast to the term ‘born green companies’, which has been used to characterize those SMEs that create value through the implementation of environmentally friendly processes and proposing environmentally friendly innovative products and services (Sheppard & Mahdad, 2021).

To conclude, the articles add insights on how these organizational characteristics affect the ability of SMEs to implement sustainable and circular principles. First, BS SMEs are like other SMEs often characterized by scarcity of resources – financial as well as managerial, lack of formalized planning, and limited specialization in roles. Studies of BS SMEs question whether these attributes are in fact disadvantages, or instead lay the foundation for BS SMEs' capability to implement sustainable practices and innovations. This finding though opens the possible research gap related to the tensions between the availability (scarcity) of resources and the ambitious goals of achieving environmental and social impact. Second, the findings point out that founders' values related to sustainability are the foundation for the BS SMEs' sustainability values. However, there might be potential tensions between founders' sustainability values and employees' and partners' values which could affect the BS SMEs' ability to implement sustainability practices and principles. Such tensions can become particularly salient when the BS firm is growing. Third, on the organizational level, a BS SME is according to the literature considering social and environmental objectives equal to economic purpose and performance. The sustainability term refers to all three pillars of sustainability; meaning that a born-sustainable company follows the environmental, social, and economic principles of sustainability. However, in practice, there might be potential tensions for a BS SME in considering social, environmental equal to economic principles.

Theme 2: Innovation as a Driver for Sustainability

The content analysis identifies several articles that offer key insights on the innovative approaches that BS SMEs adopt to address sustainability challenges. The identified articles within this theme examine the types of innovations—product, process, and business model

innovation—that BS SMEs employ to address environmental and social challenges. Klewitz and Hansen (2014) explore the diversity of innovation practices that are prevalent among these SMEs, emphasizing the importance of comprehensive innovation strategies in enhancing sustainability outcomes. Their study highlights sustainability-oriented product, process, and organizational innovations, and the interaction between these types of innovations. Adams et al. (2016) also contribute to the understanding of sustainability-oriented innovations (SOIs) and the dimensions of SOI. As Adams et al. (2016) describe SOI, it involves making intentional changes to an organization's philosophy and values, as well as to its products, processes, or practices to serve the specific purpose of creating and realizing social and environmental value in addition to economic returns. Both articles (Adams et al., 2016; Klewitz and Hansen, 2014) therefore add insights on the innovation activities of becoming and being sustainable.

The studies within this theme collectively underline the main challenges that SMEs face in innovating, such as resource constraints, lack of formalized planning, and market acceptance. Once again, studies emphasize how these characteristics must not be seen as disadvantageous for a BS SME. As put by Klewitz and Hansen (2014), “it is recommended to move away from the focus on SMEs as reactive entities with disadvantageous characteristics such as resource scarcity...., and instead focus on their unique advantages in support of SOI.” Studies here emphasize the ability of SMEs to network with each other and compensate for resource shortages (Iturrioz et al., 2015; Prasanna et al., 2019), pointing at the importance of partnerships, social capital, and network dynamics for BS SMEs.

To conclude, the literature emphasizes the need for BS SMEs to adopt comprehensive innovation strategies in enhancing sustainability outcomes. It involves thinking and managing different types of innovations - sustainability-oriented product, process, and organizational innovations. In practice, a BS SME might experience tensions in their capability of developing these different types of innovations and adopting a comprehensive innovation strategy instead of focusing on one type of innovation. Another possible tension might lie in the contributions of partners into the BS innovative processes and the resulting network collaboration.

Theme 3: Ecosystem and Stakeholder Engagement

This theme investigates how BS SMEs build and manage their networks, including partnerships with suppliers, customers, governments, NGOs, and other stakeholders, in an international and/or national setting. The articles analyzed within this theme focus on the importance of collaborative efforts, knowledge exchange, and mutual support in enhancing sustainability impacts. The articles build on the understanding that for BS SMEs to overcome both operational and financial constraints and successfully introduce their sustainable innovations on a national and global scope, collaboration is key (e.g., Lelah et al., 2012; Kumar et al., 2020). Lelah et al. (2012) discussed the role of collaborative networks among SMEs in fostering sustainable innovation and highlighted the need for a strong leader to ensure credibility and effective collaboration. Recent articles have shown the value of the ecosystem perspective, to enhance understanding about such collaborative networks. Re and Magnani (2022; 2023) emphasize circular ecosystems, defined as “communities of hierarchically independent, yet interdependent heterogeneous set of actors who collectively generate a sustainable ecosystem outcome.” Their study postulates how BSFs can become orchestrators in such ecosystems and co-create value with key actors within these ecosystems. The articles within this theme point at the need to

encompass a variety of actors in our understanding of BSFs' ecosystem. Apart from customers and suppliers, Zucchella and Urban (2020) emphasize policymakers, the study by Santos (2022) highlights innovation stakeholders such as universities, incubators, and local science parks. The study by Scuotto (2020) points out that non-government environmental lobby groups, competitors, and even "person on the street" can be defined as relevant stakeholders in the sustainable innovation management context.

Other aspects emphasized within this theme are the types of partnerships (e.g., supply chain, strategic alliances, networks) that these SMEs engage in to support their sustainability and circularity goals; how ecosystems of partners influence the operational efficiency, innovation capabilities, and market positioning of BS and BC SMEs; the interconnectedness between organizational characteristics, innovation, and ecosystems of partners (Scuotto et al., 2020).

To conclude, the literature strongly points out the value of collaboration networks and ecosystem partners for BS SMEs. The literature at the same time points at the need for BS SMEs to be capable of managing collaboration with a variety of actors in their ecosystem. In practice, tensions might arise between different actors' contributions in the value co-creation process with BSFs (e.g., their resource contributions) and the resulting value gain that different actors obtain from this collaboration. Additionally, the possible tensions between the BSF's founder's and staff and network actors' values might impact the collaboration and innovation capability of the ecosystem. These tensions need to be solved to foster the BS SMEs' sustainability goals.

Discussion

The purpose of this study has been to conduct a systematic review of the literature and delve into the organizational characteristics, innovative practices, and ecosystems of partners that distinguish BS SMEs. We materialize the findings from our content analyses by developing a conceptual model showing how the three themes are connected and together function as pathways through which BSFs contribute to economic, social, and environmental sustainability and drive change.

Figure 1: The pathways through which BSFs contribute to economic, social, and environmental sustainability and drive change.

As shown in the model (see Figure 1), the foundational organizational characteristics of BSFs – their vision, mission, organizational structure, and values of their founders - shape their orientation towards sustainability that is embedded in the values, norms, and processes of these firms. Their organizational culture is usually characterized by a collaborative approach and strong propensity to innovate on product, process, and business model levels. Thus, the organizational characteristics of BSFs initiate and enhance their innovativeness as well as allow them to engage and mobilize multiple stakeholders in their ecosystem of partners. We argue that there should be a good match between BSFs and stakeholders' principles and values for fruitful collaboration and value co-creation to support their sustainability goals. In their turn, the collaborative networks reinforce the innovative approach by pooling their resources, sharing innovative practices, and growing the ecosystems of partners. By providing the pathways for innovation and partnerships, BSFs can drive social and environmental change and become leaders in the sustainable transition.

However, the positive development described above, i.e., BSFs' ability to drive social and environmental change, might be hindered by numerous tensions that arise within the organization as well as between BSFs and their partners. The next model, see Figure 2, delineates possible tensions that we have identified in the literature review and content analysis. Tensions related to organizational characteristics might include the conflict between the scarcity of resources that characterizes BSFs and their ambitious goals to implement and lead the change towards the sustainability transition in their industries. The values of founders might clash with those of the employees (especially if the company is growing) and external partners. Finally, the goals (environmental and/or social) might come into conflict with the financial goals which might be prioritized at the expense of these former goals for the firms' survival. These internal tensions might also trigger the tensions in the ecosystems of partners and affect stakeholder engagement negatively, making them demotivated and less willing to contribute their resources to the BSFs' sustainability projects and solutions. This can in turn affect the BSF's and networks' capabilities to innovate on a larger scale, making BSFs prone to use incremental and not radical innovations in their industries and weakening the possible impact of their operations on the industry's transition towards sustainability.

Figure 2: Tensions in the ecosystems and stakeholder engagement

We argue that by identifying and resolving these tensions, BSFs can create positive reinforcing pathways and achieve their ambitious goals without compromising their principles and values.

Concluding remarks

In this study, we have conducted a systematic literature review and explored the organizational characteristics, the innovative practices, and the ecosystem of partners that distinguish the BS SMEs.

One important finding of this study is to acknowledge Born Sustainable Firms' (BSFs) as an important breed of SMEs, that has the capacities to innovate and drive change proactively. These firms, characterized by their inherent commitment to sustainability principles from inception, represent a novel paradigm in entrepreneurship and business strategy (Knoppen and Knight, 2022).

We have suggested the directions for the future research focussing on the pathways reinforcing the ability of BSFs to achieve their ambitious goals and drive the environmental and social change without compromising their principles. Additionally, scholars need to explore how even these firms can overcome multiple tensions that might hinder these firms to drive change in terms of sustainability, in an international or even global context.

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Table 1: Details on the thirty-two articles

	Authors	Year	Publication title	Journal	Empirical/ Review
1.	Adams et al	2016	Sustainability-oriented Innovation: A systematic review	International Journal of Management Review	Review/conceptual
2.	Allal-Chérif et al.	2023	Born to be sustainable: How to combine strategic disruption, open innovation, and process digitization to create a sustainable business	Journal of Business Research	Qualitative case study
3.	Briguglio et al.	2021	Born or Grown: Enablers and Barriers to Circular Business in Europe	Sustainability	Qualitative case studies
4.	Caldera et al.	2018	Exploring the characteristics of sustainable business practice in small and medium-sized enterprises: Experiences from	Journal of Cleaner Production	Explorative qualitative study

			the Australian manufacturing industry		
5.	Centobelli et al.	2020	Designing business models in circular economy: A systematic literature review and research agenda	Business Strategy and the Environment	Systematic literature review
6.	D'Amato et al.	2020	Towards sustainability? Forest-based circular bioeconomy business models in Finnish SMEs	Forest Policy and Economics	Qualitative study
7.	Demirel et al.	2019	Born to be green: new insights into the economics and management of green entrepreneurship	Small Business Economics	Conceptual
8.	Isensee et al.	2020	The relationship between organizational culture, sustainability, and digitalization in SMEs: A systematic review	Journal of Cleaner Production	Systematic literature review
9.	Iturrioz et al.	2015	How to foster shared innovation within SMEs' networks: Social capital and the role of intermediaries	European Management Journal	Qualitative case study
10.	Klewitz and Hansen	2014	Sustainability-oriented innovation of SMEs: A systematic review	Journal of Cleaner Production	Systematic review
11.	Knoppen & Knight	2022	Pursuing sustainability advantage: The dynamic capabilities of born sustainable firms	Business Strategy and the Environment	Qualitative case studies
12	Kumar et al.	2020	Application of industry 4.0 technologies in SMEs for ethical and	Journal of Cleaner Production	Quantitative: Questionnaire

			sustainable operations: Analysis of challenges		
13.	Lelah et al.	2012	Collaborative network with SMEs providing a backbone for urban PSS: a model and initial sustainability analysis	Production Planning & Control	Case study
14.	Lynch & Ferasso	2023	The influence of a company's inherent values on its sustainability: Evidence from a born-sustainable SME in the footwear industry	Clearer and Responsible Consumption	Qualitative, explorative case study
15.	Muo and Azeez	2019	Green entrepreneurship: Litterature review and agenda for future research	International Journal of Entrepreneurial Knowledge	Review/Conceptual
16.	Ostermann et al.	2021	Drivers to implement the circular economy in born-sustainable business models: a case study in the fashion industry	Revista de Gestao	Qualitative case study
17.	Pieroni et al	2019	Business model innovation for circular economy and sustainability: A review of approaches	Journal of Cleaner Production	Review
18.	Prasanna et al.	2019	Sustainability of SMEs in the Competition: A Systemic Review on Technological Challenges and SME Performance	Journal of Open Innovation: Technology, Market, and Complexity	Systematic Review
19.	Radziwon and Bogers	2019	Open innovation in SMEs: Exploring inter-organizational relationships in an ecosystem	Technological Forecasting & Social Change	Qualitative case studies

20.	Re and Magnani	2023	Value co-creation processes in the context of circular entrepreneurship: A quantitative study on born circular firms	Journal of Cleaner Production	Quantitative survey study
21	Re and Magnani	2022	Value co-creation in circular entrepreneurship: An exploratory study on born circular SMEs	Journal of Business Research	Qualitative multiple case study
22.	Reineke et al.	2023	Towards a dynamic value network perspective of sustainable business models: the example of RECUP	Journal of Business Economics	Qualitative case study
23.	Rizos et al.	2016	Implementation of Circular Economy Business Models by Small and Medium-Sized Enterprises (SMEs): Barriers and Enablers	Sustainability	Qualitative case studies
24.	Salvador et al.	2020	Circular business models: Current aspects that influence implementation and unaddressed subjects	Journal of Cleaner Production	Review
25.	Santos	2022	Building entrepreneurial ecosystems: the case of Coimbra	Journal of Science and Technology Policy Management	Case study
26.	Scuotto et al.	2020	Do stakeholder capabilities promote sustainable business innovation in small and medium-sized enterprises? Evidence from Italy	Journal of Business Research	Quantitative: survey-based
27.	Shepphard and Mahdad	2021	Unpacking Hybrid Organizing in a Born Green	Sustainability	Qualitative case study

			Entrepreneurial Company		
28.	Suchek et al.	2022	A review of entrepreneurship and circular economy research: State of the art and future directions	Business Strategy and the Environment	Systematic Review
29.	Todeschini et al.	2017	Innovative and sustainable business models in the fashion industry: Entrepreneurial drivers, opportunities, and challenges	Business Horizons	Qualitative case studies
30.	Williams and Schaefer	2013	Small and Medium-Sized Enterprises and Sustainability: Managers' Values and Engagement with Environmental and Climate Change Issues	Business Strategy and the Environment	In-depth qualitative study
31.	Velter et al.	2020	Sustainable business model innovation: The role of boundary work for multi-stakeholder alignment	Journal of Cleaner Production	Qualitative case studies
32.	Zucchella and Urban	2020	The Circular Enterprise	SYMPHONYA Emerging Issues in Management	Conceptual

Table 2: Content analysis of reviewed articles.

	Authors	Year	Foundational organizational characteristics of BS SMEs	Innovation as a driver for sustainability	Ecosystem and stakeholder engagement
1.	Adams et al	2016	X	X	

2.	Allal-Chérif et al.	2023			X
3.	Briguglio et al.	2021			
4	Caldera et al	2018	X		
5	Centobelli et al.	2020		X	
6	D'Amato et al.	2020		X	
7.	Demirel et al.	2019		X	
8	Isensee et al.	2020	X		
9.	Iturrioz et al.	2015		X	X
10	Klewitz and Hansen	2014	X	X	
11	Knoppen & Knight	2022	X		
12	Kumar et al.	2020			X
13	Lelah et al.	2012			X
14	Lynch & Ferasso	2023	X		
15.	Muo and Azeez	2019	X		

16.	Ostermann et al.	2021	X		
17.	Pieroni et al	2019		X	
18.	Prasanna et al.	2019		X	
19.	Radziwon and Bogers	2019			X
20.	Re and Magnani	2023			X
21	Re and Magnani	2022			X
22.	Reineke et al.	2023			X
23.	Rizos et al.	2016	X		
24.	Salvador et al.	2020	X		
25.	Santos	2022			X
26.	Scuotto et al.	2020			X
27.	Shepphard and Mahdad	2021	X		

28.	Suchek et al.	2021			X
29.	Todeschini et al.	2017	X		X
30.	Williams and Schaefer	2013	X		
31.	Velter et al.	2020			X
32.	Zucchella and Urban	2020			X

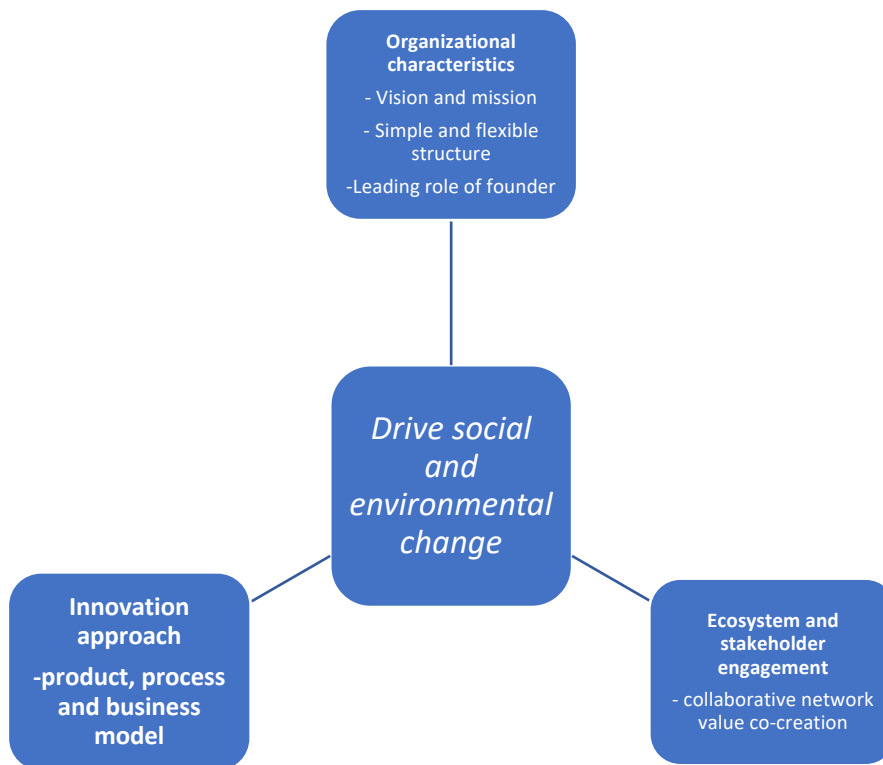


Figure 1: The pathways through which BSFs contribute to economic, social, and environmental sustainability and drive change.

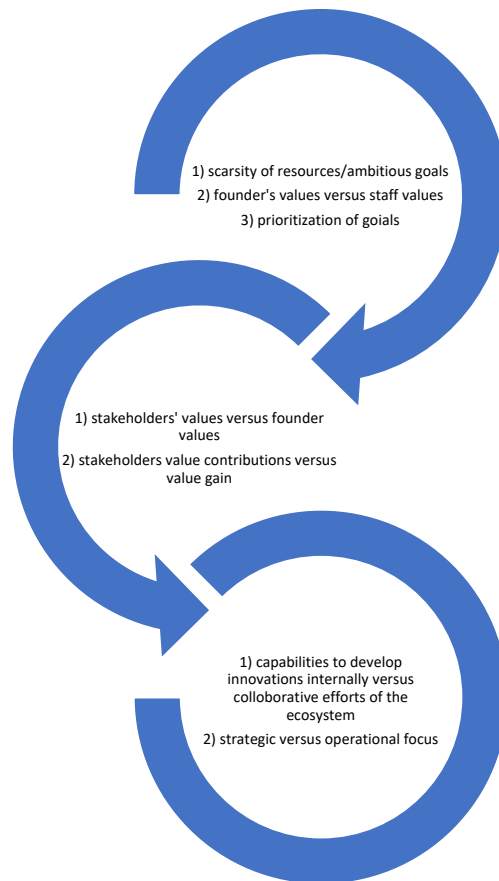


Figure 2: Tensions in the ecosystems and stakeholder engagement