

RESEARCH ARTICLE

Sustainable business models of small and medium-sized enterprises and the relationships to be established within the supply chain to support these models

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Abstract

Nowadays sustainability plays a crucial role in both academia and industry, and new insights are required to answer many open questions on the topic. This study focuses on sustainable business models (SBMs) by adopting a supply chain perspective to identify the value of sustainability practices along the supply chain for different SBMs. In particular, the research investigates four small and medium-sized enterprises (SME) case studies that have been able to implement new SBMs wisely integrating the concept of sustainability with their supply chain partners. First, the results confirm that SBMs need to be supported by strong alignment with sustainability practices within the entire supply chain to be successfully implemented. Secondly, the application of the proper practices of selection, monitoring, collaboration, and integration among supply chain partners within various SBMs is the key to achieving sustainability objectives. The paper, therefore, contributes to the debate by bringing new evidence to the SBMs topic, investigating how the success of these models is possible only through a precise definition of the relationships to be established in the supply chain.

KEYWORDS

business model, circular economy, corporate social responsibility, environmental policy, social policy, supply chain, sustainability, sustainable business models

1 | INTRODUCTION

Sustainability is today an unavoidable theme for any company attentive to the new needs of the market, and increasingly sensitive to issues related to sustainability (Blome et al., 2014; Nielsen, 2015; Reefke & Sundaram, 2017). Furthermore, environmental and social scandals that have emerged throughout the world in recent years have underlined the urgency of addressing the sustainability issue in a structured and in-depth way (Ageron et al., 2012; Muñoz-Torres et al., 2019). In this context, the theme of the circular economy—defined as an economy designed to regenerate itself (Ellen MacArthur

Foundation, 2018; Farooque et al., 2019)—is particularly relevant. This concept started in recent years in response to the scarcity of resources and the awareness that traditional industrial business models are unsustainable (Scarpellini, 2022). However, the circular model is not the only strategy that a company can adopt to embark on a path of sustainability. The social dimension is also an essential pillar of a complete path of corporate sustainability (Hou, 2019): CSR is increasingly becoming a vital component of modern corporate culture to meet the growing expectations of stakeholders and requires companies to invest heavily in both environmental protection and social care.

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However, to be sustainable, each firm cannot neglect a supply chain (SC) vision (Krause et al., 2009). Globalization and the ever-increasing demand from customers are putting organizations in competition with each other based on the performance of their SC, which must be able to convert raw materials into finished products and at the same time manage all activities related to these transformation and sustainability goals (Khan et al., 2021). Within the sustainability literature, there is a clear invitation to consider the implications of the sustainability issue at the level of the SC and not of the individual company (Brandenburg et al., 2014), since a single company cannot meet the challenge of sustainability alone (Seuring & Gold, 2013).

Starting in 2008, when the concept of SC sustainability from Seuring and Mueller was formalized, studies on this topic have taken several steps forward. Today the maturity of the theme asks to raise the level of analysis detail by studying the cases of success with greater attention. In other words, it is now possible to move from a vision that opposes companies involved in sustainability to companies not interested in sustainability change, toward a more evolved vision that seeks to identify the organizational realities that already take for granted the relevance of the theme. In this way, it is possible to bring out the peculiarities that differentiate highly evolved sustainability companies and their SCs.

Today, more than ever, companies are rethinking their entire business model to adapt it to the new sustainability challenges, and a greater focus on Sustainable Business Models (SBMs) is a promising line of research (Bocken et al., 2014; Bocken & Geradts, 2020; Geissdoerfer et al., 2018; Muñoz-Torres et al., 2019; Osterwalder et al., 2005; Peralta et al., 2019). SBMs allow the reunification of the daily operative activities and the business strategy defined by top managers with a long-term sustainability perspective. In this context, companies that implement sustainability practices can be classified based on different SBMs (Pedersen et al., 2016), thanks to a careful evaluation of the rationales that drive an organization to create and capture a new sustainability value (Osterwalder et al., 2005; Stubbs, 2019).

This work aims to contribute to broadening the knowledge on the management of a sustainable Supply Chain, by analyzing four case studies of small and medium-sized enterprises (SMEs) that have been able to implement new Sustainable Business Models wisely integrating the concept of sustainability with their supply chain partners. The development of SBMs is particularly relevant for SMEs, which on the one hand have the prerogative of having a very flexible organization and therefore can adapt quickly to new sustainable principles to obtain a significant differentiation from other companies in the market; on the other hand, they suffer from a lower economic availability that can be dedicated to sustainable projects compared with large companies (Cantele & Zardini, 2020).

In particular, this research investigates new SBMs of SMEs by studying the existing relationships within supply chains to support the adoption and the extension of sustainability concepts with supply chain partners. Results contribute to the SBMs debate, confirming the relevance of identifying and applying new SBMs to compete in nowadays market, especially for SMEs. To be successfully implemented,

SBMs must be supported by a strong alignment toward sustainability practices across SCs. Appropriate practices of selection, monitoring, collaboration, and integration with supply chain partners must be adopted to achieve common sustainability goals following different SBMs. Overall, results underline that sustainability values are a fundamental source of competitive advantage for different supply chains competing in the market according to different SBMs and that different SBMs, to be successful, need to be supported by a strong alignment toward sustainability practices along the whole supply chain.

The paper offers in the next paragraph an overview of the state of the art of the scientific literature. The methodology and the research protocol used are then presented. Subsequently, after a presentation of the four case studies, the main results are illustrated. Finally, the main conclusions, scientific contributions, and points of improvement are discussed.

2 | LITERATURE REVIEW

2.1 | Sustainable supply chains

Sustainability is today an important topic both in the academic and industrial world. On the one hand, contributions from the scientific world are helping considerably the dissemination of sustainability concepts within universities, industries, and society by increasing people's awareness of this topic (Andalib Ardakani & Soltanmohammadi, 2019). On the other hand, the scandals and incidents involving environmental and social issues that have emerged throughout the world in recent years have underlined the urgency of addressing the issue of sustainability in a structured and in-depth way (Ageron et al., 2012).

The academic literature concerning sustainable supply chain management is wide and deals with the management of materials and information among companies cooperating along the supply chain, by taking into account the objectives of all three dimensions of sustainable development (economic, environmental, and social objectives) coming from the needs of customers and stakeholders (Gold et al., 2010; Seuring & Müller, 2008). On an industrial level, companies have started their path of sustainability change mainly by looking at their internal processes and the products/services they provide, and just a few have started to look at and involve the supply network in this sustainability change. The extension of these virtuous sustainability behaviors achieved by focal companies across supply networks is not always easy to achieve. In some cases, focal companies have internally developed peculiar sustainability knowhow that will be extended only later to their suppliers; in other cases, focal companies have settled advanced competencies regarding sustainability, recycling, and circular economy in direct collaboration with their suppliers, through mutual exchange and teamwork (Gimenez & Sierra, 2013; Gimenez & Tachizawa, 2012; Zhu et al., 2010). Moreover, also cases in which competing companies cooperate to develop new sustainability standards to increase the sustainability competencies within their relative supply chains exist, sharing a common view for the improvement of sustainability objectives for their market. This is the case of companies

that voluntarily adhere to sector advisory boards to share best practices and/or to develop/advance sustainability certifications for the assessment of sustainability practices (Macchion et al., 2020). Although there are many strategies, the extension of sustainability practices to the entire supply chain represents one of the most complex business challenges of the moment, also due to the strong globalization that has led to a highly fragmented supply chain scenario (Sarkis, 2012). Companies are now called upon to select their suppliers not only concerning quality parameters, speed of supply, and costs but also based on sustainability criteria that can, in some cases, lead the company to stop collaboration with suppliers who are not proactive from the point of view of sustainability, in favor of new suppliers with greater sustainable performance.

2.2 | Sustainable business models

Undoubtedly, sustainability is not only a matter of production practices but interests deeply corporate values through the redefinition of business models (Osterwalder et al., 2005). In this context, the inclusion of sustainability principles within the business model is important since many customers explicitly consider and request environmental and social sustainability for their purchase decisions. Certainly, for some companies, it will be easier to cope with sustainability (Pedersen et al., 2016). For instance, for companies that have long-established collaborations with supply partners, it will be easier to improve the sustainable profile of the supply chain (Chen et al., 2017; Osterwalder et al., 2005). However, in general, business models including sustainability are not easy to implement. Considering sustainability within new business models is not a mere application of specific practices or initiatives; rather, it is a real process of transformation that must be supported by a substantial commitment to sustainability that involves the organization in its entirety (Pedersen et al., 2016). For instance, Bocken et al. (2014) identify different SBM archetypes that are characterized by the search for energy efficiency, the enhancement of production waste, and more generally the reformulation of the corporate business in favor of a more sustainable society and environment.

The academic and practitioner interest in sustainable business models has grown rapidly and today the theme is undoubtedly much-debated thanks to the contribution of many authors (e.g., Bocken & Geradts, 2020; Boons & Lüdeke-Freund, 2013; Evans et al., 2017; Geissdoerfer et al., 2018; Muñoz-Torres et al., 2019; Peralta et al., 2019; Schaltegger & Hansen, 2016; Witjes & Lozano, 2016). The common denominator of these works lies in the effort to understand how companies can nowadays rethink their business models by integrating them with the new principles of social and environmental sustainability (Elkington, 1997). A sustainable business model is “a model where sustainability concepts shape the driving force of the firm and its decision making [so that] the dominant neoclassical model of the firm is transformed, rather than supplemented, by social and environmental priorities.” (Stubbs, 2018, p. 103).

The academic debate also underlined the fundamental importance of structured supply chains capable of supporting sustainable business

models. A sustainable business model is different from a conventional one not only because “The value proposition provides measurable ecological and/or social value in concert with economic value [...]”, but also because “The supply chain involves suppliers who take responsibility towards their own as well as the focal company’s stakeholders” (Boons & Lüdeke-Freund, 2013, p. 13).

The particular characteristics of SMEs need to be taken into account when seeking their engagement in sustainability initiatives. Generally, SMEs lack financial and technical resources, capabilities, expertise, and know-how to deal with sustainability issues (Pedersen, 2009). But at the same time, many SMEs take advantage of their organizational flexibility to fully adhere to a SBM or even redefine the boundaries of new SBMs (Bocken et al., 2014). For this reason, the development of SBMs is particularly promising for SMEs, that can leverage the new principles and practices of sustainability to achieve significant differentiation from other companies in the market (Cantele & Zardini, 2020).

However, if on the one hand, these differentiation possibilities are relevant, on the other the challenge of making them operationally implemented within supply chains is truly ambitious (Aarikka-Stenroos et al., 2022; Vachon & Klassen, 2008). Despite this, SMEs are expected to increasingly develop strategies to meet sustainability requirements and proactively address market expectations for sustainability (Nudurupati et al., 2022). This means first of all a strong focus on a winning SBM, and secondly, it requires thinking strongly about the type of relationships to be established with their supply chain partners to successfully translate their SBM into consistent sustainability practices along the production chain.

2.3 | Relationships with supply chain partners

To fully exploit the potential of an SBM, a company must understand how to manage its suppliers to jointly achieve the set of sustainability objectives. According to Akamp and Müller (2013), this means defining in a structured way some practices that allow the selection and monitoring of current and new suppliers over time. The initial moment of current suppliers’ evaluation and new suppliers’ scouting represents an essential practice also for the sustainability objectives, allowing in fact to translate the SBM into sustainability requirements that suppliers will have to respect over time, through constant monitoring of their sustainability performance. The commitment to sustainability is a lever that allows a strong increase in the future value of the company only if approached from a supply chain perspective (Andalib Ardakani & Soltanmohammadi, 2019; Brandenburg et al., 2014; Chauhan et al., 2022). A strong collaboration among the companies of the network will allow for the development of win-win relationships that will increase the sustainability profile of the network and the SBM itself through a joint exchange of knowledge on sustainability (Ukko et al., 2022). This collaborative exchange is very useful for the advancement of the sustainability profile of the supply chain through a constant exchange of ideas and objectives that can concern all logistics activities and the sustainable management of the product life cycle (Chauhan et al., 2022; Feng et al., 2020; Scuotto et al., 2022).

Therefore, in recent years, a new approach has strongly emerged to address the sustainability challenge that involves applying sustainable management principles to the supply chain. This requires not only selection, monitoring, and collaboration with supply chain partners, but also greater interaction with suppliers during the design and development of new sustainable products and processes. The integration between a company and its suppliers is undertaken to improve operations not only in the single organization but also, more extensively, throughout the supply network. This integration that aims to improve the sharing of sustainability programs in the supply chain can be undertaken both on a tactical level and on a higher strategic level. Strategic integration includes cooperation in the definition of sustainability projects and objectives to be achieved through the definition of a joint exchange of information and material flows along the supply chain to share, for example, information relating to production plans, development of new projects, or sustainability goals for the future. Tactical integration is defined in a broad sense to include infrastructural aspects relating to management methods and systems useful for the development of joint IT systems that allow real-time and verified exchange of the sustainability performance of products and processes along the entire supply chain (Vachon & Klassen, 2006).

3 | RESEARCH GOALS

Although SBM development is widely recognized as a relevant issue in the academic literature (e.g., Bocken & Geradts, 2020; Evans et al., 2017; Geissdoerfer et al., 2018; Muñoz-Torres et al., 2019; Peralta et al., 2019), further effort must be devoted to the interplay between the development of different SBMs and the relationships to be developed accordingly within the supply chain. To date, there is still no clear understanding of how firms can cope with and implement such SBMs in their business (Bocken et al., 2014), and it is even less clear how these business models are translated into SCs relationships to achieve advanced sustainability goals. The relationships that are established at the supply level are a fundamental element in the implementation of sustainable projects (Gold et al., 2010; Macchion et al., 2020). In particular, this is particularly relevant for SMEs which—by definition—are characterized by the possibility of limited investments in new sustainability projects, compared with large companies with the considerable financial capacity to devote to expensive sustainability programs.

Considering these gaps, the objective of this paper is to focus on some successful cases of SMEs that have defined new SBMs, by studying the relationships they have developed with their suppliers to better support their sustainability objectives. In accordance with the work of Akamp and Müller (2013), the relationships with suppliers can be assessed based on the aspects of selection/evaluation, monitoring, collaboration, and integration established within the supply chain regarding the sustainability objectives of the company. Moreover, the particular characteristics of SMEs need to be taken into account when seeking their engagement in sustainability initiatives. Generally, SMEs lack financial and technical resources, capabilities, expertise, and know-how to deal with sustainability issues (Pedersen, 2009). But at

the same time, many SMEs take advantage of their organizational flexibility to fully implement a successful SBM or even redefine the boundaries of new SBMs (Bocken et al., 2014).

Based on the exposed gaps, this research seeks to bring new evidence to this field and a specific research question is proposed:

RQ: *What are the relationships with supply partners of SMEs adopting sustainable business models (SBMs)?*

Figure 1 summarizes the research framework.

4 | METHODOLOGY

Consistent with the exploratory nature of the research question, we opted for the case study methodology that allows the understanding of phenomena of interest in specific contexts through a broad perspective (Yin, 2003). Following Voss et al. (2002), a descriptive and explanatory approach was implemented, considering multiple case studies. Multiple case studies are conducted to achieve a deeper level of observation, as well as to increase the external validity of the results (Voss et al., 2002; Yin, 2003).

4.1 | Sample selection and description

Coherently with the goal of the research, the eligibility criteria for the sample were set to include only (1) small and middle-size enterprises that represent (2) successful cases in the implementation of SBMs. As to the first criterion, we targeted companies with a turnover of less than 80 million Euros. As to the second, we looked at relevant secondary data, such as sustainability statements on companies' websites, sustainability reports, and GRI rankings, and selected companies that proved to have consistently integrated sustainability concepts into the vision, mission, and business model of the firm. As sustainability choices within the upstream side of the supply chain are greatly influenced by the focal company of the same chain (e.g., Krause et al., 2009), we decided to add a further criterion and consider only firms which represent the focal company in their supply chain. The choice of the specific SC to investigate would then be made starting from the focal company and focusing on its main product.

Based on previous criteria, potential case companies were identified in different sectors, thus adopting both theoretical and literal replication logics (Yin, 2003). These companies were contacted by phone and email to propose to collaborate on the research project.

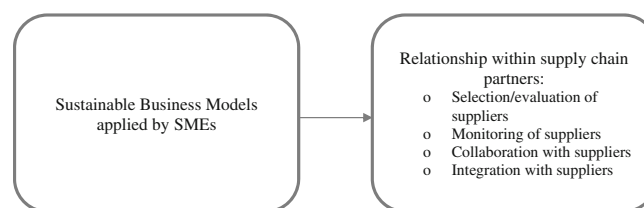


FIGURE 1 The research framework

TABLE 1 Companies of the sample

Company	Product	Market	Turnover 2020 (€)
A	Advertising materials	B2B	0–10 million
B	Luxury leather goods	B2C and B2B	50 million
C	Wine producers	B2B and B2C	10–50 million
D	Packaging materials	B2B	10–50 million

TABLE 2 Practices available in the upstream supply chain (SC) to implement sustainable business models

Selection/evaluation of suppliers	<ul style="list-style-type: none"> • Purchase of sustainable materials • Sustainability Policy and documentation for suppliers/contractors • Selection of suppliers/subcontractors with sustainability criteria • Simplification of the supply chain • Consideration of sustainability standards and certifications
Monitoring of suppliers	<ul style="list-style-type: none"> • Analysis of incoming materials based on sustainability criteria • Monitoring the sustainability performance of suppliers/subcontractors • Traceability • Actions to achieve full visibility on the second and subsequent tiers of supply
Collaboration with suppliers	<ul style="list-style-type: none"> • Knowledge sharing about sustainability • Sustainable packaging improvement • Improved sustainability logistics activities • Recovery of production waste and waste management • Recovery of the product at the end of its life cycle
Integration with suppliers	<ul style="list-style-type: none"> • Joint sustainability projects • Strategic sustainability partnerships • Sharing sustainability goals • IT integration to verify sustainability performance within the supply chain

Source: Adapted from Akamp and Müller (2013).

Four Italian companies responding to the sample criteria accepted to collaborate. As indicated by Yin (2003), four cases can be considered an appropriate sample to provide rich insights. The four SMEs are characterized by different products (Company A: advertising materials; Company B: leather products; Company C: wine; Company D: packaging materials) and are strongly committed to implementing sustainability practices. Information related to case companies is available in Table 1. The analysis has been conducted in the year 2020.

4.2 | Data collection and analysis

We developed an ad-hoc structured interview protocol (Voss et al., 2002), focusing on:

TABLE 3 Sustainable business models (SBMs)

Company	Main sustainability practices influencing the SBMs
A	<ul style="list-style-type: none"> • The creation of new products occurs in close collaboration with customers and supply chain partners • Reusing of production wastes from other sectors and industries • Scouting for new suppliers with specific skills in the manufacture of reused/recycled products • Definition of goals of circular economy • Increasing organizational awareness of sustainability
B	<ul style="list-style-type: none"> • Sustainability governance structure • Regular meetings on sustainability KPIs (social and environmental) • Employee training • Increasing organizational awareness of sustainability • Sustainability certifications and standards • Investments in eco-friendly production processes and machines
C	<ul style="list-style-type: none"> • Improving production processes to minimize the consumption of energy • Reduction of waste in the use of raw materials • Reduction of CO₂ emissions
D	<ul style="list-style-type: none"> • Scouting for new sustainable raw materials • New sustainable solutions in production processes

1. Classification of SBMs (based on Bocken et al., 2014). An identification of the sustainability initiatives implemented by case companies and influencing their SBMs was carried out based on previous contributions from the sustainable supply chain management literature (e.g., Da Giau et al., 2016; Moretto et al., 2018);
2. Analysis of supply relationships available in the upstream SC for each SBM. Data collection and coding were structured starting from the distinction of practices theorized by Akamp and Müller (2013) (see Table 2).

In each company, at least three key informants were interviewed. Particularly, the SC, purchasing, and sustainability managers were targeted, given their primary role in implementing the company SBM and handling the relationships with suppliers. Each interview was conducted by three researchers during company visits or zoom calls and most of the interviews lasted more than 2 h. All interviews were tape-recorded and then transcribed. The information provided by key informants was triangulated with press releases and companies' code of conduct, sustainability statements, and/or CSR reports retrieved from their websites or provided directly by them (Harris, 2001).

To analyze data, within-case analysis and cross-case analysis were developed. Different companies might adopt different SBMs and face different complexities in the management of the relationships with supply partners. Thereby, the analysis of the results started by investigating the main sustainability practices influencing the SBM of each company (summary of the results in Table 3) and then evaluated the SC relationships developed by each company in accordance with its SBM (summary of the results in Table 4), as described in following paragraphs.



TABLE 4 Supply chain (SC) relationships

Company	Selection/evaluation of suppliers	Monitoring of suppliers	Collaboration with suppliers	Integration with suppliers
A	Development of new complex quantitative and qualitative parameters.	Mutual trust and formal procedures.	Equalization of roles along the SC. Sharing of sustainability practices and skills acquired.	Strong alignment of objectives, programs, and activities.
B	Development of new complex quantitative and qualitative parameters.	Mutual trust and formal procedures.	Equalization of roles along the SC. Sharing of sustainability practices and skills acquired.	Strong alignment of objectives, programs, and activities.
C	Adoption of parameters based on certifications.	Formal procedures only.	Sharing of sustainability practices and skills acquired.	The goal of harmonizing the SC common vision is not pursued.
D	Adoption of parameters based on certifications.	Formal procedures only.	Sharing of sustainability practices and skills acquired.	The goal of harmonizing the SC common vision is not pursued.

5 | RESULTS

5.1 | SBMs followed by companies

The analysis of the data highlighted a substantial difference in the business and behavior of the four companies in the sample.

Company A is engaged in the production of advertising materials in the B2B market. The whole process of conception and creation of advertising products occurs in close collaboration with the customer and with supply chain partners since the raw materials used come from the production waste of the customer. Within the production processes, some activities are outsourced through the scouting of new suppliers with specific skills in the manufacture of the final product produced.

Company B produces luxury leather goods for both the B2C and B2B markets. The company is part of an international group and is strongly committed to the implementation of actions aiming at increasing the level of environmental and social sustainability of production and organizational processes. The commitment to sustainability is evident not only in the company's internal processes but also throughout the supply chain. The company is indeed engaged in drafting new evolved industry standards for sustainability.

Company C is part of a larger consortium of wine producers for the B2B and B2C markets. The main activity of the company is the bottling of the finished product and its treatment. The company invests heavily in initiatives aimed at maximizing production efficiency and minimizing the consumption of energy and materials. The main focus is therefore on the process, and not yet on the main asset (i.e., wine) due to the complexity of the supply chain (further details in this regard are provided below).

Company D is active in the world of packaging for B2B customers. The competitive element on which the company has decided to focus is the transformation of processes and raw materials toward more sustainable solutions to compete in a highly stable market—from a technological point of view—characterized by high competition coming mainly from countries with low-cost labor.

These pieces of evidence led to the identification of four different SBMs, that can be used as archetypes to describe the business models of SMEs with similar value propositions and sustainability commitments, or to inspire the business model transformation of SMEs with similar characteristics.

For Company A, the main distinguishing element lies in the fact that the whole design and production process occurs in close collaboration with customers and SC partners, and that each new product is made with scrap materials coming from the production waste of the customer company. Therefore, new products are made ad hoc for each new order. The company massively applies circular economy principles and practices, managing to implement a business entirely based on the reuse of existing scrap materials. The success demonstrated in recent years and the forecasts of strong growth for the following years show that the market is ready to absorb and enhance products conceived according to a circular model. For this SME, the SBM is, therefore, the *creation of value from production waste*, based on practices of reuse, recycling, and remanufacturing of excess production capacity from other companies and sectors.

Company B is strongly committed to the implementation of actions aimed at increasing the level of environmental and social sustainability of production processes. Unlike Company A, the search for improvement in Company B is directed not only toward the environmental dimension but also strongly toward the social dimension, through the development of projects to support and enhance the well-being of both workers and local communities. It is worth noting that this company is the largest in terms of turnover in the sample, but the attention toward social issues is not just a matter of size or investment. The company competes indeed in the fashion sector, which has been for decades under the magnifying glass for social issues concerning the way fashion products are made—think, for instance, about the campaigns against child labor and the exploitation of the labor of poor populations by famous fashion multinational firms (Winter & Lasch, 2016). This recent process of sustainability maturation across the fashion industry has probably contributed to Company B's triple bottom line approach to sustainability. Alongside community support, the company is associated with environmental and social

practices set in all internal processes and it further took on a guidance and leadership role for the entire supply chain in defining and achieving new sustainability standards. Therefore, the main distinguishing element for Company B is the push to transform business processes toward more sustainable production dynamics along the entire SC to determine new evolved environmental and social SC standards. Accordingly, its SBM can be outlined as *adopting a stewardship role in SCs*.

Company C invests heavily in initiatives aimed at maximizing production efficiency to minimize the consumption of energy and materials—those win-win solutions that allow for improving simultaneously the economic and environmental bottom lines. The main focus is on the sustainability of just final production processes due to the complexity of the SC. The structure of their supply chain is indeed extremely fragmented, made up of many small farmers who, in turn, deal with the cultivation of small quantities of grapes. Considering this structural peculiarity and its resource constraints, the company has decided to pay particular attention to directly controllable and verifiable internal aspects, such as the reduction of waste in the use of raw materials (i.e., bunches of grapes) and the reduction of energy used within the production process for the containment of Scope 1 and Scope 2 CO₂ emissions. In light of these considerations, the SBM of Company C can be recognized in the will of *maximizing material and energy efficiency*.

Finally, Company D competes in a highly competitive market, that is, the packaging sector. For packaging products, the issue of differentiation is crucial to distinguish a company's products from a competition coming mainly from Asian countries that can ensure a supply at lower costs. To achieve this differentiation, the values and principles of sustainability were crucial for Company D. Company processes and products were entirely rethought from a sustainable perspective, changing the raw materials and technologies used in traditional processes in favor of sustainable alternatives: for example, the use of biodegradable and recycled materials for products based on new possibilities offered by green chemistry, the use of low environmental impact processes, and the movement from non-renewable to renewable energy sources. The main distinguishing element for Company D is thereby the sustainable transformation of internal processes and raw materials toward more sustainable solutions. This, however, is realized without an extensive alignment with the SC, because the company has full control of production activities, and the supply part is involved only in the search for new sustainable materials. In this case, the SBM turns out to be the *substitution of old products/processes with renewable and natural alternatives*.

5.2 | SC relationships

The case analysis also allowed the identification of the types of relationships with upstream SCs partners implemented by the analyzed SMEs in accordance with their SBMs. The approach is substantially different between two pairs of companies: A, B, and C, D. In the selection and evaluation processes of SC partners, A and B verify their

sustainability profile and performance carefully with complex quantitative and qualitative parameters. For C and D, instead, the selection and evaluation of partners are substantially regulated using classic parameters of SC assessment, mostly relying on existing certifications (e.g., ISO 9001-14001, Ecolabel, etc.). From a monitoring perspective, the relationship with SC partners is more oriented toward mutual trust for Companies A and B, and toward a high level of control for Companies C and D. In A and B, the collaboration extends to real integration of partners within company mechanisms, with a strong alignment of objectives, programs, and activities, that often leads to an equalization of roles along the SC. For Companies C and D, instead, the collaboration with SC partners stops at the point where they try to reconcile different objectives, but the intent of integration and harmonization of vision remains far away. From the analysis carried out, therefore, it is possible to identify a certain coherence in terms of efforts and peculiarities between Companies A and B on one hand, and Companies C and D on the other, and it is possible to notice a greater complexity and maturity in the solutions proposed by A and B for sustainability challenges.

More in detail, as regards the *selection/evaluation of suppliers*, Companies A and B dedicate particular attention to quantitative and qualitative analyses aimed at verifying the sustainability profile of potential/existing partners. On the qualitative side, a more intangible and less quantifiable component can be identified among the selection criteria, such as the assessment of the coherence between suppliers' sustainability trajectories and objectives and those of the focal company; or, similarly, the assessment of the affinity in terms of management style (vision and values), which explains why sometimes even the personal relationships with the subjects involved seem to be decisive in their engagement in new sustainability projects. Company A deals with the design of new products starting from the production waste of their customers, and, for this reason, is looking for supply chain partners who can support these circular economy projects with updated sustainability skills and a common vision. Company B also appears to have a similar need: considering the high demand from the fashion market for new sustainable products (e.g., organic collections, vegan products, sustainably tanned products, just to name a few), they are in constant search of reliable partners that share common objectives in the path of sustainable improvement. The selection of suppliers for these companies will therefore occur based not only on the technical evaluation of sustainable materials/processes offered, but also on the verification of their environmental and social sustainability policies, documents, and reports, and new increasingly stringent parameters will be explored to identify the best suppliers in the market. For Companies C and D, instead, the intangible dimension is completely missing, and the selection and evaluation of partners are substantially regulated by objective evaluation using more classical and more easily formalized parameters (e.g., certifications, performance indicators, and audit results). This behavior must be contextualized within the reference markets of these companies. For Company C, which produces wine, the selection of suppliers is made mainly looking at the localization of farmers, privileging local ones, and, among these, the partners who guarantee the fulfillment and



achievement of sustainability parameters will be confirmed. For Company D, which produces packaging products, the research and development of new sustainable products are carried out within the company boundaries and there is no strong need for collaboration with supply chain partners from this point of view. For this reason, suppliers are selected based on predefined sustainability parameters, in addition to traditional parameters related to supply costs.

As to the *monitoring of suppliers*, Companies A and B have developed relationships based on mutual trust between the focal company and supply chain partners. We remind once again how for these companies SC partners are a key success factor for the development of new sustainable products. In Company A, there is a lack of formal monitoring of suppliers due essentially to the close contact between the company and its partners in daily working activities. Intermediate moments of formal verification of the results achieved are arranged, but it is essential to underline that there is an assiduous exchange of information and help even in the periods in between these verifications. For Company B, similarly, the formal monitoring is limited to the periodic checks of the sustainability parameters defined during the selection phase. Instead, in Companies C and D, consistently with the choices described for the selection phase, the monitoring of suppliers remains structured and frequent, once again based on formal relationships that lead to the development of audit protocols to be formally submitted.

For what concerns *collaboration with suppliers*, it is certainly developed in all four cases. All companies indeed recognize the need to go beyond a simple careful selection and a continuous check of their supply chain and see in active collaboration with suppliers a fundamental and indispensable element to achieve the required sustainability objectives. Particularly, in all cases, it seems convenient and desirable to share the practices and skills acquired with supply partners to allow them to mature and develop improved sustainability capabilities. The substantial difference and the change of gear for Companies A and B, as opposed to Companies C and D, lies in the search for increased cooperation with supply chain partners to allow for the integrated and synergic development of new products. Supply chain partners thus become essential lymph for the development of innovative sustainable product and process ideas, with equalization of roles along the supply chain.

This distinction between the two groups of companies is even more evident when looking at the *integration with suppliers*. In Companies A and B, collaboration leads to the effective integration of partners within company mechanisms, with a strong alignment of objectives, programs, and activities. In this way, all organizations undertake a process of joint sustainability development, whose benefits are distributed among all supply chain partners. For Company A, this is expressed, for instance, in the development of new products starting from scrap materials supplied by customers, for which it is necessary to design and develop new ad-hoc production processes with third suppliers. For Company B, this is expressed in the development and codification of innovative production processes that lead to a substantial change in leather production along all levels of the supply chain (assemblers, tanneries, etc.). For Companies C and D,

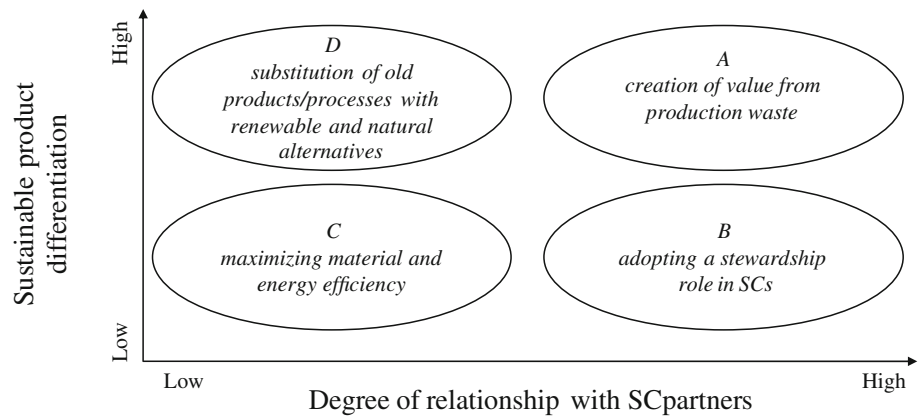
instead, this situation is almost absent. The relationships maintain a traditional transactional nature and do not involve the development of joint sustainable projects for product or process improvements. For such companies, different objectives of different supply chain partners coexist, and the intent of sustainability visions' integration and harmonization is not achieved.

6 | DISCUSSION

There is much evidence in the literature that highlights the need to deepen the sustainability issue for companies and their respective supply chains. A great debate is currently underway on the SBMs (e.g., Bocken & Geradts, 2020; Muñoz-Torres et al., 2019; Peralta et al., 2019) or on sustainability requirements that must be possessed by the supply chain partners (e.g., Chauhan et al., 2022; Winter & Lasch, 2016) but the debate does not deepen what are the relationships that must be established within the supply chain to support an innovative SBM. In this sense, this paper contributes to the debate by identifying some winning SBM for SMEs and then the relationships to be established to make these models effective. In the following Figure 2, the application and importance of SBMs are presented concerning the relationship to be established with SC partners.

As the figure shows, the four SBMs emerged in the study differ first of all in the sustainability content of the products produced (i.e., the level of sustainable product differentiation). The “creation of value from production waste” model certainly represents an advanced model that radically redefines the sustainability content of its products. Similarly, the “substitution of old products/processes with renewable and natural alternatives” model is also the result of a radical rethinking of the company's products from a sustainable perspective, which over time has led to the elimination of unsustainable products in favor of new products made with new sustainable processes and materials. However, these models present a substantial difference concerning the type of relationship to be established within their supply chains. If we consider the “creation of value from production waste” model, it is evident that the redefinition of the value of the company business requires a strong alignment with supply chain partners. As evidenced by the case study, in this model the SC relationships are governed by a strong trust and sharing of intentions among the SC partners for future sustainability objectives. The best sustainability practices are decided jointly and the sustainability objectives to be achieved with all SC partners are defined with a medium-long term horizon. The “substitution of old products/processes with renewable and natural alternatives” model, on the other hand, does not envisage the development of strong relationships with SC partners. On the contrary, relations are not developed to jointly create new products. For companies adopting this model, the objective is the total control of the SC sustainability parameters (e.g., by requesting SC partners' sustainability certifications) but the sustainability know-how related to the development of the new product is an internal competence that is protected and not shared with the supply chain partners.

FIGURE 2 Matrix comparing SBMs and supply chain relationships



Continuing to explore the remaining positions in the matrix, substantial differences in the management of SC relationships emerge also for the other SBMs “maximizing material and energy efficiency” and “adopting a stewardship role in SCs.” The commonality for these models is determined by the development in both models of a low level of sustainable product differentiation. The case studies have shown that companies implementing these models do not produce radically innovative products from the point of view of sustainability, and very often this aspect could be linked to the fact that they compete in a market that is not yet ready to absorb radically sustainable products or to the fact that there are some processes or raw materials that cannot yet be replaced by new sustainable processes or raw materials. In the x-axis of Figure 2, however, it can be seen that the supply chain relationships are very different. For the “adopting a stewardship role in SCs” model, the company’s attempt to improve its business over time from a radically sustainable perspective is evident and to do this it has defined as a priority the definition of a path of joint sustainability with SC partners. Companies that identify with this model fully understand the potential of the sustainability issue and their low level of sustainable product differentiation will only be a matter of time and will be improved with a joint improvement process to be done with the SC partners. The “maximizing material and energy efficiency” model, on the contrary, is followed by companies that are not radically innovating their business and, consistently with this position, are not investing in the development of strong relationships with SC partners to improve the company’s sustainability profile over time.

In this sense, the matrix developed in this paper can be adopted as a tool that allows for interpreting a company’s level of maturity concerning the sustainability challenge and models (Vásquez et al., 2021). When sustainability is not part of a radical competitive strategy (as in the case of the “maximizing material and energy efficiency” model) companies implement very few sustainability practices and, at the same time, pay no attention to the development of joint sustainability plans in the sector.

From this quadrant, companies will over time have different possibilities to move toward other SBMs. A first shift will lead to the “adopting a stewardship role in SCs” model but this shift will require a change of mentality in the organization that will radically redefine the sustainability objectives over time for the company and its SC. An alternative shift could lead to the “substitution of old products/

processes with renewable and natural alternatives” model. In this case, the path seems less difficult since a single product could be identified as a radical change for this “test” product’s sustainable practices and processes. Certainly, even companies that adopt the “substitution of old products/processes with renewable and natural alternatives” model will then be able to evolve toward a more advanced model (i.e. “creation of value from production waste”) only when their skills will be evolved and their sustainability profile will be improved not only internally (with the redefinition of all sustainability processes and products) but also within the entire supply chain. Finally, the “adopting a stewardship role in SCs” model represents a peculiar situation: a model for which the intention to undertake a joint path of sustainability is already noticeable but in which an expansion of sustainable practices and processes is still lacking for the entire panorama of products made by the company. In this case, however, the firms belonging to this model will evolve with an upward shift in the y-axis.

7 | CONCLUSIONS AND FUTURE DEVELOPMENTS

Addressing the issue of sustainability by integrating it within new SBMs is not a simple challenge. As highlighted in the previous paragraphs, it is evident that there is no single valid approach in general. Starting from four different success stories, it was first of all valued how sustainability can be effectively added to a company’s SBMs with deeply different peculiarities.

After having defined how the company intends to integrate sustainability into the company business model, the great challenge of opening up to a broader sustainability vision that can also include the upstream supply chain remains. The four case studies of this research were studied by adopting this point of view, therefore by evaluating how their business models also considered Sustainability aspects within their supply chain. Similarities and elements of difference emerged and highlighted the need for coherence between how sustainability is understood and included in the focal company strategy, and how it is exploited by supply chain partners.

Simpler approaches of SBMs, such as the maximization of efficiency or incentive use, and greener processes (respectively, adopted



by Company C and Company D) seem to be consistent with more formalized relations with supply chain partners, based on monitoring activities and simple collaboration. Instead, more evolved approaches such as the implementation of circular economy strategies that imply the creation of value from waste or the definition of new sector targets by acting as a stewardship role in the market processes (respectively adopted by Company A and Company B) require to give up traditional methods of supply chain management, to move toward more advanced collaborations typologies that become a real integration with supply chain partners after an initial activity of suppliers' selection based also on sustainability criteria.

In general, the present research stimulates a change of vision in the sustainability field, by focusing on successful case studies to better identify all possible ways for effective implementation of sustainability in a company and within supply chains. In this sense, the combination of business model concepts and sustainability requires further study by adopting a cross-sectional view.

The paper contributes first of all to stressing the importance of wisely integrating principles and practices of sustainability within the company and between supply chain partners, by focusing on four case studies of companies that have been able to implement new Sustainable Business Objective Models (SBMs). Second, the pursuit of such SBMs requires a strong alignment of sustainability principles and practices with the supply chain partners: the case studies have shown that for some advanced SBMs (i.e., *creation of value from waste and adopting a stewardship role in SCs*) it is necessary to establish very strong partnership relationships in the supply chain through the development of common practices of selection, monitoring, collaboration, and integration among supply chain partners to achieve common sustainability objective; for other SBMs (i.e., *maximizing material productivity and energy efficiency and substitution of old products/production with renewables and natural processes*), on the other hand, the relationship with the supply chain partners can be accomplished with simpler alignment practices.

The matrix developed in this study represents the maturity evolution of companies addressing the issue of sustainability; in the future, due to the fact that addressing sustainability is becoming compulsory for more and more industries, companies will be always pushed to advance from basic SBM to advanced ones. In this way, this research study has important implications for practitioners as well.

There are certainly several aspects in which future research is encouraged: first, an analysis of a larger sample would allow the collection of more shreds of evidence, and, in particular, it could highlight the presence in the market of new SBMs. Overall, the world of sustainability and the circular economy is today more than ever current topics of interest to companies. There are many opportunities for in-depth analysis that can be seen in the future: however, studying the relationship between the business model implemented by the focal company and the relationship with the related supply chain seems to be one of the most promising ways because it allows developing a supply chain look from the beginning to face theme, still not appropriately debated in previous literature. As a result, this paper contributes to this field by investigating different SBMs at the SC level, and filling in this way a literature gap as well as supporting managers in the implementation of

new sustainability strategies. Moreover, the paper investigates the link between new SBMs and the relationship to be developed within suppliers, a combination also not deeply investigated in the literature.

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