17 The role of innovation in sustainable development

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Introduction

The issue of sustainable development, as indicated by numerous scientific studies (see: previous chapters) have become important for the stakeholders of organisations, also in areas of the economy where the need for innovation is indicated as a key determinant (Damanpour & Schneider, 2006; Varadarajan, 2017; Al-Baghdadi et al., 2021). So far, only some previous studies on sustainability have looked at the relevant relationship between sustainability and innovation (Qi et al., 2010; Boons & Lüdeke-Freund, 2013). Sustainability factors such as reducing the carbon footprint, poverty alleviation, fair distribution, waste reduction and transparency and related business strategies – understood as clean technology, vision of sustainability, pollution prevention and product management – can accelerate the creation of sustainable value for companies by implementing innovations (Evans et al., 2017).

A historical contribution to the building of the concept of innovativeness was made by J. Schumpeter, whose work was devoted to clarifying and emphasising the role of innovation and entrepreneurship. J. Schumpeter pointed to five cases of innovation as follows (Schumpeter, 1960):

- The implementation of new products that consumers had not been familiar with prior to this, or a new type of product.
- The introduction of a new production method, which has not yet been practically tested in a given industry.
- The opening of a new market, i.e. a market where a certain type of industry in a given country had not previously entered, regardless of whether this market existed before or not.
- The acquisition of a new source of raw materials or semi-finished products, regardless of whether the source already existed or whether it had to be created
- Conducting a new organisation of some industry, e.g., creating or breaking a monopoly.

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Innovation, according to J. Schumpeter, signifies the implementation of new solutions into practice, while the subject of his considerations was primarily technical innovations, as well as their impact on the economy. Any dissemination of innovations constitutes a separate type of change, referred to imitation (Makieła & Stuss, 2018, p. 29).

In the contemporary perception of the notion of "innovativeness", there is the ability to implement new solutions (new products, new types of activities, new technologies, new entities and institutions, new forms of organisation and management) in all spheres of social and economic life. Innovation is the process of transforming existing capabilities into new ideas and introducing them into practical application (Makieła & Stuss, 2018, pp. 28–32). A different approach to the problematic issue of innovations was presented in the Oslo Manual, in which innovation is assumed to be the implementation of a new or significantly improved product (goods or services) or a process, a new marketing method, or a new organisational method in economic practice, workplace organisation or relations with the environment. Such a general definition of innovations is justified by the fact that it covers a wide range of possible innovations (Podręcznik Oslo. Zasady Gromadzenia i Interpretacji Danych Dotyczących Innowacji, 2008). It should be mentioned that the scope of the notion of "innovation" changes in subsequent editions of the manual and the current assumption is that the minimum requirement for the existence of innovation is for the product, process, marketing method or organisational method is new (or significantly improved) for the company. This includes products, processes and methods which a particular company was the first to create, and also those that were adopted from other companies or entities (Oslo Manual 2018, 2018). S.D. Anthony describes the evolution of innovation as a transition of the subject of innovation from the individual innovator to enterprises, and the transition of the object of innovation from technological innovation to an innovative business model (BM) (Anthony, 2012). The common feature of innovations is the fact that they were implemented and launched to the market. New processes, marketing methods, or organisational methods are implemented when their actual use in the company's operations begins. This signifies that innovative activity is the entirety of scientific, technical, organisational, financial and commercial activities that lead to the implementation of innovations. Innovative activity also includes research and development (R&D) activities, which are not directly associated with the creation of a specific innovation (Makieła & Stuss, 2018, p. 32).

Innovativeness in BMs may be found in a new business activity, a new combination of activities (structure), or a change in the entity conducting a given activity. Novelty as a measure of the innovativeness of a system of activities may be expressed by means of the new transaction structure, transaction content, or new participants or customer constraints and the creation of exit barriers related to a change of supplier (loyalty program, dominant design, trust, customisation),

as well as network externalities, complementary goods that increase the value of the product and the dependency between components, particularly the effect of synergy and the economies of scale (Loučanová et al., 2022).

The ability to innovate in the field of sustainable development represents a necessary business acumen, regardless of whether it is associated with small and incremental steps, or radical innovations (Evans et al., 2017). Innovation is emerging as a potential mechanism for integrating sustainability into business (Schaltegger et al., 2012; Schaltegger & Wagner, 2011). However, there is a lack of clarity, conceptual consensus and consistency in the use of these terms: BM, BM Innovation (BMI) and Sustainable BM (SBM) (Magretta, 2002; Osterwalder & Pigneur, 2010; Boons & Lüdeke-Freund, 2013). This chapter aims to organise the aforementioned concepts and attempt to characterise, classify and define their boundaries.

Business model innovation

Sustainable innovativeness has for some time been acknowledged to be a key determinant of business and societal change, as well as the answer to the increasing complexity of the environment in which businesses operate. Despite considerable interest in the drivers of sustainable innovation at the level of enterprises, there is little knowledge about the role of sustainable activities in the innovative models and the performance of innovation-focused enterprises (Al-Baghdadi et al., 2021).

A. Osterwalder and Y. Pigneur described the BM as the fundamental principle of creating, maintaining and exchanging value – the BM should be dynamic due to the constantly changing environment (Osterwalder & Pigneur, 2010). BMI was initially defined as the process of discovering fundamentally new BMs in an existing business (Markides, 2006), thereby modifying or modernising the existing business logic of how value is created and captured (Foss & Saebi, 2017). Nevertheless, the most frequently quoted definition of the BMI by N. Bocken et al., states that "changes in the way the organisation and its value-network create, deliver value and capture value /.../ or change their value propositions". Such a statement moves value towards the focal point of interest as the crucial element, which not only constitutes the innovativeness of a BM but will also determine a company's performance and profit (Mielcarek & Piekarczyk, 2022). BMI deals with a new way to do business aimed at prosperity in a dynamic environment through the reconceptualisation of the underlying logic behind the value creation, capture and delivery (Richardson, 2008; Teece, 2010).

The phenomenon of BMI, due to the development and utilisation of new technology, is more relevant and complex than ever before (Mielcarek & Piekarczyk, 2022). Firms increasingly need to innovate by modifying their BM by initiating changes, improvements and replacements in various organisational elements (Mitchell & Coles, 2003).

Furthermore, scholars have used BMI as a strategic tool or unit of analysis to study how firms can overcome the competitive threat of a specific industry, such as the creative and cultural industry (i.e., Lantano, Petruzzelli, & Panniello, 2022) or the tourism and hospitality industry (Presenza et al., 2019).

BMI should be the result of modernising the BM (in which the current BM is progressively improved) or the result of generating and designing a BM (where no BM previously existed) (Berends et al., 2016). Although each path is very different in terms of its challenges, both paths require entrepreneurs to understand and decide how the organisation's current system of operations needs to be changed and how this contributes to the creation and acquisition of value (Amit & Zott, 2020). According to C. Christensen, companies can achieve BMI by adopting a technology push and incorporating a technological breakthrough which, in effect, would make them the first movers in the industry (Christensen, 1997). However, some research projects show that BMI is not always beneficial (Halecker et al., 2014).

It is relevant to understand these elements to facilitate the analysis of organisational processes and planning of transformation from one BM to another and to increase the firm's resilience and the probability of success (Geissdoerfer et al., 2018). Sosna et al. identify two generic phases organisations go through to innovate their BMs: exploration and exploitation. In the exploration phase, the organisation aims to understand what BM design would address the strategic challenges (such as changing customer demands, increased competition, or emergent technologies) through a trial-and-error process. In the exploitation phase, the BM is implemented, its performance is measured, and if proven to be valuable, it is scaled (Sosna et al., 2010).

Frankenberger et al. propose a finer-grained iterative BMI process with four phases (Frankenberger et al., 2013):

- initiation which involves analysing and understanding the ecosystem's needs and identifying important stakeholders,
- ideation which concerns generating potential new (draft) BM designs,
- integration which aims to establish a viable and complete BM design, concretising its structure, business logic, and resources needed,
- implementation which ensures that the selected BM design can be put into practice and is supported through its organisational processes.

However, the most famous one is the classification provided by M. Geissdoerfer et al. which identifies four types of BMI – start-up, transformation, diversification and acquisition (Geissdoerfer et al., 2018), and also by S. Cavalcante, P. Kesting and J. Ulhøi which describes creation, extension, revision and termination (Cavalcante et al., 2011).

An important issue as regards the use of resources in BMI is the scope of new technologies. BMI requires time, partly due to the fact that the preparation of a

BM is more dependent on the context rather than the management of technology (Teece, 2010). The adaptation of new technologies offers an opportunity for BM renewal, but a profound change in the BM also disrupts previous configurations of resources and can diminish a company's performance (Sosna et al., 2010; Mielcarek & Piekarczyk, 2022).

Sustainable business model innovation

In recent years, a new form of BMI has emerged by incorporating the sustainability concept into the firm's goals and processes. We define sustainable business model innovation (SBMI) as a change in how a firm operates to create a positive impact or reduce the negative consequences for the environment and society (Ferlito & Faraci, 2022). The evolution of the approach to SBMI is presented in Figure 17.1.

SBMI builds on the traditional BMI but applies it to a more expanded context. The basic idea is first to test the company's current BM for sustainability against a broader temporal, societal, and spatial context so that its vulnerability to externalities, its sustainability limits, and its potential to create new environmental and societal value all become apparent. Secondly, it explores BMIs by applying a combination of modular "transformations" to address limits and leverage potentials. Subsequently, it connects BMIs back to the core drivers of business advantage and financial performance to assess how they can deliver both value and sustainability. New models are piloted and tuned to seize an advantage in the market, and also with investors and stakeholders, as well as to understand what changes are needed in the business ecosystem or at the industry level to create the right context for success (Young & Reeves, 2020).

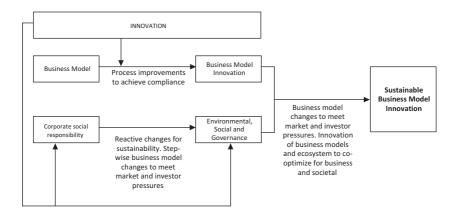


Figure 17.1 The evolution of the approach to SBMI

Source: Own analysis based on literature research included in the references

SBMI involves changes in how a company does business to address societal and environmental challenges and has gained increasing attention in the last two decades as a means of sustainable development. To reach its sustainability potential, SBMI necessitates engagement with external stakeholders to develop multi-stakeholder value propositions and value capture mechanisms, making these external stakeholders fundamentally part of a (future) functioning BM. SBMI therefore structurally transcends the organisational boundaries of the firm and requires a redesign and re-alignment of the organisational boundaries of the respective organisations involved (Velter et al., 2021).

On the other hand, N. Bocken et al. define SBMI as "innovations that create significant positive and/or significantly reduce negative impact on the environment and/or society, through changes in the way the organisation and its value network creates, delivers and captures value (i.e. create economic value), or change their value proposition" (Bocken et al., 2014). They propose a categorisation of SBM archetypes, according to the main type of BMI: technological, social and organisation-oriented innovation, according to the nature of the dominant innovation. Firms can select one or more archetypes in developing their SBMs, and at the same time also combine different archetypes (Tiscini et al., 2020).

The SBMI considers the value creation in the activities carried out and their delivery as eco-social benefits balanced among all the players. In other words, it may include changing energy inputs in the industry using renewable energies, such as the sun and the wind, or modifying the way products reach the market in terms of transportation (Ferlito & Faraci, 2022). SBMI is characterised by the following (Young & Reeves, 2020):

- the incorporation of sustainable principles or goals into the existing value proposition,
- the extension of the value creation concept from economic value to shared value (Porter & Kramer, 2011),
- the consideration of non-financial interests in the decision-making process,
- managers who act as sustainability leaders to promote a new mindset within the whole organisation (Stubbs & Cocklin, 2008).

As opposed to M. Velter et al., SBMI frames boundary work as the activity of exploring, negotiating, and re-aligning organisational boundaries around new value propositions (Velter et al., 2021).

Type of SBMI

Model of R. Ferlito and R. Faraci

Based on the new framework for an SBMI process, they proposed a multidimensional vision of SBMI. The framework suggests starting the analysis from the value proposition section that is made up not only by describing new sustainable

value, such as existing tools but also by explaining the governance. This is followed by the value creation and delivery system related to resources, assets, processes and position in the value network relative to customers, competitors, collaborators and all stakeholders.

Following the framework's logic, we must consider how the value is created and distributed. The final area of our framework focuses mainly on the firm's results and their measurement. The second step concerns transparency. which is often associated with the amount of information an organisation is willing to disclose. Transparency cannot exist without ethical action such as the presence of an ethical code and an ethical audit. The last element necessary to consider is governance since leading the transformation to a more SBM must be a constant topic on the Board of Directors' agenda (Ferlito & Faraci, 2022).

Model of D. Young and M. Gerard

The core practice for SBMI is an iterative innovation cycle. With each round, the company gains scale, experience, and market presence for its initiative; these reinforce both the business advantage and the environmental and societal benefits generated (Young & Gerard, 2021):

- Step 1. Expand the Business Canvas develop a rich understanding of the broader stakeholder ecosystem in which the company operates and of the environmental and societal issues and trends that might affect this ecosystem. As part of this diagnosis, it is necessary to explore the potential impact of ecosystem dynamics and other issues on the BM. This will facilitate the identification of a range of business vulnerabilities and opportunities tied to environmental and societal issues.
- Step 2. Innovate for a Resilient BM transform the BM, or imagine an entirely new one, so that you can seize these opportunities. In this second step, it is necessary to innovate and develop new aspects of that new BM. It should ideate a new BM to integrate and reinforce both business advantage and environmental and societal benefits.
- Step 3. Link to Drivers of Value and Competitive Advantage test, iterate, and refine the BM ideas or concepts (from the second step) to ensure that they will yield the environmental and societal benefits intended, and that the benefits will translate into value and advantage for the company. A business with weak profit margins cannot invest in innovation to amplify and scale environmental and societal benefits.
- Step 4. Scale the Initiative the full potential value of SBMI is achieved only when the new BM is brought to scale: engaging people in the company, across the supply chain, in the company's networks, and in its ecosystems to expand impact and advantage.

Model of D. Young and M. Reeves

Strategy and sustainability are jointly considered and become mutually reinforcing, in which reporting gives way to action, and a company-centric approach gives way to a multilevel approach and new models of competition and sustainable value creation. The idea builds on M. Porter's concept of shared value, but it unites sustainability and strategy efforts in a common methodology and process, both at the enterprise level and at higher levels (Young & Reeves, 2020).

A model as a cycle which enables resilience, durability, and value creation through changing business, societal, and investor contexts has the following characteristics (Young & Reeves, 2020):

- It scales effectively without diminishing returns or increasing the risk of failure.
- It increases differentiation and competitiveness.
- It reduces the potential for commoditisation.
- It creates an environmental and societal surplus.
- It remains durable against emerging socio-environmental trends.
- It exhibits network effects that accumulate value and reshape value chains.
- It harnesses or reshapes business ecosystems for advantage and sustainability.
- It increases returns to shareholders and net positives to stakeholders in the environmental and societal dimensions.
- It stimulates the purpose of the company in ways that propel engagement and affinity for employees, customers, investors, and other stakeholders.

Model of E. Al-Baghdadi et al.

BMI has a direct relationship with sustainable innovations orientation (SIO) and management accounting control systems (MACS), as well as the fact that MACS have a direct relationship with SIO.

In addition, company and industry-related factors were proposed as the sustainable innovation orientation drivers, while sustainable product and process innovation and some measures of corporate performance were proposed as the outcomes of a sustainable innovation orientation. The mediating role of MACS and SIO in the relationship between BMI and sustainable innovation outcomes (corporate performance) was also hypothesised and it was contended that the innovation of a BM by manufacturing companies can lead to a sustainable outcome. The MACS and sustainable innovation orientation were found to mediate the relationship between BM sustainability and environmental performance, and also the relationship between BM sustainability and employee performance (Al-Baghdadi et al., 2021).

Summary – implementation

Like any type of innovation, BMI is a way of changing and expanding the ability of businesses to operate more effectively and efficiently. By focusing on proposing and creating value, BMI has become a major tool for developing new and

changing existing forms of organisational value creation. The emerging field of research and practice in the area of SBMs has adopted this approach to understand and develop new forms of value creation that offer novel value propositions to customers and all other stakeholders, and that enable companies to maintain the value of expected financial performance, while maintaining and even regenerating social and natural capital.

The implementation process should start by thinking over the concept of S. Anthony, who described the evolution of innovation as the transition of the entity of innovation from the individual innovator to enterprises and the transition of the object of innovation from technological innovation to BMI (Anthony, 2012). To further draw on the research of F. Lüdeke-Freund, they found the case of an SBMI of 45 patterns with the potential to create ecological, social, and economic value. These were arranged in 11 pattern groups (Lüdeke-Freund & Froese, 2020): "Pricing & revenue", "Financing", "Eco-design", "Closing-theloop", "Supply chain", "Giving", "Access provision", "Social mission", "Service & performance", "Cooperative", "Community platform".

SBMI should be implemented by translating sustainability strategies into practical action plans for value-creating enterprises. In doing so, SBMI improves a company's ability to create, maintain or recreate natural, social and economic capital across organisational boundaries. This is realised by changing the value for customers and all other stakeholders and/or how value is created, delivered and extracted.

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