

Chapter 10

Business Models for Sustainability



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Abstract The concept of *business models for sustainability* (BMfS) has attracted research attention in the fields of corporate sustainability, entrepreneurship and management. BMfS are a way of linking sustainable innovation to an organization's business model, and as a means for management to operationalize sustainable activities and strategies across an organization's value chain. This chapter provides the history and description of BMfS as both a tool and conceptual logic that divides activities into three components – value proposition, value creation and delivery, and value capture. Practitioner tools are introduced, along with a brief conceptual overview.

10.1 Background

Sustainability at a societal level is dependent on the sustainable development of organizations. Agenda 2030 and the UN Sustainable Development Goals (SDGs) have highlighted the importance of industry's involvement in the necessary shift in the current economic system (United Nations General Assembly 2015; Sachs et al. 2020; United Nations 2020). Traditional business models are unsuitable for meeting global sustainable development (SD) challenges (Wells 2013). *Business models for sustainability* (BMfS) are a concept that can help bridge the gap between the sustainable innovation necessary for SD and the strategies employed by organizations (Boons et al. 2013).

Research on BMfS has emerged to link sustainable innovation to the business model of an organization and its stakeholder network. It is a means for management to ideate and operationalize sustainable activities, mechanisms, and innovations from a system perspective. For this reason, BMfS are located on Level 3 of the CapSEM model, as they provide a structure and logic for the creation and capture of sustainable value. Methods and perspectives from Levels 1 and 2 for reducing

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negative and increasing positive sustainability impacts can be operationalized through the organization's business model as it links these operational activities to the wider value creating logic. Research on BMfS continues to expand and asserts the need for the incorporation of stakeholder interests and social and environmental values into an organization's strategy (Stubbs and Cocklin 2008; Boons and Lüdeke-Freund 2013; Bocken et al. 2014). Organizations can use business model thinking to reflect on their current operations and to find ways to redesign and innovate to meet sustainability needs and objectives across all Levels of the CapSEM Model.

10.2 BMfS Concepts

This section presents key concepts used in the study and implementation of BMfS, summarized in Table 10.1.

10.2.1 Business Models

A *business model* (BM) represents the way a company creates and captures value (Chesbrough 2010; Osterwalder and Pigneur 2010; Zott et al. 2011). Traditionally, this means the activities and resources that combine to allow the organization to

Table 10.1 Important concepts for understanding BMfS

Concept	Definition
Business model (BM)	"A business model describes the rationale of how an organization creates, delivers, and captures value" (Osterwalder and Pigneur 2010:14).
Business model for sustainability (BMfS)	"A business model for sustainability helps describing, analyzing, managing, and communicating (i) a company's sustainable value proposition to its customers, and all other stakeholders, (ii) how it creates and delivers this value, (iii) and how it captures economic value while maintaining or regenerating natural, social, and economic capital beyond its organizational boundaries" (Schaltegger et al. 2016: 6).
Business model innovation (BMI)	"The conceptualisation and implementation of new business models. This can comprise the development of entirely new business models, the diversification into additional business models, the acquisition of new business models, or the transformation from one business model to another. The transformation can affect the entire business model or individual or a combination of its value proposition, value creation and deliver, and value capture elements, the interrelations between the elements, and the value network" (Geissdoerfer et al. 2018: 405–406).
Business model innovation for sustainability (BMfS)	"The conceptualisation and implementation of sustainable business models." (Geissdoerfer et al. 2018: 405–406). "Sustainable business innovation processes specifically aim at incorporating sustainable value and a pro-active management of a broad range of stakeholders into the business model" (Geissdoerfer et al. 2016: 1220).

meet its objective of delivering value to its customers, while also creating a profit. It is a reflection of a firm's strategy (Casadesus-Masanell and Ricart 2010; Seddon et al. 2004; Shafer et al. 2005; Richardson 2008) and, on an operational level, can provide the organizational and financial architecture of an organization including its understanding of its customers and their needs (Teece 2010). The BM and its activities can be structured around a common framework of three components – value proposition, value creation and delivery, and value capture (Richardson 2008; Chesbrough 2010; Osterwalder and Pigneur 2010). *Value proposition* refers to the organization's product or service offering, and the value embedded within it. The organization's activities and processes, including its resources, suppliers, partners, and distribution, represent *value creation and delivery*. *Value capture* is the organization's cost structure and revenue streams.

In practice, the BM can be a helpful tool for thinking about an organization's strategy. It can help outline or conceptualize an organization's value activities, and the way in which they interact, impact customers and stakeholders, and help meet corporate strategy and its goals. As responsibility in the value chain becomes a more pressing requirement from regulators, customers and stakeholders, organizations need to change the way in which they do business. They can use their current BMs as a starting point for brainstorming and thinking systemically about how they can shift to new or adapted business models that create and capture value across economic, environmental, and social dimensions.

10.2.2 Business Models for Sustainability

BM for sustainability present an opportunity to affect larger societal and environmental change by transforming the value that guides organizations and the current market. They also provide a vehicle for organizations to increase their long-term value and competitive advantage (Porter and Kramer 2019). The BMfS definition presented in Table 10.1 extends the traditional BM components into the sustainability domain, as presented in Fig. 10.1. Distinguishing characteristics of a BMfS include the explicit and proactive consideration of stakeholders, of environmental,



Fig. 10.1 BMfS components

social, and economic capital, and that the organization looks beyond its own boundaries and over the long-term perspective (Schaltegger et al. 2016; Geissdoerfer et al. 2018). BMfS are placed on the organizational change level (Level 3) of the CapSEM Model because they provide a common framework within which the organization can discuss its current operations, partners, stakeholders, suppliers, and value flows. By viewing its BM as a system of activities, a company can work on identifying where and how changes can be made in the process (Zott and Amit 2010). The long-term outlook is an implicit requirement of SD, and it is important that organizations specifically integrate it into their strategies, performance measures and BMfS. Additionally, stakeholder needs over the long-term must be actively and intentionally integrated into BM processes and activities, so that the organization's activities reflect and meet them.

Embedding the three dimensions of sustainability, long-term thinking, and the engagement of all stakeholders into a BM requires an organization to understand how its activities, resources and relationships interact to create value. Conceptually, the *value proposition in a BMfS* extends beyond its goal of highest economic return and removes the purely economic value an organization associates with its product or service (Boons and Lüdeke-Freund 2013). It reflects the fact that the relationship between the organization and its customers and stakeholders is based on an exchange of value (wants and needs), rather than on the product or service itself (Bocken et al. 2014). If the customer wants to purchase a product with a lower environmental footprint, for example, they may be willing to pay more to have the same need met, or even sacrifice some functionality for social and environmental benefit.

Drawing attention to its position in a larger system, *value creation and delivery in a BMfS* is based on sustainable supply chain processes, such as the supply of resources, and production and transport activities, that reduce ecologic and social pressure. Impacts on stakeholders and environments across the life cycle and value chain must be considered (Boons and Lüdeke-Freund 2013). Improved processes may allow the seizing of new opportunities, revenue streams and markets, e.g., through recycling and closed-loop systems or creating new markets based in sustainable and efficient design or production (Bocken et al. 2014). Organizations can use the perspectives and tools from Levels 1 and 2 of the CapSEM Model to better orientate their production processes and value chain activities towards sustainability. Examples of innovation for sustainability in value creation and delivery could be new technology for improved resource efficiency in production, redesign of transport systems or improved labor conditions and worker's rights. These innovative activities also require the organization to look beyond its own boundaries and consider the needs of local communities and stakeholders. Such a perspective requires applying the thinking embedded in Level 4 (systems change) of the CapSEM Model.

Value capture in a BMfS recognizes the value awarded to the organization in performing in an environmentally and socially beneficial way that meets economic, environmental and social needs, and produces more than monetary profit (Boons and Lüdeke-Freund 2013; Bocken et al. 2014). It is structured in a way that helps to balance the value the organization associates with social, environmental, and

economic costs and benefits. The value capture also “describes how part of the value generated for a stakeholder can be transformed into value useful for the company” (Geissdoerfer et al. 2018). Placing value on a reduction in resources or emissions, or on the benefit of creating community programmes, can then work its way into the organization’s overall cost-benefit structure. More advanced value capture structures might incorporate leasing or sharing schemes that reduce traditional consumption patterns and collect payments per use or time-period rather than one-time purchases.

10.2.3 Business Model Innovation for Sustainability

The process of conceptualizing, adapting, or changing a BM to one that fosters sustainability is a development that requires a shift in the logic and system of interacting value components of the organization. This process can be referred to as *Business Model Innovation for Sustainability* (BMiFS). Conceptual clarity between the terms *business model* and *business model innovation* remains ill-defined (Foss and Saebi 2017; 2018; Geissdoerfer et al. 2018). However, one can generally distinguish between the BM as the system of interacting components, and BMI as “designed, novel, nontrivial changes to the key elements of a firm’s business model and/or the architecture linking these elements” (Foss and Saebi 2017). For sustainability-based BMI, an organization must undertake more than single innovations that, for example, reduce the environmental impact of a single production process. Instead, it requires a broader and more complex understanding of innovations, and whether and how they transform and permeate through the business model, including the logic and processes that create, exchange and capture value for sustainability.

Another essential aspect of BMiFS is the holistic consideration of all components. BMfS components must be considered outside of their individual boxes since the activities within them are intertwined with activity processes within the others. Reflecting on these core aspects, the next section presents principles and tools for operationalizing BMfS and innovating a BM for sustainability.

10.3 Developing a Business Model for Sustainability

This section presents tools and guiding principles for innovating an organization’s BM for sustainability. Based on their sustainability goals, an organization may choose to take a *defensive*, *accommodative* or *proactive* approach to innovating its BM (Schaltegger et al. 2016). These range, respectively, from making small incremental changes to mitigate risk and reduce cost, to improving internal processes that consider sustainability on some level, to the redesign of the core logic of the

business for sustainable value (Schaltegger et al. 2016). To reach the more mature levels of BMfS, important attributes that may help an organization in the process are (Stubbs and Cocklin 2008):

- Treating sustainability as a strategy in itself
- Using triple-bottom-line reporting for measuring and communicating progress e.g., SDG targets and indicators or the Global Reporting Initiative (GRI)
- Taking the stakeholder view of the organization
- Embedding sustainability into top management so it makes its way into organization processes and culture
- Recognizing nature and the environment as key stakeholders

Practitioner tools for BMI for sustainability ideation and development also come in different forms. Taking an *inside-out approach*, some tools begin with mapping an organization's current BM elements along sustainability dimensions to identify areas for reducing negative or increasing positive sustainability impact (Joyce and Paquin 2016). Other approaches take the *outside-in perspective* and look to types of BMfS that have worked for other organizations and have been categorized into archetypes (Bocken et al. 2014; Joyce and Paquin 2016). The next sections briefly introduce two alternatives for organizations depending on whether they would like to start by first mapping their current BM, or by looking to successful sustainability or BM innovations of outside organizations. The approaches are not exclusive and should be combined for greater knowledge building, inspiration, and development.

10.3.1 Mapping a Business Model for Sustainability

Applying the BM concept from the operational level can be valuable as a mapping tool of component parts. Expanding the framework of three BM components, a business model canvas (BMC) takes an inside-out perspective to identify areas for innovation across nine “building-blocks” of the BM (Osterwalder and Pigneur 2010). In addition to the value proposition building block, value creation & delivery are divided into key partners, activities, and resources, and customer segments, customer relationships, and delivery channels. Value capture in a BMC is represented by segments of cost structure and revenue streams. *Business model canvases for sustainability* help organizations map their BM elements in a set architecture and in relation to their social and environmental performance objectives (Foxon et al. 2015; Upward and Jones 2016; Tiemann and Fichter 2016; Joyce and Paquin 2016). Explicitly viewing activities as components that interact as a system, helps to highlight their connections and the way each influences the others, potentially exposing areas for sustainable value creation.

In extending the original BMC for traditional BMs, numerous canvases have been developed to integrate sustainability dimensions, e.g., (Foxon et al. 2015; Upward and Jones 2016; Tiemann and Fichter 2016; Joyce and Paquin 2016).

Some studies have shown that mapping tools may have a limited effect on implementing designed innovation strategies (Morris et al. 2005; Demil and Lecocq 2010; Boons and Lüdeke-Freund 2013; Geissdoerfer et al. 2018). However, mapping different BM elements and functions across a generalizable framework can be a helpful starting point for visualization, ideation, and communication purposes within an organization.

The *triple layered business model canvas* (TLBMC) (Joyce and Paquin 2016), extends the original economic focused BMC to include additional layers for environmental and social value creation. The TLBMC should be performed in two steps – first as a baseline outlining the current BM and interactions, and then to identify areas for sustainable innovation opportunity.

The TLBMC has been selected for presentation in this chapter because the additional layers force an organization to specifically consider each of their BM components in relation to environmental and social aspects and impacts. Other BMCs for sustainability add important sustainability components, but not in the comprehensive way that the TLBMC embeds them. The TLBMC mandates focus on interactions between the building-blocks on each layer (horizontal coherence), but also between and across the layers (vertical coherence) for systemic consideration of activities and stakeholders.

In addition to the economic layer, the environmental layer of the TLBMC requires an organization to take the life cycle perspective when identifying their environmental impacts. It specifically focuses on addressing the impacts of value creation & delivery activities such as material selection and supply, production processes, distribution, and impacts through use- and end-of-life phases. The environmental layer strongly encourages the use of quantitative indicators for measuring impact, and many of the Level 1 and 2 CapSEM model tools can therefore be applied. The social layer takes a stakeholder management approach to help the organization identify the impacts of relationships and interactions with its stakeholders including guidelines for local community engagement, organization governance, and management of employee, customer and societal culture. This helps the organization understand the flows of value within their value network, and to recognize opportunities for creating and capturing social value in their BMfS.

10.3.2 Business Model for Sustainability Archetypes

From an outside-in approach, BMfS have been classified into *archetypes*, or common models, based on the way(s) in which the models work to create and capture sustainable value (Bocken et al. 2014, 2016). The archetypes identified by Bocken and colleagues are categorized according to the type of mechanism or innovation that helps the organization deliver on sustainability – technical, social or

organizational (Boons and Lüdeke-Freund 2013; Bocken et al. 2014).¹ While the categorization was performed to make sense of the growing literature in the field, the clear groupings and naming of archetypical models now provides both scholars and practitioners with common forms and patterns to discuss and reflect upon in the business model innovation process.

Technical archetypes are characterized by technical innovation in the business model through, for example, design or manufacturing processes that are more resource efficient and/or support the principles of the circular economy. *Social* grouped archetypes depend on social innovation to offer sustainable value, such as through a change in the functionality they offer the customer or a change in consumer behavior. *Organizational* grouped archetypes focus on restructuring the organization and its value creation, possibly as a reorganization of ownership, social or hybrid enterprises or base-of-the-pyramid business models that veer away from traditional company profit maximization structures (Bocken et al. 2014, 2016). Figure 10.2 presents the eight sustainable business model archetypes, and some examples, grouped by their innovation type (Bocken et al. 2014). Table 10.2 describes each of the archetypes across the BM elements of value proposition, value creation and delivery, and value capture (D’Amato et al. 2020).

Archetypes can also be grouped based on their foundational principles, e.g., the circular economy (Lacy et al. 2014; Lewandowski 2016; Lüdeke-Freund et al. 2019), or by their main value creation area – mainly economic, social-economic, social, mainly ecological or integrative (Lüdeke-Freund et al. 2018). The categorization of common patterns can provide inspiration to organizations working to improve the sustainability of their BM. Archetypes point out specific innovations that can transform the current BM or create an entirely new BM. They can be helpful in reconceptualizing current processes and identifying potential opportunities.



Fig. 10.2 Sustainable business model archetypes. (Bocken et al. 2014).

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¹The technological, social, organization groupings were later updated to environmental, social and economic groupings (Bocken et al. 2016) paralleling triple bottom line dimensions, and a ninth archetype of ‘inclusive value creation’ added under the organizational/economical grouping. The original grouping is still most widely used, however, and therefore presented in the chapter.

Table 10.2 Sustainable business model archetypes along business model components

	Archetype	Value proposition	Value creation and delivery	Value capture
Technical	Maximize material and energy efficiency	Products/services using less resources, generating less waste and emissions	Adopting more efficient and safe production processes	Reducing costs, minimizing environmental impact
	Create value from waste	Turning waste into higher value products/services	Using recycled materials, ensuring recyclability of products/services	Reducing costs, as well as waste and virgin material use
	Substitute with renewables and natural processes	Products/services using bio-based renewable materials and energy	Adopting innovative production processes based on bio-based materials and energy	Commercializing new products/ services, reducing environmental impact
Social	Deliver functionality, rather than ownership	Shifting from a consumer to a user logic	Enabling product/ service reuse and repairation	Commercializing user-based solutions, reducing material use, enabling consumer access to expensive products/ services without owning
	Adopt a stewardship role	Providing access to more sustainable alternatives	Seeking resource co-management and transparency in supply chains	Securing a customer base by leveraging stewardship of social and ecological systems
	Encourage sufficiency	Products /services that reduce demand or consumption	Promoting responsible consumption and frugality (e.g., by ensuring product/ service longevity)	Encouraging premium pricing, customer loyalty, increased market share, reducing material use
Organizational	Repurpose the business for society/the environment	Prioritizing social and environmental benefits along with economic profit	Developing hybrid business, cooperatives	Establishing a new business while securing livelihoods and/or supporting natural systems
	Develop scale-up solutions	Expanding product/ service commercialization	Developing adequate infrastructure and partnering with additional operators	Sharing and promoting sustainability-oriented businesses, e.g., through licensing

Redrawn based on D’Amato et al. (2020), doi: 10.1016/j.forpol.2018.12.004

10.4 Conclusion

This chapter has provided an overview of the conceptual framing of BMfS, along with some of the practitioner tools that can be used by organizations to begin adapting, transforming, or creating new BMs that support sustainability objectives. BMfS are placed on the organizational level (Level 3) of the CapSEM Model because they can be used by management to visualize and understand the way the organization's activities combine and interact to create and capture value. To improve or better orientate their BM toward sustainability, BM activities must incorporate and combine environmental, social, and economic dimensions over a long-term perspective with the active consideration of stakeholders. Organizations should therefore apply and utilize the methods and tools associated with each of the Levels of the CapSEM Model to establish and measure the impacts of their activities within and beyond their business model. For example, Level 1 and 2 tools can be used to measure the material flows and life cycle impacts of production processes and value chains which can subsequently be incorporated into the value proposition and value creation and delivery elements of the business model. Changes in the material flows or resource use can then make their way into the value capture activities of the BM. Furthermore, management can apply other organizational level tools (Level 3) to manage, track, report and communicate their progress toward sustainability indicators, and identify areas where they are not meeting selected performance indicators. The organization must make strategic decisions to root sustainability in its organizational strategy so that sustainability objectives also drive the development and innovation of its BM. Corporate social responsibility (CSR) could be one such perspective for helping ground the BM in sustainable practices. Finally, to gain an overview of the network of actors and interdependent systems and activities that make up its BM and that must be considered in potential BMI for sustainability opportunities, the organization must take a holistic systems view (Level 4) to its operations, business model, and sustainability strategy. The framework of components – value proposition, value creation and delivery, and value capture – can then be used to structure environmental, social, and economic activities within the business model and position them for improved sustainability.

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