Produced by PlastiCity 25 Nov 2022

Circular Business Model Literature review

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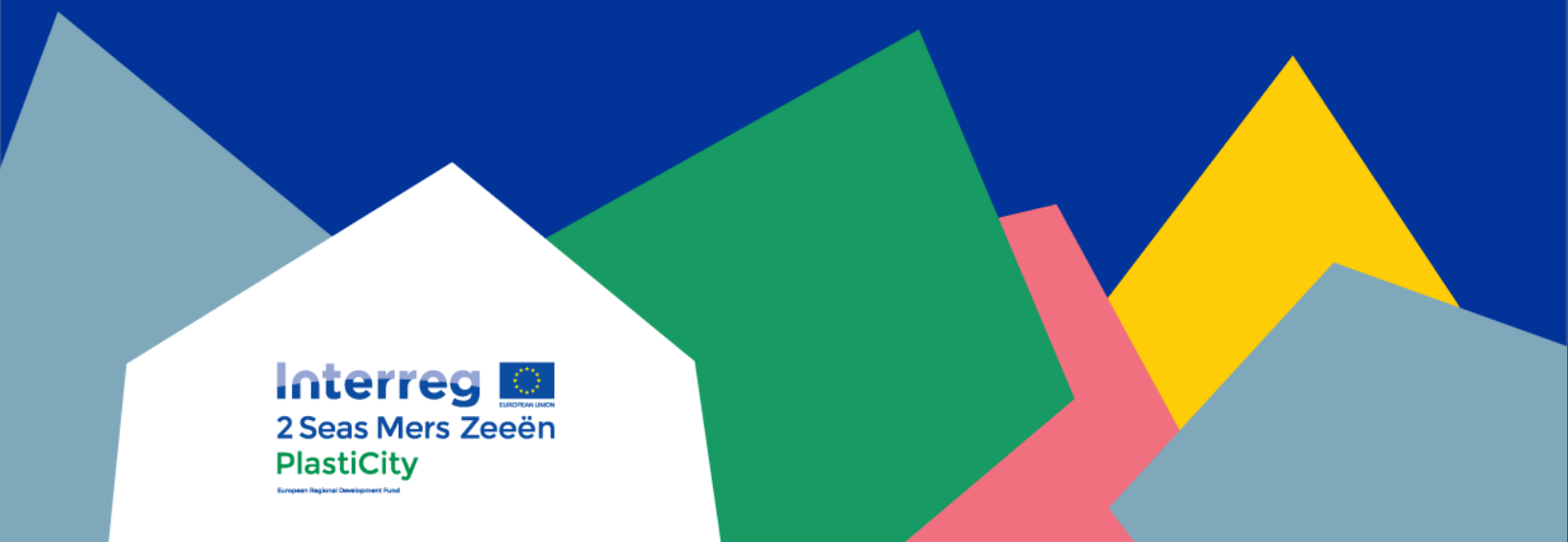

Partners

This project has received funding from the Interreg 2 Seas programme 2014-2020 co-funded by the European Regional Development Fund under subsidy contract No 2S05021.

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1. Business Model and Business Model Innovation

This first chapter aims to explore the theoretical foundation of a business model. This first part of the literature review focuses on analysing the related literature published in prominent academic journals such as Long Range Planning, Journal of Management, Strategic Management Journal and Academy of Management Annals. As this thesis explores circular business models, it is relevant to set the background context of a BM. This first section will explore the BM's origin and development as a tool companies use to define their business and operations. This section will also consider the BM innovation research stream in order to investigate the dynamic perspective of a BM. This literature review on BM and BM innovation research will pave the way for a deeper comprehension of sustainability innovation and sustainable BM.

What is a business model?

The business model origins: a variety of definitions and research silos

Its apparition is linked with the rise of technology companies in the 90s (DaSilva & Trkman, 2014; Teece, 2010; Wirtz et al., 2016; Zott et al., 2011). At that time, the business model was a “buzzword” used by many practitioners and scholars (DaSilva & Trkman, 2014). However, it has been misused, creating a lot of confusion and debates concerning its meaning, its definition and its place within the research management field (DaSilva & Trkman, 2014; Foss & Saebi, 2018; Massa et al., 2017; Ritter & Lettl, 2018; Wirtz, Pistoia, Ullrich, & Vincent, 2016; Zott et al., 2011). DaSilva and Trkman (2014) recognize that the business model is an “incomplete approach” that needs to be enhanced with a “clear and operational strategy”. Despite increasing publications since 2000, the business model field of research is still at an early stage (Wirtz et al., 2016). It has been neglected in theoretical groundings in economics and business studies due to economics assumptions suggesting that the market is perfect. Customers will automatically pay for value if a value is delivered (Teece, 2010). Foss and Saebi (2018) notice that confusion still exists regarding the BM scope of conditions and its definition and also recognize a lack of clarity within the literature specifying if all firms have a business model or not and if the business model is the result of a specific design strategy.

According to Zott and colleagues (2011), a business model has been used to explain three phenomena or "research silos":

- E-businesses (how new technologies are used to develop new businesses).
- Strategy and performance issues (how value is created through the firm's activities and network and how competitive advantage is developed).
- Innovation and Technology management (how technology innovation is commercialized).

Based on these emerging “silos”, the authors came up with three business model concepts to give some clarity within the Business model research field: e-business model archetype, business model as activity-system, and business model as cost/revenue architecture (Zott et al., 2011).

According to Zott et Amit (2008), a business model can be defined as a new contingency factor that captures the structure of a firm’s boundary-spanning exchange or, more precisely, as a “structural

template that describes the organisation of a focal firm's transactions with all of its external constituents in factor and product markets" (Zott & Amit, 2008: 1). For DaSilva and Trkman (2014), ground on the resource-based and the transaction cost approaches, a business model is a combination of resources which, via transactions, generate values for the customers and the company. Teece (2010) defines a business model as a concept that describes the architecture of how a company creates and delivers value for the customers and how the company captures it. Chesbrough (2010), based on his previous work with R. S. Rosenbloom (2002), considers that a business model includes not only the value proposition, delivery and capture but also the structure of the value chain and the company's position within the value chain and within the competitors, the market segment, the cost structure and the competitive advantage (Chesbrough, 2010).

Nevertheless, based on a systemic literature review, Massa and colleagues (2017) found three different interpretations of a business model which caused part of the confusion:

- As an attribute of a real firm (how firm do business and achieve its goals).
- As cognitive and linguistic schema (how firm do business is interpreted by organisation's members).
- As a formal conceptual representation (an explicit and simplified representation on how the firm is doing business).

To clarify future studies on business models, scholars recommend that future researchers precisely determine which concept or interpretation and the type of business model are being used in their analysis (Massa et al., 2017; Zott et al., 2011).

Towards a common understanding of BM

BM Definition, components, framework and research streams

Despite its historical development and the various authors' perspectives and definitions, the BM field is converging towards a unified understanding of the BM concept (Foss & Saebi, 2018; Saebi et al., 2017; Wirtz et al., 2016).

Firstly, Zott and colleagues (2011) noticed some common themes that define a business model:

- A new and distinct unit of analysis
- A system-level concept (not only what the company does but also how)

- An activity - system perspective (firm - centric and boundaries - spanning)
- A focus on both value creation and capture

Then, Wirtz and colleagues (2016), by reviewing the literature on business models based on three theories (technology-oriented articles, organisational theory-oriented and strategy-oriented), recognised that the field is converging towards a common understanding of the BM concept.

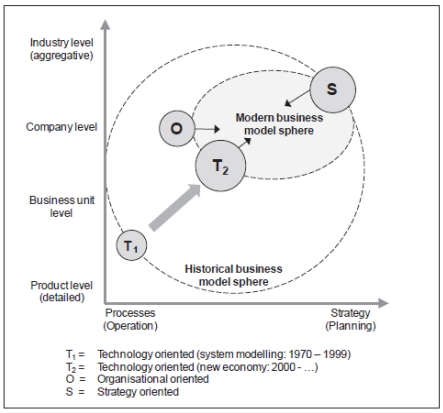


Figure 2. Development of the three basic theories into the direction of a converging business model view

Figure 1: Development of the three basic theories in the direction of a converging business model view. Source: Wirtz and colleagues (2016)

However, Wirtz and colleagues (2016) recognize that the BM's definition is still unclear. Consequently, by reviewing and analysing previous definitions in the literature, the authors came up with a common and clarified definition which includes the structural aspects of a BM (the company's architecture and overall context), the task of the BM's content (the company's activities) and its purpose (assuring a long-term competitive advantage). To this, the authors add the BM's dynamic perspective.

"A business model is a simplified and aggregated representation of the relevant activities of a company. It describes how marketable information, products and/or services are generated by means of a company's value-added component. In addition to the architecture of value creation, strategic as well as customer and market components are taken into consideration to achieve the superordinate goal of generating, or rather, securing, the competitive advantage. To fulfil this latter purpose, a current business model should always be critically regarded from a dynamic perspective, thus within the consciousness that there may be the need for business model

evolution or business model innovation, due to internal or changes over time." (Wirtz, Pistoia, Ullrich, & Vincent, 2016: 41)

Foss and Saebi (2018) also recognized that the BM Research field is converging towards a unified definition and pointed out the predominance of the word “architecture” in the literature. Consequently, the BM field is converging towards a BM view as the architecture of the company’s activities (activity-system) which underlines the value creation, delivery and capture (Foss & Saebi, 2018; Teece, 2010, 2018).

After clarifying the BM’s definition, Wirtz and colleagues (2016) analysed the BM’s main components and regrouped them within three main categories: Strategy (strategic model, resource model and network model), Customer and market (customer model, market offer model, revenue model) and Value creation (manufacturing model, procurement model, financial model).

Ritter and Lettl (2018) offer a common framework of a BM and a solid foundation for further research. They identified 5 BM research streams - BM activities, BM logics, BM archetypes, BM elements and BM alignments – and emphasized their complementary. The authors suggest defining a conceptual and common language for each perspective to avoid any further confusion (Ritter & Lettl, 2018).

The notion of value at the heart of the BM definition

As seen previously, BM is characterised by value creation, delivery and capture (Foss & Saebi, 2018; Teece, 2010, 2018). Johnson and colleagues (2008) deeply analysed the interdependent elements that compose value creation and delivery. Therefore, the BM is defined by the customer value proposition (creating value for the customer by responding to a specific need), the profit formula (creating value for the company), key resources and processes (assets and operational and managerial processes needed to deliver the value proposition) (Johnson et al., 2008).

The notion of shared value

Porter and Kramer (2011) recognized a need to reconcile business and society by reconnecting company success with social progress. Companies have the power to address current social and

environmental issues, but there is a need to go beyond the corporate and social responsibility approach by introducing shared value (Porter & Kramer, 2011). In the current model, businesses contribute to society via profit, employment and taxes, but this vision is too narrow, and companies miss opportunities (Porter & Kramer, 2011). "We need a more sophisticated form of capitalism, one imbued with a social purpose. But that purpose should arise not out of charity but out of a deeper understanding of competition and economic value creation" (Porter & Kramer, 2011: 77). According to the authors, the shared value means that companies create not only economic value but also societal value and this new approach can produce positive loops, waves of innovation and growth.

Link between Business model and Strategy

The business model is often confused with other business terms such as business concept, economic model, business process model, revenue model and strategy (DaSilva & Trkman, 2014) but mostly with strategy (Massa et al., 2017; Wirtz et al., 2016). Scholars debate on determining the right of the BM research field to exist on its own, independently of the Strategy Management Field (Foss & Saebi, 2018; Massa et al., 2017; Ritter & Lettl, 2018; Wirtz et al., 2016).

Da Silva and Trkman (2014) distinguish the business model from strategy by insisting on the fact that a business model has a short-term perspective. According to the authors, a business model is a “picture” of the company reflecting the right combination of resources associated with transactions, chosen at a certain time, depending on the current opportunities and threats (DaSilva & Trkman, 2014: 386). Whereas a strategy corresponds to the long-term goal of the company (DaSilva & Trkman, 2014; Wirtz et al., 2016), which sets up the dynamic capabilities that will finely shape the business model (DaSilva & Trkman, 2014). Nevertheless, DaSilva and Trkman (2014) insist on the importance of including the strategy in a business model to cope with future contingencies such as new competitors and constantly innovate. Similarly, Teece (2010) suggests that the business model should be combined with a business strategy to have a competitive advantage.

According to Massa and colleagues (2017), a business model is an extension of strategy as it relaxes the assumptions of traditional strategy theories of value creation and capture (the Positioning and

Resource-Based views). According to the authors, the assumptions challenged by the business model concept are the following: Firms and customers have perfect information, unlimited cognitive abilities and act independently. In addition, other assumptions are that there are no externalities with third parties (network effects), and the competitive advantage can only be single-sourced and from the supply-side. On the contrary, a business model shows that a competitive advantage can be multi-sourced (from both resources and activities) and be from the demand and supply sides (Massa et al., 2017).

Ritter and Letll (2018) suggest that BM Research has a distinct role within the strategic management research field as a "semipermeable membrane" (Ritter & Lettl, 2018: 7) which means that a BM allows a connection between theories.

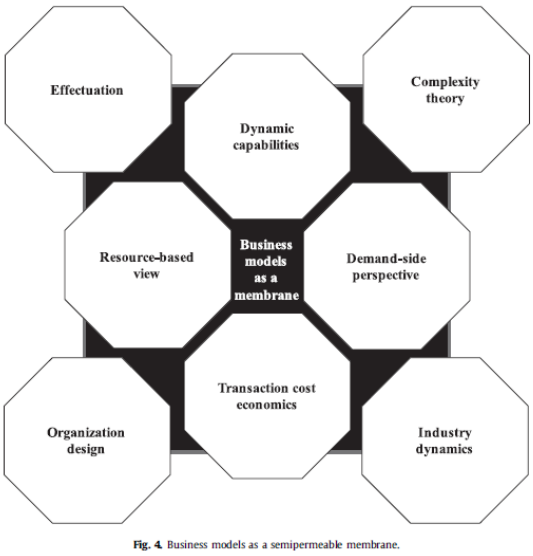


Fig. 4. Business models as a semipermeable membrane.

Figure 2: Business models as a semipermeable membrane. Source: Ritter and Lettl (2018)

Business model adaptation and business model innovation:

Scholars recognized that the BM literature has been moving towards a more dynamic view of a BM (Saebi et al., 2017; Wirtz et al., 2016). By reviewing the theoretical foundation of a BM, Fjeldstad

and Snow (2018) noticed two discourses within the BM research field: the operational view of a BM (how a firm creates value for its customers and appropriates value by performing its activities efficiently and effectively) and the dynamic view of a BM (how a firm modifies the elements of its business model over time in order to adapt to changes and disruptions in its environment). According to McGrath (2010) and Teece (2010), a business model is a learning process that cannot be entirely anticipated and needs to evolve and adapt to new opportunities or threats. Indeed, BMs need to be flexible to change more easily in their early years (Johnson et al., 2008). "The business model can be a vehicle for innovation as well as a subject of innovation" (Zott et al., 2011: 1034). The BMI research field is considered an extension of the BM (Foss & Saebi, 2017).

Definitions and research streams

A BMI is "the search for new logics of the firm and new ways to create and capture value for its stakeholders" (Casadesus-Masanell & Zhu, 2013: 464). According to Girota and Netessine (2014), a BM is a set of key decisions that collectively determine how a business earns revenue, incurs costs, and manages its risks. Therefore, a BMI changes these decisions (what your offering will be, when decisions are made, who makes them and why) (Girotra & Netessine, 2014). However, Foss et Saebi (2016) noticed a lack of clarity within the research field regarding the BMI definition. Consequently, the authors defined a BMI as "designed, novel and nontrivial changes to the key elements of a firm and/or the architecture linking these elements" in opposition with minor change or imitation of other incumbents. (Foss & Saebi, 2016: 216)

Business models are shaped and modified according to 4 design themes identified by Zott and Amit (2010) based on the activity-system framework (content, structure and governance):

- Novelty (new activities and new ways of linking and governing activities)
- Lock-in (retaining stakeholders via the activities)
- Complementarities (complemented activities bring more value than separately)
- Efficiency (decreasing the transaction cost)

Firms can innovate and create value via one of these sources or a combination of them (Zott & Amit, 2010). Zott and Amit (2008) suggest that a business model innovation can generate a competitive advantage in conjunction with a product market strategy such as cost leadership and product differentiation (Zott & Amit, 2008). BM innovation is key to the firm's performance (Zott et

al., 2011) and to developing sustained value creation (Achtenhagen et al., 2013). Entrepreneurial firms seem more inclined to innovate and change their BM more radically due to the lack of established assets, such as existing production facilities and networks (Bohnsack et al., 2014; Teece, 2018). A BMI depends on a company's capabilities as it will determine the ability of a company to adjust and adapt its BM to sustain long-term profitability (Teece, 2018). However, Teece (2018) recognizes that a BM transformation close to the existing one will be far easier to implement than a major change. Based on Amit and Zott's work (2010), Bohnsack and colleagues (2014) analysed that incumbents will innovate essentially to reduce their cost (efficiency), whereas entrepreneurial firms will be more inclined to create value via novelty. Indeed, without existing complementary assets, an entrepreneurial firm will be more inclined to find new ways to innovate and attract customers (Bohnsack et al., 2014).

Scholars distinguished four types of BMI depending on the degree of novelty (new to the firm or new to the industry): Evolutionary BMI (change occurs naturally within the firm) and adaptative BMI (imitating new BM or adapting BM in response to the external environment) and focused BM (one area of BM is changed) and complex (the entire BM is affected by the innovation) (Foss & Saebi, 2017).

Johnson and colleagues (2008) recognize five strategies which require BMI:

- Addressing the need of a large group of potential customers currently out of the market.
- Capitalising on a new technology by wrapping it with a new BM or to bring it to a new market.
- Developing a new customer value proposition that non-existing previously.
- Facing up with low-end disrupters.
- Handling new competition.

Foss and Saebi (2017) recognise four research streams within the BMI field: The conceptualisation of BMI, BMI as organisational change, BMI as an outcome and the consequences of BMI. The authors enhance the BMI research field as an independent and specific construct and develop a research model to guide future research and position the BMI (Foss & Saebi, 2017).

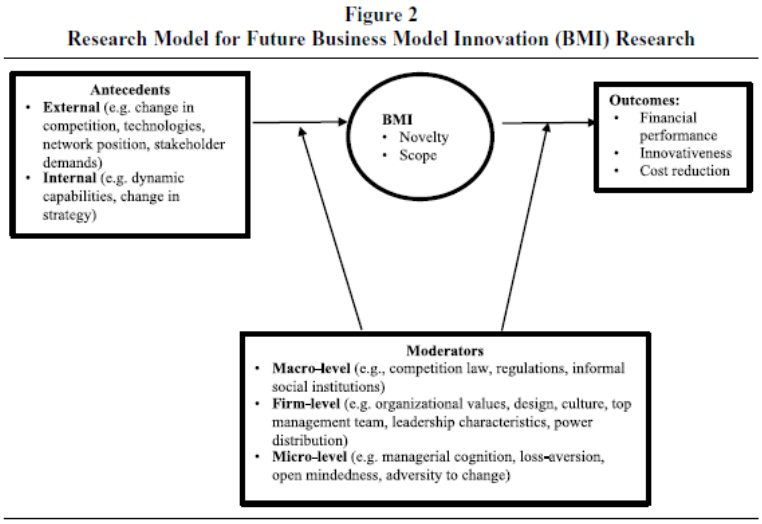


Figure 3: Research Model for Future business model innovation Research. Source: Foss and Saebi (2017)

When companies are more inclined to change their BM:

Companies will be more likely to modify and adapt their business model and take risks when they perceive a threat than an opportunity, as they have less to lose (Saebi et al., 2017). The same authors analysed that the strategic orientation chosen by the firm influences its choice to innovate its BM or not. Indeed, a firm which has adopted a market development strategy will be more inclined to modify its BM over a domain defence strategy (Saebi et al., 2017).

Schneider (2019) observed that firms exposed to exogeneous change would be more inclined to adopt a BMI as a continuous process. In this case, firms will focus on detecting signals and stimuli in their environment by understanding the market development and constantly questioning themselves to get signals as early as possible to have the early-mover advantage (Schneider, 2019). In addition, the author recognised that these firms would approach exogeneous change with a positive attitude and adopt a "giving it a try" behaviour. However, in the absence of exogeneous change, companies will adopt a more proactive BMI approach by focusing on their core competencies as the source of innovation (Schneider, 2019). In this case, firms will concentrate on their strengths to create unique situations that will be hard to imitate (Schneider, 2019). Schneider

(2019) also analysed that these firms will tend to minimise risks by being aware of them and sharing risks with other partners.

“Firms exposed to high levels of exogenous change focus on discovering objective opportunities, whereas firms operating in the absence of exogenous change concentrate on creating subjective opportunities for BMI” (Schneider, 2019: 418).

Barriers to business model innovation and risk of imitation

Based on Zott and Amit’s (2010) design themes and the disruptive innovation concept of Clayton Christensen (1997, 2003), Chesbrough (2010) has identified the main barriers to business model innovation. He emphasizes the conflict between the original business model and the new one due to the manager’s resistance to change and the dominant logic, based on the work of C. K. Prahalad and R. Bettis (1995) (Chesbrough, 2010). Companies select the information or technology that fits their current business model (Chesbrough, 2010) whereas most innovations concern the customers outside the initial business model (McGrath, 2010). The risk is to miss valuable use of new technology or innovation (Chesbrough, 2010; McGrath, 2010). Implementing a good idea or technology will fail if it’s not accompanied by the right business model (Chesbrough, 2010; Johnson et al., 2008; Teece, 2010). “Companies need to develop the capability to innovate their business models as well as their ideas and technologies”(Chesbrough, 2010: 356). Another barrier to Business model innovation is the internal confusion related to the company’s business model (Chesbrough, 2010; Johnson et al., 2008). Johnson and colleagues (2008) also insist on the institutional memory of the incumbent firm as a barrier to BMI as it will protect the status quo. In addition, the author emphasizes the importance of the organizational culture to embrace the new business model while keeping the old one effective while the new one takes place (Chesbrough, 2010).

Casadesus-Masanell and Zhu (2013) analyse the risk of imitation when a company implements new ways of creating and capturing value. The authors explore two possible strategic choices:

- Strategic revelation: The new entrant in the market will decide to reveal the new business model. By doing so, the traditional companies will either keep their business model, implement a fighting brand or imitate entirely or mix the traditional and novel business models. The new entrant will only choose this strategy if the incumbent's change benefits its business.

- Strategic concealment: the new entrant will not reveal the innovation and will keep using the traditional business model to prevent the incumbent from changing its business model in a way that would be detrimental to its business.

Casadesus-Masanell and Zhu (2013) and Teece (2010, 2018) recognise that business model innovations spread fastly within a sector of activity and beyond due to the absence of intellectual property. Consequently, the innovator may not benefit from his/her idea and some business model innovations will never be implemented due to the competition effect and the risk of imitation (Casadesus-Masanell & Zhu, 2013).

Implementing a successful BMI

Experimentations and learning

Experimentation is key to overcoming business model innovation barriers (Chesbrough, 2010; McGrath, 2010) and can occur within and across firms (McGrath, 2010). “Companies should strive to develop processes that provide high fidelity as quickly and cheaply as possible, aiming to gain cumulative learning from (perhaps) a series of ‘failures’ before discovering a viable alternative business model" (Chesbrough, 2010: 360). Successful business model innovations are built upon previously failed experimentations that will shape the successful one (McGrath, 2010; Teece, 2010). To be successful, companies need to constantly learn and adapt their business model, confront their provisional BM against the current and future business ecosystem and know the “deep truth” about their customers’ needs, market segment and competitors (Teece, 2010, 2018). Scholars agree that BMI mostly emerges through trial and error (Chesbrough, 2010; Johnson et al., 2008; Laudien et al., 2017; Teece, 2010, 2018), especially in the context of average market players (Laudien et al., 2017). To develop a successful BMI, companies need to tolerate failures and accept to correct their path by learning and constantly adjusting (Johnson et al., 2008). Johnson and colleagues (2008) recognize that companies need to revise their BM at least four times and advise companies to be patient as it takes time to implement a successful BMI.

However, to lead the experimentation and then develop a new business model, the company will need to identify an internal leader able to engage with the company and the company’s culture (Chesbrough, 2010). In order to convince managers of future threats and the necessity to act on it,

McGrath (2010) suggests critical conversations with experts in the firm about “oblique competitors”, new technology and potential future customers (McGrath, 2010). Firms are increasingly connected with their stakeholders especially when they alter their BMs; consequently, managers need to be agile and flexible to adapt their BM to the new environment continuously and to keep up with the dynamic global economy (Fjeldstad & Snow, 2018).

Implementing and developing specific strategies and capabilities

Teece (2010) recognised three main reasons that some business models are less replicable than others: the implementation of a business model requires some specific capabilities (systems, process and assets) that are hard to imitate, a certain opacity which makes it harder to fully understand the new business model and finally the resistance of incumbents to change their existing BM due to a risk of cannibalisation or strong business relationships (Teece, 2010). Teece (2018) suggests combining the strategy and the company’s assets with the business model design to make it harder to copy. To develop a successful BMI, companies have to be fast learners (Teece, 2018), and the top management has to be engaged (Foss & Saebi, 2018) as management judgement will decide if BM change is needed or not (Johnson et al., 2008). Teece (2010) emphasises the importance of choosing the suitable business model and adapting it to have a sustainable competitive advantage. "Get the business model wrong, and there is almost no chance of business success - get it right, and customize it for a market segment and build in non-imitable dimensions, and it will contribute to the firm’s competitive advantage” (Teece, 2010: 191). According to Johnson and colleagues (2008), success comes from wrapping the new technology in an appropriate and powerful BM and identifying a clear customer value proposition. "The first (step) is to realize that success starts by not thinking about business models at all. It starts with considering the opportunity to satisfy a real customer who needs a job done" (Johnson et al., 2008: 52).

Schneckenberg and colleagues (2017) analysed that to seize new market opportunities and respond to emerging customer needs, firms must implement strategies to adapt their BM. To align its value proposition to the emerging customer needs, the company will adopt a customer-centricity and value co-creation approaches to understand customer behaviour clearly. In parallel,

the company will need to adjust its value creation by rearranging and reallocating its knowledge and capabilities by adopting a capability evolution and ecosystem growth. Regarding value capture, companies will need to adapt an adaptive pricing strategy based on a dynamic approach (Schneckenberg et al., 2017). The authors insist on the interdependency of each strategy to cope with BM development uncertainties.

BM components	Risks and uncertainties	Coping strategies	Definitions
Value proposition	Misunderstanding customer needs and expectations	Customer centricity	Customer behaviour real-time knowledge
		Value co-creation	Developing collaborative platforms to engage in active co-creation value
Value creation	Lack of required knowledge and capabilities in the team	Capability evolution	Adapting capabilities and knowledge internally to handle the change
		Ecosystem growth	Integrating external knowledge from other partners and stakeholders
Value capture	Financial (customer reluctance and failure to exploit market space)	Adaptive pricing	Adopting an entrepreneurial approach (flexible payment scheme and fast market seizure)

Table 1: Coping strategy framework based on Schneckenberg and colleagues' work (2017)

Karimi and Walter (2016) recognize that a company needs to adopt an entrepreneurial approach to successfully implement a disruptive BMI. Indeed, the authors suggest that by reinforcing risk-taking, proactiveness, innovativeness, and autonomy activities, companies can better analyse their surrounding networks and define how to implement a BMI. To support such implementation, having an internal autonomous and proactive growth group is essential to counterbalance the current business's low-risk with the high risk of implementing a disruptive BMI (Karimi & Walter, 2016).

To implement a successful BMI and create virtuous circles, Achtenhagen and colleagues (2013) recommend combining strategic actions, critical capabilities and a set of activities needed for BM change. The authors identify the following three main strategizing actions:

- Combining growth with strategy acquisition
- Expansion across BM dimensions (customer segment, product line, distribution channel…)
- Focusing on both cost efficiency and high quality

The authors identify three critical capabilities which allow the implementation of these main strategizing actions:

- Identifying, experimenting and exploiting new business opportunities (entrepreneurial mind, market research, experimenting new ideas, encouraging learning and accepting mistakes).
- A balanced use of resources (combining competence core, financial investment and human resources).
- Active and clear leadership, a strong organisational culture and employee commitment

Strategizing actions and critical capabilities are not only interlinked but also complementary, consequently, they need to be reinforced to create sustained value change via BM change (Achtenhagen et al., 2013).

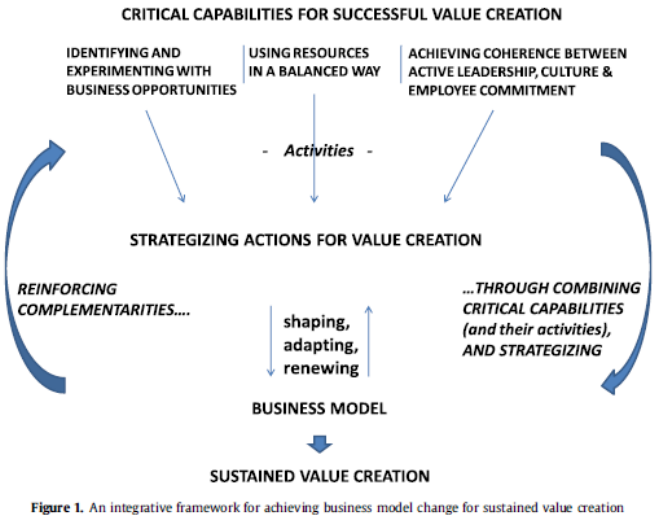


Figure 4: BM change framework by Achtenhagen and colleagues (2013)

Conclusion and future research

Despite the remaining confusion within the Management Research field regarding the place of the BM field and its definition, scholars are, nevertheless, converging towards a unified conception of a BM (Foss & Saebi, 2018; Wirtz et al., 2016). Finally, a BM represents the architecture of a business that highlights the company's activities which underline the value proposition, delivery and capture (Foss & Saebi, 2018; Teece, 2010, 2018). The BM concept also includes a dynamic view at the heart of the BMI research field (Saebi et al., 2017; Wirtz et al., 2016). By innovating their BM, a company can adjust to potential threats or opportunities and create long-term competitive advantage (Foss & Saebi, 2018; Teece, 2010, 2018; Wirtz et al., 2016) in both resources and activities based and on both the demand and supply sides (Massa et al., 2017). Fjeldstad and Snow (2018) point out the importance of thinking of a firm's business model as a system and not only as a collection of parts and encourage future research to move beyond the scope of a firm-level by including the firm's ecosystem.

Despite confusion among scholars regarding the place of the BM research field within the Management field, scholars recognize that the BM research field can contribute to answering research questions in different fields such as Strategic management, Technology and Innovation Management, Strategic Corporate Entrepreneurship and Sustainability (Foss & Saebi, 2018; Massa et al., 2017) and be a "membrane" connecting strategic management theories (Ritter & Lettl, 2018).

However, scholars recognize a lack of research analysing the successful factors of a BM (Wirtz et al., 2016) and also about the emergent process of a BMI (Laudien et al., 2017). Foss and Saebi (2017) highlight a lack of investigation regarding the factors and drivers of a successful business model innovation, particularly internal drivers.

In the case of sustainability, Foss and Saebi (2016) recognize that sustainability can be considered a major antecedent to BMI and point out that studies have mainly focused on highlighting the need for sustainability or describing sustainable BMs. However, they suggest future research to investigate how companies innovate their BM towards more sustainability. The next section of this literature review will explore in detail sustainable business models.

Table 2
Future research directions.

Problem	Potential research questions	Useful theories/research streams
1. BM and BMI as independent variable	• How do interdependencies within the BM look like and what does this imply for the transformation/innovation process? • Are some types of BM and BMI more profitable than others?	• Complexity theory (Simon, 1962; Levinthal, 1997) • Complementarity theory (Ennen and Richter, 2010) • Innovation theory (e.g., Henderson and Clark, 1990)
2. BM and BMI as dependent variables	• What is the role of dynamic capabilities as internal drivers of BMI? • What are the external drivers of BMI? • What is the role of entrepreneurial "vision", "imagination" and "judgment" in the design of BM and BMI? • What is the role of employee resistance in BMI and how can it be overcome? • Role of managerial cognition/characteristic of top management team in BMI?	• Dynamic capabilities theory (Teece et al., 1997) • Entrepreneurship theories (Knight, 1921; Foss and Klein, 2012) • Leadership theories (Howell and Avolio, 1993) • Contingency theory (for a review see Boyd et al., 2012)
3. BM and BMI as moderating/ mediating variables	• How does a change in the firm's BM affect the BMs within its ecosystem/ network relationships/stakeholders? • What types of BMs are conducive in implementing open innovation? • How can BM be innovated towards greater sustainability (with regard to environmental and societal concerns)? • How does a shift toward servitization affect the firm's existing business model and its underlying org. design?	• Open system perspective (Berglund and Sandstrom, 2013) • Open innovation and collaboration(Chesbrough, 2006) • Sustainability/CSR (for review see Aguinis and Glavas, 2012) • Servitization (e.g., Nair et al., 2013)

Figure 5: Summary of future research and useful theories (Foss & Saebi, 2018)

2. Sustainable Business Model

After reviewing the theoretical background of business models and concluding that a business model can be a source of innovation and competitive advantage, the next section will explore the business model as a tool to implement sustainable development. This section will focus on exploring the sustainable BM research field by reviewing relevant academic journals such as Organization & Environment, Research Policy, Long Range Planning and Business Strategy and the Environment. More precisely, this next section will explore the concept of a sustainable corporation and the characteristics of a sustainable BM. This reflection is relevant because the circular economy is a concept emerging from the sustainability concepts based on the junction of the environment, the social and the economy.

What is a sustainable corporation?

According to Shrivastava and Hart (1995), a sustainable corporation should implement Total Environmental Management. This means the company minimizes environmental impact at each product or service value chain step. The input, such as virgin materials and non–renewable energy, should be minimised. Throughputs (emissions and effluents during the production process) should be reduced with “zero pollution and zero risk”. Finally, designers should think ahead of the process about the environmental impact of the company’s output (product or service) to limit the use of virgin materials and non-renewable energy (Shrivastava & Hart, 1995).

"The aim of the sustainable corporation is thus the creation of financially and competitively viable businesses that conserve non-renewable resources, protect the health of workers and the public and minimize technological risks faced by communities." (Shrivastava & Hart, 1995: 163)

Lüdeke-Freund (2020) points out that a business model is a tool that can support the creation of sustainable values (environmental, social and economic) and play the role of mediator between sustainability innovation and the business cases for sustainability (Lüdeke-Freund, 2020).

Based on the Business Model Canvas (BMC) (Osterwalder & Pigneur, 2010) and the adapted sustainable BMC of Bocken and colleagues (2015, 2018), Cosenz and colleagues (2020) have included previous limits of sustainable BM canvas to develop a new framework showing how companies achieve their sustainability and profitability goals. A sustainable BM includes the following components: key stakeholders, strategic resources, cost structure, key processes, revenue streams, customer segments and the value proposition. In contrast to the traditional BMC, a sustainable BM follows a dynamic approach and adopts a systemic view by including a wider range of stakeholders and showing the interconnections between the different SBM elements (Cosenz et al., 2020). In addition, Cosenz and colleagues (2020) have regrouped customer relations, distribution channels and key activities under one common block: key processes. In the BMC, the value proposition defines what value the company is offering to the customer and is defined according to the following characteristics: newness, performance, customization, “getting the job done, Design, brand/status, price, cost reduction, risk reduction, accessibility and convenience (Osterwalder & Pigneur, 2010). In a sustainable BM, the value proposition not only includes the

value drivers which lead to achieving a competitive advantage but also the outputs (short-term results) and the triple-bottom line outcomes (long-term economic, environmental and social outcomes) (Cosenz et al., 2020).

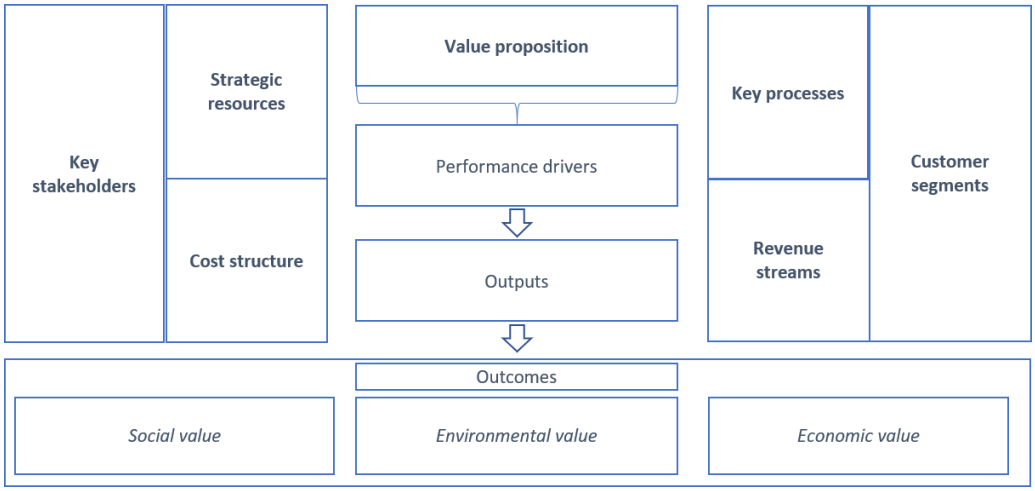


Figure 6: Sustainable business model canvas based on Cosenz and colleagues' work (2020)

Moving towards a sustainable corporation and implementing a sustainable BM?

According to Stubbs and Cocklin (2008), a firm which implements a sustainable BM has a vision based on sustainable concepts and not only on making profits. The mission has to be based on a long-term goal and with constant communication within the organisation (Shrivastava & Hart, 1995). Shrivastava and Hart (1995) emphasize the importance of including sustainable values in daily work life, integrating different departments such as marketing and involving key stakeholders. By doing so, sustainability will be part of the organisational culture and enhance the link between nature and organisation (Shrivastava & Hart, 1995).

Sustainable concepts are considered a strategy, not just an add-on (Stubbs & Cocklin, 2008). In a sustainable BM, the value is not only economical but also environmental and social (Evans et al., 2017; Shrivastava & Hart, 1995). A company can develop a competitive advantage by developing

new products or services that use fewer virgin materials or non-renewable energy (Shrivastava & Hart, 1995).

Consequently, to move toward a sustainable corporation, a company must rethink its internal capabilities and reallocate its resources to convert towards a sustainable mission (Shrivastava & Hart, 1995). Shrivastava and Hart (1995) recognize that the role of line managers and executives will be shaped according to sustainability values. Scholars recommend the necessity to have a "visionary CEO" (Stubbs & Cocklin, 2008) or an "environmental champion" with a direct link with the top management (Shrivastava & Hart, 1995). Top management must set the tone and implement the change (Shrivastava & Hart, 1995; Stubbs & Cocklin, 2008).

In a sustainable BM, the network's engagement and stakeholders' collaboration are essential, and nature is considered a stakeholder (Evans et al., 2017; Shrivastava & Hart, 1995; Stubbs & Cocklin, 2008). Scholars recognize that a sustainable BM cannot only be implemented at a firm level but require a systemic view of all the stakeholders included in the value creation (Evans et al., 2017; Pieroni et al., 2019; Stubbs & Cocklin, 2008). Consequently, the stakeholders should share the benefits (Evans et al., 2017). It is also essential that the value network has a new purpose which considers each stakeholder's common and individual goals (Evans et al., 2017).

In a sustainable corporation, the returns are not only financials but also social and environmental (Shrivastava & Hart, 1995; Stubbs & Cocklin, 2008). Companies use a Triple Bottom Line approach to measure a sustainable firm's performance (Stubbs & Cocklin, 2008). According to Stubbs and Cocking (2008), profit is a means to achieve sustainable missions and not an end.

Dangelico and colleagues (2017) recognise that a firm must adopt sustainability-oriented dynamics capabilities to respond to market change and develop new products that include sustainability values. A company needs to share knowledge and competencies internally, "internal resource integration", and to integrate external resources by exchanging knowledge and competencies between the firm and external actors, "external resource integration". In addition, the firm will need to shape and restructure its resources, "resource building and reconfiguration" (Dangelico et al., 2017). The authors demonstrate that these dynamic capabilities will positively impact green innovation capabilities, and the more radical a green product is, the better the firm's performance

will be. Regarding a more radical innovation, “green innovation capabilities”, the authors analysed that external resources are critical as it needs a more systemic change to be implemented and succeed. In addition, SMEs have higher green innovation capabilities due to a higher R&D investment compared to larger firms.

Sustainability as a source of innovation

Sustainability is often seen as the 6th wave of innovation (Seebode et al., 2012). Seebode and colleagues (2012) recognise that radical sustainability-led innovations favour entrepreneurial firms and challenge incumbent ones. “In the early stages, there is a refocusing of efforts around incremental innovation along the new trajectory – which favours the established players. But as the game shifts, so does the need for radically different approaches to favour new entrant entrepreneurs. The challenge to incumbents is thus one of learning new tricks and letting go of their old ones – a real test of dynamic capability." (Seebode et al., 2012: 204).

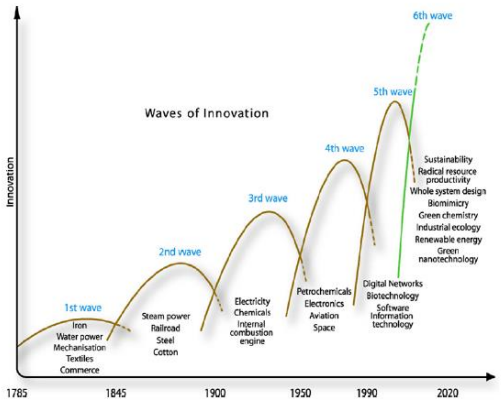


Figure 1. Sustainability as a 6th ‘long wave’ (Source: The Natural Edge 2004).

Figure 7: Waves of innovation by the Natural Edge (2004). Source: Seebode et al., 2012

Seebode and colleagues (2012) define a map of innovation according to the level of innovation (incremental or radical) and the level of environmental complexity (more and more difficult to predict the final state). The first zones - bounded exploration and exploit – represent the business-as-usual innovation approach, whereas the other ones – co-evolve and reframing - are the new configurations based on sustainability-led innovation (Seebode et al., 2012). More precisely, the

zone reframing corresponds to sustainability innovations such as eco-efficiency and 3 R (reduce, reuse and recycle), which are already commonly adopted by companies (Seebode et al., 2012). The co-evolve zone represents a more system-level change with more radical innovations based on Nature as inspiration and new collaborations with a wider range of stakeholders (Seebode et al., 2012). "Such system-level innovation goes beyond reviewing the relationship between a particular product and the environment, to rethinking the way we produce and consume, imagining new outcomes and understanding and leveraging the interdependencies of system components." (Seebode et al., 2012: 199).

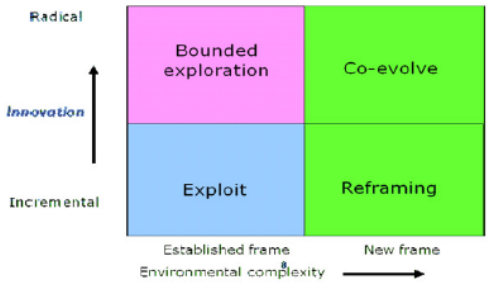


Figure 2. Simplified map of innovation space.

Figure 8: Map of innovation. Source: Seebode et al. (2012)

Hall and Wagner (2012) also agree that innovation is key to sustainable development, but it needs to go beyond incremental innovation. Scholars recommend developing radical BMs that enable strong performance effects, especially environmental performance (Hall & Wagner, 2012).

Barriers to Sustainable BM and strong sustainability

Bocken and Geradts (2019) suggest that institutional barriers such as the focus on maximising the shareholder's value and the focus on short-term growth and profit are directly affecting the strategic and operational levels of the company, creating barriers to the implementation of a sustainable BM. For instance, focusing on short – term growth will lead to prioritising projects with a short-term vision and a rapid return, whereas a sustainable BM is based on a long-term vision (Bocken & Geradts, 2019). In addition, scholars identified the main barriers for SMEs in implementing sustainability, and the most common ones are the lack of resources, the high initial

capital cost of implementing such measures, and the lack of expertise (Álvarez Jaramillo et al., 2019).

According to Brozovic (2020), the traditional and sustainable business models are obsolete and do not lead to strong sustainability. According to the author, both BM concepts are considered "business as usual". The author suggests a new Strong Sustainability BM framework whose main goal is to preserve and regenerate the Earth. Nature is the main stakeholder, and the firm should have a strong link with the local community where solidarity and cooperation amongst stakeholders are part of the business. Actors are interconnected. In addition, the author emphasises the limited growth that should not affect the employees' well-being, nature and local communities (Brozovic, 2020).

Conclusion and future research

Sustainability is commonly seen as a driver for innovation and can lead to a competitive advantage. To implement such sustainability innovations, companies have used the BM as a tool (Lüdeke-Freund, 2020), creating new sustainable BMs that include a triple-bottom-line perspective (Hall & Wagner, 2012; Stubbs & Cocklin, 2008). As Chesbrough (2010) and Teece (2010) analysed, an innovation fails if the proper BM does not accompany it; therefore, sustainability innovations need to be accompanied by the correct BM in order to be able to succeed commercially. In addition, scholars recognise that a BM needs to be developed at a systemic level and not only at a firm level (Fjeldstad & Snow, 2018), making the BM concept coherent and relevant to implementing sustainability concepts. Indeed, scholars recognized that a sustainable BM requires a systemic view (Cosenz et al., 2020; Evans et al., 2017; Pieroni et al., 2019; Stubbs & Cocklin, 2008).

However, Evans and colleagues (2017) insist on exploring ways to provide the confidence firms need to innovate towards SBMs. To provide such confidence, future research needs to focus on analysing the drivers leading to a successful BM innovation and the methods by which new BM can be safely pursued (Evans et al., 2017). In addition, scholars recognize a lack of research analysing the historical process of BM change (Stubbs & Cocklin, 2008) from a sustainable innovation to business cases (Lüdeke-Freund, 2020) and how and why certain firms are better than others in deploying the required capabilities (Dangelico et al., 2017).

Hall and Wagner (2012) showed that innovation is key to sustainable development. However, it needs to go beyond incremental innovation to develop radical BM enabling strong performance effects, especially environmental performance. Scholars recognise that alternative circular business models are more consistent with the strong sustainability concept as it creates a disruptive rupture with the current status quo (Perey et al., 2018). Scholars agree that CE is a possible tool to implement sustainability concepts concretely (Pieroni et al., 2019).

3. Circular Business Model

The previous section highlighted that sustainability is a source of innovation and competitive advantage, but the appropriate BM must accompany them. Compared to the traditional BM, based on one perspective (economic value) and on a narrow range of stakeholders, the sustainable BM includes a triple-bottom perspective with a larger range of stakeholders, including Nature and society (Hall & Wagner, 2012; Stubbs & Cocklin, 2008). However, the previous section also showed the limits of the sustainable BM. Scholars recognize a need for radical change and disruptive innovation to implement sustainable concepts within the mainstream market, whereas the current sustainable BMs have only focused on incremental change (Hall & Wagner, 2012; Perey et al., 2018). The next section will focus on analysing the CE business model research stream to understand better its concept and how it is a better-suited tool to implement sustainability concepts and to create the required rupture from the current linear model.

CE definitions and resource cycles at the origin of CBM

CE definition and its application through CBM

"The Circular Economy has been conceptualized as a system that is restorative by design with a core strategic focus on reframing and reorganizing material, information, and energy flows to achieve greater resource efficiency by the reuse, remanufacture and recycling of materials. Its key premise is that waste minimization can act as a new source of value for business." (Perey et al., 2018: 631). To apply the CE, companies have implemented CBMs, which aim at reconciling economic growth with preserving the environment and the biosphere limits (Perey et al., 2018; Zucchella & Previtali, 2019). The CE is considered more consistent with a strong sustainability perspective as CBM simultaneously embraces the moral obligation to nature, a systemic perspective and the disruptive innovation perspective (Perey et al., 2018). From the companies' perspective, the CE is viewed as a vision and an approach to move away from the linear economy and solve environmental challenges (Stewart & Niero, 2018). However, the link between CE and sustainability is often considered implicit by practitioners and scholars due to a lack of sustainability assessment of CBMs (Stewart & Niero, 2018).

Murray and colleagues (2017) reviewed the theoretical conception of the CE and its application in sustainable businesses and they recognized some limitations of the CE construct, such as the lack of inclusion of the social dimension of sustainability and the oversimplification of the CE goals. (Murray et al., 2017). Consequently, the authors redefined the CE as "an economic model wherein planning, resourcing, procurement, production and reprocessing are designed and managed, as both process and output, to maximize ecosystem functioning and human well-being. "(Murray et al., 2017: 377).

The CE research field is still new (Giampietro & Funtowicz, 2020; Zucchella & Previtali, 2019) and is considered fragmented and very descriptive (Zucchella & Previtali, 2019). Consequently, there are some limitations to its definition and application through CBMs (Giampietro & Funtowicz, 2020) and a lack of common discourse (Pieroni et al., 2019). Giampietro and Funtowicz (2020) argue that the current economic narrative – doing more of the same and economic growth - is obsolete due to a lack of understanding of the biophysical limits and the seriousness of the sustainability crisis.

Researchers recognise a clear need for a holistic and systemic CE analysis (Giampietro & Funtowicz, 2020; Murray et al., 2017). To do so, the CBM is often considered a tool with the potential to contribute to implementing the CE at a systemic level (Fehrer & Wieland, 2020; Frishammar & Parida, 2019; Zucchella & Previtali, 2019). According to Zucchella and Previtali (2019), "a CBM is an economic and operational architecture, encompassing the organizational boundaries of different actors (ecosystem). Its scope is determined by the resources committed, tangible and intangible, trust and knowledge flows, and the involvement of different partners, all of which close the loop. Both formal and informal mechanisms provide the governance architecture of the ecosystem." (Zucchella & Previtali, 2019: 283) Frishammar and Parida (2019) add that the collaboration between different partners will improve resource efficiency and extend the product life cycle and materials, which will induce environmental, social and economic benefits.

CE resource cycles at the origin of CBM

Compared to a linear business model, a circular one intends to retain and prolong the value of a product and its components by using resources in multiple cycles and reducing waste and consumption (Hofmann, 2019; Lüdeke-Freund et al., 2019; Salvador et al., 2020). To do so, a circular company will implement reverse logistics to create value from what used to be considered a waste in a linear economy. Based on the Ellen MacArthur Foundation's CE framework, the major reverse circles are Repair & Maintenance, Reuse & Redistribution, Refurbishment & Remanufacturing, Recycling (downcycling or upcycling), Cascading and Repurposing and Biochemical feedstock extraction (Lüdeke-Freund et al., 2019).

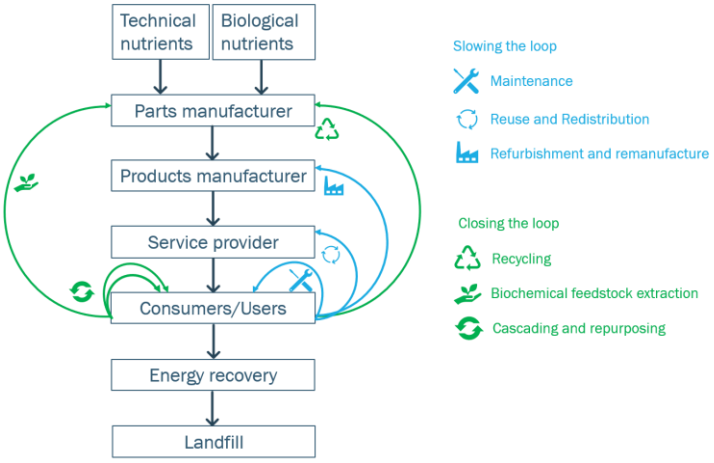


Figure 9: Resource cycles of the Circular Economy based on the Ellen MacArthur Foundation (2012) and Ludeke-Freund and colleagues' work (2019).

Repair & Maintenance, Reuse & Redistribution, Refurbishment & Remanufacturing cycles are based on a slowing the loops strategy (Lüdeke-Freund et al., 2019). The aim is to extend a product's life cycle and the use of resources (N. M. P. Bocken et al., 2016; Lüdeke-Freund et al., 2019). The other cycles -Recycling, Cascading and Repurposing and Biochemical feedstock extraction – are based on a closing the loops strategy (Lüdeke-Freund et al., 2019), which aims at closing the loop between post-use and production (N. M. P. Bocken et al., 2016; Lüdeke-Freund et al., 2019).

CBM classification and framework

CBM taxonomy

Based on the resource cycles of the circular economy, scholars have developed a diversity of CEBM taxonomy with different terminology, as the figure below shows (N. M. P. Bocken et al., 2016; Lüdeke-Freund et al., 2019; Vermunt et al., 2019). There are two main categories of CBM, those based on slowing the loop and those based on closing the loop (N. M. P. Bocken et al., 2016; Lüdeke-Freund et al., 2019; Vermunt et al., 2019).

Authors	Slowing the loop		Closing the loop	
	CBM	Definitions	CBM	Definitions
Lüdeke-Freund et al., 2019	Repair & Maintenance	Extending the use of a product already owned by the customer via maintenance services.	Recycling	Access to greener products and recyclable inputs.
	Reuse & Redistribution	Offering to the customer used products cheaper or free via the sharing economy. Products can be new or familiar to the customer.	Cascading & Repurposing	Access to use products, components, materials or waste as production and recyclable inputs.
	Refurbishment & Remanufacturing	Access to refurbished product as new. Offering cheaper used product or green products.	Biochemical feedstock extraction	Biomass conversion and composting provide production inputs (green and organic inputs)
Bocken et al., 2016	Access and performance model	Delivering a service rather than owning a product (Product-Service System). The retailer or manufacturer manage the service and charge the customers per unit of service.	Extended resource value at a product level	Exploiting the residual value of resources considered as "waste" in a linear economy. The company implements a take-back system or create collaborations with other partners.
	Extended product value model	Exploiting the residual value of products via remanufacturing and repairing. The company implements a take-back system or create collaborations with other partners (e.g. collection points).	Industrial symbiosis at a process and manufacturing level	Waste of a company becomes feedstock of another or new value is created with former waste stream. This solution is based on collaboration of geographically closed businesses.
	Classic long-life model	Offering long-lasting products with high quality and high-level of maintenance and repair services. Companies capture value via a "premium" price.		
	Encourage sufficiency	Similar to the classic long-life model except that the value is created with a "non-consumerism" approach.		
Vermunt et al., 2019	Product-as-a-service	The company owns the product and offers a service to customers.	Resource recovery	Converting residual value into new form of value.
	Product life extension	Exploiting the residual value of used products.	Circular supplies	Replacing virgin materials by renewable, recyclable or biodegradable materials.

Figure 10: The main Circular Business Models and their definition. Source: Own

Urbinati and colleagues (2017) explored CBM using a different taxonomy based on the BM canvas's main dimensions: customer value proposition, interface, and value network. The authors classified circular companies according to the degree of circularity they have adopted internally and/or externally. Their analysis shows that the most adopted modes are the Upstream or Full Circular (Urbinati et al., 2017).

- The Downstream Circular adoption mode: the company develops a marketing and communication strategy focused on making the "pay-per-use" model more acceptable to customers (focus on market segmentation and revenue stream) (Urbinati et al., 2017).
- The Upstream Circular adoption mode: the company is only focused on developing the CE internally (product design and relationship with suppliers) and do not communicate with customers about their CE measures. The company is focused on cost efficiency (Urbinati et al., 2017).
- The Full Circular adoption mode: the company adopts CE measures internally and externally. This means that the company develops a circular production, relationships with stakeholders and communicates effectively with customers (Urbinati et al., 2017).

CBM theoretical framework

Centobelli and colleagues (2020) conceptualise a new theoretical framework of a CBM composed of value creation (delivering products or services according to CE principles), value transfer (equivalent to the value proposition) and value capture (satisfying value for all the stakeholders involved). Value creation is characterised by specific managerial practices such as design for X (design for recycling, remanufacturing, reuse, design for disassembly, design for the environment), the efficient use of resources and energy, the upgradability of products and the waste management (Centobelli et al., 2020). The value capture is defined by implementing Product-Service-System (PSS) and take-back systems, which aim to retain product ownership (Centobelli et al., 2020). Regarding the value transfer Centobelli and colleagues (2020), based on Urbinati's work (2017), emphasized the need for clear communication support and the involvement of customers. In addition, the authors recognize the role of contextual factors in implementing a CBM, the role of technology as enabler, and the willingness of management to be part of the transition towards the CE.

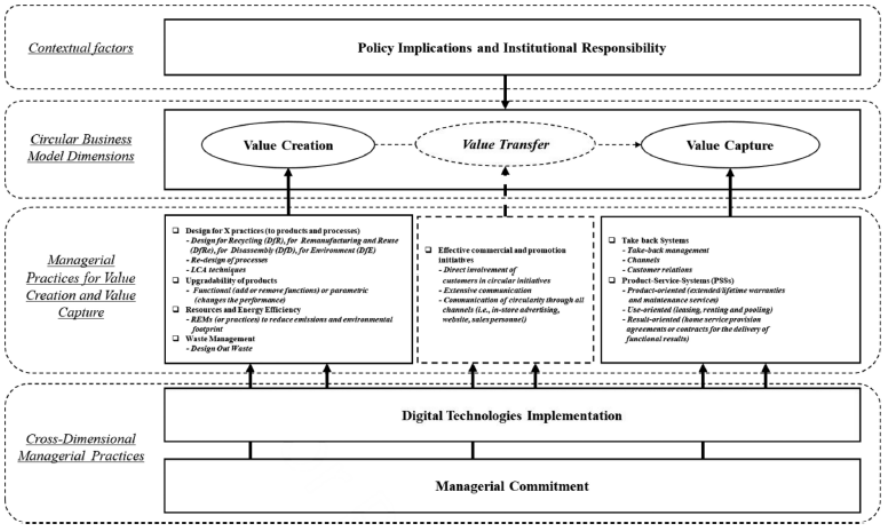


FIGURE 4 Theoretical framework

Figure 11:theoretical framework of CBM. Source: Centobelli et al. (2020)

The main characteristics of a CBM

Waste as a resource and the moral obligation to Nature

One of the main characteristics of a CBM and its difference compared to a linear BM is that the "value creation is based on utilizing economic value retained in products after use in the production of new offerings."(Linder & Williander, 2017: 183). Waste is no longer considered a burden but a resource with an intrinsic value (Perey et al., 2018). This main shift is considered a disruptive rupture with the status quo; consequently, it is a source of creative design and innovation (Perey et al., 2018). "Integrative systems thinking is a precondition to transition away from the dominant acceptance that waste, as it occurs in business processes, is something that must be discarded as it has no intrinsic value to recognizing that waste can have value within a system and as a value resource to other organizations. This requires a structural change in current business models to connect to other supply chains where their waste is now considered a resource" (Perey et al., 2018: 639).

In addition, a CBM includes the moral obligation to Nature, meaning that companies should collaborate with Nature as a participant instead of dissociating it from humans' impact (Perey et al., 2018). Concretely, companies need to create a rupture with the status quo by starting to consider waste as a resource (Perey et al., 2018). Nevertheless, the obligation to Nature and the disruptive innovation where waste is considered a resource are interdependent with a systemic perspective of the CBM (Perey et al., 2018; Zucchella & Previtali, 2019).

Value network and systemic approach

Scholars agree that the CBM literature is till now focused on the traditional conception of a BM: firm - centric and profit - focus and based on a traditional linear value chain (Fehrer & Wieland, 2020; Murray et al., 2017; Zucchella & Previtali, 2019) where environmental and social benefits are considered as "by-products" (Fehrer & Wieland, 2020). A CBM has to go beyond the traditional dimensions of value creation, delivery and capture and instead should describe the value cocreation and resource integration of a wide range of actors (Fehrer & Wieland, 2020). A CBM should be analysed with an ecosystem view and an open supply network perspective (Centobelli et al., 2020; Perey et al., 2018; Zucchella & Previtali, 2019). Therefore, there is a need to include

more strenuously the value network at the heart of the CBM (Perey et al., 2018; Zucchella & Previtali, 2019) as it is considered a key factor in the implementation of a successful CBM (Hofmann, 2019; Salvador et al., 2020; Vermunt et al., 2019). The circular economy requires a change in how companies do business from being firm-centric to network-centric, which includes a more systemic – boundaries analysis of the BM (Pieroni et al., 2019). Scholars insist on the importance of including collaboration and partnerships as part of the CBM (Hofmann, 2019; Zucchella & Previtali, 2019) and not only stakeholders involved in the value chain but also with other spheres of the society such as research institutions (Hofmann, 2019; Lüdeke-Freund et al., 2019; Rosa et al., 2019).

Consequently, Fehrer and Wieland (2020) deconstruct the traditional foundations of a CBM to develop a new framework of a systemic and institutional CBM, as shown in the table below. Systemic CBM is based on five main propositions:

- "Business models do not describe value creation, value delivery, and value capture flows, but systemic and dynamic value cocreation and resource integration practices of broad sets of actors" (Fehrer & Wieland, 2020: 5).
- Business models can be used by a wide range of actors engaged in the circular economy (incumbents, entrepreneurs and social and non-corporate actors).
- "Business models guide resource integration and value cocreation practices, regardless of whether these practices aim at profit generation, social progress and/or environmental stewardship" (Fehrer & Wieland, 2020: 5).
- "No single actor can drive institutional change and innovate business models in isolation and the systemic alignment processes that shape business models can only be understood when viewed from various system levels (e.g., micro, meso, and macro levels of aggregation)." (Fehrer & Wieland, 2020: 6).
- "Institutional frictions and adaptive tensions are the catalyst for actors' institutional work, the change, maintenance and disruption of institutions influencing social, environmental and market innovation" (Fehrer & Wieland, 2020: 6).

Table 2
Contrasting traditional and systemic foundations of CBMs.

	Traditional value chain–based foundations of CBMs	Systemic foundations of CMBs
Value creation	• Value is created through circular lifecycles and captured by the firm through enhancing efficiency and effectiveness. Value is delivered to the customer.	FP1: Business models do not describe value creation, value delivery, and value capture flows, but systemic and dynamic value cocreation and resource integration practices of broad sets of actors.
Roles and relationships	• Firms and (social) entrepreneurs alone possess (circular) business models; customers possess (social, sustainable, etc.) needs and firms create experiences and products to fulfill these needs.	FP 2: All actors engaging in circular economies rely on and enact business models (i.e., assemblages of institutions).
Outcome variables	• Business models guide market exchange practices leading to economic growth with sustainable and social goals as favorable byproducts.	FP 3: Business models guide resource integration and value cocreation practices regardless of whether these practices aim at profit generation, social progress, and/or environmental stewardship.
Business Model Innovation	• Firms and (social) entrepreneurs drive business model innovation. • Firms and (social) entrepreneurs design and manage business model transformation processes to create social, environmental, and market innovation.	FP4: No single actor can drive institutional change and innovate business models in isolation, and the systemic alignment processes that shape business models can only be understood when viewed from various system levels (e.g., micro, meso, and macro levels of aggregation). FP 5: Institutional frictions and adaptive tensions are the catalyst for actors' institutional work, the change, maintenance and disruption of institutions influencing social, environmental, and market innovation.

Figure 12: systemic CBM framework (Fehrer & Wieland, 2020)

From a linear BM to a circular one

Transitional process from linear to circular BM

In order to move from a linear to a circular BM, Chen and colleagues (2020) define three steps:

- The first step consists of reviewing the status and finding new business opportunities using CBM typologies and case studies.
- The second step concerns the evaluation of the solution using tools such as LCA to combine it with the selected CBM.
- The third step is about implementing the optimal solution, which should also be assessed.

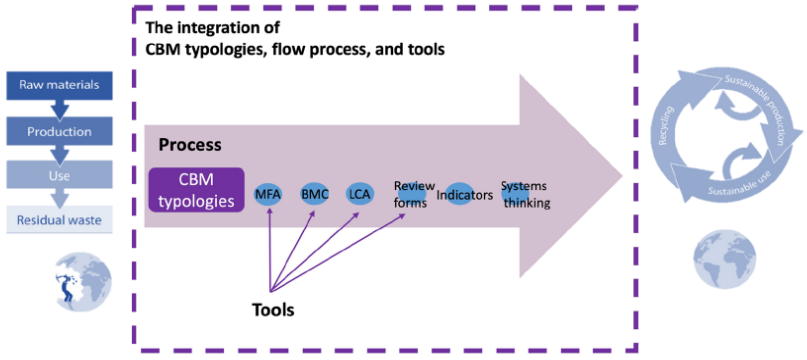


FIGURE 1 The integrated framework of CBM typologies, transition flow process, and analytical evaluation tools. CBM, circular business model; BMC, business model canvas; LCA, life cycle assessment; MFA, material flow analysis [Colour figure can be viewed at wileyonlinelibrary.com]

Figure 13: The transition from a linear to a CBM. Source: (Chen et al., 2020)

According to Khan and colleagues (2020), companies need to sense CE business opportunities by monitoring the market and scanning new technologies, generating ideas and knowledge and experimenting (Khan et al., 2020). Then, firms have to seize such opportunities by planning the

strategy, defining a new business model and collaborating. Finally, companies should reconfigure by restructuring their organisation, upgrading their technologies, integrating new knowledge and adapting new best practices (Khan et al., 2020).

However, the transition towards a CBM cannot be only firm-centric but need to include the firm's ecosystem partners (Chiappetta Jabbour et al., 2019; Fehrer & Wieland, 2020; Frishammar & Parida, 2019; Parida et al., 2019; Zucchella & Previtali, 2019). To do so, the role of ecosystem orchestrators or leaders is essential to the implementation of a CBM (Parida et al., 2019; Zucchella & Previtali, 2019). The leader, usually a large and resource-rich company, will initiate the change and coordinate the relationships between a variety of stakeholders (Parida et al., 2019). Parida and colleagues (2019) have developed a process-model of transition towards a CBM.

- The first stage corresponds to the "ecosystem readiness assessment" which aims to gather information on CE trends, CBMs, and ecosystem partners to identify opportunities and threats and gather knowledge.
- The second stage relates to the ecosystem transformation where the leaders fix goals and standards ("standardization"), makes sure each partner has access to the necessary resources and capabilities ("nurturing") and coordinates incentives and activities ("negotiation"). "Standardization, nurturing, and negotiation mechanisms, in this order, guide the transformation from the point where each partner has circular economy objectives that contribute to the alignment of ecosystem aspirations."(Parida et al., 2019: 723)

Ultimately, this process will lead to the main advantage of achieving triple-bottom-line performance (Parida et al., 2019).

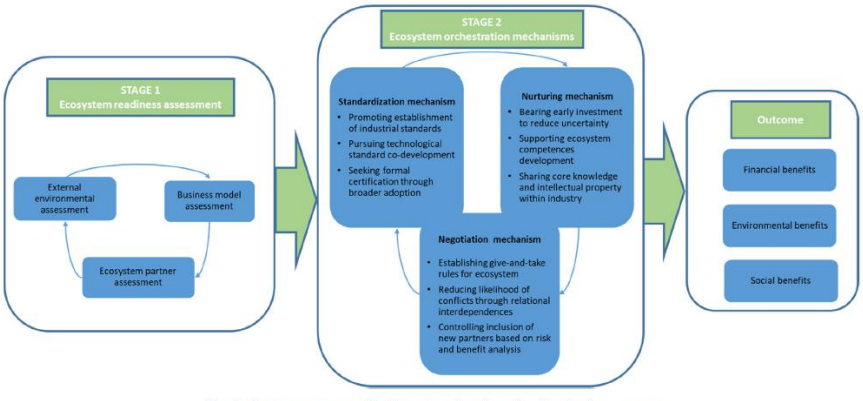
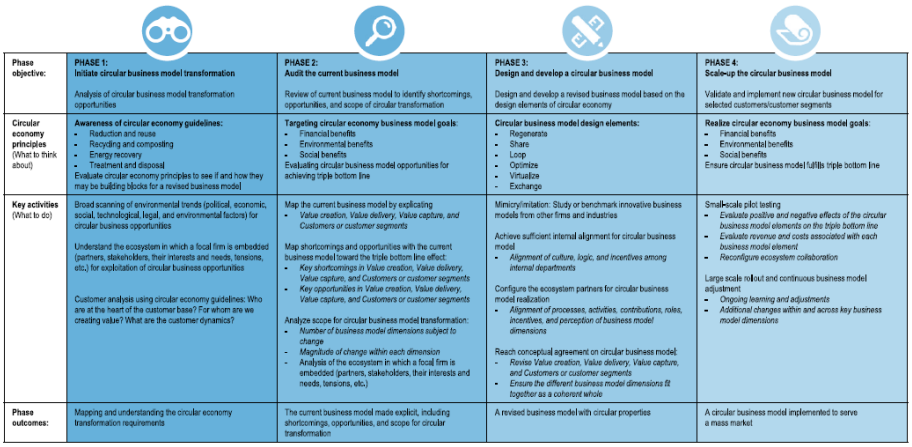


Fig. 2. Two-stage process model of ecosystem transformation to a circular economy.

Figure 14: Process-model of ecosystem transformation to a CE. Source: (Parida et al., 2019)

Similarly to Parida and colleagues (2019), Frishammar and Parida (2019) have developed a more concrete roadmap to help incumbents in their transition towards CBM:

- Phase one is about initiating a CBM transformation by analysing opportunities, being aware of CE guidelines, understanding the ecosystem and analysing customers' preferences.
- Phase two concerns the analysis of the current BM to scope the transformation gaps and target CBM outcomes.
- Phase three is designing and developing a CBM based on ReSOLVE framework (Ellen MacArthur Foundation, 2012) and imitating existing innovative BM.
- The last phase corresponds to the scale-up of the CBM by validating and implementing the CBM to a segment of customers, realise the triple-bottom-line goals, and then expand the CBM to the mass market.



Phase objective:	**PHASE 1:** **Initiate circular business model transformation** Analysis of circular business model transformation opportunities	**PHASE 2:** **Audit the current business model** Review of current business model to identify shortcomings, opportunities, and scope of circular transformation	**PHASE 3:** **Design and develop a circular business model** Design and develop a revised business model based on the design elements of circular economy	**PHASE 4:** **Scale-up the circular business model** Validate and implement new circular business model for selected customers/customer segments
Circular economy principles (What to think about)	**Awareness of circular economy guidelines:** - Reduction and reuse - Recycling and composting - Energy recovery - Treatment and disposal Evaluate circular economy principles to see if and how they may be building blocks for a revised business model	**Targeting circular economy business model goals:** - Financial benefits - Environmental benefits - Social benefits Evaluating circular business model opportunities for achieving triple bottom line	**Circular business model design elements:** - Regenerate - Share - Loop - Optimize - Virtualize - Exchange	**Realize circular economy business model goals:** - Financial benefits - Environmental benefits - Social benefits Ensure circular business model fulfills triple bottom line
Key activities (What to do)	Broad scanning of environmental trends (political, economic, social, technological, legal, and environmental factors) for circular business opportunities Understand the ecosystem in which a focal firm is embedded (partners, stakeholders, their interests and needs, tensions, etc.) for exploitation of circular business opportunities Customer analysis using circular economy guidelines: Who are at the heart of the customer base? For whom are we creating value? What are the customer dynamics?	Map the current business model by explicating - *Value creation, Value delivery, Value capture, and Customers or customer segments* Map shortcomings and opportunities with the current business model toward the triple bottom line effect: - *Key shortcomings in Value creation, Value delivery, Value capture, and Customers or customer segments* - *Key opportunities in Value creation, Value delivery, Value capture, and Customers or customer segments* Analyze scope for circular business model transformation: - *Number of business model dimensions subject to change* - *Magnitude of change within each dimension* - Analysis of the ecosystem in which a focal firm is embedded (partners, stakeholders, their interests and needs, tensions, etc.)	Mimicry/imitation: Study or benchmark innovative business models from other firms and industries Achieve sufficient internal alignment for circular business model - *Alignment of culture, logic, and incentives among internal departments* Configure the ecosystem partners for circular business model realization - *Alignment of processes, activities, contributions, roles, incentives, and perception of business model dimensions* Reach conceptual agreement on circular business model: - *Revise Value creation, Value delivery, Value capture, and Customers or customer segments* - *Ensure the different business model dimensions fit together as a coherent whole*	Small-scale pilot testing - *Evaluate positive and negative effects of the circular business model elements on the triple bottom line* - *Evaluate revenue and costs associated with each business model element* - *Reconfigure ecosystem collaboration* Large scale rollout and continuous business model adjustment - *Ongoing learning and adjustments* - *Additional changes within and across key business model dimensions*
Phase outcomes:	Mapping and understanding the circular economy transformation requirements	The current business model made explicit, including shortcomings, opportunities, and scope for circular transformation	A revised business model with circular properties	A circular business model implemented to serve a mass market

Figure 15: Roadmap of the transition process towards CBM (Frishammar & Parida, 2019)

"At its core, the transition to a circular business model is a fundamentally discovery-driven approach, which is characterized by iteration, experimentation, trial and error, learn-as-you-go, and rapid feedback loops" (Frishammar & Parida, 2019: 25).

Key elements to a successful transition

"Adopting the circular economy model requires that firms initiate and develop disruptive technology and business models that are based on longevity, renewability, reuse, repair, upgrade, refurbishment, servitization, capacity sharing, and dematerialization. This means that they have to take cost management and control into consideration and also start focusing on rethinking

products and services as well as end-user propositions that increase efficiency, effectiveness, and performance." (Esposito et al., 2018: 17).

Internal capabilities, supply chain and ecosystem collaboration

In addition, developing internal capabilities can facilitate the implementation of CE activities (Khan et al., 2020), such as, for example, environmental capabilities (investments in renewable energy, energy efficiency…) (Scarpellini et al., 2020). Incumbents must also manage internal paradoxes and conflicts during the transition process towards a CBM (Hofmann & Jaeger-Erben, 2020; Hopkinson et al., 2018). To do so, companies should develop agility capabilities to adapt to various challenges, consider existing tensions as opportunities instead of threats, and define clear targets to achieve long-term strategy (Hopkinson et al., 2018). In addition, scholars suggest that companies set up an intra-organisational, interdisciplinary and autonomous experimental space (Hofmann & Jaeger-Erben, 2020). This space will pave the way for new ideas about CBM but also encourage the coexistence between linear and circular BMs. Ultimately, this will lead the incumbents to cannibalise themselves (Hofmann & Jaeger-Erben, 2020). To be successful, this space will need to adopt a zooming-in/zooming-out approach between the big circular picture and organisational challenges, limit heteronomy by developing network collaboration and make decisions based on ecological performativity (Hofmann & Jaeger-Erben, 2020).

Lechner and Reimann (2019) analysed that reverse logistics and closed-loop supply chains are essentials for the transition from a linear to a CE, particularly in the case of remanufactured BM due to the analyse of acquisition against reprocessing costs. Their study shows that the acquisition cost, quality of used products, and reprocessing decisions are all jointly considered in the transition process towards a CBM (Lechner & Reimann, 2019). In addition, to close the loop and support the transition to a CE, the authors recommend employing a holistic view by incorporating and assessing environmental and social performances (Lechner & Reimann, 2019). In addition, Product-Service System (PSS) BM can facilitate the implementation of circular supply chains, especially user-oriented and result-oriented PSS BM (Yang et al., 2019). Indeed, such BMs facilitate the transition towards the CE due to the product ownership characteristics (by having control of the product life cycle, the company is more motivated and willing to reduce its environmental impact and create

economic value) (Yang et al., 2019). Therefore, switching from product ownership to PSS BM requires a change in supply chain relationships (De Angelis et al., 2018). Indeed, companies will need to collaborate with their direct stakeholders and partners outside their industrial boundaries, such as suppliers, product designers and regulators (De Angelis et al., 2018). Companies can share knowledge and assets by creating new collaborations and considering both closed and open material loops in technical and biological loops, therefore developing new environmental and economic values (De Angelis et al., 2018). However, De Angelis and colleagues (2018) recognise that such change in the supply chain will require companies to develop structural flexibility and to organise local or regional loops in collaboration with SMEs or start-ups.

Interplay between design strategy and CBM

In order to successfully implement a CBM, companies also need to adapt their design strategy in conjunction with a CBM strategy (N. M. P. Bocken et al., 2016; Lüdeke-Freund et al., 2019). In addition, adopting an eco-design strategy at the beginning of a product life cycle can allow the company to overcome any future environmental impact (Salvador et al., 2020) and maintain the purity and quality of materials (De Angelis et al., 2018). Bocken and colleagues (2016) have identified specific design strategies according to the resource cycles.

Product design strategy for slowing the loops:

- Designing long-life products: design for attachment and trust (emotional durability) and design for reliability and durability (physical durability)
- Design for product – life extension (to prolong the use of a products thanks to different services): design for ease of maintenance and repair, design for upgradability and adaptability, design for standardization and compatibility and design for dis-and reassembly.

These design strategies will correlate with the following CBMs: access and performance model, extending product value, classic long life and encourage sufficiency.

Product Design strategies for closing the loops:

- Design for a technological cycle for “products of service”: designing so the materials can be easily recycled into new products (primary, secondary and tertiary recycling).
- Design for a biological cycle for “products of consumption”: designing products with safe material that can be biodegraded to start a new natural cycle.

- Design for dis-and reassembly: designing products that can re-enter either a technological or biological cycle.

These design strategies will correlate with the following CBMs: extending resource value and industrial symbiosis (N. M. P. Bocken et al., 2016). However, the authors also emphasise that not only design strategy should be included in the transition towards a CEBM but also the supply chain, the infrastructure and the technology (N. M. P. Bocken et al., 2016), which is often considered the main motivation in adopting circular practices (Linder & Williander, 2017).

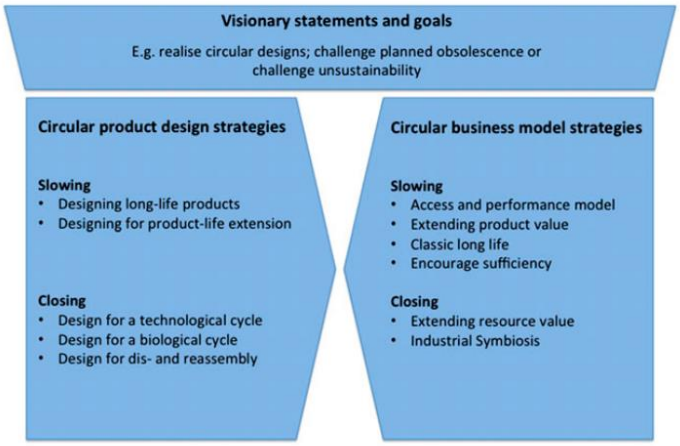


Figure 16: CBM and design strategies Source: (N. M. P. Bocken et al., 2016)

The role of top management

Moreover, to go through the transition process towards a CBM, researchers agree on the importance of involving the top management (Chen et al., 2020; Chiappetta Jabbour et al., 2020; Frishammar & Parida, 2019; Khan et al., 2020). "Business-model conversion needs commitment and support of executives, as it relates to the rethinking of corporate vision and value proposition, as well as the readiness of corporate culture and core capabilities for the transition." (Chen et al., 2020: 1896). In addition, researchers acknowledge that the transition toward a CBM happens mostly by imitation rather than innovation (Frishammar & Parida, 2019). Indeed, managers will seek inspiration as they lack information regarding future BM compared to their current one (Frishammar & Parida, 2019). Frishammar and Parida (2019) recognize that such imitation will only

lead to a weak sustainability even though it can have a bigger environmental impact as incumbents operate in mass markets.

The role of customers

However, researchers recognise that incumbents lack knowledge regarding customers' preferences and the CE market primarily related to manufactured and second-hand markets (van Loon & Van Wassenhove, 2020). When implementing a CBM, firms are over-optimistic regarding the profitability of a remanufacture and leasing CBM due to their overestimation of customers' acceptance, and consequently, costs are not properly assessed (Van Loon et al., 2020; van Loon & Van Wassenhove, 2020). Researchers remind the importance of the customers' role of accepting or rejecting a CBM (Chiappetta Jabbour et al., 2019; Frishammar & Parida, 2019). Therefore, to be successful, companies need to include the marketing department (Hopkinson et al., 2018). Indeed, Hopkinson and colleagues (2018) acknowledge that the marketing narrative is at the origin of the "new is best"; consequently, marketing could play a key role in changing customers' behaviour and educating them about circular products as well as changing customer's perception (Norris, 2019a).

Enablers of CBM

The role of Makers and tertiary sector

The Makers movement can also have a crucial role in promoting CE and innovative CBM by encouraging repairing, up-cycling, recycling, and using environmentally friendly materials (Unterfrauner et al., 2019). In addition, this movement strengthens local production and reduces mass production by producing only what they need (Unterfrauner et al., 2019).

De Angelis and colleagues (2018) recognise the key role of procurement policies in service organisations' private and public sectors in developing new circular practices. Indeed, companies offering services are also buyers of products; therefore, suppliers could be asked to use returnable packaging in their deliveries, for example (De Angelis et al., 2018).

The role of policymakers

Khan and colleagues (2020) recognize the role of policymakers in positively influencing the top management and entrepreneurs in implementing CBM. In addition, researchers recognise a need for cooperation between government and businesses to address systemic barriers such as defining standards and nomenclatures regarding circular terms (remanufacture, refurbished…) or defining a regulation framework for waste (Hopkinson et al., 2018). Such regulations could address customers' concerns regarding the quality of circular products and help managers better understand customers' interpretations to offer the appropriate marketing narrative (Hopkinson et al., 2018).

Interplay between Institutional features and CBM

Researchers recognise that institutional features (regulative, normative and cognitive) can either facilitate the implementation of CBM or be an obstacle (Levänen et al., 2018). To successfully implement a CBM, a company should be able to define its specific BM context to adjust its BM and overcome any institutional voids (Levänen et al., 2018). Levanen and colleagues (2018) also highlight that a company should understand how and why the institutional environment supports certain business logics and not others. In the case of recycling BM, the authors have found that "promoting recycling of positive value waste requires more cultural-cognitive and normative institutional development, while promoting negative value waste requires regulatory institutional development" (Levänen et al., 2018: 379).

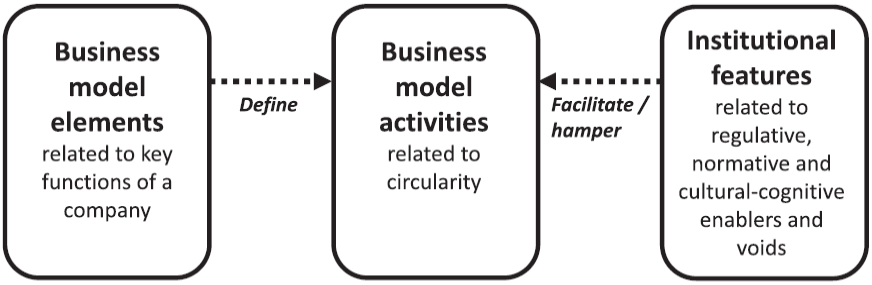


Fig. 1. Analytical framework for modelling the interplay between institutions and circular economy business models.

Figure 17: Interplay between Institutional features and CBM. Source: (Levänen et al., 2018)

Interplay between technology, data management and CBM

New technology can facilitate the implementation of a CBM (Lopes de Sousa Jabbour et al., 2018) as well as data management (Chiappetta Jabbour et al., 2019; Hopkinson et al., 2018; Rajala et al., 2018). Once a company has determined which CBM is more appropriate to its process and purpose, the company will be able to identify the most suitable technology and big data according to its feasibility, cost and availability (Chiappetta Jabbour et al., 2019; Lopes de Sousa Jabbour et al., 2018). This will facilitate adopting sustainable operations management decisions for different departments of the company, such as design, process and logistics (Chiappetta Jabbour et al., 2019). This will only be successful if other supply chain partners are involved and integrated into the transition process (Chiappetta Jabbour et al., 2019; Lopes de Sousa Jabbour et al., 2018). The final step relates to developing indicators to measure CE activities' performance and progress and set reachable targets (Lopes de Sousa Jabbour et al., 2018).

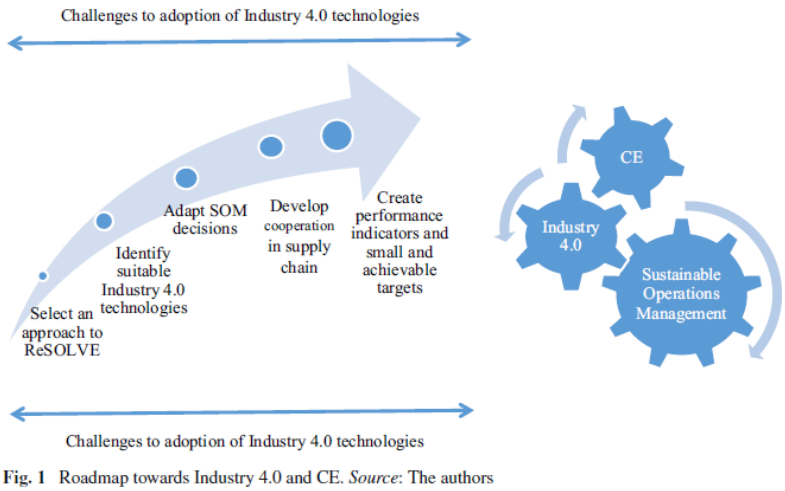


Fig. 1 Roadmap towards Industry 4.0 and CE. *Source*: The authors

Figure 18: Industry 4.0 as enablers of CBM. Source: (Lopes de Sousa Jabbour et al., 2018)

Rajala and colleagues (2018) analysed the critical role of using the intelligence of goods to share and master the learning process leading to crucial information related to circulated materials and products (real-time conditions, location, use, history…). Such information is key to enhancing sustainability, especially knowing the provenance of products and materials (Rajala et al., 2018), having better visibility over stocks and flows, and being able to anticipate future scenarios (Hopkinson et al., 2018). Rajala and colleagues (2018) emphasise the importance of mastering this

learning process when evaluating the potential of a CBM. In addition, researchers agree that technology, particularly digital platforms, can enable and facilitate the transition towards CBM, especially in the case of a PSS BM (De Angelis et al., 2018; Rajala et al., 2018).

BM change

Implementing CE activities such as Resource efficiency measures requires a business model change on both the supply and demand sides (Diaz Lopez et al., 2019). More specifically, cleaner production, pollution control and waste management improvements are related to changes in the supply chain side of the BM, whereas demand-side resource efficiency measures such as the implementation of services instead of products and take-back management are mainly linked to changes in the value proposition (Diaz Lopez et al., 2019). In addition, Diaz Lopez and colleagues (2019) analysed the degree of difficulty in the implementation of specific measures and classified each measure into clusters represented in the figure below:

- Green dots represent process-oriented measures (supply chain side) such as pollution control (PC), waste management (WM), cleaner production (CP) and eco-efficiency (EE).
- Purple dots represent value offering measures (Demand side) such as green products (GP) and services (GS).
- Blue dots represent life cycle measures aiming at radical re-design such as green supply chain management (GSCM), industrial symbiosis (IS), cradle-to-cradle (C2C) and circular economy (CE)
- Grey dots represent product-service combinations such as services instead of products (SP), functional sales (FS), and take-back management (TBM).

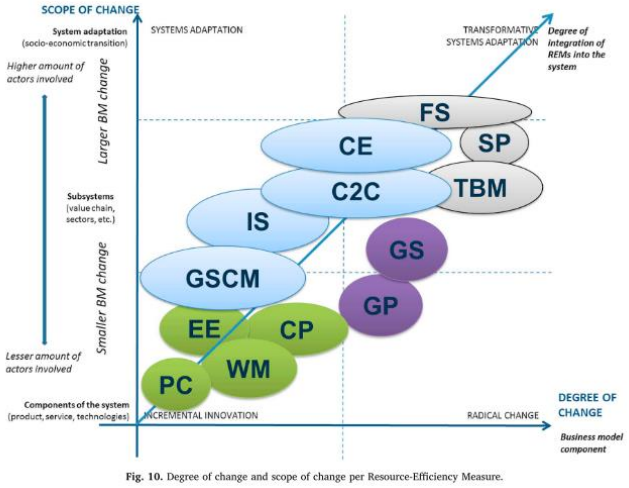


Fig. 10. Degree of change and scope of change per Resource-Efficiency Measure.

Figure 19: Degree of change and scope of change per Resource Efficiency Measure. Source: (Diaz Lopez et al., 2019)

According to Frishammar and Parida (2019), changes in the BM may coincide in one or two BM dimensions, not only within each dimension but also across dimensions. Such modification can trigger cultural change; consequently, there is a need for new capabilities, collaboration, and the need to align with the customer's willingness to buy functions and services instead of products in the case of PSS BM (Frishammar & Parida, 2019).

CBM design

From the literature review, I have represented below the key elements of a CBM. The CBM schema includes a systemic, holistic and dynamic view. The model is composed of six central circles. The first step of a CBM is about developing and knowing the ecosystem. It is about assessing the ecosystem to map and identify all the actors involved in the value chain (this includes the key stakeholders, policymakers, research institutions, competitors, communities...). The second step relates to identifying the value proposition and analysing the market to define the value the company and its ecosystem offer to a chosen customer segment. Then, the third step regards the production process: the resources needed for the value cocreation where the company defines the value chain from the choice of the design strategy to the end-of-life of the product through manufacturing and delivery of the value. This step gives a life-cycle perspective to the CBM. These two steps represent the value cocreation and the resource integration from a wide range of actors. Then, there is the value delivery related to marketing and communication. Finally, the last step concerns the performance analysis and outcomes. This step includes financial (revenue and cost) and sustainable assessments as well as the outcomes, which can be economic, environmental and/or social. All the steps of the CBM are interconnected.

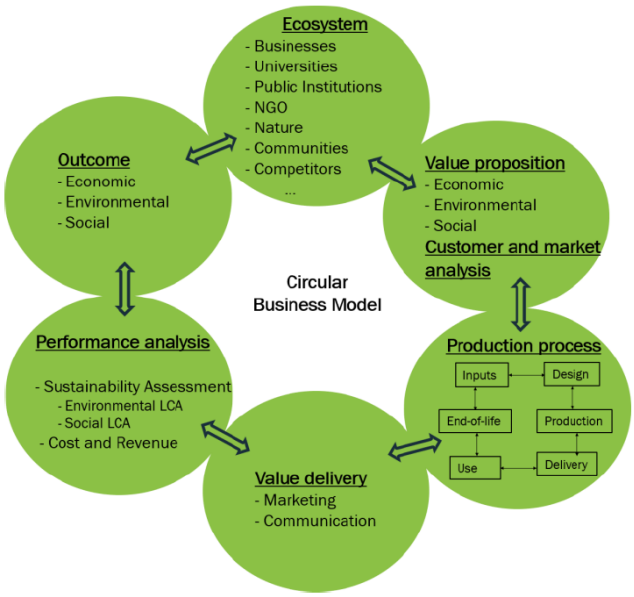


Figure 20: Circular Business Model Schema. Source: Own

Compared to a sustainable BM (Cosenz et al., 2020), a CBM expands the range of stakeholders as it includes other actors such as policymakers, research institutions, communities, and competitors… (Hofmann, 2019; Lüdeke-Freund et al., 2019; Rosa et al., 2019; Centobelli et al., 2020; Fehrer & Wieland, 2020; Perey et al., 2018; Zucchella & Previtali, 2019). In addition, a CBM includes a product life-cycle perspective as a circular company has to think ahead of the production about the product end-of-life (N. M. P. Bocken et al., 2016; De Angelis et al., 2018; Lüdeke-Freund et al., 2019; Salvador et al., 2020). In contrast with a SBM (Cosenz et al., 2020), which aims at achieving the triple bottom line, a CBM can either aim at an economic and/or environmental and/or social outcome (Fehrer & Wieland, 2020).

Challenges, barriers and levers to CBM implementation

Vermunt and colleagues (2019), after a systematic literature review, defined four main CEBMs: the product as a service, the product life extension, the resource recovery and circular supplies. For each of these CBMs, the authors have identified specific barriers, as shown in the table below (Vermunt et al., 2019). They recognised that barriers could vary from one CBM to another (Vermunt et al., 2019). They regrouped the main barriers identified in previous papers into two dimensions:

internal barriers related to the company itself and external barriers related to the company's environment (Vermunt et al., 2019).

CBM/barriers	Product-as-a-service	Product life extension (PLE)	Resource Recovery (RR)	Circular Supplies
Internal barriers	Organisational (lease model, new relationship with customers and logistical challenges) Financial (high up-front investment)		Lack of knowledge and technology (e.g. recycling for the recovery of waste)	Lack of knowledge and technology (change in product development due to the introduction of new circular materials)
External barriers	Market (resistance from customers towards the loss of ownership) Institutional (lack of investments from banks)	Supply chain (dependence on other partners: quality and volume of their waste or used products) Market (products perceived as too uniformed and less fashionable)	Supply chain (same as PLE), external market (hesitation from customer to buy products made with waste and resistance from competitors) Institutional (legislation regarding the use of waste as a resource and a lack of policy incentives to promote recycling)	Supply chain (a lack of suppliers of circular material such as recyclable or biodegradable materials) Market arket (same as RR)

Figure 21:CBMs' barriers based on Vermunt and colleagues' work (2019)

Scholars recognize that CBM practices occur mainly on a small scale; linear ones are still the status quo due to CBM's main barriers (Linder & Williander, 2017; Zucchella & Previtali, 2019). Due to the small scale and the local context of the CE, companies have limited access to funding and their scale of operation is restricted (Zucchella & Previtali, 2019). Consequently, Zucchella and Previtali (2019) recognize that scalability and replicability are the main barriers to CBM implementation. Nevertheless, the authors agree that these limits can be overcome if companies implement a CBM, keeping scalability and replicability in mind to improve economic margins and then to widespread the circular economy (Zucchella & Previtali, 2019). According to Chiappetta Jabbour and colleagues (2020), structural issues such as the lack of communication between departments are the main barriers.

Companies keep pursuing linear BM due to the risks associated with CBMs (Parida et al., 2019) and find it difficult to assess and validate a CBM due to its complexity (Linder & Williander, 2017). Linder and Williander (2017) agree that a CBM has a higher business risk than the corresponding linear one. Hence, researchers suggest using simple evaluation tools to better understand market segments and profitability (Van Loon et al., 2020; van Loon & Van Wassenhove, 2020) and develop new design concepts for CBM (Linder & Williander, 2017).

Researchers also highlight the "fashion vulnerability" barrier, which is too restricted as it should include customer preferences regarding technology, function and economy (Linder & Williander,

2017). In addition, Norris (2019) noticed that one of the main difficulties a company faces when implementing a CBM, especially recycling BMs, is overcoming the negative customer perception of dirt. This underlines a cultural change that requires firms to have the appropriate narrative (Norris, 2019b).

Bressanelli and colleagues (2019) identified the challenges companies face when redesigning their supply chain to include CE activities. This cover implementing servitised CBM and reverse logistics. 24 challenges have been identified and categorised accordingly: Economic and financial viability, Market and competition, Product characteristics, Standards and regulation, Supply chain management, Technology, and Users' behaviour. To overcome such challenges, the authors also analyse some possible levers such as modular design products, partnerships, alternative revenue models, generating awareness, and technology monitoring (Bressanelli et al., 2019).

Challenge categories	Challenges	Levers
Economic and financial viability	Time mismatch between revenue and cost streams Financial risks Operational risks	Contractual agreements Cannibalisation, IP and know-how access Digital technology and IT to monitor assets' states and usage conditions
Market and competition	Cannibalisation Intelligence Protection and know-how access Brand image	Partnerships Access over ownership' revenue mode
Product characteristics	Fashion change Product complexity Product (mass) customisation	A modular product design and upgradability strategy
Standards and regulation	Taxation and policy instruments misalignment Measures, metrics and indicators Lack of standards	lobbying to push legislation (adequate incentives, norms, standards) Ad hoc sets of indicators
Supply chain management	Return flows uncertainty Availability of suitable supply chain partners Transportation and infrastructure costs	Close partnerships, Technology to remotely monitor assets and products

	Coordination and information sharing Product traceability Cultural issues	Take-back incentives Access revenue model Awareness generation
Technology	Eco-efficiency of technological processes Product technology improvement Data privacy and security	Product upgradability Value-added services
Users' behaviour	Product ownership careless behaviour in product usage Users' willingness to pay	Value-added services Building customer awareness Remote monitoring Contractual agreement

Table 2: Challenges and drivers of the CE supply chain based on Bressanelli and colleagues (2019)

Conclusion and future research

The circular economy breaks the "take-make-consume and dispose" logic by introducing a disruptive innovation suggesting that waste is a resource and not a burden (Perey et al., 2018). The circular economy has the potential to bring sustainability concepts into the mainstream market by reconciling economic growth and the biosphere limits (Perey et al., 2018; Zucchella & Previtali, 2019). The CE definition covers multiple notions, such as restorative waste, design thinking, efficient production process, and consumption reduction (Esposito et al., 2018). However, there is no common discourse or language (Pieroni et al., 2019) and shared framework among scholars regarding CBM design and implementation (Evans et al., 2017; Pieroni et al., 2019; Zucchella & Previtali, 2019).

There are still some steps to go through before the circular economy becomes the new dominant logic, as the CBM is still perceived as risky and uncertain (Linder & Williander, 2017; Zucchella & Previtali, 2019). In addition, researchers noticed that CBMs are still mainly focused on a firm-centric perspective and economic performance (Fehrer & Wieland, 2020; Murray et al., 2017; Zucchella & Previtali, 2019). To move beyond this traditional view of CBM, scholars agree on the importance of adopting a systemic view of the CBM by including all the stakeholders of the value chain as well as

outside, such as government and research institutions (Hofmann, 2019; Lüdeke-Freund et al., 2019; Rosa et al., 2019; Centobelli et al., 2020; Fehrer & Wieland, 2020; Perey et al., 2018; Zucchella & Previtali, 2019).

However, there is a need for a deeper understanding and analysis of how companies concretely implement a CBM and not only what they do (Centobelli et al., 2020; Evans et al., 2017; Merli et al., 2018; Rosa et al., 2019; Zucchella & Previtali, 2019) and how a systemic approach helps CBM implementation (Centobelli et al., 2020). To fill the design-implementation gap of CBM and to understand how companies do business and the process used to achieve CE results, scholars suggest integrating knowledge of other theories to explore the value network and the systemic perspective of a CBM (Centobelli et al., 2020; Pieroni et al., 2019; Stewart & Niero, 2018). Scholars agree that there is a need for a more systemic-boundaries analysis and clarifying the dynamic nature of CBM (Centobelli et al., 2020; Perey et al., 2018; Pieroni et al., 2019; Zucchella & Previtali, 2019). Scholars suggest using and customizing existing business model innovation principles or developing new ones (Pieroni et al., 2019) and longitudinal studies to better understand how the ecosystem transitions from a linear to a CBM (Parida et al., 2019).

In addition, there is a gap in the literature review regarding the drivers, antecedents and benefits of a CBM (Centobelli et al., 2020; Evans et al., 2017; Salvador et al., 2020; Zucchella & Previtali, 2019). There is definitely a need to increase knowledge of the success factors of a CBM (Bressanelli et al., 2019). Zucchella and Previtali (2019) suggest exploring collaboration between different actors and innovations in depth to better identify successful CBM. To go along with this need for deeper analysis, scholars call for case studies and empirical analysis (Evans et al., 2017; Zucchella & Previtali, 2019) but also for action research and longitudinal research (Pieroni et al., 2019).

Then, there is also a lack of indicators measuring the degree of circularity of a firm (Centobelli et al., 2020) and a lack of understanding of how circularities make businesses more sustainable as well as their supply chains (Ferasso et al., 2020). Indeed, the environmental and social benefits are still viewed as simply positive “byproducts” (Fehrer & Wieland, 2020), whereas a CBM should aim at implementing sustainable concepts in order to really break with the status quo (Perey et al.,

2018; Zucchella & Previtali, 2019). However, this is linked to the lack of indicators assessing the environmental and social impact of a CBM (Hofmann & Jaeger-Erben, 2020; Stewart & Niero, 2018).

Table 4
Future research agenda.

Research Areas	Research Questions
Research Area 1: Understanding Actors' Institutional Work in Complex Adaptive Systems	• How can CBM classifications, architectures and archetypes be broadened to embrace not only firms and (social) entrepreneurs as actors with their own business models, but also customers, volunteers, citizens, and other actors? • What are the types of institutional work actors can engage to drive sustainable, social, and market innovation? • How can (social) entrepreneurial 'bottom up' and piloting strategies inform CBM thought? • How can actors recruit allies, such as alliances among entrepreneurs and between entrepreneurs and incumbents, to advance partnerships, collaboration, and network development in circular economies?
Research Area 2: Focus on Collective Action to Shape Circular Economies	• How can the collective action of broad sets of actors (linked through formal and informal ties) be coordinated and directed towards sustainable and social goals? • What degree of formality (i.e., contracts, industry standards, defined processes, etc.) is most supportive for collective action and resource integration of versatile actors? • What design frameworks can be used to account for collective governance mechanisms in systemic CBMs? How can collective entrepreneurship inform coordination mechanisms in systemic CBMs?
Research Area 3: Measuring Circularity on Multiple System Levels	• How can measurement frameworks be integrated and broadened to benchmark for sustainability, social progress, and economic growth? • How can further levels of aggregation (beyond the product- and organization-level) be integrated in measurement systems that account for circularity?
Research Area 4: Broaden Theoretical Perspectives to Further Investigate Circular Economies	• How can theoretical frameworks, including practice theory, complexity theory, design theories, structuration theory, sociology of technology and (social) entrepreneurial theories further inform systemic business model thought? • How can other disciplines, including ecology research, architecture, city design, computer systems design, civic design, etc. inform the conceptualization of systemic CBMI frameworks?
Research Area 5: New Methods for Systemic Circular and Social Business Model Innovation	• How can CBM design methods be adapted to account for broader institutional developments in circular ecosystems? • How can design tools account for the complexity of circular economies, while, at the same time, being appealing and useful for broad sets of actors? And how can these design tools be embedded in the operating processes of circular businesses? • How can ongoing adjustments and reconciliation processes be more systematically supported through methods such as big data management, experimenting, testing, and prototyping to enforce organizational learning?

Figure 22: Research agenda for systemic CBM (Fehrer & Wieland, 2020)

CONCLUSION OF THE LITERATURE REVIEW

The BM and BM innovation literature review showed that a BM represents the architecture of a company's activities which underline the value proposition, delivery and capture (Foss & Saebi, 2018; Teece, 2010, 2018). The BM concept also includes a dynamic view (Foss & Saebi, 2018; Teece, 2010, 2018; Wirtz et al., 2016) and an ecosystem perspective (Fjeldstad & Snow, 2018).

The BM research field can contribute to answering questions in the Sustainability sub-stream (Foss & Saebi, 2018; Massa et al., 2017). Indeed, the BM concept is a relevant tool for implementing sustainability values due to its systemic perspective and dynamic view. The SBM and BMI literature review has highlighted that sustainability is a major driver of innovation (Foss & Saebi, 2017; Hall & Wagner, 2012) and that SBM requires a systemic view as it involves a large number of stakeholders, including Nature and communities (Cosenz et al., 2020; Evans et al., 2017; Pieroni et

al., 2019; Stubbs & Cocklin, 2008). However, scholars agree that to implement and widespread sustainable development concepts, there is a need to develop more radical BM and go beyond incremental innovation (Hall & Wagner, 2012). The CE activities can create the necessary change and potentially bring sustainable concepts into the mainstream market by introducing disruptive innovation (Perey et al., 2018; Zucchella & Previtali, 2019) where waste is a valuable resource (Perey et al., 2018).

However, the CE and sustainability BM research fields are still fragmented and focused mainly on highlighting the need for sustainability or describing sustainable or circular BMs (Foss & Saebi, 2017; Zucchella & Previtali, 2019). Scholars recognize a need for a better understanding of the concrete implementation of CBM (Centobelli et al., 2020; Evans et al., 2017; Merli et al., 2018; Rosa et al., 2019; Zucchella & Previtali, 2019). Indeed, it is unclear how companies change and innovate their BM towards a CBM (Centobelli et al., 2020; Evans et al., 2017; Merli et al., 2018; Pieroni et al., 2019; Rosa et al., 2019; Salvador et al., 2020; Zucchella & Previtali, 2019). In the BMI research field, there is also a need for further investigation of the emergence process of a BMI (Laudien et al., 2017).

In addition, there is a lack of research regarding the drivers and factors of a successful business model innovation (Evans et al., 2017; Foss & Saebi, 2018; Laudien et Daxbock, 2017), particularly internal drivers (Foss & Saebi, 2017). Scholars in the CBM research field also recognize a lack of research about the drivers of a successful CBM and the benefits of implementing one (Hofmann, 2019; Lüdeke-Freund et al., 2019; Salvador et al., 2020; Vermunt et al., 2019; Zucchella & Previtali, 2019).

Literature review themes	BM and BMI	SBM	CBM	Links/Main research questions	Theories and Research stream to explore
General questions and research orientation	How companies can innovate their BM towards greater sustainability? (Foss and Saebi 2017, 2018) Further investigation in the emergence process of BMI (Laudien & Daxbock, 2016)	How firms transformed their BM and organizational culture? (Stubbs & Cocklin, 2008)	How transition takes place from linear BM to CBM? Transformational process towards a CBM at an operational level (Merli et al., 2018; Rosa et al., 2019; Salvador et al., 2020, Centobelli et al. 2020)	How companies innovate from a linear BM to CBM? Analysing the transformational process (can lead to identify drivers)	Dynamic capabilities Business model transformation Research stream Complex theory
	What are the successful factors of a BM? (Wirtz et al. 2016) What are the drivers leading to a successful BMI? (Laudien & Daxbock, 2016, Foss & Saebi, 2018) What are the internal drivers of BMI? (Foss and Saebi, 2017)	What are the drivers leading to a successful BMI? (Evans et al., 2017)	What are the successful factors and benefits of CBM? (Hofmann, 2019; Salvador et al., 2020; Vermunt et al., 2019, ludeke - freund et al., 2019, 2017, Zucchella & Previtali, 2019)	What are the drivers and factors of a successful BMI leading to a CBM? What are the benefits of a CBM?	Dynamic capabilities and open-innovation
More specific research questions related to factors enhancing BMI and CBM	What is the role of dynamic capabilities as internal drivers for BMI?	Why some firms are better than others at deploying dynamics capabilities? (Dangelico, 2016)	What are the Internal reasons that motivate a company to implement CBM (Urbinati et al., 2017)	What are the dynamic capabilities and internal resources leading to BMI and CBM?	Dynamic capabilities and open-innovation
	Behaviour of top managers and mental process? Cognitive drivers that motivate managers to change or hold BM? (Foss and Saebi, 2017, 2018)	How managers can innovate their BM towards greater sustainability? (Foss and Saebi, 2018)	How does commitment of managers enhance the transition towards CBM? (Centobelli et al. 2020)	Commitment and role of decision-makers in CBM. What are the cognitive drivers leading to BMI and CBM?	Complex theory Contingency theory
	Understanding the relationship between the dynamic and operational perspective of BM (Fjeldstad and Snow, 2018)		Clarifying the dynamic nature of BMI hence understanding innovation patterns occurring at the company level (Pieroni et al., 2019, Centobelli et al. 2020)	Clarifying the innovation perspective of BMI and CBM.	Innovation theory, disruptive innovation Christensen and entrepreneurship theories
	How does a change in the firm's BM affect the BM within its ecosystem, network, relationship, stakholders?(Foss and Saebi, 2018) Going beyond firm's level to incorporate the ecosystem level of BM (Fjeldstad and Snow, 2018)		How systemic approach helps CBM implementation? and Are there new approaches of stakeholders' involvement and management in CBM? (Centobelli et al. 2020) Exploring the link between stakeholders' collaboration and innovation as drivers to a successful CBM (Zucchella & Previtali, 2019) Relationship between systemic approach and operational perspective of BM (Zucchella & Previtali, 2019)	Exploring links between systemic and operational approaches of BM and CBM in particular and the role of stakeholders in CBM.	Open-system perspective
	What are the external drivers of BMI? (Foss and Saebi, 2018)		The role of contextual factors? (Urbinati, 2017)	What are the external drivers of BMI and the role of contextual factors in CBM?	

Figure 23: Main gaps identified in the BM, BMI, SBM and CBM literature review. Source: Own

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