Received: 9 February 2022 | Revised: 16 July 2022 | Accepted: 2 August 2022

DOI: 10.1002/bse.3228

RESEARCH ARTICLE

Business Strategy and the Environment

WILEY

The impact of internal company dynamics on sustainable circular business development: Insights from circular startups

Charleen von Kolpinski[1] | Devrim Murat Yazan[2] | Luca Fraccascia[3,2]

[1]Department of Entrepreneurship & Innovation Management, Technische Universität Berlin, Berlin, Germany

[2]Department of High-tech Business and Entrepreneurship, University of Twente, Enschede, the Netherlands

[3]Department of Computer, Control, and Management Engineering "Antonio Ruberti", Sapienza University of Rome, Rome, Italy

Correspondence
Charleen von Kolpinski, Department of Entrepreneurship & Innovation Management, Straße des 17. Juni, 135–10623, Berlin, Germany.
Email: c.vonkolpinski@tu-berlin.de

Abstract

The circular economy is commonly acknowledged as a solution to ecological problems such as resource depletion and waste emissions. New economic opportunities emerge by transitioning from a linear to a circular economy and innovative business models are needed to translate these opportunities into business reality. In recent years, researchers have investigated a variety of approaches to circular business models, but few studies have been conducted associating internal company dynamics with sustainable circular business approaches. Consequently, the purpose of this study is to investigate the internal dynamics of young and small-scale companies in Germany that adopt a sustainable circular business model. This study focuses on internal barriers, enablers, competences and drivers to sustainable circular business model implementation. A case-based research design was applied, drawing on semi-structured interviews with 12 founders of businesses and organisations with a sustainable circular business model. The study develops four strategies to overcome barriers to sustainable circular business model adoption in young and small-scale companies: (1) human-centeredness in all activities affected by circular business model adoption, (2) high commitment for circularity on the managerial level, (3) requirement of special skills and competences and (4) consideration of cultural aspects inside and outside the company. Further empirical research about established and international incumbents with a sustainable circular business model is needed to be able to compare the internal dynamics of big and small companies in international contexts.

KEYWORDS

circular business model, circular economy, circular startup, internal dynamics, small-medium enterprises, sustainability

1 | INTRODUCTION

The current economy is based upon a linear model of resource consumption at which raw materials are extracted and products are manufactured and sold to consumers who finally dispose of them after usage. This current phenomenon of the economy is called a 'take-make-dispose' system (The Ellen MacArthur Foundation., 2013). This

Abbreviations: B2B, business-to-business; B2C, business-to-customer; BM, business model; CBM, circular business model; CE, circular economy; CEO, Chief Executive Officer; RQ, research question; SME, small and medium-size enterprise.

is a vicious circle, able to generate negative effects on natural ecosystems, human wellbeing and the security of supply (The Ellen MacArthur Foundation, 2013).

The circular economy (CE) is acknowledged among scholars and practitioners as a solution to this, as it is a new industrial paradigm to tackle waste generation, resource scarcity and economic growth in a sustainable way (Urbinati et al., 2018). The growing interest among scholars in CE is represented by an increased number of publications in the recent years (Ferasso et al., 2020; Fraccascia et al., 2021; Geissdoerfer et al., 2017; Hina et al., 2022; Suchek et al., 2022). Despite the acknowledged great potential of a CE, its implementation in business and industry remains underperformed (Suchek et al., 2022). In this regard, there is a shortage of academic literature covering novel business opportunities created by the CE (Blomsma & Brennan, 2017; Ferasso et al., 2020; Ghisellini et al., 2016; Lieder & Rashid, 2016). Nevertheless, a recent study finds that business model (BM) research in a CE context is highly relevant to stimulate CE implementation in practice (Centobelli et al., 2020).

Existing literature suggests various barriers for the slow adoption of the CE in business (Araujo Galvão et al., 2018; Bey et al., 2013; Guldmann & Huulgaard, 2020; Murillo-Luna et al., 2011; Rizos et al., 2015; Vermunt et al., 2019). This work adds to the existing literature by focusing on the micro-level of firms (Suchek et al., 2022; Urbinati et al., 2021), including internal barriers, as well as on drivers, enablers and internal competences that lead to strategies to overcome these barriers. This work follows several calls for future research. In this regard, Urbinati et al. (2017) suggest to further explore the internal barriers of firms to understand internal reasons that convince managers to implement a circular BM (CBM), as well as how they manage to overcome existing barriers of adoption. Additionally to traditional companies, Suchek et al. (2022) propose to investigate challenges of the so-called 'born circular firms'[1] when adopting a CBM from scratch and how they managed to overcome them. Ferasso et al. (2020) bring managerial competences into the discussion and call for research about the impact of special managerial competences on CBM implementation. Indeed, there is a lack of research when it comes to people-driven factors and analysing behaviour on the individual level (Sawe et al., 2021).

In particular, this research aims to investigate a combination of the managerial and social barriers to undermine the reasoning of decision-making of managers, the impact of founders' commitment and their influence on internal company dynamics that in the end leads to a successful CBM implementation in the firm. By the end of this study, strategies are presented to make companies more engaged in CE by identifying the internal barriers, enablers, drivers and compentences.[2]

The following two research questions are answered in this study:

- (RQ1) What are the drivers and internal competences for young and small-scale organisations to successfully implement a CBM?
- (RQ2) What are the internal barriers and enablers for young and small-scale organisations when adopting a CBM?

To answer these questions, an analysis of CBM literature is conducted and semi-structured interviews with founders of 12 young and small organisations with an adopted CBM are undertaken, focusing in particular on companies operating in Germany.

This paper has several elements of novelty. Firstly, most research about enablers and barriers to CE transition focuses on individual cases (Linder & Williander, 2017) and specific sectors (Franco, 2017). To the best of our knowledge, only the studies of Guldmann and Huulgaard (2020) and Rizos et al. (2015) build on multiple cases when it comes to enablers and barriers of CBM implementation. Differently, this work builds on multiple cases that vary across industry sectors. Secondly, other studies compared results on circular strategies between incumbents—that is, small and medium-size enterprises (SMEs)—or start-ups (Guldmann & Huulgaard, 2020): alternatively, this study focuses on circular start-ups and small companies, which is novel in this domain of research (Antikainen & Valkokari, 2016; Ferasso et al., 2020). Thirdly, research has already explored circular strategies on a business level to some extent (Chen, 2020). What is still missing goes beyond the more general findings of Chen (2020), as no internal processes, operational issues or human perspectives are considered in the study. Hence, the focus of this work goes beyond and digs deeper into internal dynamics, processes and human aspects.

The paper is structured as follows. Section 2 covers relevant literature in CE and CBM research. Section 3 describes the applied methodology. Section 4 presents the results of the interviews. A discussion of the results follows in Section 5. Additionally, strategies are formulated to overcome barriers to CBM adoption. Section 6 concludes by contributions of the study and future research avenues.

2 | THEORETICAL BACKGROUND: FROM CIRCULAR ECONOMY TO CIRCULAR BUSINESS MODELS FOR START-UPS

The CE concept provides a solution to the myriad of problems concerning linear economy, as it suggests a redesign of the linear system to make closed-loop resource flows possible, which can preserve the embedded environmental and economic value in products over a long period (Urbinati et al., 2017). There are several studies developing definitions for the CE (Blomsma & Brennan, 2017; Geissdoerfer

[1]Small and medium-size enterprises can be differentiated between 'born circular' firms constituting ventures, which have been primarily created to deliver circular value and to exploit CE opportunities, and the so-called 'growing circular' firms constituting established firms, which need to transform their business model to become circular (Suchek et al., 2022; Zucchella, 2019).

[2]Drivers and competences comprise the individual level of persons involved in a company with a CBM. Drivers analyse people's personal motivations and motivational drivers to implement a CBM. In this study, the focus is on founders and managers. Competences include the person's skillset, qualification and expertise to implement a CBM. Again, this study investigates the needed competences of founders and managers of a CBM. On the business level, enablers and barriers are analysed to find out factors that either empower or hinder a successful CBM implementation, respectively. Hence, enablers are more on an organisational level and empower organisations either from outside or inside to implement a CBM.

et al., 2020; Ghisellini et al., 2016; Kirchherr et al., 2017; Murray et al., 2017; Veleva & Bodkin, 2018). An overview of CE definitions is summarised by Homrich et al. (2018), who interprets the CE as a strategy to replace the current traditional system by win-win solutions in which the economic and environmental value perspectives are incorporated.

The practical implementation in business is facilitated by BMs, which represent the rationale of how organisations create, deliver and capture value (Osterwalder & Pigneur, 2010). A BM outlines how business is done (Bocken et al., 2019). The framework of Richardson (2008) defines three essential components of a typical BM: the firms' value proposition, value creation and its delivery and value capture. According to this framework, the concept of value reflects the logic of strategic thinking of companies to create the highest amount of value for customers and to capture the highest amount of value for the firm, as well as gaining competitive advantage over competitors. For sustainable businesses, the value proposition is typically concerned with the product and service offering to generate economic return in addition to the measurable ecological and/or social value provided by operating (Boons & Lüdeke-Freund, 2013).

CBMs are perceived to be the driving force behind a transition from a linear to a CE (Lewandowski, 2016). An overview of conceptual frameworks, taxonomies and typologies of CBMs can be found in the study of Geissdoerfer et al. (2020). In academic CBM literature, it becomes apparent that clear definitions of CBMs hardly exists (Nußholz, 2017). An explanation for this could be the fact that CBMs are complex constructions (Guldmann & Huulgaard, 2020; Urbinati et al., 2021). However, it was found that CBMs apply specific circular strategies to capitalise on the economic and environmental value embedded in products (Nußholz, 2017).

There is still a lack of literature analysing barriers and enablers to CBM adoption (Urbinati et al., 2021). Barriers to CBM implementation are usually categorised as regulatory, financial, technical, organisational, value chain and consumer barriers (Circular Economy Initiative Deutschland and Acatech, 2020). Specifically on the micro-level, Urbinati et al. (2021) find product-and process-related, economic and financial and organisational barriers and enablers. Actually, barriers are oftentimes less tangible and clear. Sousa-Zomer et al. (2018) illustrate different kinds of barriers to CBM implementation: stakeholder relationships, internal processes, cultural aspects and perceived risks. The framework of Chen (2020) analyses CBM barriers with the related stakeholder roles. Rizos et al. (2016) finds additional barriers especially for SMEs: company environmental culture, lack of capital, lack of government support/effective legislation, lack of information, administrative burden, lack of technical and technological know-how and lack of support from the supply and demand network.

This work focuses on internal barriers to CBM introduction, even though external and internal barriers can be interlinked or show a dependence on each other (Vermunt et al., 2019). According to Vermunt et al. (2019), the internal barriers—categorised into financial, organisational, knowledge and technology barriers—are perceived to be very high. Especially in the beginning, when the idea of a CBM is being raised, a lack of knowledge about CBM often hampers a positive decision towards it (Guldmann & Huulgaard, 2020). This study focuses on smaller organisations, because the European Commission perceives SMEs as being the key for CE implementation in practice, as about 99% of all companies in the European Union are small or medium-sized (European Commission, 2022). In particular, the focus of this study lies in young-born circular firms that are also called circular start-ups (Wieser et al., 2022; Zucchella, 2019). Lacy et al. (2014) found out that the initial market disruption for CE transition in CBMs was driven by start-ups. Only recently are large incumbents following in a serious manner (Lacy et al., 2014). Circular start-ups are independent organisations with their own brand, resources, employees and capabilities (Geissdoerfer et al., 2020). A big change in industrial mindset is required and great new business opportunities appear to those organisations that collaborate, share data and knowledge, spread best-practice and invest in major innovation projects together (Preston, 2012).

There are differences between start-ups and incumbents. When starting up a business, external funding is of high importance. In the case of circular start-ups, it is found that the majority lack the time and experience to successfully apply for grants from governments, investors and other organisations (Charter & Keiller, 2014). Other findings suggest that, for circular start-ups, no barriers are perceived at the employee level, whereas all the incumbents have employee-level barriers (Guldmann & Huulgaard, 2020). In general, start-ups are perceived to be more open and willing to collaborate, which is a necessary precondition to practically make a CE work out.

Research about internal enablers and competences needed to introduce a CBM successfully, is very limited. One exception is the study of Bianchini et al. (2019), who found that there are special organisational competences such as employee motivation, participation and environmental culture needed across organisational functions, business strategy and company structures. A list of capabilities within the different functions of a company is provided by Sousa-Zomer et al. (2018). When establishing or transforming towards a CBM, existing and new capabilities and competences need to be reconfigured to function optimally in this new setting (Lacy et al., 2014). The study of Burger et al. (2019) elaborates on important skills to achieve this. According to them, basic, social, system and technical skills are needed to develop the necessary capacities to successfully introduce a CBM.

For small but established companies, enablers are found in this descending order of importance: company environmental culture, networking, support from the demand network, financial attractiveness, (external) recognition, personal knowledge and government support (Rizos et al., 2016). Apart from that, leadership is considered to be a very important factor when it comes to the actual implementation of a CBM (Hart et al., 2019; Rizos et al., 2016). If there is a commitment to CE and unrestricted support for the CBM on the managerial level, this leads to commitment on the employee level (Ünal et al., 2019). Among cultural enablers are sustainability and environmental drivers, stimulation of demand through consultation of clients, value chain engagement activities, forming longer-term relationships and

partnerships and enhanced systems thinking (Hart et al., 2019). However, literature still falls short of analysing how managerial commitment enhances the transition towards a CBM and how it helps to overcome organisations' inertia (Centobelli et al., 2020).

The term driver is used differently in literature. In general, 'Internal drivers are those factors that impel CE practices from inside an organisation'. (Hina et al., 2022, p. 8). Internal drivers can be divided into organisational, resource availability and optimisation, financial, product design and process development drivers (Hina et al., 2022). We consider these drivers, as well as we add another category of internal drivers: personal drivers comprising the individual level of persons working in the company. This includes founders, managers, employees and other internal stakeholders. Concerning these personal drivers, CBM literature is very scarce. Therefore, this study tackles these novel issues in interviews with founders of circular start-ups and develops strategies to overcome internal barriers by specific enablers, drivers and competences.

3 | METHODOLOGY

This empirical study is designed to explore internal dynamics in CBM implementation based on multiple cases. For the exploratory purpose of this study, doing interviews in multiple cases is an appropriate research set up, as they promise in-depth insights and allow comparisons among the cases (Bocken et al., 2018). Eisenhardt and Graebner (2007) find that interviews are a valid data collection method for qualitative research in particular in more complex, rare and strategic-high-level business situations. In addition, they state, 'Interviews are a highly efficient way to gather rich, empirical data, especially when the phenomenon of interest is highly episodic and in frequent'. (Eisenhardt & Graebner, 2007, p. 28). Their findings comply with the research set-up of this study. A similar research set-up was used by Golev et al. (2015) to find out barriers in industrial symbiosis and their approach is adapted for this study.

The methodological steps of this study are depicted in Figure 1.

Firstly, desk research is conducted comprising a literature review to elaborate on theoretical background, research gaps and corresponding literature covering suitable interview methodologies. The literature review includes a search in the databases Web of Science and Business Source Complete. After receiving a good amount of high-quality academic research studies, a snowballing method is applied to receive related articles through cross-references (de Pádua Pieroni et al., 2018). In parallel, a wider search in Google Scholar is undertaken to add important reports and grey literature to the list of publications. Finally, a limited number of influential non peer-reviewed publications from non-profit organisations is also included (de Pádua Pieroni et al., 2018).

Secondly, candidates for the interviews are selected, contacted and the interviews are conducted to collect data. Interview partners are selected based on their status as a founder of a firm or association that applied a CBM from the beginning of foundation. Respective organisations are no older than 10 years and do not have more than 50 employees to be considered a small enterprise (European Commission, 2022). The selected interview candidates are contacted via their company websites, directly via email or LinkedIn message or via phone. Interviews are undertaken via telephone, Zoom or Google Meet, due to Covid-19 pandemic; one interview is conducted in person. The interviews were conducted in February, March and April 2021. All interviews are recorded and notes are taken during the interviews (Antikainen & Valkokari, 2016). Afterwards, a transcription protocol for each interview is conducted based on the notes and recordings (Franco, 2017). When developing the semi-structured interview guideline (which is shown in Appendix A), attention is paid to formulate questions 'to be as open as necessary and as structured as possible' (Hofmann & Jaeger-

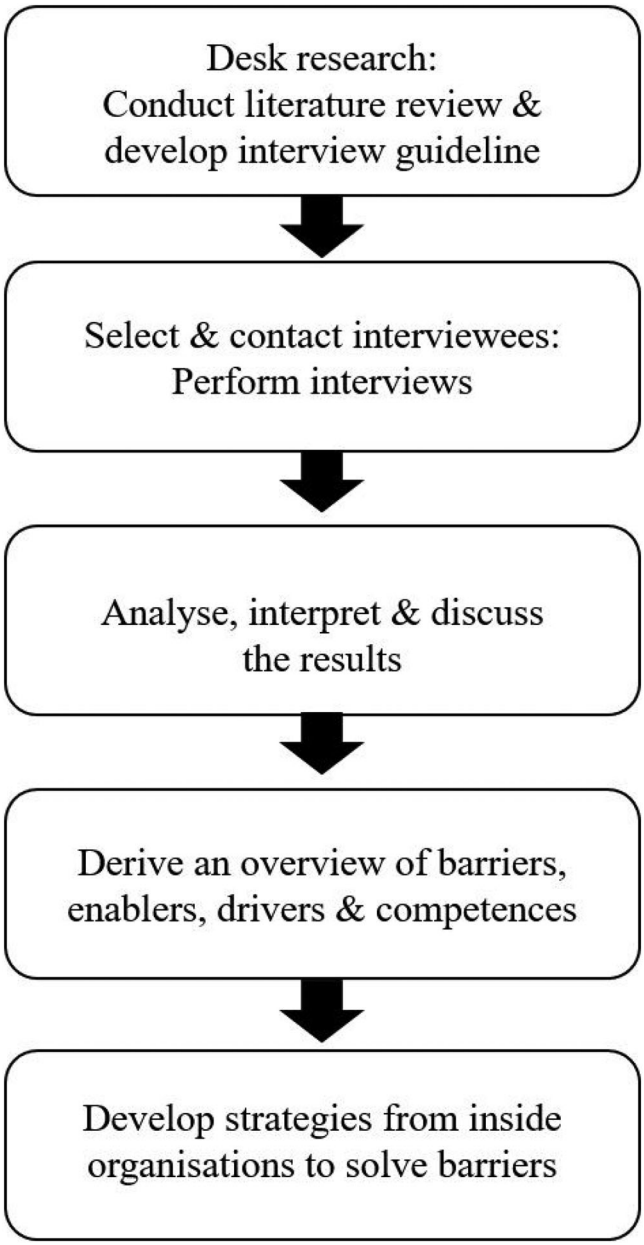

FIGURE 1 Methodological steps

Erben, 2020, p. 2774). To establish a certain structure and to make interviews comparable among each other, three broader topic clusters are developed, which are partly based on the study of Vermunt et al. (2019), asking for (1) explaining the BM, (2) describing the internal barriers and (3) how they are overcome. Additionally, it is asked for (4) organisational capabilities and competences (Hofmann & Jaeger-Erben, 2020) and for (5) the personal drivers and motivations of the founder to pursue a CBM in the business. Interviewees are asked to explain in greater detail the topics they find important (Vermunt et al., 2019).

Thirdly, collected data are analysed with the open coding technique based on grounded theory approach (Corbin & Strauss, 1990). Firstly, the firms of the sample in this study are described. The degree of circularity in each BM is different (Centobelli et al., 2020; Urbinati et al., 2017). So, all circularity measures are described that each BM takes. Secondly, the BMs are analysed by using the framework of BM analysis developed by Richardson (2008). Thirdly, the answers of all interviewees are grouped per question, to allow the comparison in sight of topic clusters. Having each answer for every topic cluster, similar and different opinions, experiences and perspectives are detected. As a result, classifications with sub-orders are established to sort in the answers of the interviewees. The classified answers for every topic cluster are compiled into tables.

Fourthly, the interview results build the basis for an overview of company internal barriers, enablers, drivers and competences to CBM implementation. Lastly, strategies are developed to overcome these barriers with firms' internal enablers, drivers and competences. These strategies can be a guidance for other companies aiming for a CBM implementation.

4 | RESULTS

This section presents the results of the semi-structured interviews. All companies and organisations of the sample have an economically sustainable BM addressing several circular aspects. Table 1 provides an overview of the organisations of the sample.

All companies are 'born circular' organisations, which are primarily created to deliver circular value and exploit CE opportunities (Suchek et al., 2022; Zucchella, 2019). The range of so-called circularity aspects is wide: from products based on circular loops to production processes designed to create a material circle by, for example, zero-waste production methods or education of consumer behaviour. Therefore, companies and organisations need to prove an innovative and agile mindset to create new value propositions but also develop new means of value creation, delivery and capture (Bocken et al., 2016).

The sectors covered in this sample are diverse: business-to-business (B2B) as well as business-to-customer (B2C) markets are tackled. Organisations in this sample have different legal statuses as the majority are enterprises with limited liability, but there is also one cooperative (C) and two associations (F and I) represented in the sample.

On average, the age of the companies is rather young, with the oldest being found in 2009 and the youngest in 2020. The size of the organisations of the sample is rather small, with 1 to 10 full-time employees accounting for most of them.

All interviewees of the sample firms are co-founders or founders. All of them are Chief Executive Officers (CEOs) in the case of companies and executive board members in the case of the registered associations and cooperatives. Half of the interviewed persons in this study is female, and the other half is male. For this sample holds true that relatively young people between 20 and 35 years initially founded the companies and organisations.

The results are presented in line with the interview guideline.

4.1 | Drivers for implementing a CBM

In general, the interview results related to the inner drivers of the founders show that they aim to achieve sustainability goals and believe in the CE and CBM as practical tools to reach these goals. Their strong personal motivation to implement a CBM is because they consider it as 'the right thing to do'. Nevertheless, most of them indicate that the firms are supposed to make sustaining earnings or profits to ensure the long-term survival of the company. Opportunity recognition stem from initial personal problems that the entrepreneurs were facing, or a detected social/environmental need. There is a prerequisite for CBM implementation that nearly all of the founders have in common: to achieve their dream that a CE becomes real in order to reach higher goals for sustainability.

However, there were also entrepreneurs who started with an economic opportunity and shaped the business to establish circular structures.

4.2 | Business model analysis

BMs are analysed with the integrative framework for strategy execution of BMs by Richardson (2008), which was already used to analyse sustainable BMs (Bocken et al., 2014) and circular BMs (Ranta et al., 2018). Taking these works as a reference, the three BM components, that is, value proposition, value creation and delivery and value capture, are used as an analysis framework in this study.

Table 2 presents the CBM analysis of the companies and organisations of the sample by applying the framework of Richardson (2008). None of the sample organisations aim for profit maximisation but their BMs aim to be financially self-sustaining to ensure the survival of the business and its positive impacts in the long run. Most of the CEOs and founders of the circular start-ups mention handling decisions for circularity personally by themselves, as these decisions comprise key components and activities of the BM. So, one could say that the implementation of CBMs in real business is conducted by the leaders of an organisation because it requires important decision making, adequate management and allocation of resources.

TABLE 1 Sample analysis

Company	Legal form	Sector	Target market	Size	Age	Circularity aspects
A	Limited	Digital marketplace	B2B	1–10	2019	• All services designed for circularity • Communication to customers about CBM
B	Limited	Packaging	B2B & B2C	11–50	2009	• All products designed for circularity • '100% closed loops in company processes are impossible'
C	Cooperative	Retail	B2C	1–10	2020	• All products and processes designed for circularity • Local focus and zero waste • Community and communication aspects are strong
D	Limited	E-commerce	B2C	1–10	2020	• All products and services designed for circularity • Delivery with re-usable boxes and carbon-neutral delivery is outsourced • Partners are organic, local and zero-waste • Communication with suppliers and customers about circularity
E	Limited	Consumer goods	B2B & B2C	11–50	2013	• All products and processes designed for circularity • Communication to customers and suppliers in developing countries about sustainable circular standards
F	Association	Consultancy	B2B	11–50	2018	• Consultancy projects, education projects, community building and events • Communication to partners to foster collaborations for circularity
G	Limited	Food & beverage	B2B & B2C	1–10	2018	• All products and processes designed for circularity • Sourcing from circular suppliers including takeback system, active customer and supplier communication and collaboration
H	Limited	Furniture	B2C	1–10	2013	• All products and processes designed for circularity • Making use of the public takeback system of corrugated cardboard as the main material
I	Association	Consumer goods	B2C	1–10	2015	• All products and processes designed for circularity • Communication to suppliers and customers about circularity
J	Limited	E-commerce	B2C	1–10	2020	• All products and services designed for circularity • Package-free and climate neutral delivery by using re-usable boxes and electronic vehicles powered with green electricity • Communication with suppliers and customers about circularity as they are both at the same time
K	Limited	Fashion	B2C	1–10	2020	• All services are designed for circularity • Communication with suppliers and customers about circularity as they are both at the same time
L	Limited	Construction	B2B	1–10	2020	• All processes are based on circularity • It is planned to calculate the ecological footprint of the company to track circular structures and become carbon net-negative • They link customers with suppliers and ensure communication.

4.3 | Analysis of internal competences

Tables 3 and 4 present competences needed by the companies and organisations of the sample to develop and implement a CBM. As a result of the interviews, competences are described in detail and classified into soft skills, skills-based, tech-based and mixed competences in Table 3. This table also shows the quantitative occurrence of these clustered competences. Detailed explanations of the interviewees concerning required competences can be found in Table 4. Skills and knowledge-based competences include among others: knowledge or skills gained by hiring new employees with a specific profile to do tasks for circularity implementation, education of employees to acquire special skills to accomplish CE tasks, education of managers about CBMs or hiring external consultants to get in external knowledge. Tech-based competences include, for example, skills in IT or software to facilitate circularity in the firm

TABLE 2 Business model analysis for the sample adopted by Richardson (2008)

Company	Value proposition	Value creation and delivery	Value capture
A	Online marketplace to sell and buy by-products and waste materials. Offer: A comparison of prices for primary materials and secondary materials. Benefit: Transparent price saving to all parties to convince them to seal and buy secondary materials.	Online marketplace operator for the exchange of secondary materials. The extension towards a platform with educational aspects for all stakeholders is planned.	A provision for each transaction on the marketplace is earned.
B	Production of high-quality packaging solutions from recycled or renewable raw materials and with environmentally friendly finishing processes. This involves the entire manufacturing process: Design, production, usage and disposal of the products.	Production/manufacturing of packaging solutions according to individual orders. High standards for suppliers and active communication about sustainability/circularity measures. The communicated sustainability impact is perceived as a competitive advantage.	Packages are produced based on contract work. Individual packaging solutions for customers. B2B market is more attractive because of big orders.
C	Zero-waste supermarket and social platform including participation of all members, community sense, co-determination, better communication and education. Precisely estimated demand, smaller market hall but bigger warehouse to ensure better cooling and food preservation techniques.	Operating the supermarket and warehouse logistics are major tasks. Hence, logistics and ordering from local suppliers around Berlin are constantly an issue. Improvements of circular measures by a café that sells bakeries and cooked food, which is expiring soon. Active working groups are engaged with further circularity projects.	Membership fee is paid and products are sold in the supermarket. Products are exclusively sold to members of the cooperative. Set up of pick-up stations around Berlin are planned.
D	Company D created a platform for local, organic and zero waste online shopping. Boxes for zero emission deliveries are always reused. It ensures ordering of local, organic and zero waste foods by selecting partners accordingly.	Company D owns the boxes for deliveries but the delivery itself is outsourced. Delivery is always carried out by emission free cargo bikes. There is a constant work on running the platform and strengthening collaborations with local organic product providers.	Users pay a yearly membership fee, which is paid monthly and contains unlimited free deliveries. Another possibility: Delivery fee per order.
E	Products of company E are tableware and dishes that are made out of naturally fallen leaves from areca palm trees, which constitutes a by-product. All CO_2 emissions of company processes and transport are compensated. This is transparently visible on the website. Packaging is biodegradable.	In India, naturally fallen areca palm tree leaves get collected and processed at the manufacturing site to become tableware and dishes. Close relationships to manufacturers in India are held to ensure social and environmental standards.	Selling products to wholesale, and directly to customers via online shop.
F	Workshops, research projects, consulting projects, networking and community events, an open source platform for companies to connect and exchange on topics of CE. It enables collaboration between individuals and companies who are striving for CE implementation in Berlin.	Services are offered for different clients in different sectors. Special focus on public institutions and public funding applications.	Organisation F is a non-profit NGO but has different streams of income: Donations, funding from third-party projects and education memberships.
G	Company G is an authentic, handcrafted and zero-waste food company that aims to reconnect people with food. Community, education, information and transparency are fundamental. A community hub is planned. Rescued food is upcycled into delicious products. Own processes are designed to avoid any waste.	It gets supplies with rescued and fresh foods to upcycle it and produce products, mostly conserves, in their professional kitchen. There is always the need to be flexible in production, because supply is not stable and there is a broad range of product offering. Delivery is outsourced but zero waste packaging and delivering by bike courier are ensured.	Products are sold in the online store and at the weekly market stand. When selling products, customer education and community creation are supported.

(Continues)

TABLE 2 (Continued)

Company	Value proposition	Value creation and delivery	Value capture
H	Stylish and functional furniture out of corrugated cardboard is offered to private customers. Customer education and conviction of people to use corrugated cardboard for furniture construction is important, because it is a sustainable re-used material.	Corrugated cardboard is a circular material because in Germany a takeback infrastructure is already established. Production is in Germany to minimise transportation, use the established systems and have certain standards set for suppliers. Selection of suppliers by certifications of materials.	Furniture products are sold to customers via online shop and in a showroom.
I	A new circular baby diaper system is offered to parents who are looking for biodegradable diapers to avoid waste and want organic materials for natural skin care for their babies. Bottom-up community approach to reach parents and have collection points to minimise transport.	Responsibility for the 100% biodegradable diaper production, the collection system and the conversion into fertile humus. Local system: Baby diaper production in Berlin, community in Berlin distributes diapers and collects used ones, composting company is close by and fertile soil is sold in Berlin.	Two major revenue streams: (1) subscription fee for parents to receive diapers and get the used ones collected; (2) selling the produced hygienic and fertile humus called 'Terra Preta'.
J	Provider of an online marketplace in Berlin, a packaging-free and climate-neutral delivery service. The website allows people to buy and sell used products. Company J takes care of the collection and delivery of the products, payment and, if necessary, communication between the customers.	Company J connects customers and suppliers via an online marketplace. Its activities are logistics and delivery in a climate-neutral and package-free way. By making customers to suppliers at the same time, Company J is right in the middle of the value chain.	Revenue generated from transporting boxes of different sizes and prices. The bigger the box, the higher the price. Many other revenue models are possible on top of that.
K	High quality sharing fashion items among users of the platform: a standard service at which the user is using the platform and can rent or borrow fashion items, and a concierge service at which company K ensures all services like cleaning the clothes, and so on. Additionally, circular high-fashion community. Users get the opportunity to share instead of buying high-fashion items.	Establishing services of the platform in Vienna and Berlin. There was also a need to make sure all necessary competences are in place to successfully operate. For example, a co-founder and CTO was hired. One key principle is agility to overcome Covid-19 lockdowns.	Two revenue streams: (1) standard service at which a transaction fee of 20% from the rental price is taken. (2) concierge service: a 50% transaction from the rental price fee is charged but Company K covers all costs of the process such as cleaning the clothes and delivery.
L	Software solution to assess circular opportunities based on video assessment for buildings to create sustainability building-passports considering materials and emissions of the construction and reusability of materials. Goal: Enabling each building to potentially close the loop.	Company L focuses on digital assessments and design solutions for clients in the construction industry. Consulting service based on the circularity assessment is charged.	Company L is investor supported in 2021. Two revenue streams are planned: Consulting service to attract business clients, and software solutions on their platform to issue building passports. Monthly fee of 150€ to use the platform plus additional services.

TABLE 3 Required competences by organisations of the sample

	Company											
Competence	A	B	C	D	E	F	G	H	I	J	K	L
Mix of competences	X										X	X
Soft skills		X				X		X	X	X	X	X
Skills- and knowledge-based			X	X	X	X	X	X	X	X	X	X
Tech-based			X	X	X	X			X	X	X	X

or skills in innovative 'circular' manufacturing technologies. Soft skills comprise different aspects, which were mainly brought up by the interviewees themselves. The same accounts for the perceived need of a few interviewees for a mix of the aforementioned competences.

Not all founders were experts in the field before founding but they and their teams have the strong willingness and the inner drive to make the CBM work out (Table 4). It underlines the importance of personal drivers for starting up with a CBM. The skills needed to facilitate the CBM can be acquired by different

TABLE 4 Description of competences

Classification	Order	Competences
Mix of competences	Combinations of competences	Overarching competences: a combination of material knowledge, business sense, systemic thinking and technical, engineering competences
		Mix of business know-how and methodology skills, technological skills and soft skills
		Mix of interdisciplinary competences in the founding team: Engineering and digital competences
Soft skills	Behavioural traits	Commitment and self-organisation of all working members are highly required and are a pre-condition to work there
		Engagement, flexibility, interdisciplinarity is needed from every team member
		Having the mentality of openness towards collaboration, sharing information and knowledge with the community as this helps a lot instead of 'fighting alone'
		Being flexible, agile and committed: To be able to quickly adapt to new situations
		Being able to convince people from the idea, inspire them and sell the vision
		Mentality: How to deal with challenges? How do you overcome Covid lockdowns? Counted as methodology skills.
	Mission alignment	It is a mix of ideology/belief in CE and economy/making business
		Sustainability and circularity are in the company's mission, vision and values, so there are often informal discussions, actives questioning of the status quo to be in a constant and natural process of optimisation towards circularity. These informal enquiries about circularity in combination with professional external consultancy and workshops are preferred than having skills workshops on circularity.
	Team composition	Finding the right team members with the same vision and mission is decisive—especially in the beginning of founding a business
	Agile approach	Dependence on the situation: a start-up has always a lack of money. Therefore, always a cost–benefit analysis has to be done whether a training for internal people is useful or whether freelancers should be hired to do the job. This is a financial consideration on the basis of work hours: Are the work hours of the CEO well invested to learn specific programmes or is it more cost-efficient to hire someone from extern?
Skills- and knowledge-based	Hiring	Knowledge or skills gain by hiring new employees with a specific sustainability profile to do tasks for CBM implementation
		Skills gain by hiring digitisation and engineering experts
		When hiring there is always the flexibility to also do a different job- this depends on what the person wants to do and with whom the person likes to work with
		By hiring new people there is high innovation potential and new team constellations
		Job interviews conducted with team members: Who fits the best into the team?
		The recruitment process cannot be planned beforehand
	Education	Learning by doing for the founding team and creative hands-on skills are important
		Education of founding team, administrative and strategic stuff by externals like volunteers and mentors
		Learning abilities and being open to new things and approaches
		Knowledge or skills gain by training and educating employees and managers is always needed
		Founding teams' education about circularity and technology: for example, co-founder is a CE expert and brings knowledge for combining the natural environment with business. This is important for making the right decisions in terms of circularity and being consistent decision-making for circularity.
		Skills workshops by external funding agencies, incubators and accelerators
	(external) consultancy	External help by, for example, collaborations and mutual help with other and NGOs for circular economy such as the CRCLR house in Berlin
		Hiring external consultants: Is planned to trace the impact professionally and create a tracking of every use/process, which is very complicated in the food industry.
		Hiring external consultants as a means for novel approaches
		Hiring external people for marketing tasks
	Skills as a precondition	Skills on managerial level decisive: here it is the combination of science and business-related practices (in this case: Cooking professionally)
		Combination of all skills of the team lead to novel solutions

(Continues)

TABLE 4 (Continued)

Classification	Order	Competences
	Open network	Other: Tools for the community with blog and mutual exchanges with community members, customers, suppliers, and so on.
	Strategy	Strategic focus: Learn from data and adapt revenue streams, facilitate testing, change product or business model if needed
	Marketing	Marketing skills, finance skills, circularity knowledge, among other
Tech-based	IT and software	IT/software to facilitate the ordering system inhouse
		IT/software to facilitate circularity in the firm in form of IT warehouse and logistics management to ensure the best cooling and usage of the food (as demand can be calculated due to a constant number of members)
		Software was surprisingly a big hurdle—You need to teach it yourself and learning by doing mentality
		IT: Due to a complicated backend
		Invent a low-tech and semi-automated production line to produce biodegradable diaper
		IT and website programming
		IT/software to facilitate circularity in the firm is needed early on when founding
	All-around	Tech-based competences: 'everything you need in a tech-based start-up'
	Infrastructure	Innovative technologies such as logistics infrastructure and learning system for data analysis
	Outsourcing	Outsourcing technically advanced circularity measures: Carbon measurement and offsetting, plastic saving measurement and operations with deliveries

techniques such as education, hiring new employees or external consultants but the precondition is the strong willingness of people to learn (Table 4).

4.4 | Evaluation of internal barriers

In this sample, interviewees perceive internal barriers to be slightly lower than external barriers. One explanation is that the sample consists of younger firms, start-ups and innovative organisations and most of them expressed their entrepreneurial mindset with the desire to change the industry for the better. This can cause a lot of headwinds from external stakeholders such as the industry and competitors. The organisational structure is flexible and agile, which often differs from that of big incumbents. The Covid-19 pandemic is another reason why interviewees and especially founders of young ventures tend to be biased by external barriers. Some of them were founded in 2020 and started operating during the first lockdown in March 2020.

Detailed information on the perceived barriers can be found in Table 5. There is no ranking of importance of the barriers. Several entrepreneurs state risk aversion to be a main barrier. This is accounted for organisations and people who rely on their customers or suppliers to accomplish their CBM. Without these external stakeholders, their CBM can simply not work out. During several interviews, explanations about human aspects in this context of supporting circular principles were discussed. The founder of Company D summarises that as followed:

> 'It is all about human aspects. Whether it is internally or externally. For example, internally there are a lot of discussions about the product and its specialities designed for circularity, and there are ambiguity and trade-offs in every decision'.

Others state that there can be barriers on the managerial level when it comes to setting and establishing values for the culture of the organisation. The special organisational culture with corresponding values is of importance when it comes to overcoming barriers to CBM adoption. In turn, if those values for sustainability and CE are not clearly set or not well communicated to internal stakeholders like employees, it can result in a high barrier. Finding a suitable leadership style and showing all-time commitment to the CBM leads to a constant pressure of decision making for circularity and sustainability, as the founder of Company J stated:

> 'Internally, there is the responsibility to make consistently the right decisions on circularity and the business'.

There are also many operational and organisational barriers faced by the sample firms. Some interviewees perceived these internal problems as being special for start-ups and not being specifically valid only for circular start-ups. In terms of competences, it is often recorded that there can be problems on the employee level, as well as on the technological level. In the end, innovation does not only need skilled people and good technology, it also needs time. Sufficient funding could be a solution for many of these organisations to pay for skilled people, technology and time. Many sample firms refer to a lack of funding when it comes to CBM implementation.

TABLE 5 Barriers faced by organisations of the sample

Identified internal CBM barrier	Explanation of identified internal barrier	Source
Risk aversion	Fear of decision making in usually bigger companies, which are customers of Company A. Nobody wants to make the decision to use or sell the secondary material and rather decide for going the comfortable linear way even though it leads to primary resource consumption and landfilling. Company culture in those incumbents shows an aversion to change: There is no incentive system to decide for circular materials and exchanging materials.	A
	There is a perceived uncertainty of founding in general but also in changing current/working businesses. The topic of change is not only due to CE, it accounts for all innovations and new ways of doing business.	D
	Aversion to change towards CE and CE practices in general, which is based on human mindsets outside of the firm.	H
Motivation	Motivation for himself as the founder and manager of a sustainable company who does not get any funding and no advantages for doing business sustainably. It's a dilemma between ideology and monetary reasons and a constant weighing up.	B
	There was a lack of motivation and a feeling of resignation due to external circumstances with Covid-19 lockdowns.	K
Financial barrier	For example, normal chemical glue costs 3 EUR/kg and ecological glue costs 25 EUR/kg and there are no options in between. This is a huge financial obligation if you need a lot of glue for your core business and when money is scarce when founding.	B
	Financial barrier as a lack of budget and difficulties due to an unconventional business model.	C
	Financial hurdles and lack of funding is always a topic for an eco-start-up. Now it's getting better due to the size of the company, they are well known and have a regular ordering of wholesale.	E
	Lack of funding caused a financial limitation, which was even more evident as Organisation F grew rapidly and needed more money in this scaling up phase. This led to a limitation on operations in the scaling phase.	F
	The financial plan and business model do not strive for exponential growth, hence investors or donors are hesitant.	G
	Lack of budget but it is not explicitly due to circularity as circularity is automatically ensured by using cardboard as main material.	H
	Investors are not educated about CE and do not like to invest in production lines that takes time to invent and will not be used to maximise profits. Investors need to be educated about CE to also understand the business models. Exceptions are impact investors.	I
	There are several funds and grants that are not available for start-ups in general.	K
Founding barrier	Internally there was a high uncertainty in the beginning of founding with kind of a discovery phase and bigger internal challenges like discussing basic values.	C
	Establish a structure to be capable to act but this is like founding every start-up with the specific details of the business model. Operationally, it is about finding the right solutions for the specifics of this CBM.	J
	One issue when founding was that she founded alone and she knew the technological competences were missing back at the time. It was not easy to find a co-founder who has the same cultural background and vision.	K
	Difficulties on managerial level in terms of decision-making of values and visions of the organisation as well as establishing decision paths.	C
Human aspects	It is all about human aspects. Whether it's internally or externally. There are internally many discussions on the product and specialities, there is ambiguity and trade-offs in every decision.	D
	It is always a challenge to work with people and one of the biggest challenges is working closely with employees and making customers happy. A high degree of perseverance is needed.	H
Employee level	In the beginning, only lower salaries could be paid to the employees but great people with skills and experience usually get a high salary. So, the CEO needed to find other ways on how to motivate people to work for Company E with, for example, company stocks.	E
	While working together with humans: Failed hires cost time and can lead to internal difficulties within the teams and individuals. The bond between employees of a small company is tighter and especially team spirit is important. If there is someone not meeting the goals, this can cause internal difficulties, which costs time and money.	L

(Continues)

TABLE 5 (Continued)

Identified internal CBM barrier	Explanation of identified internal barrier	Source
Operational/ organisational barrier	Organisation F grew very fast and operations got more and more complicated, which was a reason for struggles on organisational level. Internal barriers became more apparent when the organisation got older and bigger.	F
	They always need to be flexible and have an agile production and need to be creative to innovate new products from what supply they get.	H
	Perceiving opportunities and gaining market awareness for the niche of circular products in general. It would be good if circular materials were a precondition for manufacturing.	
	Product development was an issue and to professionalise processes and the products but this is not a circularity problem per se as circularity is automatically ensured by using this material.	
Technological barrier	Organisation I needs to design and invent their own baby diaper production line to produce specific diapers for circularity.	I
Lack of time	Innovation takes time to produce the machine and the ideal product.	I
Decision making pressure	Internally, there is the responsibility to make consistently the right decisions on circularity and the business.	J

4.5 | Evaluation of internal enablers

Interviewees perceived that rather internal enablers seem to lead to solutions for occurring problems than external ones.

Nearly all interviewees underlined the importance of commitment from managers and founders of the organisation. When founders and CEOs clearly show this commitment, they act as a role model. For example, the co-founder of Organisation I states:

> 'Managerial commitment of the co-founders is of essential importance'.

There are also special behavioural traits for entrepreneurs in a CE, such as openness, honesty and hands-on mentality. Setting a suitable culture with values for sustainability behaviour and support of circular flows on a daily work basis is a nourishing ground for a strong internal motivation of employees:

> 'Solutions appear internally: when a problem is identified, automatically people are looking for solutions'.

Knowledge sharing is also considered to be of mutual advantage. This work finds that start-ups in this sample are very willing to collaborate to establish a CE.

Apart from that, clear and transparent information and communication are necessary not only to communicate with external stakeholders but also internally. Enablers in terms of technology are also mentioned frequently. It is important to mention that it is not only the technology but also the combination with skilled and motivated workers who bring the full advantage of a cutting-edge technology (Table 6).

5 | DISCUSSION

The discussion is divided into two subsections. Section 5.1 addresses drivers, barriers, enablers and competences for CBM implementation. Section 5.2 presents four strategies to overcome barriers to CBM implementation.

5.1 | Drivers, competences and enablers for CBM implementation

This part discusses results from the interviews with findings from the literature, consistently with the research questions investigated. Several results of the interviews are novel and previous literature only tackled some single subjects of the initial research questions.

Concerning drivers and inner motivation of founders of circular organisations (RQ1), literature is very scarce. Therefore, this study aims to fill this research gap by tackling these novel issues in interviews with founders of circular start-ups, companies and organsiations to develop strategies to overcome barriers by specific internal enablers, drivers and competences.

Answering RQ1 about necessary internal competences, tech-based skills are not perceived to be the most important competences, which is partly in line with the findings of Burger et al. (2019). Instead, the focus lays on skills- and knowledge-based competences aiming for system thinking and the willingness to gain new knowledge and to act engaged in the specific field of the CBM (Table 3). Supporting this finding, Sawe et al. (2021) prove training and knowledge-sharing to be most important when it comes to influencing factors for successful CE implementation. On rank two in their study is employee participation and recruitment, which stresses the importance of skills and participation of internal stakeholders. In this study, not all founders were experts in the field before founding but they and their teams have the

TABLE 6 Solutions, enablers and drivers from inside the organisations from the sample

Identified internal CBM enabler	Explanation of identified internal enabler	Source
Managerial commitment	It is important to convince the decision-makers of the customer companies. All stakeholders are important. That is why an advisory board was created at Company A that is represented by competent persons from all branches and with different skills about processes that are needed to develop new value chains.	A
	The CEO is the ethical compass for the employees and the company acts also as the role for others as well—from suppliers, customers, competitors, and so on.	B
	Employee and managerial commitment get supplemented by members' commitment of the cooperative.	C
	Team of co-founders with their own knowledge and commitment is decisive as well as support from customers.	D
	Team and commitment by everyone creating a certain drive or company culture. The leader must be committed, otherwise it does not work.	E
	Founding a company in general is a complex issue and in the end it is all up to the founder and the team striving for success.	H
	High level of managerial commitment of the co-founders is a strong enabler.	I, J
	By founding Company L the founding team saw an opportunity to establish a successful business and reconfigure the construction sector by using the huge potential to offer a unique software solution for CE in the construction sector.	L
Mission alignment	It is a mix of managerial and employee commitment, which leads to a great team with aligned values, the same mission and learning, which creates an internal drive and by this marks up the flourishing and supporting organisational culture in Company G. The co-founders of Company G bet on collaboration and by the 'just do it' and 'keep on going' mentality while scaling up and growing company's business.	G
	The belief that this works out: The belief that the team works well together, the belief that they want to bring forward the vision of the company and it is important to have meaningful purpose of the company. Managerial commitment and belief in the vision, mission and values.	K
Information and communication	All solutions, projects and processes are made publicly available in the trade press. Another important factor: The longer Company A is on the market, the better accepted it is in such a traditional sector.	A
Inner drive and motivation	Sustainability and circularity were in the company's DNA from the beginning. So, the commitment in the beginning was also part of the self-motivation to stick with those values over time.	B
	Without the positive resonance from outside, it would have killed the inner motivation. The active network building, talking to people and getting feedback was very valuable to keep the internal dynamics positive and running.	K
Culture	Supportive organisational culture: Members support each other and company decisions due to an intrinsic motivation and belief in the same mission.	C
	Organisational culture on the level of values: Constant mutual motivation within the team.	K
Competences	Co-founders help her with their skills and work experience but from external there are plenty of resources too, including mentors who are helping out with knowledge, concepts and solutions from other people and companies.	D
	A big enabler is simply a well working team. The mixture of interdisciplinary people who are committed and bring together their strengths and have a specific management approach with the focus on flexibility. The new management approach helped to implement the working culture and flawless operations in a fast-growing environment.	F
	Mix of competences: The co-founder of company G is a very creative person, which helps a lot in product design, establishing new processes, and being flexible in what supplies they get for production.	G
	Team members and recruitment of international volunteers who are students and interns to create citizen science, a big network and a community, which, for example, already produced more than 3000 diapers by hand.	I
	Recruitment is an enabler because many people seemingly want to work for a business with purpose and so it is easy to hire good people for open positions.	J
Organisational	At the beginning of the founding process, internal factors were decisive: Fitting management approach to lead an interdisciplinary team with its different qualities and strengths. In the beginning, operations needed to get established. Once the organisation works, external enablers can be used. Now, Organisation F got well known and gets more support from the outside like mentors, more third-party projects, and so on.	F
Product	Create a product with interesting features and one you want to work on for years. Constantly involve customer feedback, which adds to product improvement, new perspectives and new motivation can be gained by that too.	H

(Continues)

TABLE 6 (Continued)

Identified internal CBM enabler	Explanation of identified internal enabler	Source
Technology and innovation	Technology, innovative drive and technological know-how are important for success.	I
	Technology and technological know-how about building the online infrastructure of the platform and logistics.	J
Funding	A major trend to sustainability can also be seen in funding, because many banks, VC's, fonds, and so on, are building a green fond and therefore it is a benefit to meet these criteria but it is definitely not a guarantee to get funding because in the end company evaluations are the same to normal business models.	J
	The first investment was very important because it led to motivation to continue working and remain open and innovative as there is someone believing in and trusting you. But they applied for this fund and experienced a success by receiving the grants.	K
Knowledge sharing	It is important to be open to sharing knowledge with others from the ecosystem. Berlin has a strong community for circular and sustainable business promoting an open exchange, meetups on circularity and personal talks about qualitative knowledge exchanges. 'It is much more collaborative than competitive'. For newcomers it is important to embrace the openness, share information and knowledge and to use this for starting up in Berlin.	J
Behavioural trait	The greatest enabler when founding and if some know-how is missing: 'Ask what you would not ask otherwise'.	K
	Solutions appeared internally: When a problem was identified, automatically people are looking for a solution. This can be pursued in different ways: Problems can be tackled in teams but a solution can also lead to a re-configuration of goals, or work processes. In the first place, solutions have to be found in the team but confirmation and support from outside are also important for motivational reasons, for example, to see a success from a work you have done.	L
Experience	Experience from operating this marketplace for several years was also very beneficial as this made them trustworthy for potential clients but in the first place they gained a lot of experience and this helps a lot to establish the follow-up company in many regards.	L

strong willingness and the inner drive to make the CBM work out (Table 4). This finding is so far novel as it shows the importance of human aspects such as personal motivation and inner drive.

Another interview result is the competence of knowledge sharing to be of mutual advantage. Again, knowledge-sharing is the most important influential factor in the study of Sawe et al. (2021). In general, literature describe start-ups to be more open to sharing and collaborating than incumbents (Charter & Keiller, 2014). Start-ups and incumbents also differ a lot in terms of industrial mindset. A big change in industrial mindset is required and great new business opportunities appear to those organisations that collaborate, share data and knowledge, spread best-practice and invest in major innovation projects together (Preston, 2012). This work finds that the circular start-ups in this sample are very willing to collaborate to establish a CE.

Concerning the internal barriers and enablers for young and small-scale organisations when adopting a CBM (RQ2), several issues can be discussed.

5.1.1 | Decision-making and commitment as enablers

First, the complexity of the managers' decision-making for circularity is stressed during the interviews, which is supported by Antikainen and Valkokari (2016) as well. In addition, Kuhlmann et al. (2022) find that deliberate decision-making is required from the managers to support circular innovations. In the literature, it was found that managers can face trade-off decisions between economic profitability and circular structures in the business, at least in the short term, which can hinder the implementation of a CBM (Ünal et al., 2019). Additionally, environmental practices require top management commitment (Ünal et al., 2019). All these findings are confirmed in this study. Additionally, there is the factor of decision-making pressure and the constant responsibility to stay informed and make the right business decisions on sustainability and circularity.

Nearly all interviewees underline the importance of commitment from managers and founders of the organisation. Without their commitment, this mission-driven BM does not work out. Literature is also confirmed here, as founders of sustainable start-ups are often led by ideals and they have an inner drive, mission, vision and motivation, which enable them to overcome barriers (Hockerts & Wüstenhagen, 2010; Lagerstedt Wadin et al., 2017). Related to this point, the *risk aversion of the managers* can be a strong barrier to CBM implementation (Urbinati et al., 2021; Zucchella & Previtali, 2019). This study confirms this finding from literature, as several entrepreneurs state risk aversion to be a main barrier during their interview. This is an intangible human aspect as it can be valid for all business components, but it can lead to a certain resistance or hesitance towards the CBM and can hinder its successful implementation. Internal and external stakeholders can both be affected by risk aversion. So, this barrier is not exclusively internal, but it is usually addressed internally by actively approaching those stakeholders who perceive CE implementation as too risky. Experimentation is perceived to be an important capability to overcome risk aversion of managers by reducing the perceived risks when experimenting with circularity measures on a smaller scale (Bocken et al., 2018; Ferasso et al., 2020).

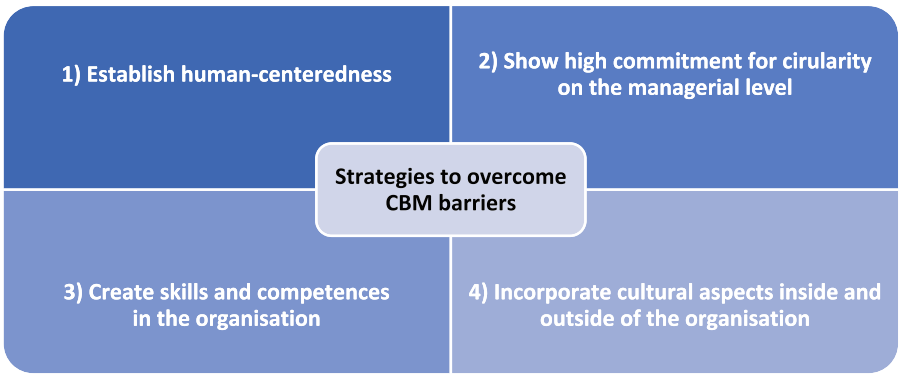

FIGURE 2 Strategies to overcome circular business model (CBM) barriers internally

5.1.2 | Leadership as an enabler

Leadership is considered to be a very important factor when it comes to the actual implementation of a CBM (Hart et al., 2019; Rizos et al., 2016). Additionally, Sawe et al. (2021, p.10) found that '*Strategic Management and Leadership Practices* […] *is seen as the third-ranking casual factor. This indicates that effective leadership and management is an important aspect for the effective implementation of change within an organisation by providing policies and strategies that can guide employees*' (p. 10). This study can support these findings. Even though this study did not explicitly cover the leadership aspect for CBM implementation, some interviewees referred to this aspect to be important for a successful CBM implementation. In fact, most of the managers and founders of the circular start-ups mentioned to handle decisions for circularity themselves, as these decisions comprise key components and activities of the BM that cannot be delegated. As this study does not cover the topic of leadership in CBM implementation, it is recommended to be covered by future research.

5.1.3 | Values, culture and communication as enablers

This study finds that the cultural dimension and setting of values are of importance when it comes to overcoming barriers of CBM implementation. Interviewees frame the problem on a managerial level when it comes to setting and establishing values for the culture of the organisation. Concerning internal stakeholders, the commitment of the managers and employees comes together to create a certain culture to advance circularity within the firm. This is in line with the findings underlining that managers or employees who associate their business with a useful societal goal have a strong moral involvement that reinforces the internalisation of the values of the company (Ünal et al., 2019). The study of Kuhlmann et al. (2022) also supports this as they found that cultural openness of managers is decisive that all internal stakeholders embrace circularity principles and support circular strategies of the company. Additionally, it is shown that well-communicated decisions and the impression of the manager's commitment to circularity lead to a pro circularity culture that supports the implementation phase of a CBM and leads to positive internal dynamics such as employee motivation and clear behavioural values. The latter contrasts the findings of Guldmann and Huulgaard (2020), who found that for circular start-ups there are no barriers perceived at the employee level. Hence, this study finds that there is at least the risk for internal barriers on the employee level.

5.2 | Managerial implications: Strategies to overcome barriers to CBM implementation

This section presents four strategies that start-ups, young and innovative SMEs can use to overcome barriers that might hamper CBM implementation in companies and organisations, developed based on the results of this study[3] (Figure 2).

5.2.1 | Establish human-centeredness

The findings from above show that founders face more internal enablers and look inside their organisations for solutions to occurring barriers. They rely on the employees' competence in their organisations, as well as on their entrepreneurial spirit and the inner drive, mission and values of all organisational members to come up with a solution and to work on it together. It was found that not only competences of the team are decisive to overcome barriers, but it is the willingness of people with aligned visions to make the project a success. So, the first and most often mentioned argument is that the whole CBM implementation takes place on a human level. This even goes beyond soft skills, it is more an attitude towards the shared mission and towards work. These people not only go the extra mile but take on additional work and risk to make their BM as circular as possible while fighting linear industry standards and business-as-usual. There are also decisions against economic profits because personal drivers and the sustainability mission of the company are prioritised over profit maximisation.

Despite that human-centeredness is an important internal enabler, it can turn into a severe external barrier. A circular start-up often consists of mission-aligned and self-motivated people building a special

[3]This is not intended to be an exhaustive guide or roadmap to find a solution to every barrier but rather these strategies explain mechanisms that can be of practical use when establishing a CBM.

organisational culture for sustainability and circularity, which can be different for individuals working in traditional companies. So, personal perceptions, attitudes and values can be different, including risk perception towards new circular concepts. For risk-averse persons, a proof of concepts might not be given. Hence, collaboration is probably not going to happen if the decision-makers of traditional companies are very risk-averse. Moreover, it can be difficult for circular start-ups to acquire customers from industries where circular concepts are still new.

5.2.2 | Show high commitment for circularity on the managerial level

In this study, nearly all start-up founders and CEOs referred to managerial commitment to be the key to the success of a CBM. Without the founder and responsible person standing behind and prioritising circularity in all their decisions, a successful implementation of a CBM is impossible. This holds true across industries, across different ages of organisations and organisational types. This goes beyond a shared mission and vision but incorporates a binding rule for decision-making so stakeholders and especially employees know exactly the prioritisation of circularity to practically implement it in daily business. The CEO does not only set up the CBM strategically but also acts as a role model for the implementation of circular structures.

5.2.3 | Create skills and competences in the organisation

The majority of interviewees referred to a mix of competences to be important for CBM implementation. This finding has to be interpreted in regard of founding a start-up or a young organisation. So, all the competences listed in Table 4 are necessary for successfully setting up a business that is based on a CBM. This is the reason why some of the competences as findings of this study correspond to the entrepreneurship literature. A mix of hard and soft skills are both, important and necessary. Interestingly, soft skills are quantitatively seen to be more important: all interviewees mention soft skills or knowledge-based skills but not all of them consider technical competences to be necessary. The tenor is more that if you have skilled people with an aligned mission, inner drive and soft skills, everybody can learn from each other or know someone else to learn technicalities from. This might be due to the agile organisational set up in start-ups and small size of the organisations in the sample.

5.2.4 | Incorporate cultural aspects inside and outside of the organisation

Building on the arguments from above, the findings of this study conclude that with all the aspects of human-centeredness, motivational drivers of internal stakeholders, special CEO commitment to circularity and the importance of soft and knowledge-based skills in young and small ventures, a special culture for circularity and sustainability is created. This comprises openness, sharing and mutual learning. This does not only account for internal dynamics but can also be wider seen from an ecosystem perspective. Many of the interviewees referred to cultural enablers outside the organisation with networking and collaboration.

6 | CONCLUSION

This study presents the findings of 12 semi-structured interviews with founders and CEOs of innovative circular organisations and elaborates on barriers, enablers, drivers and necessary competences for a successful CBM implementation.

This work contributes to the growth of academic knowledge in the scientific literature about CBM adoption and simultaneously provides practical guidance for a successful set-up of a circular business or organisation with circular structures. Building on these findings, strategies for small and young organisations are developed focusing on internal aspects of CBM implementation. These strategies can be of use for (potential) founders aiming to start-up based on a CBM. The focus on internal barriers, enablers, drivers and competences contributes to open the black box of internal company dynamics of CBM implementation in a dynamic environment. As a result, possible concerns of future founders of a CBM are addressed and reduced if they may fear that adopting a CBM could be too risky or impossible to implement because of internal company dynamics such as lack of information, motivation, knowledge, culture, leadership, technology or competences. So, implications for practitioners is directly addressed by the four strategies comprising an overview of important aspects for those who seek for guidance to implement a CBM.

Conclusively, this study shows that internal dynamics are of special importance because firms tend to overcome barriers by internal strengths such as internal competences, enablers and drivers. For example, personal drivers of founders and CEOs are reported to be decisive because especially the leaders of the organisation need to stay motivated to work on the CBM to achieve success. One reason is that founders and CEOs of this sample have a clear vision, which they included into the BM to make their vision real. Proving this, the majority of interviewees state that they are running their business out of personal motivation to reach a higher goal. They chose a CBM to reach this goal. Profits made by operating the CBM are seen as a way to let the business succeed in the long run to be able to create as much positive impact as possible.

There are several limitations of this work. First of all, the findings of a study with a sample size of 12 interviews do not allow generalisability. Secondly, there are external influencing factors of the study, which cannot be controlled. The interviews were conducted from February till April 2021 in Germany during the lockdown of the Covid-19 pandemic. Certainly, not all companies were economically affected by the pandemic but some suffered from it. Thirdly, another limitation is the narrow geographic focus because only companies located in Germany and mostly in the region of Berlin are part of the

sample. Fourthly, the focus of this study has been narrowed down topic-wise to only cover internal dynamics inside of organisations. Therefore, this study excludes external barriers like market or governmental barriers.

This study does not provide all-in-one solutional strategies to overcome every possible barrier of CBM adoption. It rather presents the experience of circular start-up founders who started with circularity considerations right at the beginning of foundation. They intentionally built the necessary competences around the CBM and used internal enablers to overcome barriers. Hence, their strategies to overcome external or internal problems are different from those of older and bigger incumbents, which have to undergo a whole process of change. Therefore, the findings of this study are valid for small, young and entrepreneurial organisations, which implemented a CBM but rather not for older and bigger firms. Furthermore, each company has an individual approach to react to barriers, as company culture and leadership style are different. Hence, the proposed competences and strategies to overcome barriers do not always apply in every situation but they provide insights to potential founders of a business focusing on CE and its implementation in the BM.

Several research gaps and avenues for future research remain. Firstly, further empirical research in other countries is needed to compare internal requirements and dynamics to establish a CE and create a sustainable system change. This is because we found that it is important to understand internal company dynamics, to successfully establish collaborations across company and national borders to make a CE work. Secondly, future research about internal dynamics in established incumbents is needed as this work only targets young and small organisations. This comprises hesitance to transform from linear to circular structures and resistance to change by decision-makers of incumbents. Motivations and drivers have to be understood to bring in the right enablers and to develop necessary competences to successfully lead the change towards CBM adoption.

ACKNOWLEDGEMENTS

Open Access funding enabled and organized by Projekt DEAL.

ORCID

Charleen von Kolpinski https://orcid.org/0000-0003-1622-7755
Devrim Murat Yazan https://orcid.org/0000-0002-4341-2529
Luca Fraccascia https://orcid.org/0000-0002-6841-9823

REFERENCES

Antikainen, M., & Valkokari, K. (2016). A framework for sustainable circular business model innovation. *Technology Innovation Management Review*, *6*(7), 5–12. https://doi.org/10.22215/timreview/1000

Araujo Galvão, G. D., de Nadae, J., Clemente, D. H., Chinen, G., & de Carvalho, M. M. (2018). Circular economy: Overview of barriers. *Procedia CIRP*, *73*, 79–85. https://doi.org/10.1016/j.procir.2018.04.011

Bey, N., Hauschild, M. Z., & McAloone, T. C. (2013). Drivers and barriers for implementation of environmental strategies in manufacturing companies. *CIRP Annals*, *62*(1), 43–46. https://doi.org/10.1016/j.cirp.2013.03.001

Bianchini, A., Rossi, J., & Pellegrini, M. (2019). Overcoming the main barriers of circular economy implementation through a new visualization tool for circular business models. *Sustainability*, *11*(23), Article 6614. https://doi.org/10.3390/su11236614

Blomsma, F., & Brennan, G. (2017). The emergence of circular economy: A new framing around prolonging resource productivity. *Journal of Industrial Ecology*, *21*(3), 603–614. https://doi.org/10.1111/jiec.12603

Bocken, N. M. P., de Pauw, I., Bakker, C., & van der Grinten, B. (2016). Product design and business model strategies for a circular economy. *Journal of Industrial and Production Engineering*, *33*(5), 308–320. https://doi.org/10.1080/21681015.2016.1172124

Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, *65*, 42–56. https://doi.org/10.1016/j.jclepro.2013.11.039

Bocken, N. M. P., Schuit, C. S. C., & Kraaijenhagen, C. (2018). Experimenting with a circular business model: Lessons from eight cases. *Environmental Innovation and Societal Transitions*, *28*, 79–95. https://doi.org/10.1016/j.eist.2018.02.001

Bocken, N. M. P., Strupeit, L., Whalen, K., & Nußholz, J. (2019). A review and evaluation of circular business model innovation tools. *Sustainability*, *11*(8), Article 2210. https://doi.org/10.3390/su11082210

Boons, F., & Lüdeke-Freund, F. (2013). Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. *Journal of Cleaner Production*, *45*, 9–19. https://doi.org/10.1016/j.jclepro.2012.07.007

Burger, M., Stavropoulos, S., Ramkumar, S., Dufourmont, J., & van Oort, F. (2019). The heterogeneous skill-base of circular economy employment. *Research Policy*, *48*(1), 248–261. https://doi.org/10.1016/j.respol.2018.08.015

Centobelli, P., Cerchione, R., Chiaroni, D., Del Vecchio, P., & Urbinati, A. (2020). Designing business models in circular economy: A systematic literature review and research agenda. *Business Strategy and the Environment*, *29*(4), 1734–1749. https://doi.org/10.1002/bse.2466

Charter, M., & Keiller, S. (2014) Lessons learnt from supporting SMEs through the FUSION project 2012–2014. Edited by The Centre for Sustainable Design® (CfSD) at the University for the Creative Arts (UCA) in Surrey, UK.

Chen, C.-W. (2020). Improving circular economy business models: Opportunities for business and innovation. A new framework for businesses to create a truly circular economy. *Johnson Matthey Technology Review*, *64*(1), 48–58.

Circular Economy Initiative Deutschland, & Acatech. (2020). Circular business models: Overcoming barriers, unleashing potential. Executive Summary and Recommendations. Edited by SYSTEMIQ.

Corbin, J., & Strauss, A. (1990). Grounded theory research: Procedures, canons and evaluative criteria. *Zeitschrift für Soziologie*, *19*(6), 418–427. https://doi.org/10.1515/zfsoz-1990-0602

de Pádua Pieroni, M., Pigosso, D. C. A., & McAloone, T. C. (2018). Sustainable qualifying criteria for designing circular business models. *Procedia CIRP*, *69*, 799–804. https://doi.org/10.1016/j.procir.2017.11.014

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, *50*, Article 1, 25–32. https://doi.org/10.5465/amj.2007.24160888

European Commission. (2022). SME definition. Internal Market, Industry, Entrepreneurship and SMEs. Edited by Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs. Available online at https://ec.europa.eu/growth/smes/sme-definition_en, checked on 5/26/2022.

Ferasso, M., Beliaeva, T., Kraus, S., Clauss, T., & Ribeiro-Soriano, D. (2020). Circular economy business models: The state of research and avenues ahead. *Business Strategy and the Environment*, *29*(8), 3006–3024. https://doi.org/10.1002/bse.2554

Fraccascia, L., Giannoccaro, I., Agarwal, A., & Hansen, E. G. (2021). Business models for the circular economy: Empirical advances and future directions. *Business Strategy and the Environment*, *30*(6), 2741–2744. https://doi.org/10.1002/bse.2896

Franco, M. A. (2017). Circular economy at the micro level: A dynamic view of incumbents' struggles and challenges in the textile industry. *Journal of Cleaner Production*, *168*, 833–845. https://doi.org/10.1016/j.jclepro.2017.09.056

Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The circular economy—A new sustainability paradigm? *Journal of Cleaner Production*, *143*, 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Geissdoerfer, M., Pieroni, M. P. P., Pigosso, D. C. A., & Soufani, K. (2020). Circular business models: A review. *Journal of Cleaner Production*, *277*, Article 123741. https://doi.org/10.1016/j.jclepro.2020.123741

Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, *114*, 11–32. https://doi.org/10.1016/j.jclepro.2015.09.007

Golev, A., Corder, G. D., & Giurco, D. P. (2015). Barriers to industrial Symbiosis: Insights from the use of a maturity grid. *Journal of Industrial Ecology*, *19*(1), 141–153. https://doi.org/10.1111/jiec.12159

Guldmann, E., & Huulgaard, R. G. (2020). Barriers to circular business model innovation: A multiple-case study. *Journal of Cleaner Production*, *243*, Article 118160. https://doi.org/10.1016/j.jclepro.2019.118160

Hart, J., Adams, K., Giesekam, J., Densley Tingley, D., & Pomponi, F. (2019). Barriers and drivers in a circular economy: The case of the built environment. *Procedia CIRP*, *80*, 619–624. https://doi.org/10.1016/j.procir.2018.12.015

Hina, M., Chauhan, C., Kaur, P., Kraus, S., & Dhir, A. (2022). Drivers and barriers of circular economy business models: Where we are now, and where we are heading. *Journal of Cleaner Production*, *333*, 130049. https://doi.org/10.1016/j.jclepro.2021.130049

Hockerts, K., & Wüstenhagen, R. (2010). Greening goliaths versus emerging Davids—Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *Journal of Business Venturing*, *25*(5), 481–492. https://doi.org/10.1016/j.jbusvent.2009.07.005

Hofmann, F., & Jaeger-Erben, M. (2020). Organizational transition management of circular business model innovations. *Business Strategy and the Environment*, *29*(6), 2770–2788. https://doi.org/10.1002/bse.2542

Homrich, A. S., Galvão, G., Gamboa Abadia, L., & Carvalho, M. M. (2018). The circular economy umbrella: Trends and gaps on integrating pathways. *Journal of Cleaner Production*, *175*, 525–543. https://doi.org/10.1016/j.jclepro.2017.11.064

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, *127*, 221–232. https://doi.org/10.1016/j.resconrec.2017.09.005

Kuhlmann, M., Bening, C. R., & Hoffmann, V. H. (2022). How incumbents realize disruptive circular innovation—Overcoming the innovator's dilemma for a circular economy. *Business Strategy and the Environment*. In press. https://doi.org/10.1002/bse.3109

Lacy, P., Keeble, J., & McNamara, R. (2014). *Circular advantage: Innovative business models and technologies to create valuei in a world without limits to growth*. Accenture Ltd.

Lagerstedt Wadin, J., Ahlgren, K., & Bengtsson, L. (2017). Joint business model innovation for sustainable transformation of industries—A large multinational utility in alliance with a small solar energy company. *Journal of Cleaner Production*, *160*, 139–150. https://doi.org/10.1016/j.jclepro.2017.03.151

Lewandowski, M. (2016). Designing the business models for circular economy—Towards the conceptual framework. *Sustainability*, *8*(43), 1–28. https://doi.org/10.3390/su8010043

Lieder, M., & Rashid, A. (2016). Towards circular economy implementation: A comprehensive review in context of manufacturing industry. *Journal of Cleaner Production*, *115*, 36–51. https://doi.org/10.1016/j.jclepro.2015.12.042

Linder, M., & Williander, M. (2017). Circular business model innovation: Inherent uncertainties. *Business Strategy and the Environment*, *26*(2), 182–196. https://doi.org/10.1002/bse.1906

Murillo-Luna, J. L., Garcés-Ayerbe, C., & Rivera-Torres, P. (2011). Barriers to the adoption of proactive environmental strategies. *Journal of Cleaner Production*, *19*(13), 1417–1425. https://doi.org/10.1016/j.jclepro.2011.05.005

Murray, A., Skene, K., & Heynes, K. (2017). The circular economy: An interdisciplinary exploration of the concept and its application in a global context. *Journal of Business Ethics*, *140*, 369–380. https://doi.org/10.1007/s10551-015-2693-2

Nußholz, J. L. K. (2017). Circular business models: Defining a concept and framing an emerging research field. *Sustainability*, *9*(1810), 1–16.

Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: A handbook for visionaries, game changers, and challengers*. Wiley.

Preston, F. (2012). A global redesign? Shaping the circular economy. Briefing paper.

Ranta, V., Aarikka-Stenroos, L., & Mäkinen, S. J. (2018). Creating value in the circular economy: A structured multiple-case analysis of business models. *Journal of Cleaner Production*, *201*, 988–1000. https://doi.org/10.1016/j.jclepro.2018.08.072

Richardson, J. (2008). The business model: An integrative framework for strategy execution. *Strat. Change*, *17*(5–6), 133–144. https://doi.org/10.1002/jsc.821

Rizos, V., Behrens, A., Kafyeke, T., Hirschnitz-Garbers, M., & Ioannou, A. (2015). The circular economy: Barriers and opportunities for SMEs. *CEPS Working Document*, *412*, 1–22.

Rizos, V., Behrens, A., van der Gaast, W., Hofman, E., Ioannou, A., Kafyeke, T., Flamos, A., Rinaldi, R., Papadelis, S., Hirschnitz-Garbers, M., & Topi, C. (2016). Implementation of circular economy business models by small and medium-sized enterprises (SMEs). Barriers and enablers. *Sustainability*, *8*(1212), 1–18.

Sawe, F. B., Kumar, A., Garza-Reyes, J. A., & Agrawal, R. (2021). Assessing people-driven factors for circular economy practices in small and medium-sized enterprise supply chains: Business strategies and environmental perspectives. *Business Strategy and the Environment*, *30*(7), 2951–2965. https://doi.org/10.1002/bse.2781

Sousa-Zomer, T. T., Magalhães, L., Zancul, E., & Cauchick-Miguel, P. A. (2018). Exploring the challenges for circular business implementation in manufacturing companies: An empirical investigation of a pay-per-use service provider. *Resources, Conservation and Recycling*, *135*, 3–13. https://doi.org/10.1016/j.resconrec.2017.10.033

Suchek, N., Ferreira, J. J., & Fernandes, P. O. (2022). A review of entrepreneurship and circular economy research: State of the art and future directions. *Business Strategy and the Environment*, *31*, 2256–2283. https://doi.org/10.1002/bse.3020

The Ellen MacArthur Foundation. (2013). *Towards the circular economy*. Economic and business rationale for an accelerated transition.

Ünal, E., Urbinati, A., & Chiaroni, D. (2019). Managerial practices for designing circular economy business models. *Journal of Manufacturing Technology Management*, *30*(3), 561–589. https://doi.org/10.1108/JMTM-02-2018-0061

Urbinati, A., Chiaroni, D., & Chiesa, V. (2017). Towards a new taxonomy of circular economy business models. *Journal of Cleaner Production*, *168*, 487–498. https://doi.org/10.1016/j.jclepro.2017.09.047

Urbinati, A., Ünal, E., & Chiaroni, D. (2018). Framing the managerial practices for circular economy business models: A case study analysis. Available online at https://ieeexplore.ieee.org/abstract/document/8493650

Urbinati, A., Franzò, S., & Chiaroni, D. (2021). Enablers and barriers for circular business models: An empirical analysis in the Italian automotive industry. *Sustainable Production and Consumption*, *27*, 551–566. https://doi.org/10.1016/j.spc.2021.01.022

Veleva, V., & Bodkin, G. (2018). Corporate-entrepreneur collaborations to advance a circular economy. *Journal of Cleaner Production*, *188*, 20–37. https://doi.org/10.1016/j.jclepro.2018.03.196

Vermunt, D. A., Negro, S. O., Verweij, P. A., Kuppens, D. V., & Hekkert, M. P. (2019). Exploring barriers to implementing different circular business models. *Journal of Cleaner Production*, *222*, 891–902. https://doi.org/10.1016/j.jclepro.2019.03.052

Wieser, H., Bachinger, K., Hosner, D., Kofler, J., & Wich, V. (2022). New business ventures for a circular economy. A policy guide to rethinking entrepreneurial ecosystems. Policy Insight (1), Article January, 1–18.

Zucchella, A. (2019). *The growth of circular entrepreneurship: An integrative model*. Springer. https://doi.org/10.1007/978-3-030-18999-0

Zucchella, A., & Previtali, P. (2019). Circular business models for sustainable development: A "waste is food" restorative ecosystem. *Business Strategy and the Environment*, *28*(2), 274–285. https://doi.org/10.1002/bse.2216

How to cite this article: von Kolpinski, C., Yazan, D. M., & Fraccascia, L. (2022). The impact of internal company dynamics on sustainable circular business development: Insights from circular startups. *Business Strategy and the Environment*, 1–20. https://doi.org/10.1002/bse.3228

APPENDIX A: SEMI-STRUCTURED INTERVIEW GUIDELINE

Block 1: Personal attitude towards and motivation for circular economy.

1. What was your main motivation behind your decision for a CBM?
2. Was there a special cause or incident that influenced your decision?
3. If you needed to take a position between your personal conviction of Circular Economy or 'doing for good' motivation, and financial reasons: where would be your position?

From 1 (your personal conviction/motivation for CE) till 5 (only financial reasons of CE).

Block 2: Explanation of the organisation's circular business model.

4. Please explain the circular business model you implemented/are implementing.

a. What is the circular aspect in the business model?

5. What capabilities are needed to implement and sustain a circular business model? Capabilities are

a. Skills or knowledge-based capabilities:
   i. Knowledge or skills gain by hiring new employees with a specific profile to do tasks for circularity implementation
   ii. Education of workers, for example, skills workshop about CE
   iii. Education of managers
   iv. Hiring external consultants

b. Technological capabilities:
   i. IT/software to facilitate circularity in the firm
   ii. innovative 'circular' /remanufacturing technologies
   iii. other?

c. Other?

6. Is the implemented circular business model in your company as you envisioned?

a. Why yes?
b. OR why not? Why is it different?

7. Did the organisational culture change due to the implementation of the circular business model?

a. If yes, how? Example

Block 3: Description of the barriers encountered with the circular business model.

8. Were the perceived barriers rather internal or external?

a. Please rank: 1 (internal barriers only) till 5 (external barriers only)

9. Which internal barriers did you face when implementing the circular business model?
10. Did you face any of these internal barriers? Please name an example for each barrier.

a. Difficulties on organisational level
b. Difficulties on employee level (motivation, knowledge, etc.)
c. Difficulties on managerial level (motivation, knowledge, etc.)
d. Financial barrier as a lack of budget
e. Lack of knowledge, innovation and technology
f. Company culture: aversion to change
g. Lack of information/communication
h. Conflict of interest within company (such as company goals, etc.)
i. Other

Block 4: Description of how they managed to overcome the internal barriers.

11. Were enablers rather firm internal or external?

a. Please rank: 1 (internal enablers only) till 5 (external enablers only)

12. Which internal enablers did you face when implementing the circular business model?
13. Did you face any of these internal enablers? Please name an example for each enabler.

a. Employee commitment
b. Managerial commitment
c. Organisational culture
d. Technology and technological know-how
e. Other