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Connecting Thoughts and Actions: A Managerial Process Model on Circular Business Model Innovation

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ABSTRACT

Addressing environmental grand challenges such as resource scarcity requires circular business model innovation (CBMI) that enables firms to efficiently close and slow resource cycles through novel activity systems. Drawing on a grounded theory approach based on 59 in-depth interviews with top managers from Swiss SMEs, we developed a process model that explains how cognitive and behavioral managerial antecedents interact to drive CBMI. Anchored in dynamic capability (DC) theory, the model conceptualizes CBMI as a three-phase process and identifies six key managerial antecedents. We show how perceived environmental embeddedness and collaborative ideation support the sensing of circular opportunities, how foresighted thrift and cultivating organizational change enable the seizing of resources, and how enduring commitment and continuous experimentation drive business model reconfiguration. We contribute to the CBMI literature by advancing a processual understanding of managerial agency and applying DC theory to explicate the cognitive-behavioral dynamics through which DCs are activated and sustained.

1 | Introduction

In recent years, the vision of transforming the industrial systems toward a circular economy (CE) through the design and implementation of circular business models (CBMs) has increasingly garnered public attention in scientific articles and company boards, driven by companies such as Freitag (Switzerland), Aquafil (Italy), or Interface (USA). CBMs aim to reduce resource inputs into and waste and emission leakage out of organizational systems by recycling (closing loops), extending use phases (slowing loops), intensifying utilization (intensifying loops), substituting products with service- and software-based solutions (dematerializing), and enabling biological cycles (Ferasso et al. 2020; Geissdoerfer et al. 2020; Kanda et al. 2021; Morsetto 2020).

The process of transitioning from a conventional business model toward a CBM is known as CBM innovation (CBMI), which includes designing and implementing novel activity systems in favor of CE principles (Bocken et al. 2016; Centobelli et al. 2021;

Stahel 2016; Tse et al. 2016). This process encompasses a fundamental shift in how a company creates, delivers, and captures value (Centobelli et al. 2020; Geissdoerfer et al. 2018), overcoming the so-called linear *take-make-use-dispose* logic (Murray et al. 2017; Stahel 2016).

The process of CBMI is demanding, which has been revealed in an abundance of research on implementation challenges (Diaz Lopez et al. 2019; Geissdoerfer et al. 2023; Guldman and Huulgaard 2020; Kirchherr et al. 2018). Alongside the challenges encountered in conventional business model innovation (BMI), including entrepreneurial path dependency or inertia (Chesbrough 2010; Snihur et al. 2021; Zott et al. 2011), CBMI demands a challenging shift from the traditional linear logic to a circular one, rethinking the way natural resources flow through companies and the industrial system (Geissdoerfer et al. 2018; Hofmann and Jaeger-Erben 2020; Kennedy and Linnenluecke 2022). CBMI usually requires the involvement of more stakeholders (Centobelli et al. 2020; Guldman and Huulgaard 2020), codevelopment and novel

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supply chain partners (Aarikka-Stenroos et al. 2022; Bocken et al. 2016), and internal involvement of multiple divisions (Lewandowski 2016; Nußholz 2018). CBMI also involves a risk of cannibalizing existing business models and can lead to capital tie-ups (Linder and Williander 2017). CBMI is a true entrepreneurial process as it encompasses the identification of opportunities, the creation of innovative solutions, and their implementation to ensure long-term change (Suchek et al. 2022; Veleva and Bodkin 2018).

A growing body of research highlights the pivotal role of top managers in sustainability-driven BMI and CBMI in particular (Bocken and Geradts 2020; Linder and Williander 2017; Ünal et al. 2018). More specifically, prior studies emphasize that *managerial antecedents* play a crucial role in these processes (Marrucci, Iannone, et al. 2022; Muñoz 2018; Santa-Maria et al. 2022; Sharma and Jaiswal 2018). However, managerial antecedents and their role in the CBMI have largely been examined in isolation, primarily as discrete practices or relatively static attributes, rather than as interdependent elements unfolding over time. As a result, the processual dynamics of managerial agency in shaping CBMI remain insufficiently understood (Belz and Binder 2017; Geissdoerfer et al. 2023; Pieroni et al. 2021; Ünal et al. 2018). Accordingly, we asked the following research question: *How can top managers drive CBMI within their organizations?*

We adopt a grounded theory approach for theory building to identify and investigate how top managers drive CBMI (Glaser and Strauss 1967; Strauss and Corbin 1994). We draw on a unique hand-collected dataset comprising interviews with 59 top managers of Swiss small- and medium-sized enterprises (SMEs) in the food and beverage, textile, and logistics industries, who all have designed and implemented CBMs in varying intensities (e.g., recycling, biodegradability, and eco-efficiency).

Our findings provide an empirically grounded *process model* that explains how top managers drive CBMI by connecting cognitions (“thoughts”) and behaviors (“actions”) across three successive phases. At the cognitive level, we identify *perceived environmental embeddedness*, *foresighted thrift*, and *enduring commitment*; at the behavioral level, we identify *collaborative ideation*, *cultivating organizational change*, and *continuous experimentation* as key managerial antecedents. To structure the CBMI process from a managerial perspective and to theorize the process model, we applied a temporal sequencing approach to identify distinct phases (Fisher and Aguinis 2017; Langley 1999). Based on a comprehensive review of relevant theories conducted during data analysis, we adopted dynamic capability (DC) theory as a process lens (Eikelenboom and de Jong 2019; Kabongo and Boiral 2017; Santa-Maria et al. 2022), integrating the three higher order DCs of sensing, seizing, and reconfiguring as phases (Eisenhardt and Martin 2000; Teece et al. 1997).

First, we contribute to the CBMI literature by addressing the entrepreneurial problem of CBMI through a managerial perspective. Our model builds on existing theory and advances it by providing a deeper understanding of managerial agency in this process. We show that cognition needs to be connected with

behavior along a three-stage process, structured around the three higher order DCs, and highlight a processual understanding including reinforcing dynamics (Ünal et al. 2018). Second, we contribute to DC theory in the context of CE research by opening the “black box” of managerial agency and clarifying the cognitive and behavioral mechanisms through which DCs are activated and sustained in CBMI. Third, we contribute to the literature on BMI antecedents (Amit and Zott 2015; Hartmann et al. 2013; Schneider and Spieth 2013) by showing how cognitive and behavioral antecedents interact over the course of a sustainability-driven BMI process. Although prior research has acknowledged the relevance of cognitive and behavioral antecedents, their interplay has remained largely unexplored (Snihur and Eisenhardt 2022).

The remainder of this article is structured as follows. We first discuss the CBMI process, the role of top managers, and the relevance of the DC theory as a process lens. Second, we describe our research methodology. Third, we present our findings and synthesize them into a process model of CBMI. Finally, we discuss the results and outline the theoretical and practical contributions.

2 | Research Background

2.1 | The Process of CBMI

A CBM comprises an activity system that allows overcoming the linear logic of doing business in favor of circular value creation, delivery, and capture (Amit and Zott 2016; Centobelli et al. 2020; Ranta et al. 2018; Urbinati et al. 2017) with an ecologically positive impact (Blomsma and Brennan 2017; Geissdoerfer et al. 2020; Weissbrod and Bocken 2017). In CBMs, the value dimension is extended by ecological values (cf., Dentchev et al. 2018; Massa and Tucci 2014), offering entrepreneurial advantages, as customers, legislators, and so forth assess their relevance accordingly (Ranta et al. 2018). The primary catalyst for CBMs is the idea that entrepreneurial efforts can reshape industrial systems toward greater sustainability (Kanda et al. 2021; Murray et al. 2017; Stahel 2016).

CBMs enable the narrowing of resource flows by optimizing output per unit of input (Ayres et al. 1997; Ehrenfeld 2005) and minimizing resource inputs, waste, emissions, toxicity, and energy use (Geissdoerfer et al. 2017); the slowing of resource flows through extended longevity (Bocken et al. 2016); the closing of resource flows within or across companies (Bocken and Ritala 2021); and the enabling of biological cycles (Binder and Braun 2024; Morsetto 2020). CBMs allow for a cascaded use of natural resources through CE practices, such as recycling, remanufacturing, or repairing (Bocken et al. 2016; Desing et al. 2020; Kirchherr et al. 2017). Thereby, the activity systems must be designed cost-efficiently (Ranta et al. 2018) and in accordance with their value networks of supply chain partners and customers (Centobelli et al. 2020; Urbinati et al. 2017). Several typologies of CBM archetypes (cf., Binder and Braun 2024; Pieroni et al. 2020) and their constituting patterns (Lüdeke-Freund, Gold, and Bocken 2018; Takacs et al. 2025) have been proposed with partial overlap across sustainability-driven patterns (cf., Bocken et al. 2014; Lüdeke-Freund, Carroux, et al. 2018).

CBMI describes the entire transition process from an existing business model toward a CBM, including designing (i.e., conceptualizing and configuring) and implementing (i.e., transforming and creating) the novel activity systems (Geissdoerfer et al. 2020; Guldmann and Huulgaard 2020). Although progress has been made in understanding how CBM functions (Aarikka-Stenroos et al. 2022; Bocken and Ritala 2021; Centobelli et al. 2020; Urbinati et al. 2017), far less is known about how CBMI unfolds as a process and how managerial agency drives it (Pieroni et al. 2019; Ünal et al. 2018). To successfully perform CBMI, De Angelis et al. (2023, 1) emphasize the need to rethink “strategic decision-making processes and the development of new organizational capabilities.” Particularly regarding emerging challenges in the transition toward CBMs (Geissdoerfer et al. 2023; Govindan and Hasanagic 2018; Rizos et al. 2015), prior research highlights the importance of adapting a capability perspective (Khan et al. 2020; Köhler et al. 2022; Marrucci, Iannone, et al. 2022). In this context, Marrucci, Daddi, and Iraldo (2022) demonstrate that such capabilities—particularly the higher order DC of sensing, seizing, and reconfiguring (Teece 2007)—play an effective role in supporting the firm's adaptation of CBMs.

The underlying idea is that higher order DCs enable organizations to manage structural transformations by addressing complex and dynamic environmental factors (Khan et al. 2020; Pieroni et al. 2019). This view is further supported by emerging empirical evidence, which underscores the relevance of DCs for sustainability-driven BMI in general and for CBMI in particular (Amui et al. 2017; Bocken and Geradts 2020; Buzzao and Rizzi 2021; De Angelis et al. 2023; Prieto-Sandoval et al. 2019; Sehnem et al. 2022). Conceptually, DCs refer to a firm's capacity to create, extend, and modify its resource base—both its tangible and intangible resources—to respond to changing environmental conditions and remain competitive (Helfat and Peteraf 2009). These capabilities are relevant not only for large firms but also for SMEs (Arend 2014).

Several authors highlight the conceptual strength of DC theory as a process-oriented lens for structuring and analyzing BMI (Heider et al. 2021; Schoemaker et al. 2018; Teece 2016) as well as for CBMI (De Angelis et al. 2023; Marrucci, Daddi, and Iraldo 2022; Santa-Maria et al. 2022; van Eechoud and Ganzaroli 2023). With its three interrelated phases—sensing, seizing, and reconfiguring—the DC framework provides a temporal structure for the BMI process: The *sensing* phase captures the capability related to identifying and interpreting opportunities, threats, and environmental changes through continuous monitoring and exploration. The *seizing* phase focuses on the capability to exploit identified opportunities through the investment of resources to refine novel business models. Finally, the *reconfiguring* phase refers to transforming entrepreneurial and external assets, enabling firms to overcome path dependencies to establish new activity systems (Eisenhardt and Martin 2000; Teece 2007; Teece et al. 1997). Although some studies highlight the processual nature of DCs as a foundation for structuring CBMI processes (Marrucci, Daddi, and Iraldo 2022; Pieroni et al. 2019), empirically driven research has so far not systematically leveraged this potential to develop a managerial process model of CBMI.

2.2 | The Role of Top Managers in the CBMI Process

Prior research shows that top managers play an important role in CBMI (Bocken and Geradts 2020; Dzhengiz and Niesten 2020; Ünal et al. 2018), with managerial antecedents identified as key drivers of CBMI (Marrucci, Iannone, et al. 2022; Schmidt et al. 2021; Ünal et al. 2018). Studies have primarily focused on two categories of managerial antecedents: cognitive (thinking and perception) and behavioral (activities and learning). Ott et al. (2017) refer to this distinction as the “dichotomy between doing and thinking” and Berends et al. (2016) to the “duality of representation (cognition) and reality (action).”

Different authors specify how managerial *cognitions* influence processes such as CBMI. In the context of corporate sustainability, Hahn et al. (2014) show that managers rely on cognitive frames as mental templates that guide sensemaking under ambiguity by selectively attending to specific information. These frames shape how sustainability-related tensions are interpreted and which strategic responses are considered legitimate or feasible. Similarly, Snihur and Eisenhardt (2022) emphasize the role of mental models and vision generation in shaping managers' understanding of current and future business realities. Related studies further point to the role of managerial attention (Frankenberger and Sauer 2019), as well as to the influence of market orientation (Schmidt et al. 2021) and cognitive capacity in absorbing and transferring values and knowledge into firms (Marrucci, Iannone, et al. 2022). Martins et al. (2015) highlight analogical reasoning and conceptual combination as key cognitive processes for dealing with new logics. Complementing this perspective, Osiyevskyy and Dewald (2015) illustrate that managers respond less to objective environmental conditions than to cognitively constructed images of their environments, which are shaped by their explorative and exploitative intentions.

The second stream focuses on managerial *behaviors*. Scholars discuss how managers perform learning processes (Andries et al. 2013; McGrath 2010; Snihur and Eisenhardt 2022). Snihur and Eisenhardt (2022) argue that good learning processes allow managers to better cope with insecurities. Especially in the context of natural resource usage and CE, effective learning processes are vital (Frishammar and Parida 2018; Geissdoerfer et al. 2020; Tukker 2015). De Angelis et al. (2023) highlight the relevance of learning processes for CBMI, whereas Köhler et al. (2022) emphasize the critical role of cross-sectoral collaboration, and Elf et al. (2022) clarify the role of customer interaction during CBMI. Others highlight the relevance of trial-and-error learning (Andries et al. 2013; Berends et al. 2016; Mezger 2014; Sosna et al. 2010) and experimentation through testing of activity systems (Gans et al. 2019; Ott et al. 2017).

In sum, prior research highlights the relevance of cognitive and behavioral managerial antecedents in CBMI but largely examines them in isolation rather than their processual interplay (Geissdoerfer et al. 2023; Snihur and Eisenhardt 2022; Ünal et al. 2018).

3 | Methods

Given the exploratory aim of this study (Maxwell 2009), a qualitative research design was chosen to enable an in-depth examination of the managerial phenomenon of CBMI processes in real-world settings (Yin 2015). The study is grounded in a constructivist–interpretivist perspective, which assumes that knowledge emerges through the interchanges between researchers and practitioners (Charmaz 2014). Within this interpretive framework, concepts, categories, and themes are derived from the data to generate theoretical and practical insights. We view our informants as knowledgeable actors who can reflect on their business realities and, given the small size of their firms, possess a comprehensive understanding of employees' activities (Gioia et al. 2012). Accordingly, the study draws on grounded theory methodology (Glaser and Strauss 1967; Strauss and Corbin 1994) to investigate the research gap and develop a process model through in-depth data analysis. Adopting a constructivist perspective (Charmaz 2014), this approach supports exploratory research aimed at understanding *how* and *why* particular phenomena occur (Corbin and Strauss 2008). This chapter concludes by outlining the data analysis and explaining how the model emerged through iterative engagement between data and evolving constructs, using DC and CBMI theory as sensitizing concepts (Blumer 1954).

3.1 | Empirical Setting

We focus on SMEs' top managers who all implemented different patterns of CBMs, such as recycling, reusability, or dematerialization. *Top managers* include senior executives serving as managing directors or in other key executive roles (e.g., COO), with some also sitting on the firm's board of directors. Due to the small organizational size of SMEs, these managers were closely informed about and actively involved in CBMI, not only as strategic supporters but also as direct actors. We focus on CBMI in which existing business models are adapted or novel CBMs are innovated alongside current ones, excluding circular startups (Geissdoerfer et al. 2020).

We picked SMEs as their top managers are often agile and flexible with a great potential to drive CBMI, making them—in a Schumpeterian sense—extremely exciting to study in the context of CE (Hashi and Krasniqi 2011). SMEs usually have established infrastructure and networks and can scale novel solutions more quickly (Ketchen et al. 2007). Large companies often fail to implement CBMs owing to inertia and organizational factors, which provides a great opportunity for SMEs to jump into the gap (Veleva and Bodkin 2018). SMEs exhibit a high level of local integration, which is a good precondition for transitioning toward a CE (Rizos et al. 2015; Zamfir et al. 2017). Although SMEs usually do not have a significant market share, they can indirectly contribute to economic transformation by providing blueprints for others (Partanen et al. 2020; Schaltegger et al. 2016). Moreover, SMEs represent most companies in the EU's nonfinancial sector (99.8%) (Muller et al. 2017), often building central pillars of entire industries. We limited our sample to top managers of SMEs with up to 250 employees, analogous to the EU definition (European Commission 2003), which is the standard criterion for SME research (Madison et al. 2022; Nakos et al. 2014).

We focus on three industries: food and beverage, textile, and logistics, where the CE is particularly relevant due to resource-intensive and waste-prone value chains. Packaging (Foschi and Bonoli 2019; Geueke et al. 2018), food waste, and natural resources (Maxime et al. 2006) are highly relevant to the food and beverage industry. The textile industry is concerned with insufficiently developed material recycling, toxicity, and inappropriate product designs (Ellen MacArthur Foundation 2017). The logistics industry is integral to transporting materials and products in a CE (Nadeem et al. 2017; Seroka-Stolka and Ociepa-Kubicka 2019).

3.2 | Data Collection

We drew on a purposeful, nonrandomized sample (Marshall 1996) of 59 top managers of Swiss SMEs, who were engaged in the innovation of certain patterns of CBMs. The study team used lists provided by official Swiss bodies (e.g., the Federal Statistical Office) and created, based on preliminary company website research, a unique list of companies that met the criteria. The list was further expanded during the data collection through snowball sampling (Noy 2008) by asking respondents to suggest additional firms that might be suitable. The selection criteria required that a firm (i) be a Swiss SME, (ii) operates within the industries under investigation, and (iii) demonstrates different patterns of CBMs. The study team approached 341 top managers, of whom 59 agreed to be interviewed (response rate: 17.3%). Each interview lasted between 30 and 60 min, resulting in approximately 50 h of interview data and 324 pages of transcribed text. This comprehensive sample allowed us to obtain theoretical saturation during data analysis (Bowen 2008). Most interviews were conducted in German (89%) and a few in French (11%).

The research team developed an interview guide to gather as much consistent and comparable information as possible from semistructured interviews (Meuser and Nagel 2009) and avoid ambiguities and inconsistencies (Bogner et al. 2014). Every interviewee was asked to describe the key aspects of the firm's business model based on the definition presented (Gassmann et al. 2013). We then introduced the definitions of the CE and CBMs to assess interviewees' understanding and current implementation. Interviewees were asked to identify in detail the factors hindering and driving CBMIs in their firms. The interviews were conducted via voice calls, recorded, manually transcribed (verbatim), and anonymized. We collected and analyzed additional data that complemented the interview data. We compared interviewees' responses with accounts from archival data to minimize the effects of respondent and retrospective biases (Gehman et al. 2018; Ozcan and Eisenhardt 2009). Depending on availability, the archival data included historical documents (e.g., local newspaper articles about the companies), official records (e.g., company reports, media statements, and annual reports), and social media contents (e.g., blog articles). In this way, we tried to strengthen the explanatory power of the analysis and the credibility of our findings (Tracy 2010).

Table 1 summarizes the interviewees, company background information (number of employees, value proposition, founding year, and market segment), and the implemented CBM patterns.

TABLE 1 | Overview of the interviewees.

Industry	No.	Interviewee description	Company description	No. of employees	Founding year	Implemented circular business model patterns
Food and beverage	1	Top management	Breakfast and snacks	195	1954	Recycling; CO ₂ offsetting; increased longevity; renewable energy; reduction; localization; biocycle: waste as input of by-products; energy recovery
	2	Managing director	Soup and dressing	65	1974	Signaling and transparency; renewable energy; reduction; eco-materials and sustainable sourcing
	3	Managing director	Pastry and confectionery specialties	25	1948	Eco-efficiency; dematerialization; biocycle: waste as input of by-products
	4	Managing director/board of directors	Pastry and confectionery specialties	8	1956	Recycling; biocycle: waste as input of by-products
	5	Managing director	Mineral water	30	1986	Recycling; reduction; dematerialization; localization
	6	Top management	Soft drinks and fruit juices	250	1909	Reuse; recycling; signaling and transparency; reduction; dematerialization
	7	Top management	Coffee processing and roasting	9	1994	Reuse; recycling; sharing; renewable energy; eco-efficiency; localization; biocycle: waste as input of by-products
	8	Top management	Food from insects and consulting	8	2015	Signaling and transparency; reduction; produce on demand; biocycle: waste as input of by-products
	9	Managing director	Fruit juices	26	2002	Signaling and transparency (label); eco-efficiency; localization; biocycle: energy recovery
	10	Top management	Bakery (bread)	30	1988	Recycling; social engagement; increased longevity; detox; eco-materials and sourcing; biocycle: waste as input
	11	Managing director	Packaging olives	30	1975	Reuse; recycling; signaling and transparency; renewable energy; reduction; dematerialization
	12	Managing director	Fruit juices	54	1957	Recycling; signaling and transparency; renewable energy; reduction; eco-materials and sustainable sourcing; localization; biocycle: waste as input of by-products and energy recovery
	13	Managing director	Bread and cake	12	1931	Recycling; social engagement; increased longevity; localization; biocycle: waste as input of by-products
	14	Top management	Processing fruit/vegetables for convenience	100	1998	Reuse; signaling and transparency; renewable energy; eco-efficiency; eco-materials and sustainable sourcing; localization; monitoring and smart assets; biocycle: biodegradability
	15	Managing director	Ice cream production	12	1995	Reuse; recycling; renewable energy; localization; eco-efficiency

(Continues)

TABLE 2 | (Continued)

Industry	No.	Interviewee description	Company description	No. of employees	Founding year	Implemented circular business model patterns
Logistics	16	Managing director	Mill; grain processing	10	1847	Reuse; dematerialization; biocycle: waste as input of by-products
	17	Managing director	Mixed spices	10	1982	Eco-efficiency; recycling; signaling and transparency
	18	Top management	Spices and sauces	12	1978	Recycling; increased longevity; renewable energy; eco-materials and sustainable sourcing
	19	Managing director	Meat processing	60	1896	Renewable energy; reduction; biocycle: energy recovery
	20	Managing director	Bread and cake	54	1976	Reuse; dematerialization; eco-materials and sustainable sourcing; localization; biocycle: energy recovery
	21	Top management	Butchery/meat processing	11	1879	Recycling; eco-materials and sustainable sourcing; localization
	22	Managing director	Butchery/meat processing	28	1945	Eco-materials and sustainable sourcing; localization; biocycle: biodegradability
	23	Managing director	Beer	20	2001	Reuse; localization; eco-materials and sustainable sourcing; biocycle: energy recovery
	24	Top management	Fruit and vegetables processing	200	2002	Reuse; social engagement; signaling and transparency (label); reduction; biocycle: waste as input
	25	Top management	Butchery/meat processing	200	1871	Signaling and transparency (label); eco-efficiency; biocycle: energy recovery
	26	Managing director	Fruit and vegetables processing	190	1980	Renewable energy; reduction; eco-materials and sustainable sourcing; biocycle: energy recovery
	27	Managing director	Beer	96	2014	Reuse; biocycle: waste as input of by-products; energy recovery
	28	Top management	Storage and distribution	55	1992	Recycling; eco-efficiency; dematerialization; eco-materials and sustainable sourcing; localization
	29	Managing director	Logistic coordination	16	2001	Eco-efficiency; eco-materials and sustainable sourcing; localization
	30	Managing director	Transport service for pianos	14	2004	Recycling; waste management concept; signaling and transparency; eco-efficiency; dematerialization
	31	Managing director	Transport of fuels	18	1927	Reuse; repair; eco-efficiency
	32	Managing director	Transport, storage, and logistics	25	1972	Recycling; renewable energy; eco-efficiency; signaling and transparency (label); increased functionality
	33	Top management	Transportation of building materials and machinery (also for recycling)	12	1969	Reverse logistics; eco-efficiency

(Continues)

TABLE 2 | (Continued)

Industry	No.	Interviewee description	Company description	No. of employees	Founding year	Implemented circular business model patterns
Textile	34	Managing director	Transportation of wood and timber-related goods	22	1983	Reuse; increased longevity; maintenance and repair; reverse logistics; renewable energy; localization
	35	Managing director	Food import and processing	40	1926	Reuse; maintenance and repair; recycling; waste as input; eco-efficiency
	36	Managing director	Transportation and logistics	70	2004	Reuse; maintenance and repair; recycling; waste as input; eco-efficiency
	37	Top management	Transportation and logistics in construction	10	1994	Reuse; maintenance and repair; eco-efficiency
	38	Managing director	Transportation and logistics	30	1992	Reuse; recycling
	39	Top management	Transportation and logistics in construction	10	1989	Eco-efficiency; localization
	40	Top management	Transportation of building materials/recycling concrete	55	1973	Recycling; signaling and transparency; eco-efficiency; localization
	41	Managing director	Workwear	150	1826	Eco-materials and sustainable sourcing; localization; signaling and transparency
	42	Top management	High-quality clothing (women)	30	1988	Eco-materials and sustainable sourcing; biodegradability; increased longevity; detox; renewable energy; dematerialization; localization
	43	Managing director	Zipppers	13	1957	Reuse; recycling; eco-efficiency; eco-materials and sustainable sourcing; localization
	44	Top management	Protection workwear and consulting	80	1932	Signaling and transparency; increased longevity; eco-materials and sustainable sourcing; produce on demand
	45	Top management/president of the board of directors	Knitwear	25	1909	Renewable energy; eco-materials and sustainable sourcing
	46	Managing director	Specialized textile production	9	2001	Reuse; recycling; eco-materials and sustainable sourcing
	47	Managing director	High-quality textiles for interior decoration	170	1886	Waste as input of by-products; signaling and transparency (label); increased longevity; energy recovery; eco-efficiency
	48	Managing director	Uniforms	30	1988	Reuse; recycling; eco-materials and sustainable sourcing

(Continues)

TABLE 2 | (Continued)

Industry	No.	Interviewee description	Company description	No. of employees	Founding year	Implemented circular business model patterns
	49	Managing director	Workwear and service provider	70	1967	Recycling; monomaterial design; increased longevity; signaling and transparency
	50	Top management	High-quality fabrics for shirts	18	1918	Recycling; renewable energy; maintenance and repair; eco-efficiency; signaling and transparency (label); eco-materials and sustainable sourcing
	51	Managing director	Fashion	8	2014	Recycling; waste as input; increased longevity; maintenance and repair; detox; eco-materials and sustainable sourcing; localization
	52	Top management/president of the board of directors	Fabrics processing	10	1900	Increased longevity; detox; eco-materials and sustainable sourcing
	53	Managing director	Knitwear, fabrics, and textiles	12	2008	Recycling; reduction
	54	Top management	Wool shoes	29	2013	Waste as input; localization; social engagement; detox; reduction; dematerialization; eco-materials and sustainable sourcing; produce on demand
	55	Managing director	Various textile products	18	1999	Recycling; waste as input of by-products; sharing
	56	Managing director	Urban fashion	13	2006	Increased longevity; renewable energy; eco-materials and sustainable sourcing; localization
	57	Managing director	Workwear fabrics	208	1868	Recycling; eco-efficiency; monomaterial design; signaling and transparency (label); eco-materials and sustainable sourcing; localization; licensing
	58	Managing director	E-commerce womenswear	23	1978	Increased longevity; localization
	59	Top management	Shoes	50	1947	Signaling and transparency; eco-materials and sourcing; increased longevity; reduction; localization

3.3 | Data Analysis and Coding Strategy

We applied a qualitative, inductive approach (Edmondson and McManus 2007; Maxwell 2009) aiming at the elaboration of new theory (Fisher and Aguinis 2017) by identifying the process of CBMI from a top manager's perspective (Langley 1999). To facilitate data analysis and meaningful interpretation, one researcher collected and analyzed the data while the other adopted a critical distance and served as a “devil's advocate,” pushing for clarification through critical questions, which iteratively improved the analysis (Bocken and Geradts 2020; Crosina and Pratt 2019). Although we iterated several times between data, emerging constructs, and the literature, the data analysis and coding process can be summarized as follows.

3.3.1 | First Step: Inductive Analysis of Managerial Antecedents of CBMI

We aimed to reach a conceptual level of managerial antecedents through data analysis (Corbin and Strauss 1990; Gioia et al. 2012). Data coding helped transform raw data into theoretical constructions of social processes (Kendall 1999), which revealed the relevant codes and concepts of managerial antecedents (Bogner et al. 2014). We only considered firms' internal managerial antecedents, not those dealing with external factors such as government or legislation. In a first-order analysis, codes describing antecedents were formed close to the text using an open-coding approach, not aggregating categories but generating a wide range of descriptive codes (Hernandez 2009). This results in several first-order concepts (Gioia et al. 2012). This procedure involves ongoing, recurrent comparison at the data level and identifying and conceptualizing similarities and differences between codes (Kendall 1999), referred to as axial coding, which reduces the number of codes and sharpens conceptualization (Corbin and Strauss 1990). Then, theoretical codes were formed, called second-order themes, described as accurately as possible with phrasal description and, if necessary, reordered and reclassified (Gioia et al. 2012). The number of codes diminished after this step, revealing six key antecedents.

3.3.2 | Second Step: Abductive Identification of Aggregated Levels

To gain more theoretical understanding from the data and aggregate our empirical concepts, we compared our empirical themes with existing research examining how managerial antecedents affect the CBMI process. For this purpose, the iteration with theory started, in which we analyzed all data fragments per antecedent to detect patterns within and between the different antecedents by going back and forth (recursive cycling) between the data and extant theory (Eisenhardt and Graebner 2007; Frankenberger and Sauer 2019). This procedure resulted in two aggregated levels of antecedents: *cognitions and behaviors*. Gioia et al. (2012) and Tracy (2010) highlighted the importance of creating a visual data structure to trace the data processing steps (Figure 1).

3.3.3 | Third Step: Development of the CBMI Process Model

We first identified the relevant phases of the CBMI process from a managerial perspective. To temporally structure the process of CBMI to develop the process model later (Langley 1999), we applied sequence structuring (Fisher and Aguinis 2017). It is recommended while performing a temporal decomposition to utilize existing theoretical constructs as a basis for structuring processes and gain new theoretical insights (Edmondson et al. 2001; Langley and Truax 1994). Therefore, we comprehensively analyzed process-oriented entrepreneurship research and then applied the process lens of higher order DC theory (Eisenhardt and Martin 2000; Teece et al. 1997). The sequential structuring of the BMI process presented in this theory corresponded with the underlying logic of the identified managerial antecedent data fragments. We identified in our data three phases, which are characterized by “certain continuity in the activities within each period and there are certain discontinuities at its frontiers” (Langley 1999, 703): Phase 1: *sensing the advantages of a CE*; Phase 2: *seizing resources for a CBM*; and Phase 3: *reconfiguring the business model*. We reanalyzed our data to generate an understanding of how the managerial antecedents interrelate in the CBMI process. This helped us to theorize how the identified cognitive and behavioral antecedents shape CBMI, revealing their interplay and reinforcing dynamics.

4 | Findings

We developed a process model for CBMI (Figure 2), which explains how top managers drive CBMI and, more specifically, it shows how cognitive (“thought”) and behavioral (“action”) antecedents interplay over time. The model uses the process lens of the DC theory to structure the process into three phases: sensing the advantage of a CE, seizing resources for a CBM, and reconfiguring the business model. Selected quotations from top managers illustrate the anchoring in the data. Although we represent the model *linearly*, in reality, the process steps can be *iterative* and *repetitive* (indicated by the backward arrows).

4.1 | Phase 1: Sensing the Advantages of a CE

For many of the top managers examined, the CBMI process is grounded in the antecedent of *perceived environmental embeddedness*, understood as a cognitive perception through which managers experience their firm as embedded in a broader ecological, economic, and social environment. This perception shapes how managers attend to, interpret, and integrate signals from their environment into entrepreneurial decision-making. In several cases, this antecedent was value-laden and manifested as eco-conviction—a value system based on environmentally friendly beliefs and awareness. In contrast to a purely monistic economic orientation that conceives the economy as an end in itself, this perceived embeddedness supports situating both the starting and end points of economic activities within interconnected environmental systems. This antecedent includes a sense of responsibility toward future generations and a holistic understanding of humans as an embedded part of nature—rather

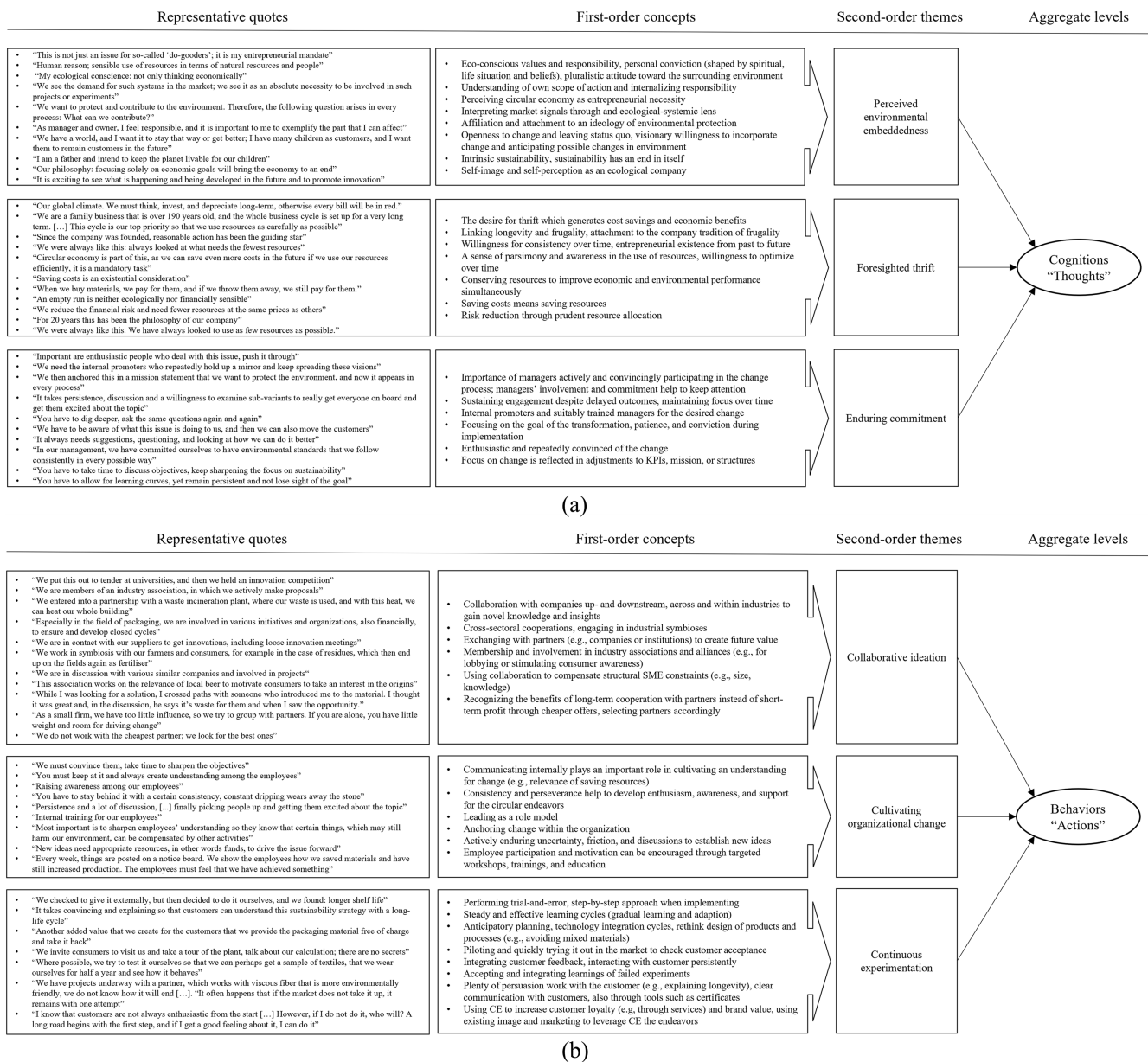


FIGURE 1 | Visualization of the data structure, based on Gioia et al. (2012).

than solely within the economy. One top manager articulated this: "We are talking about a careful and responsible use of our resources. Our resources are limited, and from my perspective, every company has to contribute."

Perceived environmental embeddedness favors a reasonable use of natural resources and fosters an integral understanding of possible trade-offs in decision-making along an integrated triple bottom line. Top managers with a high degree of this antecedent appear to recognize the relevance of CE principles beyond firm boundaries. This perception is often shaped by managers' personal relationship to their environment, influenced by life circumstances (e.g., family), philosophical orientations (e.g., anthroposophy), or spiritual convictions (e.g., creation consciousness), as one stated: "I have two children. I believe I am obliged to leave the world as I found it, or even in a better state." *Perceived environmental embeddedness* integrates ecological considerations into decisions, enhancing eco-literacy (Tilley 1999), and

connects economic survivability with environmental viability. As the top managers of a high-quality interior textile manufacturer emphasized, "Ecology and economy very often go hand in hand: the economic side and a sense of responsibility." Another interviewee highlighted, what we observed in several cases, that this leads more to an entrepreneurial obligation rather than to a moral add-on: "This is not just an issue for so-called 'do-gooders'; it is my entrepreneurial mandate. We must address these issues [...]. Those who do nothing in this area will lose out. These companies will not survive for long."

We also observed cases in which externally induced motives for innovation—such as market demand or resource constraints—triggered the process. Due to the perceived embeddedness, managers were able to cognitively process a variety of external signals. As a result, CBMI did not necessarily originate solely from explicit ecological values but also from economic problem-solving considerations. However, perceived

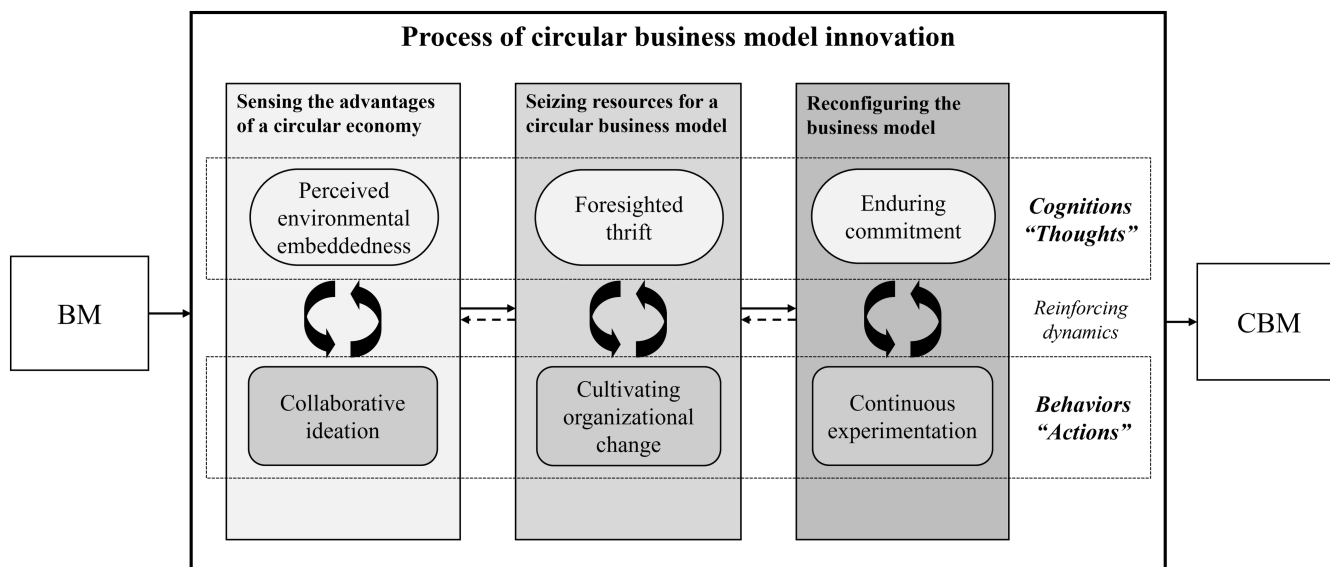


FIGURE 2 | Process model: Connecting thoughts and actions. BM (business model), CBM (circular business model).

embeddedness is essential for integrating these triggers into a holistic perception of the environment in which the firm is embedded. One manager stated, “We want to protect and contribute to the environment. Therefore, the following question arises in every process: What can we contribute?” In doing so, external signals could be interpreted and processed not only in economic terms but also as opportunities for circular innovation responses. As one manager noted, this integration of market signals and responsibility was decisive: “We see the demand for such systems in the market, and therefore, we see it as an absolute necessity to be involved in such projects or experiments.”

Perceived environmental embeddedness positions top managers as “radars” for screening external factors and defining what signals are permeating entrepreneurial consciousness. This increases the visibility of potential benefits of CBMs in one’s context. In the data, dispositions of openness and a sense of connection—central components of *perceived environmental embeddedness*—enable top managers to transcend their firm-centric perspectives and engage in *collaborative ideation* across organizational boundaries. Perceiving embeddedness in a broader environment frames managers as integrated economic actors and facilitates the recognition of the value of interpersonal interactions. Based on our data, this perspective often coincides with the understanding that sustainable transformation is best achieved through collaborative ideation and implementation. The impulses from *collaborative ideation* transcending one’s company logic also influence the shaping and the quality of the perceived embeddedness, as it helps to internalize the principles of a CE, as one manager stated: “We rely on stimuli from specialists in research and development. They force the idea of a CE in our company.”

On the behavioral level, *collaborative ideation* initiates the CBMI process. It encompasses interaction that occurs both beyond firm boundaries and, to a more limited extent, within organizational contexts, with the primary aim of sensing novel ideas. Through these interactions, top managers gain

access—intentionally or unintentionally—to knowledge and technical solutions that are necessary to envisioning activity systems underlying CBMs.

Empirically, ideas are usually sensed and generated through loosely coupled exchanges upstream and downstream along supply chains, through participation in industry associations, or through more intensive interactions in networks and joint projects. Especially for SMEs, which often face limited access to new knowledge, resources, and reduced market impact, *collaborative ideation* helps to mitigate these constraints. As the managing director of an urban fashion firm explained, “As a small firm, we have too little influence, so we try to group with partners. If you are alone, you have little weight and room for driving change.”

Collaborative ideation is not primarily driven by cost considerations but by the deliberate selection of suitable partners with whom solutions can be explored and developed (e.g., compostable packaging or shared infrastructure). Several interviewees highlighted that partner choice is guided by factors such as quality standards, ecological transparency, and long-term orientation rather than short-term optimization. As one interviewee notes, “We do not work with the cheapest partner; we look for the best ones. Together with these partners, we develop things further to contribute [...] to an optimal cycle.” Long-term partnerships enable continuous exchange, even when concrete outcomes remain uncertain at the beginning.

Sensing circular opportunities and understanding the need to change are relevant, especially in industries in an early learning curve stage, as one interviewee stated: “Everything is at the beginning in logistics. There are various projects in which you must get involved and think along. Sustainable solutions happen when larger companies join forces regarding energy use and saving.” Designing novel activity systems requires managers’ ability to integrate externally gathered knowledge into the firm. Collectively ideating does not necessarily have to deliver calculable outputs, as novel ideas can also occur as unplanned by-products of continuously exchanging.

In addition to exchanges along the supply chain and in project-based collaborations, connecting in industry associations or alliances plays a pivotal role, particularly in contexts characterized by institutional and regulatory barriers. As one manager emphasized, “We are members of an industry association, in which we actively make proposals; we hope that lobbying will draw attention [...]. In this way, we worked out solutions.” It helps to bring forward an environmentally friendly agenda-setting and to lobby on behalf of a CE. Although *collaborative ideation* in the SMEs we observed is mainly externally oriented, internal collaboration can complement this process by facilitating the evaluation, interpretation, and translation of generated ideas within the organization. Such internal considerations become critical in subsequent phases of the CBMI process. Across cases, managers reportedly act in a coordinating and enabling role, initiating collaborations, maintaining relationships, and integrating impulses from different interaction contexts into the firm’s decision-making process. Through this ongoing engagement across organizational boundaries, *collaborative ideation* enhances top managers’ ability to sense the advantages of CBMs. As one interviewee illustrated, “If there is a wish, opportunities are created. You look for what you can do to do things differently [...]. That is how the business started.”

Taken together, *perceived environmental embeddedness* and *collaborative ideation* appear as mutually reinforcing antecedents in the early CBMI process. Whereas the cognitive antecedent shapes how managers attend to and interpret ecological and economic signals from their environment, the behavior antecedent provides the means through which these perceptions are enacted. The data suggest that a sense of embeddedness fosters openness toward external actors and increases the willingness to engage in collaborative exchanges beyond firm boundaries. At the same time, repeated interaction with external players feeds back into cognition by concretizing CE and making systemic interdependencies more tangible.

4.2 | Phase 2: Seizing Resources for a CBM

After top managers have recognized the CE advantages for their company in the first phase, the process enters the second phase, in which the required resources are actively seized and allocated. This phase builds on the previously identified antecedents. Specifically, *perceived environmental embeddedness* shapes *foresighted thrift*, the next cognitive antecedent, by influencing how managers translate underlying environmental principles into their business context. *Foresighted thrift* refers to a cognitive orientation that combines temporal foresight with a thrifty approach to resource use. It reflects managers’ long-term perspective on economic and ecological development (e.g., anticipatory perspective on future resource constraints), paired with a pronounced aversion to waste and inefficient allocation of material, financial, and natural resources. Rather than short-term cost cutting, this antecedent is about aligning economic and ecological realities over time. As one interviewee stated, “We have a completely different problem: our global climate. We must think, invest, and depreciate long-term, otherwise every bill will be in red.”

Influenced by the cognitive antecedent of perceived embeddedness, *foresighted thrift* reflects an understanding that economic activity is constrained by ecological limits. Various top managers described this orientation as ingrained in their company’s philosophy and strategic outlook, influencing their planning periods and investment decisions. One interviewee illustrated this perspective: “We are a family business in the sixth or seventh generation. Our entire company cycle is very long-term oriented. [...] Sustainability and the careful use of resources have always been part of our strategy and philosophy.” We observe this in CBM patterns such as dematerialization, detoxification, and the slowing of resource flows. Across cases, managers emphasized that thrift is driven by economic reasons and the conviction to avoid waste. The understanding that wasting resources is both economically unacceptable and ecologically harmful promotes resource-effective allocation in favor of novel activity systems. As one manager from the food industry explained, “When we buy materials, we pay for them, and if we throw them away, we still pay for them. It makes no sense to pay twice.”

Therefore, *foresighted thrift* shapes how costs and savings are perceived over time. Although cost considerations remain a legitimate concern, managers stressed the need to scrutinize long-term consequences rather than short-term benefits. This cognitive nexus equates saving costs within the firm with reducing negative environmental externalities (i.e., saving costs for nature). As a beverage producer noted, “We benefited from having a lighter PET bottle and now save raw material costs every year. We profit from it, but we do not do sustainability to charge customers more.” In this sense, economic efficiency and CE are not perceived as trade-offs but as reinforcing forces.

Foresighted thrift complements the will for entrepreneurial consistency by enabling deliberate and prudent resource allocation over time. Longevity—often referred to in the CE as slowing resource flows—plays a central role according to participants’ accounts, as it allows resources and products to be used repeatedly and over longer periods. Restructuring value creation mechanisms to realize cost reductions, uncover saving potentials, and simultaneously conserve resources can therefore reduce financial risk, as demonstrated by a top manager: “I can do the same transport with a second-hand truck. This is still cheaper, even though the repair costs are higher. So, we reduce the financial risk and need fewer resources at the same prices as others.” Changing cost trajectories influences investment decisions as it quickly reflects itself in the firm’s balance sheet, creating added value and pursuing new development paths.

The managing director of a service provider for workwear highlighted the reinforcing dynamics between *foresighted thrift* and the next behavioral antecedent, which we call *cultivating organizational change*: “You have to stay behind it with a certain consistency, constant dripping wears away the stone [...] I don’t buy the cheap cotton and polyester because if I want longevity and quality, I have to think broader.” The interplay is driven through company internal activities that actively promote the appreciation of resource conservation and *foresighted thrift*. This lends legitimacy to CBMI and the upcoming reconfiguration of the activity systems in the next phase. It is about shaping the entrepreneurial setup for performing CBMI, enabling the reallocation of resources. *Cultivating organizational change* focuses on

activities that establish structures, culture, resources, and processes within companies necessary for CBMs. It is about a persistent and consistent communication from top management, endurance of uncertainty and friction, allowance of critical discussions, and leading as a role model.

We observe top managers establishing and moderating training sessions, workshops, and interactive platforms for the workforce to *cultivate organizational change*, fostering awareness in new practices. Internal communication supports the engagement in discussions and the deepening of knowledge about ecological-economic relationships, as one stated: “Most important is to sharpen employees’ understanding so they know that certain things, which may still harm our environment, can be compensated by other activities, such as the reduction of waste, water, or electricity consumption.” Understanding the company’s internal processes and taking a holistic approach to the change are considered important. It involves the establishment of incentives and the effective communication of recommendations, as another one highlighted: “Every week, things are posted on a notice board. We show the employees how we saved materials and have still increased production. The employees must feel that we have achieved something, but they also must notice when a problem occurs [...]. If an employee has a positive environmental impact, he or she becomes an employee of the month.”

The data repeatedly show that *cultivating organizational change* is driven by top managers who act as role models. Managers need to be patient and perseverant in their behavior, allowing the workforce to take risks and leave space for change, even though the risk of potential financial losses and short-term financial goals are not realized quickly. Role modeling translates the mental frame of top managers into business practices, as another stated: “We are a bit of freak. We have a certain pioneering role, and if not us, then who should do it? Someone must do it, and we have little fear of doing certain things [...].” Managers who act as a role model and internalize their mental models in their behaviors lay the foundation to ensure that sufficient resources and support are available for *continuous experimentation* in the next phase. The top manager of a shoe factory highlights the following: “We have decided to improve something here. There was a desire, we create the necessary opportunities and now look for sustainable solutions that we can implement.”

Taken together, *foresighted thrift* and *cultivating organizational change* operate as mutually reinforcing antecedents in the second phase of the CBMI process. Whereas the first one provides the cognitive orientation that guides prudent and long-term resource allocation, the second one translates this into shared understandings and practices. Through this interplay, resources are not only seized but also aligned with CE principles across the organization, which prepares the firm for the subsequent phase.

4.3 | Phase 3: Reconfiguring the Business Model

Once the resources and entrepreneurial setup for the transition to a CBM have been established in the second phase, the process enters the final phase, in which the reconfiguration of the activity systems and thus implementation takes place. Here, we identified *enduring commitment* as a central cognitive antecedent

that drives *continuous experimentation* toward a CBM. What interviewees often referred to as enthusiasm is conceptualized here as *enduring commitment*—a stabilizing cognitive orientation that sustains managerial focus and engagement under conditions of uncertainty, delayed outcomes, and internal and external resistance. This antecedent reflects a convinced and persistent orientation toward transforming the activity system.

Enduring commitment manifests itself in managers’ willingness to remain deeply engaged with the reconfiguration, including the mobilization of internal promoters and building coalitions that push it forward, as one interviewee stated: “We need the internal promoters who repeatedly hold up a mirror and keep spreading these visions.” Such commitment enables top managers to maintain momentum throughout long implementation processes. As the managing director of a fruit juice company noted, “Resource conservation is a huge issue. We have invested a lot in technology in the last two or three years and are continuing to invest in technology to reduce electricity and energy consumption, waste, and water.”

Enduring commitment entails persistent persuasion of employees and the willingness to engage in discussions and learning processes. One beverage manufacturer described this: “It takes persistence, discussion and a willingness to examine sub-variants to really get everyone on board and get them excited about the topic. Pushing people doesn’t just mean forcing or commanding them, people must take their time to get excited and implement sustainability.” Data shows that this antecedent operates less as an emotional high and more as a cognitive stabilizer that legitimizes sustained engagement despite resistance. It is about the depth of focus and engagement with the change and the orientation toward transforming the activity system. We view this cognitive state as a form of passionate immersion, consistent with its Latin origin.

The data show that this antecedent unfolds under conditions of friction and frustration. Managers reported setbacks and moments in which initially promising solutions did not work as expected. One interviewee reflected on it: “The devil is in the detail. You have to dig deeper, ask the same questions again and again, and accept that sometimes you have tried something, and it simply is not possible.” *Enduring commitment* sets the right mindset for bolstering change and enabling the successful execution of the planned reconfiguring of the activity system through *continuous experimentation*. Maintaining focus allows managers to develop social capital within and outside the firm used to reconfigure the activity system, which is relevant as CBMI can often be time-consuming and lengthy, requiring mature implementation skills.

Enduring commitment provides the cognitive foundation for the third behavioral antecedent in the CBMI process, namely, *continuous experimentation*, which enables practical reconfiguring of activity systems. *Continuous experimentation* refers to iterative, continuous learning, trial-and-error-based approaches through which novel value creation practices (e.g., monomaterial-based product design), value delivery mechanisms (e.g., repair services), or value capturing strategies (e.g., dynamic pricing or leasing) are tested in the market. Experiments are often conducted step by step, allowing firms

to test new activity systems without fully committing all operations to circular principles from the outset. Performing it in a step-by-step manner enables testing without placing everything under a CE principle from the beginning or simply implementing individual measures for sustainable improvements first, as a managing director stated: “Where possible, we try to test it ourselves so that we can perhaps get a sample of textiles, that we wear ourselves for half a year and see how it behaves.” At the same time, the data indicate that not all experiments lead to scalable solutions. In several cases, initiatives remained at the level of an attempt when technological feasibility or market acceptance was not given, as a top manager highlighted: “It often happens that if the market does not take it up, it remains with one attempt.”

The data show that proximity to and reciprocal relationships with customers are crucial to success and make it possible to test the market acceptance, thereby collecting customer feedback for further improvements or legitimacy. Activity systems that support CBM can increase acceptance of a circular solution (e.g., repair services), foster more frequent customer interaction, and stabilize the CBM. Persistent and diligent interaction with customers during experimentation is essential to change their perceptions and behaviors. Maintaining perseverance during this phase of *continuous experimentation* is made easier by managers' *enduring commitment*. Here, the willingness of management to sustain commitment during the process is crucial, as one top manager makes clear: “I know that customers are not always enthusiastic from the start—certainly not willing to pay and support such ideas. However, if I do not do it, who will? A long road begins with the first step, and if I get a good feeling about it, I can do it.”

Taken together, *enduring commitment* and *continuous experimentation* reinforce each other in the reconfiguration phase. *Enduring commitment* sustains experimentation despite uncertainty, frustration, and setbacks, while experimentation generates feedback and learning that, in turn, reinforces managerial commitment. One manager illustrates the need to withstand lengthy processes to create space for implementation: “You need enthusiastic people in management who want to get to grips with the topic, people with passion [...]. It needs experiments and then at some point we can integrate these ideas into the business model.”

5 | Discussion

5.1 | Theoretical Contributions

This study develops an empirically grounded managerial process model of CBMI that integrates top managers' cognitions (“thoughts”) and behaviors (“actions”) across three phases aligned with the higher order DCs of sensing, seizing, and reconfiguring. Drawing on DC theory as a process lens, the model advances understanding of how circular transformation in SMEs unfolds over time at the managerial level. In doing so, we follow the call of researchers such as Sehnem et al. (2022) and Santa-Maria et al. (2022), who pointed to the need to explore and theorize the role of top managers in CBMI and to better understand its interplay with DCs.

First, we contribute to the CBMI literature by advancing a processual managerial perspective that conceptualizes top managers as *entrepreneurial catalysts* of circular transformation. By highlighting reinforcing dynamics (Ünal et al. 2018) between cognitive and behavioral antecedents, our findings both build on and extend prior research on CBMI processes. Accordingly, in the first phase—referred to as *sensing the advantage of a CE*—we identify *perceived environmental embeddedness* at the cognitive level and *collaborative ideation* at the behavioral level as central antecedents. *Perceived environmental embeddedness* shapes managers' relationship with the (natural) environment surrounding them, influencing their self-perception and sense of embeddedness and, in turn, determining the extent to which managers integrate a sustainability perspective (Whiteman et al. 2013). It complements what researchers have identified as top management mindfulness (Bhatti et al. 2021) or managerial attention (Frankenberger and Sauer 2019) and directs this search process (Tripsas and Gavetti 2000) toward the CE as well as potential risks and opportunities arising from the firm's external environment, thereby directly influencing the behavioral antecedent of *collaborative ideation*. The literature refers to this as a learning process (Casadesus-Masanell and Zhu 2013; McDonald and Eisenhardt 2020; Snihur and Eisenhardt 2022), aimed at sensing solutions to design an activity system aligned with CE principles (Marrucci, Iannone, et al. 2022; Villegas et al. 2025). The interplay is driven by the radius of search activities, influenced by the degree of *perceived environmental embeddedness*. Following Cullen and De Angelis (2021), this cognitive antecedent extends the entrepreneurial orientation (Binder and Braun 2024; Wales et al. 2013) of managers integrating a feeling for embeddedness and supporting the understanding that value creation can be achieved beyond one's company borders collectively. As SMEs often have limited access to new knowledge and innovation owing to size and personal resources (Bocken and Geradts 2020), *collaborative ideation* inversely depends on how effectively managers process the learned knowledge into the firm (Heubeck and Meckl 2021; Zaheer and Zaheer 1997), enabling the design of a fitting CBM in the next phase. When pursued further, these activities can lead to a deeper integration of actors within an ecosystem and give rise to what literature refers to as *circular ecosystem innovation* (Konietzko et al. 2020b), whereby solutions no longer emerge solely at the level of individual firms or dyadic supplier-buyer relationships but are coenabled through cross-organizational collaboration in circular ecosystems (Binder and Braun 2024). In addition, we highlight the importance of engaging with stakeholders beyond the company's borders for collective idea generation, as already partially recognized in prior research (Konietzko et al. 2020a; Leder et al. 2020; Rizos et al. 2016), emphasizing the relevance of the identified managerial cognitions. However, the literature has not yet combined the two antecedents to this extent and considered how exactly *perceived environmental embeddedness* as a cognitive map favors *collaborative ideation* and how they affect the next phase.

In the second phase, which facilitates the *seizing of resources for a CBM*, *foresighted thrift* constitutes top managers' feeling for temporality in relation to business endurance, connecting corporate stability with environmental protection, enabling the antecedent of *cultivating organizational change*. *Foresighted thrift* creates the cognitive framing, following prior research by Huy (2001)

and Osiyevskyy and Dewald (2015), helping to understand the temporal nature of cause-and-effect relationships along the triple-bottom-line trade-offs, and improves the acceptance of possible longer periods of unprofitability—which often occur in CBMI (Geissdoerfer et al. 2020; Stahel 2016)—which creates the conditions for *cultivating organizational change*. As finding business models to tackle environmental challenges is often a complex and long-term venture, Slawinski and Bansal (2012) highlight that a foresighted entrepreneurial orientation can enlarge the time spans for proactively seizing resources through the expansion of periods for planning, investing, and the point at which investments must pay out (Eisenhardt and Martin 2000; Hahn et al. 2015), which lays the foundation for the third phase of the CBMI process. We contribute to the literature by clarifying how temporal managerial framing and a thrifty approach support the navigation of long-term trade-offs and enable the transition from opportunity sensing to reconfiguration.

In the third phase, the cognitive antecedent of *enduring commitment* reflects the intensity of managers' mental immersion during *reconfiguring the business model*. This is particularly challenging since continuous experimentation toward CBMs can be time-consuming, as it requires intensive interaction with customers and partners to test and adjust. *Enduring commitment* supports perseverance during *continuous experimentation*, which enables management to consistently take an outside-in view and thus, in the sense of Zott and Amit (2015), to adopt the customer perspective necessary for successfully aligning the reconfiguring of the activity systems with the market through pivoting. Adapting the activity system toward a CE often requires more complex, interconnected, and cross-stakeholder adjustments, such as changes in product design (e.g., recyclable monomaterial-based fabrics). Top managers often realize while reconfiguring the activity system that practices such as repair, maintenance, and reuse also offer differentiation potential in the market, as enriching the value proposition creates more and repetitive touch points with customers, which can lead to an increase in loyalty and the intensification of customer relationships, as discovered by prior research (Leder et al. 2020). Recognizing these relationships is a basic prerequisite for scaling CBMs (Sandberg and Hultberg 2021).

Second, we leverage DC theory to structure and analyze the CBMI process and empirically illustrate how higher order DCs become operational in the context of CBMI. Prior research has illustrated the relevance of DC theory as a process lens in the context of CBMI (Khan et al. 2020; Pieroni et al. 2021; Santa-Maria et al. 2022). Thereby, prior process-oriented frameworks have generated valuable insights by focusing on *what* firms do when innovating toward a CE, particularly in terms of practices (Pieroni et al. 2021). However, they leave room to further theorize *how* cognitions and behaviors interact over time to activate and shape DCs to implement CBMs. Although Santa-Maria et al. (2022) advance the microfoundations of DC in CBMI by emphasizing organizational practices, procedures, and skills, our findings extend this work by explicitly integrating managerial antecedents and by theorizing their processual and reinforcing dynamics. Related contributions highlight the relevance of top management and DCs for sustainable BMI (Bocken and Geradts 2020) or link DCs to open strategy perspectives in CE providing a three-pronged framework (De Angelis et al. 2023),

yet they remain largely conceptual or do not explicitly trace managerial dynamics along the DC process logic.

Third, we also contribute to the literature on managerial antecedents of BMI (Amit and Zott 2015; Hartmann et al. 2013; Schneider and Spieth 2013) by showing how cognitive and behavioral antecedents interact over the course of the sustainability-driven BMI process. By contextualizing our study, we advance the theoretical discourse on the cognition-behavior nexus in BMI research. Prior research has already noted that the two levels of managerial antecedents influence each other and that they need to be fused for a successful process (Eisenhardt and Bingham 2017; Tripsas and Gavetti 2000). However, this theoretical perspective, driven by empirical insights, has only been applied in a few contexts, such as in strategic decision-making in new venture creation (Reymen et al. 2015) or the strategy formation process (Ott et al. 2017). We demonstrate the significance of this nexus and elucidate the mechanisms behind it.

Beyond its relevance for SMEs, this study also offers insights for research on CBMI in large corporations. It is important to note, however, that top managers in SMEs are embedded in organizational contexts that differ substantially from those of large corporations, especially in terms of firm size (e.g., number of employees), organizational structures (e.g., hierarchies and incentive systems), and institutional frameworks (e.g., shareholder-value orientation and temporal perspectives) (Alcalde-Calonge et al. 2024; Bocken and Geradts 2020; Rizos et al. 2016; Villegas et al. 2025). All identified managerial antecedents and their processual interplay are conceivable in large organizations, although with important contextual differences. For instance, Bocken and Geradts (2020) show that in large firms, *organizational design* plays a critical role in enabling the three higher order DCs. Circular transformation in large corporations is therefore predominantly structurally driven, for example, through the structural separation of circular organizational units (cf., Kuhlmann et al. 2023). In contrast, our findings indicate that in SMEs, sensing of opportunities and seizing resources during CBMI are more strongly person driven, relying on the cognitions and behaviors of individual top managers rather than on formalized structures. Also, with the importance of cultivating organizational change, prior research shows that this manifests differently across SMEs and large firms due to different organizational configurations (Bertassini et al. 2021; Bocken and Geradts 2020; Kirchherr et al. 2018; Rizos et al. 2016).

5.2 | Managerial Implications

Based on our data analysis, we could empirically show why it is important for top managers to reflect upon their cognitions and behaviors to actively deviate from existing ideas, behaviors, and strategies and to successfully perform CBMI (cf., Webb et al. 2014; Rovanto and Finne 2022). CBMI is not driven by technology alone but by the deliberate alignment of managerial thoughts and actions. Accordingly, managers need to reflect on *how* their ways of thinking translate into action and how actions, in turn, shape their mental frames to initiate and sustain CBMI. The following section outlines key practical implications and concrete formats for enacting managerial agency in the CBMI process.

During the *sensing* phase, managers can cultivate *perceived environmental embeddedness* by engaging with environmental challenges and their consequences—such as resource scarcity or waste—as well as with stakeholders beyond the firm's boundaries (e.g., through field visits and stakeholder dialogue). Our findings suggest that *perceived environmental embeddedness* is often rooted in managers' broader value systems and life contexts that shape how strongly environmental considerations are integrated into business practice (e.g., supported by reflective leadership sessions). This does not necessarily require moral idealism alone—such as a deontological ethical conviction—but may also stem from strategic considerations at the nexus of environmental factors, long-term viability, and risk mitigation (e.g., guided by supply chain stress testing). Managers therefore benefit from exposing themselves to external knowledge (Nujen et al. 2023), policy debates, and sustainability-oriented networks (Veleva and Bodkin 2018), as well as exploiting open-innovation practices (Dorrego-Viera et al. 2025) to sharpen their environmental awareness, circular knowledge, and strategic foresight. This means that they can actively foster interaction with customers, suppliers, researchers, and NGOs to jointly explore circular opportunities (e.g., within innovation labs) (Bocken and Geradts 2020). Especially in SMEs, where access to specialized knowledge is often limited and managers are frequently absorbed by day-to-day operational demands (Arranz et al. 2024; Rizos et al. 2015), *collaborative ideation* serves as a critical mechanism for overcoming structural constraints and accessing external knowledge (e.g., through interfirm learning groups). Managers are encouraged to institutionalize these activities both within their own firm and across organizational boundaries to enable continuous and sometimes unstructured exchange, rather than focusing solely on short-term, outcome-oriented innovation projects. Such activities may be organized through formal formats (e.g., cross-sector workshops) and through participation in informal settings (e.g., industry networks).

During the *seizing* phase, top managers are required to mobilize and allocate resources in ways that enable the transition from opportunity recognition to concrete implementation. Our findings suggest that this phase is shaped by cognitive frames that influence decision-making in terms of temporality, longevity, and the interdependence between economic stability and environmental protection. This requires managers to foster disruptive innovation (e.g., through dedicated CBMI budgets), moving beyond short-term cost optimization and adopting a long-term orientation that explicitly acknowledges delayed payoffs (e.g., long-term scenario planning) (Kuhlmann et al. 2023). To overcome the innovator's dilemma (Christensen 1997), they need to accept short-term inefficiencies and experimentation in exchange for potential greater long-term stability, resilience, and impact. This involves reevaluating conventional cost structures, investment horizons, and depreciation logics considering the CE principle of longevity (Agrawal et al. 2021; Bocken et al. 2016) (e.g., total cost of ownership analysis). Managers are encouraged to scrutinize not only quick wins but also long-term resource implications (e.g., life-cycle costing), supplier relationships, and risk exposure. Cultivating organizational change means actively shaping internal structures and processes, as well as recognizing that it needs persistent and consistent leadership (Bertassini et al. 2021; Schulz et al. 2019). It can include the establishment of supporting formats (e.g., training programs) that enhance

employees' understanding and appreciation of resource conservation. It could be useful to establish novel incentive systems (e.g., circular KPIs) and communication of progress and setbacks (e.g., internal dashboards).

In the *reconfiguring* phase, managers play a decisive role in translating strategic intent into a concrete transformation of the firm's activity system. Cognitively, this is driven by the intensity of managerial engagement during implementation. This enduring commitment implies that successful CBMI requires more than formal approval and delegation; it demands visible, sustained, and personally embodied engagement from top management to maintain momentum (e.g., executive presence in project reviews), given the often long duration of CE endeavors (Bocken et al. 2016; Geissdoerfer et al. 2020). Here, managers should drive the process with perseverance (e.g., recurring check-ins) while enabling the firm to withstand internal and external resistance, such as emerging conflicts (e.g., structured conflict mediation). By acting as a role model, managers can create spillovers of enthusiasm among employees and colleagues (e.g., peer or group supervisions). At the behavioral level, top managers should establish an experimentation culture to adopt an iterative, trial-and-error approach and create experimental spaces (Hofmann and Jaeger-Erben 2020) that allow solutions to be tested and refined, including pilots and prototypes (e.g., customer interviews).

5.3 | Limitations and Future Research

Our findings focus on qualitative, processual mechanisms of managerial antecedents rather than their intensity or strength. Future research could quantify the relative strength of these antecedents within the CBMI process. This could be combined with a quantitative approach to avoid a possible problem of top managers self-selecting into the study, generating retrospective biases, which we consider to be very low in our study. Furthermore, we demonstrated the value of cross-company collaboration and collective ideation. Future research should examine how CBMI can benefit from specific ecosystem configurations and how cross-company collaborations can be purposefully structured. The potential for circular ecosystem innovation (Konietzko et al. 2020b) calls for deeper analysis of how managerial antecedents operate at the level of microfoundations—such as skills, processes, and organizational activities—to enable advanced forms of ecosystem collaboration (Khan et al. 2020; Teece 2007).

This study focuses on top managers in SMEs. Further research should examine managerial antecedents of CBMI in large multinational corporations, where managerial agency may be more constrained due to stronger shareholder pressure and organizational inertia. It seems realistic that other managerial antecedents can be found, especially at the behavioral level. In addition, although our research adopts a generic perspective to capture aggregated cognitive and behavioral antecedents, we do not differentiate these antecedents and process mechanisms across specific CBM patterns (Binder and Braun 2024; Pieroni et al. 2020). Future research could build on our model by analyzing how different CBM patterns (e.g., repair-based models) are initiated and shaped over time, using longitudinal designs

to capture phases of pivoting and adjustments. We hope future studies will further refine our understanding of top managers' role in CBMI in addressing grand challenges.

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Conflicts of Interest

The authors declare no conflicts of interest.

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