When industrial companies implement circular business models, what do they really do?

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Abstract

Purpose – Implementing circular business models (CBMs) in industry is promising yet difficult. Prior research has largely focused on identifying barriers to CBM adoption and the enablers needed to overcome them. However, addressing barriers alone is insufficient, as circularity must ultimately be embedded in companies' routine-based practices to become operational and scalable. Existing practice-oriented studies remain limited and tend to examine isolated aspects of CBMs, such as value creation, value delivery or value capture, rather than how these dimensions are pursued together. This study aims to address this gap by synthesizing how industrial companies implement CBMs through phase-based practices that span business model dimensions.

Design/methodology/approach – The authors conducted a three-stage review (identification–screening–eligibility) of academic and gray literature, ending with 87 studies included. Using qualitative content analysis, the authors coded circular practices and their underlying activities and applied the Gioia methodology to visualize them. The study grounds in the Swedish industrial context, given its early and coordinated adoption of circular economy policies and strategies.

Findings – The findings reveal a three-phased CBM implementation process: designing, developing, and scaling. In the design phase, companies explore circular value logics, build internal capabilities, and renew ecosystem partnerships. The development phase involves testing circular concepts, transforming organizational processes, and launching new revenue models. Finally, the scaling phase focuses on market expansion and digital integration to enhance circular operations.

Originality/value – This study advances CBM literature by identifying business practices and underlying activities that outline how industrial companies implement CBMs in practice. It structures these practices into a phased framework along with specific actions and key considerations for each phase. Finally, it shows how value creation, delivery and capture are activated differentially across implementation phases.

Keywords Circular economy, Circular business model, Strategy-as-practice, Industrial companies, Sweden

Paper type Research paper

1. Introduction

Industrial companies, capital- and energy-intensive enterprises engaged in manufacturing and process-based production, are increasingly adopting the principles of circular economy (CE) to secure long-term competitiveness, resilience and legitimacy in the face of resource constraints, resilience and climate pressures (Frishammar *et al.*, 2025). CE promises financial, environmental and social benefits by improving resource efficiency, reducing waste and emissions, and enabling more sustainable supply chains (Abideen *et al.*, 2021; Ranta *et al.*, 2020). At the company level, these ambitions are most commonly operationalized through circular business models (CBMs).

A CBM describes how a company creates, delivers and captures value in ways that are explicitly aligned with CE principles, including extending product and component lifetimes, optimizing resource use, and closing material loops through coordinated value propositions, operational arrangements and revenue mechanisms (Geissdoerfer *et al.*, 2020). CBMs thus translate CE principles into organizational and market-facing frameworks by aligning economic value creation with environmental stewardship through practices such as refurbishment, remanufacturing, reuse and recycling (Tapaninaho and Heikkinen, 2022).

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Despite their potential, implementing CBMs in industrial sectors such as manufacturing, power and automotive remains challenging (Frishammar and Parida, 2019). Deeply embedded linear logics, often described as "take–make–dispose" mindsets, continue to prioritize throughput and efficiency over conservation and longevity (Urbinati *et al.*, 2021). CBM implementation further demands substantial organizational change, including new processes, skills, governance arrangements and cross-functional collaboration, which can disrupt established routines and power structures (Smol *et al.*, 2024; Panda *et al.*, 2025b). High upfront investments, regulatory uncertainty and immature markets can undercut managerial commitment (Geissdoerfer *et al.*, 2020), while limited digital capabilities constrain companies' ability to track resource flows and product lifecycles at scale (Panda *et al.*, 2026; Khatua *et al.*, 2025).

In response, prior research has extensively examined barriers, drivers and enablers of CBM adoption, highlighting the role of technologies, supply chain redesign, collaboration and circular product design (Parida *et al.*, 2019a; Geissdoerfer *et al.*, 2020; Panda *et al.*, 2025a). Empirical studies illustrate how companies such as SKF optimize machinery performance, how Scania extend product lifecycles, and how ABB deploy IoT-based solutions for predictive maintenance and tracking (Ranta *et al.*, 2020; Schöggl *et al.*, 2023). Other work emphasizes employee training and analytical skills as important enablers of circular practices in daily operations (Svensson and Funck, 2019).

However, this literature falls short in two important ways. First, most studies examine isolated practices designed to overcome specific barriers and therefore tend to focus on single business model dimensions, i.e. value creation, value delivery or value capture, rather than explaining how these dimensions interact and evolved simultaneously during implementation (Bocken *et al.*, 2016; Mont *et al.*, 2017; Junnila *et al.*, 2018). Second, existing research offers limited insights into how CBMs are implemented over time in industrial contexts (Chen *et al.*, 2020; Mont *et al.*, 2017; Stål and Corvellec, 2018). While implementation is often implicitly treated as capability development or adoption, little is known about how companies progressively implement CBMs through interconnected practices that cut across organizational boundaries and ecosystem relationships (Martin *et al.*, 2024; Schwanholz and Leipold, 2020). As a result, industrial companies lack integrated, practice-oriented guidance on how to navigate CBM implementation.

To address this gap, we conceptualize CBM implementation as a phased and practice-based process through which companies iteratively move from early design choices to organizational embedding and, ultimately, large-scale market deployment. Rather than equating implementation with capability accumulation alone, we view it as the enactment of evolving practices that shape how value is created, delivered and captured over time.

The strategy-as-practice (s-as-p) perspective provides a suitable theoretical lens for examining this process. Originating in strategic management and organization studies, s-as-p conceptualizes strategy as something organizations do through activities, routines and interactions, rather than something they merely possess (Whittington, 2006; Seidl *et al.*, 2024). This perspective is particularly relevant for CBM implementation because it captures the micro-level actions through which actors like managers, employees and ecosystem partners translate circular ambitions into operational realities (Jarzabkowski and Paul Spee, 2009; Jarzabkowski and Whittington, 2008). Moreover, s-as-p explicitly recognizes that strategy emerges through situated, context-dependent practices rather than through top-down planning, making it well suited for studying the iterative and experimental nature of circular transitions (Feldman and Orlikowski, 2011).

Building on this perspective, the purpose of this study is to advance the understanding of how industrial companies conduct CBM implementation through phase-based practices. Specifically, we synthesize and structure practices associated with CBM implementation into three interrelated phases – designing, developing, and scaling – each characterized by distinct yet overlapping emphases on value creation, value delivery and value capture. By doing so, we respond to calls for more practice-oriented and process-sensitive research in the CBM literature (Frishammar and Parida, 2019; Geissdoerfer *et al.*, 2020; Smol *et al.*, 2024), while offering an empirically grounded framework that reflects what companies actually do when implementing CBMs.

Empirically, this study analyzes academic and grey literature published between 2012 and 2023 on CBM implementation among industrial companies operating in resource-intensive Business-to-Business (B2B) contexts. Sweden provides a particularly relevant research context due to its strong policy support for circular economy initiatives, high digital maturity, and early adoption of CBMs across industries. To capture both scholarly insights and practice-based evidence, we systematically examine peer-reviewed studies alongside company reports, industry publications and policy documents. Using Mayring's (2014) qualitative content analysis, we identify key practices and activities associated with each phase of CBM implementation.

The article outlines as follows: We first introduce the s-as-p framework and review prior literature on CBM-supportive practices. We then describe the research methodology and present findings structured around the three phases of CBM implementation. Based on these findings, we develop a practitioner-oriented framework that connects phases, practices and reflective questions. Finally, we discuss theoretical contributions and managerial implications, highlighting how phased, practice-based implementation of CBMs can be conducted.

2. Theoretical background

2.1 The strategy-as-practice framework for theorizing circular business model implementation

The s-as-p framework holds that strategy is not merely a top-down, static plan but a dynamic, evolving process enacted through ongoing activities, routines and interactions within organizations (Whittington, 2006). In contrast to traditional perspectives that focus on competencies or industry-level outcomes, s-as-p redirects attention to how strategy is practically formulated and executed, highlighting the significance of micro-level actions and interactions (Whittington, 2006). It integrates the creative generation of ideas with concrete tasks like planning, designing and networking, and underscores the need for continuous reassessment and refinement of practices to ensure adaptability (Whittington, 2007). This interplay between

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routine and adaptation reveals how strategy is shaped by the day-to-day actions of practitioners within specific contexts (Jarzabkowski and Paul Spee, 2009), thereby presenting strategy as a lived, evolving experience that remains fluid in response to internal and external shifts.

At the core of this framework lie four components: practices, praxis, practitioners and outcomes (Jarzabkowski and Paul Spee, 2009). Practices refer to the norms, routines and recurring actions that translate strategic intent into concrete activities (Jarzabkowski and Paul Spee, 2009). We conceptualize practices as comprising sets of activities, focusing on those with significant consequences (Seidl *et al.*, 2024), which aligns with our goal of theorizing how practices drive CBM outcomes. Praxis refers to the actual execution of these practices in daily operations. Practitioners, such as orchestrators and ecosystem partners in CBMs, enact practices, thereby influencing implementation. Outcomes are the tangible results, including organizational change and long-term strategic gains, like improved value-capture in CBMs. This holistic view connects strategic goals to everyday operations and enables consistent implementation and adaptation (Jarzabkowski and Whittington, 2008).

Practices are particularly vital, as they bridge the gap between abstract strategic aims and practical implementation. They shape how work is structured, offering consistency, efficiency and adaptability (Bloom and Van Reenen, 2007). Through repeated enactment, these practices embed strategy within organizational routines, allowing companies to remain competitive in dynamic environments (Feldman and Orlikowski, 2011). However, practices are not static. Their evolution over time allows organizations to respond to changing goals and market conditions. This temporal dimension, how practices develop, shift and mature, underscores their transformative role in CBMs and beyond and is critical to understanding how companies progress through different phases of strategic development (Feldman and Orlikowski, 2011).

This temporal view is particularly relevant when studying CBM implementation. In early phases, practices may center on problem-solving and operational stability (Bloom and Van Reenen, 2007). As companies mature, more complex practices such as innovation management and cross-functional coordination emerge (Feldman and Orlikowski, 2011). In later stages, ecosystem orchestration and scaling practices become critical (Seidl *et al.*, 2024). This progression aligns well with CBM development, although previous literature has only tacitly addressed these dynamics (Frishammar and Parida, 2019).

Therefore, s-as-p is a fitting background lens for studying CBMs. It helps explain how practices evolve across stages of CBM development and how these practices mediate the translation of circularity goals into company-level action (Kristoffersen *et al.*, 2021). Industrial companies are no longer treating strategy as a rigid plan but instead engage in evolving practices shaped by context and interaction (Kristoffersen *et al.*, 2021). For example, Volvo Group integrates circularity through evolving resource efficiency practices in product lifecycle management, enhancing vehicle longevity and recyclability. Atlas Copco demonstrates how connected solutions can optimize machinery performance, aligning practices with circular principles (Eweje, 2011). Praxis is visible in Scania's real-time data tracking to reduce emissions and improve efficiency. Practitioners in Sandvik collaborate with suppliers to optimize material recovery. Outcomes, as seen in SKF's circular asset management, include improved operational and environmental performance.

Thus, we propose s-as-p as a relevant theoretical lens for structuring CBM implementation (Egels-Zandén and Rosén, 2015). It emphasizes translating circular strategies into routines and actions that evolve over time while accounting for context and adaptation. This perspective helps bridge gaps in the current literature by linking strategic intent with dynamic, operationalized practices, offering companies a clearer and more actionable path toward circularity, which we discuss next.

2.2 Practices for circular business model implementation in industrial companies

CBMs represent a significant and strategic departure from traditional linear models, emphasizing resource optimization, waste reduction and product lifecycle extension (Urbinati *et al.*, 2021). Defined by Frishammar and Parida (2019), a CBM integrates innovation and collaboration to create, deliver and capture value that aligns with environmental, social and economic goals. Service-based models, rather than ownership-based ones, are central to this transition, supporting lifecycle management and deeper customer engagement (Aboulamer, 2018). CBMs thus align with evolving consumer preferences and broader sustainability ambitions (Urbinati *et al.*, 2021).

Implementing CBMs involves navigating a complex mix of barriers, drivers and enablers. Barriers include financial constraints, policy gaps and organizational inertia (Despeisse *et al.*, 2017), while drivers such as regulatory pressure and operational cost benefits push companies toward adoption (Neves and Marques, 2022). Enablers like advanced technologies and strategic partnerships - support the transition by aligning capabilities and interests across stakeholders (Bressanelli *et al.*, 2018). However, overcoming barriers is not sufficient. Companies must also embed circularity in routine and activities through context-specific practices (Chen *et al.*, 2020). These practices need to be preemptive or emerge as adaptive mechanisms to manage implementation challenges, ensuring resilience and continuity during transformation.

The literature outlines various CBM practices, often grouped into core thematic areas. In value creation and resource efficiency, companies refine value propositions, implement recycling and refurbishment, and optimize material use through narrowing, closing or slowing resource loops (Bocken *et al.*, 2016). Ecosystem alignment is equally important, involving strategic partner engagement and the co-development of circular initiatives (Parida *et al.*, 2019a). For example, companies assess partner readiness and involve lead customers to pilot circular innovations (Ranta *et al.*, 2020). Internally, organizational change could be facilitated through sustainability teams, awareness initiatives and training programs (Svensson and Funck, 2019). Innovation and experimentation are also central, with companies adopting network-based learning and pilot testing to refine circular strategies (Susur and Engwall, 2023). Lifecycle stage mapping (Munaro *et al.*, 2021) and data analytics (Kiron, 2017) support strategic decision-making by identifying circularity opportunities across product lifecycles.

Despite these insights, most prior contributions focus on enablers or contextual conditions, offering limited guidance on practical implementation (De Angelis, 2022). This gap highlights the need for an integrated, phased framework that maps out how CBM practices evolve across implementation stages (Santa-Maria *et al.*, 2021). While recent efforts, such as those by Santa-Maria *et al.* (2021) and Sopelana *et al.* (2023) begin to connect antecedents, processes and outcomes, they often underplay the role of actionable company-level activities, thereby limiting practical relevance (Brown *et al.*, 2019).

3. Methods and materials

3.1 Research context and approach

We took inspiration from and followed the guidelines of prior studies focusing on circularity in single-country contexts, specifically Sweden (Johansson and Henriksson, 2020; Niskanen *et al.*, 2020). Sweden provides a compelling setting due to its early and systematic integration of CE principles into national policy and industrial strategies aimed at resource efficiency and diminishing negative impacts on the environment (The Circularity Gap Report, 2022). The study covers the period from May 2024 back to 2012, capturing the rise of CE initiatives driven by national eco-targets. Sweden's transparency in reporting circular actions, through circularity gap assessments and government databases, enables robust company-level analysis. In addition, its detailed documentation of companies investing in sustainability-led research underscores national commitment to CE (NyTeknik, 2020).

We focused on four critical sectors: manufacturing, energy, transport and construction, given their significant contributions to pollution and greenhouse gas emissions (Our World in Data, 2024). Manufacturing and construction are major polluters, while energy and transport account for 73% and 24% of global CO_2 emissions, respectively.

3.2 Data collection

Our data collection involved a search for literature that followed a structured three-stage process to gather relevant articles and documents (see Figure 1). The initial identification stage involved a search in the Scopus, ScienceDirect and Google Scholar databases for publications containing terms such as ["circular business model*" OR ("circular economy" AND "business model*") OR "circular value proposition*" OR "circular servitization" OR "product-service system*" OR "circular innovation"\AND (Sweden OR "Swedish firm*" OR "Swedish industry*" OR "Nordic industry*" OR "Nordic firm*") in titles, abstracts or keywords.

This search produced an initial pool of 185 articles. After removing publications from unrelated fields, such as earth sciences, materials science, agriculture, medicine and fundamental science, we refined the selection to 111 articles focused on CBM-related contents. Moving to the screening stage, we filtered out non-English articles and those without a clear emphasis on CBMs, thereby reducing the sample to 97. In addition, articles that targeted Business-to-Consumer (B2C) models, that contained only conceptual discussions without empirical evidence on CBMs, or that were written by Swedish authors but were unrelated to Swedish contexts were removed, resulting in a final selection of 51 articles for the next stage. Next, at the eligibility stage, 16 additional articles were added through cross-referencing (Geissdoerfer *et al.*, 2020), along with 35 grey literature sources, including industry reports, government publications and news articles. To identify articles in the grey literature, we focused on leading Swedish industrial companies, classified under SNI/SIC codes 07–32 and recognized for R&D intensity and innovative circularity practices (NyTeknik, 2020). After reviewing academic literature and identifying relevant practices, keywords were extracted to locate grey literature sources (Adams *et al.*, 2017). We derived the 102 sources from 67 by primarily adding grey literature, including newspaper articles, blogs, vlogs, annual and sustainability reports, and reports from Swedish industrial companies. The author team then analyzed all grey sources manually and excluded documents on three grounds. First, sources that mentioned circularity only in promotional or aspirational terms, without describing a concrete activity that could be coded, were removed for lacking codable content. Second, sources that added no new first-order activity beyond what was already captured were excluded, as coding had reached saturation for that practice. Third, when multiple outlets reported the same company initiative, we retained the recent and most reliable primary source, emphasized credibility, favoring reputable sources such as EU reports and official company documents (Zhang *et al.*, 2021), and removed the rest. For example, ABB's activity of integrating circularity across departments appeared in a company blog and in successive annual reports, so we retained the latest annual report and excluded the overlapping sources. This left 87 documents for final inclusion (see Appendix 1 Supplementary material for details on these), which provided the foundation for analyzing CBM practices among industrial companies.

3.3 Data analysis

This study applies qualitative content analysis, a systematic method suitable for interpreting complex, context-specific topics like CBM practices (Mayring, 2014). It enables structured coding and iterative analysis to uncover both manifest (explicit) and latent (implicit) meanings (Elo and Kyngäs, 2008), identifying the routines and practices central to CBM implementation (Seidl *et al.*, 2024). Academic and grey literature were analyzed together, with grey sources offering valuable, practical insights often absent in academic work (Frishammar *et al.*, 2025).

Our analysis followed the logic of the Gioia methodology (Gioia *et al.*, 2013), proceeding from first-order codes (activities) to second-order themes (practices), and finally to aggregate dimensions (phases). Activities are defined here as discrete, observable routines undertaken by industrial companies to support CBM implementation (e.g. introducing predictive maintenance systems). These were primarily derived from both academic and grey literature based in Sweden. Examples include "promoting advanced data analytics to drive circularity" and "designing modular product components to extend lifecycle." Similar activities were then grouped into practices, defined here as broader, patterned sets of related activities that collectively advance a particular CBM-related objective. For instance, the practice "building digital competency" emerged from three underlying activities related to data analytics, Internet of Things (IoT) adoption and digital skills training. These practices were

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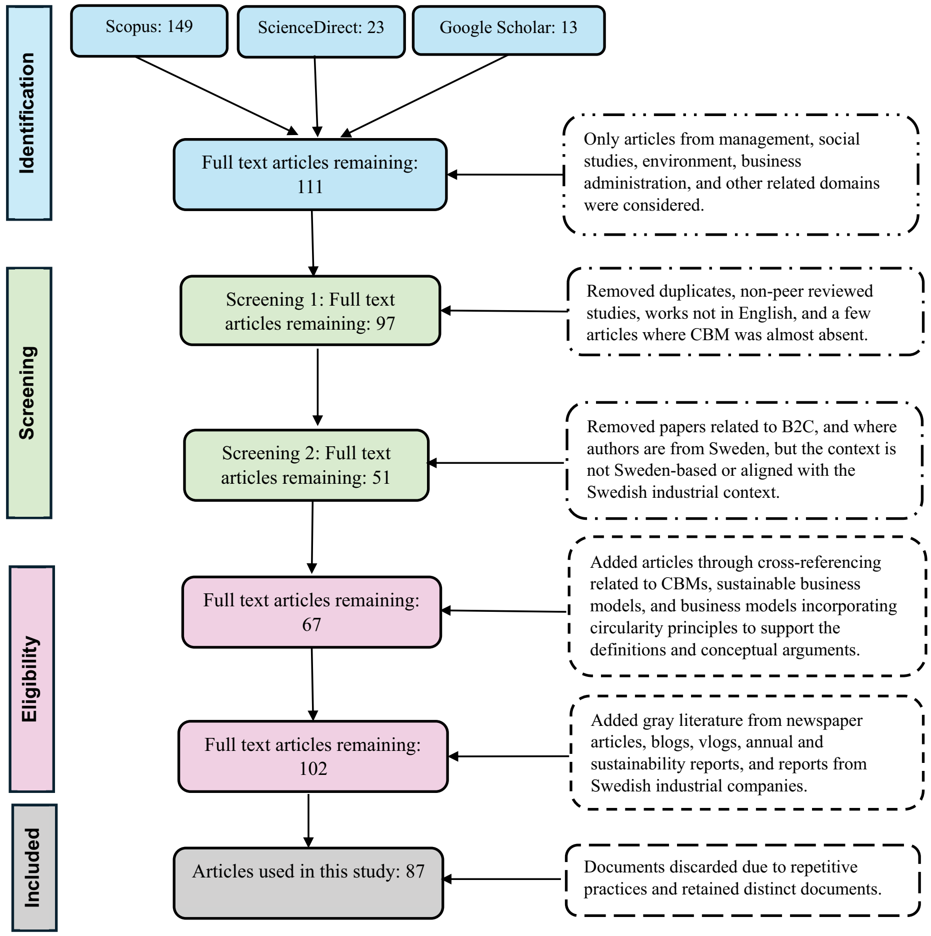
Figure 1 The literature search and refinement process



subsequently organized into three aggregate dimensions, corresponding to the phases of CBM implementation. The aggregate dimensions were informed by the CE and CBM literatures, with established CBM frameworks guiding the progression and defining characteristics of the stages through which CBM implementation can be approached (Frishammar and Parida, 2019; Welch and Soufani, 2024).

The praxis component of the s-as-p perspective guided the identification and interpretation of micro-level activities, while the CE and CBM literatures informed the aggregate dimensions by specifying the characteristics associated with each implementation phase. A critical step in our coding was determining the phase to which each practice and its underlying activities belonged. Here, the longitudinal nature of our grey literature was particularly valuable. Access to documents spanning more than a decade (2012–2024) allowed us to identify when an activity emerged or became dominant and thus assess whether it was part of a new or existing practice. As the phases are interconnected, the effects of some activities extend into more than one practice, and in turn, more than one phase. This led to some initial confusion and disagreement among the author team while reconciling the individual coding trees into a single coding tree for the study.

From our author team, two authors independently coded the data using the coding scheme and compared their coding to check for agreement. Where disagreements could not be resolved, the third author acted as a neutral party and analyzed them to check whether the disagreements were systematic rather than incidental (Clarke *et al.*, 2023). The team then discussed these cases and recoded the data until all disagreements were resolved. For example, the activity "promoting the use of advanced data analytics to drive circularity" was initially coded under different phases by the two authors. The third author's analysis showed that the disagreement arose because the activity spans both capability-building and scaling, and we resolved it by anchoring the activity to its phase of first emergence, the designing phase.

4. Findings

This section presents the specific activities identified and the practices that they converge into, across the three sequential phases of CBM implementation (Pedersen *et al.*, 2019; Welch and Soufani, 2024). These activities highlight a range of key circular practices observed during the designing, developing and scaling phases, which are crucial for a successful transition to a CBM. Figure 2 illustrates the configuration of all activities and practices, with aggregate dimensions employed to structure the findings.

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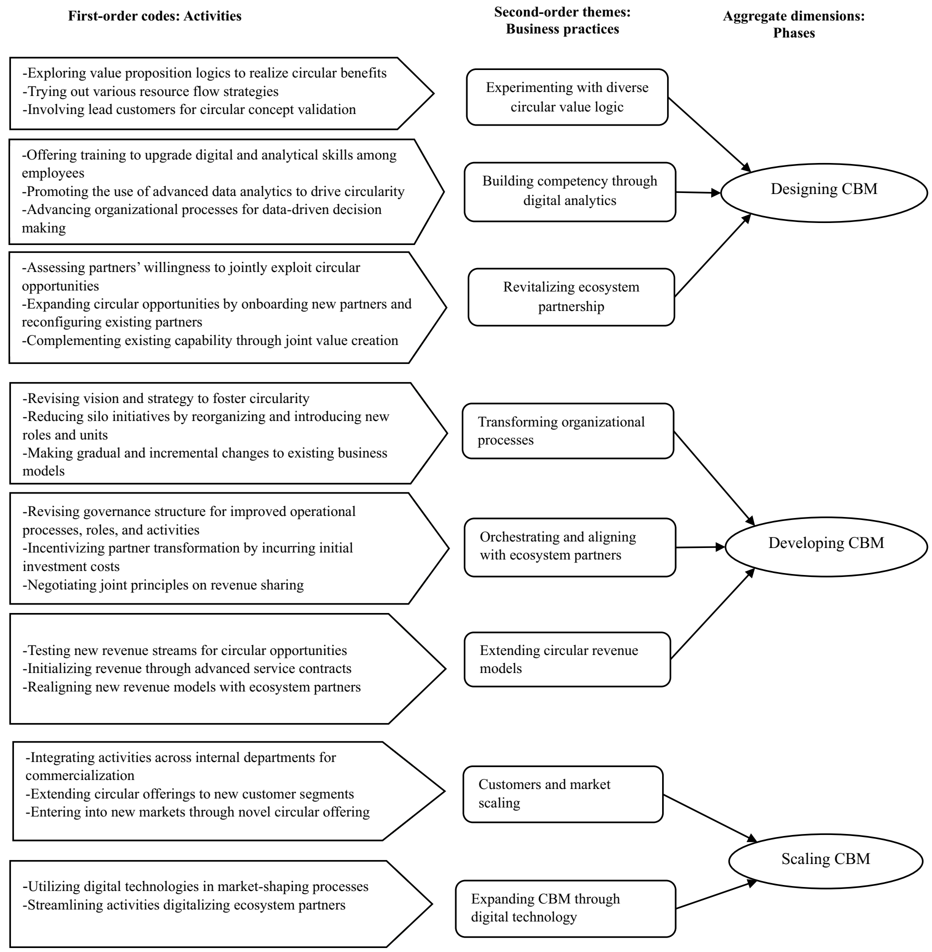
Figure 2 The coding tree



4.1 Designing circular business models

This aggregate dimension captures the initial conceptualization and planning of a CBM, including the ideation of logics, capabilities and resources aligned with circular principles (Welch and Soufani, 2024). Companies experiment with circular value propositions and validate them through collaboration with lead customers. Simultaneously, they build internal competencies by training employees and promoting advanced data analytics to support circularity. Revitalizing ecosystem partnerships is also key, involving the reassessment of partner alignment, reconfiguration of existing ties, and onboarding of new collaborators (Egels-Zandén and Rosén, 2015). Together, these efforts lay the foundation for rethinking and innovating business structures toward circular transition (Kara *et al.*, 2022). This aggregate dimension builds primarily on prior work on CBM conceptualization (Welch and Soufani, 2024), circular value logics (Bocken *et al.*, 2016; Ranta *et al.*, 2020), digital capability building (Sjödin *et al.*, 2021) and ecosystem reconfiguration (Egels-Zandén and Rosén, 2015; Reim *et al.*, 2021).

4.1.1 Experimenting with diverse circular value logics

The initial business practice observed by Swedish industrial companies is to explore various ways to evaluate circular value logics and make the correct choice while reimagining how new combinations (both existing and new) of products and services can bring sustainable value to the company, to the ecosystem and, by extension, to the customers (Egels-Zandén and Rosén, 2015). This choice is difficult because companies belonged to various industries and vary in their capabilities (Frishammar and Parida, 2019).

Within this practice, the first observed activity is exploring value proposition logics to realize circular benefits. Value propositions highlight how industrial companies deliver superior circular benefits (Brydges, 2021; Ranta *et al.*, 2020). Swedish companies design offerings by exploring and refining ideas based on circular value, focusing on logics such as resurrecting (recycling, refurbishing), sharing (utilizing idle assets), optimizing (maximizing resource use) and replacing (introducing better alternatives) to create economic, functional and sustainable advantages (Ranta *et al.*, 2020).

After selecting the value proposition logics, trying out various resource flow strategies is crucial. Circular value propositions focus on customer-facing aspects – how value is perceived by and delivered to end users – while resource flow strategies address internal operational processes, ensuring efficient and sustainable resource management (Johansson and Henriksson, 2020). The value proposition defines the "what" (e.g. eco-friendly offerings), while resource flow strategies define the "how" (e.g. reclaiming and reusing resources) (Bocken *et al.*, 2016). Together, they align customer value with sustainable practices. Resurrecting propositions close loops by reusing materials, while sharing and optimizing propositions narrow resource flows, enhancing efficiency and reducing environmental impact (Dziubaniuk and Aarikka-Stenroos, 2025; Lorick *et al.*, 2021).

For example, SKF strategically pursued the "Asset Efficiency Optimization" service, collaborating with key industrial clients to optimize machinery performance leading to delivering both economic and functional benefits. On the resource flow side, SKF ensured efficient use of existing assets, minimizing downtime and waste, while extending machinery life, which aligns with sustainable resource management (SKF Group, 2019).

The third activity that companies engage in is involving lead customers for circular concept validation. Companies design circular offerings through tailored solutions and close collaboration with lead customers, securing their involvement by addressing needs such as cost reduction to increase revenue (Milios and Matsumoto, 2019; Veleva and Bodkin, 2018). They prioritize early customer involvement to ensure the offering delivers clear value (Frishammar and Parida, 2019).

For example, based on customers' requirement related to CO_2 emission regulations or sustainable business model requirement, Scania offers circular solutions by delivering high-quality, optimized vehicles and services, utilizing vehicle data from connected vehicles to maximize operational uptime and enhance customer revenue (Scania, 2024a; Scania, 2024b).

4.1.2 Building competency through digital analytics

To design CBM successfully requires a holistic transformation of a company's competency profile, which heavily relies on building capability through digital and analytical skills (Sjödin *et al.*, 2021). Digital analytics plays a crucial role in enabling companies to track resource flows, monitor lifecycle impacts, and make data-driven decisions that align with circularity goals (Karuppiah *et al.*, 2024; Martin, 2025).

As a first activity, Swedish industrial companies are offering training to upgrade digital and analytical skills among employees. Industrial companies collaborate with public and private partners to deliver CBM training, often with startups focusing on data analytics and machine learning skills (Chauhan *et al.*, 2022; Martin, 2025; Sjödin *et al.*, 2021). This includes developing expertise in material analysis (Janssens *et al.*, 2021), product-use cycles, recovery processes (Straub *et al.*, 2023), and sustainable design using tools like AutoCAD, Solidworks and environmental engineering for maintenance and remanufacturing (Khan *et al.*, 2020).

As an illustrative example, Atlas Copco partnered with CoachHub to provide upskilling programs so that employees could analyze equipment performance data, predict maintenance needs, and optimize resource usage (Atlas Copco, 2022; CoachHub, 2026).

The next activity underscores industrial companies' increased attempts for promoting the use of advanced data analytics to drive circularity. Industrial companies enhance technical expertise, automating processes, tracking stock movements, and issuing maintenance notifications for surplus materials through emerging technologies (Kiron, 2017), such as blockchain, sensor-based RFID and IoT systems, and predictive and prescriptive analytics techniques (Ramadoss *et al.*, 2018; Blackburn *et al.*, 2023).

Volvo Construction Equipment's development efforts are representative. Its connected solutions enhance efficiency, safety and circularity by enabling real-time control over machinery and operations. Technologies like Connected Map improve site visibility and reduce emissions, while Collision Mitigation boosts safety. The CO2 Reduction Program helps businesses cut emissions while remaining profitable. Tools like Connected Load Out optimize workflows and supply chains. These innovations support Volvo's Industry 4.0 vision, revolutionizing construction through advanced connectivity (Volvo Construction Equipment, 2026).

Finally, industrial companies advance organizational processes for data-driven decision-making. Integrating internal platforms with systems tracking resource flows, reuse, and waste enables real-time insights into circular operations (Schöggl *et al.*, 2023). This supports informed, sustainable decisions across the supply chain (Ramadoss *et al.*, 2018). Standardized protocols and data-sharing tools further streamline circular practices, enhancing resource efficiency and reducing environmental impact (Kristoffersen *et al.*, 2020; Thomson *et al.*, 2023).

Svenska Cellulosa Aktiebolaget exemplifies data-driven decision-making by using technologies like computerized tomography, image processing and Artificial Intelligence (AI) at its Bollsta sawmill. This enables precise log analysis, optimizing product value and efficiency. Data insights enhance decisions across production, ensure general data protection regulation compliance, and boost profitability. These efforts support circular economy goals by minimizing waste and maximizing resource use (SCA, 2022).

4.1.3 Reconfiguring ecosystem partners

Through this business practice, Swedish industrial companies reconfigure ecosystems, bringing together diverse stakeholders and external partners to promote circularity, facilitating compliance with environmental regulations and standards, and navigating supply chain disruptions (Sjödin *et al.*, 2023; Ström and Hermelin, 2025). The first activity highlighted here is assessing partners' willingness to jointly exploit circular opportunities to ensure that all ecosystem partners obtain a deeper understanding of the steps and gaps related to CBM development (Ekman Burgman, 2022; Pedersen *et al.*, 2019). To shift from a product- to service-centric model, partners must be adaptable and prepared (Parida *et al.*, 2019a). Companies assess partner compatibility through trend analysis of green technologies and operational shifts (Parida *et al.*, 2019b), hold strategic meetings to agree on changes, and examine policy or regulatory shifts to gauge partner willingness (Bücker *et al.*, 2025).

Next, industrial companies are expanding circular opportunities by onboarding new partners and reconfiguring existing partners. Industrial companies pursue collaborators for digital platforms, tech support, modular design and standardization (Berlin *et al.*, 2022; Sjödin *et al.*, 2022). Partnerships now include Original Equipment Manufacturers, competitors and startups via hackathons (Parida *et al.*, 2019a). Existing alliances are reconfigured to support CBMs, leveraging operational insights (Aboulamer, 2018). Through dialogue, knowledge sharing and incentives, companies guide partners toward circular practices, enabling mutual growth and smoother transitions to sustainable operations (Sjödin *et al.*, 2022). The third activity is where companies are complementing existing capabilities through joint value creation with partners. Rather than simply seeking partners who mirror their operations, industrial companies are looking for collaborators whose strengths align with their weaknesses, creating a synergy that benefits both parties (Reim *et al.*, 2021). This approach encourages a holistic view of the ecosystem, recognizing that each partner brings a unique set of capabilities and resources to the table (Ardra *et al.*, 2025; Ström and Hermelin, 2025).

ABB exemplifies ecosystem collaboration by partnering with startups in automation, robotics, energy and technology through initiatives like SynerLeap, ABB Technology Ventures and the Industrial AI Accelerator. ABB offers mentorship, technical support, investments and pilot projects, fostering innovation and strategic alignment with its core business. This approach brings diverse skills, fresh perspectives and entrepreneurial energy (ABB Group, 2021; ABB Group, 2023).

4.2 Developing circular business models

This phase focuses on testing design principles by transforming organizational processes, revising strategies, and breaking silos (Veleva and Bodkin, 2018). Companies align governance, incentivize change, and develop shared revenue models (Widerberg *et al.*, 2024), launching market-ready business models through advanced service contracts (Marinina *et al.*, 2022). This aggregate dimension builds primarily on prior work on organizational transformation for circularity (Mont *et al.*, 2017; Brown *et al.*, 2019), ecosystem orchestration and governance (Dhanaraj and Parkhe, 2006; Parida *et al.*, 2019a), and the development of circular revenue models and service contracts (Junnila *et al.*, 2018; Lehtoranta *et al.*, 2022).

4.2.1 Transforming organizational processes

This business practice aims to align the organization's processes with circular principles, promoting a holistic approach to circularity (Mont *et al.*, 2017). By reshaping the organizational mindset, structure and processes, industrial companies create an environment conducive to the successful implementation of CBMs, ensuring that every aspect of the internal processes contribute to circularity goals (Vanhuyse *et al.*, 2022). As a first activity, industrial companies are revising the vision and strategy to foster circularity. Industrial companies show their sustainability commitment through documented circular practices (Stål and Corvellec, 2018). Annual reports, websites and workplace posters highlight circular goals (Svensson and Funck, 2019). Acknowledging the organizational shifts required for CBMs, many companies regularly adjust team structures and operational styles (Hofmann and Jaeger-Erben, 2020; Westblom, 2015). Subsequently, industrial companies are reducing silo initiatives by reorganizing and introducing new roles and units. Companies adopt open, flexible structures to stay agile in the evolving circularity landscape (Awan and Sroufe, 2022; Hofmann and Jaeger-Erben, 2020). To strengthen circularity efforts, they create specialized roles and departments, such as sustainability managers and environmental awareness cells, tasked with driving the circular agenda (Brown *et al.*, 2019; van Langen *et al.*, 2021).

For example, Volvo Group actively promotes cross-functional and cross-disciplinary collaboration. Departments that once operated in isolation have now forged close partnerships to achieve shared circularity objectives. For instance, its engineering, design and procurement teams work closely to develop more sustainable and recyclable vehicle components, transitioned from conventional, hierarchical structures to more agile, team-based approaches (Volvo Group, 2021).

The third activity is making gradual and incremental changes to existing business models. Industrial companies pursue gradual improvements in efficiency, waste reduction, and environmental impact through adaptation and innovation strategies that enhance circularity (Hofmann and Jaeger-Erben, 2020; Okorie *et al.*, 2023). Changes to reward systems motivate circular behaviors, while regular employee training embeds circular principles into daily operations (Linder and Williander, 2017; Svensson and Funck, 2019).

For example, through "Sustainability in Every Drop," Scania has instituted compensation and reward structures that recognize and incentivize circularity-driven behaviors among its employees (Scania, 2022; Scania, 2026).

4.2.2 Orchestrating and aligning with ecosystem partners

Following ecosystem reconfiguration, industrial companies orchestrate partner interactions and resource use for targeted outcomes (Dhanaraj and Parkhe, 2006). They align stakeholders around shared goals, promoting transparency and enforcing rules to manage interests effectively. This coordination ensures cohesive, goal-driven ecosystem performance (Parida *et al.*, 2019a).

The first activity that industrial companies undertake is revising governance structures for improved operational processes, roles and activities. Industrial companies create internal service level agreements with circular ecosystem partners to clarify roles, information flow and service standards (Chen *et al.*, 2020). They use centralized yet tailored monitoring systems and lead discussions to define industry standards. Beyond regulatory compliance, companies set their own quality benchmarks through certifications and audits to ensure adherence and understanding (Chen *et al.*, 2020).

Sequentially, the orchestrator is incentivizing partner transformation by incurring initial investment costs because many ecosystem partners face significant obstacles due to a lack of resources, particularly financial. Ecosystem orchestrators help partners navigate market, regulatory and environmental uncertainties (de Vasconcelos Gomes and da Silva Barros, 2022). They support process development, digitalization, competency building, financial planning and product configurability (Parida *et al.*, 2019a). Industrial companies also emphasize partners' openness in sharing critical knowledge and Intellectual Property to enable effective CBM implementation (Schwanholz and Leipold, 2020; Widerberg *et al.*, 2024). Finally, orchestrators are *negotiating joint principles on revenue sharing*. Through revenue sharing, companies align partner interests with long-term circular goals (Marinina *et al.*, 2022). This approach values each contributor's role in the circular value chain, encouraging collaboration and mutual growth (Junnila *et al.*, 2018; Sjödin *et al.*, 2022). It also serves as a guide for profit-sharing and purchasing agreements, clarifying roles essential for CBM success (Niskanen and McLaren, 2023; Rödl *et al.*, 2022).

For example, Ericsson D-15, an innovation hub committed to circular principles, restructures governance to foster collaboration among industry experts and partners. Using a 5G-powered platform, it enables co-innovation through advanced technology investments. Joint solution development supports revenue-sharing models, aligning incentives and advancing circularity within Industry 4.0 innovations (Ericsson, 2026a; Europawire, 2024).

4.2.3 Extending circular revenue models

Employing the next business practice, Swedish industrial companies extend circular revenue models by focusing on product longevity, resource efficiency and circularity (Lehtoranta *et al.*, 2022). The adoption of such revenue models empowers industrial companies to shift from one-time product sales to long-term customer relationships and responsible resource management. As a first activity, companies start by testing new revenue streams for circular opportunities. By offering products as services, companies enhance resource efficiency, extend product life cycles, and promote reuse (Elzinga *et al.*, 2020; Smol *et al.*, 2024). This aligns with the principles of CE, where products are designed for durability and multiple lifecycles. To capture value out of new revenue models, companies are initializing revenue through advanced service contracts. User-oriented revenue models allow companies to offer products via rental or lease while retaining ownership, encouraging maintenance and repair to extend usability and reduce replacements (Junnila *et al.*, 2018). In result-oriented models, companies are paid based on delivering predefined outcomes, taking full responsibility for performance (Lehtoranta *et al.*, 2022).

For example, Husqvarna Group, with its "Husqvarna Battery Box" service catering to professional users, such as landscapers and municipalities, via a subscription model is a good example of this logic. By retaining ownership, Husqvarna promotes durability and longer product life, ensures optimal equipment condition, manages maintenance, minimizes downtime, and aligns with circular principles (Husqvarna Group, 2017; Husqvarna Group, 2026).

Since these revenue models require companies to collectively access and utilize assets, such as specialized equipment, research and development facilities, materials, transportation and even skilled labor, companies are continuously realigning new revenue models with ecosystem partners. Companies cocreate revenue models with partners to prioritize value creation, resource optimization and circularity (Dahan *et al.*, 2010). Agreed models among suppliers, recyclers and service providers help reduce costs, minimize waste, and foster collaborative innovation aligned with circular economy principles (Henry *et al.*, 2021).

Alfa Lavel is a case in point. Through cocreating a revenue model with ecosystem partners, Alfa Laval offers a sharing business model for its PureBallast ballast water treatment system. Various requirement analyses and accordant revenue models allow multiple shipping companies to collectively utilize and maintain the same equipment, reducing costs and optimizing resource utilization (Alfa Laval, 2026).

4.3 Scaling circular business models

In the scaling phase, industrial companies broaden CBM implementation by integrating circular practices across departments and targeting new markets and customer segments (Kara *et al.*, 2022). Unlike earlier phases, scaling emphasizes growth, commercialization, and the use of digital technologies to streamline operations, enhance coordination, and optimize customer and partner interactions for effective, scalable circular solutions (Parida *et al.*, 2019b; Santa-Maria *et al.*, 2022). This aggregate dimension builds primarily on prior work on CBM scaling and commercialization (Parida *et al.*, 2019b; Milios, 2021), customer and market expansion (Sandberg and Hultberg, 2021) and digital platform–enabled ecosystem scaling (Santa-Maria *et al.*, 2022; Pauli *et al.*, 2021).

4.3.1 Customer and market scaling

Through this business practice, industrial companies focus on vertical expansion by deepening their presence within existing markets, enhancing operational efficiency, and embedding circular practices more comprehensively in their value chains (Milios, 2021). Simultaneously, horizontal scaling extends circular offerings to new customer segments and geographic regions, adapting products and services to meet diverse market demands while maintaining a commitment to sustainability (Sandberg and Hultberg, 2021).

Here, Swedish companies are involved in three activities. The first activity is integrating activities across all departments for commercialization. This optimizes both horizontal and vertical scaling by intensifying current circular initiatives and ensuring a seamless alignment of practices across units (Sandberg and Hultberg, 2021; Souza *et al.*, 2025). For instance, circular practices, such as recycling components, are no longer limited to specific teams but are being implemented organization-wide to standardize circularity efforts. This integration supports the efficient rollout of circular offerings, enhancing internal coordination for greater market impact (Jabbour *et al.*, 2019; Parida *et al.*, 2019b).

For example, ABB, in its latest report called "Circularity: No time to waste," highlighted the importance of engaging at least one dedicated person from each department to drive circularity in the business (ABB Group, 2024; Control, 2024).

In the second activity, industrial companies are extending circular offerings to new customer segments, which represents horizontal scaling beyond their internal operations (Kanda *et al.*, 2021). This activity often involves revising product frameworks, offering longer warranty periods and maintaining spare-part availability long after product purchase, which helps attract new customers (Heshmati and Rashidghalam, 2021; Lüdeke-Freund *et al.*, 2019).

Again, ABB is a case in point. ABB's PLC lifecycle management model, with phases spanning 5–10 years, ensures that customers derive benefits from optimized equipment investments, extended product support, and seamless technology upgrades. This approach not only fosters customer retention but also opens up new markets for circular offerings (ABB Group, 2026).

Finally, these large companies are entering into new markets through novel circular offerings, as a form of vertical scaling beyond internal operations. This "scale-deep approach" integrates circularity into organizational values and culture, extending beyond surface practices (Kara *et al.*, 2022; Han *et al.*, 2023). As these companies expand, they prioritize circularity in their market entry strategies, establishing circularity as a core feature of their operations (Santa-Maria *et al.*, 2022; Welch and Soufani, 2024). This ensures that sustainable practices are ingrained in the company's identity and operations.

As an example, Scania's "new circular system" utilizes a three-step approach of reuse, repurpose and recycle. By maximizing the lifespan of batteries through their Battery Energy Storage System, Scania explores markets for grid balancing and forming partnerships to establish recycling infrastructure. This expansion goes beyond traditional operations, aligning circular practices with new market entry strategies. Through this, Scania integrates circularity into its offerings, ensuring that circular principles drive innovation and market growth (Scania, 2023).

4.3.2 Expanding circular business model through digital technology

After establishing digital capabilities in the design phase, this business practice enables industrial companies to extend their CBMs by leveraging digitalization to enhance the efficiency and scalability of internal operations and ecosystem partnerships (Santa-Maria *et al.*, 2022). There are two underlying activities. The first observed activity is utilizing digital technologies in market-shaping processes. Industrial companies use digital platforms to boost both internal efficiency and customer engagement (Moscati *et al.*, 2023; Pauli *et al.*, 2021). Integrating data analytics and IoT enables real-time tracking and optimization of circular services like rentals and leasing (Alcayaga and Hansen, 2025). These platforms help identify profitable segments, tailor offerings, and apply dynamic pricing to enhance market reach and satisfaction (Liu *et al.*, 2023).

As an example, ABB leverages IoT to optimize market-facing circular offerings, helping customers reduce total ownership costs through predictive maintenance and asset management. This boosts efficiency, extends asset lifecycles, and enhances circularity. By offering these digital solutions, ABB improves operational productivity while delivering long-term value through reduced capital expenditure (ABB, 2026).

Furthermore, industrial companies are *streamlining activities by digitalizing ecosystem partners*. Industrial companies expand market presence by using digital solutions to optimize ecosystems. Data-driven insights help synchronize demand and supply, reduce inefficiencies, and enhance value chain collaboration (Liu *et al.*, 2023). Digital platforms also enable circular sourcing by ensuring transparency in sustainable materials, allowing informed decisions and fostering more connected, efficient ecosystems (Abideen *et al.*, 2021).

Ericsson is a case in point. Ericsson exemplifies circular innovation through its connected recycling (ECR) system, which uses IoT and data traceability to manage product returns in the reverse supply chain. ECR enables real-time Key Performance Indicator reporting, supports environmental, social, and governance and circularity goals, and enhances efficiency and transparency across the ecosystem (Ericsson, 2026b).

5. Discussion and implication

Our analysis identifies three interdependent phases for CBM implementation, i.e. designing, developing and scaling, each essential to a successful transition toward circularity. These phases offer practical, real-world steps grounded in identified industrial practices, making them more actionable (Sopelana *et al.*, 2023). Therefore, we devise a framework that connects the phases of designing, developing and scaling through a structured, step-by-step roadmap for CBM implementation. It helps to understand how one phase informs the next, ensuring a transition from concept to execution (see Table 1). We propose specific actions and corresponding questions for each phase. The actions guide industrial companies step-by-step toward the realization of circular business model objectives. The questions serve as reflective checkpoints, encouraging companies to critically assess how well strategies align with the outcome of each phase. Across phases, practitioners enact, adapt and pursue practices that emphasize value creation, value delivery and value capture. Importantly, while all three business model dimensions are present throughout all phases of the process, our findings show that each phase is characterized by a dominant dimension that requires greater activation, without implying that the other dimensions are absent.

In the designing phase, practices are primarily oriented toward value creation and value proposition formation. Here, companies engage in experimenting with diverse circular value logics, building digital analytics competencies, and revitalizing ecosystem partnerships (Mont *et al.*, 2017; Brown *et al.*, 2019). These practices enable practitioners to explore how circular value can be created through new combinations of products, services, data and resource flows. Early involvement of lead customers and ecosystem partners supports iterative validation of value propositions, ensuring alignment with market needs and operational feasibility (Blackburn *et al.*, 2023). From a s-as-p perspective, this phase is characterized by exploration and sensemaking practices, where practitioners continuously reflect on partner alignment, data capabilities and customer feedback (Junnila *et al.*, 2018; Lehtoranta *et al.*, 2022). The reflective questions associated with this phase reinforce learning and adaptation, allowing companies to refine value creation practices before committing to more resource-intensive implementation steps.

In the developing phase, the focus shifts toward value delivery and the initial structuring of value capture. Companies engage in practices that transform organizational processes, orchestrate ecosystem partners, and extend circular revenue models (Rödl *et al.*, 2022). These practices stabilize earlier experiments by embedding circularity into governance structures, workflows, and interorganizational coordination mechanisms (Widerberg *et al.*, 2024). Here, s-as-p highlights how strategy is enacted through practices, such as revising vision and strategy, launching cross-functional teams, redefining roles, and introducing incentive systems (Marinina *et al.*, 2022). At the same time, ecosystem-level practices, such as governance redesign, partner incentives and revenue-sharing negotiations, support coordinated value delivery across organizational boundaries (Mont *et al.*, 2017). Value capture becomes more explicit as companies test service contracts, usage-based models, and shared revenue arrangements, while reflective questions help practitioners assess strategic coherence, partner commitment and revenue model viability (Brown *et al.*, 2019).

In the scaling phase, practices are increasingly oriented toward expanding and stabilizing value capture, while

Table 1 Framework with key considerations for circular business model implementation

Phases	Practices	Actions and questions to consider
PHASE A, designing CBM	Experimenting with diverse circular value logics	Action: Try new circular ideas, align them with resource strategies, and get early feedback for a customer-centric validation: • What are the ways to tap into various value logics for circular outcomes? • How can we synchronize circular value logics with diverse resource strategies? • How can key customers be engaged in the early validation of circular concepts? • What approaches can be employed to collect and integrate customer feedback effectively?
	Building competency through digital analytics	Action: Enhance digital skills, apply advanced data analytics for circularity, and foster data-driven decision making: • How can organizational competency be developed to enable data-driven decision making for implementing circular offerings? • What is the current extent of internal competency required to apply advanced data analytics to drive circularity, or is there a need to seek external expertise from ecosystem partners? • How should data analytics strategies be reviewed and updated to drive circularity? • How can we encourage employees to use new digital and analytical skills to promote circularity actively – for example, via training programs?
	Revitalizing ecosystem partnership	Action: Restructure existing and onboard new ecosystem partners to support circular goals: • Are existing partners prepared to align on joint goals? If not, why not? • What initiatives are taken to reconfigure partners? • How can the identification and onboarding of new partner be done effectively? • To what extent can reconfigured partnerships fill organizational capability gaps and benefit the partners constellation as a whole?
PHASE B, developing CBM	Transforming organizational processes	Action: Revise vision and strategy, implement cross-functional teams for circular transformation: • How can the vision and strategy be revised to better align with circularity goals? • What new roles and units need to be introduced to reduce silo thinking and foster cross-functional collaboration? • What targeted initiatives can be implemented to introduce incremental changes in the existing business model? How can changes in vision contribute to the transformation of organizational processes?
	Orchestrating and aligning ecosystem partners	Action: Revise governance, incentivize transformation, and negotiate revenue sharing for improved ecosystem alignment: • How can the governance structure be revised for improved operational processes, roles, and activities? • What incentives are planned to drive partner transformation for improved circularity? • Which strategies work best for negotiating revenue sharing agreements? • To what extent does revenue sharing help to align ecosystem partners?
	Extending circular revenue models	Action: Introduce new revenue streams, emphasize advanced contracts, realign models with ecosystem partners: • How can new revenue streams, such as a subscription model, be introduced effectively? • What strategies can be used to realign new revenue models with ecosystem partners? • What challenges might be encountered while extending circular revenue models and how can they be mitigated? • What measures can be taken to ensure the sustainability of these new revenue models?
PHASE C, scaling CBM	Customer and market scaling	Action: Coordinate departments to scale vertically and horizontally by accessing broader markets and extending circular offerings to new segments: • How is each department contributing to market expansion efforts for circular offerings? • What strategies are in place to identify and reach new customer segments with new or improved circular offerings? • What are the potential new markets for novel circular offerings? • Which new markets present the best opportunities for introducing novel circular products or services? • How can customer data be used to identify opportunities for expanding circular offerings in the marketplace?
	Expanding the CBM through digital technology	Action: Streamline operations with ecosystem partners and enhance marketplace connections through data-driven digital solutions: • What digital tools are currently used to streamline operations with ecosystem partners, and how can these be improved? • How can data analytics be leveraged to expand marketplace connections effectively? • Which digital platforms offer the best integration capabilities for connecting with marketplace stakeholders?

reinforcing delivery capabilities across markets and ecosystems (Parida *et al.*, 2019b; Milios, 2021). Companies scale circular offerings both vertically (deepening integration within existing markets) and horizontally (entering new customer segments and geographies) (Sandberg and Hultberg, 2021). Coordinating activities across departments becomes critical, as scaling requires organization-wide alignment rather than isolated circular initiatives (Santa-Maria *et al.*, 2022).

Digital platforms, analytics and ecosystem infrastructures play a central role in this phase, enabling companies to synchronize demand and supply, manage reverse flows, and support large-scale partner coordination (Sjödin *et al.*, 2023). From an s-as-p lens, scaling involves institutionalizing circular

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practices, embedding them into routines, performance systems and digital infrastructures so that circularity becomes a durable feature of everyday operations (Pauli *et al.*, 2021). The reflective questions associated with this phase encourage companies to assess how departments contribute to expansion, which customer segments to target, and how digital technologies can be leveraged to sustain growth toward circularity (Blackburn *et al.*, 2023).

5.1 Theoretical implications

Our contributions to the CBM literature (Frishammar and Parida, 2019; Geissdoerfer *et al.*, 2020; Jabbour *et al.*, 2019; Lüdeke-Freund *et al.*, 2019; Santa-Maria *et al.*, 2022; Sjödin *et al.*, 2023) are threefold: First, we respond to the call for more practice-oriented studies by exploring what industrial companies are actually doing when they implement CBMs. While existing literature emphasizes barriers, drivers and enablers (Despeisse *et al.*, 2017; Neves and Marques, 2022), it is currently shallow in explaining the real-world activities taken by industrial companies when pursuing CBMs. Our empirical analysis bridges this gap by identifying 8 business practices and 23 distinct underlying activities undertaken by such companies. These activities highlight the dual importance of organizational capability-building and ecosystem transformation for CBM implementation (Parida *et al.*, 2019b).

Second, we contribute to the structuring of CBM implementation by organizing practices into phases – designing, developing and scaling, using the s-as-p framework. While existing tools like the business model canvas (Joyce and Paquin, 2016) and the sensing-seizing-transforming framework (Pieroni *et al.*, 2020) provide useful conceptual guidance, they lack a detailed, process-oriented roadmap for companies. Our study goes further by emphasizing strategy as a dynamic, evolving process rooted in praxis, the actual doings and enactments of strategy (Jarzabkowski and Whittington, 2008). By analyzing how actions are practiced in real time, we structure individual activities into coherent practices and map them across CBM phases. This offers a novel contribution by aligning company-level practices with CBM implementation phases and enabling a more integrative, action-oriented understanding of strategy. The actions and reflective questions also inform when an industrial company can proceed to the next phase by building on the foundation of the previous phase.

Third, we contribute by showing how the business model dimensions of value creation, value delivery and value capture get activated and shifts across the phases of CBM implementation. In the designing phase, practices predominantly gravitate toward value creation, as companies experiment with circular value logics, build analytical capabilities, and validate propositions with lead customers (Straub *et al.*, 2023). In the developing phase, the emphasis shifts toward value delivery, as companies transform organizational processes, align governance structures, and orchestrate ecosystem partners to operationalize circular strategies (Smol *et al.*, 2024). In the scaling phase, value capture becomes more salient, as companies expand circular offerings across markets, deploy digital platforms, and establish revenue models that ensure economic viability and long-term sustainability (Welch and Soufani, 2024). While all three dimensions are present throughout the process, our framework shows that each phase requires greater activation of certain dimension, offering an extended understanding of how CBMs evolve in practice (Sandberg and Hultberg, 2021).

5.2 Managerial implications

This study carries managerial implications for three different actor types. First, it helps industrial companies develop a CBM implementation plan for novel circular offerings. In the design phase, companies can explore circular product logics, such as machinery with interchangeable components. Involving lead customers in early testing enables the creation of repairable and upgradeable products, extending product lifecycles. For instance, a battery energy storage system with modular components can serve various applications, like grid balancing or energy storage, ensuring adaptability and longevity. In the development phase, companies can restructure manufacturing and align ecosystem partners to supply standardized components. For example, designing battery systems with uniform connectors and modular interfaces enables quick and efficient repairs or upgrades, supporting circularity. In the scaling phase, companies can expand these circular designs to sectors such as Electric Vehicle infrastructure, manufacturing, agriculture, and critical services like healthcare and telecommunications.

Second, the study helps ecosystem partners understand their roles in value creation, delivery and capture alongside focal companies. The practices identified offer a roadmap to analyze potential contributions, division of labor and collaboration structures. By leveraging shared resource pools, such as digital platforms, specialized equipment, and advanced technologies, partners reduce costs, increase efficiency, and enhance circular outcomes. This shared approach facilitates innovation and accelerates the adoption of circular practices across networks.

Third, our findings carry implications for policymakers seeking to accelerate CBM implementation. As industrial companies encounter different challenges throughout the implementation process, policy support should evolve accordingly. For example, Innovation Agencies can fund collaborative pilot projects that bring together industrial companies, universities and technology providers to jointly develop and test circular solutions through strategic innovation programs. Environmental Protection Agencies can reduce ecosystem coordination barriers by establishing common circular standards, digital interoperability frameworks, and practical guidance on resource efficiency, material flows, waste prevention and circular procurement. Public Procurement Agencies can further stimulate market demand through circular public procurement and scale-up grants by promoting procurement criteria that emphasize reuse, repairability, recycled content and life cycle costing. Collectively, these institutional interventions can reduce implementation uncertainty, strengthen ecosystem collaboration, and accelerate the large-scale adoption of CBMs.

6. Limitations and future scope

The current study is limited to a single country, Sweden. While many consider Sweden a forerunner in circularity and sustainability, our findings may not necessarily transfer to other countries. Future research could, therefore, replicate this study in other countries. Second, the method employed is a limitation.

Case study research may have provided more in-depth insights regarding the choice of various approaches to activities and practices. Future research could provide validation for the results found here and also undertake cross-country replications. Finally, our study is limited to industrial companies and to a B2B setting. Needless to say, the findings may not hold for a B2C industrial setting, which warrants future studies in its own right.

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Supplementary material

The supplementary material for this article can be found online.

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