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Determinants of circular business model adoption—A systematic literature review

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Abstract

Although the circular economy is considered an avenue to sustainable development, the transition toward circularity is moving slowly. Academic literature has examined how various factors can affect the adoption of circular business models in specific industries and organizational types. However, no research has systematically reviewed the determinants of circular business model adoption. Through a systematic literature review, this study provides a holistic overview of the determining drivers of and barriers to the adoption of circular business models. Building on a sample of 67 journal articles, this study identifies 54 different determinants and classifies them into eight macro categories: culture, regulation, market, strategy, business case, collaboration, operations, and knowledge. The findings can guide policy-makers, researchers, and decision makers across industries in understanding what obstacles to avoid and drivers to employ when they wish to increase circular business model adoption.

KEYWORDS
barriers, circular business models, circular economy, determinants, drivers, systematic literature review

1 | INTRODUCTION

As a significant proportion of non-renewable resources is rapidly diminishing, the need for a circular economy is increasingly evident (Antikainen et al., 2016; Ellen MacArthur Foundation, 2015). The Ellen MacArthur Foundation (2015, p. 2) defines a circular economy as "one that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles". A circular economy can thus offer environmental benefits to global ecosystems, by reducing harmful emissions and decreasing the loss of resources (Rizos et al., 2016). In literature, the concepts of circularity and circular economy date back to pre-industrial times and are widely studied in both practitioner and scholarly writings (Kirchherr et al., 2018; Lieder & Rashid, 2016). During the last two decades, the concept of the circular economy has been increasingly used in research and industry as (a) an alternative to the linear economy (Adams et al., 2017; Guldmann & Huulgaard, 2020) and (b) an approach to resolving the contradiction between economic growth and environmental sustainability (Ronholt et al., 2019).

Although, theoretically the circular economy is considered an avenue to sustainable development, governmental and private transitions toward circularity are moving slowly in practice, and implementation of circular economy activities remains relatively rare (García-Quevedo et al., 2020). A recent report published by Circle Economy (2020) shows that the world in 2020 was only 8.6% circular and that progress

Abbreviations: CBM, circular business model; CE, circular economy.

in this transition has stalled. Interestingly, in 2018, the world was more circular, as the global population cycled 9.1% of everything that was used, showing a negative development in which global circularity decreased between 2018 and 2020. This slow uptake of circularity indicates that either the ability to transition toward circularity or the business model for doing so is not yet in place.

Nevertheless, as firms using circularity in their business models report more resilient supply chains, cost reductions, increased reporting accuracy, and market differentiation (Circle Economy & Ecofys, 2016), the notion of circular business models (CBMs) has gained momentum in the academic literature. Moreover, the approach is gaining popularity among firms wishing to help achieve local, national, and global sustainability (Schroeder et al., 2019). Still, industry-wide adoption of CBMs seems hard to reach as many companies are failing to implement them successfully and are still not able to reap their full potential (Achtenhagen et al., 2013; Reim et al., 2021). Galvão et al. (2022) argue that a main barrier to CBMs is that in practice, companies are not yet being guided on how to actually implement CBMs.

To facilitate the transition from linear business models to CBMs, new knowledge on the institutional, organizational, and individual factors that can either foster or hinder CBM adoption is critical. Although a number of studies have explored the effect of various factors on the adoption of CBMs (Kirchherr et al., 2018; Salvador et al., 2020; Vermunt et al., 2019), this literature still lacks systematic reviews of the determinants of CBM adoption. This study conducts a systematic review of the drivers of and barriers to CBM adoption, defining CBM drivers as factors that enable and encourage the transition toward a CBM, and barriers as factors that obstruct the transition toward it (de Jesus & Mendonça, 2018). Both drivers and barriers can occur at institutional (e.g., regulatory and market factors), organizational (e.g., strategic and operational factors), and individual levels (e.g., employees' awareness and knowledge of the circular economy).

This study thus provides a holistic overview of determinants that can serve as either drivers of or barriers to CBM adoption. After systematically collecting and analyzing the literature on determinants of CBM adoption, it formulates a syncretic categorization of the driving and hindering factors—an approach that offers scholars working on CBMs potential avenues for further qualitative and quantitative research. Moreover, the findings of this study can assist practitioners across industries in identifying the determinants that are likely to impact their firms' CBM adoption processes. In addition, the insights that this study yields will also be useful for policy-makers at both national and European Union (EU) levels in creating circular economy policy frameworks and support mechanisms.

This study is structured as follows. Section 2 presents the research methods and dataset. Section 3 reviews and discusses the applicable literature and illustrates the findings. Section 4 presents the study discussions along with the key takeaways for academia, practice, and policy. Finally, Section 5 discusses the study's limitations and conclusions and offers suggestions for future research.

2 | RESEARCH METHOD

A systematic literature review was selected for this study and is defined by Kitchenham (2007) as a repeatable process that documents all available studies that are relevant to a specific topic area or a distinct research question (Kitchenham, 2007). The research topic of this systematic literature review is the determinants of CBM adoption.

To ensure that the systematic literature review would be conducted properly and rigorously, Okoli's eight-step guide to conducting a systematic literature review was followed. The eight steps comprise (1) identifying the purpose, (2) drafting protocol and training the team, (3) applying a practical screen, (4) searching for literature, (5) extracting data, (6) appraising quality, (7) synthesizing studies, and (8) writing the review (Okoli, 2015).

A search criterion in this study was for only English-language peer-reviewed journal articles to be included. Books and conference proceedings were deselected, as they were not considered relevant for this study. We decided not to limit the time frame of the search; the oldest reference in the sample was from 1960, although the vast majority of the articles were published after 2010. SCOPUS, Web of Science, and EBSCO were selected as the databases from which articles would be collected. These databases were selected as they were considered the most relevant and provided the highest impact journals in this topic area.

To gather the existing literature in the field of CBM adoption, we developed a search query through discussions within the team of researchers and by drawing on our previous knowledge of the CBM literature. Multiple searches for alternative search strings were performed; however, ultimately, the elected search string was set to yield the largest number of studies, which broadened the review's scope. Following recommendations from Kitchenham (2007), multiple trial searches were undertaken with search terms that could be derived from the research questions, in order to ensure that the search string would capture a useful number of papers (Kitchenham, 2007). The final search query that was used was:

> TITLE-ABS-KEY (driv* OR trigger* OR enabl* OR antecedent* OR determin* OR influenc* OR foster* OR motivati* OR reason* OR promot* OR factor* OR opportunit* OR risk* OR threat* OR challeng* OR barrier* OR inhibit* OR limit* OR constrain* OR hurdl* OR hindranc* OR hinder* OR hamper* OR imped* OR prevent* OR obstacl*) AND TITLE-ABS-KEY (circular* OR circle* OR "closed-loop" OR "closed loop*") AND TITLE ("business model*") AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "re")) AND (LIMIT-TO (LANGUAGE, "English")).

This approach allowed the highest number of articles to be assembled, which ultimately resulted in 153 individual articles (excluding duplicates extracted from the three databases). These articles were screened based on their keywords and abstracts and thus narrowed down to the articles that were relevant to the research theme.

The inclusion criterion was that the article used at least one of the following core aspects in terms of literature background, research objective, or results: (1) CBMs and (2) determinants for CBM adoption (represented by drivers, barriers, enablers, obstacles, etc.). Consequently, we excluded those articles that only mentioned CBMs as a general context for their research and not as a core aspect of the research design (e.g., Todeschini et al., 2017), those that addressed CBM as a determinant (e.g., Di Tullio et al., 2018), and papers that investigated circular economy transitions in general (thus not having CBMs as the unit of analysis) (e.g., Chiappetta Jabbour et al., 2020).

To decrease the risk of bias, all abstracts were read by a minimum of two researchers and all disagreements were discussed by the research team. To train the team, the first 30 articles were assessed by all three researchers in order to test for disagreements or misunderstandings about the review protocol and criteria. After conducting the test, the results were debated among the researchers to discuss inconsistencies and ensure agreement before resuming the review of the remaining articles. As a result, the list was narrowed down to 93 articles that were considered to correlate with the research theme. These articles were all read in full to examine the inclusion of determinants of CBMs. During the full-text reading, 14 new articles were added to the sample through the snowballing method, resulting in a total of 107 articles that were assessed for eligibility during the full-text review phase. On the basis of the full-text reading, 40 articles were excluded from the sample, as they were found to not be focused on determinants of CBMs. Therefore, the final sample of this systematic review study consisted of 67 articles (see Figure 1).

The research team made use of a shared spreadsheet to gather qualitative information about the articles. Throughout the reading process, the determinants found in the text were recorded in the shared file. A list of 966 codes related to determinants of CBM adoption was originally extracted from the accumulated articles. Building upon this list, the research team performed a qualitative data analysis using the coding technique proposed by Elo and Kyngäs (2008) to merge determinants for which the original authors used different terms, but which had convergent meaning. In a second round of data analysis, all the determinants were discussed by the research team, grouped into 54 categories, and subsequently classified into eight macro categories: culture, regulation, market, strategy, business case, collaboration, operations, and knowledge.

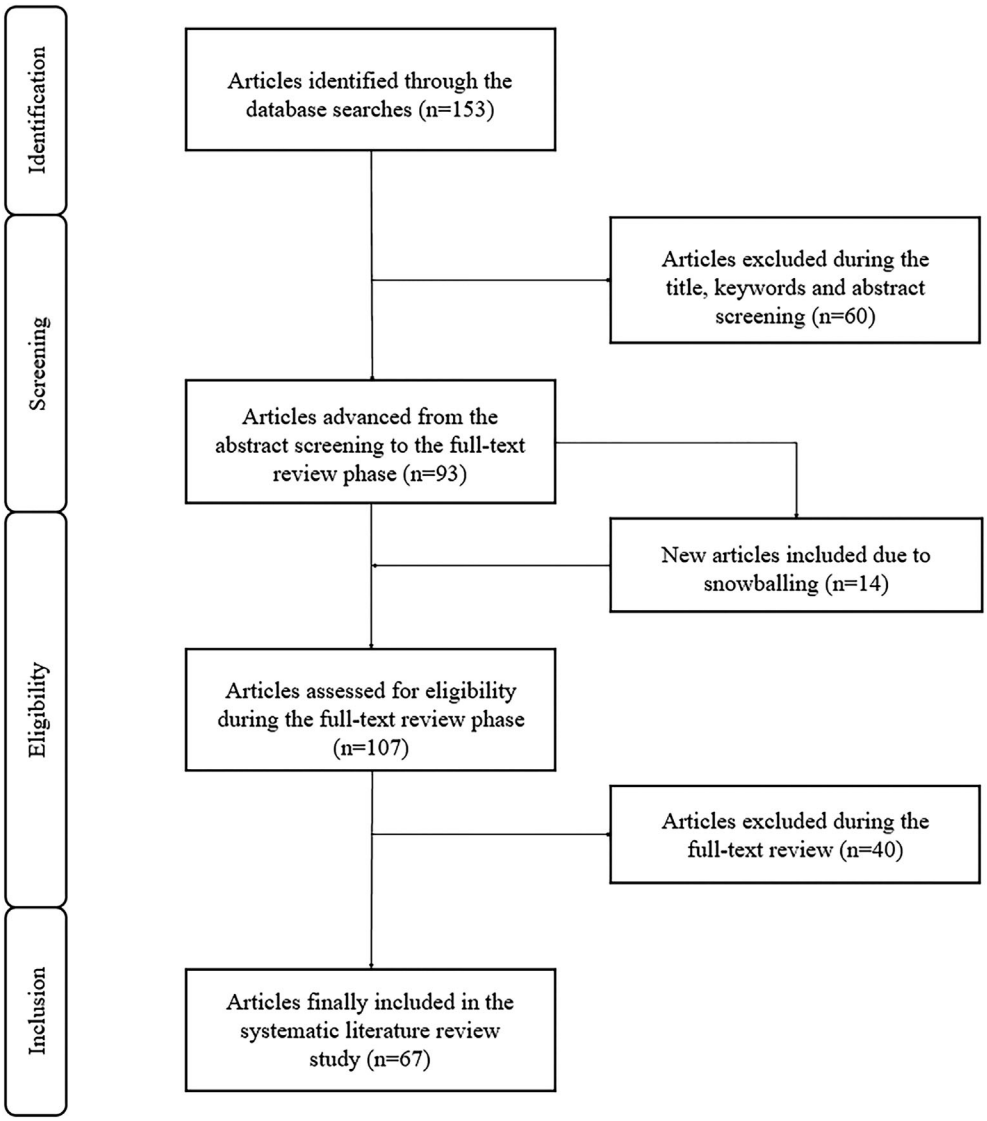

FIGURE 1 Flow diagram of the systematic literature review process.

3 | RESULTS

Through the systematic review process, we derived 54 main determinants of CBM adoption, which were classified into eight separate macro categories: culture, regulation, market, strategy, business case, collaboration, operations, knowledge. The categories and macro-categories are illustrated in Figure 2, in which they range from the most external to the most internal determinants of CBM adoption.

3.1 | Cultural determinants

Various cultural determinants are highlighted by the reviewed articles as important influencers of CBM adoption (Table 1). For instance, *Customer attitudes and behavior* can determine the adoption rate of CBMs, as customers may reject CBMs due to their reluctance to change, their desire to own, or the novel and uncertain practices related to CBMs (Bianchini et al., 2019; Cantú et al., 2021; Guldmann & Huulgaard, 2020; Huerta Morales, 2020; Lewandowski, 2016; Sattari et al., 2020; Vermunt et al., 2019). Not unexpectedly, customers are instead more likely to purchase circular products when linear products have higher prices (Cantú et al., 2021). As products' life cycles are extended with more durable products, customer loyalty may also be increased (Marke et al., 2020) and therefore also their willingness to engage with CBM-oriented companies.

Employee attitudes and resistance to change can also impact their employers' adoption of CBMs (Cantú et al., 2021; Ingemarsdotter et al., 2020). The team motivation to switch to a CBM is crucial for accelerating the adoption process (Lehtimäki et al., 2020). *Managers' attitudes* is ultimately a deciding factor due to managers' role in incentivizing broad participation of employees in the transition toward CBMs (Cantú et al., 2021; Rizos et al., 2016).

On a higher level, the company's overall philosophy, habits, sustainability awareness, history, and level of commitment all determine an *organization's cultural approach* to CBM adoption (Cantú et al., 2021; Pieroni et al., 2021; Rizos et al., 2016; Ünal et al., 2019). Having a common shared vision within the organization can drive the transition, in addition to the organization's flexibility to change, which can vary greatly depending on company size, cognitive barriers, path dependence, and resistance to abandoning the current business model for a new one (Carraresi & Bröring, 2021; Guldmann & Huulgaard, 2020; Ünal et al., 2019; Zucchella & Previtali, 2019). The reviewed literature also shows that sustainability reporting practices can affect consumers' decisions and push companies to stand accountable for their actions and commitment to circularity (Stål & Corvellec, 2018).

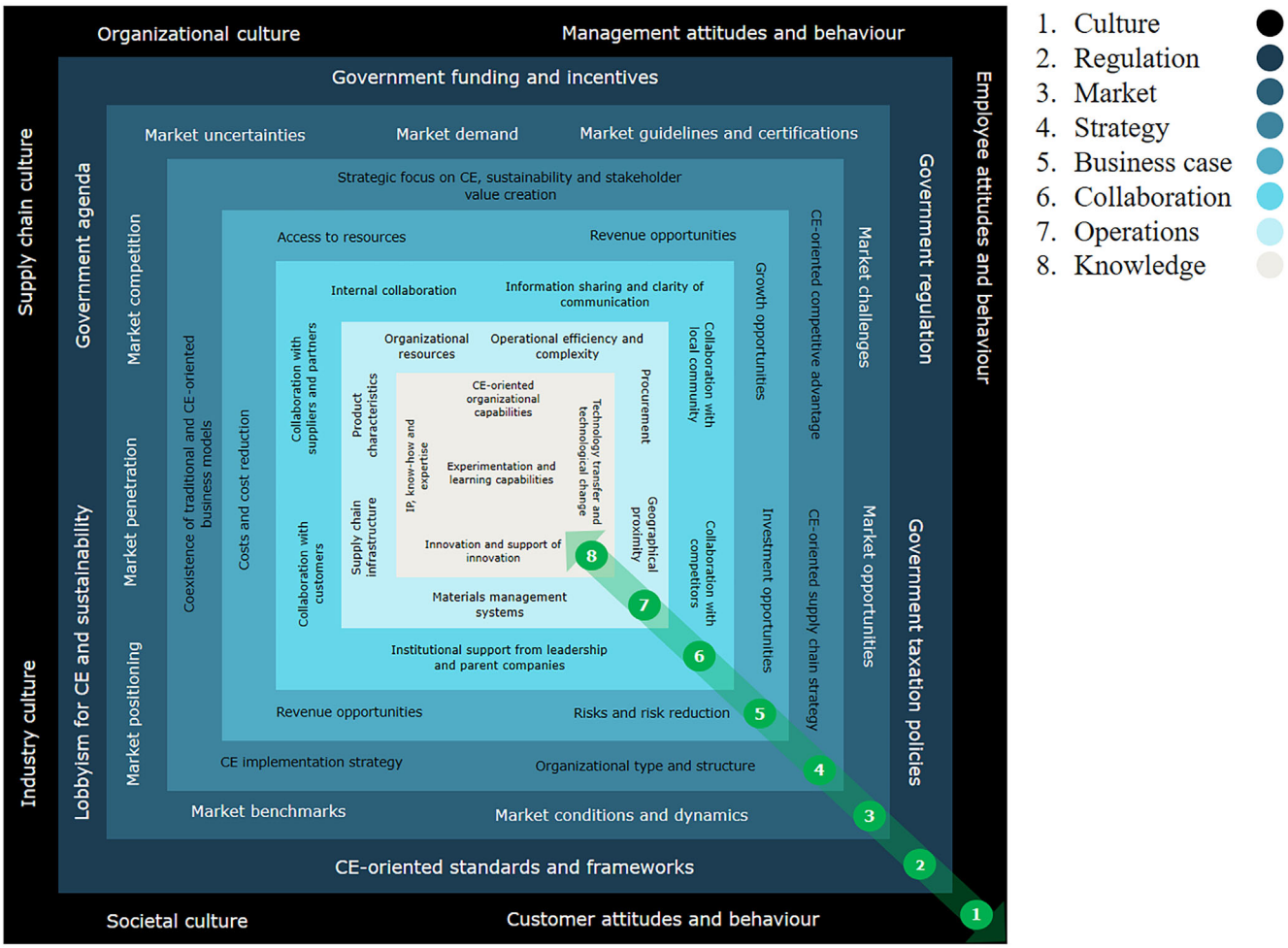

FIGURE 2 Category map of the determinants of circular business model adoption, ranging from most external to most internal category.

TABLE 1 Culture determinants of CBM adoption.

Determinant	Description	Examples and references
Organizational culture	The values, expectations, and practices that shape the ideas and behavior of the people within an organization	• Sustainability awareness, philosophy, history, commitment, and practices of an organization (Cantú et al., 2021; Pieroni et al., 2021; Rizos et al., 2016; Ünal et al., 2019) • Organizational orientation toward stakeholders and level of stakeholder involvement in the organizational business model (Guldmann & Huulgaard, 2020; Pedersen et al., 2019) • Common shared sustainability vision within the organization (Zucchella & Previtali, 2019) • Organizational structure and flexibility to change (Cantú et al., 2021; Carraresi & Bröring, 2021; Guldmann & Huulgaard, 2020; Ünal et al., 2019) • Long-term vision and orientation of the organization (Bianchini et al., 2019; De Angelis, 2021; Hofmann & Jaeger-Erben, 2020; Pedersen et al., 2019)
Employee attitudes and behavior	The state of mind and the way the people of an organization conduct themselves	• Employee attitudes and behaviors toward change (Cantú et al., 2021; Ingemarsdotter et al., 2020; Rizos et al., 2016) • Employee attitudes and behaviors toward expertise development (Ünal et al., 2019) • Employee motivation toward switching to a circular business model (Lehtimäki et al., 2020)
Management attitudes and behavior	The state of mind and the way the people leading or managing an organization conduct themselves	• Management attitudes and behaviors toward sustainability and circular economy (Cantú et al., 2021; Ingemarsdotter et al., 2020; Rizos et al., 2016) • Management attitudes and behaviors toward risk (Rizos et al., 2016)
Supply chain culture	The values, behaviors, and norms of the actors operating in an organization's supply chain	• Lack of trust and compatibility between partners in the supply chain (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Salvador et al., 2020; Zucchella & Previtali, 2019) • Resistance to change from suppliers (Cantú et al., 2021)
Industry culture	The values, behaviors, and norms of the actors operating in an industry	• Lack of CE and sustainability awareness in the industry (Cantú et al., 2021; Carraresi & Bröring, 2021; Ingemarsdotter et al., 2020; Levänen et al., 2018; Pieroni et al., 2020; Stål & Corvellec, 2018; Vermunt et al., 2019) • Lack of promotion and communication of the circular economy agenda in the industry (Cantú et al., 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Hopkinson et al., 2018; Reim et al., 2019) • Lack of system thinking culture in the industry (Cantú et al., 2021; De Angelis, 2021; Fraccascia et al., 2016; Palmié et al., 2021) • Conservatism and reluctance of the industry when it comes to the green transition (Rizos et al., 2016)
Customer attitudes and behavior	People's feelings, beliefs, and intentions toward a business or organization	• Customers' expectations, trust, and acceptance (Bianchini et al., 2019; Bocken et al., 2017; Calvo-Porral & Levy-Mangin, 2020; Elzinga et al., 2020; Hankammer et al., 2019; Ingemarsdotter et al., 2020; Lieder & Rashid, 2016) • Customers' rigidity, irrationality, skepticism, inertia, and reluctance to change (Bianchini et al., 2019; Cantú et al., 2021; Lewandowski, 2016; Planing, 2015) • Customers' resistance toward the novelty and uncertainty related to circular business models (Guldmann & Huulgaard, 2020; Huerta Morales, 2020; Vermunt et al., 2019) • Customers' price sensitivity (Cantú et al., 2021) • Customer loyalty (Marke et al., 2020), triggered by the extension of product life cycle • Customers' desire to own (Sattari et al., 2020) • Customer types and characteristics (personal, cultural, social, and psychological characteristics) (Guldmann & Huulgaard, 2020)
Societal culture	The values, behaviors, and norms of a society	• Societal perception of the quality of reused, remanufactured, or recycled products (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Shao et al., 2020; Vermunt et al., 2019) • Public opinion and pressure to adopt circularity practices (Cantú et al., 2021; Hofmann & Jaeger-Erben, 2020) • Sustainability reporting frameworks and practices (Stål & Corvellec, 2018) • Awards, prizes, and certification promoting circularity (Cantú et al., 2021; Donner et al., 2021; Rizos et al., 2016)

However, companies operating in different industries are also impacted differently, due to different levels of awareness concerning CE (circular economy) and sustainability across industries (Cantú et al., 2021; Carraresi & Bröring, 2021; Ingemarsdotter et al., 2020; Levänen et al., 2018; Pieroni et al., 2020; Stål & Corvellec, 2018; Vermunt et al., 2019). Lack of system thinking and awareness about how to integrate practices in the industry will also be an important obstacle in the integration of circular economy in business models (Cantú et al., 2021; De Angelis, 2021; Fraccascia et al., 2016; Palmié et al., 2021).

Finally, lack of trust and compatibility between partners in the *supply chain* can make it difficult for companies wanting to develop industrial symbioses to aid in transitioning to CBMs (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Salvador et al., 2020; Zucchella & Previtali, 2019). On a broader, societal level, the *societal culture* can have a strong impact on companies and, as the importance of public opinion and pressure increases, societal culture can become a strong enabler/hindrance for CBM adoption (Cantú et al., 2021; Hofmann & Jaeger-Erben, 2020).

3.2 | Regulatory determinants

According to the reviewed literature, regulation can also have a substantial effect on the adoption of CBMs (Table 2). For instance, an important driver is the creation and establishment of laws and policies toward sustainability and CE (Cantú et al., 2021). However, the current lack of specific guidelines, supportive public procurement policies, and legal regulations addressing implementation of CE is limiting companies' adoption of CBMs (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Han et al., 2020; Ingemarsdotter et al., 2020; Linder & Williander, 2017; Nascimento et al., 2019; Pedersen et al., 2019; Rizos et al., 2016; Salvador et al., 2020; Sarti et al., 2017). On the other hand, law enforcement has been identified in the literature as a driver of CBM adoption (Bianchini et al., 2019; Cantú et al., 2021; Han et al., 2020; Rizos et al., 2016); lobbying activities for the introduction of legislation and political incentives can also have a positive impact in the transition toward CBMs (Cantú et al., 2021; Lewandowski, 2016).

Second, the lack of effective taxation policies and frequent changes in national tax policies can hinder companies' adoption of CBMs (Rizos et al., 2016; Shao et al., 2020). Indeed, if taxation on resources is low, companies may prefer to purchase cheaper raw materials than using recycled raw materials (Rizos et al., 2016). Moreover, high taxation on labor may render labor-intensive reuse and recycling activities too expensive for companies (Guldmann & Huulgaard, 2020). On the other hand, tax benefits and tax breaks toward CE can allow the companies to adopt CBMs (Cantú et al., 2021).

Governments' expectations are also a factor that drives the transition to CBMs (Hankammer et al., 2019). However, the lack of defined targets and national goals can represent an important obstacle in the adoption process (Cantú et al., 2021; Levänen et al., 2018). Similarly, standards can also drive the transition. However, the imperfect manufacturing standards and company difficulties in meeting industry standards can hinder the adoption (Cantú et al., 2021; Hopkinson et al., 2018; Huerta Morales, 2020; Shao et al., 2020). Finally, the lack of, or poor, frameworks and tools supporting business model innovation in the context of CE is mentioned in the literature as a key factor hindering the adoption of CBMs (Antikainen et al., 2016; Bianchini et al., 2019).

3.3 | Market determinants

Another important category revealed by the literature review concerns market-related determinants of CBM adoption (Table 3). An example is market demand, which can drive or hinder CBM transition (D'Amato et al., 2020; Rizos et al., 2016). Indeed, developing a consumer market and building loyalty in new consumer segments is crucial for companies that aim to advance the circularity agenda (Bocken et al., 2017). On the other hand, a lack of pressure from the demand side to develop or utilize a CBM may discourage companies from prioritizing CBM adoption (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Rizos et al., 2016).

Interestingly, market competition has been mentioned in the literature solely as a barrier to CBM adoption (Donner et al., 2021; Rizos et al., 2016; Shao et al., 2020). Market dynamics, including the intensity of competition, along with cost pressure, can also negatively impact companies' adoption of CBMs (Hofmann & Jaeger-Erben, 2020). However, we argue that market competition can also be based on sustainability and circularity and thus represent a driving factor for the transition toward CBMs. Indeed, the possibility that working on circularity will enhance and improve brand image and reputation can be driving companies' CBM adoption (Bocken et al., 2017; Stål & Corvellec, 2018).

Various other market challenges are affecting companies in the adoption of CBMs. For instance, the availability of non-renewable resources in the market is a factor that influences both consumers' and governments' expectations, thus enabling the CBM transition (Hankammer et al., 2019). Additionally, ecological challenges such as biodiversity loss, climate change, and resource scarcity are driving the adoption of CBMs (Hofmann, 2019; Hofmann & Jaeger-Erben, 2020), which is often accelerated by the creation of new, innovative, and circularity-oriented ventures (Fraccascia et al., 2016).

However, there is still a lack of market benchmarks and "best practices" that companies can make use of, as well as a need for more case studies (Bocken et al., 2017; Hopkinson et al., 2018). Entering an existing market with a new circularity-oriented product is often described as being very challenging (Donner et al., 2021).

3.4 | Strategy determinants

An important group of determinants highlighted by many of the reviewed articles refers to the integration of CE, sustainability, and stakeholder value creation into business strategy (Table 4). Promoting the use of sustainable and circular strategies, integrating CE and

TABLE 2 Regulation determinants of CBM adoption.

Determinant	Description	Examples and references
Government agenda	The list of subjects that the government is paying serious attention to at the given moment	• Government agenda and expectations (Hankammer et al., 2019) • Lack of defined national goals and targets in terms of sustainability and CE (Cantú et al., 2021; Levänen et al., 2018) • Lack of concrete, coherent, and effective legislation (D'Amato et al., 2020; Donner et al., 2021; Guldmann & Huulgaard, 2020; Rizos et al., 2016)
Government regulation	Official rules that the government imposes on individuals and private companies, backed by penalties, in order to modify behavior	• Creation and adoption of laws, policies, and guidelines supporting sustainability and CE (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Han et al., 2020; Ingemarsdotter et al., 2020; Linder & Williander, 2017; Nascimento et al., 2019; Pedersen et al., 2019; Rizos et al., 2016; Salvador et al., 2020; Sarti et al., 2017; Vermunt et al., 2019) • Continuity of policies (Bianchini et al., 2019; Uvarova et al., 2020) • Complexity and uncertainties of regulations (Bianchini et al., 2019; Olsson et al., 2018; Uvarova et al., 2020) • Lack of effective enforcement of environmental regulations and poor accountability of governments (Bianchini et al., 2019; Cantú et al., 2021; Han et al., 2020; Rizos et al., 2016)
Government taxation policies	The government's efforts to effectively manage the tax system by deciding which taxes to collect from whom and how much taxes should be paid	• Taxation benefits aimed at supporting CE adoption and implementation (Cantú et al., 2021) • Lack of effectiveness and continuity in taxation policies supporting sustainability and CE (Rizos et al., 2016; Shao et al., 2020) • High taxation of labor-intensive reuse and recycling activities (Guldmann & Huulgaard, 2020)
Government funding and incentives	Financial assistance, grants, or loans paid from the government	• Creation of government funding supporting CE initiatives (Cantú et al., 2021; Donner et al., 2021; Rizos et al., 2016) • Difficulty trying to secure funding (Guldmann & Huulgaard, 2020) • Government incentives (Bianchini et al., 2019; Cantú et al., 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Han et al., 2020; Levänen et al., 2018; Marke et al., 2020; Schulte, 2013) • Support from policy-makers in the form of training, funding, and legislation (Guldmann & Huulgaard, 2020; Lewandowski, 2016; Rizos et al., 2016; Shao et al., 2020)
CE-oriented standards and frameworks	Standards represent the most adopted practices, and frameworks are employed to guide on the basic structure of something	• Lack of appropriate frameworks and tools supporting business model innovation for CE (Antikainen et al., 2016; Bianchini et al., 2019)—e.g., existing tools might not be replicable in different business environments (Antikainen et al., 2016; Cantú et al., 2021) • Lack of adoption of industry-wide standards that can drive the circular transition (Cantú et al., 2021; Hopkinson et al., 2018; Huerta Morales, 2020; Marke et al., 2020; Shao et al., 2020).
Lobbyism for CE and sustainability	The activity of undertaking activities aimed to influence legislation in relation to special interests	• Lobbying for the introduction of legislation, policy, and incentives supporting sustainability and CE (Cantú et al., 2021; Lewandowski, 2016)

corporate sustainability into a company's traditional business model, or creating a new circularity-oriented business model can act as a driving force for a company's CBM transition, while also inspiring other companies in the industry to do so (Cantú et al., 2021; Witjes & Lozano, 2016). Building resilience against various strategic challenges related to circularity and setting clear unambiguous targets for scaling up the CBM can also enable CBM adoption (Bocken et al., 2017; Hopkinson et al., 2018; Lewandowski, 2016). The literature review also showed that the transition becomes strenuous for companies that have not integrated CE as part of their strategy, mission, vision, or goals (Cantú et al., 2021). Many companies seem to be particularly challenged by prevailing linear business model structures and thinking and the narrow focus of their existing sustainability strategies (Guldmann & Huulgaard, 2020).

Clear metrics and decision tools can enable companies in the CBM transition by driving the implementation of stricter measures and the formulation of future actions (Hopkinson et al., 2018; Stål & Corvellec, 2018). However, the existing key performance indicators are mainly focused on linear economy and on products that eventually become waste (Vermunt et al., 2019). Adopting novel performance indicators that measure overall organizational success based on balanced ecological, social, and financial performance can ease the transition toward CBM (Hofmann, 2019).

The coexistence of traditional and CE-oriented business models can impact companies wanting to adopt CBMs, and companies might need to align investments with their previous business models (Olsson et al., 2018). Inclusive and added-value business models also offer a solution to tackling users' ability to pay (e.g., providing leasing or

TABLE 3 Market determinants of CBM adoption.

Determinant	Description	Examples and references
Market challenges	Obstacles that exist in a specific market	• Ecological challenges in the market, such as biodiversity loss, climate change, and resource scarcity (Hankammer et al., 2019; Hofmann, 2019; Hofmann & Jaeger-Erben, 2020) • Lack of integration between the informal sector and waste management systems (Cantú et al., 2021; Levänen et al., 2018) • Challenges encountered by organizations when entering the market with a new, CE-oriented product (Donner et al., 2021) • Existence of exogenous factors such as the economic downturn, dampens interest in green business initiatives (Rizos et al., 2016)
Market uncertainties	Lack of knowledge or awareness about the market's future state	• Uncertainties related to the marketplace, along with the role and behavior of its actors (Cantú et al., 2021; Heyes et al., 2018; Reim et al., 2019)
Market conditions and dynamics	The factors and forces that influence the consumers, suppliers, and companies in a market	• Market conditions (Hopkinson et al., 2018; Uvarova et al., 2020) • Market dynamics, such as innovation dynamics and economic fragility (Hofmann & Jaeger-Erben, 2020)
Market guidelines and certifications	Rules and principles that apply to or affect the market, and the earning of official documents which attest certain characteristics of products or companies	• Lack of ad hoc guidelines on how to implement CE in specific sectors (Nascimento et al., 2019) • Use of a transparency strategy, guarantees, and certifications to tackle the users' skepticism and lack of trust (Cantú et al., 2021)
Market demand	The demand of goods and services from all possible customers	• Development of a CE-oriented, loyal consumer market (Bocken et al., 2017) • Lack of pressure from the demand side to develop or utilize a CBM (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Rizos et al., 2016) • Clients' low willingness or ability to pay, which may be due to customers not valuing used products (Cantú et al., 2021; Vermunt et al., 2019) • Lack of support from the supply and demand network in the market (D'Amato et al., 2020; Rizos et al., 2016)
Market opportunities	Needs in the market that companies can utilize to grow	• Market opportunities in relation to the adoption of a CBM, especially in relation to the creation of new companies driving the transition to CE (Fraccascia et al., 2016)
Market competition	Rivalry between firms and organizations providing the products that serve the same needs for the same markets	• Competitive advantages of linear-based companies over circular ones in specific sectors (Cantú et al., 2021) • Fierce competition in the market and industries in relation to CBMs (Donner et al., 2021; Rizos et al., 2016; Shao et al., 2020)
Market benchmarks	The comparison between brands and products that operate in a market	• Lack of CBM "best practices" and need for case studies (Bocken et al., 2017; Hopkinson et al., 2018) • Definition of CBM sector-specific patterns supporting the understanding of CBM viability and feasibility (Pieroni et al., 2021)
Market positioning	The exercise of branding and improving or strengthening the perception of the brand or product in the market	• Sales and marketing capabilities (Lehtimäki et al., 2020) • Support for sales promotion activities, marketing, and branding (Uvarova et al., 2020) • Strategies aimed at enhancing and improving brand image (Bocken et al., 2017; Stål & Corvellec, 2018)
Market penetration	The successfulness of sales of a product or service in a specific market	• Lack of market access permission mechanisms (Shao et al., 2020)

renting options to make products accessible) and addressing consumers' resistance to change (Cantú et al., 2021).

The potential for a company to position itself as a CE-oriented organization and thus increase its competitive advantage can be a driving factor for CBM adoption (Bocken et al., 2017; Hofmann & Jaeger-Erben, 2020; Lewandowski, 2016). However, the risk of cannibalization—for instance, cannibalization of a company's own market share or risk that new CBMs may lead to reduced profits if the new, longer-lasting products decrease sales of the established products—represents a serious obstacle for companies in the transition toward CBMs (Guldmann & Huulgaard, 2020; Linder & Williander, 2017; Salvador et al., 2020).

The supply chain can also affect the transition to CBMs, as vertical integration of the supply chain can enable strong IP and labeling strategy for companies, while benefiting from industrial symbiosis (Donner et al., 2021). The organizational type and structure of a company also influence its ability to adopt CBMs. For example, high organizational complexity can have a negative influence on adoption

TABLE 4 Strategy determinants of CBM adoption.

Determinant	Description	Examples and references
Strategic focus on CE, sustainability, and stakeholder value creation	When the organization has a coherent and clear strategy for achieving its mission and vision in terms of CE, sustainability, and stakeholder value creation	• Integration of CE and sustainability into the organization's strategy, mission, vision, and goals (Cantú et al., 2021) • Definition of clear targets associated with the scale-up of CBMs (Bocken et al., 2017; Hopkinson et al., 2018; Lewandowski, 2016) • Adoption of clear sustainability-oriented metrics and decision tools (Hopkinson et al., 2018; Stål & Corvellec, 2018; Vermunt et al., 2019), measuring overall organizational success and business on balanced ecological, social, and financial performance (Hofmann, 2019) • Prevailing linear business model structures and thinking and narrow focus of existing sustainability strategies (Guldmann & Huulgaard, 2020) • Employing inclusive and added-value business models that can be used to tackling users' ability to pay (e.g., leasing or renting making products accessible) and handling consumers' reluctance to change (Cantú et al., 2021) • Creation of new business models, promoting the use of sustainable and circular strategies, and integration of CE and corporate sustainability (Cantú et al., 2021; Witjes & Lozano, 2016)
CE-oriented competitive advantage	Circumstances related to CE that puts an organization in a favorable position	• Possibility that CBM adoption will increase competitive advantage (Bocken et al., 2017; Hofmann & Jaeger-Erben, 2020; Lewandowski, 2016)
CE-oriented supply chain strategy	The CE-oriented strategy regarding the planning, execution, monitoring, and control of the supply chain	• Conflicts of interest between companies within the supply chain—e.g., high dependence of supplier, dissonant profit sharing within the supply chain (Bianchini et al., 2019; De Angelis, 2021; Lewandowski, 2016; Planing, 2015; Rizos et al., 2016; Vermunt et al., 2019) • Vertical integration within the supply chain (Donner et al., 2021)
Coexistence of traditional and CE-oriented business models	The existence of multiple business models at the same time	• The need to align investments with previous business models based on selling raw materials is an element that comes with coexistence of business models (Olsson et al., 2018) • Risk of cannibalization, for instance, cannibalization of own market share or risk that new CBMs may lead to reduced profits if the new, longer-lasting products decrease sales of the previous products (Guldmann & Huulgaard, 2020; Linder & Williander, 2017; Salvador et al., 2020)
CE implementation strategy	The methods employed to implement and maintain strategic plans in an organization or company	• Top-down strategy focused on increasing the efficiency of industrial symbioses (Donner et al., 2021) • Explicit implementation strategies for CBMs and effective circularity transition procedures (Lehtimäki et al., 2020; Lewandowski, 2016; Palmié et al., 2021)
Organizational type and structure	How the organization is structured and its activities are coordinated and delegated	• Organizational type and structure, and their influence on the organizational ability to adopt CBMs (Pedersen et al., 2019; Poponi et al., 2020)

capabilities, whereas leaner organization types, such as academic spin-offs, typically defined also as science-based companies, can be more effective in driving the adoption of CBMs (Pedersen et al., 2019; Poponi et al., 2020). Finally, explicit implementation strategies and transition procedures focused on circularity represent strong enablers of CBM adoption (Lehtimäki et al., 2020; Lewandowski, 2016; Palmié et al., 2021).

3.5 | Business case determinants

The literature also focuses on business case determinants of CBM adoption (Table 5). Particularly, *access to capital and financial resources* enabled by adopting a CBM (e.g., through crowdfunding, or external financing such as EU and government grants) can become a strong driver of CBM adoption (D'Amato et al., 2020; Guldmann & Huulgaard, 2020; Vermunt et al., 2019). The literature also focuses on *cost reductions* that can be achieved by employing a CBM, for example, through minimizing waste and maximizing resource efficiency (Marke et al., 2020; Olsson et al., 2018). However, CBMs may also require high upfront *investment* and costly management and operation, which can represent a great obstacle for some companies working on this transition (Bianchini et al., 2019; Heyes et al., 2018; Nascimento et al., 2019; Olsson et al., 2018; Pedersen et al., 2019; Reim et al., 2019; Vermunt et al., 2019). Moreover, the low prices of recycled materials can also hinder their collection and availability, with negative consequences for the implementation of circular supply chains (Cantú et al., 2021).

Other business case determinants of CBM adoption lie with the generation of new *business and growth opportunities* unleashed by the

TABLE 5 Business case determinants of CBM adoption.

Determinant	Description	Examples and references
Access to resources	Possibility of access to money, materials, human capital, knowledge, and other resources	• Access to capital and financial resources (D'Amato et al., 2020; Guldmann & Huulgaard, 2020; Vermunt et al., 2019) • Lack of supporting financing models (Rizos et al., 2016; Schulte, 2013)
Investment opportunities	Assets or items that have the opportunity to generate increase in value	• Dependency on large investments (Donner et al., 2021) • Risk of costly capital commitment (e.g., associated with employee motivation and expertise development) may hinder value creation in CBMs (Ünal et al., 2019) • High investment costs involved with CBMs and need of upfront investments, which may be associated with high uncertainty (Heyes et al., 2018; Pedersen et al., 2019; Reim et al., 2019; Vermunt et al., 2019) • Investors' reluctance to investing in CBMs (e.g., leasing) (Vermunt et al., 2019) • High investments required in knowledge and tools (Hopkinson et al., 2018)
Growth opportunities	The possibility of gaining value, size, resources, or capital	• Job creation opportunities in relation to CBM adoption (Fraccascia et al., 2016) • New business opportunities and economic promotion of local areas, through the creation of new circularity-oriented industries, products, and jobs (Donner et al., 2021; Marke et al., 2020)
Revenue opportunities	Items, products, or tasks that if performed may generate new revenue	• New revenue opportunities related to the production of longer-lasting products for circularity-oriented markets (Bocken et al., 2018; Cantú et al., 2021) • Increased sales of repaired, reconditioned, and remanufactured products in the market (Guldmann & Huulgaard, 2020) • Economic benefits related to the adoption of circularity practices (Fraccascia et al., 2016; Han et al., 2020) • Unclear business case and lack of evidence of economic and financial benefits in relation to the adoption of CBMs (Guldmann & Huulgaard, 2020; Marke et al., 2020), which can lead to a lengthening time to market and resistance to adopt CBMs (Guldmann & Huulgaard, 2020)
Costs and cost reduction	Monetary expenditures and decrease in expenditures for producing, acquiring, or maintaining business	• High upfront investment costs in relation to the adoption of CBMs (Vermunt et al., 2019) • High costs of CBMs linked to the recovery, transportation, and sorting of waste (Cantú et al., 2021), as well as to (re)manufacturing processes (Marke et al., 2020; Mboli et al., 2020) • Costly management, operations, and planning processes related to CBM adoption due to more complex practices (Bianchini et al., 2019; Nascimento et al., 2019; Olsson et al., 2018) • Low price of virgin raw materials compared to recycled materials (Guldmann & Huulgaard, 2020; Vermunt et al., 2019), which can hinder their collection and availability (Cantú et al., 2021) • Cost reductions may be achieved in CBMs through minimizing waste and maximizing resource efficiency (Marke et al., 2020; Olsson et al., 2018; Ranta et al., 2018)
Risks and risk reduction	Mitigating the likelihood and reducing the possible consequences of situations that may result in loss	• Investment, operational, and implementation risks (Han et al., 2020; Linder & Williander, 2017) • Data security (e.g., reuse of technological devices) (Marke et al., 2020) • Uncertainties related to customer perception of second-hand products (Bocken et al., 2017) • Risks related to the radical innovation process needed to switch toward a CBM (Bocken et al., 2018; Heyes et al., 2018) • Effective risk management can act as an enabler for CBM adoption (Lehtimäki et al., 2020)

circularity transition, such as the opportunity to create additional revenue streams and profit increase by selling longer-lasting products targeting sustainability-oriented customers (Bocken et al., 2018; Cantú et al., 2021). The willingness and opportunity to attain profitability and economic benefit while promoting the local economy (e.g., through the creation of new products, jobs and industries; see Marke et al., 2020; Donner et al., 2021) and addressing sustainable development challenges (Cantú et al., 2021; Fraccascia et al., 2016; Han et al., 2020) are strong motivational factors for companies working on the transition toward CBMs.

3.6 | Collaboration determinants

In this systematic review, we found that many authors identify collaboration as a vital determinant of CBM adoption (Table 6). Indeed, enhancing interactions and *collaboration with customers* (e.g., through product and service personalization and customization) can help drive a company's adoption of CBMs (Cantú et al., 2021; Han et al., 2020; Ünal et al., 2019). Collaboration with suppliers and partners can also impact the ability to switch to a CBM. Rizos et al. (2016) argue that the collaboration of all parties across the supply chain is needed for the circularity transition, and establishing collaboration and dialogue with key partners and actors within the value chain will drive the rate of CBM adoption (D'Amato et al., 2020; Rizos et al., 2016). In particular, initiatives such as the creation of reward programs and exclusive partnerships with suppliers can increase companies' interest in implementing CBMs (Cantú et al., 2021). Additionally, successful partnerships between the public and private sectors can help companies in undertaking this transition (Donner et al., 2021). However, the lack of compatibility with partners' business models may become a strong obstacle in this transition (Bianchini et al., 2019; Linder & Williander, 2017). So does the disconnection between local governments and companies, or the lack of support or interest from the supply network and value chain to adopt CBMs (Bianchini et al., 2019; Guldmann & Huulgaard, 2020; Huerta Morales, 2020; Olsson et al., 2018; Shao et al., 2020). Weak innovation networks and partnerships are hindering factors too, and thus support for partnership platforms may be crucial (Uvarova et al., 2020). In practice, organizations will be confronted with organizing paradoxes—particularly competition versus collaboration—that require companies to integrate their resources and competences with their partners' resources and competences in the value chain and shift to higher degrees of cooperation to implement CE-oriented strategies (De Angelis, 2021).

The CBM transition can be driven by a company's ability to adapt to local settings (Ünal et al., 2019) and establish local collaborations, for instance by selecting and training local suppliers for recycling/reuse of products and materials (Mishra et al., 2021). In this context, *information sharing* and *clarity of communication* are both identified as key enablers of CBM adoption. Indeed, a lack of information, data, case studies, technical know-how, and expertise can hinder companies' ability to adopt CBMs (Pieroni et al., 2020; Rizos et al., 2016; Uvarova et al., 2020; Vermunt et al., 2019). Moreover, clear communication is needed to develop a consumer market based on creating awareness of the environmental and/or social values that an organization is aiming to create and carry out (Pedersen et al., 2019).

Internal collaboration is also identified as impacting the transition; conversely, intra-organizational separation can pose a risk for CBM adoption due to lack of agreement and shared direction and focus (Hofmann & Jaeger-Erben, 2020). Ultimately, support and commitment from the parent company and top management can also enable the transition to CBMs (Cantú et al., 2021; Guldmann & Huulgaard, 2020). The transformational and strategic leadership of key decision makers may represent a strong determinant of CBM adoption (Cantú et al., 2021; Zucchella & Previtali, 2019).

3.7 | Operations determinants

Operations-related factors may also have a strong impact on a company's ability to adopt a CBM (Table 7). Indeed, the potential for optimizing logistics costs can incentivize companies to switch to CBMs (Donner et al., 2021). However, when discussing the operations determinants of CBM adoption, many authors focus on the lack of adequate infrastructure supporting CE, which is crucial in order to employ CBMs effectively (Cantú et al., 2021; Geissdoerfer et al., 2018; Reim et al., 2019; Uvarova et al., 2020). In particular, some authors argue that adopting a CBM can be costly (e.g., in terms of distribution planning, production planning, and inventory management; see Rizos et al., 2016), and companies need to possess appropriate organizational resources (e.g., sufficient space and facilities, time, human resources, and employee knowledge) to do so (Cantú et al., 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Lewandowski, 2016; Stål & Corvellec, 2018; Uvarova et al., 2020).

Fragmented, dispersed, or overly complex supply chain infrastructures are also mentioned in the literature as strong obstacles to the adoption and implementation of CBMs (Guldmann & Huulgaard, 2020; Salvador et al., 2020)—especially because adopting a CBM is likely to further increase complexity throughout the whole supply chain (Rizos et al., 2016). Some studies argue that the risk of conflict of interest in companies and dissonant profit-sharing within the supply chain can particularly threaten the CBM adoption rate (Bianchini et al., 2019; Lewandowski, 2016; Ranta et al., 2018). Some companies may experience difficulties implementing circular solutions because they are locked in at the bottom of the value chain (Rizos et al., 2016), while others may be challenged by the need to separately manage multiple positions in the value chain (Ranta et al., 2018). Moreover, powerful stakeholders across the value chain may resist change due to their status quo interests and the current uneven allocation of power (Rizos et al., 2016).

Challenges concerning the traceability, recovery, transportation, and sorting of waste may stop companies from transitioning toward CBMs (Cantú et al., 2021; Huerta Morales, 2020; Stål & Corvellec, 2018). Reverse logistics networks and return flows must be developed and managed by companies in order to facilitate waste traceability and recovery and thus support a smooth and successful circularity transition (Cantú et al., 2021; Linder & Williander, 2017; Nascimento et al., 2019; Rizos et al., 2016). Traceability can also attract sustainability-oriented customers, who value the possibility of tracking the sustainability impact of their purchases along their whole life cycle (Cantú et al., 2021; Donner et al., 2021). In this regard, the academic literature suggests that geographic dispersion and large distances between production location, sources of waste, customers, and other partners in the supply chain may pose challenges to waste traceability and recovery and can thus become barriers to CBM adoption (Bianchini et al., 2019; Cantú et al., 2021; Carraresi & Bröring, 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Lewandowski, 2016; Ünal et al., 2019). Under such conditions, actors in the market may experience uncertainties about product returns in respect of quality, quantity, market value, and timing (Bocken

TABLE 6 Collaboration determinants of CBM adoption.

Determinant	Description	Examples
Information sharing and clarity of communication	Exchange of knowledge and data, and the extent to which this exchange is effective	• Clear internal and external communication on CE (Cantú et al., 2021), creating awareness of the environmental and/or social values that an organization is aiming to create and carry out (Pedersen et al., 2019) • Transparency and traceability (Donner et al., 2021; Rizos et al., 2016; Salvador et al., 2020) • Lack of information (also due to asymmetric information and lack of information sharing), data, case studies, technical know-how, and expertise (Cantú et al., 2021; Ingemarsdotter et al., 2020; Pieroni et al., 2020; Rizos et al., 2016; Uvarova et al., 2020; Vermunt et al., 2019) • Lack of use of information management systems (Cantú et al., 2021; Vermunt et al., 2019)
Institutional support from leadership and parent companies	Support from the management, top leadership, or organization with controlling interest in the company	• Transformational and strategic leadership from key decision makers (Cantú et al., 2021; Zucchella & Previtali, 2019) • Support and commitment from a company top management or from parent companies (Cantú et al., 2021; Guldmann & Huulgaard, 2020) • Lack of reference points to which organizations, and particularly SMEs, can ask support when adopting CBMs (Rizos et al., 2016)
Internal collaboration	Individuals working in the same organization collaborating on achieving shared goals or projects	• Small companies might benefit from undertaking multiple roles in the value chain (Ünal et al., 2019) • Intra-organizational separation can pose as a hindrance for the companies to be able to adopt CBMs (Hofmann & Jaeger-Erben, 2020) • There is also risk of the organizing paradox: concentration versus decentralization; separation versus integration (within organizational functions/departments) (De Angelis, 2021)
Collaboration with suppliers and partners	The act of working together with suppliers and partners to achieve shared goals or projects	• Lack of partners and lack of compatibility with partners' business models (Bianchini et al., 2019; Heyes et al., 2018; Linder & Williander, 2017; Vermunt et al., 2019) • Disconnection between local governments and companies, or lack of support or interest from supply network and value chain (Bianchini et al., 2019; Donner et al., 2021; Guldmann & Huulgaard, 2020; Huerta Morales, 2020; Olsson et al., 2018; Shao et al., 2020) • Lack of effective collaboration mechanism (Cantú et al., 2021) • Clustering and networking (Donner et al., 2021; Rizos et al., 2016; Uvarova et al., 2020). Reward programs and exclusive partnerships with suppliers (Cantú et al., 2021) • Collaboration between all parties across the value chain (Cantú et al., 2021; Lehtimäki et al., 2020), by establishing dialogue with key partners and actors (D'Amato et al., 2020; Rizos et al., 2016), and working on collaborative design for reuse and recycling (Mishra et al., 2021) • Unclear distribution of roles and responsibilities across the value chain (Ingemarsdotter et al., 2020) • Dependency on multiple (mainly external) stakeholders for the return of products/resources/materials increasing complexity of CBM design (Salvador et al., 2020; Vermunt et al., 2019)
Collaboration with customers	The act of working together with clients and customers	• Interactions and collaborations with customers (e.g., personalization and customization) (Cantú et al., 2021; Han et al., 2020; Ünal et al., 2019) • Reliable customer relationships, which can increase the likelihood of customer acceptance of circularity-oriented value proposition (Carraresi & Bröring, 2021)
Collaboration with competitors	The act of working together with competing companies to achieve shared goals or projects	• Organizing paradoxes—particularly competition versus collaboration—which require companies to integrate their resources and competences and shift to higher degrees of cooperation (De Angelis, 2021)
Collaboration with local community	The act of working together with members of the community in the area to achieve shared goals or projects	• Collaboration with local community, e.g., selection and training of local suppliers (Mishra et al., 2021) • Adaptation to local context and conditions (Cantú et al., 2021; Ünal et al., 2019)

TABLE 7 Operations determinants of CBM adoption.

Determinant	Description	Examples
Organizational resources	The assets available to a company for the day-to-day functioning of the company	• Lack of capital and other organizational resources (sufficient space and facilities, time, human resources, employee knowledge) (Cantú et al., 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Ingemarsdotter et al., 2020; Lewandowski, 2016; Linder & Williander, 2017; Stål & Corvellec, 2018; Uvarova et al., 2020; Zucchella & Previtali, 2019)
Operational efficiency and complexity	The company or organization's ability to deliver goods or services with minimal degree of waste (production, time, material, finance, inventor, labor waste, etc.)	• Administrative bureaucracy and other administrative barriers (Cantú et al., 2021; Rizos et al., 2016; Uvarova et al., 2020; Vermunt et al., 2019) • Increased need for operational efficiency and greater complexity, which requires distribution planning, production planning and inventory management—which can be costly (Rizos et al., 2016) • Continuously having to develop new products suitable for standardization and customization (Huerta Morales, 2020)
Materials management systems	All the activities that are related to a company's materials and material flows	• Challenges concerning the traceability, recovery, transportation, and sorting of waste (Cantú et al., 2021; Huerta Morales, 2020; Stål & Corvellec, 2018) • Lack of societal awareness about waste separation and dispersion of post-consumer waste (Cantú et al., 2021; Vermunt et al., 2019) • Development of effective waste collection and storage systems (Salvador et al., 2021) • Uncertainties about product returns in respect of quality, quantity, market value, and timing (Bocken et al., 2018; Cantú et al., 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Ingemarsdotter et al., 2020; Lewandowski, 2016; Olsson et al., 2018; Sarti et al., 2017; Shao et al., 2020; Stål & Corvellec, 2018; Ünal et al., 2019; Vermunt et al., 2019) • Limited availability on quantity and quality of recycled material (Cantú et al., 2021) • Tools to facilitate traceability in the supply chains, which is very important for customers (Cantú et al., 2021; Donner et al., 2021)
Product characteristics	A product's attributes or features that satisfy needs and wants of the consumer	• Design to reuse, recycle, remanufacture, upgrade, dismantle, disassemble, repair, replicate, and scale (Bocken et al., 2017; Cantú et al., 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Hopkinson et al., 2018; Lieder & Rashid, 2016; Stål & Corvellec, 2018; Zucchella & Previtali, 2019) • Fast-changing trends in specific industries—e.g., fashion industry (Guldmann & Huulgaard, 2020; Ingemarsdotter et al., 2020; Linder & Williander, 2017; Salvador et al., 2020) • Product category restrictions, which can disable the company from adopting CBMs (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Hofmann & Jaeger-Erben, 2020; Huerta Morales, 2020; Ingemarsdotter et al., 2020; Linder & Williander, 2017; Salvador et al., 2020; Sumter et al., 2018; Vermunt et al., 2019)
Procurement	The activity of acquiring goods/services from external sources	• Long-standing procurement habits (Ingemarsdotter et al., 2020)
Supply chain infrastructure	The assets and systems that are driving the network between a company and its suppliers	• Fragmented, dispersed, or complex supply chain infrastructures, that are difficult to control (Guldmann & Huulgaard, 2020; Salvador et al., 2020), and might require that companies need to separately manage multiple positions in the supply chain (Ranta et al., 2018) • Optimization of logistics costs (Donner et al., 2021) • Conflict of interest in companies and dissonant profit sharing within the supply chain (Bianchini et al., 2019; Lewandowski, 2016; Planing, 2015; Ranta et al., 2018) • Resistance to change from the powerful stakeholders across the value chain, due to their status quo interests (Rizos et al., 2016) • Effective management and development of reverse logistics networks and return flows (Cantú et al., 2021; Linder & Williander, 2017; Nascimento et al., 2019; Rizos et al., 2016) • Difficulties for some companies to implement a green solution because of being locked in at the bottom of the supply chain (Rizos et al., 2016) • Lack of adequate infrastructure that supports the functioning or implementation of CE (Cantú et al., 2021; Geissdoerfer et al., 2018; Uvarova et al., 2020)
Geographical proximity	The physical distance or placement of and between actors in market	• Geographic proximity to production location, customers, sources of waste, industry, R&D, and other strategic resources (Bianchini et al., 2019; Cantú et al., 2021; Carraresi & Bröring, 2021; Guldmann & Huulgaard, 2020; Lewandowski, 2016; Ünal et al., 2019) • Voluntary relocation (Marke et al., 2020)

et al., 2018; Cantú et al., 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Ingemarsdotter et al., 2020; Lewandowski, 2016; Olsson et al., 2018; Sarti et al., 2017; Shao et al., 2020; Stål & Corvellec, 2018; Ünal et al., 2019; Vermunt et al., 2019). Voluntary relocation is cited in the literature as a possible solution to this issue, due to the fact that it can enable better communication and collaboration between companies in the supply chain (Marke et al., 2020).

Furthermore, product category characteristics and restrictions are often cited in the literature as factors preventing companies from adopting CBMs, whereas product design for CE is necessitated to enable the transition (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Hofmann & Jaeger-Erben, 2020; Huerta Morales, 2020; Ingemarsdotter et al., 2020; Linder & Williander, 2017; Salvador et al., 2020; Sumter et al., 2018; Vermunt et al., 2019). There is a particular need for design to reuse, repair, remanufacture, and recycle, while allowing for product replicability, upgradability, and scalability (Bocken et al., 2017; Cantú et al., 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Hopkinson et al., 2018; Lieder & Rashid, 2016; Stål & Corvellec, 2018; Zucchella & Previtali, 2019).

Finally, specific industries may experience huge challenges in the development and implementation of CBMs along the supply chain. For example, the vulnerability of the fashion industry along with its changing trends are often cited as barriers in the implementation of CBMs (Guldmann & Huulgaard, 2020; Ingemarsdotter et al., 2020; Linder & Williander, 2017; Salvador et al., 2020).

3.8 | Knowledge determinants

Intellectual property, along with technological and organizational knowledge and expertise, is considered by the reviewed literature as impacting factors of CBM adoption (Table 8). In particular, according to Bocken et al. (2017) and Lehtimäki et al. (2020), there is a need for comprehensive knowledge on how to best create new business strategies and innovate business models in order to switch to circularity (Bocken et al., 2017; Lehtimäki et al., 2020). The reviewed literature also argues that business model innovation for circularity requires ad hoc support from top management—and this applies not only within large

TABLE 8 Knowledge determinants of CBM adoption.

Determinant	Description	Examples
CE-oriented organizational capabilities	The existing skills, knowledge, and expertise related to circular economy of the people in an organization	• Lack of organizational capabilities and in-house knowledge about CE (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Lewandowski, 2016) • After-sales capabilities, which are necessary to support after-sale services, extend product life cycles and maximize retained value (Lehtimäki et al., 2020)
IP, know-how, and expertise	Involves the copyrights, patents, trademarks, trade secrets, practical knowledge, and skills that the company houses	• Lack of expertise, knowledge flow, or in-house skill sets to repair and remanufacture (Bianchini et al., 2019; Cantú et al., 2021; Guldmann & Huulgaard, 2020; Pedersen et al., 2019; Pieroni et al., 2020; Rizos et al., 2016; Uvarova et al., 2020; Vermunt et al., 2019; Zucchella & Previtali, 2019) • IP and patents, which make a company's innovations more interesting for investors (Donner et al., 2021) • Need for comprehensive knowledge on creating new business strategies and circular business model innovation (Bocken et al., 2017; Lehtimäki et al., 2020)
Technology transfer and technological change	The act of conveying technology and the process for invention, innovation, and diffusion of technology or processes	• Lack of appropriate technology and technologies that facilitate recycling, optimization, or remanufacturing (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Vermunt et al., 2019) • Need for technological know-how and expertise (Bianchini et al., 2019; Mboli et al., 2020; Nascimento et al., 2019; Rizos et al., 2016; Uvarova et al., 2020), e.g., the need for information and communication technologies for product monitoring in multiple life cycles (Lehtimäki et al., 2020) • Need for technological testing and upscaling (Donner et al., 2021) • Rate of technological change, which can require frequent design changes that hinder product reuse and remanufacturing (Guldmann & Huulgaard, 2020)
Innovation and support of innovation	The act of developing new products or processes and the assistance from other parties to do so	• Insufficient coordination and collaboration among the institutions providing support for circular business model development and innovation (Uvarova et al., 2020) • Lack of knowledge on opportunities supporting circular business model innovation (Pieroni et al., 2020; Uvarova et al., 2020)
Experimentation and learning capabilities	Testing new methods or ideas, and the availability of practices and mechanisms that can promote learning in the company	• Lack of training on CE and CE-oriented capabilities (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Rizos et al., 2016; Uvarova et al., 2020) • Development of cross-functional capabilities in addition to new organizational and dynamic competences (Bianchini et al., 2019; Cantú et al., 2021; Carraresi & Bröring, 2021; Lehtimäki et al., 2020; Lewandowski, 2016) • Business model innovation capabilities and experiences (Fraccascia et al., 2016) • CBM experimentation capabilities (Bocken et al., 2018, 2017; Ünal et al., 2019)

companies but also in SMEs (Pieroni et al., 2020; Uvarova et al., 2020). This support is particularly needed in the development of cross-functional competencies and dynamic capabilities within the organization, attributes that can foster the circularity transition (Bianchini et al., 2019; Cantú et al., 2021; Carraresi & Bröring, 2021; Lehtimäki et al., 2020; Lewandowski, 2016). Authors argue that currently, companies lack measures and procedures to support the development of innovation, as well as knowledge about innovation support opportunities (Uvarova et al., 2020). Moreover, Uvarova et al. (2020) observe that coordination and collaboration among the institutions providing support for development of CBMs are insufficient, making it more strenuous to adopt CBMs; they suggest that innovation platforms and training may be helpful in this context. Finally, lack of CE-oriented organizational capabilities and in-house knowledge may hinder CBM adoption (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Lewandowski, 2016).

Moreover, companies need up-to-date technological knowledge and expertise (Bianchini et al., 2019; Rizos et al., 2016; Uvarova et al., 2020), for instance in relation to information and communication technologies that are necessary for product monitoring in multiple life cycles (Lehtimäki et al., 2020). The fast rate of technological change can require frequent design changes which, if not mastered properly, may hinder product reuse and remanufacturing, thus hampering the CBM adoption rate (Guldmann & Huulgaard, 2020). Therefore, according to the reviewed literature, companies committed to the adoption of a CBM need to be well equipped in terms of technological development, upscaling, and testing (e.g., in relation to Industry 4.0 technologies) (Donner et al., 2021; Mboli et al., 2020; Nascimento et al., 2019). These companies can benefit significantly from CE-driven collaborations that generate opportunities for technology transfer and organizational learning (Mishra et al., 2021). In practice, authors identify a lack of technologies that facilitate companies in recycling and remanufacturing (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Vermunt et al., 2019). Additionally, some companies lack expertise, knowledge, and in-house skill sets to repair and remanufacture, which may make their transition challenging (Bianchini et al., 2019; Cantú et al., 2021; Guldmann & Huulgaard, 2020; Pedersen et al., 2019; Pieroni et al., 2020; Rizos et al., 2016; Uvarova et al., 2020; Vermunt et al., 2019; Zucchella & Previtali, 2019). After-sale capabilities are also necessary in order to support service levels and life cycles and maximize retained value (Lehtimäki et al., 2020). In general, authors argue that there is a lack of, and need for, training on CE and CE-associated capabilities (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Rizos et al., 2016; Uvarova et al., 2020). Particularly, experimentation capabilities and previous positive experiences with business model innovation can be strong assets for companies, as they can help to drive and enable the CBM adoption process considerably (Bocken et al., 2017, 2018; Fraccascia et al., 2016; Ünal et al., 2019).

4 | DISCUSSION

This study presents a holistic overview of the current state of the art of determinants of CBM adoption, based on a systematic literature review of 67 journal articles. In total, the study identified 54 different categories of determinants, which were grouped into eight separate macro categories: culture, regulation, market, strategy, business case, collaboration, operations, and knowledge.

The first category, *Culture*, comprises the determinants that are related to the culture of an organization and its surrounding context, also including the attitudes and behaviors of employees, customers, managers, and other stakeholders. The societal culture, with its changing public opinion and pressure on matters concerning sustainability and circularity, can push companies toward circularity. The industrial culture can also affect an organization's willingness and capability of adopting CBMs, especially if the particular industry has a lack of CE and sustainability awareness (Cantú et al., 2021; Carraresi & Bröring, 2021; Ingemarsdotter et al., 2020; Levänen et al., 2018; Pieroni et al., 2020; Stål & Corvellec, 2018; Vermunt et al., 2019). As reported by Circle Economy (2020), the transition toward circularity has stalled, and Lieder and Rashid (2016) argue that the implementation of circular economy is a demanding task due to the industries' and societies' current linear mindset and structures. Concurring with Lieder and Rashid's statement, our findings substantiate that societal and industrial culture can impact a company's adoption of CBMs. The reviewed literature shows that lack of trust and compatibility between partners in the supply chain can also hinder companies from switching to CBMs (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Salvador et al., 2020; Zucchella & Previtali, 2019). Most of the literature in the *Culture* category considers change in attitudes and behavior, particularly of customers (Planing, 2015; Vermunt et al., 2019; Cantú et al., 2021; Hankammer et al., 2019), but also of employees and managers (Rizos et al., 2016), as a driving force for adoption of CBMs. This insinuates that education can play a key role in strengthening public awareness of the potential of circular solutions, which can in turn lead to an increase of CBM adoption.

In the *Regulation* category, the review showed that the adoption of CBMs in companies is dependent on the creation and establishment of laws and policies toward sustainability and CE (Cantú et al., 2021). Lobbying for CE drives the adoption rate in companies; however, the lack of defined targets and CE-oriented frameworks for supporting CBM innovation in companies can interfere with the adoption process (Cantú et al., 2021; Levänen et al., 2018). When looking at the literature from the *Regulation* category, government regulation was the most frequently mentioned determinant and was highlighted both as a driver (D'Amato et al., 2020; Hopkinson et al., 2018) and a barrier (Ingemarsdotter et al., 2020; Linder & Williander, 2017; Rizos et al., 2016). The literature considers a lack of supporting regulation (Ingemarsdotter et al., 2020; Linder & Williander, 2017; Rizos et al., 2016), ineffective policies (Vermunt et al., 2019), and the complexity of regulations (Bianchini et al., 2019) to particularly hinder CBM adoption. This suggests that there is an opportunity to increase the adoption of CBMs by initiating change at governmental and policy levels, which would support companies that seek to embrace CBMs across value chains.

The market has a strong impact on companies, and multiple determinants are found in the review related to the *Market* category.

Companies are likely to be driven toward CBM adoption in order to keep up with market demand—for instance by trying to develop a consumer market and to build loyalty in new consumer segments (Bocken et al., 2017). The literature also refers to market competition as determining the levels of adoption; however, only barriers were found in the literature, due to the fact that fierce competition in the market can hinder companies from adopting CBMs (Donner et al., 2021; Rizos et al., 2016; Shao et al., 2020). It is interesting that none of the reviewed articles list market competition as a driving force of CBM adoption, as one might think that some companies would be likely to feel pressured to adopt CBMs in order to remain a valid sustainability-oriented actor in the market. The most frequently mentioned determinant in the literature in the *Market* category was market demand. On one hand, some authors considered market demand to hinder CBM adoption due to its current ambiguity (Guldmann & Huulgaard, 2020). On the other hand, other authors argued that market demand can push companies to adopt CBMs, as new circularity-oriented solutions are demanded by clients and customers (D'Amato et al., 2020). This may lead to an upsurge in market competition and a decrease in market uncertainties (Heyes et al., 2018; Reim et al., 2019) for companies wanting to adopt a CBM.

The *Strategy* category also encompasses a multitude of determinants. An organization's strategy, and in particular its focus on CE, sustainability, and sustainable value creation, may determine whether the organization will be able to successfully utilize circularity in its business model or not. The company must take an active choice in implementing circular practices and acquiring the necessary resources. Even though CBM adoption offers the potential for the company to position itself as a leader within CE, the risk of cannibalization of its own market share and decreased sales of established products may stop companies from actively switching to a CBM (Bocken et al., 2018; Guldmann & Huulgaard, 2020; Hofmann & Jaeger-Erben, 2020; Linder & Williander, 2017; Salvador et al., 2020). The reviewed literature shows that adopting novel performance indicator sets that measure overall organizational success on balanced ecological, social, and financial performance can drive the adoption of CBMs (Hofmann, 2019). Interestingly, determinants falling within the *Strategy* category were the least covered across all the collected literature. Since CBM adoption is often considered a strategic management approach, this identifies a need for academia to further investigate how companies can develop implementation strategies and strengthen their strategic focus on CBMs.

As part of the *Business Case* category, access to financial resources is an often-mentioned determinant of CBM adoption. Particularly, multiple authors find that there is a lack of supporting financing models to promote innovative business models (Rizos et al., 2016; Schulte, 2013) and that the high up-front investments of CBM adoption and costly management and operation planning processes can stop companies from engaging in the transition toward CBMs (Bianchini et al., 2019; Nascimento et al., 2019; Olsson et al., 2018; Vermunt et al., 2019). However, the reviewed literature also highlights that companies still see CBM adoption as a generator of opportunities to attain profitability and economic benefit for the company and society as a whole (e.g., job creation and economic growth at the local level) (Cantú et al., 2021; Fraccascia et al., 2016; Han et al., 2020). When discussing the complexity of implementing circular economy, Lieder and Rashid (2016) argue that the economic benefits related to circular economy are hard to imagine. Our findings however show that companies appreciate the benefits that adoption of CBMs can offer but that it is rather the lack of access to financial resources and the high investment costs that hinder a large-scale implementation of CBMs in industry. In practice, access to financial resources can be improved through collaborative practices such as public–private partnerships, impact investing, and crowdfunding, while high investment costs can be reduced through the sharing of assets and resources within the value chain.

Therefore, *Collaboration* with clients, suppliers/partners, customers, local community, competitors, and internal stakeholders are all considered to be factors that could determine the companies' ability to succeed in adopting CBMs. Rizos et al. (2016) argue that the collaboration of all parties across the supply chain is essential, and establishing collaboration and dialogue with key partners and actors within the value chain can drive CBM adoption (D'Amato et al., 2020; Rizos et al., 2016). On this matter, CE-oriented strategic leadership and commitment are needed in order for a company to prioritize collaboration activities as part of its transitioning strategy (Cantú et al., 2021; Guldmann & Huulgaard, 2020). It is, however, likely that the companies choosing to utilize collaboration strategies will be confronted with organizing paradoxes—particularly competition versus collaboration—that require them to integrate their resources and competences with their partners' resources and competences in the value chain and shift to higher degrees of cooperation in order to collaboratively implement CE strategies (De Angelis, 2021). To deal with the complexity of this organizing paradox, companies need to establish mutual trust and aligned incentives for all involved parties, in order to enable stakeholders to collaborate constructively and share knowledge, resources, and risks (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Salvador et al., 2020; Zucchella & Previtali, 2019).

Operations in an organization can have a strong impact on its ability to employ green solutions, particularly if the supply chain infrastructure is fragmented, dispersed, or complex (Guldmann & Huulgaard, 2020; Salvador et al., 2020). The introduction of a CBM is expected to add complexity throughout the supply chain, and companies may refuse to further complicate an already weak supply chain. However, we found in the review that companies also experience an optimization of logistics while adopting a CBM, which may represent a strong adoption incentive for organizations (Donner et al., 2021; Rizos et al., 2016). The review also shows that some companies experience a lack of organizational resources (e.g., human resources, knowledge, and facilities), which are needed to transfer from a linear to a CBM (Cantú et al., 2021; Donner et al., 2021; Guldmann & Huulgaard, 2020; Lewandowski, 2016; Stål & Corvellec, 2018; Uvarova et al., 2020). The most frequent operational determinants of CBM adoption addressed by the literature are supply chain infrastructure (e.g., Cantú et al., 2021; Guldmann & Huulgaard, 2020) and

materials management systems (e.g., Ingemarsdotter et al., 2020; Salvador et al., 2020). The literature indicates the need for organizational resources to enable CBM adoption, such as commitment of financial resources (Linder & Williander, 2017; Zucchella & Previtali, 2019), human resources (Lewandowski, 2016; Uvarova et al., 2020), and adequate facilities (Donner et al., 2021). However, this study did not identify a more comprehensive investigation on the tangible and intangible organizational resources needed to drive CBM adoption. The growing literature on dynamic capabilities could support this debate (Bezerra et al., 2020; Chari et al., 2022; Khan et al., 2020; Santa-Maria et al., 2022; Strauss et al., 2017), explicitly linking strategic resources and capabilities to CBM success.

Finally, the category that we perceive as stemming from the most internal side of an organization is *Knowledge*. One frequent aspect debated by the literature related to this category regards the role of digital technologies (Bressanelli et al., 2018; Ranta et al., 2021), internet of things (Ingemarsdotter et al., 2020), and other Industry 4.0 technologies in general (Nascimento et al., 2019). Besides, the literature also focuses on the need for intellectual property, knowledge, and expertise in creating new business strategies and business model innovation in order for circularity to become strongly integrated into the organizational business model (Bocken et al., 2017; Lehtimäki et al., 2020). The literature argues a lack of, and need for, training in the capabilities associated with circular economy and CE (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Rizos et al., 2016; Uvarova et al., 2020). There is also need for guidance and support programs for employees (Cantú et al., 2021; Uvarova et al., 2020). The literature is also concerned with technology and its related capabilities, and references report a lack of appropriate technologies that facilitate recycling, optimization, or remanufacturing (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Vermunt et al., 2019). Knowledge about execution of circular activities and practices (e.g., after-sales capabilities and skills on how to repair and remanufacture) is particularly needed and becomes an investment issue for companies (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Vermunt et al., 2019). Only a few studies in the reviewed literature mentioned internal knowledge determinants of CBM adoption, such as the lack of in-house knowledge on circular economy, the need for required expertise and knowledge about the products' potential to become circular (Guldmann & Huulgaard, 2020), and after-sales capabilities (e.g., to support service levels and life-cycles and maximize retained value; see Lehtimäki et al., 2020). The lack of knowledge on circular economy and its strategic and operational implications throughout organizations is still an issue to be addressed to accelerate the transition toward CBMs. Throughout the review process, it became evident that many of the studies cited determinants that related to multiple categories among the eight identified here. In general, it can be argued that it is likely that a company will simultaneously experience both drivers and barriers from various categories while transitioning toward a CBM—with its business model being impacted by external factors stemming from the environment in which the company operates and the internal factors that arise within the organization.

4.1 | Key takeaways for practice

The findings of this paper can assist practitioners across industries to identify potential determinants that are likely to impact their companies' CBM adoption processes. Moreover, the findings can be used to aid decision makers in organizations to develop strategies and tactics and execute activities that can support the reduction of external and internal barriers and leverage drivers while adopting a CBM. By identifying and categorizing these determinants explicitly, this study provides insights that practitioners can use to critically analyze the factors affecting their current business models and the role they can play in the transition toward circularity. These insights can serve to inspire strategic action and act as guidelines for the execution of CBM adoption.

This research indicates that all types of organizations, independent of their size, resources, or starting point, can experience a plethora of hindrances and drivers to CBM adoption. Among the drivers, partnerships and collaborations are highlighted in the literature as strong enablers of CBM adoption and can therefore be strongly recommended for practitioners in order for their organizations to overcome the barriers together.

4.2 | Key takeaways for academia

This paper contributed to academia by providing a holistic overview of the current state of the art on the topic of determinants of CBM adoption. We also presented a categorization map that uses a structured approach to classifying the determinants. The study may contribute to a better academic understanding of why resistance (e.g., Cantú et al., 2021; Ingemarsdotter et al., 2020) or hesitation toward CBM adoption is still prevalent in the industry and how to address and decrease these obstructions.

The paper also highlights a need for knowledge, innovation, and technology on the topics of CBM adoption and circularity practices (e.g., Bocken et al., 2017; Lehtimäki et al., 2020) in order for the companies to adequately engage in this transition, thus illuminating opportunities for research on these topics. Research may thus actually serve as an enabler of CBM adoption in companies, as many companies are struggling with the lack of resources about the topic. Moreover, collaboration with academic institutions could be used as an opportunity for assisting companies with the transition, while gathering data for academic purposes on the issues faced by organizations in the process of adopting CBM practices.

4.3 | Key takeaways for policy

The insights provided in this study are relevant for policy-makers at both a national and international level in their role to devise circular economy policy frameworks and initiatives. Many of the determinants that were discovered in this study were focused on the need for regulation, policies, and legislation in the various sectors and industries. The vast quantity of literature that highlighted this issue suggests that

there is a compelling need for new and updated policies and laws (Cantú et al., 2021; Guldmann & Huulgaard, 2020; Han et al., 2020; Hopkinson et al., 2018; Ingemarsdotter et al., 2020; Levänen et al., 2018; Lewandowski, 2016; Linder & Williander, 2017; Nascimento et al., 2019; Pedersen et al., 2019; Rizos et al., 2016; Salvador et al., 2020; Uvarova et al., 2020; Vermunt et al., 2019). The study can be used by policy-makers to highlight areas where policies are especially needed and where the organizations that are seeking to adopt CBMs are experiencing challenges related to outdated, obstructive policy. This aspect is particularly relevant, as policy-making can have a direct impact on the other determinants of CBM adoption.

The acquired list of determinants also showed that companies are experiencing a multitude of barriers when adopting CBMs. The number of barriers outweighed the number of drivers found in the study, which may point to a lack of incentives for companies to adopt CBMs. There is thus reason to argue that governments should invest more in incentivizing the companies to adopt circular practices. This could be done through financial support, regulation and policy establishment, tax benefits, knowledge support, or partnership establishment (Cantú et al., 2021; Donner et al., 2021; Rizos et al., 2016; Uvarova et al., 2020; Vermunt et al., 2019).

5 | CONCLUSION

This paper provides a review of the academic literature on drivers and barriers related to the adoption of CBMs and contributes to the academic debate by providing a categorization of internal and external determinants based on eight different groups and several subgroups. The categories presented in the paper are also likely to be of interest to companies adopting CBMs, as they may assist them in discovering the determinants that they may experience, or be of use to them when developing strategies to deal with these determinants. The study also highlights a need for policy-making on a national and international level, and it can be used by policy-makers to highlight struggles that organizations tend to experience. Finally, the paper adds to the academic literature on CBMs, by providing a better academic understanding of the determinants that affect organizations transitioning to CBMs. Indeed, the existing literature on the topic has mostly focused on barriers to CBM adoption on a case-study level, or on specific industries or company types: Few authors have focused on developing a general overview of CBM determinants. As this study is focused on all types of organizations and industries, it is applicable to any company that has either already implemented circularity or is considering making the shift.

5.1 | Limitations of the study

The most relevant limitations of this work arise in the selection of keywords used in the search string. The search string was set to only allow articles that used the wording "business model" in the title. This means that articles that could still be applicable and focused on business model literature, but have chosen to not use "business model" in the title, would be overlooked. There is therefore the possibility that relevant articles were excluded from the review. Relevant literature may also have been excluded in the process of defining inclusion/exclusion criteria. Some articles may not have included the defined criteria in the abstract, but still might have offered interesting insights on the topic, or determinants to CBMs. To prevent this from occurring to the greatest extent possible, there were always two researchers responsible for assessing the abstracts of the articles, and both researchers had to agree on the suitability or the reason for exclusion of each article. Grey literature was also excluded from the literature search, which could be a limiting factor of the review, as grey literature might provide data not used in academic literature, which could reduce publication bias (Paez, 2017). Only peer-reviewed literature found in scientific databases was employed in this study. Finally, the analysis could also benefit from categorizing the various organizational types, geographies, and preliminary challenges in order to acquire a deeper understanding of the different determinants that are likely to affect companies in various situations. However, the limitations of this paper can be overcome by future studies, in which various methodological methods are employed to test the validity of the findings in this study and investigate the contexts where the findings might not be accurate or applicable.

5.2 | Further research

The topic of CBMs is still in its early stages, but it is rapidly advancing and requires appropriate approaches and tools that organizations can employ to assist them in the transition. There are many opportunities for future research, both to fill theoretical and practical gaps in the study of CBM adoption. Future studies may investigate the determinants of CBM adoption on specific industries or examine the strategies and practices that are successful in confronting the extensive range of barriers that organizations meet and help companies to utilize the existing drivers. As governments and local authorities increase their focus on sustainable development and circular economy, it is expected that regulatory and policy-making initiatives will also increase—leading to the necessity to study the effects of such policies on the adoption of CBMs.

Moreover, not many companies have made the transition from a fully linear to a fully CBM. There is thus an opportunity to investigate the experiences and learnings of the companies that have fully or partly transitioned and examine the determinants they experienced and which strategies or solutions they employed to solve the issues that emerged. Interesting insights can also emerge, when comparing these determinants and their interrelations in developed and developing countries. Future studies can explore how these drivers and barriers affect companies differently depending on the characteristics of their socio-cultural context.

Future studies are invited to employ the list of determinants uncovered in this study and to test the determinants with both academics and practitioners to verify their applicability and identify possible missing determinants. In this sense, further studies can investigate

the most critical determinants and how they interact with each other. Unveiling such cause-and-effect relationships can provide a more in-depth understanding of the drivers and barriers for CBM adoption in practice.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflict of interest related to this study.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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