



Towards the Coopetitive Circular Business Model: Theoretical foundations, conceptual envisioning, and future research imperatives[☆]

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ABSTRACT

Coopetition has become an inter-organizational engagement norm for firms seeking to achieve their strategic goals. Research in this domain has been well-established but has reached a point of conceptual 'shakeout'. Signs of the next stage of development being theoretical fragmentation are apparent in 'network coopetition', which has stimulated burgeoning research opportunities. However, there is a dearth of research on the sustainability and ecological premises of coopetition at this network level. In this study, we build on the theoretical workbench established by business model innovation scholars to integrate coopetitive research insights with circular economy theorizing. In our endeavor to understand the Coopetitive Circular Business Model (CCBM), we are guided by three questions: (i) how can the literature on coopetition inform circular economy research and how can this knowledge synthesis inform the development of the CCBM; (ii) what theoretical lenses can be employed to understand the interfaces, dynamics, and outcomes of the CCBMs; and (iii) what are the future research imperatives underlying CCBM research? We address these questions, which form the basis of our contributions, and draw implications of our insights for future research on the: conceptualization of CCBMs; antecedents and consequences of CCBMs; innovation and execution practices underlying CCBMs; measurement and performance of CCBMs; research methods, design and empirics that can be employed to examine CCBMs; and future public policies related to CCBMs.

1. Introduction

Firms are increasingly faced with the need to transition to new institutional structures that support sustainability and offer solutions for societal grand challenges (SGCs) (World Economic Forum, 2024). The rise of circular platforms shows this movement taking place in practice already: large corporations such as Alibaba and eBay, but also smaller firms and even start-ups are actively incorporating sustainability goals and specifically circularity into contemporary management approaches (Evans, 2024; Evans, 2023). For example, *eBay Refurbished* offers manufacturers and certified third-party sellers the possibility to trade refurbished inventory to both businesses and consumers, protected by a guarantee (eBay Inc, 2024). However, industry transition towards value creation embedded in the principles of sustainability has been slow (Hina et al., 2022), stymied by the complex resource, knowledge and

organizational challenges faced by firms across organizational structures in their individual attempts to simultaneously integrate the sometimes conflicting economic, environmental and social dimensions of sustainability (Hahn et al., 2015; Hahn et al., 2018). To share the encumbrance, firms have begun looking for partners to reduce transaction costs and pool specialist knowledge to develop and integrate sustainable industry practices. Albeit still rare, the recent announcements of collaborative arrangements among industry leaders demonstrate coopetitive endeavors to pursue environmental and social commitments. For example, in 2023, Alibaba and L'Oréal announced a partnership to advance circular business practices in the Chinese beauty industry by collaborating on greening the industry's entire supply chain in China, including co-developing new products and advocating for sustainable lifestyles among consumers (Alizila, 2023), whilst L'Oréal retained its China-focused omni-channel strategy for attracting

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consumers (L'Oreal, 2023).

Such partnerships underline that a transition to sustainable practices demands a robust 'collective effort' (Guterres, 2019), where firms choose to collaborate with other stakeholders to share and recombine resources, knowledge, and skills (Manzhynski & Figge, 2019; Melander & Arvidsson, 2022). To this end, competitors constitute an attractive type of partner, as they possess industry- and product-specific insights that are highly relevant for and complementary with those of a focal firm (Ritala, 2012; Telg et al., 2023). Furthermore, the costs and risks related to, for example, new product development and innovation processes can be shared (Gnyawali & Park, 2009). Such collaboration between rivals is referred to in the literature as 'coopetition' (Bengtsson & Kock, 2000).

While the combined orchestration of resources, knowledge, cost- and risk-sharing enable partners to create value in concert, the exposure from risks of opportunism and exploitation naturally heightens when collaborating with a competitor whose goal is commonly to outperform the focal firm (Rouyre & Fernandez, 2019). In fact, rivals are likely to use any knowledge shared (intendedly as well as unintendedly) to their own advantage (Telg et al., 2023). They can do so more readily than other types of partners given the similarity of operating environment and products (Estrada et al., 2016). Scholars therefore describe coopetition as containing tensions between joint value creation and individual value capture, which makes this permeability between partners a complex arrangement to manage (Fernandez & Chiambaretto, 2016; Tidström, 2014).

Gernsheimer et al. (2021) observe that these tensions and complexities not only exist in dyadic relationships between competitors, but also within coopetition at the network-/ecosystem-level, where various horizontal and vertical partners are combined (Brandenburger & Nalebuff, 1996). Additionally, Velu (2018) contends that understanding cooperative thinking can infuse through a firm's business model (BM) and, hence, into the (internal and external) processes, rendering management of value creation, proposition, and capture a fundamentally nascent organizational form. The cooperative BM perspective can be deemed particularly suitable for studying sustainability concerns, as such grand challenges need to be addressed in a pluralistic rather than unitary manner (Melander & Arvidsson, 2022).

To date, the embryonic body of sustainability-coopetition literature focuses on outcomes such as green innovation performance (Gernsheimer et al., 2021). However, sustainability is broader in scope than this and entails many different facets (Circular Economy Foundation, 2024). In this paper, we specifically highlight one of those facets – a shift in firms' behavior transitioning towards circularity and adopting circular BMs (CBMs) as a specific market-based system to effectuate sustainability principles (e.g., Alibaba Group Holding Limited, 2023). Defined as an economy that is "restorative and regenerative by intention and design" (Ellen MacArthur Foundation & McKinsey, 2012, p.7), the circular economy (CE) is underpinned by three principles: eliminate the concept of waste and pollution; keep products, materials, and components in use for as long as possible; and regenerate natural systems (Ellen MacArthur Foundation, 2015).

The CE is at the heart of several global governmental initiatives, including the 2020 European Green Deal informed by the EU's 'New circular economy action plan' (EC, 2020), China's 14th 'Five-Year Plan' (2021–2025), and the US's Environmental Protection Agency policies (Verleye et al., 2023). Moreover, economic predictions indicate that CE transition would result in increased GDP growth by 12% and 83% reduction in CO₂ emissions by 2050 (Schulze, 2016), despite the restrained implementation of CE principles in the world's economies (Castro-Lopez et al., 2023). The planned mandatory 'digital product

passport' EU legislation coming into effect in 2026/27 will inevitably accelerate CE transition still further (Neligan et al., 2023).

The policy tightening and strictures imposed by this regulatory environment exert pressure on institutional actors to comply with the CE's value creation logic. However, from a business perspective, to ensure compliance that delivers impact rather than repeating the past's corporate green/whitewashing practices under the auspices of sustainability transitions, CE principles need to be integrated into the core of strategic management by developing appropriate new BMs (De Angelis et al., 2023). These models need to be aligned with the four value creation logics that in the CBM literature are referred to as: efficient material-technical loops; effective product-service loops; social-collaborative loops; and, symbiotic ecosystems (Fehrer & Wieland, 2021; Hina et al., 2022). In this vein, CBMs scholars advocate that any, "financial and circular potential of new business models [...] can only emerge when multiple actors simultaneously embrace [circularity]" (Verleye et al., 2023, p. 2), thus echoing the call for collective action extended by the UN's Secretary General (Guterres, 2019) and the broader corporate sustainability domain (Geissdoerfer et al., 2018; George et al., 2024; Kaufmann & Danner-Schröder, 2022; Pelozo & Falkenberg, 2009).

To date, the coopetition and CE literature streams are largely disconnected. Nonetheless, there are increasing calls to investigate their synthesis and symbiotic relationship. On the one hand, coopetition literature underlines the relevance of studying sustainability concerns in more detail (e.g., Christ et al., 2017; Gernsheimer et al., 2021; Manzhynski & Biedenbach, 2023; Manzhynski & Figge, 2019; Munten et al., 2021), yet the utility of coopetition in advancing sustainability transitions or, indeed, how existing sustainability knowledge may progress coopetition theorizing appears to have been overlooked. On the other hand, despite the wide acceptance of the crucial need to adopt an inter-organizational collaboration perspective in the CE literature (De Angelis et al., 2018; Dzhengiz et al., 2023; Verleye et al., 2023), little is known about how such collaboration is best implemented and in what form (Fischer & Pascucci, 2017; Hina et al., 2022). In this article, we consider the different settings of coopetition such as the dyadic, multi-lateral, network and ecosystem levels in order to emphasize the need for considering coopetition not just as an isolated strategy but rather through the business model lens, which we further connect with CE concepts.

Accordingly, this study is guided by the following research questions: (i) *how can the literature on coopetition inform circular economy research and how can this knowledge synthesis inform the development of the Cooperative Circular Business Model (CCBM)*; (ii) *what theoretical lenses can be employed to understand the interfaces, dynamics, and outcomes of the CCBMs*; and (iii) *what are the future research imperatives underlying CCBM research?*

This article is structured as follows: we continue with an overview of the coopetition literature and of the development within the field of research at the intersection between coopetition and BMs. Thereafter, we overview the CE and CBMs literature and explicate the opportunities within this emerging stream of research combining coopetition and CE perspectives. Then, we provide a synthesis of the theoretical lenses that have been employed to study cooperative BMs and CBMs. Subsequently, we propose a conceptualization of the CCBM and propose a research agenda to advance the emerging and relevant literature at the intersection between the CE and coopetition. Table 1 below provides a summary of the core concepts elaborated in the study.

Table 1
Definition of core concepts.

Core Concepts	Elaboration of Meaning
<i>Sustainability</i>	People (social), planet (ecological), profit (financial)
<i>Circular Economy Business Model</i>	Eliminate, circulate, and regenerate
<i>Circular Business Model (CBM)</i>	Create, deliver, and capture value
	Creating, delivering, and capturing value underpinned by circular value logics (manifested in elimination, circulation, and regeneration activities)
<i>Coopetition</i>	Collaboration and competition between rivals exist simultaneously in the pursuit of value creation and capture. Alternatively: “a paradoxical relationship between two or more actors, regardless of whether they are involved in horizontal or vertical relationships, simultaneously in cooperative and competitive interactions” (Bengtsson & Kock, 2014, p. 180).
<i>Coopetitive Business Model</i>	Create, deliver, and capture value through coopetitive strategies (simultaneous cooperation and competition)
<i>Coopetitive Circular Business Model (CCBM)</i>	Business models that represent a set of inter-organizational practices that combine multifaceted interdependent actors at an eco-systemic level (what?), who pursue coopetitive strategies that engage in elimination, circulation, and regeneration activities (how?), to create and deliver superior value propositions to customers and the society at large, whilst capturing value for their firms (why?)

2. Organizing for CE transition through coopetition

To investigate our research questions, it is necessary to first understand the notion of coopetition, particularly at the business model level. Subsequently, we connect circularity as a purposive economic system for advancing sustainability with coopetition to derive the concept of the CCBM.

2.1. Coopetition

Following the principle of ‘stronger together’, firms collaborate with various types of partners such that efficiencies can be achieved, processes improved, and potential financial benefits derived (Belderbos et al., 2004). The extant literature emphasizes that working together with competitors (i.e., “coopetition” (Bengtsson & Kock, 2000)) is an attractive form of collaboration, as competitors possess highly relevant and complementary product- and industry-related knowledge and resources (Gnyawali & Park, 2009; Ritala & Hurmelinna-Laukkanen, 2009).¹ In coopetition, firms commit those relevant resources and knowledge to the relationship while simultaneously gaining at least partial access to their partner’s resource base (Ritala & Hurmelinna-Laukkanen, 2009). As posed by Barney (1991), a firm’s own (unique) resource base may be too limited for it to perform beyond a certain level. Therefore, coopeting and the inherent exchange of similar yet complementary resources and knowledge enables those involved in the coopetitive partnership to jointly create value (Bouncken et al., 2020), more so than each partner might have achieved individually (Ritala, 2012). Additionally, collaborating with rivals allows for sharing risks and costs related to research and development (R&D) processes as well as the introduction of new products to the market, which are aspects that often hinder firms in their attempt to gain and sustain a competitive advantage (Gnyawali & Park, 2009; Pellegrin-Boucher et al., 2013; Telg et al., 2023). As Quintana-Garcia and Benavides-Velasco (2004) suggest, “syncretism between competition and cooperation may foster greater knowledge seeking and capacity to innovate than both strategies pursued separately” (p. 928). Coopetition can thus improve firm competitiveness and, as such, deliver superior performance returns (Velu, 2018).

Despite these prospective benefits, firms are often hesitant to engage in coopetition due to the high exposure risks and potential opportunism that can arise from competitor collaboration. Bengtsson et al. (2016) indicate that coopetition is inherently difficult to manage because the partnering firms aim to create value together in a specific venture, while

they do remain rivals that ultimately want to outperform each other in adjacent ventures. Consequently, coopetition partners are likely to behave opportunistically to appropriate as many benefits from the collaboration for themselves as possible (Le Roy & Czakon, 2016; Raza-Ullah et al., 2014). As Bouncken et al. (2020) point out, this drive of both coopetition partners for individual appropriation of the rents of coopeting can be very harmful, as it may diminish collaborative efforts and cause a hostile dynamic. In fact, firms face high risks of unintentional knowledge spillover, which may even be used against the focal firm in the competitive setting (Estrada et al., 2016; Telg et al., 2023). This can cause distrust among partners, which can severely (negatively) impact the collaboration, as firms do not feel safe enough to share knowledge and resources in the first place (Lascaux, 2020). Consequently, firms engaged in coopetition are required to manage the risks of unintended knowledge spillovers and exploitation thereof, to be able to fully realize the benefit from this mode of collaboration (Estrada et al., 2016; Telg et al., 2023).

Coopeting actors need to be able to dynamically manage the tensions between (joint) value creation and (individual) value capture (Chiambaretto et al., 2020; Gnyawali & Ryan Charleton, 2018). Evidence indicates that those who can manage the tensions, rather than purely focusing on advantages whilst neglecting potential pitfalls, are better able to reap benefits from coopeting (Tidström, 2014). Many of these benefits stem from the collaborative dimension of coopetition (Bouncken et al., 2020; Ritala, 2012). Consequently, coopetition scholars point out that firms are transitioning from working on their own (i.e., from an individualistic BM) to working with a rival firm (or firms) (e.g., Bengtsson & Kock, 2000; Bouncken et al., 2015; Chim-Miki & Batista-Canino, 2017), resulting in a collaborative BM. In line with this idea of a shift in BM, Ritala and Hurmelinna-Laukkanen (2009) suggest that tensions and opportunism related to (individual) value capture in coopetition can be overcome through differentiation, where especially BMs can facilitate such differentiation strategies (Ritala & Sainio, 2014). As such, considering the concept of BMs in coopetition may concurrently mitigate some aspects of the perceived coopetitive risks and drive greater value capture by all stakeholders, including customers (Ritala & Sainio, 2014).

2.2. Coopetitive business models

In their seminal work, Amit and Zott (2001) indicate that “the business model depicts the design of transaction content, structure, and governance so as to create value through the exploitation of business opportunities” (pp. 494–495). Coopetition scholars have articulated this notion and define BMs as “complex systems” (Velu, 2018, p. 336) that entail a firm’s value creation and capture initiatives, as well as its value proposition (Ritala et al., 2014). Ritala and Sainio (2014) argue that in fact a firm’s BM is seldomly restricted solely to the firm’s internal boundaries. Rather, a BM “also describes how the organization is linked to external stakeholders and how it coordinates and manages its economic exchanges with them in order to create value for customers and

¹ In this section, we conjecture about coopetition in general, not distinguishing between different types or constellations of coopetition alliances. To understand the general tensions with respect to joint value creation and individual value capture inherent to coopetition, such a general lens is deemed sufficient. However, we do acknowledge that there are a variety of different settings such as the dyadic, multi-lateral, network, and ecosystem level, which we examine in more detail (from a BM perspective) in Section 2.2.

other partners” (Ritala & Sainio, 2014, p. 160). Velu (2018) highlights that firms use co-competition to adapt and innovate their BMs to offer a more attractive value proposition to customers. Specifically, as described earlier, co-competition allows for the exchange of resources and knowledge, and enables the creation of new markets and protection of existing ones (Ritala et al., 2014; Velu, 2018). Based on these underlying mechanisms, a firm can increase the radicalness of its BM through risk reduction and value maximization (for both the firm as well as the customers) resulting from co-competition (Ritala & Sainio, 2014). Yet, to be able to maximize value and hence develop and deliver a superior value proposition, the choice (and constellation) of (competing) partners in a firm's value network is crucial (Velu, 2018).

To that end, co-competition has been studied on various levels and in terms of a variety of partner constellations. Many contributions consider co-competition on a *dyadic (inter-firm) level* where the focus is on the interaction between two competing firms² (see e.g., Gnyawali & Park, 2009; Gnyawali & Park, 2011). However, both Gernsheimer et al. (2021) and Czakon (2018) indicate that a large number of studies investigate co-competition on a *platform (ecosystem) or network level*. Here, firms not only face a singular competing partner but potentially multiple rivals (multilateral co-competition), a variety of different partner types and/or parties they are only indirectly tied to (e.g., Bacon et al., 2020; Chiambaretto & Fernandez, 2016; Rouyre & Fernandez, 2019). This implies that firms need to be able to manage multiple partners simultaneously in their value network—both horizontal and vertical ones (Brandenburger & Nalebuff, 1996; Chiambaretto & Fernandez, 2016). Such networks allow for the exchange of a large variety of resources and knowledge, and consequently may provide many benefits. However, they also require substantial managerial capabilities and capacity as firms in networks may face increased risks of exploitation and unintended knowledge spillovers (through indirect ties) (Bernal et al., 2022; Edris et al., 2022). In fact, Rouyre et al. (2024) suggest the tensions between value creation and capture in collaboration, and especially co-competition, with multiple partners may be exacerbated, which can cause additional difficulties in the management process.

2.3. Co-competitive business models for sustainability goals

Despite ample opportunities for joint value creation, competing firms may struggle to gain and sustain a competitive advantage. Therefore, they need to find ways of doing business successfully and hence play into the ever-evolving requirements of society to offer a unique and superior value proposition (Crick & Crick, 2020; Garri, 2021). One such burgeoning pattern is the increased focus on sustainability and the imperative to ‘become greener’ (Gernsheimer et al., 2021). Being ‘green’ has developed into a basis of competitive advantage, which has induced firms to invest more time and resources into sustainable initiatives and corresponding innovation practices (Manzhynski & Figge, 2019; Melander & Arvidsson, 2022).

Sustainability challenges are difficult to integrate into business operations due to *prima facie* interdependent, yet often conflicting economic, environmental, and social objectives (Hahn et al., 2015; Hahn et al., 2018; Manzhynski & Figge, 2019). Although the principles of CE have been developed as a specific sustainability implementation system that ingrates economic priorities with the environmental and social dimensions, the lagging external and internal institutions that would support the transitioning away from the prevalent traditional siloed approach to knowledge building and value creation inhibit the urgency of the advancement towards sustainability-, and specifically CE-focused BMs (Christ et al., 2017; Hina et al., 2022; Manzhynski & Biedenbach, 2023; Manzhynski & Figge, 2019; Schaltegger et al., 2013; Volschenk

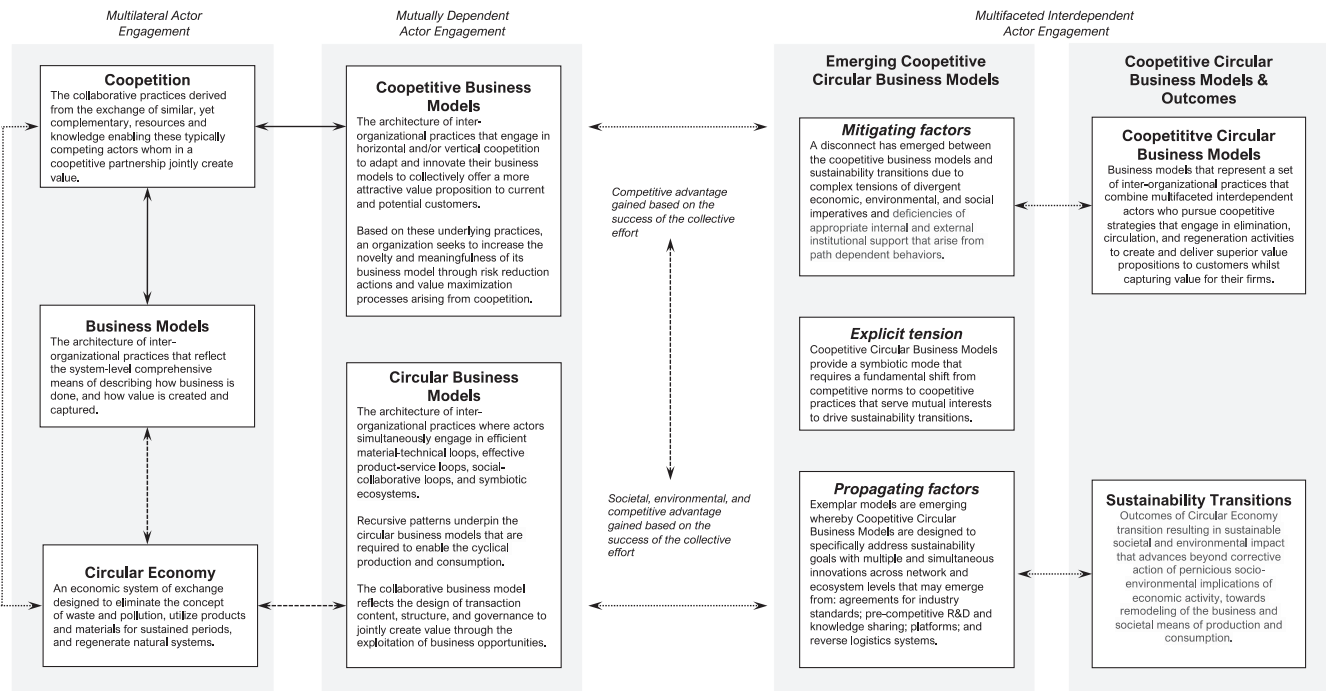
et al., 2016). The complexity surrounding the called-for new BMs and the interdependencies that these new BMs embody has impeded the systematic adoption of network organizing for CE transitions to advance sustainability (Hina et al., 2022). Responding to these issues, management scholars advocate ‘participatory architecture’ (Ferraro et al., 2015; Gehman et al., 2022). This is enacted through the principles of inclusive deliberation, lateral accountability, mutual monitoring, and multi-vocality to sustain the varied interpretations of value creation and the engagement of multiple organizations in cross-boundary collaboration to facilitate the scale of collaborative outcomes necessary to advance the transition (Dzhengiz et al., 2023; Geissdoerfer et al., 2018; Munten et al., 2021; Verleye et al., 2023). As suggested by Manzhynski and Figge (2019), “sustainable development requires [...] the cooperation of organizations that compete at the same time” (p. 827) to concurrently secure better organizational performance and benefits for society at large (Christ et al., 2017).

Munten et al. (2021) stress that co-competition for sustainability presents firms with a large number of complex tensions: on the one hand, the tensions between value creation and value capture as described earlier; on the other hand, tensions related to balancing economic, environmental and social pursuits. This adds an additional nuance to Hahn and Pinkse (2014), who conjecture that involving multiple firms in collaborative arrangements in CE transitions for sustainability may introduce further complexity and thus may not be categorical in terms of positive societal impact generation. These authors suggest that the degree of rivalry between the partnering firms needs to be unpacked to understand its impact on the collaboration's effectiveness. To this end, co-competition research has long been concerned with the question of the balance between cooperation and competition in achieving shared organizational goals (Bengtsson & Kock, 2000, 2014; Crick, 2019; Crick & Crick, 2021; Gernsheimer et al., 2021; Hamel et al., 1989; Raza-Ullah et al., 2014; Ritala, 2012). As such, extant knowledge on co-competition offers substantial potential to guide the development of the called-for new forms of organizing, and collaborative BMs for advancing the transition to CE for sustainability (Fischer & Pascucci, 2017).

The occurrence of co-competition-based BMs is dependent on the goals and incentives underlying the collaboration itself (Ritala et al., 2014). Recent contributions to the co-competition literature have emphasized that firms tend to collaborate more frequently with their rivals to achieve goals aimed at advancing sustainability (Corbo et al., 2023; Gernsheimer et al., 2021; Manzhynski & Biedenbach, 2023; Mirzabeiki et al., 2023; Mwesumo et al., 2023). According to Melander and Arvidsson (2022), this frequently occurs in a network setting where multiple firms and especially multiple competitors join forces to achieve individual and common goals. Manzhynski and Biedenbach (2023) further clarify that the inverse relationship between co-competition intensity and sustainability outcomes confirmed in their study indicates that co-competition is particularly constructive for accelerating the adoption of sustainable corporate strategy, thus beginning to define the initial triggers related to the mechanisms that underpin co-competition for sustainability. For firms new to sustainability, “expanding the range of potential collaborators, deepening cooperation, and collaborating on a more frequent basis seem to enhance sustainability outcomes” (Manzhynski & Biedenbach, 2023, p. 43). This applies particularly well to the concept of CE that is yet to see mass industry uptake (Hina et al., 2022; Narayan & Tidström, 2020), as some of the main underlying mechanisms to co-competition such as improving processes, sharing risks and costs, and, especially, creating industry standards (e.g., Ritala et al., 2014) tap exactly into the necessary mechanisms of CE.

Yet, to understand in more detail the role of co-competition in CE as a means of advancing sustainability transitions, we first outline and explain the notion of CE itself below. Only then can we fully grasp the relationship between the two fields and establish the notion of CCBMs.

² An example of such dyadic co-competition is the collaboration between large competing firms Samsung Electronics and Sony Corporation in order to develop the flatscreen LCD TV panels (Gnyawali & Park, 2011).



Notes. Differential arrows represent the extent of academic research at the interfaces of each of these topics. Solid lines represent significant research interface, dashed lines represent moderate research interface and dotted lines represent limited research interface. Cited works are suppressed which underpin the content of this figure but, where appropriate, citations are provided in the article text to provide attributions to other authors.

Fig. 1. Mapping knowledge links underlying cooperative circular economy business models.

3. Circular economy, circular business models, and coopetition in the circular economy literature

The CE—known as an economy that “is restorative and regenerative by intention and design” (Ellen MacArthur Foundation & McKinsey, 2012, p. 7)—is viewed as a viable solution to radically transform the unsustainability of current production and consumption systems, meet several of the UN’s SDGs and sustain growth and competitiveness, thereby contributing to advancing sustainability (Bai et al., 2022; Näränen et al., 2021).

For these reasons, it has caught the attention of policy makers, business leaders and scholars across the globe. Academically, the literature on the CE has witnessed a substantial increase recently triggered by the seminal work by the Ellen MacArthur Foundation and McKinsey (2012). Scholars across different fields have investigated the conceptual and theoretical foundations of the CE, the relationship between the CE and sustainable development, the implementation of CBMs, drivers, and barriers among other themes. Fig. 1 maps the key knowledge nodes that are apparent from the extant literature that we identify above. We depict this not as a conceptual model but rather as an illustration of the key-ways in which these knowledge nodes reflect interrelationships with common interest. However, this figure also reveals the previously discussed extremely understudied interface between coopetition and CE research.

The shift towards the CE can be considered as socio-technical transition requiring simultaneous and multiple innovations across different levels (Brown et al., 2021; Zhu et al., 2022). Scholars (e.g., Harala et al., 2023) have referred to the shift towards the CE as a “system-level phenomenon” (p. 1). For firms, such a radical shift has important

managerial, strategic, and organizational implications.

For one, the emergence of new BMs or the transformation of existing BMs is among the most crucial enablers of the CE (Hopkinson et al., 2020). This requires a re-organization of supply chain structures and relationships with industry partners based on cooperation and increasingly on coopetition, whereby collaboration and competition between rivals exist simultaneously in the pursuit of value creation and capture (Bengtsson & Kock, 2000; Marshall et al., 2022; Narayan & Tidström, 2020). Köhler et al. (2022) posit that cross-sectoral collaboration among firms in networks is crucial to attain a CE. A similar argument is put forward by Berlin et al. (2022), who find that the main driver in dyadic vertical collaboration between buyers and suppliers is quality control, whereas efficiency is the most important driver for both horizontal collaboration between buyers and lateral collaboration within a supply network. Veleva and Bodkin (2018) find that large corporations collaborate with small organizations with skills in reverse logistics to advance CE implementation driven by sustainability commitments and to enhance the viability of their BMs. Sudusinghe and Seuring (2022) maintain that sharing information, responsibility for product recovery and risks, as well as joint product design are the most common vertical collaborations required for CE implementation, whilst cross-functional coordination and collaboration with government agencies are the most common as internal and external horizontal collaboration practices. The authors also suggest that circular supply chains are mostly driven by the opportunity to improve economic and environmental performances. As put by Litaudon and Chen (2023), CBMs “provide a tangible pathway for CE implementation, albeit necessitating a shift from a firm-centric to an ecosystem-centric perspective” (p. 2). In fact, as noted by Parida et al. (2019) “no single company can achieve it alone

and ecosystem-wide orchestration is necessary” (p. 715) for a CE transition that delivers across all three, economic, environmental and social, domains of sustainability.

Hence, it can be argued that the ecosystem lens is a useful frame to study CE implementation (Harala et al., 2023; Trevisan et al., 2022). Some studies have explored the concept of circular ecosystems and innovation strategies in circular ecosystems innovation (e.g., Kanda et al., 2021; Konietzko et al., 2020a; Parida et al., 2019; Trevisan et al., 2022). According to Aarikka-Stenroos et al. (2021), a “circular economy (CE) ecosystem is a multi-actor entity in which interdependent actors play complementary roles. The actors can include companies, industry actors, public and government actors (such as cities and municipalities), and ministries, universities, non-profit organizations, and citizen-consumers. A CE ecosystem emerges or is created around a common, system-level goal related to resource circularity, circular economy knowledge, or circular economy business and BMs. The agency varies from focal actor-driven ecosystems to distributed agency, and the ecosystem structure varies from tightly coordinated CE business models to loosely coupled affiliation structures around CE-oriented goals” (p. 33).

The literature at the intersection between strategic management and CE is scant (De Angelis et al., 2023; Puglieri et al., 2022), and whilst research has analyzed CE implementation at different levels, i.e., micro, meso and macro (Nikolaou & Stefanakis, 2022), understanding of how inter-organizational collaborations enable implementation of circularity is limited (Aarikka-Stenroos et al., 2022). As put by Pietrulla (2022), “the (eco-) systemic approach to CE is still in its infancy, and the literature on circular ecosystems remains comparatively scarce” (p. 2), which is further emphasized by Litaudon and Chen (2023). Furthermore, business ecosystems are characterized by the co-existence of competition and collaboration (Konietzko et al., 2020b; Tsvetkova & Gustafsson, 2012). It has also been argued that “a CE can be seen as a systemic concept that necessitates paradigmatic shifts from pure competition to co-opetition” (Schultz et al., 2023, p. 3), and that circular ecosystems’ development is characterized by co-opetition (Hirvensalo et al., 2021). However, despite these aforementioned indicators in extant literature regarding the intersection between CE and co-opetition, research investigating co-opetition in a CE context is limited (Harala et al., 2023).

An additional reason why co-opetition is an appropriate lens to investigate CE implementation can be found in CE principles. CE thinking draws substantially from the functioning of natural ecosystems (Ellen MacArthur Foundation & McKinsey, 2013; Webster, 2021). One of these characteristics that goes beyond the well-known ‘waste equals food’ principle is that ecological systems are highly complex, dynamic, interactive, interdependent, and cooperative (BCI (Biomimicry for Creative Innovation), 2023; Lang & Benbow, 2013). There exist different types of interactions among organisms in natural ecosystems with the most studied being competition, predation, herbivory, and symbiosis (Lang & Benbow, 2013). Whilst competition was viewed initially as the driving force of community structure, it is now argued that all of the above interactions define communities and ecosystems (ibid.). Furthermore, ecosystems are characterized by the so-called positive qualitative utility, which means that they can change the quality of interactions, from negative—such as in the case of predation and competition—into positive, and thereby benefitting the system as a whole (i.e., network synergism) (Nielsen, 2007). In nature, a network of relationships enables processes such as the cycling and recycling of energy, materials, and information in a way that benefits each participant and the whole system (BCI (Biomimicry for Creative Innovation), 2023). Given these properties of natural ecosystems and the fact that CE

thinking draws substantially from nature functioning, a co-opetition framework is highly appropriate to understand CE ecosystems structures, processes, and relationships. In fact, it is argued that because nature is characterized by successful collaborative processes, learning from nature is an appropriate strategy to better understand collaboration and the design of collaborative networks within the business context (Camarinha-Matos & Afsarmanesh, 2018; Khanagha et al., 2022). In this regard, extant co-opetition literature offers extensive complementary insights into the functioning of business ecosystems that are marked by simultaneity of competition and collaboration. The co-opetition literature has shown that any unchecked opportunistic tendencies and Machiavellian behavior for short-term gains attrite the functioning of the system at the expense of longer-term sustainable network performance (Chiambaretto et al., 2020; Telg et al., 2023). In today’s globalized, sustainability-oriented markets characterized by operating uncertainties, the nature-observed ‘positive qualitative utility’ can be seen in the move from the more traditional unilateral, competition-driven approaches to value creation towards network-based co-opetitive BMs.

The literature bridging co-opetition and CE for positive sustainability outcomes is sparse and embryonic (Harala et al., 2023). This is unsurprising considering the lack of research on evaluating co-opetition for sustainability in general. Extant research is confined to insights from recent studies that have considered sustainability implications in terms of sustainability being considered as one of the broader but not primary outcomes of co-opetition. For example, Christ et al. (2017) study the links between co-opetition and sustainability strategy in the Australian post-production wine logistics to report that sustainability-related co-opetitive strategies remain subject to short-run economic considerations, at the expense of environmental and wider societal benefits. Similarly, Munten et al. (2021) suggest that the tensions related to value generation, temporal articulation, relational evolution, and knowledge circulation identified in environmental sustainability-centered co-opetition in automotive industry show that “the natural and social cases are, at most, implicit goals for [sustainable innovation] in the automotive industry, not clear objectives to achieve” (p. 17). Progress requires a careful definition of the rules and the co-opetitive ‘game’ and its components. To this end, Bengtsson et al. (2016) take the social sustainability lens to examine how horizontal collaboration among competitors allows firms to respond to new modern slavery legislation. The study derives relational rents, relational capital and formal and informal governance as the key mechanisms that operationalize this form of co-opetition. Although these findings contribute further insights into the co-opetitive processes, the study stops short of evaluating the co-creation of value beyond the organizational level. As Nygaard (2022) notes, clear evaluation guidelines in complex network systems for the interdependent yet often contradictory economic, environmental and social objectives for sustainable outcomes, both indicators and processes, require urgent research attention.

To embark on this process, systematic reviews in supply chain collaboration literature offer insights on specific indicators across economic, environmental and social dimension, as shown in Table 2, albeit derived from studies biased towards economic and environmental focus, respectively, in both sustainability-focused studies (Chen et al., 2017) and in CE context. Sudusinghe and Seuring (2022) note that “no single paper discusses the social dimension alone [...] in the CE context” (p. 6). For scholars seeking to advance knowledge regarding co-opetitive processes that drive sustainability objectives concomitantly, Manzhynski and Figge’s (2019) study of the links between organizational and societal co-opetitive outcomes is a constructive starting point. The authors extend the evaluation of co-opetition for sustainability outcomes to the

Table 2
Sustainability indicators (adapted from Sudusinghe and Seuring (2022)).

Construct	Indicator	Description
<i>Economic Outcomes</i>	Stability and profitability	Financial health of an organization (e.g., total sales/revenue, operating profit, free cash flow, and the total number of products produced).
	Market competitiveness	An organization's economic performance as compared to its competitors (e.g., organization's market share performance, offering of competitive wages and earnings per share performance).
	Sustainability expenditures	Spending on sustainable initiatives (e.g., local procurement, R&D expenditures).
	Income distribution	Salaries and benefits given to employees, payments made to government and community (in form of taxes, employee wages and benefits, community investments, and operating costs).
<i>Environmental Outcomes</i>	Waste management	Management of waste produced and recycled by an organization (e.g., hazardous waste produced).
	Emissions	Air emissions released (e.g., GHGs emission, ozone-depleting substances, and particulate matters).
	Energy efficiency	Efficient use of energy and use of renewable energy.
	Material efficiency	Using all forms of material input efficiently (e.g., renewable, hazardous and recycled material input).
	Water management	Managing the water consumption
	Environmental compliance	(e.g., water discharge and the quality of water discharged).
	Land use	Compliance with environmental regulations (e.g., paying fines for non-compliance, environmental standards and certificates).
<i>Social Outcomes</i>	Supplier assessment for environmental performance	Proper use of land for conducting organization's operations. Considering suppliers' environmental performance when selecting them.
	Training & education	Training and education opportunities for employees.
	Health & safety	Health and safety issues related to the work in an organization.
	Human resource	Management of human resource, creating jobs, balanced gender diversity, employee turn-over, employees' benefits/satisfaction/performance evaluations.
	Human right & anticorruption	Acting against corruption and the violation of human rights (e.g., discrimination, forced and child labor, corruption, and violation of the rights to the freedom of association).
	Social compliance	Compliance with social regulations (e.g., through Standards and certifications).
	Consumer issues	Addressing consumers' complaints, product returns, and incidents of misleading, deceptive or fraudulent information conveyed to the consumer.

cooperating firm and to the societal level by considering the use of economic and environmental resources to identify over 50 patterns of positive sustainability outcomes, most of which involve some forms of a trade-off. Future research can focus on unpacking these patterns whilst keeping in mind knowledge syntheses of Chen et al. (2017) and Sudusinghe and Seuring (2022) pointing to the importance of context and stages of collaboration, as well as the established practice of collaborative capacity sharing and joint production.

However, as discussed, the focus in the above studies is either on collaborative arrangements that lack the competitive element of co-competition, or they study co-competition for sustainability more broadly. Co-competition and its links with CE specifically appears limited to a handful of papers. Scholars have so far explored how co-competition could be operationalized via tokens in a blockchain to support the transition to CBMs (Narayan & Tidström, 2020), conceptualized the transition to circular cities as fundamentally characterized by co-competition (Hirvensalo et al., 2021) and, more recently, using insights from multiple case studies across different sectors (retail, forestry, brewery, construction and manufacturing), Harala et al., 2023 have identified four categories of horizontal co-competition for a CE: (i) *agreements for industry standards*, (ii) *pre-competitive R&D and knowledge sharing*, (iii) *platforms*; and (iv) *reverse logistics systems*. For each of these categories, the authors illustrate the co-competition characteristics, stakeholders' engagement for co-competition and contribution to the CE.

Whilst certainly a useful lens, surprisingly little has emerged in CE studies from a co-competition perspective, and in agreement with Harala et al., 2023, we believe that “the phenomenon of co-competition for a CE has been neither systematically addressed nor empirically studied” (p. 312). To advance the field, we take a BM perspective. In a recent and thorough literature review on co-competition research, Gernsheimer et al. (2021) show that studies have explored co-competition at the *inter-firm*, *intra-firm*, *network* and *platform levels*. Yet, comparatively fewer studies have examined co-competition from a BM perspective. This is despite the fact that there exists a clear linkage between BMs—a BM “describes the rationale of how an organization creates, delivers, and captures value”

(Osterwalder & Pigneur, 2010, p. 14), and co-competition relationships can be examined from a value creation and capture perspective (Ritala et al., 2014)—and that co-competition is positively related to BM innovation across different industries (Ritala & Sainio, 2014).

Velu (2018) argues that “the research in co-competition and business model design is very much at a nascent stage, with much more still to investigate regarding how, when, and why business model innovation is required for co-competition-based strategies to contribute in order to create competitive advantage” (p. 344). Moreover, the previously discussed findings by Manzhynski and Biedenbach (2023) showing that integrating co-competitive modus operandi into underused corporate sustainability practices leads to greater sustainability outcomes indicate that co-competition may indeed accelerate the much-needed industry uptake of CE. We further postulate that introducing the BM perspective has the potential to advance the current stance of approaching sustainability outcomes as a ‘byproduct’ of co-competitive relationships in pursuit of organizational goals (Gernsheimer et al., 2021), to embed the principles of CE at the center of value creation, delivery and capture logics (Harala et al., 2023). Building on and departing from these arguments, we maintain that there is still much to investigate about the implication for CBMs implementation deriving from co-competition.

4. Evaluation of pertinent Meta theories in co-competition and circular economy research

The CCBM lies at the intersection of two distinct fields, co-competition and CE, both of which are characterized by complexities related to the functioning of the BMs. On the one hand—as our review shows—co-competitive BMs are distinct by combining what from the traditional strategic marketing perspective has been considered as opposing and thus paradoxical notions of competition and collaboration. This is especially the case when focusing on a firm's effort to create and capture value, as well as to provide a unique value proposition to its customers by joining forces with a competitor (Ritala et al., 2014). However, with the growing uncertainties emerging from the globalized operating

environments and the ubiquitous sustainability pressures, more entrepreneurial firms increasingly rationalize engaging with rivals for and within their business (model) (Velu, 2018) to innovate and so keep up with changing society (Crick & Crick, 2020).

On the other hand, CBMs lacks definitional convergence (De Angelis et al., 2023; Dzhengiz et al., 2023) and there is still limited industry uptake due to the uncertain financial return and the complexity of processes of value creation characteristic of interdependence, dynamic capabilities, consumer ambivalence, and deficiencies in appropriate infrastructure and institutional framework (Geissdoerfer et al., 2018; Hina et al., 2022; Verleye et al., 2023). Bringing the fields together to propose a new iteration of a sustainable BM innovation requires explaining the implementation of the BM innovation process, what tools are required to successfully implement the BM and the identification of potential challenges that may impede successful implementation (Geissdoerfer et al., 2018). To unravel the multifaceted problems of a phenomenon, meta theories can usefully be employed to help determine the links and divergences between constructs and thus facilitate explanations of the underlying processes (Barringer & Harrison, 2000). Extant studies utilize a broad range of strategic management theories to explain co-competition (Klimas et al., 2023; Ryan Charleton et al., 2018). Within the CE field, theoretically anchored studies are still scarce (Sarja et al., 2021) with Figge et al. (2022) arguing that the CE is undertheorized.

CBM literature mirrors CE literature in this respect (De Angelis, 2022a). As put by Geissdoerfer et al. (2020) “there is considerable lack of clarity about [CBMs] theoretical conceptualization” (p. 1). In the following section, we discuss the dominant meta-theories that scholars in co-competition and competitive BMs and in CBMs have deployed to extend their respective field’s theory building, including the neo-institutional theory, the network theory, the stakeholder theory, dynamic capabilities, and resource-based theory, and transaction cost economics to begin the bridging efforts between the fields. However, co-competition and CBM theories have, heretofore, developed in silos, meaning that little cross-fertilization has taken place. To fully utilize the extant co-competition knowledge, we also build on the prevalent meta-theories in co-competition research, the paradox theory and the game theory, which are yet to be fully integrated in CBM theorizing. Lastly, the systems lens is introduced due to its broad advocacy for complex phenomena of study where ecosystems characterize advanced value creation and value capture logics. Drawing on these theories, Appendix 1 provides a synthesis of the key studies in both co-competition and CBMs literature and highlights some implications for research about CCBMs.

We first turn to *neo-institutional theory* as a leading theoretical perspective related to organizational behavior. Institutional theory guides organizational understanding of pertinent norms and rules and how these institutions regulate stakeholder and system behaviors (Di Maggio & Powell, 1983). In co-competition research, institutional pressures within the increasingly complex operating environment have been examined as the driving factors behind firms seeking to enhance strength by developing dynamic capabilities in collaborating with competitors (Xu et al., 2023). Moreover, the structures and processes that emerge from distinct institutional frameworks, such as the notion of business ecosystems, are seen as foundational structures in which co-competition emerges as a distinct form of governance structure (Bouncken et al., 2018). In CE and CBMs, researchers employ neo-institutional theories in discussing the policies that have emerged to drive consumer demand for CE offerings (e.g., Arranz & Arroyabe, 2023) and to regulate circular material flows (e.g., Fischer & Pascucci, 2017). These insights raise questions related to the emergence of co-competition-based CBMs and relative balance between attributing the origins to

institutional entrepreneurship or to institutional pressures.

Network theory helps us understand the institutional environment beyond the focus on the norms and rules that direct the system actors and their behaviors by bringing to the fore the ties and their characteristics that exist and enable the functioning of the actors in the given network. From a co-competition and CE perspective, these networks can be seen as distinct business ecosystems (Gilbert & Behna, 2013; Gnyawali et al., 2006) in which firms are embedded and which directly or indirectly influence their capacity to create and capture value. A firm’s ability to develop and/or access powerful ecosystems galvanizes against environmental uncertainties (Lowensberg, 2010) by strengthening the firm’s relative power, market behaviors and performance through reducing transaction costs (Jarillo, 1988) but also gaining specialist knowledge and legitimacy (Barringer & Harrison, 2000; Gnyawali & Park, 2009; Ritala & Hurmelinna-Laukkanen, 2009). In a co-competitive setting, this can allow for greater (joint) value creation regardless of the network players’ competing interests (Czakon & Czernek, 2016). Nonetheless, Rouyre et al. (2024) highlight that some network participants may form separate sub-alliances for enhanced value appropriation, such that other parties in the network are at a disadvantage. Accordingly, being in a central and autonomous position in said co-competitive network directly impacts a firm’s ability to pursue competitive actions, and the likelihood of experiencing retaliation (Ryan Charleton et al., 2018). In CE literature, scholars have likewise suggested that investing in identifying partners to pursue a CE-focused business ecosystem affords access and pooling of specialist “knowledge, skills, technical know-how, experiences, resources, and motivation to implement and sustain [circular economy practices]” (Baah et al., 2023, p. 7). CCBMs thus appear to offer an advantageous approach for maximizing market performance in complex, uncertain markets, yet the question of what kind of allies are likely to yield the most significant results in CCBMs requires scholarly attention.

From the *stakeholder theory* perspective, firms are inextricably interlinked with the stakeholders who populate their environment where stakeholders are seen as anyone (or anything) with the capacity to impact or be impacted by the firms’ operations (Freeman, 1984). As such, Akpinar and Vincze (2016) see co-competition as a stakeholder relationship with the power and stake attributes of stakeholder theory being the “explanatory variables that affect the types of co-competition, the outcome variable described by the observed levels of competition and cooperation” (p. 54). Aside from distinct managerial approaches demanded by relative level of competition- vs collaboration-dominant co-competition, stakeholder theory has also been applied to the value appropriation dimension both in terms of within co-competition power balances, as well as the need to move towards societal benefits (Volschenk et al., 2016). CE scholars have attributed the notion of sharing advocated by stakeholder theory as the foundation of circular ecosystems (Moggi & Dameri, 2021) and stakeholder pressure has been examined in both the design of circular offerings (Pinheiro et al., 2022) and as a substitute force for the lagging CBMs adoption legislative frameworks (Chiappetta Jabbour et al., 2020). However, who are the stakeholders that are the key force driving the development and adoption of CCBMs and which approach to co-competition dynamics (types) prevails in CCBMs and why, needs clarification.

Navigating the increasingly complex business environment characterized by continual transformation and an intricate web of relationships that are in continual flux demands agility and adaptation. *Dynamic capabilities* look to the firm’s abilities to sense, seize and transform with respect to strategic opportunities (Teece, 2007). Co-competition partners rely on dynamic capabilities to facilitate the addressing of risks and

tensions emergent from the interdependency-laden and paradoxical nature of the cooperative relationships so that multilevel benefits can be harvested (Teece, 2018), as well as to foster adaptability (Mwesumo et al., 2023) and innovation (Estrada et al., 2016). CE scholars have also raised the importance of dynamic capabilities in adopting CBMs. De Angelis et al. (2023) argue that “dynamic capabilities of sensing, seizing and reconfiguring in designing out waste (eliminate), keeping products and materials in use for as long as possible (circulate) and regenerating natural systems (regenerate) facilitate the emergence and implementation of CBMs once an organization is geared towards recoupling” (p. 7). Similarly, Castro-Lopez et al. (2023) highlight that the adoption of CBMs requires organizational agility as the key factor, whereas the ability to configure solutions, orchestration, and digitalization capabilities underpin the management and development towards more advanced CBMs (Reim et al., 2021). How does such learning occur when cooperation and CBMs are merged and what underpins the emergence of the called-for dynamic capabilities requires further exploration.

Closely related to the notions that link dynamic capabilities to superior firm performance is a firm's possession of, or access to, valuable, rare and difficult to imitate or substitute, unique resources (Barney, 1991). In this sense, the (*natural*) *resource-based view* of the firm looks to the factors that drive firm-level behaviors with a focus on value creation and operational efficiency. The natural resource-based view links the competitive advantage to a further capacity to engage in environmentally sustainable practices (Hart, 1995). In this vein, cooperation is set up to enable the pooling of resources, knowledge, and expertise among the cooperating partners (Crick & Crick, 2020; Fernandez et al., 2021; Gnyawali & Park, 2009). Such a BM facilitates improved firm performance and, as proposed by Ritala and Sainio (2014), offers unique opportunities for differentiation.

From the CBM perspective, the natural resource-based view has been shown to lead to ‘circular advantage’ where capabilities in CBMs' innovation, such as the use of clean technologies and product stewardship, have delivered stability in resource prices, mitigated supply chain volatility, or provided new revenue streams whilst simultaneously advancing the broader sustainability agenda (Coppola et al., 2023; De Angelis, 2018; Sehnem et al., 2022). Converging the fields of cooperation and CBMs using the natural resource-based lens directs attention to issues such as: What are the levers of a sustained competitive advantage in CCBMs? How does the nature of resources and capabilities change in CCBMs? How do firms deal with risks related to resource sharing (e.g., opportunistic behavior) in CCBMs?

The most economic-centered theory in understanding the drivers of collaboration across organizational boundaries is the *transaction cost economics* (TCE) perspective due to its concern with the minimization of costs related to the firm's production and transactions (Barringer & Harrison, 2000). Traditionally, TCE assumes the optimum form of organizing “achieves economic efficiency by minimizing the costs of exchange” (Idowu et al., 2013, p. 2548) resolved by either making or buying.

With the emergence of a cooperation mindset, settling for either ‘make’ or ‘buy’ when faced with transaction costs has been extended to ‘make, buy or partner’ as partnering provides access to relevant and complementary resources (Fernandez et al., 2021; Ryan Charleton et al., 2018). TCE thus considers the adoption of cooperation or the development of a cooperative BM as a tool for managing firms' economic costs in increasingly complex and uncertain marketplace (Gnyawali & Park, 2009; Pellegrin-Boucher et al., 2013; Velu, 2018). However, in its focus on economic cost management, TCE brings to the fore the previously discussed risk associated with opportunistic behaviors in cooperation and the need to anticipate and resolve the threat (Estrada et al., 2016;

Quintana-Garcia & Benavides-Velasco, 2004; Telg et al., 2023). The additional coordination costs embedded in cooperation may outweigh the associated benefits from this form of market engagement (Ryan Charleton et al., 2018). Aside from explicit contracting, Holgersson (2018) suggests that implicit contracting functioned through trust, norms and social relations may mitigate opportunism in cooperation. Barringer and Harrison's (2000) previously theorized that inter-organizational relationships reduce opportunism through mutual trust (and desire to retain network membership) that emerges on the back of past successful transactions and/or through industry reputation.

The issue related to partner characteristics, approaches to mitigate uncertainties and resolve disputes through methods such as contractual agreements to manage transaction costs have also been highlighted in CBM literature (Lahti et al., 2018). However, in a recent conceptual study, Nygaard (2022) theorizes that traditional TCE are ‘under-socialized’ to provide managers the tools to navigate the additional complexity that sustainability has introduced to evaluating optimal performance. Besides the conventional economic aspects, performance in the backdrop of sustainable strategies in today's global markets involves the integration and control of the social and environmental dimensions.

The global and circular economy further drives the focus away from the traditional focus on dyadic evaluation towards the entire circular value delivery network, which “increases performance ambiguity, the uncertainty of eco-opportunism, information asymmetry, and transaction costs” (Nygaard, 2022, p. 1127). The triple bottom line of sustainability in globalized supply chains adds complexity to assessing the value of exchange and so increases transaction costs of unilateral coordination and control. Nygaard (2022) hypothesizes that the increased transaction costs in managing sustainable strategies such as CBMs can lead to inter-organizational lifecycle networks, such as the CCBMs conceptualized here. We propose that CCBMs offer a structure to mitigate transaction costs. However, whether (and how) this occurs in practice requires concentrated scholarly attention. Further questions related to examining the role that TCE plays in driving CCBMs and how CCBM partners manage the coordination and eco-opportunism costs show rich future research avenues.

Thus far, the discussion has focused on theories that have, to a greater or lesser extent, been utilized by both fields in their respective conceptualization efforts (e.g., De Sousa Jabbour et al., 2019; Klimas et al., 2023). However, the proposed CCBMs are characterized by interdependencies that are likely to mirror the interaction processes associated with tensions emerging from the concurrent competitive and collaborative managerial objectives pursued in cooperative BMs. The dominant theories in cooperation research that guide the understanding of such tensions are paradox theory and game theory, and are examined next.

In *paradox theory*, certain factors in business environments related to learning, organizing, belonging, and performing that seem contradictory can exist simultaneously and continuously (Smith & Lewis, 2011). In cooperation, the contradictory (hence paradoxical) elements are the very nature of the relationship, related to the relative balance between collaboration and competition. Cooperation research shows that this paradox needs to be actively managed as it leads to tensions (Raza-Ullah et al., 2014). However, since the paradox cannot be resolved, actors need to learn to accept, engage, and navigate it (Carmine & Smith, 2021) across the value creation and value capture phases of cooperation (Gnyawali et al., 2016; Raza-Ullah et al., 2014). These paradoxes have emerged in CBMs (De Angelis, 2021), as triggered by tensions between circularity demands and commercial value creation (Huerta Morales, 2020). Thus far, tensions in CBMs are dealt with proactive, defensive

and total avoidance strategies (Daddi et al., 2019), yet whether and how organizational paradoxes are likely to shift in CCBMs is a key step that needs to be built to enable firms to progress towards adopting collaborative circular value logics.

As the previewed theories indicate thus far, firm behavior does not occur in isolation and, in practice, depends in large part on the environment in which it is embedded, naturally or through a strategic choice. Game theory considers the interdependencies of actors and provides a model to rationalize observed behaviors that result from a dependence on others. Brandenburger and Nalebuff (1995) suggest that in business, the game is about the interplay of value logics. Coopetitors function in *game theory*, as any value creation and capture is directly dependent on the actions of the cooperating partner (Brandenburger & Nalebuff, 1996; Ritala et al., 2014). The ‘game’ in coopetition, according to Ritala and Hurmelinna-Laukkanen (2009), may result in positive-sum games for all actors through, for example, the creation of new markets or expansion of existing markets (Ritala & Sainio, 2014). The application of game theory has also resulted in an improved understanding of the move towards collaborative relationships to avoid mutually destructive scenarios in market competition (Ryan Charleton et al., 2018). The application of game theory and ‘lessons learnt’ in coopetition may thus facilitate consensus when capturing multiple values is at play, such as in the context of the CE (Agrawal et al., 2023; Palafox-Alcantar et al., 2020).

Both coopetition and CBM studies increasingly point towards *ecosystemic, network-based approaches* as the most advanced forms for generating multi-level benefits (Geissdoerfer et al., 2018; Gernsheimer et al., 2021). We thus conclude this section by turning to the core theory-in-use that provides a degree of universality to the functioning of an entity from a macro perspective—*systems theory*. Randle and Stroink (2018) view systems thinking as a form of a cognitive paradigm characterized by an interconnectedness of components which together form a dynamic whole. This lens allows for the discerning of patterns and inter-relationships that underpin the phenomenon under study (Senge, 2006), where a system can denote an individual firm or a whole economic system (Boons & Wagner, 2009). Systems thinking thus facilitates the study of complex phenomena where collaborative and ecosystemic approaches characterize advanced value creation and value capture logics. Coopeting partners, whether in a simple dyad (e.g., Telg et al., 2023), networks (e.g., Velu, 2018) or the emergent cooperative ecosystems (e.g., Le Roy & Czakon, 2016), exist as distinct yet interlinked components in a systemic whole—the cooperative partnership (Chim-Miki & Batista-Canino, 2017). Researchers have considered the mutual goals, duties and rights as the patterns through which coopetition operates value creation and value capture (Jooss et al., 2023), as well as the level of complexity of the system required to induce societal impact (Struckell et al., 2021; Velu, 2018).

Similarly, in CE theorizing, CBMs refer to resilient, complex adaptive systems (De Angelis, 2022b). The theory and its various vectors have been employed to examine complex issues such as de-manufacturing and end-of-life activities in the car industry with the arrival of electric vehicles (Demartini et al., 2023) and the shift from linear chains to circular business value systems (Tate et al., 2019). By extending on these early insights from the CE and coopetition fields, CCBMs can be conceptualized as resilient, complex adaptive systems with a capacity to advance the sustainability agenda along all three, financial, environmental and social, sustainability domains.

The combination of these dominant theories as appearing in BM research in the respective fields of coopetition and CE enables us to bring to scrutiny the points of alignment and divergence between the fields. By building on these insights, we identify a range of topics that require theoretical and empirical scrutiny to establish whether and what role CCBMs may be afforded in driving the CE transition agenda. We further recognize that alongside discussing the combination of the dominant theories, an analysis of the utility of the respective theories as well as any tensions between them, including their inherent contradictions,

would likely provide complementary insights to further elaborate the theoretical underpinnings and research implications of CCBMs. However, a comprehensive analysis of these factors is beyond the scope of the current study and is thus a fertile ground for future research. The next section systematizes the topics discussed in this paper in a future research agenda.

5. Conceptualizing Coopetitive Circular Business Models and research agenda

In this article, we set out to propose a move towards a ‘circularization’ of extant coopetition literature to propose a new form of BM aligned with the broader sustainability-focused societal agenda, the CCBM. Our aim is to instigate an advancement from the current ‘sustainability as an outcome’ stance in coopetition research towards empowering coopetition as a powerful vehicle that answers to the calls for collaborative architecture in developing innovative ways of progressing towards the circular tipping point (Hina et al., 2022). Our review of knowledge on BMs in coopetition and CE literature indicates multilevel complexities in the functioning of the BMs in each domain, which appears to inhibit more direct approaches to novel iterations related to CCBMs. To begin unravelling the issues related to the implementation processes and their tools, as well as what challenges may emerge in managerial applications of the proposed CCBM, we evaluate coopetition and cooperative BM thinking and the existing theorizing in CBMs against a range of strategic management theories, as discussed in the previous section and summarized in Appendix 1.

As a result of our efforts, we characterize the importance of CCBMs as providing a symbiotic mode that requires a fundamental shift from competitive norms to cooperative practices that serve mutual interests to drive sustainability transitions. To overcome this definitional ambiguity and mirroring other scholars’ line of argumentation in offering a synthesis, we suggest that CCBMs are BMs wherein value creation, delivery and capture is underpinned by both coopetition and CE principles. To this end, we define CCBMs as “*business models that represent a set of inter-organizational practices that combine multifaceted interdependent actors at an eco-systemic level (‘what’), who pursue cooperative strategies that engage in elimination, circulation, and regeneration activities (‘how’), to create and deliver superior value propositions to customers and the society at large, whilst capturing value for their firms (‘why’).*”

To advance the conceptualization of CCBMs, we propose a set of research questions in our future research agenda. Both the coopetition and CE fields show movement towards BM thinking, however, a novel iteration of a BM aligned with both fields is obscured by the complexities in the respective field’s BM assumptions. In the first instance, these multilevel issues need to be unpacked to begin the process of conceptualizing CCBMs. Moreover, both coopetition and CBMs are characterized by a multiplicity of form. Developing a clear understanding of the different forms of coopetition (e.g., dyads, oligo, network, or ecosystem) (Gernsheimer et al., 2021) compared with different CE value logics would provide a strong step towards a classification of the different iterations that CCBMs may take.

Studies examining CBM implementation remain scant within academic literature (Salesa et al., 2022). Hence, we might argue that a range of research questions leading to unravel what CBMs look like in practice, their consequences, as well as organizational, managerial, and policy implications can be extended to the context of the novel construct of the CCBMs we propose in this article. For example, developing a clear conceptualization of CCBMs requires that the value logics of this new BM iteration are deconstructed. The impending legislative changes from the EU, as well as the growing societal pressures for more sustainable approaches to organizing business (Dzhengiz et al., 2023; Hina et al., 2022; Verleye et al., 2023) provide some initial indications of external drivers behind CCBMs.

In the strategic management and public administration research fields, collaboration has established as the *modus operandi* in engaging

Table 3
A research agenda for future Coopetitive Circular Business Models (CCBMs) insights.

Theme (topic)	Future Research Questions
<i>Conceptualization of CCBMs</i>	<ul style="list-style-type: none"> • How can CCBMs be defined? • How can multiple interpretations of CCBMs be classified? • To what extent can consequential outcomes of CCBMs be considered more proximal and less distal as is common in coopetition research?
<i>Antecedents and consequences of CCBMs</i>	<ul style="list-style-type: none"> • How do forms of coopetition align or vary according to different CE value logics? • Which drivers best explain different CE value logics? • Which drivers interact with others to form complementary outcomes on different CE value logics? • Which drivers interact with others to form substitution effects on different CE value logics? • Which drivers form an (in)direct relationship with different CE value logics? • What are the financial, societal and/or environmental benefits of different CE value logics? • What are the knowledge spillovers for different actors from the CE value capture process? • What are the triggers, mechanisms, and incentives that explain the strategic evolution of the firm from being engaged strictly in coopetition behaviors towards a means of enhancing circularity within CCBMs?
<i>Innovating and executing CCBMs</i>	<ul style="list-style-type: none"> • What determines the focus on environmental versus social dimensions of sustainability in CCBMs and how can these be balanced? • How do managers calibrate the intensity of coopetition with the balance of interdependence as CCBMs form? • Which structural, relational, and equity forms do CCBMs take? • What are the boundary conditions to understand a unitary framework for CCBMs? • What are the conditions that dictate when relational governance versus contractual governance is mandated in CCBMs? • How does established coopetition research guide the determination of decision rights within CCBMs? • How can conflicts and tensions be accommodated, mitigated, and reconciled in CCBMs? • To what extent are the incentives of actors within CCBMs asymmetric? • How is the freeriding phenomenon and other forms of opportunism safeguarded in CCBMs? • What are the mechanisms that drive value creation in CCBMs?
<i>Measurement and performance of CCBMs</i>	<ul style="list-style-type: none"> • How can a balance between the economic, environmental and social objectives in pursuing sustainability goals via CCBMs be achieved? • How can synergistic outcomes from CCBMs be metricized and compared? • To what extent are established coopetition outcomes (in)congruent with CCBMs? • What new insights are afforded by performance measurement of CCBMs that inform established coopetition research? • What is the composition of the CCBMs dashboard? • How does CCBMs' performance align with performance vectors established by the Corporate Sustainability Reporting Directive (CSRD)? • To what extent can CCBMs act as a catalyst in the migration towards transition and adoption of CE?
<i>Research methods, design and empirics of CCBMs</i>	<ul style="list-style-type: none"> • How do coopetition scholars arbitrate theoretical perspectives from their dominant logic with the prevailing circular economy theoretical perspectives? • How can emerging industry collaborative practices be examined to inform the development of supportive public policies for CCBMs? • Given the many different manifestations of CE (e.g., food waste, energy, construction, electronics, textiles, energy and fuel, plastic, agriculture, manufacturing), what empirical generalizations can be established at the frontier of CE knowledge regarding CCBMs? • What are the methodological hallmarks of coopetition research that enable new insights to be generated in CCBMs research? • What are the methodological constraints that have restricted the primary research design in CE and CCBM work to be largely qualitative research using focal case study designs of single firms? • Where are the descriptive research design opportunities in CCBM research that enable hypothetico-deductive reasoning to be employed? • What aspects of CCBM research provide predictive power and clear evidence of causal effects?
<i>Public policy and CCBMs</i>	<ul style="list-style-type: none"> • Do current public policies on CE facilitate or hinder the emergence of CCBMs? • What is the stance of antitrust regulators towards coopetition in the CE context? • How do existing and prospective legislation arbitrate between the cooperative behavior of competitors in CCBMs and the collusive behavior in the greater interest of society? • Can CCBMs contribute to the circular tipping point by delivering comprehensively on The Circular Economy Action Plan (CEAP)? • How are big data analytics utilized in the assessment of resource efficiency in CCBMs? • Given that CCBMs do not appear in public policy guidance and case study material on CE thought leadership, how can coopetition guidance on best practice generate insights for CCBM policy initiative? • Are CE public policy frameworks consistent across global compliance frameworks? If not, what are the bases of these deviations? • Given that 78% of companies are not ready to report quantitatively on CE (World Benchmarking Alliance, 2023) and are ill-prepared, are the global institutional frameworks of CSRD fit for policy purpose to deliver on the aspirant circular tipping point?

in ventures characterized by complexity (Ansell & Gash, 2008; Barringer & Harrison, 2000; De Bakker et al., 2019; George et al., 2024), lending further legitimacy to CCBMs as a constructive vehicle for driving CE transitioning. CCBMs support the integration of economic value that drives market performance with the social and environmental expectations of our sustainability-oriented zeitgeist (Stahel, 2019). However, much less attention has been afforded to understanding the organizational level benefits of engaging in CBMs. For example, Geissdoerfer et al. (2020) have developed a framework from a review of literature that depicts the key CBM considerations based on the integration of four general circular value logics of cycling, extending, intensifying, and dematerializing along the established strategic value domains of value proposition, value creation and delivery, and value capture.

We further acknowledge that, “these four strategies can also be

combined within one business model, especially within a business model ecosystem” (ibid, p. 12). However, beyond identifying a set of CBM innovation strategies where ‘transformation’ assumed the highest potential ‘impact’, the review stops short of extrapolating any potential internal/external drivers and/or multilevel benefits that could be used as an additional building block to their synthesized definition and so strengthen the conceptualization of CBMs. However, the authors usefully identify alliances as potential enablers for the different strategies, opening the door, albeit unintentionally, to coopetition. Future research could usefully bridge the coopetition and CBM fields to cross-fertilize the nascent CBMs understanding of value logics with the established modes of value communication, value creation and delivery, as well as value capture in coopetition to begin the process of classifying the individual drivers across the different value logic modes, the interplay of individual

drivers within each mode and across the different modes, as well as the multilevel benefits on micro, meso, and macro level that CCBMs are likely to offer. The initial findings reported by [Manzhynski and Biedenbach \(2023\)](#) of the significant but inverted relationship between co-competition intensity and sustainability outcomes and the call by [Manzhynski and Figge \(2019\)](#) for research to start unpacking the micro-processes in which the patterns of positive sustainability outcomes identified in their study are grounded, offer a useful basis to kick-start our understanding of the mechanisms of cooperative value co-creation for sustainability.

Moreover, business engagement in circular value logics and the facilitation of constructive alliances for mutual and societal benefit is contingent upon supporting public policy frameworks. Businesses require clear guidelines, set in the legislative environment in their respective jurisdictions to understand any potential breaches that CCBMs may result in. Critical scholars may be best positioned to unravel the legitimacy of the impeding CE reporting requirements among the reported widespread lack of preparedness both in terms of individual organizational capabilities but also the underdeveloped reporting guidelines ([VinciWorks, 2023](#)). This is particularly interesting on the back of the recently announced two-year delay in adopting the Corporate Sustainability Reporting Directive (CSRD) rule by the EU Commission due to the discussed industry lag ([May & Neely, 2023](#)). Developmental studies may contribute to the knowledge base by examining any differences between the global North and the global South regarding CE compliance frameworks.

Considering any existing as well as emerging public policies on CE, such as the introduction of Digital Product Passports from 2026/2027 in eight priority industries including textiles, plastics, chemicals, and construction ([Jourdain & Byswaters, 2023](#)) or the complex competition laws, such as the UK's Competition Act 1998, how do such public policies impact the establishment, implementation, management, and the dissipation of CCBMs? For example, how does existing and prospective legislation arbitrate between the cooperative behavior of competitors in CCBMs and the collusive behavior in the greater interest of society? On the other hand, a key building block of the European Green Deal is the Circular Economy Action Plan (CEAP) instituted by the EU in 2020 to boost the European CE transition. The successful delivery of CEAP relies heavily on the emergence of new CBMs yet, as our discussions indicate, with a dearth of fully conceptualized CBMs offering industry guidelines, timely execution of CEAP and its global counterparts may be at peril. Would the proposed new iteration, CCBMs, grounded in well established, empirically substantiated co-competition frameworks aligned with the emergent circular value logics provide a useful governance structure for moving along the 'circular tipping point' trajectory?

We summarize our research agenda in [Table 3](#) by proposing a set of future research questions grouped around: antecedents and consequences of CCBMs; innovating and executing CCBMs; CCBMs measurement and performance; and public policy and CCBMs. To these categories we also add research methods, design, and empirics of CCBMs to offer some guidance in terms of how to best approach research at the intersection between co-competition and CE. [Table 3](#) highlights our proposed research questions.

6. Concluding remarks

[Stahel \(2019\)](#) suggests that “the CE is not the only smart and green strategy there is, but probably the most sustainable business model improving simultaneously ecologic, social and economic factors” (p. 91). Firms have a crucial role in enabling the transition towards the CE, which “is led by business for a profit within the ‘rules of the game’ decided by an active citizenship in a flourishing democracy” ([Webster, 2013](#), p. 543). Yet, what a single organization can achieve in this respect is limited and thereby, inter-organizational collaboration is needed to enable the implementation and scaling up of CE solutions.

Whilst the importance of industry and cross-industry collaboration is

clearly recognized in practice³, eco-systemic approaches to the CE are only marginally explored within academic literature ([Pietrulla, 2022](#)), and even though the CE requires a shift from a competitive to a co-competitive mindset ([Schultz et al., 2023](#)), research on co-competition within the CE context is limited ([Harala et al., 2023](#)).

Hence, with this article, we bring together two literature streams—co-competition and CE—that have been growing in silos, using the BM construct as the conceptual bridge to advance a meaningful contribution to both the co-competition and CE literature. In fact, BM innovation is a key building block in enabling the transition towards the CE ([Hopkinson et al., 2020](#)), and co-competition is positively related to BM innovation across different industries ([Ritala & Sainio, 2014](#)). Building on and departing from [Velu \(2018\)](#), who argues that research is needed to understand “how, when, and why business model innovation is required for co-competition-based strategies to contribute in order to create competitive advantage” (p. 344), in this article we make the case for a CE transition enabled by CCBMs. Furthermore, [Velu \(2018\)](#) building on [Ritala et al. \(2014\)](#) argues that “the rationale for co-competition-based business models could be to increase the size of the current market, to create new markets, or to increase efficiency in resource utilization in order to help improve the firms' competitive position” (p. 337). Our contribution extends this to argue that a rationale for co-competition-based BMs is to facilitate the transition towards the CE. In particular, we underline that co-competition is necessary for firms in developing their BMs to be open to and capable of such a transition ([Mwesiumo et al., 2023](#); [Ritala & Sainio, 2014](#)). Additionally, by grounding our analysis in several meta-theories, the research implications for CCBMs pave the way for developing other valuable contributions to the CE and CBMs literature, which, as previously noted, remain undertheorized. Furthermore, the set of questions we propose as a research agenda opens future lines of enquiry that are much needed to advance current CE literature, wherein the intersection with the strategic management field is still limited ([Puglieri et al., 2022](#)). We call for future research to delve into those suggested research avenues, to understand not only the world's transition to CE better, but especially the powerful role that co-competition can play in that context.

CRedit authorship contribution statement

Helena H. Knight: Writing – review & editing, Writing – original draft, Project administration, Methodology, Conceptualization. **Roberta De Angelis:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Nina Telg:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Robert E. Morgan:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization.

Declaration of competing interest

None.

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³ See, for example: The platform for accelerating the circular economy convened by The World Economic Forum, and The circular transformation of industries launched by The World Economic Forum in partnership with Bain & Company, University of Cambridge, and INSEAD.

Appendix 1. Theoretical opportunities and implications for Coopetitive Circular Business Model (CCBM) research.

Theories	Key tenets	Theories and evidence in coopetition & cooperative BMs research <i>Relevant studies and key takeaways</i>	Theories and evidence in CBMs research <i>Relevant studies and key takeaways</i>	Research implications for CCBMs
Neo-institutional theory	Organizational action is mediated and shaped by the institutional context through <i>coercive, normative</i> and <i>mimetic</i> forces; organizations gain legitimacy by complying with these pressures (Di Maggio & Powell, 1983). The purpose is to understand the formal and informal institutions (norms and rules) and their impact on constraining and enabling the behavior of individuals/groups/systems. Institutions are dynamic and context bound, understanding their working is complex (Di Maggio & Powell, 1983).	<i>Relevant studies:</i> Xu et al. (2023); Bouncken et al. (2018). <i>Key takeaways:</i> To respond to institutional pressures for sustainable development, firms need to enhance their dynamic capabilities (Xu et al., 2023). They do so by coopeting. Hence, institutional pressures act as a driver for cross-functional coopetition, through which firms “reconfigure competencies and resources” (Xu et al., 2023, p. 746). Institutions allow organizations to design and follow structures and processes, which is very similar to the notion of business ecosystems in that it provides a business environment in which – among others – competitors collaborate (Bouncken et al., 2018).	<i>Relevant studies:</i> Arranz and Arroyabe (2023); Fischer and Pascucci (2017). <i>Key takeaways:</i> Policies (e.g., consumption policies) foster consumers’ demand for CE products and thereby affect the development of CBMs (Arranz & Arroyabe, 2023). Chain coordination, contracting and financial mechanisms are key factors stimulating the emergence of new rules for managing CE material flows (Fischer & Pascucci, 2017).	How do coopetition-based CBMs emerge? CCBMs resulting from institutional entrepreneurship versus institutional pressures.
Network theory	“Traditional network theory defines a network as a set of two or more connected relationships, where the exchange in one relation is also contingent on exchange (or nonexchange) in the other relations” (Gilbert & Behna, 2013, p. 139).	<i>Relevant studies:</i> Czakon and Czernek (2016); Rouyre et al. (2024); Ryan Charleton et al. (2018) <i>Key takeaways:</i> Network coopetition considers interactions between various competing actors in the value network, such that greater value can be jointly created regardless of competing interests of network participants (Czakon & Czernek, 2016). However, coopetitive tensions may be heightened in network settings as e. g., suballiances between a subset of network players may be formed for value appropriation (Rouyre et al., 2024). Identifying the (main) defector(s) can be difficult in such settings (ibid). In coopetitive networks it is beneficial to have a central position and be autonomous, as this allows for the initiation of competitive actions but a smaller likelihood of facing retribution as a result (Ryan Charleton et al., 2018).	<i>Relevant studies:</i> Baah et al. (2023). <i>Key takeaways:</i> “SMEs forming network partnerships can develop and acquire the needed knowledge, skills, technical know-how, experiences, resources, and motivation to implement and sustain CEP” (circular economy practices) (p. 7).	Which kind of allies are going to yield the most significant results in CCBMs?
Stakeholder theory	Views capitalism through a lens of interconnectedness of business with its broader stakeholders (Freeman, 1984). Stakeholders are those individuals and groups that can affect or be affected by an organization’s activities (Freeman, 1984). An organization should create value not just for its shareholders but for all stakeholders (Hörisch et al., 2014).	<i>Relevant studies:</i> Akpinar and Vincze (2016); Volschenk et al. (2016). <i>Key takeaways:</i> Power difference and common stakes are relevant in explaining and understanding the dynamics inherent to coopetition (Akpinar & Vincze, 2016). Different types of coopetition (competition- vs. collaboration-dominant) require different types of management strategies (ibid). Value appropriation should not just be firm-focused but also geared towards benefiting the public. Stakeholder theory helps to understand the role of (differences in) value appropriation in coopetition relationships (Volschenk et al., 2016).	<i>Relevant studies:</i> Chiappetta Jabbour et al. (2020); Moggi and Dameri (2021); Pinheiro et al. (2022). <i>Key takeaways:</i> Sharing people, infrastructure, values and knowledge as well as trust among stakeholders facilitate the emergence of circular ecosystems (Moggi & Dameri, 2021). Stakeholders’ (suppliers in particular) pressure facilitates circular products design (Pinheiro et al., 2022). Stakeholders exerting the highest pressure to adopt CBMs are companies’ shareholders when there is a lack of CE-related policies and legal frameworks (Chiappetta Jabbour et al., 2020).	Which stakeholder’s pressure is more salient in the development of CCBMs? Which coopetition dynamics (types) are prevalent in CCBMs and why? Nature as a stakeholder.
Dynamic capabilities	Dynamic capabilities are referred to as “the capacity (1) to sense and shape opportunities and threats, (2) to seize opportunities, and (3) to maintain competitiveness through enhancing, combining, protecting, and, when	<i>Relevant studies:</i> Teece (2018); Mwesumio et al. (2023); Estrada et al. (2016). <i>Key takeaways:</i> Dynamic capabilities (sensing, seizing and transforming) allow firms to achieve alignment and	<i>Relevant studies:</i> Castro-Lopez et al. (2023); De Angelis et al. (2023); Reim et al. (2021). <i>Key takeaways:</i> De Angelis et al. (2023) argue that the “dynamic capabilities of sensing, seizing and	Which are the micro foundations of dynamic capabilities in CCBMs? How do they interact in explaining positive organizational outcomes? What is the role of learning in CCBMs?

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Theories	Key tenets	Theories and evidence in coopeition & coepetitive BMs research <i>Relevant studies and key takeaways</i>	Theories and evidence in CBMs research <i>Relevant studies and key takeaways</i>	Research implications for CCBMs
	necessary, reconfiguring the business enterprise's intangible and tangible assets" (Teece, 2007, p. 1319).	congruence within their coepetitive partnerships. Consequently, dynamic capabilities are necessary to manage the risks and tensions (joint value creation vs. individual value capture) inherent to coopeition, such that coepeting results in the desired benefits (Teece, 2018). Coopeition can enable firms to develop dynamic capabilities, as it fosters organizational learning (Mwesiumo et al., 2023). This in turn allows firms to continuously adapt to changes in their surroundings (ibid.). Firms that possess strong dynamic capabilities are better in combining, reconfiguring and absorbing (partners') resources and knowledge as to develop innovation (Estrada et al., 2016).	reconfiguring in designing out waste (eliminate), keeping products and materials in use for as long as possible (circulate) and regenerating natural systems (regenerate) facilitate the emergence and implementation of CBMs once an organization is geared towards recoupling" (p. 7). Organizational agility is key to the adoption of CBMs (Castro-Lopez et al., 2023). Solution configuration, orchestration, and digitalization capabilities are needed to move to higher maturity levels of CBMs (Reim et al., 2021).	
<i>Resource-based-view of the firm</i> <i>Natural-resource-based-view of the firm</i>	Firms endowed with resources and capabilities that are valuable, rare and difficult to imitate or substitute, can obtain a sustained competitive advantage (Barney, 1991). Hart (1995) argues that the achievement of a sustained competitive advantage depends upon the development of firms' capabilities (<i>pollution prevention, product stewardship and sustainable development</i>) in environmentally sustainable practices.	<i>Relevant studies:</i> Gnyawali and Park (2009, 2011); Ritala and Hurmelinna-Laukkanen (2009); Fernandez et al. (2021); Ritala and Sainio (2014); Ritala et al. (2014); Crick and Crick (2020). <i>Key takeaways:</i> Coopeition enables firms to share complementary and compatible product- and industry-related knowledge and expertise (Gnyawali & Park, 2009, 2011; Ritala & Hurmelinna-Laukkanen, 2009). Pooling their unique resources can subsequently help firms to reduce costs and risks associated with new product development, for instance by sharing the investments into R&D and enhancing internal innovation processes (Fernandez et al., 2021; Gnyawali & Park, 2009). This logic also holds from the BM perspective (Ritala & Sainio, 2014), where obtaining access to such a broader set of resources and capabilities can help firms to achieve higher performance (Crick & Crick, 2020). Differentiation is at the core of value appropriation in coopeition and BMs offer a lot of potential for differentiation because every firm possesses a unique set of resources. Coopeition therefore increases BM radicalness (Ritala & Sainio, 2014). Coopeition-based BMs pick up issues regarding resource sharing and can therefore be practical for diminishing conflicts in terms of value capture, while also increasing joint value creation (Ritala et al., 2014). There are different drivers (<i>increasing market size, creation of new markets, efficient resource utilization, enhanced competitive positioning</i>) for coopeition-based BMs, depending on the motivations and goals behind coopeiting (ibid).	<i>Relevant studies:</i> Coppola et al. (2023); De Angelis (2018); Sehnem et al. (2022). <i>Key takeaways:</i> The development of capabilities in CBMs innovation can lead to the achievement of a sustained competitive advantage through for examples, mitigation of resources price and supply chain volatility, new revenues streams (De Angelis, 2018): the so-called circular advantage (Lacy & Rutqvist, 2015). Evidence of pollution prevention, product stewardship and sustainable development is found within the context of companies leading the circular transition in the Italian clothing and textiles industry (Coppola et al., 2023). CE strategies initiatives are closely related to pollution prevention, product stewardship and clean technologies (Sehnem et al., 2022).	What are the levers of a sustained competitive advantage in CCBMs? How does the nature of resources and capabilities change in CCBMs? How do firms deal with risks related to resource sharing (e.g., opportunistic behavior) in CCBMs?
<i>Transaction cost economics</i>	"Transaction cost economics is understood as alternative modes of organizing transactions (governance structures – such as markets, hybrids, firms, and bureaus) that minimize trans- action costs (...). Transaction	<i>Relevant studies:</i> Estrada et al. (2016); Fernandez et al. (2021); Quintana-Garcia and Benavides-Velasco (2004); Ryan Charleton et al. (2018); Telg et al. (2023). <i>Key takeaways:</i> In light of potential	<i>Relevant studies:</i> Lahti et al. (2018); Nygaard (2022). <i>Key takeaways:</i> "The global and circular economy increases performance ambiguity, the uncertainty of eco-opportunism,	CCBM as a structure to mitigate potential transaction costs.

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	cost theory (...) posits that the optimum organizational structure is one that achieves economic efficiency by minimizing the costs of exchange" (Idowu et al., 2013, p. 2548).	transaction costs, 'make-or-buy'-decisions are becoming a matter of 'make-buy-or-ally'-decisions as partnering provides access to relevant resources and knowledge (Fernandez et al., 2021; Ryan Charleton et al., 2018). In a coepetitive setting, TCE is predominantly used to express the risky nature of collaboration with rivals, as competitors are likely to behave opportunistically (Telg et al., 2023). This requires additional means of protecting transactions (Quintana-García & Benavides-Velasco, 2004; Ryan Charleton et al., 2018) and coordination costs to prevent unintended knowledge spillovers, and the exploitation thereof and other resources (Estrada et al., 2016). Due to the heightened risks and complexities, under the TCE lens, coepetition is often considered to be subpar relative to other types of collaboration (Ryan Charleton et al., 2018).	information asymmetry, and transaction costs" (Nygaard, 2022, p. 1127) "TCE presents a constructive approach to the analysis of the strategic formation of institutional structures that can respond to eco- opportunism, eco-uncertainty, information asymmetry, transaction costs, and performance ambiguity" (ibid., p. 1140). "To understand the extent to which companies successfully change to circular business models, it is important to consider partner characteristics, contracting possibilities, and the ways companies adapt to uncertainty and prevent potential disputes through contracts and contractual devices" (Lahti et al., 2018, p. 5).	
<i>Paradox theory</i>	A paradox can be defined as "contradictory yet interrelated elements that exist simultaneously and persist over time" (Smith & Lewis, 2011, p. 382). There exist four types of organizational paradoxes: <i>learning, organizing, belonging and performing</i> (ibid.). Paradox theory suggests that the tensions triggered by competing demands cannot be resolved by choosing one option. Competing demands are understood as tensions that are not only contradictory, but also interdependent and persistent, which actors need to accept, engage, and navigate, not resolve (Carmine & Smith, 2021).	<i>Relevant studies:</i> Gnyawali et al. (2016); Raza-Ullah et al. (2014). <i>Key takeaways:</i> Coepetition entails contradictory (hence paradoxical) notions of collaboration and competition, which results in tensions (Raza-Ullah et al., 2014). Firms work together with a competitor to create value and compete against their partner when (and by) capturing this value (Gnyawali et al., 2016; Raza-Ullah et al., 2014). Through collaboration, partners aim to create benefits. However, they each have their own motives and goals when it comes to appropriating the rents of collaborating (Gnyawali et al., 2016).	<i>Relevant studies:</i> De Angelis (2021); Daddi et al. (2019); Huerta Morales (2020). <i>Key takeaways:</i> Learning, organizing, belonging and performing paradoxes are likely to surface in CBMs implementation (De Angelis, 2021). Paradoxical tensions in CBMs are dealt with proactive, defensive and total avoidance strategies (Daddi et al., 2019). Tensions surface in CBMs from the paradoxical relationship between circularity and commercial value creation (Huerta Morales, 2020).	How do organizational paradoxes shift in CCBMs? CCBMs as originators of new organizational paradoxes versus solutions of organizational paradoxes.
<i>Game theory</i>	Systematic way to understand the behavior of players in situations where success is embedded in interdependencies. In business, the game is about value: how is value being created and who is capturing it. Games in business are both rules-based and freewheeling. (Brandenburger & Nalebuff, 1995)	<i>Relevant studies:</i> Brandenburger and Nalebuff (1996); Quintana-Garcia and Benavides-Velasco (2004); Ritala and Hurmelinna-Laukkanen (2009); Ritala and Sainio (2014); Ritala et al. (2014). <i>Key takeaways:</i> In coepetition, firms can influence value creation and capture, as the result for one individual actor is dependent on the actions of another (and vice versa) (Brandenburger & Nalebuff, 1996; Ritala et al., 2014). <i>Key takeaways:</i> The game-theoretic perspective acknowledges that "competitors are sometimes in a position to engage in positive-sum games that create value for all participants" (Ritala & Hurmelinna-Laukkanen, 2009, p. 820). Following this logic within the BM, coepetition is useful to enhance the potential to create value and the size of future markets, while at the same time the partners are competing for the value that they created (Ritala & Sainio, 2014).	<i>Relevant studies:</i> Agrawal et al. (2023); Palafox-Alcantar et al. (2020). <i>Key takeaways:</i> Game theory facilitates conflict resolution and stakeholder consensus when capturing multiple values in the context of the CE (Agrawal et al., 2023; Palafox-Alcantar et al., 2020).	Under which circumstances do CCBMs lead to win-win outcomes?

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		According to the logic of game theory, firms often find themselves in a “Prisoner’s Dilemma” situation, where extensive opportunistic behavior reduces potential benefits of collaborating (Quintana-Garcia & Benavides-Velasco, 2004; Ritala & Hurmelinna-Laukkanen, 2009). Collaborating can help rivals avoid such mutually destructive scenarios (Ryan Charleton et al., 2018).		
Systems theory	In systems thinking- a cognitive paradigm - phenomena are a set of interconnected components which make up a dynamic whole (Randle & Stroink, 2018). Framework for seeing interrelationships rather than things, for seeing patterns rather than static snapshots (Senge, 2006). System levels can be: firm, market, production and consumption systems or economic systems (Boons & Wagner, 2009).	<i>Relevant studies:</i> Chim-Miki and Batista-Canino (2017); Jooss et al. (2023); Struckell et al. (2021); Velu (2018). <i>Key takeaways:</i> Co-competition is a “coupled system where participants maintain some interdependence without losing organizational separation” (Chim-Miki & Batista-Canino, 2017, p. 1209). Co-competition context (prerequisites, catalysts and inhibitors) plays an important role within the co-competition process (Jooss et al., 2023). It considers mutual goals, duties and rights between rival partners to create value (ibid). Co-competition on a system (<i>an ecosystem</i>) level is necessary in order to increase value creation. Firms will be limited in the value they can create if they do not collaborate with competitors (Struckell et al., 2021). Collaborating with rivals in systems allows for the creation of industry standards (Struckell et al., 2021). In network markets, firms’ value propositions become stronger the more customers adopt the specific proposition. Firms draw on co-competition to adapt their BM to provide more value (i.e., a better value proposition) to customers (Velu, 2018).	<i>Relevant studies:</i> De Angelis (2022b); Demartini et al. (2023); Tate et al. (2019). De Angelis (2022b) argues that CBMs can be conceptualized as resilient, complex adaptive systems in line with systems thinking. <i>Key takeaways:</i> Systems thinking is used to investigate the impact of electric vehicles in the automotive industry by considering production, de-manufacturing, and end-of-life activities (Demartini et al., 2023). Network theory and complex adaptive systems are used to implement biomimicry within the business context to guide the shift from linear chains to circular business value systems (Tate et al., 2019).	Can CCBMs be conceptualized as resilient, complex adaptive systems?

Data availability

No data was used for the research described in the article.

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