Framing Circular Economy: A Problematizing Review of the Assumptions

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Abstract

This paper reviews the diagnostic, motivational and prognostic circular economy framing of business and management scholars and makes the assumptions embedded in their framing explicit benefiting from a problematizing review. The review demonstrates various in-house assumptions about the circular economy with emphasis business models, business case, circular economy-corporate sustainability relationship, root metaphor assumptions about circularity, industrial relationships resembling that of biological metabolisms, and waste, finally ideological assumptions of natural capitalism that guide scholarly thinking about growth, profit maximization, consumption, ownership. The paper discusses these assumptions' implications for the growing circular economy literature within business and management and opens this domain with new conversations drawing on ecological economics and industrial ecology.

Introduction

The literature on circular economy (hereafter CE) is vast and interdisciplinary. In recent years, there have also been several reviews about the concept in the following areas: the aspect of sustainable consumption in CE (Camacho-Otero et al., 2018), CE business models (Centobelli et al., 2020; Lüdeke-Freund et al., 2018; Pieroni et al., 2019), implementation of CE at different levels (micro, meso and macro) (Ghisellini et al., 2016) and specifically at the micro-level (Roos Lindgreen et al., 2020), drivers and barriers of CE in the context of supply chains (Govindan & Hasanagic, 2018), CE implementation (Lieder & Rashid, 2016), implications of CE on corporate sustainability strategies (Stewart & Niero, 2018) and CE applications in the global context (Murray et al., 2017). As the list goes on, we

observe increasing scholarly attention on the CE concept and reviewing its implications in different areas.

Thus far, most CE-related studies have appeared in journals within the Environmental Studies and Green & Sustainable Science & Technology domains, specifically in journals such as Journal of Cleaner Production, Resources, Conservation and Recycling, Journal of Industrial Ecology. In business and management, CE is still an emerging concept (Albareda et al., 2019), and the scholarly work in this domain requires an initial synthesis. Our purpose is to provide such synthesis by studying how business and management scholars are framing CE and exploring the very assumptions that guide their framing.

Scholars construct complex phenomenon, like CE, and shape the understandings of other scholars, practitioners and communities by writing and communicating through publications. Even though seminal studies showed how researchers' dominant logics might affect both research results and scholars' communications (Orlitzky, 2011), scholars' framing in research articles is often not focused on explicitly and nor evaluated systematically using literature reviews.

Studying scholars' framing of CE is crucial at this early stage of theorizing (Albareda et al., 2019). Because scholars identify problems that create the need for CE (diagnostic framing), motivate other stakeholders to take action (motivational framing) and offer possible solutions and ideas for a CE future (prognostic framing). In their framing, they are guided by assumptions (in-house, root metaphor, ideology) that can sometimes be misleading or limiting. This paper identified these assumptions, problematized them further, and offered research areas for new conversations. We shed light on the assumptions in scholars' CE framing within business and management and contributed to the research in this emerging domain.

The remainder of this paper is as follows. In Theoretical Background, we provide a brief review of diagnostic, motivational and prognostic framing. In Methods, we offer the detailed stages of the problematizing review process. In Findings, we summarize how business and management scholars have been framing the CE concept (diagnostic, prognostic, motivational) and explore the assumptions embedded in their framing. In Discussion, we problematize the assumptions we have observed and offer new paths for future research. Finally, in Conclusion, we discuss our review's contributions.

Theoretical Background

Framing: Diagnostic, Prognostic and Motivational

Framing connotes to the act of meaning construction for a specific phenomenon and "involve[s] the ways in which individuals use language or other symbolic gestures in context either to reinforce existing interpretive frames or to call new frames into being" (Cornelissen & Werner, 2014: 18-19). There are three core tasks of framing: diagnostic, prognostic and motivational framing.

Diagnostic framing involves identifying an issue in social life that requires change, aiming to explain why a problem exists (causality), who or what to blame for this issue (responsibility) and whether it should be perceived good or bad (attribution) (Benford & Snow, 2000; Hervieux & Voltan, 2016).

Motivational framing "provides a call to arms or rationale for engaging in ameliorative collective action, including the construction of appropriate vocabularies of motive" (Benford & Snow, 2000: 617). This framing task is about creating urgency and agency to change others' cognitions and behaviours (Gray et al., 2015).

Prognostic framing "involves the articulation of a proposed solution to the problem" (Benford & Snow, 2000: 616) and "identification of strategies, tactics and targets—i.e. how the solution should be implemented" (Hervieux & Voltan, 2016: 284).

Methods: Problematizing Review

In this paper, we aim to review how business and management scholars, either intentionally or unconsciously (Bacchi, 2009), engaged in diagnostic, prognostic and motivational framing of CE and reveal the assumptions in their framing to problematize these further. There are different literature reviews, such as systematic or integrative reviews, meta-analysis, and narrative reviews. We conducted a problematizing review for several reasons (Alvesson & Sandberg, 2020). First, the review domain here is emerging and yet to accumulate. Second, we explore scholars' CE framing and do so whilst considering scholars' role in constructing concepts such as CE. Third, we take the stance that scholars are not neutral when framing concepts such as CE with a set of assumptions that can be often problematic. In sum, our review's objective and the lens of framing are most appropriate for a problematizing review (Alvesson & Sandberg, 2013; Sandberg & Alvesson, 2011).

Following the suggestions on what is worth problematizing (Alvesson & Sandberg, 2013), we focused on the following three broad assumptions: in-house, root metaphor and ideology. We are aware of other assumptions (field and paradigm assumptions). However, we decided to leave these out since we do not cover the whole CE field and are not interested in the research field's epistemological and ontological assumptions. In Table 1, we provide the definitions of these assumption categories that will guide our review process.

Insert Table 1 about here

There are four principles of problematizing reviews (Alvesson & Sandberg, 2020): reflexivity, reading more broadly but selectively, not accumulating but problematizing, and less is more. What follows is how we engaged with these principles during different stages of reviewing the literature.

The first stage of our review was to identify the articles to review, hence searching. We searched Web of Science and EBSCO databases to explore specifically the term "circular economy". While we were aware of the other concepts (i.e. cradle to cradle) used almost interchangeably with CE (Murray et al., 2017), we were not interested in the framing of these concepts; our attention is specifically the framing of CE. We conducted this search in the abstracts of academic peer-reviewed journal articles in the English language.

Next, we excluded the articles that are outside the scope of business and management. To do so, we refined the Web of Science search results using "Business" and "Management" Social Science Citation Index (SSCI) categories (Niesten & Jolink, 2020). While this specific scoping activity narrowed our review's boundaries, it was in alignment with the principle of 'less is more'. On the other hand, we were aware that our specific focus on business and management should not affect the principle of 'reading broadly but selectively'. Hence, we engaged in reading more broadly and elaborated CE's interdisciplinary nature outside the "business" and "management" journals and in the broader conversation on ecological economics and industrial ecology in our Discussion section.

Furthermore, we reviewed the remaining articles' abstracts to ensure their relevance, checked if the focus of these articles were CE, and critically assessed the quality of these studies (Alvesson & Sandberg, 2020). There are various ways of evaluating journals' quality in a review process, including journal impact factors and many lists published by national academic associations (Denti & Hemlin, 2012; Siedlok & Hibbert, 2014). We decided to use

the ABS list and only included the journals ranked three and above, following the example of other articles (Nolan & Garavan, 2016).

Insert Table 2 about here

Both inductive and deductive approaches are common in literature reviews (Booth et al., 2012). We decided to follow the alternative path of abduction, which is "a process whereby actors infer and apply implications from a narrative to their particular context" (Bartel & Garud, 2003: 330). Abductive reasoning follows an analytical framework and going back and forth between theory, method and data (Dubois & Gadde, 2002).

We reviewed the articles using the manual coding features of NVivo 12 Plus. In this stage, the authors shared the coding workload by dividing the papers to code. We followed a two-stage process to ensure the emergence of a shared interpretation between coders, thus addressing the reliability of the coding process. First, the coders cross-checked each other's coding and discussed their interpretations on nine articles from the review. Second, it was necessary to build an explicit coding agreement (Saldana, 2009). To allow room for contextual codes from the study whilst matching these with the categories from the framing literature and assumptions in an abductive process, we agreed to code relying on the inter-coder agreement presented in Table 3. Since we sought the implications of the assumptions embedded in scholars' CE framings, we conducted 'matrix coding' in NVivo; which refers to the simultaneous coding of assumptions and framing (where possible) in the articles reviewed.

Insert Table 3 about here

Findings

This section presents scholars' diagnostic, motivational and prognostic CE framing and introduces the in-house, root metaphor and ideological assumptions embedded in their framing.

CE Framing

The review revealed several issues about CE research in business and management that is worth mentioning. First, there was a general 'definitional ambiguity' around CE; the concept has emerged as an umbrella concept to define various circular processes that would help slow or aim to close the material production and consumption cycles (Murray et al., 2017). Second, we observed that most scholars often did not explicitly express or reflect on the importance of their CE framing. There were a few exceptions to this pattern. For example, Esposito et al. (2018: 7) asked the following relevant question that revealed the importance of framing: "How can the circular economy be framed to encourage economic actors to review their current models and change their conceptual relationship and thinking about markets, customers, and resources toward the context of the circular economy?" Other scholars explicitly emphasized the importance of framing waste as the underlying grand challenge (Ciulli et al., 2019; Corvellec, 2019; Perey et al., 2018).

Diagnostic Framing

In their diagnostic framing, most scholars addressed the symptoms caused by the linear economy (LE). Here, scholars listed several reasons to justify why LE needs to change, including the unsustainability of overconsumption and its impact on raw material security and

prices (Genovese et al., 2017; Romero-Hernández & Romero, 2018: 758), over-shoot of biophysical limits (Esposito et al., 2018; Perey et al., 2018), environmental pressures and material scarcity (Jaeger-Erben et al., 2015; Kunz et al., 2018; Spring & Araujo, 2017), depletion of natural resources (Hopkinson et al., 2018; Morales & Sossa, 2020; Suzanne et al., 2020), increasing waste and waste-led ecological crisis (Frei et al., 2020; Katz-Gerro & Sintas, 2019; Pazienza & De Lucia, 2020; Testa et al., 2020), and general inefficiencies of LE (Ciulli et al., 2019). Here, the linear 'take-make-waste' economy was framed as 'immoral'; and yet often, scholars have expressed this subtly and usually not explicitly. An exception to this was Ciulli et al. (2019), and Murray et al. (2017) as these authors were explicit in their critique of the LE practices being immoral. As a remedy to the symptoms created by the LE, they proposed 'CE'.

Interestingly, however, CE was not put forward as the only morally legitimate path to address these concerns. Instead, CE was often framed as an "alternative" or a "trend" (Jabbour et al., 2019; Morales & Sossa, 2020). Framing CE as an 'alternative', scholars emphasized two aspects. First, CE was yet to become 'mainstream'. While it could be considered 'up and coming', CE was and still is an idea that challenges the mainstream or the 'traditional' thinking (De Giacomo & Bleischwitz, 2020). Second, scholars emphasized that CE is only one of these options and highlight that there may be other alternatives. Therefore, some framed it as a 'promising trend' and especially underlined that it is 'gaining popularity' amongst many different stakeholders (Demirel & Danisman, 2019). For instance, Appelgren (2019: 181) framed it as "a trendy alternative to mass-consumption, to a consumption-reinforcing popular past time, to an optimistic expression of hope for the CE's capacity to solve major environmental and economic challenges of our time through reuse, upcycling and sharing".

Motivational Framing

After diagnosing the LE as the problem, scholars invited all societal stakeholders to consider CE as a promising alternative by emphasizing in two distinct benefits of CE: economic benefits and positive impact on sustainable development.

Here, scholars promoted CE especially emphasizing its economic benefits and arguing how it helps to create a more productive and efficient economy system (Esposito et al., 2018; Genovese et al., 2017; Morales & Sossa, 2020), enhancing the image and brand value (Confente et al., 2020; Romero-Hernández & Romero, 2018), creating new markets (Frei et al., 2020), leading to new business opportunities (Cainelli et al., 2020; Moktadir et al., 2020), recovering value from materials that would otherwise end up in landfills or incinerators (Genovese et al., 2017; Hopkinson et al., 2018) and reducing costs (Jones & Wynn, 2019); hence overall contributing to revenue growth (Romero-Hernández & Romero, 2018) and competitive advantage (Alonso-Almeida et al., 2020; Khan et al., 2020c). Therefore, the intertwining of economic and environmental motivational framing was central.

Interestingly, some scholars implied that CE not creating these economic benefits are problematic. They emphasized that the current problem with CE is "that environmental benefits [of CE] are easier to perceive than economic benefits" (Bassi & Dias, 2019: 3). Similarly, van Loon et al. (2018) and Stewart and Niero (2018) argued that the difficulty of assessing the profitability of CE business models and CE implementation is somewhat problematic as corporate actors would risk engaging in decisions that would be costly.

Scholars also invited others to engage with CE by emphasizing its sustainable development contributions (Morales & Sossa, 2020). In particular, among other sustainable development goals (SDGs), SDG 12- sustainable production and consumption was directly associated with CE's benefits (Demirel & Danisman, 2019). Ecological benefits of CE included its potential to solve the environmental challenges created by the LE, hence

answering the challenge of the Anthropocene (Brown & Bajada, 2018; Corvellec, 2019), preserving natural resources by revaluing or eliminating waste (D'Adamo et al., 2020; Ethirajan et al., 2020), enhancing environmental performance by reducing environmental impacts in the life cycle of products or services (De Giacomo & Bleischwitz, 2020; Dey et al., 2019; Ethirajan et al., 2020), hence maintaining the viability of future civilization (Hofmann & Jaeger-Erben, 2020).

Societal benefits were the least emphasized to motivate others (Murray et al., 2017; Norris, 2019). Critiquing this, Norris (2019: 207) argued that "much CE modelling focuses on material flows stripped of their sociality; people are configured simply as consumers or users that must be encouraged to keep materials circulating through a series of loops, taking little account of the fundamental ontological significance of the relationships between people, materials and things in shaping our world, or of the changing nature of property rights that these entail".

Still, while it is still unclear and much debated, scholars emphasized especially the benefits of CE in creating jobs (Bassi & Dias, 2019; Burger et al., 2019; Shao, 2019). For instance, Morales and Sossa (2020), drawing on the statistics from World Economic Forum, argued that shift to CE could generate more than 100,000 new jobs. However, there was a general lack of explanation regarding the quality of employment, health conditions, and CE jobs' corporate responsibility dimension. One article specifically focused on the competences and training requirements of CE jobs and highlighted the need to research the CE employment further (Burger et al., 2019)

Another important economic and societal issue was raw material security (Barreiro-Gen & Lozano, 2020). For instance, Confente et al. (2020: 432) emphasized how the shift

from “a linear to a circular economy [would transform] waste back into a raw material suitable for replacing natural raw materials”.

Furthermore, some scholars also emphasized stakeholder well-being benefits (Murray et al., 2017). However, these benefits were somewhat ambiguous as who would benefit from CE in which specific ways was not clear. For instance, Centobelli et al. (2020) emphasized that circular models' economic value capture should also create value by preserving natural resources and societal well-being. Similarly, Parida et al. (2019: 716) argue that servitization models within CE help to "extend the lifespan of products and parts, thereby capturing environmental, social, and economic benefits"; however not expanded on these social benefits further. Here, scholars did not focus on public versus private value creation through CE.

Prognostic Framing

Scholars heavily relied on the CE reports and scenarios developed by Ellen MacArthur Foundation and consultancies like Deloitte or McKinsey and engaged with readers' cognitive reasoning to take action regarding the linear economy. However, CE framing often lacked the rather sentimental aspects (i.e. emotional framing (Raffaelli et al., 2019)) of environmental catastrophes. In this sense, scholars’ CE framing did not engage much with readers' emotional triggers by evoking feelings of fear, anger, or disgust, which are used more by advocates of social movements as prognostic framing strategies. Still, it was possible to identify predictive statements; either drawing a picture of the future by utopian or dystopian projections.

In a utopian view, for instance, Burger et al. (2019: 248) emphasized that thanks to CE, the future would bring “a harmonious society resulting from improvements in well-being, and the creation of a new business model with – arguably – numerous job opportunities emerging in the near future”. Rajala et al. (2018: 41), similarly, pointed at these idealistic framing of CE’s future by scholars and hinted that a pragmatic, as opposed to an

idealistic future, was more realistic to envision by problematizing how such a view reckons "all new products must be comprised of existing or discarded ones". Contradicting such statements, Norris (2019: 217) used religious imagery to critique the utopian framing subtly and argued that: "in the purest, glossiest representations of this utopian vision, secondary economies could eventually cease to exist, with users simply leasing brand new products until they are ready to be recycled within closed-loops and replaced. In this transcendental economy geared towards planetary salvation, now it is not just the domestic household user that redeems themselves through proper moral behaviour, but industry and big business that can grant themselves absolution."

On the other hand, a dystopian framing would lead the reader to fear, as the reader would face the drastic consequences of a future given the LE's dominance if we failed the circular transition. For instance, Confente et al. (2020: 431) emphasized that "by 2050 there will be more plastic in the sea than fish". Esposito et al. (2018: 725), similarly, emphasized that "by 2030, our demand will require more than two planets' worth of natural resources if they are to be met, and by 2050, three planets' worth". Whilst other scholars propose the transition to CE as a way of moving away from this dystopian future, Norris (2019) warned against the potential dystopian future if transitioned to CE. In this dystopian CE future, Norris (2019: 217) explained how perception about goods would change in a negative direction, servitization would transfer power to for-profit organizations, citizens would face major breaches in terms of data privacy, consumption would increase, and the symptoms of market capitalism on the natural environment and society would exacerbate.

Other than predictive statements, scholars' prognostic CE framing included prescriptive statements. These were about the strategies that will be necessary for a future with CE such as eco-design tools (Salo et al., 2019), building new business models

(Zucchella & Previtali, 2019), development of analytical tools to assess profitability (van Loon & Van Wassenhove, 2018), designing take-back systems (Corvellec & Stål, 2019).

A vital element of the prescriptive framing was identifying the challenges of the change; in other words, the barriers and enablers of change. Scholars highlighted that the path from a potential dystopia to an idealistic or a pragmatic CE utopia requires considering the variety, scale, pace and extent of change.

First, the shift towards CE would require appreciating that what needs to be done for each product, service, industry, and country would vary (Barreiro-Gen & Lozano, 2020; Morales & Sossa, 2020).

Second, this change would require action in different scales, from the products to organizations (i.e. firms), to ecosystems, from cities to nations and across nations (Alonso-Almeida et al., 2020; Dey et al., 2019; Rajala et al., 2018).

Third, scholars identified that the pace of change might not necessarily be a fast one. Indeed, Cainelli et al. (2020: 10) highlighted that "it is possibly more a reform than a revolution". Similarly, Cramer (2020: 11) emphasized that "such a fundamental transition takes time and cannot be realized overnight".

Fourth and the most important was the extent of change. This change would require foreseeing many potential risks and acting upon them (Ethirajan et al., 2020; Hopkinson et al., 2018; Katz-Gerro & Sintas, 2019; Linder & Williander, 2017), shifting dominant logics (Ranta et al., 2020) which would disturb the equilibrium of existing economic systems (Perey et al., 2018) whilst necessitating a moral shift (Ciulli et al., 2019), and driving systemic innovation and re-organizing markets with the need for rapid experimentation (Appelgren, 2019; Frishammar & Parida, 2019; Norris, 2019).

Furthermore, scholars emphasized that it would be necessary to build an extensive implementation plan that requires commitment whilst tackling potential resistance (Prieto-Sandoval et al., 2018), and the importance top management buy-in because of the high risks of such a change (Khan et al., 2020a; Moktadir et al., 2020). Indeed, some highlighted while "the goal is clear, how to achieve it is not" (Frei et al., 2020: 1926). It would be necessary to develop extensive knowledge and capabilities (Khan et al., 2020a) and acquire new resources whether it be skilled workforce (Burger et al., 2019), capital for new investments or the technology (Demirel & Danisman, 2019), or information management systems and big data to tackle the change (Dey et al., 2019; Jabbour et al., 2019).

Most importantly, this change would require extensive coordination between different stakeholders, meaning cross-disciplinary and cross-functional action (Despeisse et al., 2017). As Esposito et al. (2018: 17) put it the change "must consider how to deal with the stakeholders who lose out in the circular economy and must create organizational designs that facilitate the adoption of the circular model". Frishammar and Parida (2019: 18) argued that the change requires "active management of interconnected stakeholders whose interests must eventually converge".

Different scholars gave different weights to the importance of various stakeholders in this change. Some emphasized the role of the market and private actors and highlighted that they would need to understand and implement CE practices and strategies (Parida et al., 2019; Rajala et al., 2018), educate and engage with customers (Corvellec & Stål, 2019; Hopkinson et al., 2018), restructure their supply chains (Genovese et al., 2017; Pazienza & De Lucia, 2020). As Parida et al. (2019: 723) put is "for the circular economy to fulfill its promise, large manufacturing companies must both transform their own strategies and business models, and entice their ecosystem partners to follow them in this transition".

Others underlined the crucial role of the state in setting standards, certifications and eco-labels (Hopkinson et al., 2018; Parida et al., 2019; Prieto-Sandoval et al., 2018), designing policies to incentivize the market (Alonso-Almeida et al., 2020; Frei et al., 2020; Genovese et al., 2017; Jones & Wynn, 2019; Pazienza & De Lucia, 2020), educate the citizens (Sarigöllü et al., 2020), and enable technology development (Rajala et al., 2018). Hopkinson et al. (2018: 91), for instance, emphasized that such state policies require careful design since "phases of transition may collide against entranced elements of the [LE]".

Still, others focused on customers, and the role of individuals' choices as social acceptance of CE would depend on them (Frishammar & Parida, 2019). These scholars highlighted consumers' role in bringing the bottom-up change with their willingness to adopt circular innovations (Ranta et al., 2020), their pro-environmental attitudes and behaviour (Confente et al., 2020; Sarigöllü et al., 2020). However, less was said about how, in the future CE scenario, such coordination between all these different stakeholders whose interests and worldviews are embedded in different institutional logics would arrive at a shared prognostic framing.

Assumptions

In-house

In-house assumptions presented some inherent assumptions within the field of business and management. Some assumptions were, to some degree, less dominant than the others. Here, as expected, the idea of management presented itself in different ways, whether it be managing the transition (Cramer, 2020), showing systems thinking as a managerial competence that would be required to enable change (Perey et al., 2018), reliance on tools and strategies (Chen et al., 2020; Ferasso et al., 2019), management practices for value creation (Morales & Sossa, 2020).

Scholars generally assumed technological progress would help building the CE, emphasizing the enabling role of Industry 4.0 or blockchain (Centobelli et al., 2020), biotechnology (Confente et al., 2020), 3D printing (Despeisse et al., 2017) or smart technologies (Rajala et al., 2018), large-scale data (Jabbour et al., 2019), data analytics and information management technologies (Frishammar & Parida, 2019; Hopkinson et al., 2018; Jones & Wynn, 2019).

Scholars also placed great emphasis on product and service design whether it be luxury goods (Bundgaard & Huulgaard, 2019), intelligent goods (Rajala et al., 2018), products designed via biomimicry or design by nature (Despeisse et al., 2017), design for disassembly (Hopkinson et al., 2018; Linder & Williander, 2017) or design for recyclability (Rajala et al., 2018); and the importance of extending the lifecycle of products which will enable CE by slowing the loops, even if it would not be closing it (Linder & Williander, 2017; Perey et al., 2018; Rajala et al., 2018). Extending the life cycle of products is generally framed positively. However, some problematized the potential negative implications of longevity (Murray et al., 2017).

Amongst others, four assumptions were very dominant and required further problematizing. First, we found that not all scholars distinguished clearly between waste management and CE. Some even implied CE as a waste management system, even though others demonstrated the distinctions between CE and waste management in a LE. For instance, Romero-Hernández and Romero (2018: 762) highlighted that "[CE] is essential because the current waste management system will not support the rising supply of solid waste". Here, Morales and Sossa (2020) emphasized that in areas that CE implementation has progressed (i.e. Europe), CE was no longer viewed as a means of waste management. In contrast, in areas where CE has recently been introduced (i.e. Latin America) there remains a conceptual ambiguity.

Second, scholars often equated CE with corporate sustainability (CS). Implementing CE-related strategies would likely also contribute to a firm's CS efforts, hence improving its sustainability performance (Khan et al., 2020b; Murray et al., 2017; Stewart & Niero, 2018). However, it was essential to address the problem of directionality. Is it because firms' have made efforts already in CS, which would also help them in the CE transition? Is it because firms' have invested significantly in developing CE strategies and activities that would also help them in their CS agenda? More likely and yet, less mentioned by scholars, does it work both ways? Take the critique of van Loon et al. (2018), for instance, arguing that CE may not always yield the optimum outcomes for the natural environment or a company. However, such a view was scant, and almost all scholars emphasized the contributions of CE to a firm's CS plan, as well as contributing to sustainable development. Crucially, this assumption often provided the readers with the impression that CE is somehow an omnipotent concept that can address all the grand challenges of our time.

Third, CE literature in business and management was dominated with the theoretical background of business models (Aboulamer, 2018; Bassi & Dias, 2019; Brown & Bajada, 2018; Confente et al., 2020; De Giacomo & Bleischwitz, 2020; Frishammar & Parida, 2019; Hofmann & Jaeger-Erben, 2020; Hopkinson et al., 2018; Linder & Williander, 2017). Drawing on the conversations about organizational design that makes firms entrepreneurial and innovative, hence competitive (Osterwalder & Pigneur, 2010; Teece, 2010); the literature on business models focused on how entrepreneurship and intrapreneurship can help to create and capture value (Centobelli et al., 2020). This theoretical background was often linked to the following assumption: the business case.

The dominant view in the articles was the creation of a business case via CE. Indeed, scholars often framed CE as a win-win opportunity (Aboulamer, 2018; Frishammar & Parida, 2019; Genovese et al., 2017). Take Barreiro-Gen and Lozano (2020: 2) who suggested: "the

benefits of CE contribute to the attainment of environmental goals while considering the economics behind such actions". Similarly, Centobelli et al. (2020: 1740) highlighted: "the economic sustainability of a circular business model is not secondary to the environmental one".

Due to the business case assumption, the case of potential trade-offs, tensions and paradoxical situations were often ignored. A few scholars addressed this by highlighting that not all CE initiatives would bring the costs down or provide any other economic benefits, but on the contrary, some would actually bear costs (Linder & Williander, 2017). Frei et al. (2020: 1937) emphasized CE transition is about "dealing with trade-offs between conflicting goals of economic, ecological, and social nature". Perey et al. (2018: 638), similarly put CE forward as an "implicit and emergent property of the resolution of tensions between growth and biospheric limits". However, how this resolution would come about was somewhat ambiguous, though they hinted at partnerships and ecosystems' potential role.

Some scholars emphasized the CE transition relies very much on partnerships, whether it be within business or innovation ecosystem actors (Parida et al., 2019) or eco-industrial parks (Rajala et al., 2018), together with suppliers and customers to enable reverse logistics and co-develop circular products and services (Frei et al., 2020; Genovese et al., 2017; Hopkinson et al., 2018; Kunz et al., 2018; Mathews et al., 2018), with public actors, consumers and other stakeholders to develop networks for waste collection (Dey et al., 2019; Jabbour et al., 2019) or with research institutions (Khan et al., 2020b). As Salo et al. (2019: 11) put it: "this is a problem companies cannot overcome themselves: it requires collaboration with manufacturers and an understanding of the needs of end-users". Interestingly, however, not much has been said about potential difficulties in managing such collaborations, failed partnership initiatives, conflicts due to misaligned incentives (Frishammar & Parida, 2019), nor have the scholars problematized this increasing emphasis

on partnerships as a form of environmental governance which also bear risks in maintaining the checks and balances of society.

Root metaphor

The most critical root metaphor was to do with the circularity, which indeed, was the most defining feature of this literature. Circularity assumes that a 'closed-loop' can be created by continuously reusing, repairing, remanufacturing, refurbishing, repurposing, recycling and recovering all materials that were ever created (Bundgaard & Huulgaard, 2019). This is why CE is often discussed as a system whereby materials never die, hence circulating 'cradle-to-cradle' (Frishammar & Parida, 2019). At the extreme, scholars assumed a perfect circulation (a zero-waste scenario) whereby all materials ever created would always be recovered and repurposed, and therefore, a significant reduction in the need for virgin materials. As Corvellec (2019: 226) highlighted "circular flows are to keep resources in use for as long as possible and limit final waste disposal".

Other than the circularity, the literature assumed many other CE attributes using metaphors or symbols, often borrowing from the broader conversations on resource and ecological economics. For instance, the LE was described as a 'river economy', or 'cowboy economy' (Rajala et al., 2018); whilst 'lake economy' was used to explain the CE (Chen et al., 2020). Another concept 'blue economy' was also described to "favour eco-innovation in that a better understanding of our ocean or blue resources allows us to go beyond the green economy to reach very sustainable worldwide development" (Bassi & Dias, 2019: 2). Drawing on Stahel (1997, 2010, 2016), scholars also referred to 'performance economy', 'functional economy' or 'service economy'; especially emphasizing the role of servitization models of CE to create wealth without consuming resources. Finally, drawing on Boulding (1966), Murray et al. (2017) referred to 'Spaceship Earth' metaphor whereby the economy is viewed as a closed system that requires a continuous act of balancing.

Crucially, most scholars assumed that CE would create 'regional resilience' (Burger et al., 2019; Esposito et al., 2018) as circulating materials would allow them to cope with shocks and reduce their dependence. Simultaneously, the literature assumed that CE would 'restore' and 'regenerate' both the regional and natural ecosystems. Here, scholars often drew on the CE definition of Ellen MacArthur Foundation— an industrial economy that is restorative or regenerative by intention and design (Bassi & Dias, 2019; Burger et al., 2019; Dey et al., 2019; Frishammar & Parida, 2019; Jones & Wynn, 2019).

The literature also heavily relied on metaphorical assumptions about nature, which also determined how nature-industry relationship should be. In alignment with the capitalization of natural ecology, ecosystem services were almost always treated as natural resources, even when the authors emphasized the necessity of strong sustainability (Perey et al., 2018). Scholars drew on metaphors from biology to explain the relationship between nature and industry in a CE. Here, the flows of material in a CE, as Corvellec (2019: 226) highlighted, would "create waste-free technical loops that resemble biological loops"; following the notion of cradle-to-cradle (Genovese et al., 2017). They explained how relationships between different companies would resemble 'biological metabolisms' in which waste would be framed as 'food'(Murray et al., 2017; Zucchella & Previtali, 2019).

As highlighted by Perey et al. (2018), stakeholders need to 'reframe waste' to enable CE transition. Here, scholars, in addition to framing 'waste as food' (Murray et al., 2017), framed waste as 'scats' whereby its value is ambivalent both positive and negative at the same time (Corvellec, 2019), as 'immorality' (Ciulli et al., 2019), as an 'economic inefficiency' (Aboulamer, 2018; Barreiro-Gen & Lozano, 2020). Generally, scholars emphasized the distinction between viewing waste as something inherently valuable (i.e. resource) versus something deprived of value (i.e. burden, matter out of place or dirt) (Corvellec, 2019; Despeisse et al., 2017; Perey et al., 2018). Indeed, the shift in the framing

of waste is viewed as "the underlying principle of the circular economy—transform waste products into value" (Romero-Hernández & Romero, 2018: 760), and such a shift would require defining what waste is and is not (Hopkinson et al., 2018). This shift was viewed as a 'journey' (Esposito et al., 2018; Salo et al., 2019), even though some might be critical of the journey metaphor and would argue that it would "legitimate today's unclear results by postponing actual commitments to a distant future" (Corvellec & Stål, 2019: 7).

Ideology

Most scholars were implicit about their ideology when arguing for CE, with a few exceptions (Esposito et al., 2018). However implicit, it was possible to identify the ideological assumptions behind the dominant CE framing. 'Natural capitalism'—a variation of capitalism coined by Hawken et al. (2013) and previously by Lovins et al. (1999) was the prominent ideology. In alignment, most scholars' assumptions about growth, profit maximization, consumption, ownership are worth mentioning.

Ferasso et al. (2019: 1) promoted CE as it tackles negative externalities "without jeopardizing growth and prosperity". Similarly, Prieto-Sandoval et al. (2018: 1525) argued that "[CE] does not reject economic growth, but sets limits on the exploitation of resources; if human societies pursue growth, they should be limited to the closed-loop of resources and energy". Many scholars emphasized how CE can 'decouple' economic growth from environmental pressures and virgin resource consumption (Corvellec, 2019; Corvellec & Stål, 2019; Demirel & Danisman, 2019; Esposito et al., 2018). Zwiers et al. (2020), for instance, pointed out that the main objective remains economic growth for many CE practitioners. The emphasis on growth could be seen in different scales, whether it be the macro-economic scale with the growth in GDP (D'Adamo et al., 2020; Dey et al., 2019; Esposito et al., 2018), or the scalability of business models at the organizational-scale (Zucchella & Previtali, 2019).

Scholars were explicit that CE would not harm the notion of profit maximization and align with market logic (Hopkinson et al., 2018; Linder & Williander, 2017). Some highlighted how addressing negative externalities can be "translated into a financial gain for shareholders" (Aboulamer, 2018: 765) and would provide "strong economic returns to circular [environmental innovation] investments reflected in growth and profitability" (Demirel & Danisman, 2019: 1609). In sum, as Zucchella and Previtali (2019) pointed out, scholars assumed that CE principles are compatible with firms' profit maximization goals.

Scholars emphasized the distinction between LE and CE consumption (Appelgren, 2019) and sought to find answers for which initiatives and incentives would increase 'circular consumption' (Alonso-Almeida et al., 2020). In some cases, indeed, paradoxically risking to create an increase in resource consumption (Despeisse et al., 2017), even though some promoted CE due to its premise of reducing consumption (Esposito et al., 2018).

Scholars emphasized that CE needed to shift the ideas of 'ownership' embedded in LE. Here, the change in the ownership patterns was often through the introduction of servitization, whereby a product is no more a product but rather a service where the owner turns into a user (Despeisse et al., 2017; Murray et al., 2017; Prieto-Sandoval et al., 2018), often exemplified with the famous cases of Rolls-Royce engines or Xerox publishing services. According to Corvellec (2019), this shift would transfer the responsibility of dealing with the waste from individuals and customers to producers. Hence, it is often viewed as positive. Another rationale behind the change in ownership patterns has been through sharing models in which through platforms it was possible to allow different users to access and share a particular product or a service, thereby increasing the utilization and reducing inefficiencies, often exemplified with the carsharing businesses (Linder & Williander, 2017; Parida et al., 2019; Ranta et al., 2020). Here, too, the ownership would be transferred to the platform owner who would also be responsible in extending the lifecycle of the products,

repairs, and maintenance; hence, it is also viewed positively from the citizens' point of view. Interestingly, these modes of ownership heavily relied on the idea of transferring ownership from one private mode (i.e. held by individuals) to another (i.e. controlled by a platform owner or a firm). Public or cooperative ownership of assets or platforms were less pronounced.

Discussion

This section discusses the implications of CE framing and assumptions, problematizes these assumptions to start new conversations in the CE literature within business and management.

Problematization of the Assumptions in CE Framing and New Conversations

Table 4 summarizes the problematization of the assumptions and offers paths for new conversations.

Insert Table 4 about here

Diagnostic Framing

We found that diagnostic CE framing contained metaphors about LE and CE that include circularity, closed loops and metabolism which frames waste often as food, with the underlying ideological assumptions of natural capitalism that promote growth and (over)consumption. Here, we note that several of these assumptions have already been problematized elsewhere, even though the CE literature in business and management is yet incorporate such critique.

One idea to incorporate further is entropy which is much debated in the broader ecological economics research (Georgescu-Roegen, 1986). Entropy, the second law of thermodynamics, "describes how well matter and energy is organized; the more organized and uniform these are, the lower the entropy; as resources are extracted from clean ores and circulated through the economy, their entropy increases" (Andersen, 2007: 134). Due to entropy, argues Korhonen et al. (2018: 42), CE "promoted recycling, reuse, remanufacturing and refurbishment processes too will ultimately lead to unsustainable levels of resource depletion, pollution and waste generation if the growth of the physical scale of the total economic system is not checked". Hence, taking entropy into account would require challenging the embedded growth paradigm. To our surprise, only a few articles in our review database have made references to entropy (Genovese et al., 2017; Murray et al., 2017; Völker et al., 2020).

In alignment with the above, it is then necessary to join the debate on how CE could further incorporate 'degrowth' (Charonis, 2012; D'Amato et al., 2019; Ghisellini et al., 2016; Schröder et al., 2019). As it stands, CE literature in business and management tends to lean towards green growth (Sandberg et al., 2019). On the other hand, the degrowth movement proposes a more radical transformation as it shakes the ground of the much idealized 'decoupling' and critiques the sole reliance on market forces (Jackson, 2016). At this background, we agree with those scholars who argue that CE needs to incorporate some elements discussed in the degrowth domain (Hobson & Lynch, 2016; Schröder et al., 2019). One such element is the rebound effect that addresses the trade-offs of eco-efficiency initiatives, contrary to the expectations when such initiatives yield a higher use of the very resources or energy it aims to reduce (Figge & Thorpe, 2019; Geyer et al., 2016).

Another element is addressing the shortfalls of the root metaphors embedded in CE, such as the metaphor of 'metabolism' and the corresponding metaphor of 'waste as food'.

Such metaphors draw heavily on the knowledge accumulated in the literature on industrial ecology, in which waste from one process can serve as an input for another, thereby creating 'symbiosis' (Murray et al., 2017). These metaphors have already been critiqued elsewhere for underscoring the role of agency, falling short of incorporating ethics and creating an analogy between natural ecosystems and anthroposystem that creates ambiguity when it comes to attributing responsibility (Korhonen, 2003).

All in all, while much LE critique is present in the reviewed articles, it appears that it is done so, much like in the other areas of business and society, leaving out the 'elephant in the room'— capitalism (de Bakker et al., 2020). After all, natural capitalism bears similar assumptions to the current economic system that resulted in the age of Anthropocene. Here, it is much needed to follow up on the recent conversation on capitalism and research at the crossroads of business, nature and society. A recent special issue in Business and Society starts a much needed and honest conversation that is worth also joining in the context of CE in business and management (Banerjee, 2020; de Bakker et al., 2020). We highlight that going beyond the critique of LE through their diagnostic framing; scholars need to problematize capitalism's assumptions further.

Motivational Framing

We found that motivational CE framing often emphasized the economic and sustainable development benefits through in-house assumptions that CE is a business model transformation, would create a business case, and contribute to a firm's CS agenda. Here, we also note that several of these assumptions have already been problematized elsewhere, even though the CE literature in business and management is yet incorporate such critique.

One element is the business model emphasis, which assumes that CE transition is a business model transformation. Business models have a long history in the context of strategy emphasizing how the firm would integrate both internal (in terms of resources, capabilities

and knowledge), and the external environment (threats and opportunities, technological changes and the institutional environment including suppliers and customers) and in doing so would create and capture, in other words, appropriate different types of value (Foss & Saebi, 2016). Whilst the business model construct has helped conceptualize social and environmental value creation (Bocken et al., 2018; Boons & Lüdeke-Freund, 2013; Lüdeke-Freund et al., 2018); it also introduces certain limitations. First, its emphasis on businesses leaves other forms of organizing out (i.e. collective or cooperative modes of organizing) (Boons, 2021). Second, it risks creating a potential illusion that when an environmental or social value is created; it must be captured as public value (Boons, 2021). Third, it underscores the role of local and global ecosystems that focal firms are operating, and hence, it should be combined with the broader ecosystem view (Parida et al., 2019). Finally, and most importantly, it leads to the other assumption deeply rooted in the CS domain and much problematized: the creation of a business case.

Business case, too, has a long history (Carroll & Shabana, 2010) and often with a fierce debate on whether it pays to be green, good or ethical (King & Lenox, 2001; Margolis & Walsh, 2003; Trudel & Cotte, 2009), and when it does so (Grewatsch & Kleindienst, 2015). Some scholars defended the business case in this debate by promoting win-win solutions (Prahalad & Hammond, 2002) or shared value (Porter & Kramer, 2011). Others scholars sought ways to go beyond the business case and win-win framing (Dyllick & Hockerts, 2002) and offered differentiated understandings on the trade-offs (Hahn et al., 2010), tensions (Hahn et al., 2014) and paradoxes (Hahn et al., 2017). Based on our review, we found that much of CE literature within business and management lean towards creating a business case through CE initiatives, even though the debate about the dangers of win-win framing is on-going and lively (King & Pucker, 2021). In our review, only a few scholars mentioned the trade-offs, tensions and paradoxes in CE initiatives (Frei et al., 2020;

Frishammar & Parida, 2019; Perey et al., 2018). Due to the rebound effect and entropy, such views are more realistic and could help save the emerging CE conversation by going beyond the dangers of win-win framing. In alignment, as opposed to positioning CE as a solution to many grand challenges by equating it with CS, focusing on the potential mediators and moderators of CE-CS relationship and the tensions between CE-CS would likely offer novel conversations in this area.

Prognostic Framing

We found that prognostic CE framing often constituted predictive statements of dystopian futures if LE were to be the dominant paradigm, and utopian futures if the transition to CE were to be a success; with a few exceptions that were critical of CE and questioned the possibility of dystopian CE futures (Norris, 2019). Whilst the potential CE futures were generally optimistic; it was so often without challenging the existing assumptions. In this regard, the conversation that Norris (2019) started can be a fruitful one to continue further. Prognostic CE framing bore root-metaphor and in-house assumptions regarding the transition towards CE, whether it is embedded in the general idea of managing such a transition through systems thinking, designing products and services, technological innovations, and partnerships.

One interesting observation was the reliance on piecemeal solutions, whether it be through technological innovations, or product or service design. Interestingly, it was not as though scholars were not aware of the systemic challenge requiring systems thinking (Esposito et al., 2018; Geisendorf & Pietrulla, 2018; Murray et al., 2017; Perey et al., 2018; Zwiers et al., 2020). However, due to the complexity of researching systemic action, studies often provided examples of such piecemeal solutions whilst how the different stakeholder groups, technologies, product and service systems would all fit together was a missing view. In other words, a potential CE future imagining was mostly missing. Here, three existing

conversations would be valuable for future CE research in business and management. One is that of Wright et al. (2013) on future imaginings which aims to create a space of imagination for potential futures with different forms of organizing in the age of Anthropocene. Another is Ostrom's regarding polycentric governance and collective action (Ostrom, 2003, 2010). In a similar vein, it would also be beneficial to join the conversation about the state's role in environmental governance (Borrás & Edler, 2020; Paavola & Adger, 2005), especially when conceptualizing the potential CE futures at a national and global scale.

The review presented much optimism about collaborative forms of governance; in alignment with the partnership paradigm promoted further with SDG 17. In this regard, the dark side of partnerships has not received much attention. There are several issues associated with the dominance of the partnership paradigm. First, the optimism about the partnership outcomes often leads to a bias which discards how some partnerships that attempt to solve grand challenges may paradoxically yield additional dysfunctions (Ungureanu et al., 2018). Second, while partnerships facilitate creating a problem-solving space, they may also incentivize solutions that favor a more powerful partner amongst many (Boons, 1998). Therefore, it is more realistic to conceptualize partnerships as platforms of tensions between cooperation and competition between different stakeholders for environmental and economic benefits (Manzhynski & Figge, 2020). Indeed, some critical scholars would argue against romanticizing partnerships due to their embeddedness in the neoliberal governance (Evans et al., 2017); hence view partnerships as instruments of capitalism that cover up its failures (Vestergaard et al., 2019).

Finally, journey metaphor has been used or implied by several scholars in the review (Esposito et al., 2018; Hopkinson et al., 2018; Khan et al., 2020b; Rajala et al., 2018). In the broader conversation on sustainability innovation and transition, some view the journey metaphor as a useful and helpful way of conceptualizing corporate progress (Adams et al.,

2016). However, others problematized the journey metaphor for masking corporate inaction or little action (Audebrand, 2010) and disabling more radical solutions to the grand challenges (Milne et al., 2016). Therefore, we note that prognostic CE framing would benefit from opening up for metaphors that welcome radical solutions, whilst approaching the existing metaphors such as journey more critically.

Conclusion

In this paper, drawing on the lens of framing, we conducted a problematizing review of business and management scholars' CE framing (diagnostic, motivational, prognostic) and their assumptions (in-house, root metaphor, ideology). Doing so, we contributed to the literature in two distinct ways.

First, we contributed to the scholarly conversation on CE in the business and management literature by making implicit in-house, root metaphor and ideological assumptions explicit. We problematized many of these assumptions and linked the CE literature in business and management with broader conversations on industrial ecology and ecological economics.

Second, we demonstrated an example of a problematizing review (Alvesson & Sandberg, 2020) and paved the path for future research to combine the lens of framing and assumptions in such reviews.

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Figures and Tables in the Manuscript

Table 1 The List of Assumptions for Problematizing Review

ASSUMPTIONS	DEFINITIONS (ALVESSON & SANDBERG, 2013)
IN-HOUSE	"assumptions [that] exist within a particular school of thought in the sense that they are shared and accepted as unproblematic by its advocates".
ROOT METAPHOR	"assumptions [that] are associated with broader images of a particular subject matter."
IDEOLOGICAL	"various political, moral-, and gender-related assumptions held about the subject matter".

Table 2 Searching and Screening

		WEB OF SCIENCE	EBSCO
SEARCHING	The number of articles found with the following search criteria: - Peer-reviewed academic articles - Full text available - English language	4335	59
SCREENING	Business and Management Journal Categories (Web of Science, Social Science Citation Indexes)	249	59
	ABS Journal List (only journals in the ABS ranking are included, those that are not are excluded)	155	41
	Both in Web of Science and EBSCO	30	
	Remaining articles before initial abstract review	166	
	Remaining articles after the abstract review (criteria for abstract review) - Relevant for businesses and managers - Abstract shows specific dedication to CE concept - ABS Journal Quality Guide (inclusion of only three and above)	72	

Electronic submission ID number: **10713**

Table 3 Inter-Coder Agreement

	ITEM	QUESTIONS
FRAMING	Diagnostic	*How do scholars diagnose the need for CE?* • Are they criticizing the linear economy, identifying its problems or explaining why we need to change it? • Are they explaining CE as an alternative or a trend these days?
	Motivational	*How do scholars motivate for CE?* • How do scholars use economic benefits to motivate for CE? • How do scholars use social benefits to motivate for CE? • How do scholars use ecological benefits to motivate for CE?
	Prognostic	*How do scholars envision the future of CE?* • What will the CE future look like? An idealistic utopia? • If we fail to change, what will the linear future look like? A dystopian nightmare? • How will we change? What strategies will carry us to that future? • Are they criticizing CE and telling us why CE will fall short of addressing all these problems? • Are they talking about the challenges of the change from linear to circular?
ASSUMPTIONS	In-house	What were the assumptions taking for granted by business and management scholarship that were also reflected in the CE work within the same school of thought?
	Root metaphor	What metaphors did scholars use to explain CE, problems of CE transition and the needs for CE?
	Ideological	What ideological assumptions dominated the view of scholars?

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Table 4 Problematizing the Assumptions in the CE Framing & New Conversations

FRAMING	ASSUMPTIONS	PROBLEMATIZATION & NEW CONVERSATIONS

DIAGNOSTIC
• **LE NEEDS TO CHANGE**
• **CE IS AN ALTERNATIVE OR A TREND**
	• Metaphors about linear and circular economy (circularity, closed loop, metabolism)
	• Metaphors of waste (burden, resource or food, scats)
	• Growth and (over)consumption embedded in natural capitalism
		• Entropy
		• Degrowth and refusing or reducing consumption
		  ○ Rebound effect
		  ○ Shortfalls of metabolism metaphor and the emphasis of agency
		• Critique of natural capitalism; state capitalism; varieties of socialism

MOTIVATIONAL
• **ECONOMIC BENEFITS**
• **SUSTAINABLE DEVELOPMENT BENEFITS**
	• Business models (value creation and capture)
	• Business case
	• CE-CS relationship
		• Critique of business models
		  ○ Power; public and cooperative ownership of resources
		  ○ Ecosystems (local and global)
		• Tensions, paradoxes, trade-offs

PROGNOSTIC
• **PREDICTIVE**
  ○ **UTOPIAN FUTURE**
  ○ **DYSTOPIAN FUTURE**
• **PRESCRIPTIVE**
  ○ **THE CHALLENGES OF THE TRANSITION (CHANGE)**
	• Systems thinking
	• Piecemeal solutions
	  ○ Product or service design
	  ○ Technological innovations
	• Partnerships (including supply chain collaboration)
	• Metaphors of transition (journey)
		• Designing collective systemic action (not systems thinking)
		• Dark side of partnerships
		• New metaphors of transition for radical change

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