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Perspective

A colorful bouquet of circular economy research directions: Shifting the circular economy debates from scholarly linearity to a mutual learning journey for circular applicability

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In the past decade, there has been a notable surge of research dedicated to the concept of the Circular Economy (CE). This rapid evolution of the field has given rise to different visions and understandings of the CE among scholars, practitioners, and policy-makers (see for an extensive review e.g., Kirchherr et al., 2023a, 2023b). Consequently, the scholarly CE community has engaged in a colorful bouquet of lively debates, discussing whether CE should be viewed as a means, as an end (in itself), as a strategy, as an idea, as a metabolism, as a philosophy, or perhaps as part of alternative conceptualizations. These debates appear to be rooted in two pillars, namely empirical (i.e., *materialized CE*) and conceptual (i.e., *immaterialized CE*).

On the empirical side of the debates (i.e., *materialized CE research*), the field has progressively fragmented into focus areas that tend to adopt narrower geographical contexts (regions) and scopes (e.g., industries, consumers, policy). There appears that the empirical debates largely revolve around questions about the material aspects of CE and thus they are mostly framed by technical/technological characteristics. On the conceptual side (i.e., *immaterialized CE research*), there have evolved scholarly debates surrounding various focus areas encompassing perspective-driven topics such as growth/degrowth (e.g., Schultz, 2022; Schultz and Pies, 2023), social injustice (e.g., Moreau et al., 2017), specificity of definitions (e.g., Figge et al., 2023), or frameworks (e.g., Reike et al., 2018) while also including debates about the roles and responsibilities of different CE stakeholders in embracing circularity principles that, however, represent a colorful bouquet of opinions, ideologies and even dogmas on the CE.

While scholarship has largely tended to consider the aspects of *material* and *immaterial* aspects in isolation, it appears that research often captures only the perspective of one particular actor (usually also due to the nature of data collection, scope, country focus, etc.) rather than reflecting the insights in the light of a holistic CE meta-idea. Put differently, research sometimes follows linear ways of thinking without incorporating - or in the terminology of the CE - reusing findings from other fields. However, the latter (1) would benefit intellectual feedback loops between different schools of thought and (2) could (better) guide the competitive processes between ideas and thus lead to an improvement of the circular applicability of research findings. (1) A holistic and shared understanding of CE is a precondition to connect intellectual silos (i.e., focus areas) to unfold real-world impacts by referencing to one another and to a (higher-level) paramount meta-idea of CE to create a common ground for mutual reflections on *material aspects* AND *immaterial aspects*. (2) While an involvement of focus areas is naturally inherent in learning processes and understandable from a scholarly perspective, this conceptual (i.e., immaterialized) and empirical (i.e., materialized) focus on one particular aspect (or only a few aspects) may lead to jeopardizing the general applicability of CE knowledge in practice and politics since isolated focus areas catalyzed by “narrowish” debates carry the downside potential to lead researchers, policy-makers, and practitioners astray and incentivize them to aim for *discourse sovereignty* or even *discourse rent-seeking* about specific CE understandings in respective focus areas. This eventually may cause thinking barriers or at least interferences between the CE discourse participants likely

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obstructing innovation processes in the long run.

Thus, it can be questioned whether those intellectual *ivory towers* of linear thinking are appropriate to realize a functional CE in a real-world context. At its core, this article argues for creating a mutual meta-idea of CE in academia, practice, and politics rather than narrow and isolated constructs. Thus, CE eventually requires enabling collectively organized dynamic collaborative learning processes between diverse actors and schools of thought to facilitate holism and to mitigate rent-seeking activities in academia (e.g., funding bias) and practice (e.g., lobbying) with regard to intellectual *ivory towers'* building and defense.

Since companies, policy makers, consumers, and scholars can each make a crucial contribution to the CE, as they are ultimately part of this transformation process, new kinds of holistic thinking are needed in which discourse participants take on joint responsibility for the development of a flourishing CE meta-idea creating holistic cycles of theoretical learning and practical applicability to transform the colorful bouquet of CE research directions into flourishing and cross-fertilizing debates continuously reflecting on a mutual understanding to facilitate the intellectual development of CE. This collective approach, however, requires on the one hand the various actors to engage with the interests of their respective stakeholders far more than in the past (e.g., "GACERE": Global Alliance on Circular Economy and Resource Efficiency). For instance, successful examples already exist in practice like "ToastAle" that brews beer from surplus bread, or "FLOW2" a B2B marketplace for sharing business overcapacities of equipment or knowledge of employees. On the other hand, research must work towards a mutual learning journey by letting different schools of thought competing their ideas to develop functional CE approaches in theory and practice, however not without reflecting, referring, and circulating their perspectives with regard to a broader meta-idea of CE. This also requires more discussions and critical reflections of own results. Only in this way the CE can succeed in being more than a pure mitigation of the effects of resource consumption and becomes a fundamental attitude that is coherently integrated into all economic, political, and social processes without isolating or leaving some actors behind and jeopardizing the long-term success of this vibrant research field and eventually the success of CE application(s). Thus, successfully designed inter- and trans-disciplinary research is seen as an avenue to develop new approaches, strengthen partnerships, and ultimately foster innovation (e.g., Morss et al., 2021). In fact, a holistic approach may better account for interdependencies between different perspectives that become more transparent helping to realize that real-world issues on CE (aligning the interests of consumers and companies, etc.) and related themes (social well-being; workforce, etc.) interconnectedly affecting and cross-fertilizing each other. Finally, a holistic CE idea may encourage creative thinking that includes and critically reflects diverse perspectives and visions, which may more likely lead to innovative and inclusive results in theory, politics, and practice.

Since the CE is not a linear concept, rather a circular interaction of economic, social, ecological, and technical aspects, it should rather be seen as a *mutual learning journey* for the whole society, based on a common understanding (i.e., a meta-idea) of CE, with the aim of creating functional cooperation approaches for sustainable development in theory and practice. Thus, we need to enable people to think circular transition as a conceptual holistic idea that now needs to depart from

being stuck as a narrow concept in its focus areas by simultaneously creating and reflecting in-depth knowledge for concrete circular applicability in practice requiring mutual intellectual efforts from scholars, practitioners, politicians to deal with this seeming quasi paradox. Put differently, a holistic CE meta-idea needs to create the *level-playing-field* that, however, must be also subject to constructive criticism by respective focus areas, to enable the scientific, practice-oriented, and political learning processes in and between CE focus areas and beyond to eventually become more productive for our mutual learning journey towards sustainable development.

CRediT authorship contribution statement

Felix Carl Schultz: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Supervision, Validation, Writing – original draft, Writing – review & editing. **Sebastian Rhein:** Conceptualization, Formal analysis, Investigation, Writing – original draft, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

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

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