

## HOW CAN A CIRCULAR ECONOMY IMPACT ENTREPRENEURSHIP? INSIGHTS FROM A SYSTEMATIC REVIEW

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**Abstract:** This paper aims to provide a systematic review of the literature on entrepreneurship in the context of the circular economy concept. More specifically, the authors aim to answer the question “What characteristics and conditions of entrepreneurship emerge in connection with the transformation towards circular economy?”. The research adopted the systematic literature review method, which provides the clearest possible conclusions about what is already known and what is not yet known in the selected area or topic. The review examined publications from key databases, Scopus and Web of Science, which enabled the identification of trends and gaps in existing research. Circular entrepreneurship is an emerging research area. The circular economy offers numerous entrepreneurial opportunities, emphasizing the need for further investigation to understand this topic better.


**Keywords:** circular economy, entrepreneurship, sustainable development

**JEL Classification:** M10, M20, L20, L26, Q01

### Introduction and theoretical background

Entrepreneurship is related to discovering, evaluating and exploiting opportunities (Shane & Venkataraman, 2000). Long (1983) indicated three basic dimensions of entrepreneurship: firstly, uncertainty and risk, secondly, complementary managerial competence, and thirdly, creative opportunism. It can therefore be stated that entrepreneurship is manifested in the ability to take a risk, innovation, creativity and the ability to implement new ideas and concepts (Veeraraghavan, 2009). Over the

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last decade, the concept of entrepreneurial ecosystem has gained popularity among researchers and practitioners (Wurth et al., 2021). It is a systemic view of entrepreneurship (Cavallo et al., 2018), focusing on communities composed of many independent entities, including investors, service providers, government, universities, and the media among others. These communities can play a key role from the point of view of the level and development of entrepreneurship in a given region (Hechavarría & Ingram, 2019). Moreover, researchers perceive entrepreneurship in the context of various trends, such as digitalization (Baranauskas & Raišienė, 2022) and Industry 4.0. (Kruger & Steyn, 2020). The analyses focus on the possibilities resulting from the use of digital technologies, i.e., artificial intelligence (Chalmers et al., 2020), Internet-of-Things (Joshi et al., 2019), or cloud computing (Ross & Blumenstein, 2015). Research also concerns the impact of disruptive phenomena, e.g., in recent times especially of the COVID-19 pandemic (Ratten, 2021; Zahra, 2021).

Entrepreneurship is widely believed to have great potential for positive change towards sustainable development (Ashari et al., 2021; Perez-Encinas et al., 2021). Sustainable entrepreneurship consists in discovering, evaluating and exploiting opportunities in such a way as to make a positive contribution to socio-economic life and take care of environmental issues, to the benefit of both current and future generations (Lüdeke-Freund, 2020). Sustainability motivates innovation (Weidner et al., 2020; Yamoah et al., 2021) and encourages organizations to seek new business models (Lüdeke-Freund, 2020; Sinkovics et al., 2021). However, it should be indicated that in the case of sustainability-oriented initiatives, it is necessary to find a balance between creating social and environmental value and economic performance (Musona et al., 2021). Therefore, this type of entrepreneurial activity requires a holistic approach. It is not about pursuing social, economic or environmental goals independently of each other, but rather about combining them in a systemic way (Muñoz & Cohen, 2018). Due to the key role of stakeholders in creating sustainable value (Dembek et al., 2018; Vladimirova, 2019), attention is focused on sustainable entrepreneurial ecosystems (Volkman et al., 2021).

Assuming that sustainability is an umbrella concept (Hestad et al., 2021), in this paper, entrepreneurship is examined through the prism of specific determinants, challenges and opportunities brought by the circular economy (CE). The constantly growing popularity of CE is caused by the deteriorating state of the natural environment, which brings the need to look for production and consumption methods that are less dependent on depleting natural resources (Kristensen & Mosgaard, 2020). CE is presented as a new paradigm (Geissdoerfer et al., 2017), as well as a new strategy for the development of civilization (Pikoń, 2018) that generates positive effects in each of the three main, i.e., economic, social and environmental, dimensions of sustainability (Korhonen et al., 2018).

CE is an alternative to the linear economy model based on the take-make-waste principle (Sariatli, 2017). The main goal of this concept is to make economic growth independent of resource consumption (Scheel et al., 2020) on the basis of the principles that in their basic version are referred to as 3R (reduce, reuse, recycle). With the development of CE, the set of rules was expanded to 4R, 6R, 10R. Other rules include, among others: redesign, renovate and repair (Kirchherr et al., 2017; Reike

et al., 2018). Murray et al. (2017, p. 369) propose a definition according to which CE is “an economic model wherein planning, resourcing, procurement, production and reprocessing are designed and managed, as both process and output, to maximize ecosystem functioning and human well-being”.

CE proposes a new approach to the use of resources and energy, value creation and entrepreneurship (Lewandowski, 2016). Ranta et al. (2020) indicate that CE is an innovation-driven phenomenon. Innovations are among the most important factors determining resource productivity. It is widely believed that through innovations it is possible to maintain current standards of living while addressing serious environmental problems (Cainelli et al., 2020). Research conducted by Hysa et al. (2020) shows that there is a strong and positive correlation between a circular economy and economic growth. This emphasizes the fundamental importance of sustainability, innovation, and investment in resource efficiency and no-waste initiatives in responsible wealth creation.

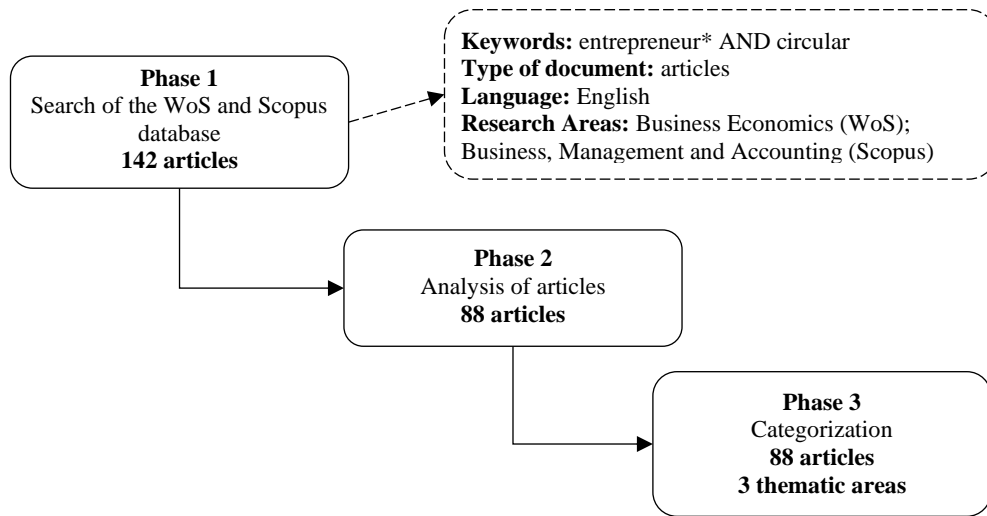
Circular entrepreneurship is an emerging field of research (Cullen & De Angelis, 2021). Zucchella and Urban (2019, p. vii) conceptualized circular entrepreneurship as “processes of exploration and exploitation of opportunities in the circular economy domain”. Undoubtedly, the transformation towards CE is associated with new opportunities, but also – like any extensive change – with a number of different challenges (Suzanne et al., 2020; Silva & Sehnem, 2022). As stated by Cullen (2023, p. 1) “circular entrepreneurship is becoming a new, promising reality, in the manner of needed radical paradigmatic change in the era of Anthropocene”. Therefore, it can be seen that entrepreneurship in the face of the CE transition gains a new dimension and its own specificity. Based on this, the following research question was formulated: What characteristics and conditions of entrepreneurship emerge in connection with the transformation towards CE?

## Methodology

The systematic literature review method which can be defined as “systematic, explicit, and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners” (Fink, 2020, p. 6) was adopted. A systematic literature review should provide the clearest possible conclusions about what is and what is not known in the selected area or topic (Denyer & Tranfield, 2009). Due to the multitude of determinants, perspectives and dimensions of entrepreneurship in the context of CE, systematic literature review is an appropriate method that enables a precisely defined process of identification, assessment and interpretation of available evidence (Cillo et al., 2019).

The conducted literature review included 3 stages. The first consisted in searching the Web of Science (WoS) and Scopus databases, using the criteria outlined in the review process chart (Figure 1). The search indicated 209 publications. 67 duplicates were rejected. Then, the publication titles and abstracts were analyzed, and on this basis, 54 articles that did not match the topic of the study were rejected. Having read the 88 papers that were included in the study, content related to entrepreneurship in

the context of CE was identified and coded. On this basis, the articles were assigned to 3 thematic areas: (1) circular economy transition and entrepreneurial opportunities (N = 17), (2) innovations and business models (N = 45), and (3) entrepreneurial eco-systems (N = 26).

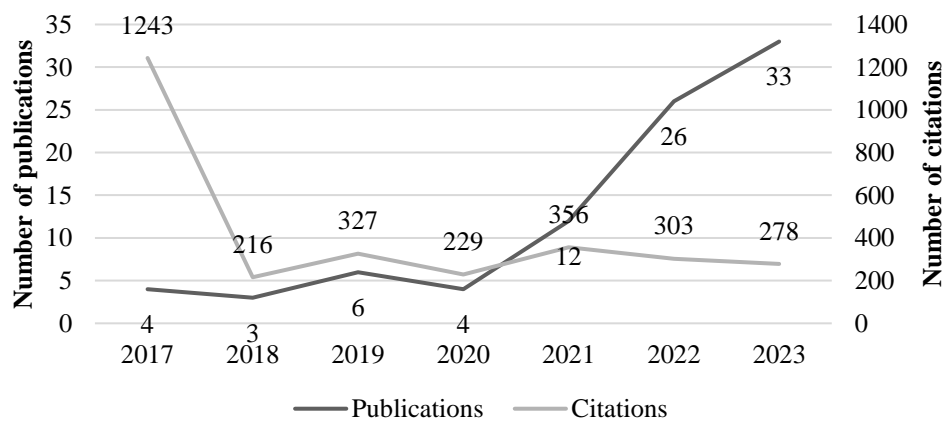


**Figure 1. Systematic review process**

Source: Authors' own elaboration

## Results

The review covered articles published up to 2023. The data presented in Figure 2 shows that the oldest of the selected articles were published in 2017. They have the most citations. It can also be noted that since 2021 there has been a dynamic increase in the number of publications.

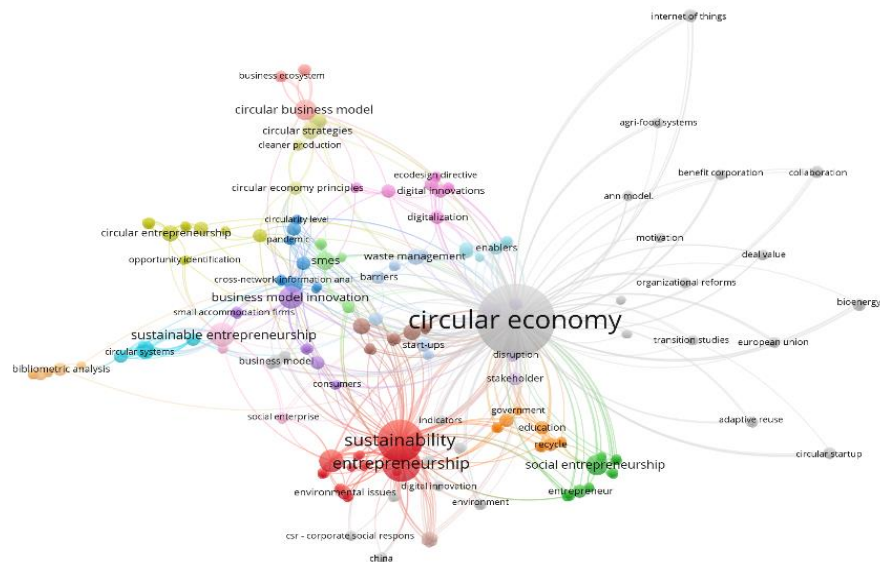


**Figure 2. Temporal distribution of publications and citations**

Source: Authors' own elaboration

In terms of journals, it is noticeable that few published more than one paper. Among the journals that meet this criterion, most articles were published in the “Journal of Cleaner Production” (22 articles). The next places are occupied by “Business Strategy and the Environment” (10 articles) and “Management Decisions” (7 articles).

Figure 3 shows the co-occurrence of author keywords in the identified publications.



**Figure 3. Co-occurrence of author keywords**

Source: Authors' own elaboration

The findings resulting from the analysis of the publications included in the review for each thematic area are presented in Table 1.

**Table 1. Findings from the systematic literature review**

Thematic area	Key findings
Circular economy transition and entrepreneurial opportunities	The holistic nature of changes related to the CE transition creates new space for seeking opportunities that entrepreneurs can use to develop interesting and beneficial initiatives (e.g. Rawat & Singh, 2022; Zhu et al., 2022; Beheshti et al., 2023). When referring to CE, a “win-win formula” narrative in which economic and environmental benefits reinforce each other is often used. Since the effects of climate policy are visible in the long term, companies must play a leading role in this area by creating new, sustainable business models and production systems. The external effects generated by climate change become an opportunity for entrepreneurship. Many large companies do not incorporate CE principles into their business strategy, e.g. due to costs or logistical obstacles. This creates opportunities for entrepreneurial companies with innovative business models to fill the gap and provide

Thematic area	Key findings
	<p>circular solutions to corporations, while creating new business opportunities and generating social benefits. Successfully transitioning to a circular economy requires specialized knowledge and skills (e.g. Hinderer &amp; Kuckertz, 2022; Borms et al., 2023). Different industries need expertise in areas like transport, logistics, research, and digital technologies to implement circular solutions. The literature highlights the potential for developing circular value propositions and value capture models, offering new entities greater access to traditional markets (e.g. Despeisse et al., 2017)</p>
Innovations and business models	<p>Innovativeness is one of the fundamental determinants of a successful transformation towards CE. By emphasizing the multidimensional and systemic nature of CE, the literature signals the need for a holistic approach to innovation (e.g. Kostakis &amp; Tsagarakis, 2022; Van Opstal &amp; Borms, 2023). Methods like experimentation, open innovation, and small incremental steps help businesses foster innovation and navigate uncertain returns. Much research confirms that implementing circular innovations enhances company performance (e.g. Khodaparasti &amp; Garabollagh, 2023). In addition, it is noted that the trend that favors circular economy is digitalization. The importance of innovations based on digital technologies, such as the Internet of Things or blockchain, is widely emphasized (e.g. Kalogiannidis et al., 2022). The literature also mentions the social dimension of innovation for CE (e.g. Costanza, 2023). Stimulating innovative entrepreneurship through integrating digital technologies into business models contributes to prosperity and social progress, which is an important element of a sustainable economy. Business model innovations are essential for sustainable development, influenced by purpose-led motivation and the desire to maximize positive impact. Entrepreneurs in CE adopt a disruptive approach, experimenting with circular business models and leveraging design thinking for collaboration. Compared to conventional business models, circular business models represent a more holistic and inclusive structure. This structure acts as a mechanism for transferring the decision-making powers of the entrepreneur to the stakeholders. Therefore, the entrepreneur's field of control, power and influence on the business may be narrowed. For entrepreneurs, circular business models are associated with significant challenges in proactive reducing of uncertainty (e.g. Linder &amp; Williander, 2017; Cullen, 2023)</p>
Entrepreneurial ecosystems	<p>The ecosystem perspective is especially important in the case of circular entrepreneurship. The ecosystem concept adequately reflects the high level of coordination between different stakeholders necessary to implement CE-specific solutions. An ecosystem perspective can help resolve the problems related to complexity and coordination. Adopting this perspective is a way for a company to move beyond creating only economic value to also include social and environmental value and use this as a competitive advantage (e.g. Re &amp; Magnani, 2022). It is also pointed out that institutional</p>

Thematic area	Key findings
	<p>frameworks, including regulations, norms, and ethical standards, play a crucial role in the circular ecosystem (e.g. Boffa et al., 2023).</p> <p>Institutional entrepreneurship enablers are vital for circular entrepreneurship, with a focus on strengthening the social dimension of CE through technological, organizational, and social innovations. Flexible institutional solutions that involve multiple stakeholders are necessary. Policies and action programs that drive and support innovation are key, especially in developing economies where removing regulatory barriers and fostering digital and local start-ups is crucial. While governments promote CE, entrepreneurship is essential for translating policies into sustainable business models (e.g. Nunes et al., 2022). The ecosystem perspective is also adopted when discussing CE incubators. It should be emphasized that cooperation within the ecosystem is facilitated by the knowledge of its participants (e.g. Del Vecchio et al., 2021). Therefore, the development of educational initiatives that combine issues related to entrepreneurship and CE is extremely valuable. In addition to schools and universities, non-governmental organizations and their contribution to the development of circular entrepreneurship should also be considered</p>

Source: Authors' own elaboration

## Discussion

The prospects that CE offers to entrepreneurs can be considered an indicator of how transformation in business will proceed. Opportunities are seen in CE policies implemented at the national or supranational level, among others. It seems that the associated potential is significant, especially in Europe, where opportunities for business are one of the key policy aspects (McDowall et al., 2017). The analyzed publications also show that new technologies – in particular digital technologies – are an important factor in entrepreneurial opportunities in relation to CE. It is worth noting that the dynamic development of technology forces enterprises to implement new solutions on a large scale and under time pressure. The implementation of digital technologies is seen as one of the ways to effectively adapt to a turbulent environment. Implementing this process quickly and efficiently is often necessary. Failure in this regard may widen the technological gap in relation to competitors (Priyono et al., 2020). Due to the fact that CE is a concept that includes many different solutions and many ways to achieve the goal, the specificity of the sector or industry is of great importance. The development of research related to circular entrepreneurship in specific industries, considering specific barriers and challenges, seems to be extremely necessary. Therefore, it is important for future researchers to identify what CE opportunities are emerging in specific sectors and industries.

Innovations and business models were often considered from the perspective of SMEs and start-ups. This is important due to the significance of these entities for the implementation of CE. In publications on circular innovations, attention is paid to their

social dimension. CE appears as a concept that inspires social entrepreneurs and fosters their innovation among others. These are valuable observations that can be related to the sometimes raised objection that the social aspect of CE is clearly less exposed, and that the relationship between CE and social impact is not clear (Merli et al., 2018; Padilla-Rivera et al., 2021). Entrepreneurs entering CE should have genuine passion and commitment, which can ensure their economic success as well as positive social and environmental effects. The approach to constructing business models also highlights experimentation and creativity. In addition to the articles included in this review, this aspect is often associated with circular business models in the literature (Hofmann & Jaeger-Erben, 2020; Bocken et al., 2021). It is also emphasized that the creation of circular business models must consider stakeholders who make an extremely valuable contribution to resource-efficient and waste-free business models. This is consistent with the significance of networks (Hofmann, 2019; Reim et al., 2019) and the multi-stakeholder approach (Geissdoerfer et al., 2020; Moggi & Dameri, 2021) highlighted in numerous publications. Future research in the area of circular innovations may focus on organizational innovations that seem to be overshadowed by product and process innovations. Working on tools and methods of constructing circular business models, considering the identification and use of opportunities (in relation to the broadly understood environment) and scaling possibilities, which may be particularly important for circular start-ups also seems justified.

The outlined characteristics of circular business models are naturally connected with the ecosystem perspective. The most important issues raised in considerations on circular entrepreneurship ecosystems include institutional conditions and CE incubators. The role of governments in the development of circular entrepreneurship is significant, although it is not entirely clear whether it should consist more in reducing barriers (e.g. administrative ones) or in active, direct support for entrepreneurs. Research on stakeholder involvement and cooperation indicated barriers in this regard. An important role in this context is performed by leadership, which should focus on building and cultivating lasting and trust-based relationships with various stakeholders inside and outside the organization and coordinating their activities in order to achieve common goals (Maak & Pless, 2006). The ability of an organization to collaborate with its stakeholders requires a mutual understanding of the importance of interacting and exchanging information. Due to this, both the organization and its stakeholders recognize opportunities to pursue their own interests while pursuing common interests (Kujala et al., 2019). It seems that these common interests should be emphasized, while indicating that cooperation within the ecosystem leads to a win-win situation. Potential opportunities can also be sought in this area. It may be interesting to look at the contribution that ecosystem participants make to the created value, which suggests that future research should consider the issue of value co-creation.

## Conclusion

This study reviews the literature on the characteristics and determinants of entrepreneurship that emerge in connection with the transformation towards CE. 88 papers published between 2017 and 2023 that were relevant to the review were identified.



This review allowed for the determination of the key thematic areas related to the issue under consideration. Based on the conducted analysis, it can be concluded that entrepreneurship in the context of CE is becoming the subject of increased interest among researchers.

The transformation towards CE is expected to contribute to meeting global challenges and, at the same time, increasing prosperity. It is founded on the actions undertaken by entrepreneurs, including identifying and exploiting opportunities related to CE, implementing innovations and creating new business models, or creating new ways of cooperation. This requires a proactive approach and the ability to function in conditions of high volatility and uncertainty.

It should be noted that this study is not free from limitations. One of them is limiting the literature search to specific databases. An effort was made to select the most important and appropriate ones; however, not including other databases could lead to the omission of some publications. Another limitation is related to the search criteria. The review included only articles published in journals; therefore, it does not include book chapters and conference materials. Moreover, the development of CE research is extremely dynamic. Therefore, it can be assumed that the increase in the number of publications on entrepreneurship from a CE perspective, observed in 2021-2023, will continue. The results presented in this study only reflect the current state of research, and future work will bring new insights and conclusions.

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## JAK GOSPODARKA OBIEGU ZAMKNIĘTEGO MOŻE ODDZIAŁYWAĆ NA PRZEDSIĘBIORCZOŚĆ? SPOSTRZEŻENIA Z SYSTEMATYCZNEGO PRZEGŁĄDU LITERATURY

**Streszczenie:** Niniejszy artykuł ma na celu systematyczny przegląd literatury na temat przedsiębiorczości w kontekście koncepcji gospodarki o obiegu zamkniętym. Dokładniej rzecz biorąc, celem autorów jest odpowiedź na pytanie: Jakie cechy i warunki przedsiębiorczości wyłaniają się w związku z transformacją w kierunku gospodarki o obiegu zamkniętym? W badaniu zastosowano metodę systematycznego przeglądu literatury, która dostarcza jasnych wniosków na temat tego, co jest już znane, a co jeszcze nie jest znane w wybranym obszarze lub temacie. W przeglądzie przeanalizowano publikacje z kluczowych baz danych (Scopus i Web of Science), co umożliwiło identyfikację trendów i luk w istniejących badaniach. Przedsiębiorczość w gospodarce o obiegu zamkniętym to rozwijający się obszar badań. Gospodarka o obiegu zamkniętym oferuje liczne szanse przedsiębiorcze, co podkreśla potrzebę dalszych badań w celu lepszego zrozumienia tej dziedziny.

**Słowa kluczowe:** gospodarka o obiegu zamkniętym, przedsiębiorczość, zrównoważony rozwój

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