

## **EXPLORING THE NEXUS BETWEEN THE CIRCULAR AND THE COLLABORATIVE ECONOMY: THEORETICAL-CONCEPTUAL APPROACHES AND INTERNATIONAL PERSPECTIVES**

**ELINA BENEÀ-POPUȘOI**

Associate Professor, PhD

International Business Department

Academy of Economic Studies of Moldova

Chisinau, Republic of Moldova

[elina.benea-popusoi@ase.md](mailto:elina.benea-popusoi@ase.md)

ORCID ID: 0000-0001-9102-9682

**TIMUR LUCHIN**

ASEM Doctoral School

Academy of Economic Studies of Moldova

Chisinau, Republic of Moldova

[timluchin@gmail.com](mailto:timluchin@gmail.com)

ORCID ID: 0009-0005-5964-3611

**Abstract:** The article explores the connection between the circular economy and the collaborative economy, focusing on their mutual integration through theoretical-conceptual approaches and international practices. The purpose of our research is to examine how the two paradigms – circularity, which emphasizes resource efficiency and waste minimization, and collaboration, which promotes shared ownership and peer-to-peer services – can complement each other in promoting sustainability. A multifaceted methodology, including a comprehensive literature review and comparative analysis, is used to explore the similarities and differences between the two models, as well as their practical applications and impact on sustainability. Data sources include academic literature, policy reports and case studies from world regions. The latter highlight specific implementations such as the European Union's Circular Economy Action Plan, China's Circular Economy Promotion Law, and Japan's Basic Act on Establishing a Sound Material-Cycle Society. We also analysed community-driven initiatives, including Kenya's Circular Food System and Brazil's Catadores recycling program, alongside collaborative consumption platforms offered by private companies, such as Alibaba's Idle Fish (Xianyu). Our findings suggest that fostering the convergence of the circular and collaborative economy can lead to significant environmental and economic benefits, including extended product life cycles, waste reduction and community engagement. Concurrently, international policy frameworks, grassroots initiatives and digital platforms are key factors in driving this convergence. The research illustrates the value of integrating the circular and collaborative economy in addressing global sustainability challenges and emphasizes the need for further research and policy development to expand these models worldwide.

**Keywords:** circular economy, collaborative economy, sharing platforms, peer-to-peer services, resource loops, waste minimization, community engagement, trust-based systems, open access to resources, nodes of circularity.

**JEL Classification:** Q01, Q32, Q53, Q56, D16

### **1 Introduction**

The circular economy is an economic model designed to minimize waste and make optimal use of resources. This model competes with the traditional linear economy, which follows a *take-make-dispose* approach. In a circular economy, the goal is to close the loop by maintaining the value of products, materials and resources for as long as possible, thereby reducing the impact on the environment. Key tenets of the circular economy include designing for *reuse*, *recycling*, *remanufacturing* and the use of *renewable energy sources*.

The circular economy paradigm originates from concepts such as *industrial ecology* and *cradle-to-cradle design* developed in the 1980s and 1990s. Scholars including M. Braungart and W. McDonough (Braungart and McDonough 2002) pointed out the potential of systems thinking where waste from one process becomes input for another, leading to a regenerative and restorative economy. Over time, the circular economy paradigm has been fostered by global policy initiatives, including the European Union's Circular Economy Action Plan (European Commission, 2020) and China's Circular Economy Promotion Law (Chen Ru, 2023).

The collaborative economy, also known as the sharing or peer-to-peer economy, is a socio-economic paradigm based on shared access to goods, services and resources, often enabled by digital platforms. This paradigm encourages the use of underutilized assets, whether they are physical goods such as cars and houses or services such as labour and expertise. Key tenets include *trust-based systems*, *open access to resources*, and *decentralization* of production and consumption.

Whilst the collaborative economy has historical roots in community-based sharing and cooperatives, its modern rise has certainly been facilitated by the development of the Internet and digital platforms since the beginning of the 21st century. Companies like Airbnb, Uber and TaskRabbit have become leaders in the field and are expanding globally.

The collaborative economy engenders democratized access to resources, their more efficient use, and minimization of environmental impact through shared ownership (Botsman & Rogers, 2010).

Concurrently, this is a revolutionary paradigm that radically transforms the legal and economic approach including property rights, labour law, and disrupts traditional markets. Therefore, its potential to provide more sustainable alternatives has stimulated both academic and political debate (Schor, 2016)

However, it is clear that increasingly acute environmental challenges, including resource depletion, climate change and waste management crises, are pressing for sustainable economic models such as the circular economy and the collaborative economy. Growing global population and demand for resources discredit traditional linear models as unsustainable. The circular economy is able to reduce resource exploitation and emissions, while the collaborative economy leverages shared access to minimize overproduction and waste.

Both models align with global sustainability goals such as the United Nations' Sustainable Development Goals (SDGs), particularly SDG 12: Responsible Consumption and Production. Correlating these economic models with digital transformation also opens up new perspectives for innovation and scalability, which in turn can refine sustainable economic models and their application on the ground.

Exploring the nexus between the circular and collaborative economy is crucial for several reasons. Above all, both models are fundamentally interconnected in their pursuit of sustainability and resource efficiency. The circular economy aims to minimize waste and maximize the lifecycle of materials, while the collaborative economy promotes sharing and access to ownership. Integrating

these two paradigms would allow us a holistic approach to sustainability that not only reduces environmental impact but also encourages social innovation and economic resilience.

Next, there is a pressing need for innovative economic models that provide solutions to intensifying global challenges such as climate change, resource scarcity and social inequality. Integrating the circular and collaborative economy can increase resource efficiency, encourage sustainable practices and democratize access to goods and services. Moreover, we can expect the further convergence of these two paradigms, a process supported by emerging technologies, with the potential to facilitate collaborative consumption, while promoting circular practices. Inter alia digital platforms can enable shared access to products and services that are designed for reuse and recycling, thus creating synergies between the two economic paradigms.

Furthermore, exploring the nexus between the circular and collaborative economy provides valuable information for policy makers and businesses. Understanding how the circular and collaborative economy can complement each other enables stakeholders to develop strategies to capitalize on the opportunities, thus stimulating sustainable development and promoting a circular ecosystem. Integrating these two paradigms can lead to innovative business models that not only meet consumer demands for sustainability, but also enhance competitiveness in a rapidly changing market (Bocken *et al.*, 2014).

## **2 Methodology**

This article adopts a multi-faceted methodology to explore the nexus between the circular and the collaborative economy. A comprehensive review of existing literature is conducted to identify key concepts, frameworks, and empirical studies related to the circular and the collaborative economy.

Furthermore, a comparative analysis is employed to evaluate the similarities and differences between the circular and the collaborative economic models. This analysis considers various dimensions, including theoretical underpinnings, practical applications, and impacts on sustainability. By juxtaposing these models, the research seeks to highlight potential synergies and areas for integration. The data sources of the article include key academic journals in the fields of sustainability, economics, and management. Specialized reports from organizations such as the United Nations Organization, World Economic Forum, and Ellen MacArthur Foundation provided us with valuable insights into global trends, challenges, and best practices in the circular and the collaborative economy.

## **3 Theoretical-conceptual approaches to the nexus between the circular and the collaborative economy**

The circular economy is an innovative economic model that aims to create a regenerative system by designing out waste, keeping products and materials in use, and regenerating natural systems.

One of the key concepts in the circular economy is *resource efficiency* which aims to optimize the use of resources to reduce consumption and minimize environmental impact. This involves using renewable resources, reducing energy consumption and implementing *closed-loop production processes* (Korhonen *et al.*, 2018).

*Waste minimization* is another major concept, which usually refers to strategies aimed at reducing waste at each stage of the product's life cycle. This includes designing products for *durability*, *repairability* and *recyclability*, as well as promoting practices such as *remanufacturing* and *upcycling* (Geissdoerfer *et al.*, 2017).

Several theories provide a basis for understanding the circular economy.

*Cradle-to-Cradle theory*, developed by William McDonough and Michael Braungart, is actually a design philosophy advocating the creation of products with a life cycle that allows for complete recycling or biodegradability, thus eliminating waste (McDonough & Braungart, 2002).

*Industrial Ecology theory* examines the flow of materials and energy in industrial systems and promotes the idea of viewing industrial processes in relation to ecological systems. It encourages the design of processes that mimic natural cycles, facilitating waste reduction and resource efficiency (Frosch and Gallopoulos, 1989).

Ultimately *Systems thinking* is a holistic approach that emphasizes understanding the interconnections and interdependencies within systems. In the context of the circular economy, systems thinking encourages stakeholders to consider the wider impact of their actions on social, economic and environmental dimensions (Berkel, 2009).

Conversely, the collaborative economy, often referred to as the sharing economy, is a socio-economic model that capitalizes on the sharing of resources, goods, and services among individuals and communities.

In the context of the collaborative economy, the concept of *sharing platforms* is a pivotal one, which refers to digital platforms that facilitate the exchange of goods and services, allowing people to share resources (e.g. Airbnb company for accommodation, Uber company for transport). These platforms use technology to connect users and promote peer-to-peer interactions (Schor, 2016).

Also gaining primary importance is the concept of *peer-to-peer services*, that is, services provided directly between individuals without intermediaries. This approach not only democratizes access to goods and services, but also encourages *community engagement* and *trust building* among participants (Böcker and Meelen, 2017).

The collaborative economy is supported by several theoretical frameworks.

*Social Exchange theory* assumes that social behaviour is the result of an exchange process aimed at maximizing benefits and minimizing costs. In the context of the collaborative economy, it helps explain how individuals engage in sharing behaviours based on perceived benefits, such as cost savings or social connections (Blau, 1964).

*The Trust-Based Systems* approach focuses on trust as a critical element in collaborative economies, as successful peer-to-peer transactions rely on participants feeling secure in their exchanges. This theory highlights the importance of building trust through reputation systems, reviews and community engagement to facilitate participation in sharing platforms (Möhlmann, 2015).

*The Open Innovation Theory* proposed by Henry Chesbrough (Chesbrough, 2003) emphasizes the importance of collaboration with external partners to stimulate innovation. In the context of the collaborative economy, open innovation encourages businesses to use shared resources and ideas to create new products and services, enhancing sustainability and encouraging economic growth.

The intersection of the circular and the collaborative economy reveals how these two models can complement each other in fostering sustainability. This is also achieved through the concept of *shared resources*. Thus, collaborative platforms facilitate access to shared resources, enabling individuals and businesses to participate in circular production processes. For example, a peer-to-peer tool sharing platform allows users to rent tools instead of buying them, reducing the demand for new products and minimizing waste (Heinrichs, 2013).

The concept of *extended product life cycles* is also synergistic. The collaborative economy encourages the sharing and repurposing of products, extending their life cycles. For instance, clothing rental services not only promote the reuse of clothing items, but also align with circular economy principles by reducing textile waste and promoting more sustainable consumption patterns.

In terms of *community engagement*, both the circular and the collaborative economy promote community engagement and social connections, which are essential for fostering trust and collaboration. This social dimension can enhance the effectiveness of circular practices as communities work together to create sustainable systems and share knowledge about resource management.

We believe that by exploring the intersection of the circular and the collaborative economy, we can identify multiple synergies that drive innovation, improve resource efficiency and promote sustainable development across all sectors.

#### **4 International Perspectives of the nexus between the circular and the collaborative economy**

The convergence of the circular and the collaborative economy has shown significant promise in several regions worldwide. By integrating circular economy principles with collaborative practices, innovative solutions emerge to address sustainability challenges.

The European Union has been at the forefront of promoting the circular and the collaborative economy through its Circular Economy Action Plan (CEAP) adopted in 2020 (European Commission, 2020). The CEAP emphasizes resource efficiency, waste reduction, and recycling across member states, while also encouraging collaborative consumption through sharing platforms and repair initiatives. It promotes policies to extend the lifecycle of products and reduce waste streams, particularly in sectors like electronics, textiles, and construction.

Local collaborative initiatives have flourished under this framework, with cities like Amsterdam pioneering "sharing cities" projects that blend circular economy principles with collaborative services. Amsterdam's Circular Strategy promotes business models based on the reuse of materials while fostering collaboration between companies, governments, and residents (Calisto F. *et al.*, 2023). In China a circular economy policy framework was legally proposed in 2005 by releasing the "Opinions on accelerating the development of the circular economy". Subsequently, the 11th Five-Year Development Plan (FYDP) was initiated, including the implementation of the circular economy. The "Circular Economy Promotion Law" (CEPL) came into force in 2008. Policies based on the CEPL (2008) focused on improving resource productivity, especially energy use efficiency. Later on, the 18th National Congress of the Chinese Communist Party updated the circular economy strategy, making the establishment of *a full-fledged resource recycling system* part of building *a moderately prosperous society* by 2020. The review of CEPL indicators in 2017 brought greater emphasis on the circularity of industrial systems. The 13th FYDP (2016-2020) has further validated the importance of the circular economy as a national policy and fundamental economic paradigm. The Circular Development Leading Action Plan, launched in 2016, aimed to address drivers of social and environmental externalities, while pointing to the opportunity for new digital solutions. It also holistically approaches the value chain in order to integrate the principles of the circular economy at the design stage of products and business models. "Dual circulation" (international-domestic circulation) was proposed in 2020 as a national strategy to reorient the economy, to give priority to domestic circulation. The 14th FYDP (2021-2025) continued to promote national resource



conservation, recycling and security. It clearly stated the importance of the circular economy as an approach to combating climate change and achieving carbon neutrality by 2060 (Chen Ru, 2023). More recently, collaborative platforms are emerging as an essential part of this transition (Liu Z. *et al.*, 2021). For instance, Alibaba's Idle Fish (Xianyu) is a collaborative consumption platform that enables peer-to-peer sharing of second-hand goods. It reduces waste while promoting circularity by extending the lifecycle of items. As specified on its official portal, Idle Fish (Xianyu) "is a consumer-to-consumer community and marketplace in China, where consumers can find a variety of second-hand, recycled, refurbished, for-rent and other long-tail products" (Alibaba Group, 2024).

Japan was one of the pioneering countries in the implementation of the circular economy, being among the first countries in the world to start developing circular economy policies. In 2000, through its Basic Act on Establishing a Sound Material-Cycle Society (SMCS), Japan began to incorporate the concept of SMCS into legislation. This concept is considered an early precursor to the circular economy concept and is defined as a society "where the consumption of natural resources is reduced and the environmental load is minimized to the fullest extent possible". The Basic Act on Establishing a SMCS aims to reduce and phase out the existing linear economic system and invest in a sustainable circular system by ensuring the effective implementation of the 3Rs (reduce, reuse and recycle) as well as ecological waste management practices (Arai *et al.*, 2024).

Japan's approach of combining the circular and collaborative economy is evident in initiatives such as the Circular Yokohama Project, where all stakeholders (citizens, local government, businesses, etc.) collaborate to reduce waste and improve sustainability. This project invests in the creation of a circular society that operates on the basis of the synergy between the reuse of materials and the sharing of resources (Circular Yokohama, 2024).

In regions with limited financial resources, such as Africa and Latin America, the nexus and interplay between the circular and collaborative economy is emerging more out of necessity than politics. Consequently, these regions provide some of the most innovative examples of collaborative circular practices.

For instance, a Circular Food System has been developed in Kenya. Thus, with the support of FAO and the Italian Agency for Development Cooperation, sustainable food systems were developed in 2 megacities in Kenya - Nairobi and Kisumu. Within these systems, local organizations have established food-sharing platforms to reduce food waste while ensuring equitable distribution. Collaborative networks ensure the redistribution of food resources from areas of surplus to areas of need, minimizing waste and maintaining a circular system (FAO, Urban Food Agenda, 2024).

In Colombia and Brazil, the Catadores Program has been developed for several decades, through which informal waste collectors (catadores) work in a circular economy framework by collecting, recycling and selling materials. They have organized themselves into cooperatives, creating collaborative networks that integrate marginalized workers into a circular economy. These activities reduce waste but also encourage the social inclusion of vulnerable people. (Medina, 2007; Medina, 2008; Zisopoulos *et al.*, 2023).

Conversely, international bodies, governments and non-governmental organizations have a key role in supporting the interplay between the circular and collaborative economy by creating regulatory frameworks and encouraging cooperation. In particular, the United Nations Environment Program (UNEP) has actively promoted circular economy principles at regional and global levels. UNEP initiatives such as the International Resource Panel clearly illustrate the potential of circular models to

reduce resource waste and pollution. UNEP also testifies how important collaboration between governments, private enterprises and civil society is to implement the circular economy (UNEP, 2018). The European Commission supports the development of both the circular economy and the collaborative economy, by elaborating and implementing related policies, but also by funding research and innovation programs that promote the two paradigms. Thus, the Horizon 2020 and Horizon Europe programs have funded projects that explore the integration of circular economy principles with collaborative consumption practices, inter alia in the context of the digital economy. Non-Governmental Organizations such as the Ellen MacArthur Foundation have been instrumental in promoting the circular economy paradigm and practices worldwide. In particular, the Circular Cities project developed by the foundation revealed how the integration of collaboration platforms can stimulate urban sustainability, while reaffirming that cities can be *nodes of circularity* through shared mobility, resource exchanges and peer-to-peer networks (Ellen MacArthur Foundation, 2016).

## **5 Conclusion**

This article explored the nexus between circular and collaborative economies through theoretical-conceptual approaches and international perspectives. The integration of these two models presents an innovative path to solving the pressing environmental challenges of our time, including resource depletion, climate change and waste management.

By combining the tenets of the circular economy, such as resource efficiency, waste minimization, with the tenets of the collaborative economy, such as shared ownership, peer-to-peer services, and trust-based systems, we conclude that these paradigms can complement and reinforce each other.

Case studies from Europe, Asia, Africa and Latin America demonstrate how the nexus between circular and collaborative economy is implemented in various cultural and economic contexts, providing both economic and environmental benefits. The EU's Circular Economy Action Plan and China's Circular Economy Promotion Law provide examples of large-scale policy initiatives, while grassroots efforts such as tool libraries and food-sharing platforms illustrate the power of collaborative to stimulate circularity at the local level. These case studies highlight the importance of adapting circular and collaborative principles to the specific needs of different regions, with international bodies, governments and NGOs having crucial roles in supporting the convergence of the circular and collaborative economy.

Looking ahead, further research is needed to explore the full potential of the intersection of circular and collaborative economies. There is a growing need for policy frameworks that support not only circularity and collaboration, but also equity and inclusion in these models. As digital platforms continue to expand and environmental pressures increase, the role of collaborative consumption in extending product life cycles and reducing waste will become increasingly critical. Future studies should also focus on measuring the combined impact of these two economic models on sustainability and identifying the most effective policy tools for scaling them up globally.

In conclusion, exploring the nexus between circular and collaborative economies offers a promising framework for building more sustainable, resource-efficient and equitable societies. As these models continue to evolve and intersect, they are likely to play an increasingly vital role in shaping future economic development at local, regional and global levels.

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