

# Is the Circular Economy a New Paradigm for Sustainability?

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**ABSTRACT:** *The shift to more sustainable sociotechnical systems is critical. The idea of the Circular Economy, although not completely new, has lately acquired prominence on policymakers' agendas to solve these and other environmental problems. While the words Circular Economy and sustainability are gaining popularity among academics, business, and politicians, the parallels and distinctions between the two ideas are still unclear. The connection between the ideas is not explicitly stated in the literature, which blurs their conceptual outlines and limits the effectiveness of applying the methods in study and practice. This study fills in the blanks, attempting to give conceptual clarity by differentiating words and synthesizing the many kinds of connections that exist between them. To examine the state of the art in the area and synthesize the similarities, differences, and connections between the two words, we performed a comprehensive literature review, using bibliometric analysis and snowballing methods. We found eight distinct kinds of relationships in the literature and drew the most obvious parallels and contrasts between the two ideas.*

**KEYWORDS:** *Business Model, Circular Economy, Sustainability, Sustainable Development*

## 1. INTRODUCTION

Despite the significance of the idea for academics, politicians, and businesses, the connection between the Circular Economy and sustainability is not well understood. This may have negative consequences for the development of sustainability research and the spread of actions based on these ideas. The shift to more sustainable sociotechnical systems is critical. The idea of the Circular Economy, although not completely new, has lately acquired prominence on policymakers' agendas to solve these and other environmental problems. For example, the complete European Circular Economy package and the Chinese Circular Economy Promotion Law demonstrate this.

With a sharp rise in the number of papers and journals addressing this subject over the past decade, the Circular Economy has also become a significant area of academic study [1]. Companies are also becoming more aware of the possibilities offered by the Circular Economy and have begun to realize the value potential of the Circular Economy for themselves and their stakeholders. As a result, the goal of this study is to add to conceptual clarity by examining the parallels, differences, and connections between the two theories [2]. The following is a breakdown of the paper's structure. A short literature review that introduces sustainability and the Circular Economy by outlining their origins, synthesizing their conceptual definitions, and demonstrating their importance to research and practice.

The study design is described in the next part, which includes the research topics and techniques used, including the applied snowballing and the results of bibliometric research that assisted in determining the sample of publications that would be first examined [3]. The findings of the study,

first demonstrating the discovered links between sustainability and the Circular Economy, then contrasting similarities and contrasts. After that, we'll talk about our results. The article ends with concluding comments on the research's contributions, shortcomings, and promising areas for further research. This section gives a quick overview of the two major topics explored in this study: sustainability and the Circular Economy [4].

This chapter briefly explains the historical roots of the ideas, contrasts and synthesizes the chosen definitions, and analyzes the conceptions' significance, beginning with the former and ending with the latter. Concerns about sustainability are increasingly being integrated into politicians' agendas and business plans. The word "sustainability" comes from the French verb *soutenir*, which means "to hold up or maintain," and its contemporary meaning comes from forestry. It is based on the forestry concept that the quantity of wood taken should not exceed the amount of wood that grows back [5]. This idea was set down in "Sylvicultura oeconomica" in the early 18th century, and there seem to be even earlier texts that follow the basic concepts in the face of limitations in wood supply and cooperative system husbandry. It was then applied to ecology as a concept of preserving nature's capacity to renew itself, from which the current meaning of being "able to be maintained at a particular pace or level" arose.

Around 300 definitions of sustainability exist. Sustainability may be described as a scenario in which human activity is carried out in a manner that preserves the functioning of the earth's ecosystems, to name a few examples [6]. The Brundtland Commission also established the most widely recognized definition of sustainability, which is "development that satisfies current demands without jeopardizing future generations' capacity to satisfy their own needs." Despite its origins in environmental concerns, the term "sustainable development" has come to encompass a wide range of goals for progress: "the concrete challenges of sustainable development are at least as diverse and complex as the diversity of human societies and natural ecosystems around the world." The verb "to sustain" has a wide colloquial meaning that refers to preserving undefined characteristics throughout time, while "development" has numerous meanings that change according to values, interests, and disciplinary norms [7].

Nonetheless, all views of sustainable development seem to elicit emotions of desirability and goodness, encouraging reflection on shared obligations and alternate paths forward. The so-called triple bottom line, or the three pillars of sustainability: people, profit, and planet, is particularly important to the broad dissemination of the word and its most current understandings. The triple bottom line has been defined as the balanced integration of economic, environmental, and social performance since the World Summit in 2002. Through reciprocal causation and positive feedbacks, the three realms are systematically linked and constantly and cumulatively influence one another. To put it another way, they serve as "interdependent and mutually reinforcing pillars" that may be tailored to a variety of situations and time frames. In light of this, and in order to preserve the holistic, adaptable, and flexible character of sustainability, this article defines sustainability as the balanced and systematic integration of intra and intergenerational economic, social, and environmental performance.

Sustainability, rather than just establishing shared objectives, allows for different expectations regarding, for example, what should be created and what should be maintained, for how long, and

for whom. It has sparked thought about how to increase intergenerational prosperity while still maintaining the life-support systems required to satisfy intergenerational demands. Despite differences in perceptions of the term's virtues and limitations, sustainability has been institutionalized into politicians' agendas and large-organizational strategies, becoming more entrenched in the norms that organize social interventions and influence behavior [8]. Despite a wide variety of inconsistencies and unclear instrumentalization by various interest groups, the idea demonstrates that it is a "political concept as enduring as democracy, justice, and liberty".

The Ellen MacArthur Foundation has the most well-known definition, describing the Circular Economy as "an industrial economy that is restorative or regenerative by intention and design." Those focusing on the Chinese implementation of the concept define the Circular Economy as "the realization of closed loop material flow in the entire economic system." "A circular economy is one that is restorative by design, with the goal of keeping goods, components, and materials at their maximum usefulness and value at all times," Webster continues. According to Yate, "the circular (closed) movement of materials and the utilization of raw materials and energy through many stages is at the heart of the Circular Economy. B the Circular Economy's features by describing it as "design and business model techniques [that] slow, close, and narrow resource cycles" The most often used keywords. Subtopics of the Circular Economy include recycling, reuse, waste management, and eco-efficiency are among them. Other ideas and schools of thought that cross-fertilize with the Circular Economy, such as industrial symbiosis and sustainable development, are included as well [9].

China is one of the most frequent terms, despite the fact that it is the place of origin for the majority of the writers. This reflects the government's efforts since it started regulatory implementation in 2009. These procedures helped us get a better grasp of our study topic's coverage and helped us select a sample of publications that should be examined further via a comprehensive evaluation of the literature. This review began with a selection of relevant articles from highly cited journals and academics, followed by a semi-structured snowballing method. The process began with the creation of an initial sample of relevant papers, which included 295 articles found via a Google search for "Circular Economy." As seen in our bibliometric findings, we included publications from 1950 in our sample, but the majority are from 2006, and the quantity of papers has risen dramatically in the past four years [10].

## 2. DISCUSSION

The authors examined the titles and abstracts of these publications before diving into the entire text of the 67 articles that came up in a search for "Circular Economy" AND "Sustainability." To guarantee the quality of our selection, we focused on peer-reviewed scientific journal articles written in English, but we also chose a small number of significant publications from non-profits and international organizations (such as the OECD and the Ellen MacArthur Foundation). Because Circular Economy is a new field of study, and its connection with Sustainability has not been thoroughly addressed by peer-reviewed papers, it deemed acceptable to include non-peer-reviewed studies. After going through our first sample, we went through the process of finding and scanning articles that were mentioned in the ones we went over, and then adding the ones that were relevant to our sample. The choice to include or exclude articles was made after reviewing their titles,

contents, and abstracts to see whether they might offer fresh insights into the phenomena under investigation.

In other words, relevant articles were classified as those that might provide new insight into the examined concepts' similarities, differences, or connection types. Furthermore, whenever a new article was added to the sample, we would examine its references for new inputs, and this process would continue until new papers were no longer adding substantially to the answers to our research questions. Finally, using content analysis methods, we carefully analyzed and compared all of the articles in our sample. This technique was used to analyze textual communication. A summary of the most important parallels between sustainability and the Circular Economy. Both concepts emphasize intra- and intergenerational obligations driven by environmental threats, as well as the need of expanding public agency and debate on the various and coexisting development paths. They also have a distinctly global viewpoint, emphasizing issues on a global scale that need shared responsibility and the importance of multi-agent coordination.

Both ideas often use multi- or multidisciplinary methods to better incorporate non-economic factors into development, and they generally conclude that system design and innovation are the primary drivers for achieving their goals. They also discuss the significance of diversity in taking advantage of different possibilities for wealth generation, in addition to possible costs and dangers. Both ideas see stakeholder collaboration as not just desirable, but also necessary to achieve their goals. In addition, the literature has a variety of objectives connected with the Circular Economy and sustainability. While most authors agree that the Circular Economy aims for a closed loop, eliminating all resource inputs, waste, and emission leakages, the sustainability goals are open-ended, and different authors address a wide range of objectives, which shift depending on the agents considered and their interests.

The primary motive behind each idea reflects this as well. Sustainability motivations are founded on previous trajectories, are dispersed and varied, and often incorporate reflexivity and adaptively to many settings. The Circular Economy, on the other hand, is primarily driven by the fact that circular rather than linear make-use-dispose processes may better use resources and decrease waste and emissions. Furthermore, the necessary modifications have different timelines for each idea. Because objectives may be continuously changed or reframed throughout time, the temporal component for sustainability is open-ended.

In contrast, there are theoretical and practical limitations to optimization and implementation that may set the bar for the effective completion of a Circular Economy implementation within a geographical unit. Finally, there is a significant distinction between the two ideas when it comes to the sense of obligations. In the sustainability debate, responsibilities are shared but not precisely defined, although the research suggests that private industry, regulators, and politicians are mainly responsible for the transition to a circular economy. Furthermore, the commitments, objectives, and interests that drive the usage of the words are vastly different.

The emphasis seems to be on stakeholder interest alignment for long-term sustainability, while the Circular Economy prioritizes financial benefits for businesses and reduced resource use and pollution for the environment. He points to a number of issues that the circular economy entails,

such as the technological impossibility of a closed circle in the face of rising demand or issues with the energy needed to recycle resources. For certain minerals, this energy and its impact may be greater than the total environmental impact of obtaining the material from traditional methods such as mining. As a consequence, the circular economy may increase greenhouse gas emissions and, as a result, hasten global warming. As a result, a more pragmatic approach is required, with material efficiency and other ways of decreasing inputs taking precedence over the circular economy.

Furthermore, since many Circular Economy conceptualizations seem to leave out significant portions of the social dimension, emphasize economic advantages, and simplify the environmental viewpoint, the idea may be more appealing to policymakers and private businesses than competing alternatives. Because attention and resources are diverted from more comprehensive and holistic methods, this may be problematic for the transition to a more sustainable economic structure. We believe that the specified subset connection is sufficient to solve this problem. Because it does not impose an inherent hierarchy between the Circular Economy and other sustainability methods, it not only promotes variety and adapts to various settings, but it also enables the integration of circular with complementing solutions. The sustainable business model is one example of this.

### 3. CONCLUSION

First, we describe the Circular Economy as a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops, as defined by important literature. Long-term design, maintenance, repair, reuse, remanufacturing, refurbishment, and recycling are all options. Second, we define sustainability as the harmonious coexistence of economic growth, social inclusion, and environmental resilience for the benefit of present and future generations. We discovered that the Circular Economy is a hot subject that is generating a lot of study. While the subject has European origins, most of the current rise has come from Chinese writers after the introduction of regulatory restrictions in their nation. Scholars from China and Europe, in particular, have taken up this subject, and the number of publications has exploded. This may be due to a surge in interest from businesses and politicians in these areas. This article summarizes the major conceptual similarities and differences between sustainability and the circular economy in order to address the first research question - What are the main conceptual similarities and differences between sustainability and the circular economy?

Despite the fact that they are often employed in comparable situations, the similarities and distinctions between these ideas have not been explicitly stated in the literature, obscuring their conceptual contours and limiting their effectiveness. This article, we think, adds not only to conceptual growth but also to a better understanding of the interests, motives, and practical consequences of their usage in the public and private sectors by shining light on their disparities.

In addition, the study addressed the second research question: How does the Circular Economy connect to sustainability conceptually? In the literature, we discovered that the Circular Economy is regarded as a prerequisite for sustainability, a positive relationship, or a trade-off. There are eight distinct connections that may be deduced from this. Based on the research, this article

contends that the subset connection seems to be suitable for maintaining variety while also illuminating the broad range of complementary options available to managers and policymakers.

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