

REVIEW PAPER

The Circular Economy: Conceptual Definition and Framing for Socially Responsible Stakeholders

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ABSTRACT

The paper provides a definition of the circular economy, which could serve as a foundation for taking further actions to enhance the organizational and management mechanisms of the circular economy's development, in particular through the formation of strategies for the transition to the circular economy both at the level of the state and at the level of the territorial community and individual enterprise as a social responsible stakeholders. This study performs a meta-analysis of the scientific publications indexed by the Scopus database, published from 2001 to 2023 by the keyword "circular economy", taking into account interdisciplinary approach. Expert opinions and assessments were obtained through an expert survey, which included 300 territorial communities from all regions of Ukraine as one of the key stakeholder groups. Circular economy is understood as a concept that aims to create or develop economic relationships through the operation of sustainable business models based on business processes with an extended product life cycles, socially responsible behavior at micro, macro, and meso levels within the framework of planetary boundaries. The proposed definition is suitable for use by various groups of stakeholders, as it emphasizes that the development of a circular economy is only possible through the interaction of business, individual citizens, and the state.

HIGHLIGHTS

- ❶ The proposed definition of "circular economy" is suitable for use by various groups of stakeholders.
- ❷ The circular economy requires systemic solutions and actions from all groups of stakeholders.
- ❸ Socially responsible stakeholders playing a critical role in developing circular economy.
- ❹ Expert opinions and assessments were obtained through a survey involving 300 territorial communities.

Keywords: Circular economy, stakeholders, social responsibility, strategy, sustainable development

In the civilized world, in the 21st century, it would seem that only by working together towards the UN's sustainable development goals, can countries hope to develop practical tools that will enable them to stay within the planetary boundaries. The circular economy plays a significant role in this effort. Unfortunately, nowadays, it became clear that not everyone on the planet is thinking about the

future of generations in the context of sustainable development.

In the conditions of martial law and post-war

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reconstruction, Ukraine faces very difficult challenges in overcoming the aggressor and rebuilding the country, which is of primary importance. However, Ukraine cannot deviate from the path of implementing the principles of the circular economy. There are many problematic issues to be addressed at the level of concept formation, legal regulation, and the level of perception and implementation at the household level, as well as the basis of business models.

“Nowadays People work with the circular economy every day ... but many of us still have questions! A simple question that we often hear is what is the circular economy?” (Peck P. *et al.* 2020). At the same time, neither citizens, representatives of business structures, nor persons who could influence the development of the circular economy at the level of public administration often know the answer to such a question. Or often such an understanding is quite narrow, which is characteristic of different groups of stakeholders based on their short-term interests. However, scientists from various fields of knowledge are increasingly trying to answer the question of revealing the essence of the circular economy, its importance in achieving the goals of sustainable development, and other theoretical and practical aspects. Our review of the historical prerequisites for the development of the circular economy, as well as the justification of the need to establish interaction between stakeholders to achieve common goals (Maksymiv *et al.* 2021; Maksymiv, 2016) shows that, despite the emergence of its main ideas back in the distant 1960s, interest in the circular economy has been growing over the last decade since 2015, among conscious citizens and businesses, in international politics, and in scientific circles, and a certain vision of the essence of the concept is being crystallized. This is due to the understanding by various groups of stakeholders of the practical possibilities of the circular economy’s contribution to sustainable development, especially in achieving such sustainable development goals as 2, 7, 8, 9, 11, 12-15 and 17 as a manifestation of socially responsible behavior.

Since embarking on the irreversible path of joining the EU, Ukraine needs to implement the positive experiences of EU countries. This requires addressing various organizational and management problems both theoretically and practically. *The*

purpose of this article is to develop a concept of the circular economy, which can serve as a foundational definition for future actions aimed at improving the organizational and management mechanisms for circular economy development. This includes the creation of strategies for transitioning to a circular economy at the state, territorial community, and individual enterprise levels, with socially responsible stakeholders playing a critical role.

MATERIALS AND METHODS

This study utilized a systematic review approach, where scientific publications were collected for analysis by searching Scopus using the keyword “circular economy”. Between 2021 and January 2023, a total of 13,165 relevant publications was found. During the initial stage of processing these sources, the search was not restricted by publication type or specialty. The concept of the circular economy as a sustainable development approach is considered interdisciplinary. As such, Scopus search results indicate that scientists across various “Subject areas” are interested in this issue. The largest proportion of publications are present in Environmental Science; Engineering; Energy; Business, Management and Accounting, and Social Sciences. For our study, the focus is on articles with an economic dimension. This may be a limitation of the study, but it will enable us to identify the core of the concept, which, in our opinion, is sustainable circular business models.

In order to gather expert opinions and assessments in the field of public management of the circular economy, the results of an expert survey conducted with the participation of 300 territorial communities from all regions of Ukraine. Specifically, the survey covered territorial communities from the following regions: Vinnytsia (6 communities), Volyn (5 communities), Dnipropetrovsk (27 communities), Donetsk (16 communities), Zhytomyr (8 communities), Zakarpattia (9 communities), Zaporizhia (7 communities), Ivano-Frankivsk (18 communities), Kyiv (11 communities), Kirovohrad (12 communities), Luhansk (6 communities), Lviv (21 communities), Mykolaiv (14 communities), Odesa (18 communities), Poltava (19 communities), Rivne (5 communities), Sumy (12 communities), Ternopil (9 communities), Kharkiv (9 communities), Kherson (15 communities), Khmelnytsky (12 communities),

Cherkasy (21 communities), Chernivtsi (8 communities), and Chernihiv (12 communities). The expert survey aimed to verify scientific hypotheses and formulate proposals and recommendations for improving the mechanism of strategic public management of Ukraine's economic and energy security, as well as propose ways to enhance the organizational and management mechanism for developing a circular economy. The online questionnaire was completed by representatives of different types of territorial communities in Ukraine: 39.3% from urban communities, 35.7% from rural communities or voluntary associations of residents from several villages, and 25% from village communities. The survey was concluded in January 2022.

It should be noted that a limitation of the research in this context is that, a year after the beginning of Russia's full-scale war of aggression against Ukraine, certain territorial communities in the east, south, and north of Ukraine suffered terrible destruction. It was assumed that this will change the perspective of strategic steps in the development of the circular economy in the future, including the need to find ways to manage military waste.

RESULTS

Determining the essence and goals of the circular economy is particularly important in the context of using these principles as a basis for developing strategies for transitioning to a circular economy, both at the state and territorial community levels, as well as individual enterprises' level. This is especially relevant for countries seeking to join the European Union, as they must develop the most rational ways to achieve circularity. With the development of the European Green Deal, the EU has set ambitious strategic goals, such as achieving a "net zero emission target for 2050 for greenhouse gas emissions, and the Commission has proposed increasing the emission reduction target for 2030 from 40% to 55%" (The European Green Deal, 2019), a Circular Economy Action Plan (A new Circular Economy Action Plan, 2020) considers this the main building block in the transition process.

According to the European Commission, the current circular material use rate in the EU is 11.8 % (European Commission, 2023). For Ukraine, such data are not available, but it is evident that

this indicator is much worse. Also, the level of innovative enterprises is significantly lower than in the countries of the European Union (Humeniuk *et al.* 2022). The relevance of searching for ways to develop and practically implement the circular economy is connected not only to a significant ecological and social role but also to an economic effect. Studies show that "applying circular economy principles across the EU economy has the potential to increase EU GDP by an additional 0.5% by 2030, creating around 700,000 new jobs" (ICF, 2018). There is a clear business case for individual companies too: since manufacturing firms in the EU spend, on average, about 40% on materials, closed-loop models can increase their profitability while shielding them from resource price fluctuations (A New Circular Economy Action Plan, 2020).

The European Union is not only responsible for developing strategies and action plans, but also for providing significant funding for scientific research, including in the area of circular economy (as evidenced by a search for the keyword "circular economy" in Scopus). As shown in Fig. 1, the European Commission is the largest funder of circular economy research, providing support through its own institution as well as through projects within the Horizon 2020 program. Chinese scientific foundations provide somewhat less funding (Fig. 1), while the Foundation for Science and Technology in Portugal is ranked fifth.

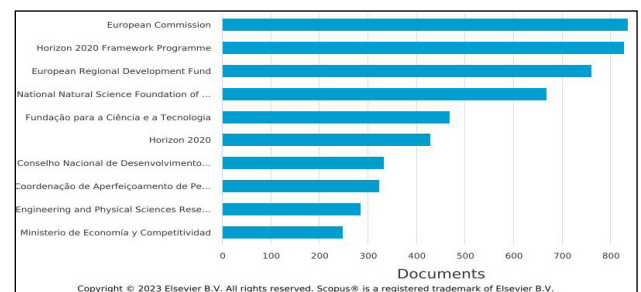


Fig. 1: Search results for the keyword "circular economy" according to funding sources (Scopus database, as of 01/29/2023)

Search within fields: "keywords" in the Scopus database by the definition of "circular economy" gives a result of 13,165 publications (Not Limited to type of publication) (Fig. 2). There has been a sharp increase in publication activity since 2016, which is likely related to the issue's actualization in accordance with the Paris Agreement. The Paris Agreement is a legally binding international treaty

adopted by 196 countries on climate change, and was adopted in Paris on December 12, 2015. The analysis shows that the concept of the circular economy is of interest to scientists in various subject areas, with the most publications appearing in descending order of: Environmental Science; Engineering; Energy; Business, Management and Accounting; Social Sciences; Materials Science; Computer Science; Economics, Econometrics and Finance; Chemical Engineering; Chemistry; Agricultural and Biological Sciences; Decision Sciences; Earth and Planetary Sciences; Mathematics; Physics and Astronomy; Biochemistry, Genetics and Molecular Biology; Medicine; Arts and Humanities; Pharmacology, Toxicology and Pharmaceutics; Immunology and Microbiology; Multidisciplinary; Psychology; Health Professions; Nursing; Veterinary; Neuroscience; and Dentistry. The implementation of a circular economy requires the involvement of specialists from various fields. This is because it can be achieved not only through organizational and economic capabilities, but also through technological and technical means.

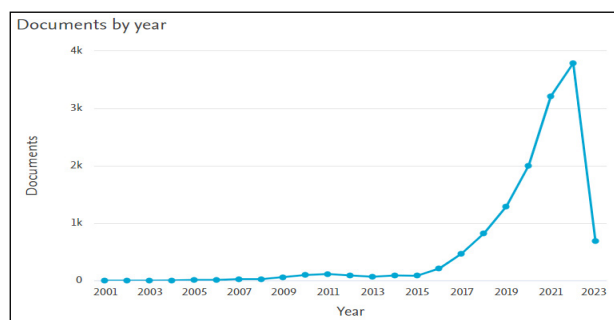


Fig. 2: Search results for the keyword ‘circular economy’ in the Scopus database from 2001 to 2023 in all spheres (a total of 13,165 document results)

The growing interest of scientists in this problem is justified, and over time, it will make a positive impact on improving the circularity of the economy. Unfortunately, as of now, there are negative trends. The analysis of the Circularity Gap Report for five years (Circularity Gap Report, 2022) shows that the linear economy consumes 100 billion tonnes of materials per year and wastes over 90% of it. On the flip side, only 8.6% make it back into our economy. Furthermore, the situation is worsening, with global circularity dropping from 9.1% in 2018 to 8.6% in 2020. Negative trends in climate change have also been established, for instance, as well as the world having warmed 1.1-degrees since the pre-industrial era, society also breached boundaries

for extraction, consuming 100 billion tonnes of resources (Circularity Gap Report, 2022). Such a situation should encourage more active actions and joint management decisions at all levels: state, community, business, and individuals.

“21 Circular solutions for every business, city, and nation” have been developed based on a 5-year research on the power of the circular economy in meeting global needs, presented in the Circularity Gap Report (Circularity Gap Report, 2022). It is recommended to apply these solutions based on the country’s classification group, which includes the following country profiles: “Build”, “Grow”, and “Shift”. This approach is influenced by the peculiarities of functioning, the level of economic development, regulatory, and other factors. This highlights the necessity of developing country-specific approaches to circular economy development, particularly in Ukraine. The Circularity Gap Report states that “Whilst no two countries are the same, there are still obvious similarities between some of them. Three country profiles were devised which can allow us to see key and common themes for each profile and to guide countries in accessing the most impactful circular strategies for their context” (Circularity Gap Report, 2022). The higher the level of GDP per capita of the country, the higher the level of socially responsible behavior (Shkromyda et al. (2021)), and accordingly, it can be assumed that the level of circularity of the economy. By adding additional parameters, as presented in Table 1, the differences between country profiles can be further explored.

In countries with “Build” country profiles (see Table 1), agriculture dominates as an important sector that needs to transition to circular business models. These countries are also currently in the process of building basic infrastructure. It is worth noting that these countries are home to approximately 46% of the world’s population.

Countries with country profiles “Grow” representing 37% of the world’s population, serve as global production centers and are the largest agricultural producers. Their infrastructure is actively developing, and they consume 51% of resources while generating 41% of emissions.

As for the countries with country profiles “Shift” where approximately 17% of the world’s population

Table 1: Classification of countries by country profiles and parameters that characterize them

Parameters	Country profiles		
	Build (46% of world population)	Grow (37 % of world population)	Shift (17% of world population)
Countries	Asian countries, countries in Sub-Saharan Africa and some small island states (India, Bangladesh, Ethiopia, Nigeria, Pakistan and the Philippines)	Latin America, Northern Africa countries, countries in Eastern Europe (including Ukraine), the Caucasus and Central Asia, and larger Asian countries. The largest countries in this group are Brazil, China, Egypt, Indonesia, Mexico and Vietnam	Countries in the Middle East, the global North, and Australia. The larger ones are member countries of the European Union, the United States of America, Argentina and Japan
Publication activity based on the Scopus database (top 10)	India	China, Brazil	Italy, Great Britain, Spain, United States of America, Germany, Netherlands, Portugal
Percent of world GDP (top 10)	India	China, South Korea	USA, Japan, Germany, UK, France, Italy, Canada
Greenhouse gas emissions - Country rankings (top 10)	India, Iran	China, Brazil, Indonesia, Russia	USA, Japan, Germany, Canada
Industry value added, billion USD, 2021 – top 10	India	China, Russia, South Korea, Indonesia, Mexico	Germany, UK, France, Italy
Population size, in millions, 2021 – top 10	India, Pakistan, Nigeria, Bangladesh	China, Indonesia, Brazil, Russia, Mexico	USA

Source: Formed by the authors using the data <https://circularity-gap.world/>; World bank: <https://www.theglobaleconomy.com/rankings>; <https://www.scopus.com/search/form.uri?display=basic#basic>

resides, they consume 31% of global resources and generate 43% of emissions. Fig. 3 illustrates the top 10 countries in terms of publishing activity, in comparison to Ukraine. The leading countries are Italy, China, Great Britain, Spain, the United States of America, Germany, India, the Netherlands, Portugal, and Brazil. These are primarily countries with “Shift” country profiles, where both scientists and the government are actively seeking solutions to address the issue (see available strategies).

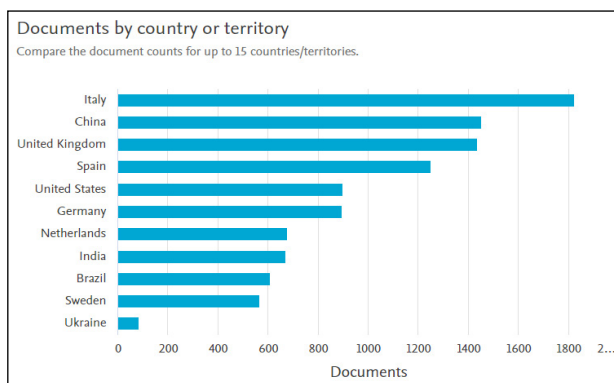


Fig. 3: Search results for the keyword “circular economy” according to the affiliate state (top 10 compared to Ukraine), select year range: from 2001 to 2023

Ukraine falls under the “Grow” country profile, but little attention has been given to the concept of circular economy in both theoretical and practical terms. This lack of focus is evident not only in publications cited in Scopus (81 publications in the period from 2004 to 2023, this is only 0.62%), Web of Science, and Scholar, but also at the legislative level. In this paper, the aim is to provide conceptual clarity on the development of the circular economy in Ukraine.

Unfortunately, Ukraine has not developed strategies for the development of the circular economy at the legislative level, similar to those of leading countries in this field. The only mention of the circular economy in Ukrainian legislation is in the National Economic Strategy for the period until 2030 (Strategy, 2023), which lists the decarbonization of the economy (increasing energy efficiency, developing renewable energy sources, promoting the circular economy, and synchronizing with the “European Green Deal” initiative) among the guidelines, principles, and values in economic policy (Strategy, 2023). However, the Strategy does

not provide a definition of the circular economy, and it lacks specific expected results for checking the implementation of the reference point of “developing the circular economy”. This situation hinders the transition to a circular economy, despite the declared need for it. This finding is also supported by an expert survey conducted among 300 representatives of territorial communities in Ukraine, who are decision-makers in the field of circular economy.

The expert survey was conducted to assess the effectiveness of strategic public management of economic and energy security in Ukraine, as well as the effectiveness of waste management in different regions of Ukraine (excluding the temporarily occupied Crimea). In response to the question, “Does the development strategy of your territorial community provide for development taking into account the principles of the circular economy?” only 22.3% of respondents answered affirmatively, while 69.3% of territorial communities answered “no”, and others indicated that the strategy is still under development. However, the majority of respondents who answered “no” plan to take into account the principles of the circular economy in the future. Despite the positive response of 22.3% of respondents, an analysis of the strategies for the development of territorial communities shows that very little attention is paid to the issue of the circular economy, and the understanding of this process and the role of communities is often limited and heterogeneous.

Scientists from various specialties, including representatives from different countries’ profiles, have noted the lack of a universally recognized, practically oriented definition of the circular economy. They write that “The field of CE is not a clearly defined academic discipline with paradigmatic features; instead, it is addressed by scholars rooted in various schools of thought, each with their specific focus and disciplinary framings” (Reike *et al.* 2018). At the same time, as noted by Korhonen *et al.* (2018), there are distinct differences, separations, and exclusions between research communities engaged in circular economic research, for example, between scholars in engineering and business (Korhonen *et al.* 2018).

In scientific publications devoted to the circular economy, it is not often possible to identify a

specific definition of the circular economy, those that have been identified are listed in Table 2. Circular economy mainly emerges in the literature through three main “actions”, i.e. the so called 3R’s (Reduction, Reuse and Recycle) Principles (Ren, 2007; Reh, 2013; Feng and Yan, 2007; Sakai *et al.* 2011; Lett, 2014), and in more recent studies through the 8R’s Principles: Reduce, Refuse, Reuse, Repair, Regift, Recover, Recycle, and Respect.

DISCUSSION

McCarthy *et al.* believe that the definition of the circular economy should be defined by its key characteristics. This approach to defining the circular economy is also adopted by the OECD. The key characteristics include increasing the volume of repairing and reproducing products, increasing the amount of secondary processing of materials, designing stronger and more durable products, increasing material productivity, improving asset utilization, and changing consumer behavior. The predicted consequences of these features are a reduced demand for new goods (and primary materials), the use of secondary raw materials in production, the expansion of the secondary sector, the production of more durable and repairable products, and the expansion of the sharing and service economy (McCarthy *et al.* 2018).

Despite the relevance of CE in the current political and economic debate, the concept of CE remains open to interpretation (Morseletto, 2020). Blomsma said that the various strategies aimed at prolonging resource use that are gathered under the banner of the circular economy are not individually new. If the concept offers some novelty, it is by providing a new framework for these strategies as well as the ability to connect them (Blomsma *et al.* 2017)

Analysis of scientific publications by scientists, regulatory documents from various countries, and consulting reports from Deloitte, EY, and McKinsey Company show that the “circular economy” is defined as an “alternative economic system”, “economic model”, “concept”, “innovative business process”, “model of production and consumption”, “sustainable development initiative”, etc. The circular economy has also been described in various ways, such as a patch adaptable to changing circumstances (Fitch-Roy *et al.* 2019), a vague narrative (Niskanen *et al.* 2020), a horizon

Table 2: Interpretation of the essence of the concept of “circular economy” in various sources

Nº	Definition	Author, year
1	Circular economy is a regenerative production-consumption system that aims to maintain extraction rates of resources and generation rates of wastes and emissions under suitable values for planetary boundaries, through closing the system, reducing its size and maintaining the resource's value as long as possible within the system, mainly leaning on design and education, and with capacity to be implemented at any scale.	Suárez-Eiroa B <i>et al.</i> (2019)
2	The circular economy is a model of economic development aimed at supporting sustainable growth without harming the environment. This model increases overall efficiency instead of reducing inefficiency and is restorative, regenerative, and holistic. The circular economy is a relatively new system of operation that aims to “close the loop” and eliminate waste from the system.	Zvarych I. Ya (2019)
3	Circular Economy is a sustainable development initiative with the objective of reducing the societal production-consumption systems' linear material and energy throughput flows by applying materials cycles, renewable and cascade-type energy flows to the linear system.	Korhonen J. <i>et al.</i> (2018)
4	The idea behind the circular economy is that companies have a responsibility to uphold the environmental and sustainable values of society and must respond to a broad set of stakeholders rather than just their closest shareholders.	Lahti T (2018)
5	Circular Economy is a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling. Second, we define sustainability as the balanced integration of economic performance, social inclusiveness, and environmental resilience, to the benefit of current and future generations.	Geissdoerfer M <i>et al.</i> (2017)
6	A circular economy describes an economic system that is based on business models which replace the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes, thus operating at the micro level (products, companies, consumers), meso level (eco-industrial parks) and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations	Kirchherr J (2017)
7	“Circular” economy is a field and at the same time a form of natural and social development, in which the reproduction of resources, information and energy is ensured on an innovative basis, mechanisms and tools for their repeated (cyclical) involvement in the system of economic relations are formed and developed.	Mishenin Ye <i>et al.</i> (2017)
8	Circular economy additionally suggests an economic model regulated according to the laws of the nature (networks of interacting components, exchange of material and energy flows, recycling patterns and, environmental mimicry).	Ghisellini P. <i>et al.</i> (2016)
9	The concept of circular economy (CE) has been proposed as a promising economic avenue for addressing current environmental and socio-economic issues and creating a more sustainable society	Witjes S. <i>et al.</i> (2016)
10	Model of production and consumption of goods through closed loop material flows that internalize environmental externalities linked to virgin resource extraction and the generation of waste (including pollution)	Sauvé S <i>et al.</i> (2016)
11	Circular economy is an economy where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimized	European Commission (2015)
13	The circular economy is considered as an economic model in which both the results and the own processes of resource provision and production are planned and organized in such a way as to maximize the well-being of people and the efficiency of the functioning of ecosystems. The ultimate goal of CE is to achieve a fully renewable economy and natural environment.	Murray A. <i>et al.</i> (2015)

15	Circular Economy an industrial system that is restorative or regenerative by intention and design. It replaces the 'end-of-life' concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models"	Ellen MacArthur (2012)
16	The circular economy is essentially an environmental change in response to the global need for an ecological economy, which requires human economic activities that are consistent with the three Rs principles: Reduce, reuse, and recycle	Ying, J. <i>et al.</i> (2012)
17	Circular economy is a generic term for the reducing, reusing and recycling activities conducted in the process of production, circulation and consumption	CCICED (2008)

(Lazarevic *et al.* 2017), and a floating or empty signifier (Niskanen *et al.* 2020; Valenzuela *et al.* 2017) lacking any substance of its own. However, the latter statement is disagreed because our analysis of various scientific sources (see table 2) and strategies from different countries reveals that the concept of the "circular economy" is filled with the content of processes and practical steps for implementation. It is often a list of tasks that are achieved in the case of a transition to circular business models.

To better capture the essence of the circular economy in a concise way (compared to the analyzed definitions), it is necessary to specify the need for building business models within planetary boundaries. The concept of planetary boundaries represents a set of nine processes that govern the stability and resilience of the Earth system, within which humanity can continue to develop and prosper for generations to come. Crossing these boundaries increases the risk of large-scale abrupt or irreversible environmental changes. A group of 28 global scientists have proposed quantitative planetary boundaries that provide a framework for sustainable development and warn against the risks of exceeding these limits.

Therefore, *the circular economy is a concept that aims to create or develop economic relationships through the operation of sustainable business models based on business processes with an extended product life cycle, socially responsible behavior at the micro, macro, and meso levels within the framework of planetary boundaries.*

The circular economy, both at the stage of transition to it and at the stage of further development, requires systemic solutions from all groups of stakeholders. As interconnected participants in economic relations, such stakeholders can be summarized into 3 groups:

1. **Business entities:** Entities that seek to

function within the circular economy must expand the lifecycle of products, improve supply chains, and implement the integrated use of raw materials, as well as the use and production of renewable energy sources. They should minimize waste generation and create prerequisites for easy reuse, recycling, or repair of products during the product design phase. This will minimize the negative impact on the environment and achieve the sustainable development goals. Within a circular economy, complex resource use is possible both within one enterprise and within different business entities, along with through the intermediate link - the consumer, who must be "included," that is, interested in participating in the circular economy (Maksymiv *et al.*, 2021).

2. **Public administration bodies:** The transition to a circular economy requires the systematic work of public administration bodies, starting from the formation of a state strategy and legislative regulation, to financing scientific research, and implementing educational work to prepare society to become a socially responsible participant in economic relations.
3. **Citizens:** Each citizen's behavior as part of economic relations should be socially responsible to ensure the successful development of the circular economy. This includes high-quality sorting of household waste, eco-conscious consumption, and the use of renewable energy sources.

CONCLUSION

The proposed in this paper definition is suitable for use by various groups of stakeholders because it emphasizes the possibility of developing a

circular economy only in the case of interaction between businesses, individual citizens, and the state. Enshrining such a definition at the legislative level can become a conceptual basis for working out practical steps towards the development of a circular economy. The proposed definition also clearly emphasizes the priority role of businesses and socially responsible behavior. In contrast to existing approaches that characterize the circular economy as an “alternative economic system”, “economic model”, “concept”, “innovative business process”, “model of production and consumption”, or “sustainable development initiative”, it is described through the broader concept of “economic relationships” as mutual relationships between subjects of the economy exchanging resources and products

In the proposed definition, special emphasis is placed on socially responsible behavior as the basis for the circular economy. This is because socially responsible behavior is considered to be the main driving force behind the development of the circular economy in practical terms, starting from individual citizens or representatives of specific territorial communities, to legal entities, including businesses and various types of state institutions. Furthermore, the circular economy should be regarded as one of the practical means of achieving sustainable development goals by the state, territorial communities, businesses, and citizens. Our proposed definition emphasizes the mutual roles and efforts of stakeholders in promoting the development of the circular economy, with businesses playing a pivotal role.

To address the need for practical algorithms in circular business models, future research should focus on developing tools to support decision-making by both business entities and public administration bodies. This includes formulating necessary accounting and analytical support as the basis for the formation of an array of statistical data on waste management of various types and directions of use.

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