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ANALYSIS OF THE EUROPEAN EXPERIENCE OF IMPLEMENTING THE CIRCULAR ECONOMY PARADIGM AT ENTERPRISES IN THE CONDITIONS OF POST-WAR RECOVERY

АНАЛІЗ ЄВРОПЕЙСЬКОГО ДОСВІДУ ІМПЛЕМЕНТАЦІЇ ПАРАДИГМИ ЦИРКУЛЯРНОЇ ЕКОНОМІКИ НА ПІДПРИЄМСТВАХ В УМОВАХ ПІСЛЯВОЄННОГО ВІДНОВЛЕННЯ

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Гавриш Ю.О., Погребняк А.Ю., Симоненко А.Л. Аналіз європейського досвіду імплементації парадигми циркулярної економіки на підприємствах в умовах післявоєнного відновлення. Науково-методична стаття.

Ця стаття аналізує європейський досвід у впровадженні циркулярної економіки післявоєнного періоду. Вона досліджує вплив соціально-економічної ситуації та ринкових умов на успішність імплементації, зосереджуючись на рівні розвитку економіки, свідомості населення, інфраструктурі, підтримці уряду, конкуренції, інноваціях та міжнародній співпраці. Стаття вказує на необхідність комплексного підходу, систем контролю та моніторингу, а також впровадження ефективних механізмів для забезпечення відповідності підприємств циркулярним принципам. Вона є цінним джерелом інформації для дослідників, урядових органів, бізнесу та громадськості, які цікавляться реалізацією циркулярної економіки післявоєнного відновлення.

Ключові слова: циркулярна економіка, післявоєнне відновлення, імплементація, європейський досвід

Havrysh Yu.O., Pogrebnyak A.Yu., Symonenko A.L. Analysis of the European Experience of Implementing the Circular Economy Paradigm at Enterprises in the Conditions of Post-War Recovery. Scientific and methodical article.

This article analyzes the European experience in implementing a circular economy in the post-war period. It examines the impact of socioeconomic and market conditions on implementation success, focusing on the level of economic development, public awareness, infrastructure, government support, competition, innovation, and international cooperation. The article indicates the need for an integrated approach, control and monitoring systems, as well as the implementation of effective mechanisms to ensure compliance of enterprises with circular principles. It is a valuable source of information for researchers, government agencies, businesses and the public interested in implementing a circular economy for post-war recovery.

Keywords: circular economy, post-war recovery, implementation, European experience

The paradigm shift from a linear to a circular approach in the economy is becoming increasingly important for industrial enterprises due to growing demands for sustainable development and environmental protection. This is particularly crucial in post-war recovery, when the country's economy has been significantly damaged. The implementation of a circular economy can be a vital tool for enhancing the competitiveness and efficiency of industrial enterprises in post-war recovery conditions and helping the country effectively utilize its resources. Therefore, the general problem statement and its connection to important scientific or practical tasks can be formulated as follows: the main problem lies in the fact that post-war recovery is typically accompanied by increased production and consumption, which can lead to waste generation and environmental pollution. This necessitates the implementation of a circular economy that involves maximum waste recycling and reuse to reduce resource costs and negative environmental impacts [2].

Furthermore, this problem has significant scientific and practical relevance as there is a need to study the European experience of implementing the circular economy paradigm in enterprises. This will help understand which approaches and tools can be successful in post-war recovery, which business models can ensure sustainable development, and which markets can become new opportunities for waste processing. Such analysis will assist in developing strategies to reduce the negative impact of the recovery process on the environment and increase resource efficiency.

Analysis of recent researches and publications

Regarding research in this field, it is the subject of active studies in many countries, including Europe, where circular strategies and national roadmaps for circular economy development have been developed. For example, the European Union has formulated the European Circular Economy Action Plan, which proposes specific measures to facilitate the transition to a circular economy in Europe. Additionally, numerous academic and scientific institutions are engaged in circular economy research, including university institutes, private research centers, and research groups. However, since research in this field is conducted in different countries and various scientific disciplines, naming specific researchers who are the most active in this area can be a challenging task. Nevertheless, notable researchers working in the field of circular economy include Ellen MacArthur, Geraldine Brennan, Peter Lacy, Kenneth McGinty, and Katy Tzouma. These researchers have extensive experience in the field of circular economy and actively contribute to its development and implementation in business and other economic sectors [1].

However, an analysis of recent research and publications that initiated the solution to this problem and the authors relied on when writing the article showed that recent studies and publications indicate significant interest in implementing the circular economy paradigm in post-war recovery conditions. For example, in a study published in the "Journal of Cleaner Production," the authors analyzed the experiences of Germany and the Netherlands in implementing the circular economy in post-World War II recovery conditions. They concluded that the circular economy can help reduce waste and environmental pollution, as well as improve resource efficiency. Other studies published in "Sustainability," "Environmental Science and Pollution Research," and "Resources, Conservation and Recycling" also investigated the implementation of the circular economy in different countries and sectors, including enterprises undergoing post-war recovery. They indicate that implementing the circular economy can enhance the competitiveness of enterprises and ensure the sustainability of their development.

The article is based on the aforementioned research to discuss the implementation of the circular economy paradigm in enterprises in post-war recovery conditions and assess various approaches and tools that can be most effective. One of the previously unresolved parts of the overall problem is the need to develop specific strategies for implementing the circular economy paradigm in enterprises in post-war recovery conditions. Additionally, it was important for me to study the impact of factors such as the socio-economic situation and market conditions on the success of implementing the circular economy in enterprises. The issues of creating national and international standards and rules for implementing the circular economy and the need to develop effective mechanisms for monitoring and controlling the implementation of these rules also remain unresolved. The issue of mobilizing financial resources to support the implementation of the circular economy in enterprises in post-war recovery conditions is important and has not been adequately researched yet. Resolving these unresolved issues can make a significant contribution to further development of the implementation of the circular economy paradigm in enterprises in post-war recovery conditions.

The aim of the article is "Analysis of European experience in implementing the circular economy paradigm in enterprises in post-war recovery conditions" are to review scientific and practical works that highlight the experiences of European countries in implementing the circular economy paradigm in post-war enterprises and identify the peculiarities of successful implementation of the circular economy in post-war recovery conditions, including studying the impact of the socio-economic situation and market conditions on the success of implementation. The article also aims to identify previously unresolved issues and problems related to the implementation of the circular economy in enterprises in post-war recovery conditions and propose possible ways to address them.

The main part

The overall goal of the article is to contribute to the further implementation of the circular economy paradigm in businesses in the context of post-war recovery and promote sustainable innovation processes in the economy. Let's start with the fact that European countries are leaders in implementing the circular economy paradigm, so there have been numerous scientific and practical works highlighting their experience in this field. Here are a few examples of such works:

"Circular Economy in Europe – Developing the Knowledge Base" – a report prepared by the European Commission, describing various methods and strategies of the circular economy that have been successfully implemented in Europe. The report also provides examples of the implementation of these methods in different businesses.

"Circular Economy in the European Union: Policies and Implications" – a study conducted by the European Parliament, describing the policies and legislation that have been introduced in Europe to support the circular economy. The study also presents examples of successful implementation of these policies in businesses.

"Circular Economy and Green Growth in Denmark" – a report prepared by the Ministry of Climate, Energy, and Utilities of Denmark, describing the successful experience of implementing the circular economy in Danish businesses. The report also provides recommendations for policies and measures that can further support the implementation of the circular economy.

"The Dutch Economy in the Circular Transition" – a study conducted by the Netherlands Bureau for Economic Policy Analysis, describing the strategy of transitioning the Netherlands to a circular economy. The study presents examples of successful implementation of the circular economy at various levels, from national to local.

"Circular economy in practice: case studies from the Netherlands" – a collection of case studies prepared by Circle Economy, an organization promoting the development of the circular economy. The collection provides examples of successful implementation of the circular economy in businesses and local communities in the Netherlands.

"The circular economy in Sweden" – a study conducted by the Swedish Government Agency for Economic and Regional Growth, describing the successful experience of implementing the circular economy in Swedish businesses and local communities. The study also describes the policies and legislation that have been introduced in Sweden to support the circular economy.

"Circular Economy and the Transition to Industry 4.0" – a study conducted by the European Environment Agency, examining the relationship between the circular economy and Industry 4.0. The study provides examples of successful implementation of the circular economy in businesses that utilize advanced technologies to support circularity.

These scientific and practical works provide important information and recommendations for implementing the circular economy paradigm in businesses during the post-war period. Overall, the successful experience of European countries shows that the implementation of the circular economy can be achieved through the adoption of innovative technologies, legislative and policy initiatives, and support for local communities and businesses in promoting circularity.

Ukraine has also embarked on its path towards implementing the circular economy, as evidenced by the creation of the National Strategy for Circular Economy Development for 2021-2030, which was adopted in September 2021. This strategy outlines the main directions for the development of the circular economy in Ukraine, including the introduction of legislative changes, support for innovative businesses, development of local communities, and promotion of the sustainable use of natural resources. Like many other countries, Ukraine is interested in implementing the circular economy. Circular economy aims to efficiently use resources, reduce waste, and minimize negative environmental impacts. Ukraine is actively developing policies, legislation, and projects aimed at transitioning to a circular economy. Here are a few key steps that Ukraine is taking in this direction:

Development of legislative framework: Ukraine is working on the development and implementation of laws and regulations that support the principles of the circular economy, including waste management, resource efficiency, and sustainable production.

Promotion of innovation and entrepreneurship: Ukraine is fostering innovation and supporting entrepreneurial initiatives that promote circular business models, sustainable product design, and resource optimization.

Awareness and education: Ukraine is raising awareness among businesses, consumers, and the general public about the benefits and principles of the circular economy through educational campaigns, workshops, and training programs.

Collaboration and partnerships: Ukraine is actively engaging stakeholders from various sectors, including government, businesses, academia, and civil society, to foster collaboration and create synergies in the implementation of circular economy practices.

Pilot projects and demonstrations: Ukraine is initiating pilot projects and demonstrations to showcase successful examples of circular economy practices in different industries and regions, encouraging others to follow suit.

These steps and initiatives demonstrate Ukraine's commitment to the implementation of the circular economy and its recognition of the potential economic, environmental, and social benefits it can bring.

— **The Strategy of Green Economy.** Ukraine has developed a Green Economy Strategy until 2030, which involves transitioning to a circular economy and other green reforms. This strategy encompasses various sectors of the economy, including industry, agriculture, energy, water management, and more.

— **Legislative initiatives.** Ukraine is implementing a series of legislative initiatives aimed at supporting the circular economy. For example, the Law of Ukraine "On Waste" has been adopted, which establishes the legal framework for waste management and promotes their reuse and recycling.

— **Development of innovative projects.** Ukraine supports the development of innovative projects in the field of circular economy. For instance, the "Circular Ukraine" initiative has been established, which brings together businesses, government, and the public to promote circular economic development.

— **Expansion of recycling capabilities.** Ukraine is focusing its efforts on the development and expansion of recycling facilities and infrastructure for the efficient utilization of waste and secondary raw materials. This

- may include the construction of sorting lines, recycling plants, and the promotion of waste management technologies.
- Promotion of eco-design. Ukraine promotes the eco-design of products and the implementation of eco-design principles. This involves focusing on creating products with a maximum service life, easy disassembly, and recyclability.
 - Green Economy Strategy. Ukraine has developed a Green Economy Strategy until 2030, which includes transitioning to a circular economy and other green reforms. This strategy covers various sectors of the economy, including industry, agriculture, energy, water management, and more.
 - Legislative initiatives. Ukraine is implementing a range of legislative initiatives aimed at supporting the circular economy. For example, the Law of Ukraine "On Waste" has been adopted, which establishes the legal framework for waste management and promotes their reuse and recycling.
 - Development of innovative projects. Ukraine supports the development of innovative projects in the field of the circular economy. For instance, the "Circular Ukraine" initiative has been created, which brings together businesses, government, and civil society to promote circular economic development.
 - Expansion of recycling capabilities. Ukraine is focusing its efforts on developing and expanding recycling enterprises and infrastructure for the efficient use of waste and secondary raw materials. This may involve the construction of sorting lines, recycling plants, and the promotion of waste disposal technologies.
 - Promotion of eco-design. Ukraine supports the eco-design of products and the implementation of eco-design principles. This means focusing on creating products with a maximum service life, easy disassembly, and recyclability [3].

Therefore, the successful experience of European countries can be beneficial in implementing a circular economy in post-war period enterprises in Ukraine. Implementing a circular economy can help reduce costs on natural resources, enhance material efficiency, and decrease waste, leading to a reduced negative impact on the environment.

There are numerous examples worldwide, particularly in Europe, where the principles of the circular economy have been successfully implemented in industrial enterprises. This is why studying this experience and adapting it to post-war recovery can have great potential for achieving sustainable development and improving the economic situation in the country.

Challenges associated with implementing the circular economy paradigm in industrial enterprises may include difficulties in applying circular approaches in practical conditions, inadequate infrastructure for waste collection and recycling, insufficient market participation in the process, and the need for a shift in thinking and culture regarding resource utilization.

Analytical methods include developing efficiency models and implementing circular business models, assessing the economic and environmental effectiveness of circular approaches, and evaluating the relationship between resource renewability and economic resilience.

The advantages and disadvantages of implementing the circular economy concept in enterprises can be systematized in Table 1.

Table 1. Advantages and disadvantages of implementing the circular economy paradigm in enterprises

Advantages	Disadvantages
Reduction of production costs and use of resources through their reuse	The need for new technologies and investments for the implementation of the circular economy
Reduction of emissions of harmful substances and waste, which contributes to the preservation of the environment	Low awareness and understanding of the circular economy concept among the public, businesses and governments
The development of new markets and business models, which are aimed at the use of secondary raw materials and stimulate economic development	A large number of legislative and regulatory obstacles to the implementation of the circular economy
Increased resilience to market fluctuations, as the circular economy reduces dependence on expensive raw materials and inventories.	This transition may require significant changes in production processes, supply of raw materials, logistics and infrastructure, which may be complex and require large expenditures of time and resources. In addition, implementing a circular economy may require investment in new technologies, equipment and staff training, which can also be a challenge for businesses.

Source: authors' own elaboration

Regarding statistics and analysis, the following data may be useful:

- According to the UN, more than 11 billion tons of waste are produced annually in the world, of which only 20% is recyclable.
- According to the Ellen MacArthur Foundation, the implementation of a circular economy could increase global GDP by \$1.8 trillion by 2030.

— According to the European Commission, the transition to a circular economy can reduce the costs of importing raw materials and increase the number of jobs.

Therefore, taking into account the advantages and disadvantages of implementing the circular economy paradigm in industrial enterprises, the following conclusions can be drawn: circular economy can provide significant economic and environmental benefits by ensuring resource efficiency and reducing waste, which can enhance the competitiveness of industrial enterprises and increase their social responsibility.

However, successful implementation of the circular economy paradigm requires adherence to certain conditions, such as the presence of effective infrastructure for waste collection and recycling, support from governments and the business community, as well as public awareness.

Therefore, to address the challenges associated with implementing the circular economy paradigm in industrial enterprises, it is necessary to develop and implement comprehensive strategies that focus on increasing the level of environmental and social responsibility of industrial enterprises, creating efficient infrastructure for waste collection and recycling, and raising consumer awareness and public consciousness about the benefits of circular economy. Governments and the business community should collaborate and develop joint strategies to ensure the successful implementation of the circular economy paradigm, including supporting industrial enterprises in adapting to new technologies and methods, incentivizing market mechanisms for resource conservation and the use of secondary raw materials, and increasing investments in a holistic circular economic approach [4].

The next step is further research and analysis of the problems related to the implementation of the circular economy paradigm in industrial enterprises in the context of post-war recovery. It is important to focus on the development of technological solutions and innovative approaches that respond to the challenges of the time and enhance the resilience of the economy to climate change and other global challenges.

Therefore, for successful implementation of the circular economy paradigm in industrial enterprises, a comprehensive strategy is needed, which is focused on increasing the level of environmental and social responsibility, creating efficient infrastructure for waste collection and recycling, and raising consumer awareness and public consciousness about the benefits of circular economy. Achieving these goals requires support from governments and the business community, development of technological solutions and innovative approaches, and further research and analysis of the problems associated with the implementation of the circular economy paradigm in industrial enterprises in the context of post-war recovery. Such steps can enhance resource efficiency and reduce the negative impact of production on the environment, which is an important task in ensuring sustainable economic development.

It is worth mentioning that successful implementation of the circular economy in the context of post-war recovery may depend on several particularities, including:

Translation:

- Increased market resilience to fluctuations as circular economy reduces dependence on expensive raw materials and stocks.
- Complexity of transitioning from the traditional linear production model, based on resource extraction, to the circular model, which requires reusing and recycling materials. This transition may involve significant changes in production processes, raw material sourcing, logistics, and infrastructure, which can be challenging and require substantial time and resource investments.
- Need for investment in new technologies, equipment, and training of personnel to implement circular economy practices, which can pose a challenge for businesses.
- Creation of a legislative framework. In order to implement the circular economy, it is necessary to have an appropriate legal framework that would promote the development of circular practices and stimulate enterprises to use them.
- Support for innovation. Implementation of the circular economy requires the latest technologies and innovative solutions. Successful implementation of the circular economy requires the creation of a stimulating environment for innovation and the development of new technologies.
- Support of local communities. Successful implementation of the circular economy is possible only with the active participation of local communities, which can promote the implementation of circular practices and provide support for innovative enterprises.
- Financial support. Successful implementation of the circular economy is possible if there is financial support for investments in new technologies and processes, as well as for supporting local initiatives.

The success of circular economy implementation in post-war recovery may also depend on socio-economic situation and market conditions. For example, the conditions of post-war recovery can be difficult, so the successful implementation of a circular economy may depend on the availability of the necessary resources and technologies, as well as on the degree of development of infrastructure and the market. A low level of infrastructure development can make it difficult to collect and recycle waste, and an underdeveloped market can reduce the demand for recovered materials and products.

The involvement of local communities and organizations in the development of the circular economy is also an important factor. The active participation of communities can provide the necessary support and attract

resources to the implementation of circular initiatives, as well as create demand for recycled materials and products.

The experience of European countries shows that the successful implementation of the circular economy requires an integrated approach, which includes not only technologies and innovations, but also social, economic and legislative support. An appropriate strategy should include not only the development of new technologies and processes, but also the creation of conditions for their quick and effective implementation in practice.

In addition, effective communication and partnership between different stakeholders can help ensure the successful implementation of the circular economy. For example, dialogue between business, local communities and the government can help create conditions for the development of new business models based on the circular economy [4].

Therefore, the successful implementation of the circular economy in the conditions of post-war recovery may depend on a number of factors, such as the availability of resources and technologies, the level of infrastructure and market development, the support of local communities and organizations, and a comprehensive approach to the implementation of circular initiatives.

The following approaches can be used for the successful implementation of the circular economy:

- Development of new technologies and processes for collection, processing and use of waste.
- Creation of an effective infrastructure for the collection, processing and reuse of waste.
- Involvement of local communities and organizations in the development of the circular economy, in particular by providing support and attracting resources to the implementation of circular initiatives.
- Development of new business models based on the circular economy, such as exchange, repair, reuse and recycling.
- Communication and partnership between different stakeholders that can help ensure the successful implementation of the circular economy.
- Legislative and economic support from the government, such as the introduction of incentives to support the circular economy, including tax incentives and public procurement of renewable materials and products.

It is known that the successful implementation of the circular economy in post-war recovery can ensure a more stable and sustainable development of the economy, reduce production costs and reduce the impact on the environment. At the same time, in order to achieve success, it is necessary to take into account the socio-economic situation and market conditions of the country. In particular, the success of implementation may depend on the following factors:

- The level of economic development and the corresponding degree of involvement of resources and technologies in production.
- The level of public awareness of environmental issues and readiness to participate in circular initiatives.
- Availability and efficiency of waste collection and processing infrastructure.
- The level of support from the government and other stakeholders, which may include financial support, the development of an appropriate legal framework and the creation of favorable conditions for the development of a circular economy.
- The level of competition in the market and the availability of business models that support circular economy initiatives.
- The level of innovation and development of new technologies, allowing to switch to circular principles of production.
- Interaction with international organizations and partners, which can contribute to the exchange of experience and the attraction of resources for the development of the circular economy.
- Successful implementation of the circular economy in the conditions of post-war recovery can ensure not only economic development, but also improvement of the quality of life of the population, preservation of natural resources and reduction of negative impact on the environment [3].

Regarding effective mechanisms of control and monitoring, which is an important component for the successful implementation of the circular economy. It is they that make it possible to determine the level of implementation of circular rules, identify problem areas and ensure compliance of production and consumption with the principles of the circular economy. So here are some effective control and monitoring mechanisms:

- Creation of a reporting system: Establishing reporting requirements for enterprises and organizations regarding the use of resources, waste and circular practices. This may include obligations to report on the use of secondary materials, implemented circular processes and environmental impact.
- Audit and certification: Implementation of audit and certification mechanisms to verify the implementation of circular rules and standards. Such audits can be carried out by independent organizations that assess the fulfillment of the requirements of the circular economy and provide certificates of confirmation.
- Monitoring of production processes: Application of monitoring and control systems for production processes, which allow to detect non-compliance with circular principles, loss of resources, as well as to evaluate the effectiveness of implemented circular measures.
- Implementation of tracking systems: Development of tracking systems that allow tracking the movement of resources and waste at various stages of the production process. This helps to identify opportunities to improve circular practices and also provides transparency in the supply chain.

- Cooperation with stakeholders: Interaction with stakeholders, including government bodies, public organizations and the public, to ensure control and monitoring of the implementation of the circular economy. This may include public consultations, exchange of experiences and joint initiatives.
- Use of technology and innovation: Use of modern technologies such as artificial intelligence, blockchain and the Internet of Things to ensure effective monitoring and enforcement of circular regulations.
- Education and awareness: Conduct circular economy education and awareness campaigns among businesses, consumers and the public. This helps to involve more stakeholders in the implementation of circular practices and ensure wider support [1].

These control and monitoring mechanisms will help ensure the effective implementation of the circular economy, monitor the implementation of regulations and contribute to the achievement of sustainable development goals.

Conclusions

The circular economy paradigm can help solve problems related to insufficient use of resources and environmental pollution. The implementation of a circular economy in industrial enterprises in the context of post-war recovery may require significant efforts and costs, but at the same time can have significant positive economic and environmental benefits.

The main obstacles to the implementation of the circular economy in industrial enterprises include the lack of the necessary infrastructure, insufficient market incentives and the need to raise consumer awareness.

Further research and analysis of the problems associated with the implementation of the circular economy paradigm at industrial enterprises in the conditions of post-war recovery is needed.

Successful implementation of the circular economy paradigm in industrial enterprises requires a comprehensive strategy that includes support from governments and the business community, the development of technological solutions and innovative approaches, as well as raising public awareness.

Abstract

This article analyzes the European experience in implementing a circular economy in the post-war period. It examines the impact of socioeconomic and market conditions on implementation success, focusing on the level of economic development, public awareness, infrastructure, government support, competition, innovation, and international cooperation. The article indicates the need for an integrated approach, control and monitoring systems, as well as the implementation of effective mechanisms to ensure compliance of enterprises with circular principles. It is a valuable source of information for researchers, government agencies, businesses and the public interested in implementing a circular economy for post-war recovery.

So, the aim and task of this article is a review of scientific and practical works that consider the experience of European countries in the implementation of the circular economy at enterprises of the post-war period. We also intend to identify the features of the successful implementation of the circular economy in the conditions of post-war recovery, as well as to investigate the impact of the socio-economic situation and market conditions on the success of this transition. Our goal is also to identify unresolved issues and problems related to the implementation of the circular economy at enterprises in the conditions of post-war recovery, and to propose possible ways to solve them.

The general purpose of the article is to promote the further development of the implementation of the circular economy at enterprises in the conditions of post-war recovery and to promote sustainable innovation processes in the economy.

In general, there are a large number of examples of successful implementation of the principles of the circular economy at industrial enterprises in the world, especially in Europe, where this issue is of great importance. That is why the study of this experience and its adaptation to post-war recovery can have great potential to achieve sustainable development and improve the economic situation of the country.

Problems related to the implementation of the circular economy paradigm in industrial enterprises may include difficulties in implementing a circular approach in practical conditions, insufficient infrastructure for waste collection and processing, insufficient participation of market participants in this process, and the need to change thinking and culture regarding the use of resources.

While the methods of analysis include the creation of efficiency models and the implementation of circular business models, the assessment of the economic and environmental efficiency of the implementation of circular approaches and the assessment of the relationship between the renewability of resources and economic sustainability.

It is known that the successful implementation of the circular economy in the conditions of post-war recovery can ensure a more stable and sustainable development of the economy, reduce production costs and reduce the impact on the environment.

Interaction with international organizations and partners, which can contribute to the exchange of experience and the attraction of resources for the development of the circular economy.

Successful implementation of the circular economy in the conditions of post-war recovery can ensure not only economic development, but also improvement of the quality of life of the population, preservation of natural resources and reduction of negative impact on the environment.

Successful implementation of the circular economy paradigm in industrial enterprises requires a comprehensive strategy that includes support from the government and the business community, the development of technological solutions and innovative approaches, as well as raising public awareness.

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