

Organizational and economic principles of creation and implementation of a circular business model of development

Olena Dovgal*

Full Doctor in Economics, Associate Professor
Mykolaiv National Agrarian University
54008, 9 Georgiy Gongadze Str., Mykolaiv, Ukraine
<https://orcid.org/0000-0003-3353-4749>

Abstract. The topicality of the topic is due to the problems of the essence and the basic principles of the formation and development of the circular economy. The well-known systems of circular economy principles 3R and 9R have been supplemented with new principles that more widely reveal the content and possibilities of transition to a closed-type economy. The purpose of the research is to determine improved organizational forms of closed-loop business models, developed on the basis of advanced principles of the circular economy, adapted to the realities of Ukraine. The research methodology consisted of a set of used methods, cognitive and systemic principles of research, a sequence of stages that included: the study of scientific literature, the analysis of the current state and international experience on issues of circular transformations, substantiation of one's own concept and organizational forms of a business model of a closed economy. The scientific work compares and summarizes the principles of circular economy development. Systematization of the classification features of types of circular business models proposed in modern practice has been carried out. On the basis of the conducted research, a scheme of the conceptual model of the R-economy is proposed. The main stages of implementing the circular business model in practical activities are proposed. The key advantages of the circular business model are defined as future long-term economic benefits that create additional potential for business competitiveness and contribute to solving public environmental problems. Based on the generalization, modern obstacles and socio-economic benefits from the transition to a circular model of development for business and society were identified. The modern practice of successful implementation of circular business models is analyzed. Proposals regarding the design of food production for the creation of a closed-type economic model are substantiated. Various archetypes of the organization of closed-type business models have been studied. The scheme of organizational forms of circular economy business models is presented, taking into account the specialty of the value chain, as one of its most effective mechanisms

Keywords: R-economy; closed-type economy; principles of closed-type economy; organizational forms of the economy; models of production and economic relations; socio-economic benefits

INTRODUCTION

For several years now, the limited resources of the Earth and the accumulation of environmental problems of its population have led to an active search for optimal models of development of world and national economies, where the priority is to ensure consumer demand, decent living conditions for mankind, while preserving the environment for the needs of current and future generations. The traditional linear model of the devel-

opment of economic relations, focused primarily on obtaining business bonuses, has practically exhausted its potential today. Society has come to the final conclusion that continued existence in the long term is possible only on the basis of taking into account environmental needs and reorienting the basic motives of social activity in the direction of ensuring environmentally safe development (Bocken *et al.*, 2019). Under such strategic

Article's History:

Received: 05.08.2022

Revised: 25.09.2022

Accepted: 29.11.2022

Suggested Citation:

Dovgal, O. (2022). Organizational and economic principles of creation and implementation of a circular business model of development. *Ukrainian Black Sea Region Agrarian Science*, 26(4), 40-50.

*Corresponding author

guidelines, the issue of substantiating business models of a closed production cycle, the implementation of which will allow to ensure the achievement of business goals while simultaneously taking into account long-term environmental needs and requirements of social development, becomes extremely relevant.

The circular economy, thanks to its exceptional tools for saving resources and protecting the environment, today plays a central role in the formation of sustainable models of social development, in political strategies that are reflected in the strategic plans and programs of action of the governments of countries and their associations (Desing *et al.*, 2020). Circularity is increasingly seen as the preferred way to ensure economic growth and recovery (Gonchar *et al.*, 2020), is increasingly and more often integrated into business strategies, economic practices and supply chains (Elia *et al.*, 2020). At the same time, the development of circular processes in global and national practice is accompanied by certain difficulties of the dominant practice of the traditional linear economy, both at the level of the national economy and at the level of global economic ties. The imperfection and insufficient level of uniformity of global and national legislation, limited access to the markets of producers' resources, a high level of competition with linear business companies, and insufficient awareness of the issues of sustainable development of society today continue to form a framework of obstacles and reduce the intensity of circular business processes. Along with this, the demand for circular (sustainable) products and services is growing more and more actively in the modern market, the management of companies more often make "circular or closed" decisions in the field of choosing supply and service chains, and the amount of financial support for businesses based on the closed-loop model is also increasing. The development of such trends requires greater transparency in the practice of conducting circular business, the development and dissemination of effective business models of the closed type, the expansion of partnerships and economic relations based on the principles of sustainability and responsibility. Society, the environment and the ecological sphere, future generations become the biggest beneficiaries of the development and spread of the circular economy. At the same time, the achievement of a common effect for all participants of the socio-economic process is possible under the conditions when the business will see and experience real bonuses and economic benefits from the implementation of circular tools in practical activities. This objectively requires the development of specific business models based on the principles of the circular economy and the outline of their future priorities, mechanisms and prospects for implementation. The business model should describe the means of the company to create new value and realize the created value, that is, the nature of the distribution of interests of business process participants.

Studies of the theoretical and practical aspects of the transformation of traditional linear-type economic models to closed-type models are becoming extremely relevant for science and practice today. The relevance and significance of issues of the development of the closed cycle economy today unites the scientific views and approaches of most scientists. However, the methodological plane and practical principles of implementing circular economy tools today are open to discussion for various types of economic activity and levels of economic management. V.S. Shebanin & G.O. Reshetilov (2021) sees construction, mobility, transportation, food, products and services as the main areas of circular transformations. The main emphasis of the research of these scientists is focused on the study of the forms and methods of the circular economy at the level of a separate type of economic activity (industry). M.V. Ruda & Ya.V. Myrka (2020) investigates the implementation of tools of the closed cycle economy, first of all, from the standpoint of three-level management of economic activity (national, regional, local) and searches for effective regulatory levers at each relevant level. N.O. Horbal & I.V. Plush (2021), A.P.M. Velenturf & P. Purnell (2021) focus mainly on tools to optimize emissions and prevent environmental pollution. Desing *et al.*, (2020) when investigating the need to justify circular business models as the key motives for their implementation in practice, see the possibilities of using less resource-intensive production methods and the wide potential of using innovations aimed at extending the terms and expanding the use of finished products.

The development of a closed economy is part of the strategic course of the European Union countries, which is implemented in the context of the Green Deal strategic concept. At the same time, priority areas of economic activity in which there is a need to implement strategies of active circular changes are considered to be: electrical and electronic equipment, automotive, chemical industry, agricultural sector, material processing, textiles and furniture production (Elia *et al.*, 2020). Despite certain differences in methodological approaches to the study of the theoretical, methodological and practical foundations of the development of the closed cycle economy, views on the mechanisms of implementing circular transformations and methods of managing them, there is a single consensus among scientists regarding the existence of a powerful potential for increasing the opportunities for the development of circularity in many sectors and a common view regarding the irreversibility of such a circular concept to ensure the future development of the entire world (Trigkas *et al.*, 2020; Ekins *et al.*, 2019).

The purpose of the study is to systematize the key principles of the circular economy and to substantiate on their basis the organizational forms of closed-type business models that are promising for Ukraine.

MATERIALS AND METHODS

The main areas of research when writing a scientific article were the following: systematization of the results of scientific research in terms of the general principles of the development of a closed-type economy; abstract-analytical evaluation of data for substantiating the conceptual foundations of circular economy business models; development of proposals regarding priority forms of implementation of closed-type models in the practical activities of business entities.

In the first part of the article, information about the essence of the circular economy was collected and used. The materials for writing the article were primary data obtained on the basis of generalizations of the domestic practice of building business models for national companies. The information base was represented by works of scientists published in specialized scientific publications of Ukraine. Secondary sources included a review of the literature devoted to this scientific issue published in international scientometric databases. An important element of the research information base has become the results of scientific developments of scientists, highlighted in professional publications, which are included in the Scopus scientometric database. The method of scientific search and systematization of the obtained data made it possible to expand the methodological plane of the set of principles of formation and development of circular processes in the economy. The combination of methods of analysis, synthesis and comparison allowed to offer author's own view on the construction of the classification of types of circular economy, which was based on the types of its archetypes. In the second part of the article, on the basis of the study of modern methodological approaches, the meaningful characteristics of closed-type business models existing in modern practice were studied. Data from international organizations such as: the World Economic Forum, the Organization for Economic Cooperation and Development (OECD) were used as additional informational and analytical materials. Research of primary and secondary information sources, highlighting the problem of finding optimal circular business models, made it possible to outline the methodological contours of the author's conceptual scheme of the circular economy model. The main conditions for building the proposed closed-type economy model were the use of systematized R-principles and the importance of achieving the global goals of sustainable development. Creation of long-term value for the economy and society was chosen as the criterion for the feasibility of using the proposed model. The methodological basis of the proposed model of the circular economy structurally included a set of tools, target orientations and an analytical description of the results, which makes it possible to detail the possible options for the practical implementation of its various organizational and economic forms. Based on statistical observations, an assessment of the benefits of implementing circular business models in practical activities for the environment was carried out.

Procedures for collecting relevant data made it possible to present key indicators and indicators that fully testify to the potential effect of implementing closed-type business models into practice. The systematization of the results of scientific research in the spectrum of alternative options for the development of circularity for the economies of the world became the basis for substantiating proposals for a possible design of closed agricultural production for the economy of Ukraine.

The article included the results of a systematic study of literary sources devoted to analytical generalizations of global circular economy models. The use of the obtained data helped to develop the author's vision of the typology of organizational forms of closed-type business models according to the criterion of the phase of the value chain. When writing the article, a set of general scientific and specific methods of economic research was used, in particular: monographic method (when identifying trends in the development of the circular economy in the world and researching its key principles). The classification method was used in the study of the classification features of types and archetypes of the closed-type economy. The methods of analysis and synthesis were applied in the study of the extent of damage to the environment from the consequences of the linear economy. Using the abstract-logical method of scientific research, the conceptual scheme of the circular economy model and its organizational forms were substantiated. The method of generalization was used in the study of the principles and modern practice of the development of closed-type economic models. The review of literary sources, the systematization and expansion of the methodological basis for the construction of closed-type organizational models for national practice was supplemented by a graphical method of visualizing the results of scientific research.

RESULTS AND DISCUSSION

Circular economy or the economy of a closed cycle represents a new type of organization of social production relations. The business interests of the subjects of the circular economy are complemented by the priorities of environmental protection and rational use of available resource potential. Today, the circular economy is called an economy of a revolutionary model, which is based on the mechanism of managing the processes of recovery, regeneration and reuse of resources. The economy of the closed cycle is characterized as a modern model of production and consumption, which is able to ensure sustainable growth over time. With the help of tools and methods of the circular economy, management is able to ensure the optimization of resources, reduce the amount of consumption of materials and give them a new life as a newly created product. The goal of the closed-loop economy is to maximize the use of available resources (including their reuse), based on three basic principles: reduction, reuse, recycling.

The circular economy is called the 3R model: “Reduce”, “Reuse” and “Recycle”. Joining the global trend of development of circular processes in social production, I.L. Tatomir & L.G. Kvasnii (2021) supplement this methodical and practical basis with elements 9R: refuse (refusal of excessive use of resources), reduce (optimization of resource use), reuse (reuse of used goods), repair (extension of the product’s useful life), refurbish (updating and repair of goods), remanufacture (reproduction of goods from used elements), repurpose (additional

intended use of the product), recycle (processing and secondary use of materials), recover (production of energy from materials).

At the same time, today’s way of life, models of consumption and production, motives of business and social development, existing environmental trends and increasing the level of general culture and consciousness complement the circular model based on the unity of the 3R principles in a new complementarity (Table 1) (Gonchar *et al.*, 2020; Circular economy model..., 2021; Moving towards..., 2021).

Table 1. Principles of the modern circular economy

Principles of the circular economy	The content of the principle
REACTIVATE	Return used equipment/technology to use
REBUILD	Development of a system or technology with greater efficiency, less waste and costs
RECLAIM	Returning to practical use previously unusable resources (land, buildings, etc.)
RECONDITION	Disposal and restoration of products from certain parts of them while maintaining the quality parameters of products and services
RECONSIDER	Changing lifestyle and consumer attitudes and principles, increasing the level of consciousness and awareness of saving resources and preserving the environment
RECONSTRUCT	Restoration or new construction after product damage
RECOVER	Restoration (reimbursement) of the usefulness of resources, returning resources to their functional properties
REDESIGN	Viewing the appearance, purpose and functional characteristics of the resource (product). Design of new business approaches to greening production.
REFORM	Correction of incomplete use of resources and their conservation
REFURBISH	Repair, modernization, increasing the level of sustainability of resources and their compliance with environmental safety
REFUSE	Rejection of a lifestyle that harms the environment
REGENERATE	Investing in the restoration of the resource to restore its useful properties
REGULATE	Management and monitoring of resources, optimization of resource use
REHABILITATE	Restoration of the production and economic system to an optimal state with the help of training of personnel (consumers/producers) and raising the level of their social consciousness
REINVENT	Change in key factors that contribute to the sustainability of the product (service) in the long term
REINVIGORATE	Provision of new incentives for the development of the circular economy (taxes, benefits, subsidies, loans, etc.)
RELINQUISH/RENOUNCE	Conscious voluntary refusal to use and consume resources (products, goods) that harm the environment
RELOCATION	Transferring production to new places that are safe for the environment, minimizing the geographical factor of environmental disasters
REMANUFACTURING	The use of components and the use of multifunctional resources that can be re-directed to production
REMODEL	Changing the structure and shape of the product to ensure the possibility of its safe and ecological use
RENEWABLE	Predominant use of renewable types of energy
RENT	New principles of renting products and services, which allows to minimize resources for the production of new ones
REPAIR	Restoring the useful quality properties of the product and extending the term of their functioning
REPLACE	Replacement of scarce and expensive resources with more optimal and budget-friendly ones
REPURPOSE	A significant change in the functional properties, shape, design and other parameters of the product for the possibility of its reuse
RESOLVE	The ability to make decisions about changing the worldview, perception, consumer and production business behavior

Table 1, Continued

Principles of the circular economy	The content of the principle
RESPECT	Respect for nature, environmental laws and eco-responsible behavior of business entities and consumers
RESTABILIZE	Solving a complex problem, correcting a negative environmental situation using circular economy methods and tools
RESTORE	Return of resources that have been removed from the environment
RESTRICT	Limitation, monitoring and control of irrational use of natural resources
RESTRUCTURE	A fundamentally new organization of product elements by reducing resource costs and emissions
RETHINK	Rational assessment of long-term goals of social, ecological and economic development for the benefit of society
RETOOL	Improvement of technical and technological systems and management tools for the benefit of the interests of the environment
RETURN	The practice of returning products to the manufacturing company for further processing/reproduction
REVITALIZE	Formation of impulses for a new life of production, product under the conditions of increasing the level of their sustainability and compliance with environmental requirements
REWARD	Motivation and dissemination of best practices for sustainable use of resources and environmentally responsible behavior of consumers and business entities

Source: systematized by the author according to I.L. Tatomir & L.G. Kvasniy (2021); *Circular economy model... (n.d.)*; Ellen MacArthur Foundation...(2018)

In the opinion of the author, taking into account the system of these principles in the practical activity of the modern economy makes it possible to provide additional opportunities for economic growth and job creation, to increase the level of independence from resources, in particular, of imported origin, to obtain specific advantages of the local economy due to savings and optimization of resource use, to ensure protection environment.

The key advantage of the closed-loop economy is the presence of a powerful potential for value creation based on the transformation of waste into new value. The concept of a circular economy is relatively new to world theory and practice. However, the significant deterioration of the ecological situation and the emergence of new technological possibilities for its correction in recent years have significantly expanded the range of tools for implementing the circular economy in practical activities. Today, the circular economy is a modern and future economy in which a significant (mostly) part of waste is used as an element of the production cycle. Considering the content and configuration of these principles, modern practice focuses its efforts on researching six areas of management of transformations related to the preservation of ecosystems: 1) perspective of complexity (creating micro-principles of management); 2) contextual perspective (management policy, digital trends, financial instruments and financial entities); 3) management perspectives (consciousness, culture, institutions, knowledge); 4) geographical perspective (location of business, resources, elements); 5) agency perspective (individual and partnership forms of cooperation); 6) network perspective (exploitation of global network opportunities and social capital) (LaDeau *et al.*, 2017).

Until recently, production and society mainly existed on the basis of a linear model of production and economic relations, the formula of which was: “we extract – produce – throw away”. Taking into account the trends of constant growth of the global population and the volume of consumption of products and goods, in which the rate of consumption is significantly accelerated, the linear model is quite fast and relatively effective, but it is not sustainable for society in the present and long-term perspective (Desing *et al.*, 2020).

The closed-cycle economy represents a more sustainable model of production and consumption, in which raw materials, materials and the final product are stored much longer, can be reused, which ensures a much smaller amount of resource consumption and waste. In recent years, the issue of building a circular model of economic development has become one of the most urgent tasks of science and practice. At the same time, foreign researchers are trying to form such a model in the context of finding tools for implementing the principles of sustainable development in the practical activities of business entities. N. Bocken *et al.* (2019) attempted to substantiate the archetypes of closed economy models that can contribute to the creation of value propositions that combine the interests of the environment, economy and society. Archetypes of such models are grouped by the authors according to the central type of innovative component, which is used in economic practices. According to this methodical approach, the following archetypes of business models are distinguished: “creating value from waste”, “providing functionality, not property”, “replacing disposable

products with renewable and natural ones". N. Calvo & O. Villarreal (2018) add three archetypes of material

and energy productivity to the existing business models of the closed economy (Fig. 1).

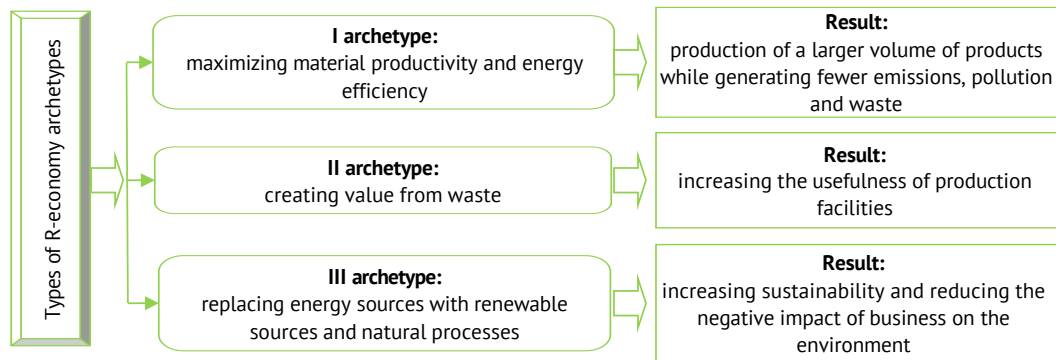


Figure 1. Classification of types of circular economy

Source: developed by author based on research by N. Calvo & O. Villarreal (2018)

A. Yablonsky & M. Marien (2020) in their research propose the formation of network business models of the circular economy, which have the potential of strategic drivers of business success and the creation of new values based on the principles of digitalization. The highly efficient generation of natural resources, the use of their ability to be processed and reused will form a new logic of income in the context of new business models. The ability to manage repetitive cycles can be ensured through digital management tools, which should become key drivers of creating new types of business models.

J. Ferreira & M. Dabik (2022) also support the perspective of the development of the digital business model of the closed-loop economy and note that "... innovations of the closed-loop business model and digitalization under modern conditions of business activity are consistent in the management structure, but uncertain in in

the field of identifying the effectiveness of the impact of digitization processes on the results of the development of the circular economy. The authors call digitization "the driving force behind revolutionary business models, which allows for more efficient collection and interpretation of data necessary for cyclical transformations".

The closed-cycle economy represents a more sustainable model of production and consumption, in which raw materials, materials and the final product are stored much longer, can be reused, which ensures a much smaller amount of resource consumption and waste. The author sees the content of the circular model of production relations in the fact that resources are stored in the economy for much longer, which allows for the optimization of the production process and the reuse of waste as raw materials for other cycles and branches of social production (Fig. 2).

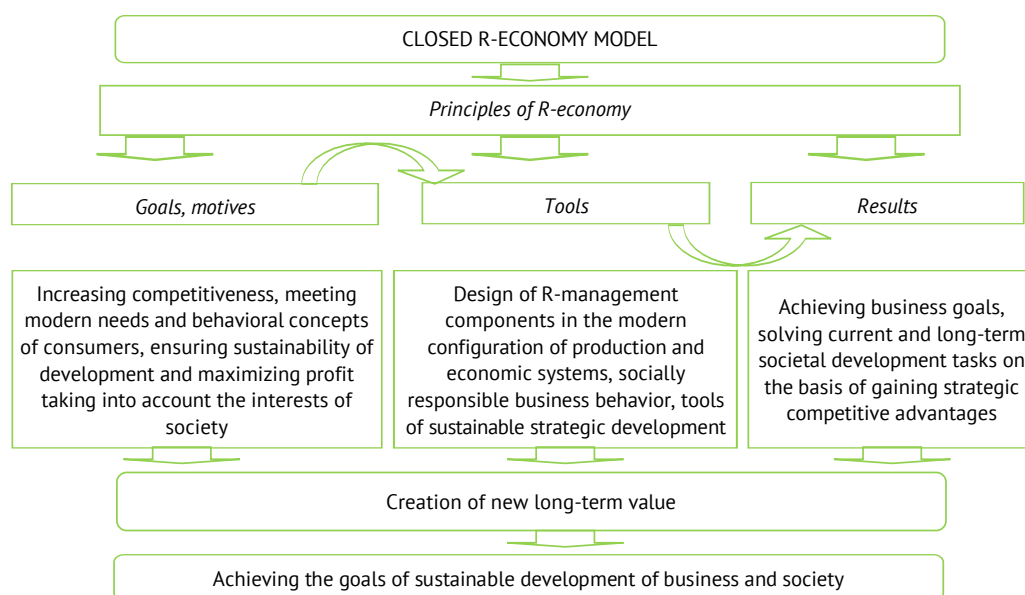


Figure 2. Conceptual diagram of the circular economy model

Source: author's development

Author considers it expedient to organize the implementation of the circular economy model according to the following main stages: 1) development of the life cycle and eco-design of a new product (works, services) based on the criterion of minimum consumption of raw materials and materials and extension of its useful life; 2) optimization of resources and production processes based on expanding the possibilities of using waste and reusing materials; 3) product production based on models that are alternative to linear models; 4) promotion and provision of sustainable consumption (socially responsible marketing and promotion and design of consumer behavior of buyers).

The main advantages of the implementation of the circular economy model in the practical plane can be: future long-term economic benefits. Thus, according to the results of studies conducted by the Accenture Corporation, in the period until 2030, the closed cycle economy is able to provide 4.5 trillion dollars. additional volume of production due to the creation of jobs and innovations (Benefits of the Circular..., 2022). The closed cycle economy is a system of production relations with reduced (optimal) use of resources, which forms the prerequisites for price competitiveness, reuse of materials, technical services, which, potentially, provides opportunities to save 70% of resources. The development of a circular economy has the power to create an additional 6 million in global production workplaces (Melnyk & Zlotnik, 2020). The analysis of the latest trends in circularity allowed the author to determine that the circular economy is one of the key elements of sustainable development on a global socio-economic and ecological scale, which is a strategic goal and requirement of modern society. Development business models based on the principles of a closed-loop economy should favor the emergence of long-term stable relations between producers and consumers, help to model consumer behavior and, on this basis, obtain strategic competitive advantages in balance with the needs and interests of social development. Other additional bonuses for business are believed to be increased levels of innovative activity and economic growth (Gonchar *et al.*, 2020; Linder *et al.*, 2021; Ekins *et al.*, 2019).

LaDeau *et al.* (2017) assessing the current state and possibilities of implementing a closed-type economy, point to the presence of certain shortcomings and obstacles of the modern stage of transformations: certain inconsistencies in the regulatory and legal framework regulating the processes of transition to the principles of a circular economy in the countries of the world; low level of awareness and awareness of a significant number of consumers about modern environmental problems and societal priorities; the need for technical and practical skills of the labor force of the closed cycle economy, which is being formed in developed countries; the presence of a significant amount of industrial and household waste, which is difficult to transform and recycle and has accumulated in the world on a significant scale.

One of the biggest contributors to climate change is the global food system: CO₂ emissions, increased pressure on land use, and consumption of large amounts of water and energy. In the EU, food systems account for about 30% of greenhouse gas emissions, with the contribution of each individual country varying between 25-42% (Crippa *et al.*, 2021). The negative impact of the industry on the environment is complemented by a high level of losses in food supply chains: according to UNEP, almost 17% of all food in the world is lost, and the amount of food waste per capita in Europe is characterized by the highest level in the world – 280 kg/year. Thus, food waste currently poses a significant threat to the sustainability of the global food system and the solution to the problem of food security. A closed food system opens up new opportunities and can provide significant economic and social benefits in the future. The Macarthur Foundation provides an estimate according to which the creation of a completely closed food system can provide economic benefits in the amount of 2.7 trillion dollars, USA by 2050, in addition, there will be additional savings of 4.3 billion tons of CO₂ emissions and 39.3 billion cubic meters of fresh water resources (Ellen MacArthur Foundation..., 2018). Accompanying bonuses will be received as a reduction in health care costs, treatment and prevention of diseases associated with the use of chemicals in food production.

Among the key processes that can appear in the basis of the creation of a closed business model of the agro-food sector is the increase in the circulation of resources, design and production and processing. The design of food products, related to the correct choice of ingredients and the configuration of the final product, which guarantees a low level of environmental impact, is of exceptional importance in such a model. An example of a circular economy business model in the agri-food chain is the activity of the American company Apeel, which has developed and uses plant-based coatings that keep fruits and vegetables fresh three times longer. This minimizes food waste in the value chain (Vieira & Shannon, 2020).

Studies of international experience allowed us to substantiate our own proposals regarding the design of food production for the creation of a closed-type economic model for Ukraine: 1) selection of components with a lower impact on the environment (for example, by replacing components of animal origin with plant ones); 2) diversification of ingredients to stimulate genetic diversity and strengthen sustainability potential; 3) processing of ingredients that are usually turned into waste; 4) wider use of regenerative components (which lead to a healthy lifestyle, preservation of biodiversity, improvement of water and air). A practical example of the implementation of such measures is the replacement of soybeans and other ecologically dangerous sources of proteins with grain and products of its industrial processing in feed production. Food waste can

be used as fertilizer, animal feed or compost to restore the fertility of agricultural land.

In order to successfully implement the principles of the closed loop economy in practical activity, it must have effective motivators and interest for business.

The business model of the circular economy is based on key R-principles and requires the implementation of the following basic rules in practical activities: 1) sources of raw materials and materials must be formed in the economy (the system of already existing production and economic relations), and not from ecological natural resources; 2) creation of value of products (goods, services) for customers should be based on already existing economic value; 3) expansion of business entry opportunities based on the common interests of producers, partners, and consumers.

Under the conditions of the transition to the principles of R-economy, various archetypes of the organization of business models of a closed type are possible. The first type: data-driven coordination of circular value chains - creating a product from recycling to reuse. The second type: circular design of the product (works, services) – creating a product with a maximum useful life and return of waste to the production system. The third type: reuse, sharing and repair – creating long-term use goods from recycled and reused elements that will become components for other business models. The fourth type: collection and reverse logistics - closing the life cycle of a material by creating a product that

is able to be recycled, repurposed and resold. The fifth type: sorting and pre-processing – finding alternative values in the parts that make up the product as a whole

The Organization for Economic Co-operation and Development (OECD) identifies five main models of the circular economy: 1) supply models that replace traditional resources with regenerative or biological ones; 2) resource models that use waste streams for subsequent operational cycles; 3) models focused on extending the product's service life and increasing its life cycle; 4) models of joint use, in which limited products (resources, services) are used jointly by several participants; 5) business models that substitute services for products (OECD. Business Models..., 2019). Various models of the organization of circular business models are characterized by appropriate management mechanisms and their tools. However, the main result at the output of closed-type business models is the creation of values that are greater than in traditional linear models of the organization of economic relations.

One of the most effective tools of circular business models is value chains. Thanks to the action of the mechanism of value chains, it is possible to organize a closed cycle in a certain type of economic activity (Circular model..., 2021; Benefits of the Circular..., 2022; Churikanova, 2020). Additional design in the practical implementation of such a model can serve as: logistics, marketing, repair, rental and other tools of organizational forms of its implementation (Fig. 3).

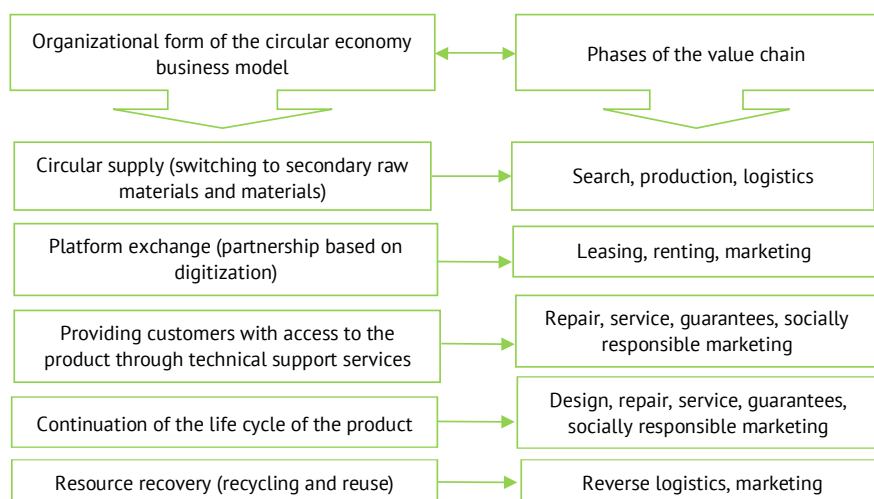


Figure 3. Organizational forms of closed loop business models

Source: author's development

The creation and promotion of business models of a closed cycle today finds increasing support in the world, both from government bodies and from leading socio-economic institutions. Thus, the World Economic Forum has created an accessible guide, Scale 360°, which provides assistance in scaling solutions for creating circular business projects and chains (Scale360° circular innovation..., n.d.). Innovations, without which

the implementation of circular economy projects is impossible, are accumulated within digital platforms and hubs with the simultaneous creation of specialized societies and partnerships that help develop closed-type business models (for example, the free and accessible UpLink innovation hub). Digital accessibility and transparency today appear to be a key condition for creating sustainable value chains based on circular processes.

At the same time, the transition to the principles of a circular economy is associated with certain risks, which domestic scientists include: environmental (illegal methods of using primary and secondary resources); economic (increase in the cost of production and decrease in efficiency); social (social inequality, corruption) (Churikanova, 2020).

The proposed organizational forms of closed economy business models, in contrast to the models considered by N. Bocken *et al.* (2019), take into account a wide range of implementation possibilities through the use of digital platforms. Digitalization will become a key tool in the near future that facilitates the formation of value chains and their logistics and it is possible to ensure the continuation of the phase of the product value chain through the use of mechanisms of leasing and renting of used products.

Developments by J. Ferreira & M. Dabic (2022) consider after-sales customer service guarantees as a possible form of product life cycle extension. Agreeing with this approach, it is expedient to focus attention on the organization of technical maintenance services for goods with the help of repair, restoration of useful consumer properties of goods and mandatory use of socially responsible marketing. A fundamentally new phase of value chains is such an element as reverse logistics, which is absent in the previously proposed models of A. Jabłonski & M. Marian (2020). In the studies of N. Calvo & O. Villarreal (2018), business models are classified based on material and energy productivity and have different results at the output of the process. According to the author's methodical approach, each organizational form of its implementation involves the saving of resources and energy with the simultaneous specification of the phase of the production and sales chain of value creation. In contrast to the forms of manifestation of the circular economy, which are mentioned in the scientific works of N.I. Horbal & I.V. Plish (2021), the author's approach takes into account not only the tools of environmental protection (reuse of raw materials and materials, extension of the product life cycle), but also the saving of resources, which becomes the basis of a closed-loop economy. The proposed conceptual scheme of the closed-type economy model can become a methodological basis for the practical implementation of the proposed organizational forms of R-economy business models. In the study, this model, in contrast to the approaches proposed by I.L. Tatomir & L.G. Kvasnii (2021), focused on creating long-term values and has a strategic nature. To ensure business interests, the conceptual model, unlike those proposed by M.V. Rudoyu & Ya.V. Myrka (2020), focused on gaining strategic competitive advantages, which can be formed over time by a closed-type economy. Also in the model, the design of the components of R-management, which includes the systematization

of all the principles of the circular economy, carried out by the author in this study, is taken into account.

For the successful implementation of the proposed models of the closed cycle in practical activity, the business must see real benefits and prospects, which will serve as effective motivators for the transformation of its economic activity in the direction of transition to the principles of a circular economy. It is believed that such business benefits in the strategic perspective can be: cost savings through the reuse of materials; increasing the usefulness of resources based on their dual use; development of new markets and attraction of new customers; increasing the level of loyalty of buyers and consumers; a more flexible response mechanism and satisfaction of consumer needs; increasing the degree of security and sustainability of own supply chains; access to innovations based on the use of specialized digital platforms; access to financial resources aimed at the development of the circular economy by government programs, expansion of the practice of financial partnership; building image capital, value of own brands and business as a whole.

CONCLUSIONS

The conducted studies showed that the issue of transformational transformations in the direction of circular economy development will become one of the most urgent aspects of management in the near future. On the basis of the conducted research, it was found that the system of closed-type economic principles can be extended to the 36R model. The main task of the circular economy model is to create long-term value, and the goal is to achieve the goals of sustainable development. Under modern conditions, the closed economy model expands its methodical and practical plane and is supplemented with new principles, tools and organizational forms of development. The implementation of circular models in practical activities is characterized by clear long-term benefits for business, society and the environment. At the same time, at the current stage, it is necessary to increase the degree of public awareness of the advantages of circular and sustainable models of production and consumption, create business models based on the demonstration of real economic benefits for producers, form the infrastructure for supply chains, increase the degree of transparency of partnerships and the system of economic relations closed type.

Based on the results of the study, promising organizational forms of closed-type business models for Ukraine were substantiated, in particular: transfer of production to secondary raw materials and materials; development of partnership on the basis of using the possibilities of digital platforms; development and distribution of goods maintenance services; extension of the life cycle of the product; recycling and reuse of resources. Each organizational form corresponds to a

certain phase of the value chain. Support for the processes of creation and implementation of circular business models in practice should be accompanied by the use of various forms of state financial assistance, the spread of concepts of responsible consumption in society, increasing the level of transparency of value creation chains, active consultation and information support, processes of unification of regulatory and legal regulation at the level of international management and development of national economies. The prospects of further scientific research in the selected con-

text will be the substantiation of an effective toolkit for business stimulation before the implementation of circular business models in practice.

ACKNOWLEDGMENTS

None.

CONFLICT OF INTEREST

The author declare that the study was conducted in the absence of any commercial or financial relationships that could be interpreted as a potential conflict of interest.

REFERENCES

- [1] Advantages and disadvantages of the circular economy. (2021). Retrieved from <https://www.bbva.ch/en/news/advantages-and-disadvantages-of-the-circular-economy/>.
- [2] Bocken, N., Boons, F., & Baldassarre, B. (2019). Sustainable business model experimentation by understanding ecologies of business models. *Journal of Cleaner Production*, 208, 1498-1512. doi: [10.1016/j.jclepro.2018.10.159](https://doi.org/10.1016/j.jclepro.2018.10.159).
- [3] Calvo, N., & Villarreal, O. (2018). Analysis of the growth of the e-learning industry through sustainable business model archetypes: A case study. *Journal of Cleaner Production*, 191, 26-39. doi: [10.1016/j.jclepro.2018.04.211](https://doi.org/10.1016/j.jclepro.2018.04.211).
- [4] Churikanova, Yu.O. (2020). Innovative business models of the circular economy at the regional level. *Herald of Khmelnytskyi National University*, 4(1), 204-210. doi: [10.31891/2307-5740-2020-284-4-38](https://doi.org/10.31891/2307-5740-2020-284-4-38).
- [5] Circular economy model. (n.d.). Retrieved from <https://business.dii.gov.ua/handbook/impact-investment/model-cirkularnoi-ekonomiki>.
- [6] Crippa, M., Solazzo, M., Guizzardi, D., Monforti-Ferrario, F., Tubiello, F.N., & Leip, A. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*, 2, 198-209. doi: [10.1038/s43016-021-00225-9](https://doi.org/10.1038/s43016-021-00225-9).
- [7] Desing, H., Brunner, D., Takacs, F., Nahrath, S., Frankenberger, K., & Hirschier, R. (2020). A circular economy within the planetary boundaries: Towards a resource-based, systemic approach. *Resources, Conservation and Recycling*, 155, 104673. doi: [10.1016/j.resconrec.2019.104673](https://doi.org/10.1016/j.resconrec.2019.104673).
- [8] Ekins, P., Domenech, T., Drummond, P., Bleischwitz, R., Hughes, N., & Lotti, L. (2019). *The circular economy: What, why, how and where*. Paris. Retrieved from <https://www.oecd.org/cfe/regionaldevelopment/Ekins-2019-Circular-Economy-What-Why-How-Where.pdf>.
- [9] Elia, V., Gnoni, M.G., & Tornese, F. (2020). Evaluating the adoption of circular economy practices in industrial supply chains: An empirical analysis. *Journal of Cleaner Production*, 273, 122966. doi: [10.1016/j.jclepro.2020.122966](https://doi.org/10.1016/j.jclepro.2020.122966).
- [10] Ellen MacArthur Foundation. (2018). *Circular consumer electronics: An initial exploration*. Retrieved from <https://circularcomputing.com/news/ellen-macarthur-circular-consumer-electronics>.
- [11] Ferreira, J., & Dabic, M. (2022). Guest editorial circular economy and entrepreneurial ecosystems: A missing link? *Management of Environmental Quality*, 33(1), 12-21. doi: [10.1108/MEQ-01-2022-303](https://doi.org/10.1108/MEQ-01-2022-303).
- [12] Food and Agricultural Organization of the United Nations. (2021). *FAOSTAT "Land Use"*. Retrieved from <http://www.fao.org/faostat/en/#data/RL/visualize>.
- [13] Gonchar, V., Gorokhova, T., & Mamatova, L. (2020). Circular economy as a driver of sustainable development of Ukraine. *European Scientific Journal of Economic and Financial Innovation*, 6, 239-245. doi: [10.32750/2020-0222](https://doi.org/10.32750/2020-0222).
- [14] Horbal, N.I., & Plish, I.V. (2021). Circular business models for the sustainable development of Ukrainian enterprises. *Journal of Lviv Polytechnic National University*, 5(1), 15-20. doi: [10.23939/semi2021.01.015](https://doi.org/10.23939/semi2021.01.015).
- [15] Jabłoński, A., & Jabłoński, M. (2020). New economy business models in the concepts of big data, the sharing economy and the circular economy. In *Social business models in the digital economy* (pp. 51-88). Cham: Palgrave Macmillan.
- [16] LaDeau, S.L., Han, B.A., Rosi-Marshall, E.J., & Weathers, K.C. (2017). The next decade of big data in ecosystem science. *Ecosystems*, 20, 274-283. doi: [10.1007/s10021-016-0075-y](https://doi.org/10.1007/s10021-016-0075-y).
- [17] Linder, M., & Williander, V. (2017). Circular business model innovation: Inherent uncertainties. *Business Strategy and the Environment*, 26, 182-196. doi: [10.1002/bse.1906](https://doi.org/10.1002/bse.1906).
- [18] Melnyk, O.H., & Zlotnik, M.L. (2020). Analysis of the state and development trends of the circular economy in the Lviv region. *Business Inform*, 2, 125-133. doi: [10.32983/2222-4459-2020-2-125-133](https://doi.org/10.32983/2222-4459-2020-2-125-133).
- [19] Moving towards a circular economy: More than just 3Rs! (n.d.). Retrieved from <https://www.gdrc.org/uem/waste/more-3r.html>.
- [20] OECD. (2019). *Business models for the circular economy: Opportunities and challenges for policy*. Paris: OECD Publishing. doi: [10.1787/g2g9dd62-en](https://doi.org/10.1787/g2g9dd62-en).

- [21] Ruda, M.V., & Myrka, Ya.V. (2020). Circular business models in Ukraine. *Management and Entrepreneurship in Ukraine: Stages of Formation and Problems of Development*, 2(1), 107-117. Retrieved from https://chmnu.edu.ua/wp-content/uploads/2020/10/11_Ruda-M-V.pdf.
- [22] Scale360° circular innovation turin (n.d.). Retrieved from <https://www.weforum.org/projects/scale-360-circular-innovation-turin>.
- [23] Seven benefits of the circular economy. (n.d.). Retrieved from <https://www.futureplanet.com/resources/7-benefits-of-the-circular-economy/>.
- [24] Shebanin, V.S., & Reshetilov, H.O. (2021). Circular economy of the region: Theoretical aspect. *Ukrainian Black Sea Region Agrarian Science*, 4, 4-9. doi: [10.31521/2313-092X/2021-4\(112\)-1](https://doi.org/10.31521/2313-092X/2021-4(112)-1).
- [25] Tatomyr, I.L., & Kvasnii, L.H. (Eds). (2021). *Circular economy: As a new way of business in the conditions of digital transformation*. Truskavets: POSVIT.
- [26] Trigkas, M., Karagouni, G., Mpyrou, K., & Papadopoulos, I. (2020). Circular economy: The Greek industry leaders' way towards a transformational shift. *Resources, Conservation and Recycling*, 163, 105092. doi: [10.1016/j.resconrec.2020.105092](https://doi.org/10.1016/j.resconrec.2020.105092).
- [27] Velenturf, A.P.M., & Purnell, P. (2021). Principles for a sustainable circular economy. *Sustainable Production and Consumption*, 27, 1437-1457. doi: [10.1016/j.spc.2021.02.018](https://doi.org/10.1016/j.spc.2021.02.018).
- [28] Vieira, J., & Shannon, T. (2020). *Life cycle assessment of apeel produce*. Retrieved from https://assets.website-files.com/5f31bfa796b7553c22964294/5f4e8efc511cbb4aaf2bfc9_Apeel%20LCA%20-%20External%20Release%20-%20August%202020-small.pdf.

Організаційно-економічні засади створення і реалізації циркулярної бізнес-моделі розвитку

Олена Валеріївна Довгаль

Доктор економічних наук, доцент

Миколаївський національний аграрний університет

54008, вул. Георгія Гонгадзе, 9, м. Миколаїв, Україна

<https://orcid.org/0000-0003-3353-4749>

Анотація. Актуальність теми обумовлена проблемами сутності та основними засадами становлення й розвитку циркулярної економіки. Відомі системи принципів циркулярної економіки 3R та 9R доповнено новими принципами, які більш широко розкриваються зміст та можливості переходу на економіку замкненого типу. Мета дослідження полягає у детермінації удосконалених організаційних форми бізнес-моделей замкненого циклу, розроблених на основі розширених принципів циркулярної економіки, адаптованих до реалій України. Методологію дослідження становила сукупність використаних методів, пізнавальний та системний принципи проведення дослідження, послідовність етапів, які включали: вивчення наукової літератури, аналіз сучасного стану і міжнародного досвіду з питань циркулярних трансформацій, обґрунтування власної концепції та організаційних форм бізнес-моделі економіки замкненого типу. У науковій праці здійснено порівнянні та узагальнення принципів розвитку циркулярної економіки. Здійснено систематизацію класифікаційних ознак видів циркулярних бізнес-моделей, які пропонується у сучасній практиці. На основі проведених досліджень запропоновано схемую концептуальної моделі R-економіки. Запропоновано основні етапи реалізації циркулярної бізнес-моделі у практичній діяльності. Ключовими перевагами циркулярної бізнес моделі визначено майбутні довгострокові економічні вигоди, що створюють додатковий потенціал конкурентоспроможності для бізнесу та сприяють розв'язанню суспільних екологічних завдань. На основі узагальнення виявлено сучасні перешкоди та соціально-економічні вигоди від переходу на циркулярну модель розвитку для бізнесу і суспільства. Проаналізовано сучасну практику успішного досвіду реалізації циркулярних бізнес-моделей. Обґрунтовано пропозиції відносно дизайну виробництва продуктів харчування для створення економічної моделі замкненого типу. Досліджено різні архетипи організації бізнес-моделей замкненого типу. Представлено схему організаційних форм бізнес-моделей циркулярної економіки у урахуванням фахи ланцюга вартості, як одного з найбільш дієвого її механізму

Ключові слова: R-економіка; економіка замкненого типу; принципи економіки замкненого типу; організаційні форми економіки; моделі виробничо-економічних відносин; соціально-економічні вигоди