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BUSINESS CIRCULAR STRATEGIES: CRITERIA AND PROSPECTS

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Abstract. *The international practices of realization of business circularity strategies are researched and systematized. The trends in change of value priorities of corporate policy of companies depending on phases of transformation of business models are revealed. The focus on the operational efficiency of production processes is strengthened by the transition to the principles of sustainable development and environmental responsibility, and then the creation of circular value chains. Creating circular value chains requires a change in corporate policy and management tools. The transformation of companies' business models affects its corporate culture. The mission and philosophy of business are changing, fundamentally new integrated indicators for assessing financial, economic and social performance are being formed. Environmental management can bring many benefits to producers of goods: saving money and resources, increasing customer satisfaction and loyalty, improving the morale of employees. The analysis of the structure of investments and investment agreements in digitization projects is performed. It is established that most of the financial resources are directed to waste collection and recycling. This has increased the demand for waste processing equipment and caused structural changes in the engineering market. Positive ttrendss of growth of investment attractiveness of circularity projects are revealed. In Ukraine, as in the world society, there are demands for a healthy lifestyleand environmental protection, so the country must create an institutional framework for the implementation of these needs. It is necessary to encourage a new generation of entrepreneurs to learn and innovate, to initiate "green" business strategies for the development of territories and to promote cross-sectoral cooperation. Further research is needed on the divergence of circular business models by industry and practices of adaptive management tools in the context of conceptualization of change and structural redistribution of resources in the environment.*

Keywords: *circular economy, business models, phases of transformation, resource efficiency indicators, investments.*

Introduction

The civilizational development of society today is at a crucial stage of planning how to overcome the global health crisis and economic upheaval caused by the COVID-19 pandemic. Strategies for the use of natural resources have exhausted themselves, and therefore it will be difficult to return to the usual business models, under these conditions, the demand for environmental protection models of economic development, which includes the concept of circular economy, is increasing.

To move towards a circular economy, products must be designed from the outset to optimize the ability to recover raw materials when the product has completed its first phase of use, and to enable phases of second, third or even endless use. This requires the formation of new criteria for evaluating strategies and investments in business development based on the principles of the circular economy.

The purpose of the article is a theoretical analysis of the practical experience of international companies regarding the criteria for assessing resource efficiency in the process of business transformation on the basis of the circular economy and the determination of promising investment directions for their development.

The advantages of the circular economy are increasingly recognized, but there are still many barriers preventing the transition to a "cyclical" or "green" business model. Some authors indicate that an inadequate financing scheme, insufficient financial resources (Ormazabal M. et al, 2018), as well as a lack of support from state institutions (Rizos V. et al, 2016; Ormazabal M. et al, 2016; Rizos V. et al, 2015) cause the slowdown of "green" transformations in production. This is especially acutely felt by small and medium-sized businesses (EIO, 2016). The risk for companies when transitioning to the principles of a circular economy is mainly related to the fact that changes in the principles of organizing production on a cyclical basis require the involvement of significant investments, in particular in disposal, recovery infrastructure and eco-technologies to close the so-called "loops" production (Stewart R., 2018). A study conducted by Chinese scientists (Su B. et al, 2013) showed that external barriers, such as the lack of a consistent state policy and financing restrictions, are more relevant for Chinese small and medium-sized businesses in the promotion of "clean" technologies than internal, so-called technical and managerial barriers. Thus, the availability of investment in technology is critical for firms to implement the principles of a circular economy.

Shahbazi and others (Shahbazi S. et al, 2018) claim that limited financial opportunities for environmental investments are a primary issue for company management. Also, Chinese researchers Su and others (Su B. et al, 2013) insist on the need to make large financial investments in pilot projects of the circular economy. In particular, the new perspective of selling services rather than products means that companies will not receive payment at the beginning of the product's life cycle, but only after providing the service as a whole, so timing becomes a key issue in such investments (EEA Circular Economy in Europe). It is obvious that the implementation of circular business models requires specific adapted financial mechanisms.

An example of progressive cooperation within the circular business model is industrial symbiosis (Chertow M., 2000; Daddi T. et al, 2017). Ghisellini and others (2018) demonstrate that the reasons for which companies are interested in participating in these advanced circular economy solutions are the possibility of recovering the costs associated with investments in the environment.

Also, tax reduction, the policy of refunding funds for the use of resources and financial subsidies positively stimulate the development of industrial symbiosis. Aid et al. (2017) point out that financing problems for synergistic partnerships are a limitation to the development of eco-industrial parks, and they discuss how taxes and government subsidies enable economies of scale. Discussing a similar topic, Wellenturf (2017) believes that joint processes developed through a circular model encourage interested parties to joint production, technological solutions, and project financing.

Masi et al. (2017) emphasize the importance of financial support through subsidies and other incentives in the manufacturing industry, in which investment support for technology development is considered vital (Pan S., 2014; Pereiras S.). Various studies have also highlighted state subsidies as an element that facilitates research, innovation and investment activities.

Regarding the environmental sphere, Tirguero et al. (2017) and Gizzetti (2014) indicate the positive effect of state subsidies on the introduction of environmental innovations in the company. Moktadir et al. (2018) demonstrate that small businesses need more support from the government to adopt sustainable production practices because they lack sufficient capital.

Based on the results of the scientific works of the above-mentioned authors, economic tools and resources for the development of the circular economy should include fiscal and financial incentives, direct financing and public procurement (EOI). However, the adoption of the CE strategy by enterprises is only at the initial stage, which does not allow for an in-depth

analysis of the literature on specific financial resources applied to circular processes. It should be taken into account that the circular economy is a complex model that includes various environmental issues and applies to different areas of investment, such as those dedicated to the environmental improvement of the company, eco-innovations or energy saving, as well as renewable energy sources.

Foreign scientists - R. Dangelico, K. Geiser, C. Kumar, S. Morch, S. Neck, D. Pujari, M. Rogers, S. Rusinko, K. Summers, S. Schwartz, and others.They analyze the impact of material flows on the competitiveness of production and the state of the environment, define "green" innovations and "green" products, investigate the issue of training employees on the problems of reducing energy consumption, emissions and volumes of solid waste; prove that technological advances contribute to the growth of productivity of resources and, thereby, help manufacturers of industrial products not only to cope with the growing shortage of material resources, but also to implement an industrial revolution (Musina L., 2014).

Fundamental science is paying more and more attention to the issue of green innovations (Schiederig T., 2012), in particular in the context of the influence of various strategies on the production of green innovative products (Albino V. et al, 2009; Kes M. et al, 2014). A growing stream of research examines the organizational aspects of such innovations, including the impact of product design, disposal and secondary use of waste on production efficiency (Mangun, D., 2002), forecasting costs for disposal at the end of the product life cycle, determining the share of products that can be restored, repaired or processed (Cheung Wai M., 2014), etc.

From the analysis of the literature related to the circular economy, it can be assumed that a higher level of related activities carried out by enterprises will predict greater environmental efficiency. However, it should be noted that most of the research in this area concerns the resources and internal capabilities of companies that have not yet implemented the principles of organizing production on the basis of the digital economy (Kieffer C., 2018). At the same time, no systematic analysis of resource efficiency criteria of companies was found. The relevance of new value approaches to the management of strategic business development in modern conditions determines the need to identify promising projects for investment in order to expand production on the basis of circularity.

Research results. As the analysis of international practices shows, the criteria for evaluating the effectiveness of the implementation of corporate management strategies change in accordance with the challenges of the external environment. Analytical review of publications makes it possible to state that the assessment of resource efficiency within the production chain is currently the most common approach to the classification of circularity strategies (table 1).

Research on the practices of implementing circularity strategies shows that new business solutions are constantly appearing and changes are made to the given classification and, accordingly, to the expansion of the theoretical foundations of the formation of a circular economy. So, for example, I. Zvarych (2017) suggests considering the fourth principle - global social corporate responsibility (Responsibility) as mandatory during the formation of global circular chains of adding value.

Trends in the change of value priorities of corporate policy of companies depending on the phases of transformation of business models on the basis of the circular economy have been revealed.

Table 1. Circularity strategies within the production chain in order of priority

Strategy	English name	Short name	Value
Smarter product use and production	R(0) – Refuse	Refuse	Making a product redundant by giving up its function or offering the same function with a radically different product
	R(1) – Rethink	Rethinking	Make the use of the product more intensive (for example, through product sharing or by marketing multi-functional products)
	R(2) – Reduce	Abbreviation	Increase efficiency in the production or use of products by consuming less natural resources and materials
Розширити термін служби виробу та його частин	R(3) – Reuse	Reuse	Reuse by another consumer of a product that is not needed by the previous user, but is still in good condition and fulfills its original function
	R(4) – Repair	Repair	Repair and maintenance of a defective product so that it can be used according to its original function
	R(5) – Refurbish	Renewal	Restore the old product and update the possibility of consumption
	R(6) – Remanufacture	Reconstruction	Use parts of a discarded product in a new product with the same function
	R(7) – Repurpose	Repurposing	Use the discarded product or its parts in a new product with a different function
Useful use of materials	R(8) – Recycle	Processing	Process materials to obtain the same (high grade) or lower (low grade) quality
	R(9) – Recover	Restoration	Combustion of materials using energy

Source: based on (José Potting, 2017)

The focus on the operational efficiency of production processes is strengthened by the transition to the principles of sustainable development and environmental responsibility, and then by the creation of circular value chains (table 2).

Table 2. The genesis of company indicators by phases of business transformation

Indicators/ Phase	Operational efficiency	Sustainability	Creating a circular value chain
Ecological	Energy efficiency	Recycled content	Valorization of remaining resources
	Water efficiency	Circularity projects	Stored value
	Material efficiency	Dividends for waste from landfills	Intensity of impact on the environment (EP&L Intensity)
Social	Labor hours per unit	Local stakeholders are involved	Jobs created (direct and indirect)
	Performance level	Covered customers	Open social enterprises
	Transparency of supply chains	Number of accidents or incidents	Total economic contribution
Financial	Energy cost per unit	Carbon credits	Income from circularity
	Price per resource unit	Circular purchases	Share of the circularity portfolio
	Landfill fee for garbage	Saving resources	Volume of recycled goods sold

Source: based on (WBCSD, 2018)

The system of indicators for evaluating the effectiveness of corporate management of international companies is divided into areas: impact on economic results, social consequences, and finances. Companies must take into account the ethical aspects of their activities, but this

does not exclude the achievement of economic goals. Environmental assessment is a basic tool in corporate governance and a necessary component on the way to sustainable management.

Management of the development of companies is based on the implementation of the project approach (WBCSD, 2018). Investments shape the unknown because the future is not just undefined, it has to be made possible, it has to be created, and virtual reality is the key to that. We analyzed circularity investment projects presented by international companies and determined that these are mostly startups and social and environmental projects that are more of a demonstration and image nature and are not a manifestation of the systemic demand of traditional industries. It should be noted that waste management, which includes its collection, sorting and processing, is the most developed area of circular economy development.

The destruction of the environment caused by plastic packaging has changed the corporate policy of fast food companies in the context of using paper cups. Thanks to the organic nature of this packaging for drinks, a positive perception of consumers and their requests for this form of packaging was formed. As a result, this has had a positive impact on the paper cup market. So, according to Data Bridge Market Research, by 2027 the paper cup market will be valued at $11.61 billion.USA, while registering growth at the level of 4.1% for the forecasted period of 2020–2027 (WBCSD, 2018). Moreover, many current directions of economic development, such as e-commerce, have become an impetus for the active consumption of corrugated cardboard and the demand for paper recycling.

For example, Huhtamaki Hong Kong announced the acquisition of catering assets of International Paper Co. in China, including the production of paper cups and food containers. In addition, Georgia Pacific announced plans to invest $70 million. USA in logging operations to obtain raw materials needed for paper towels, cups and toilet paper. Similarly, Lollicup USA has established a new manufacturing facility in Rockwall, Texas, for paper and plastic cups (The AP news, 2020).

According to international research companies (Global Market Insights), the global market for equipment for the processing of secondary raw materials was estimated at 750 million dollars. USA in 2017, and until 2025 it will grow annually by an average of 6%. Structurally, the market can be segmented by type of equipment (sorting presses, shredders, cutters, granulators, etc.), by type of material (plastics, metals, paper and wood, rubber, etc.), as well as regionally (North America, Europe, Asia Pacific, Latin America, Middle East and Africa). According to 2017 data, the segment "pickup presses" dominate in terms of volume with a 30% share in the overall structure of the waste processing equipment market (Global Market Insights, 2018). It is also expected that in 2025 it will reach the figure of 390 million dollars. USA, showing an average annual growth of 5.7%.

Lefort, Danieli Centro Recycling, Morita Holdings Corporation, Forrec Srl Recycling, BHS Sonthofen, Panchal Plastic Machinery Private Ltd, Mid Atlantic Waste Systems, Idromec Spa and others are among the world's largest companies operating in the waste recycling equipment market. Market requests for digital economy projects became a prerequisite for structural changes in the engineering market. Thus, the identified trends confirm the investment attractiveness of circularity projects and the prospects for the development of business models based on the principles of the circular economy.

Conclusions

The relevance and global economic importance of the issue of the development of the circular economy make it necessary to solve this issue at different management levels. The objective reality is the involvement of all participants in economic relations in this process:

manufacturers, service providers, end consumers, government, international organizations. Modern entrepreneurs who carry out production activities need to take into account many factors that affect the development of their business in order to function effectively on the market. In addition to the task of bringing profit to your company and developing your activity according to all economic canons, you need to bring social utility and take care of the surrounding environment. In order to solve the risks associated with the management of companies based on circular business models, there is a growing need for the formation of a new environmentally responsible corporate culture.

In Ukraine, as well as in the world society, there are requests for a healthy way of life and preservation of the environment, therefore, the country must create institutional foundations for the realization of these needs, it is necessary to encourage training and innovation of a new generation of entrepreneurs, to initiate "green" business strategies for the development of territories and to promote intersectoral cooperation.

In the near future, pressure from such factors as resource scarcity and climate change is expected to increase. Global solutions are focused on a new economy that will ensure the livelihood of future generations. Government agencies can help establish the right conditions for businesses to operate – ones that enable effective use of data and real-life testing, while building trust in business and government. These are new responsibilities that product manufacturers must undertake in accordance with the demands of society in order to invent new business models in the era of massive personal data, automated transport and virtual reality.

Today, the nature of innovation processes has profoundly changed, and startups are not the only business model that is based on the invention of new products and services, as well as new knowledge and technologies. All mature companies, especially those operating in global markets, are indeed faced with a dilemma: to grow the business through operational scalability or to expand the product line at risk to become "obsolete" or to regularly renew their activities through the development of radically new concepts.

One of the main challenges facing management in connection with the implementation of the principles of the circular economy is the unpredictable results and consequences of business transformation in a competitive environment. Therefore, the replacement of business models is the basis of new approaches to company management. From this perspective, companies must create or enhance value by configuring or reconfiguring new or existing resources. Further research is needed on the issue of divergence of circular business models according to industry characteristics and practices of applying adaptive management tools in the context of conceptualizing changes and structural redistribution of resources in the environment.

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