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## FASHION INDUSTRY SUSTAINABLE CIRCULAR BUSINESS MODEL: DEVELOPMENT AND IMPLEMENTATION AMID GLOBAL ECOLOGICAL CRISIS

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### Key words:

circular economy, circular business model, fashion industry, fast fashion, global ecological crisis, sustainable development

The article considers ecological and economic problems of modern industrial enterprises. Based on the researches, the factors shaping the further sustainable economic development of industrial enterprises are identified and grouped into two directions: ecological and economic. The specific behavior of fashion industry enterprises in the conditions of global ecological crisis is analyzed. Based on the analysis, the importance of fashion industry business models' structural transformation is substantiated. It is defined that such transformation should become the gradual transform from a linear to a circular (closed-loop) model. Theoretical and practical aspects and difficulties of circular business models' introduction in the fashion industry are reviewed. The essence, advantages and problems connected with their application are revealed. The peculiarities of the transition process of companies in the industry to circular business models are analyzed. The main problems that may arise for entrepreneurs within the introduction of circular business models in the fashion industry are outlined. The basic two barriers are: the lack of special technologies in the fashion industry sector and incredibly rapid constant changes in the industry. Perspective options of fashion industry enterprises' transition to circular model are proposed. They are the following: rewards on used products being returned to the retail stores, industry should tend to a more classic designing, reuse of resources, creating long-term trust and brand-loyalty which are undeservedly forgotten amidst modern marketing instruments within fast fashion industry.

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## СТАЛА ЦИРКУЛЯРНА БІЗНЕС-МОДЕЛЬ ІНДУСТРІЇ МОДИ: РОЗВИТОК І ЗАПРОВАДЖЕННЯ В КОНТЕКСТІ ГЛОБАЛЬНОЇ ЕКОЛОГІЧНОЇ КРИЗИ

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### Ключові слова:

циркулярна економіка, циркулярна бізнес-модель, індустрія моди, швидка мода, глобальна екологічна криза, сталий розвиток

У статті розглянуто еколого-економічні проблеми сучасних промислових підприємств. На основі досліджень визначено фактори, що формують подальший сталий економічний розвиток промислових підприємств, які згруповані у два напрямки: екологічний та економічний. Проаналізовано специфіку поведінки підприємств індустрії моди в умовах світової екологічної кризи. На основі аналізу обґрунтовано важливість структурної трансформації бізнес-моделей індустрії моди. Визначено, що таке перетворення має стати поступовим перетворенням з лінійної на циркулярну модель (замкненого циклу). Розглянуто теоретичні та практичні аспекти та труднощі запровадження циркулярних бізнес-моделей до індустрії моди. Розкрито сутність, переваги та проблеми, пов'язані з їх застосуванням. Проаналізовано особливості процесу переходу компаній галузі на циркулярні моделі бізнесу. Окреслено основні проблеми, які можуть виникнути у підприємців при впровадженні кругових моделей бізнесу в індустрії моди. Основними двома перешкодами є: відсутність спеціальних галузевих технологій в індустрії моди та наймовірно швидкі постійні зміни в галузі. Запропоновано перспективні варіанти переходу підприємств індустрії моди до циркулярної моделі. Вони полягають у наступному: винагорода за використану продукцію, що повертається в магазини роздрібною торгівлі, індустрія повинна прагнути до більш класичного дизайну і повторного використання ресурсів, створення довгострокової довіри та лояльності до бренду, які незаслужено забуваються на тлі сучасних інструментів маркетингу в індустрії швидкої моди.

**Statement of the problem**

World ecological and economic crisis among industrial enterprises is caused by dozens of factors. It is absolutely natural to divide them into two groups: external factors (COVID-19 pandemic, market stagnation, reduction of effective demand, intensification of competition etc.), and internal factors. Amidst the latter the following should be noted: imperfection of business models of economic entities; futile and idle business processes, energy- and material-overconsuming processes and staff «psychology»; significant defects in the location of production sites and shops (in terms of the logistical approach) and so on.

Such situation threatens to develop into the global industrial crisis in all the sectors in the near future, destructive for many of them. Moreover, this would affect the whole world’s socio-economic development as it confronts with a large number of interconnected with industry problems. These include an increase in consumption of food, water, natural resources, energy demand in the context of climate change and environmental degradation. That is why it is the time to reconsider, actually, the concept of production and economic development of any industry, modeling business processes in a new way, allocating priorities in accordance with modern requirements.

One of the promising ways of industrial enterprises’ sustainable development in the context of global ecological crisis is transformation to the circular business model.

Among the positive prerequisites for the shift to the circular economy, the main thing is the development of scientific sphere. The shift is facilitated, first of all, by the emergence of new technologies related to renewable energy sources, the reuse of resources and waste management, as well as the development of digital technologies. Moreover, business is interested in reducing cost of materials due to their reuse, which encourages it to increase investment in research and development related to this area. The awareness of the population and business about the negative impact on the environment has also increased, which contributes to the transformation of the economy and society as a whole according to the concept of the circular economy.

**Objectives of the article**

The objective of the article is to establish promising ways of fashion industry enterprises’ sustainable development on the basis of the circular business model in the context of global ecological crisis.

**Analysis of recent research and publications**

In the economic literature, the problems of the shift from a linear economy to a circular one are considered in the works of Andrey Avramenko, Mikhail Gorbachev-Fadeev, Kenneth Boulding, Rachel Carson, Richard Dobbs, Jeremy Oppenheim, Fraser Thompson, Marcel Brinkman, Marc Zornes, Martin Lehmann, Bas de Leeuw, Eric Fehr, Donella Meadows, Dennis Meadows, Jorgen Randers, William Behrens III, Zengwei Yuan, Jun Bi, Yuichi Moriguchi, Di Wu [1], Ellen MacArthur [2] and others.

The shift from the linear to the circular economy is especially actual today, in conditions of complicating world ecological crisis, low-efficient usage of resources, critical exhaustibility of natural resources and high-level environmental pollution. Modern globalization processes increase the pressure on the environment, but they also increase the opportunity for the concept of circular economy realization. Therefore, it is rational to study the perspectives of circular business models as advanced in this field.

**The main material of the research.**

In the process of economic activity, each industrial enterprise consumes resources: natural, human, financial and, of course, ecological. Such consumption has a constant complex impact on the environment. Additionally, over time such impact is being born synergistic effect. Depending on the industry affiliation, the degree of harmfulness of such impact varies significantly, but none enterprise makes non harm at all.

The scheme of the industrial enterprise’s impact on the natural and social environments and economic parameters is shown in Figure 1. Furthermore, environmental change is only one of the consequences of industrial activity. There are others that arise as a result of ecological imbalance – the negative impact on the physical and emotional state of

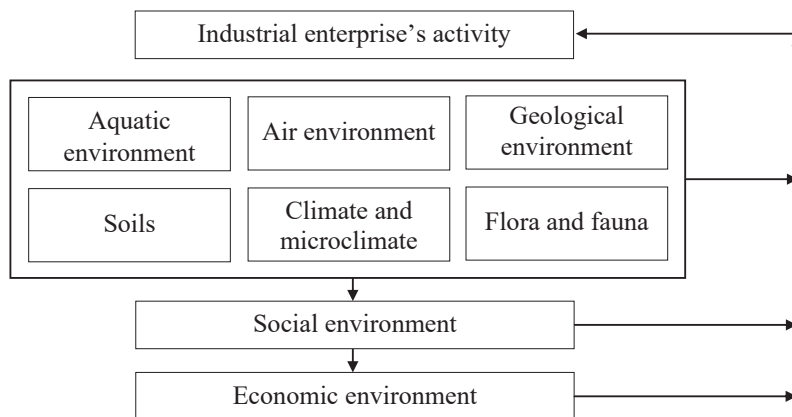


Fig. 1 – Scheme of the industrial enterprise’s impact on the natural, social and economic environments

Source: formed by the authors

the social environment, the deterioration of the economic situation associated with social problems and so on.

Concerning economic environment and parameters, it should be noted that each enterprise chooses itself which system indicators to use depending on the management style, strategy, size of an enterprise, the availability of credit resources etc.

It is also advisable to emphasize that, first of all, the parameters of the natural environment and economic prospects should be the focus of the model of sustainable development of industrial enterprises. Only by examining together the environmental and economic components of the model, the most objective assessment of each of the alternatives' optimality can be reached. Herewith, the sustainable development model should be evaluated not only before and during the approval of one of the alternatives, but also in the process of its implementation and maintenance. This is due to possible changes in the components of the model, as well as the updating of the regulatory framework.

The key concept of an enterprise's sustainable transformation is the concept of «pollution». Pollution means the change of environmental factors in an unfavorable direction as a result of industrial enterprise's activities.

Such pollutants should be divided into three main groups:

- 1) chemical pollutants;
- 2) mechanical contaminants;
- 3) energy pollutants.

When released into the atmosphere, the components of pollutants lead to various negative and mostly irreversible natural environment's changes.

In such circumstances, the task of transforming existing business models of industrial enterprises into environmental ones can be grouped as follows:

- increasing the economic efficiency of environmental activities of an enterprise for the short-term period and further;
- economic and ecological processes' optimization and financial and economic activities' increasing efficiency along with industrial investments;
- environmental risks' minimization and managerial decisions' economic substantiation on economic activity's diversification, introduction of new low-waste or non-waste resource-saving technologies, creation of new productions on industrial processing or utilization of waste;
- economic and environmental processes' forecasting and assessing their impact on the long-term sustainable development of an enterprise;
- substantiation of tax rates and the amount of other environmental liabilities for the use of natural resources by an enterprise.

The solution of these problems is aimed at achieving the main goal of economic activity of an enterprise – to obtain the highest possible profit and ensure sustainable development as a system. They determine the choice of general approaches to the greening of production and specific methods of economic and environmental development.

In the process of choosing and implementing a model of sustainable development, it is advisable to consider not

only its economic and environmental qualities in terms of overall long-term efficiency. Any business activity is associated with a variety of risks, especially in the areas of ecological development and investment.

That is why in the process of choosing a model of sustainable development of an industrial enterprise, it is important to assess also the risks associated with this direction of development. Considering the risks in general, we can separate its main indicator – the average value, which caused by the deterioration of the quality of the environment. This indicator is a mathematical expectation of the enterprise's, expressed in value terms, taking into account the probabilistic nature of its occurrence.

Depending on the heaviness of the negative ecological impact, and in order to reduce such impact, each enterprise adapts the model of sustainable growth. At the same time among the most effective ones are circular business models.

So, in order to analyse the possibilities and perspectives of circular business models, we should identify the meaning of the circular economy concept.

Today, there is no unified interpretation of the concept of circular economy.

According to Di Wu, the circular economy is an economy that develops via recycling and reusing the waste. Its target is minimization of the amount of natural resource consumed by economic production, pollution discharged into the environment, and the overall ecological damage caused to the environment by the economy [1].

Ellen MacArthur considers circular economy as an economy based on the principles of waste and pollution management, the conservation of products and materials in use, and regenerating natural systems [2].

According to the Global Forum on Environment, the circular economy is a concept that aims at closing materials loops and extending the lifespan of materials through longer use, and the increased use of secondary raw materials [3].

So, basing on the researches, the circular economy is a unity of industrial ecology and waste management, which acting together aiming at overconsumption reduction of natural resources by partial replacing with wastes and secondary resources.

Concerning the peculiarities of environmental impact of fashion industry enterprises, it should be said the following.

Fashion industry is an industry that includes design, production, distribution, marketing, trade, advertising and promotion of all types of clothing [4].

Today, the fashion industry is one of the most polluting industries in the world and, according to the current trajectory of development, it is projected that by 2050 it will use 25% of the world's CO<sub>2</sub> emissions budget. The spread of «fast fashion» has led to a sharp reduction in the service life of clothing. Since 2002, world clothing production has more than doubled, with the average consumer buying 60% more and each item of clothing stored twice as much [5].

Nowadays the textile and garment industries face the problem of meeting consumer expectations. But in some cases, they contradict each other. On the one hand, research has shown that there is an unhealthy «throwaway»

consumer culture, which causes excessive consumption and waste. Consumers are increasingly getting used to cheap, low-quality fashion, which they can throw away after a few washes. On the other hand, other studies have shown that consumers are increasingly interested in environmentally friendly products [6].

In general, the fashion industry is characterized by high consumption of fuel, water and chemicals. Extensive energy consumption, for example, occurs in the production of artificial fabrics, yarn and finishing, as well as in washing at the stage of use and direct emissions during transportation [7]. Regarding the use and release of toxic chemicals in cotton and agriculture, and in most textile industries, toxic chemicals are used in pre-treatment, dyeing and printing, leading to soil and water pollution [8].

So common linear fashion industry model causes and faces a lot of ecological and social problems.

That's why a concept of circular fashion industry was created.

Circular fashion industry is an industry in which waste and pollution are not created, products and materials are used for as long as possible, including through reuse and recycling, and where natural systems are regenerated [9].

Therefore, now in fashion industry there is a trend towards the introduction of circular business models.

Source: formed by the authors on the basis of [9, 10].

Circular fashion model assumes the use of materials which have been suitably made and designed with the circular economy in mind. Such products pass special certification (Cradle2Cradle, for example, which assesses whether products have been suitably designed and made across five critical performance categories: Material Health, Material Reutilization, Renewable Energy and Carbon Management, Water Stewardship, and Social Fairness).

Clothing also should be designed with sustainability and circularity in mind. Design of clothing should also consider perspective how a product will be made, used and ultimately disposed of. Design issues to consider include the use of single fibers rather than blends, ensuring hardware and trims are easily removable and can be recovered for reuse and the use of safe dyes and finishes.

Garments are made from high quality materials with maximum strength, durability and timeless style to maximize the duration of the consumer usage stage in garment's life cycle.

At the stage of consumer usage, such measures are applied to extend the life cycle of the garment: rent, reuse, repair, redesign, resell.

When the clothing isn't good enough for rent, reuse, repair or redesign, it is sent for recycling to reuse it in production of completely new clothing.

Finally, a circular fashion model considers the end-of-life stage, where if the product can no longer be used either entirely, for its parts or recycled back into raw materials it should be disposed of without harming the environment through biodegrading and composting [9].

There are still a lot of problems on the way towards circular fashion.

As for manufactures, the main problem is the absence of required technologies.

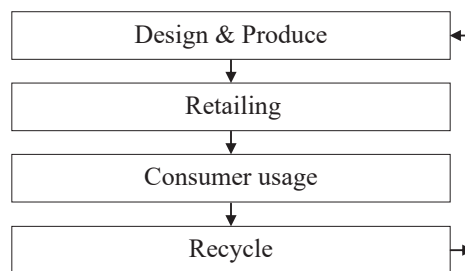


Fig. 2 – Scheme of the circular business model of the fashion industry

On the other side, the big problem is the need for constant change in the fashion industry. This trend promotes overproduction, overconsumption and increasing of wasting. Colors, shapes, materials, etc. are constantly changing, which is opposite to the idea of clothing durability.

Some of the possible solutions of these and some other problems can be:

1. Introduction of rewards on products being returned to the retail stores to make people more responsible for circular fashion.

2. Designers should tend to a more classic design that will be valuable to users for a longer period of time.

3. Companies should totally revise their current business models implementing retaking of sold products, reuse of resources like that of raw materials instead of using virgin raw materials, etc.

4. Creating trust among people regarding second-hand products by issuing certificates from trusted bodies with the product.

Fashion industry products are directly aimed at meeting the everyone's needs. Therefore, the sustainable development of this industry should be a priority. But development of these industry should be carried out taking into account the current trends towards the introduction of circular business models, which will ensure the competitiveness of the industry's products in the local and foreign markets in the long term.

## Conclusions

Studies have shown that «classical» linear vector of economic development has proved its insolvency in modern ecological and socio-economic developmental stage. Transformations of industrial enterprises' business models are inevitable for those who are aiming to survive and achieve sustainable economic growth with positive long-term ecological effectiveness. From the one hand, there are lots of opportunities to start such a transformation: plenty of alternatives, solid scientific and practical information, dozens of proved cases. From the other hand, such variety of alternatives complicates the process of choosing, development, implementation and support of the transformation requires huge amounts of financial, human and time resources. In a long-term perspective, the most ecological and economic efficient business model is the circular one, as it is aimed at overconsumption reduction of natural resources by partial replacing with wastes and

secondary resources. Such business model is applicable as this industry is one of the most economic active and its for each industrial enterprise, including fashion industry, ecological impact is harsh.

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