

Project topic: ИРН AP19680251 «Circular economy opportunities using model development for agribusiness entities commodity production's closed chain development based on lean and digital technologies»

Актуальность: Features of modern economic development are distinguished by the presence of large-scale challenges facing domestic producers. A comprehensive study and solution of the problems is not limited by the creation of the necessary mechanisms and tools for the formation of an innovative infrastructure for the production of the national economy. There is a need for a real transformation of the structure of commodity production, based on the principles of a circular economy, which would take into account digital and lean technologies as components of the economy and the main systematic approach to innovative and technological modernization of production, contributing to an economic breakthrough in the face of global change.

The presence in modern economic reality of such problems as a decrease in production volumes, ensuring food security in the face of an increase of population, social, environmental and political problems, unfortunately, is supplemented by new challenges. They are caused not so much by quantitative as by qualitative disproportions of the socio-economic, social and political systems, and the issues of digitalization and lean technologies only actualize them.

Industry 4.0 technologies penetrate deeply into various sectors of the economy from production to ensuring the competitiveness of the country's economy and business entities. Therefore, the effectiveness of the sustainable development of commodity production should take into account the principles of a closed chain based on the introduction of digital and lean technologies as an objective and inevitable process. Therefore, the growth of the level of competitiveness, the accelerated pace of scientific and technological progress should take into account these large-scale changes and focus on the implementation of existing and the creation of new opportunities for long-term socio-economic development.

The problem of studying the possibilities of a circular economy for the formation of a business model of a closed chain of commodity production with the introduction of lean and digital technologies is aimed at transforming socio-economic conditions, which is of particular relevance for the development of commodity production based on a waste-free process, which have their own specifics and therefore are in the field of close attention of the state, scientists, production workers, managers. The threats and risks of mastering this model give rise to a lot of new issues, the complex solution of which makes us talk about such a concept as a "circular economy".

The relevance of the context of the development of the circular economy requires the inclusion of the parameters of lean and digital technologies in this list of the production cycle. This model takes into account the presence of social, economic, environmental and technological relations in the process of commodity production.

Building a business model for a closed chain of commodity production, first of all, should contribute to its sustainable development and be a key factor in the formation of competitive advantages for domestic producers, thereby ensuring waste-free production, increasing business activity of business entities and food security of the population.

Briefly, the specific features of the priority development of the closed chain model can be characterized as follows:

- formation and development of points of growth of commodity production through the competitive advantages of domestic producers, non-waste production, the unique feature of which is provided by domestic innovations and technologies;

- the growth of the welfare of the population and the improvement of the life quality;

- formation and systematic improvement of the marketing and information and communication infrastructure of the closed chain model.

It should be noted that the totality of information, analytical, and statistical data makes it possible to determine the current vectors of development that correspond to the priority goals and objectives of the transformation of commodity production in order to fully realize the potential inherent in the circular economy model. Thus, it is possible to determine with certainty the directions of diversification of the economic space of economic sectors, the structural transformation of the economic system, the expansion of areas and types of activities in which the methods and tools of lean technologies and the digital vector of development are used.

Project goal: To develop circular economy opportunities and mechanisms using effective business model for development commodity production closed chain in the agricultural sector based on the development of lean and digital technologies, provide specific, scientific evidence-based recommendations for remanufacturing phased development in agriculture (on the example of Akmola region).

Expected and achieved results:

1. Systematization of scientific approaches to the category of “circular economy” and its main elements in the context of digitalization of the economy and green technologies.

2. The environmental and socio-economic effects of the circular economy will be identified, contributing to the solution of a number of environmental problems of agricultural producers.

3. Adaptation of best practices in the development of the principles of the circular economy, the role of the state and the necessary institutional conditions for the transformation of the linear model of the economy into a circular one, taking into account the principles of the digital and green economy.

4. Potential industries for the formation and development of circular business models in the context of the development of digital and green technologies will be identified.

5. Designing a prototype of a closed supply chain and defining its main elements for commercial agricultural producers;

6. An index will be developed for the environmental assessment of a product using the example of agriculture, the main elements of circular production and criteria for selecting suppliers within the framework of circular production.

7. Building a model for making operational decisions of an agro-industrial complex entity about the method of recycling used products, taking into account social, environmental and economic factors.

8. The principles of non-waste production in the agriculture of Kazakhstan will be developed on the basis of a comparative analysis of utilization and remanufacturing programs.

9. Practical recommendations will be developed for the phased development of remanufacturing in the agro-industrial complex of Kazakhstan.

Planned Publications:

The following will be published:

- monograph with a total volume of 7.0 p.s.

- 1 (one) article in a reviewed scientific publication indexed in the Social Science Citation Index, Arts and Humanities Citation Index or Russian Science Citation Index of the Web of Science base or having a CiteScore percentile in the Scopus base of at least 50 (fifty);

- 2 (two) articles in domestic publications recommended by CQASES.

It is expected that two master's and two diploma theses on the topic of scientific research will be written and defended.

Members of the research group:

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List of publications and patents published within the framework of this project: (with links to them):

Information for potential users: Separate results, provisions and conclusions can be used in the development of methodological materials, lecture courses on Agribusiness Entrepreneurship, Circular Economy and Agro-Industrial Economics.

Additional information: