

Review Paper

# Optimal Criteria of Investment Potential in Innovation Cycles of the Economic System of Agro-Industrial Enterprises

Natalia Trusova<sup>1\*</sup>, Oksana Hryvkiivska<sup>2</sup>, Natalia Kukina<sup>3</sup>, Natalia Kotvytska<sup>4</sup>, Petro Makarenko<sup>5</sup> and Volodymyr Pilyavsky<sup>6</sup>

<sup>1</sup>Department of Finance, Accounting and Taxation, Dmytro Motornyi Tavria State Agrotechnological University, Zaporizhzhia, Ukraine

<sup>2</sup>Department of Economics and Law, National University of Food Technologies, Kyiv, Ukraine

<sup>3</sup>Department of Economics and Business, Dmytro Motornyi Tavria State Agrotechnological University, Zaporizhzhia, Ukraine

<sup>4</sup>Department of Economics, Finance and Accounting, European University, Kyiv, Ukraine

<sup>5</sup>Department of Economics and International Economic Relations, Poltava State Agrarian Academy, Poltava, Ukraine

<sup>6</sup>Department of Marketing, International University of Business and Law, Kherson, Ukraine

\*Corresponding author: ntrusova\_@ukr.net (ORCID ID: 0000-0001-9773-4534)

Received: 29-12-2022

Revised: 27-04-2023

Accepted: 02-05-2023

## ABSTRACT

The purpose of the study is to find the optimal criteria for investment potential in innovative cycles of the economic system of agro-industrial enterprises of Ukraine. A methodical approach is presented to determine the optimal criteria of investment potential with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises, which formed sources of investment for expanded reproduction and stimulation of resource opportunities according to defined innovation priorities. Sources and a block diagram of the step-by-step balancing of sources of investment potential in innovation cycles of the economic system of agro-industrial enterprises are presented. The interpretation of the possibilities of investment potential based on the coefficient of strategic changes in the innovation cycles of the economic system is substantiated. The distribution of organizations and their activities regarding scientific developments of modern innovation cycles in the economic system of agro-industrial enterprises of Ukraine by sectors of activity was carried out. The "corridor" of opportunities for investment potential with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises of Ukraine at the unique, marginal and average levels have been determined.

## HIGHLIGHTS

- The article aims to determine optimal criteria for investment potential in the innovative cycles of agro-industrial enterprises in Ukraine, including methodical approaches for assessing investment potential, expanding the system of indicators, and analyzing the distribution of investment potential among different sectors, ultimately identifying opportunities for strategic changes and balancing investment sources in these cycles.

**Keywords:** Agro-Technical Sphere, Competitiveness, Economic System, Innovation Projects, Investment Resources

Innovative processes in the economic system of agro-industrial enterprises are the driving force of the complex use of knowledge-intensive factors of production in technological, organizational, innovative activities to ensure the competitiveness of products both in the domestic and foreign markets.

These processes are of particular importance in connection with the need to adapt the Ukrainian

**How to cite this article:** Trusova, N., Hryvkiivska, O., Kukina, N., Kotvytska, N., Makarenko, P. and Pilyavsky, V. (2023). Optimal Criteria of Investment Potential in Innovation Cycles of the Economic System of Agro-Industrial Enterprises. *Econ. Aff.*, 68(Special Issue): 869-880.

**Source of Support:** None; **Conflict of Interest:** None



agro-industrial sector of the economy to the requirements of the European Union. At the same time, the determinants of investment potential in the innovative cycles of the economic system of agro-industrial enterprises are capable of ensuring the country's food security, which is especially aggravated against the background of growing flows of imports of low-quality food products, with an artificial property in a long period of time.

It is worth noting the study of O. Vovk *et al.* (2021), which describes the features of the functioning of innovative enterprises in the economic realities of Ukraine, as well as the studies of I. Yepifanova and V. Dzhedzhula (2020), S. Lhuillery *et al.* (2017) and many other researchers, who offered their methods for estimating the innovative potential of an enterprise. In turn, O. Vovk *et al.* (2021) estimated the features of building innovation based on the available prospects for its development in Ukraine.

The priority of this research is to determine the optimal criteria for investment potential with

strategic changes in the innovation cycles of the economic system of agro-industrial enterprises, which formed sources of investment for expanded reproduction and stimulation of resource opportunities according to the identified innovation priorities.

## MATERIALS AND METHODS

Investment potential as a generator of innovative resources ensures a rapid increase in the profitability of enterprises of any sphere during the development of the latest technologies, modernization of the production process (Carlino and Kerr, 2015; Chornobai and Duma, 2015) (Table 1).

Investment potential criteria form a set of system-targeted investment resources aimed at using scientific developments, introducing innovations, fundamentally new types of products, equipment and technologies in order to make a profit (Fedulova, Marchenko, 2015; Umanets, 2006; Dmytriv, 2014;

**Table 1:** Sources of investment potential in innovation cycles of the economic system of agro-industrial enterprises

Sources	Potential benefits
Attracting direct investment or self-financing	Full rights to the result of the implementation of the innovative project, free resources
Investing through a venture capital institute	Diversification of risks, free access to capital, availability of professional consultations in the field of innovation
Investments of private entrepreneurs	The possibility of involvement in high-risk innovative projects at the first stage of their development in small volumes. Flexible financial decision-making, quick processing, cheaper resources than from financial institutions, preference for local investments in highly specialized areas, provision of credit guarantees to the clients
Investment at the expense of the state (local) budget, state support program	Low rates of attracting resources, the possibility of investing on a long-term basis. Stimulation of innovative activity
Bank credit	Independence in use, the possibility of an affordable loan price
Banking investment	Access to financial resources on a long-term basis on acceptable terms
EU grants and programs	Access to financial resources on a long-term basis on acceptable terms
Investment programs by the World Bank and EBRD	Access to financial resources on a long-term basis on acceptable terms
<b>Criteria for evaluating the innovative potential of the economic system of innovative development</b>	
Personnel	Professional competences of employees of agro-industrial enterprises; corporate culture; employee motivation system; participation in international events for the innovative development of the agro-industrial complex
Client's	Characteristics of the quality of agro-food products; compliance with ISO quality standards; reputation of enterprises; customer loyalty
Production	Availability of developed new products; availability of the latest technological production lines; availability of production patents
International	Joint ventures; state-owned foreign enterprises; integration and cooperation; public-private partnership; commodity and stock markets

Petrunya, Razzhivin, 2019). Since the main mission of the investment potential is the investment of innovative projects, therefore, their economic system needs to update the technical base, change the types of products, works, and services (Caballero and Hammour, 2000; Trusova *et al.* 2021a). Innovative projects of agro-industrial enterprises are aimed at using the results of scientific developments to obtain profit based on the expansion and restoration of the range of products (goods, services) that are the result of agricultural production or its processing with the use of new raw materials, the use of new agricultural technologies and processing technologies, the introduction of new organizational structures and development of new markets (Buryennikova and Dmytrenko, 2017; Trusova *et al.* 2020).

## RESULTS

From the point of view of evaluating the optimal criteria of the investment potential for determining the efficiency of the innovative project, the priority may be the recognition of the minimum reduced costs (formula 1) and the maximum reduced profit (formula 2) (Chernoivanova, 2011; Umanets, 2006).

$$C + E_n \times K \rightarrow \min, \quad \dots(1)$$

where,  $C$  – current expenses;  $K$  – listed capital investments (investments);  $E_n$  – regulatory efficiency ratio of capital investments ( $E_n = 0.15$ ).

$$P - E_n \times K \rightarrow \max, \quad \dots(2)$$

where,  $P$  – is profit. When comparing several innovative projects that differ in the volume of production, the calculation of the minimum costs is carried out by calculating the indicators of specific costs and capital investments (formula 3):

$$C_n + E_n \times K_n \rightarrow \min, \quad \dots(3)$$

where,  $C$  – specific current costs per unit of production;  $K_n$  – specific capital investment per unit of production. When analysing alternative innovative projects, indicators “NPIV”, “IRI”, “RRI” and “IPP” must be activated at the common point of contact of innovative and investment processes in the economic system of agro-industrial enterprises.

The methodical approach to determining the optimal criteria for investment potential in the innovation cycles of the economic system of agro-industrial enterprises takes into account the assessment of the state of the innovation process through the expanded basis of complex technologies: invention, innovation, imitation and modification (Fig. 1) (Trusova *et al.* 2022; Vasylieva, 2010; Vostriakova, 2015).

This makes it possible to determine the contribution of innovative factors to the growth of the regional domestic product (GDP), labor productivity in the industry, capital return, material return, energy intensity in accordance with the investment capacity and taking into account the balance of market demand for innovative factors in conditions of a favourable investment climate (Table 2).

During the implementation of innovation cycles, risks may arise that provoke their imbalance (Mazniev, 2017; Melnyk and Kasianok, 2017; Oslo Manual, 2005). The main idea of this approach is to achieve uniformity of the “net present value of the innovation project” in the economic system of agro-industrial enterprises, taking into account the time intervals of innovation cycles (formula 4):

$$I_c = \sum_m NPV_m(\Delta t_n) + \sum_n \sum_i NPV_{ni}(\Delta t_n) \quad \dots(4)$$

where,  $\Delta t_1$  – the amount of change in the short-term interval of the investment potential;  $\Delta t_2$  – the amount of change in the flow interval of the investment potential;  $\Delta t_3$  – the amount of change in the medium-term interval of the investment potential;  $\Delta t_4$  – the amount of change in the long-term interval of the investment potential.

A key factor in implementing the investment potential in the innovation cycles of the economic system of agro-industrial enterprises is the formation of a “Corridor” of opportunities for strategic changes and their level of segmentation between existing technological transfers and resource exchange (Bilovodska, 2012; Trusova *et al.* 2021b). The identification of opportunities for strategic changes is carried out in compliance with and followed by the system of the following principles: scientific validity, purposefulness, systematics, alternativeness; efficiency (Shlapak and Hubitska, 2013; Smolinska and Hrybyk, 2017; Trusova *et al.* 2021c; Yaremchuk and Kolomiets, 2016). The study

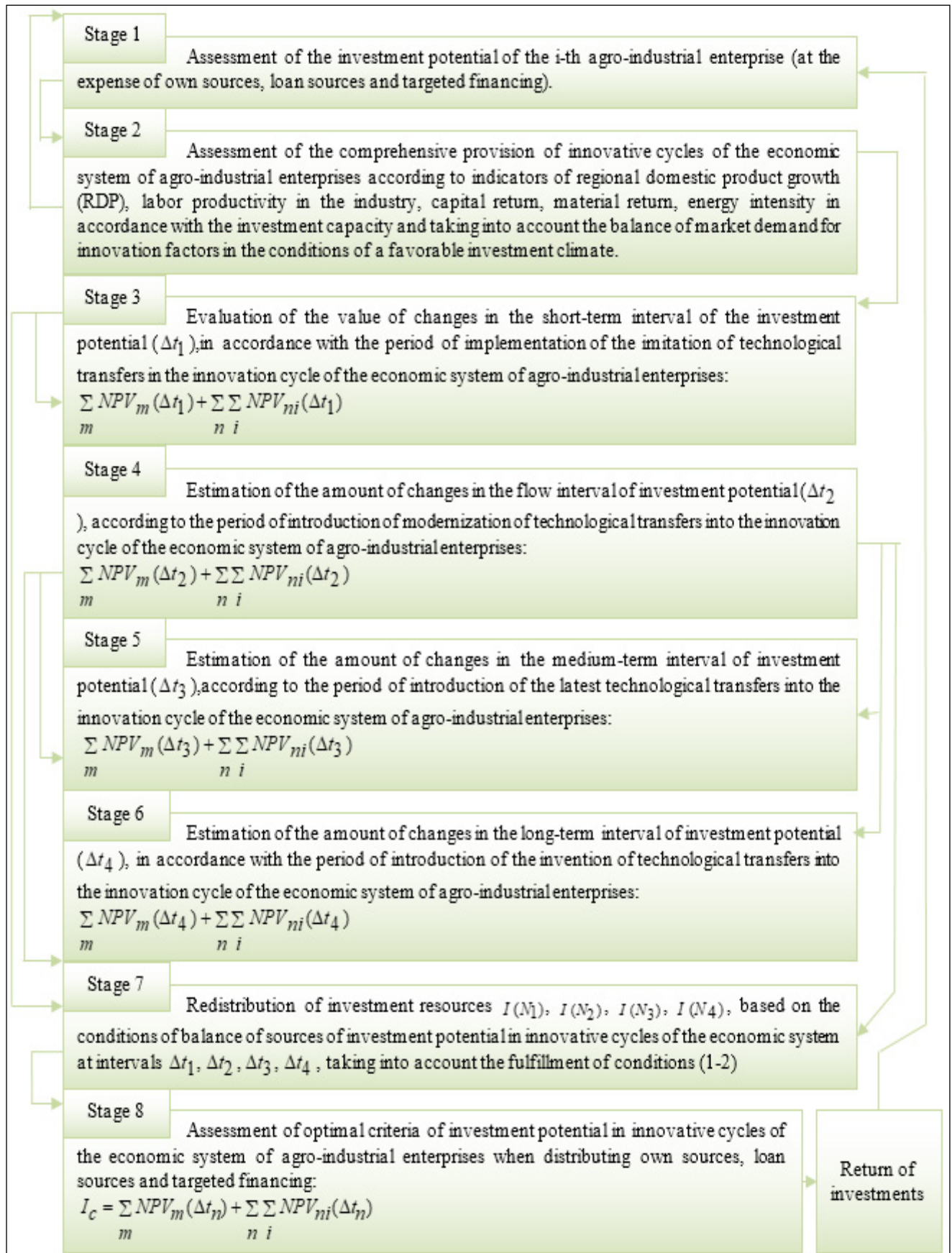


Fig. 1: Block diagram of step-by-step balancing of sources of investment potential

**Table 2:** Macro indicators of activation of investment potential during the implementation of technological transfers

Criteria	Indicators	Target values of indicators	Control values of indicators
Increasing the specific weight of RVP due to innovations	Increase in RVP due to innovations	More 50%	Max. = 100% Min. = 20%
Increasing the output of science-intensive products	The specific weight of science-intensive products in the industry	60-70%	Max. = 100% Min. = 30%
Increasing the efficiency of production in the agro-industrial complex due to innovations	1. Increase in labor productivity at the expense of NTP	2 times	Max. = unlimited Min. = 1.5
	2. Increase in fund return at the expense of NTP	5-7%	Max. = unlimited Min. = 0
	3. Increase in material yield due to NTP (reduction of material capacity)	8-10%	Max. = unlimited Min. = 0
Limiting the growth of resource intensity and energy intensity of production	1. Reduction of the specific costs of the most important types of fuel, the material intensity of the agricultural and processing technological process	Based on the strategies of agro-industrial enterprises	Max. = unlimited Min. = 5%
	2. Reducing the energy intensity of the agricultural and processing technological process	On the basis of plans of agro-industrial enterprises	Max. = unlimited Min. = 5-7%

**Note:** Basic statistical and predictive target values are used when forecasting GDP growth by 7-8%; cyclical values with GDP growth of 4-6%.

of various combinations of the capabilities of agro-industrial enterprises and the comparison of their strategic changes in the investment potential with compliance with the previous conditions allows at this stage to build an analytical matrix (A) with dimension  $n_{x-m}$ :

$$A = \begin{pmatrix} x_1 \\ x_2 \\ \dots \\ x_i \\ \dots \\ x_m \end{pmatrix} = \begin{pmatrix} x_{11} \dots x_{1i} \dots x_{1m} \\ x_{21} \dots x_{2i} \dots x_{2m} \\ \dots \\ x_{i1} \dots x_{ij} \dots x_{im} \\ \dots \\ x_{n1} \dots x_{ni} \dots x_{nm} \end{pmatrix} \dots(5)$$

where,  $m$ – the number of local components regarding the possibilities of investment potential in the innovation cycles of the economic system of agro-industrial enterprises with strategic changes in their optimal criteria, which is equal to the number of terms of the matrix;  $n$  – the number of units of the  $m$ -dimensional space, which is equal to the number of columns in the matrix (A);  $x_{ij}$  – the value of the unit at number  $j$ , for the sign at number  $i$ .

The reference matrix  $A_{et\max}$  is represented by formula (6):

$$A_{et\max} = \begin{pmatrix} x_{1m}^{\max} \\ x_{2m}^{\max} \\ \dots \\ x_i^{\max} \\ \dots \\ x_m^{\max} \end{pmatrix} \dots(6)$$

The calculation of the unique level of investment potential opportunities with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises accumulated on the market is carried out according to formula (7):

$$PSC_{IP}^{\max} = \sum_m^{i=1 \dots \Sigma_i \max} \dots(7)$$

where,  $PSC_{IP}^{\max}$  – a unique level of investment potential opportunities with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises;  $m$  – the number of local components regarding the unique opportunities of investment potential;  $x_i^{\max}$  – a unique level of the  $i$ -th component regarding the possibilities of investment potential. When investigating the possibilities of investment potential according to the limit level of strategic changes, in each row of the matrix (A), the minimum value of the local component ( $m$ ) is

selected and the spatial or dynamic distribution of data is constructed (8):

$$A = \begin{pmatrix} x_{1m}^{\min} \\ x_{2m}^{\min} \\ \dots \\ x_i^{\min} \\ \dots \\ x_m^{\min} \end{pmatrix}_{et}^{\min} \dots(8)$$

Calculation of the marginal level of investment potential opportunities with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises accumulated on the market is carried out according to formula (9):

$$PSC_{IP}^{\min} \sum_m \sum_{x_i} \min \dots(9)$$

where,  $PSC_{IP}^{\min}$  – the limit level of investment potential opportunities;  $m$  – the number of local components of the marginal level of investment potential opportunities with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises;  $x_i^{\min}$  – the limit level of the  $i$ -th component regarding the possibilities of investment potential. When investigating the possibilities of investment potential according to the average level of strategic change in the innovation cycles of the economic system of agro-industrial enterprises, in each row of the matrix ( $A$ ) the average value of the local component ( $m$ ) is selected and a spatial or dynamic distribution of data is constructed. The reference matrix  $\bar{A}_{et}$  is represented by formula (10):

$$\bar{A}_{et} = \begin{pmatrix} \bar{x}_{1m} \\ \bar{x}_{2m} \\ \dots \\ \bar{x}_i \\ \dots \\ \bar{x}_{nm} \end{pmatrix} \dots(10)$$

Calculation of the average level of investment potential opportunities with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises accumulated on the market is carried out according to formula (11):

$$\overline{PSC}_{IP} = \sum_m^{i=1} \bar{x}_i \dots(11)$$

where,  $\overline{PSC}_{IP}$  – the average accumulated on the market level of investment potential opportunities;  $m$  – the number of local components in relation to the average level of investment potential opportunities;  $\bar{x}_i$  – the average level of the  $i$ -th component regarding the possibilities of investment potential. The constructed reference matrices  $A_{et}^{max}$ ,  $A_{et}^{min}$  and  $\bar{A}_{et}$  make it possible to form the so-called “Corridor” of investment potential opportunities with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises. In the case of studying the possibilities of a unique level (formula 12):

$$A' = \frac{A}{A_{er}^{max}} \begin{pmatrix} x_1 \\ x_2 \\ \dots \\ x_i \\ \dots \\ x_m \end{pmatrix} \begin{pmatrix} x_{1m}^{max} \\ x_{2m}^{max} \\ \dots \\ x_i^{max} \\ \dots \\ x_m^{max} \end{pmatrix} \dots(12)$$

In the case of studying the possibilities of the limit level (formula 13):

$$A' = \frac{A}{A_{er}^{min}} \begin{pmatrix} x_1 \\ x_2 \\ \dots \\ x_i \\ \dots \\ x_m \end{pmatrix} \begin{pmatrix} x_{1m}^{min} \\ x_{2m}^{min} \\ \dots \\ x_i^{min} \\ \dots \\ x_m^{min} \end{pmatrix} \dots(13)$$

In the case of middle-level opportunity research (formula 14):

$$A' = \frac{A}{A_{er}^{min}} \begin{pmatrix} x_1 \\ x_2 \\ \dots \\ x_i \\ \dots \\ x_m \end{pmatrix} \begin{pmatrix} \bar{x}_{1m} \\ \bar{x}_{2m} \\ \dots \\ \bar{x}_i \\ \dots \\ \bar{x}_{nm} \end{pmatrix} \dots(14)$$

The assessment of the level of opportunities of investment potential with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises accumulated on the market is carried out using the coefficient ( $d_{PSCIP}$ ), which is calculated according to formula (15):

$$d_{PSC_{IP}} = \frac{IP_i}{PSC_r} \quad \dots(15)$$

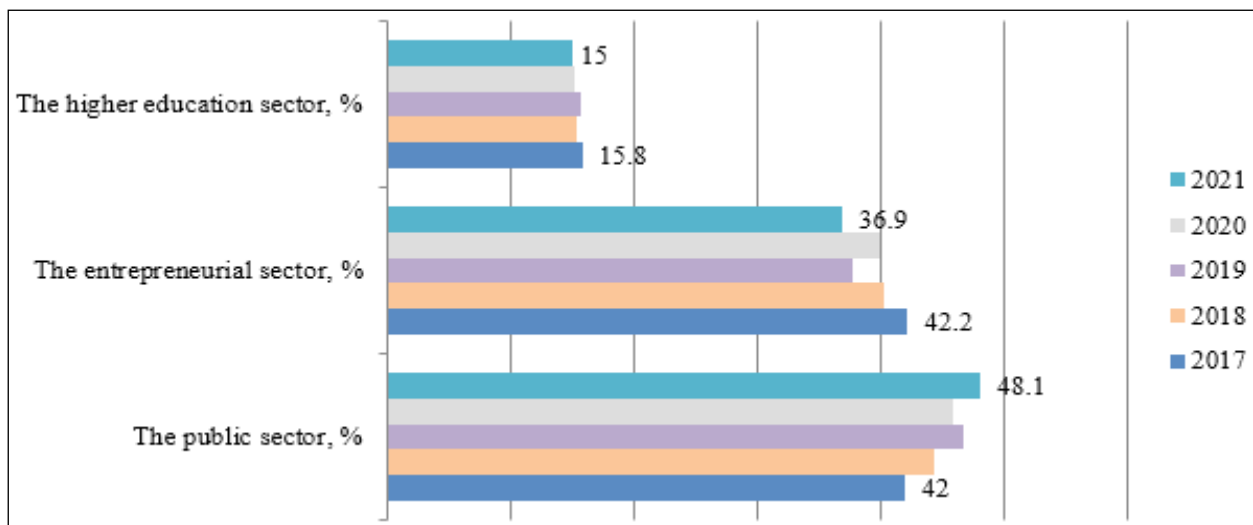
where,  $IP_i$  – the general level of opportunities for investment potential with strategic changes in the innovation cycles of the economic system of the  $i$ -th agro-industrial enterprises;  $PSC_r$  – opportunities for investment potential with strategic changes in the innovation cycles of the economic system of the  $i$ -th agro-industrial enterprises, accumulated on the market according to their certain level.

The optimal criteria for the level of opportunities for investment potential with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises are given in Table 3.

The implementation of innovation cycles at agro-industrial enterprises contributes to increasing labor productivity, saving resources, reducing costs and reducing the cost of agro-industrial products, increasing volumes and increasing production efficiency. This affects the amount of attracting investments from the external environment for additional formation of the investment potential, which ensures the ability of agro-industrial enterprises to avoid the crisis of their economic system, through the implementation of scientific developments of innovation cycles by sectors of activity (Fig. 2).

**Table 3:** Optimal criteria for the level of investment potential opportunities

The level of opportunities of investment potential	The value of the coefficient $d_i$ and the trend of change	Interpretation of the possibilities of investment potential by the coefficient of strategic changes in the innovation cycles of the economic system
A unique level of opportunities	$d_{PSC_{IP}} \leq 1 \uparrow$	The program of strategic changes is effective, the implementation of investment potential can provide resources for innovation cycles
	$d_{PSC_{IP}} \leq 1 \downarrow$	The program of strategic changes requires adjustment and increase of investment potential resources
	$d_{PSC_{IP}} = 1$	Investment potential is a medium for changing resource capabilities and implementing innovative cycles of the economic system of agro-industrial enterprises with a strategy of maintaining the achieved positions
Limit level of opportunities	$d_{PSC_{IP}} \geq 1 \uparrow$	The increase in the value of the coefficient in the dynamics indicates the expediency of further realization of the investment potential and the absence of a need to adjust the program of strategic changes of innovation cycles
	$d_{PSC_{IP}} \geq 1 \downarrow$	A decrease in the value of the coefficient in the dynamics indicates a shortage of resources; the need to adjust the current innovation cycles and the investment potential building program
	$d_{PSC_{IP}} = 1$	Investment potential requires adjustment and activation of strategic changes in the innovation cycles of the economic system
Average level of opportunities	$0 \leq d_{PSC_{IP}} \geq 1 \uparrow$	The investment capacity building program needs support
	$0 \leq d_{PSC_{IP}} \geq 1 \downarrow$	
	$d_{PSC_{IP}} \geq 1 \uparrow$	The investment potential implementation program requires increasing resources and support for the implementation of innovative cycles of the economic system
	$d_{PSC_{IP}} \geq 1 \downarrow$	The investment potential realization program needs to be revised in terms of increasing resources and supporting innovative cycles of the economic system
	$d_{PSC_{IP}} = 1$	Implementation of investment potential in innovation cycles of the economic system depends on the type of strategic changes of agro-industrial enterprises



**Fig. 2:** Distribution of organizations regarding scientific developments of modern innovation cycles in the economic system of agro-industrial enterprises of Ukraine by sectors of activity, %

**Table 4:** Indicators of organizations’ activities regarding scientific developments of Ukraine

Indicators	2017	2018	2019	2020	2021
Researchers in % of the total number of employees involved in the implementation of the research project	74.5	73.7	65.1	63.0	65.4
Technical personnel of researchers in % of the total number of employed population	16.5	17.2	24.7	27.3	24.9
Investment costs for fundamental scientific research in % of the total amount of investment potential for the implementation of the research project	25.9	22.4	19.3	21.9	22.4
Costs for applied scientific research in % of the total amount of investment potential for the implementation of the research project	19.8	17.8	22.2	23.6	21.3
Costs for scientific and technical (experimental) developments in % of the total amount of investment potential for the implementation of the research project	54.3	59.8	58.5	54.5	56.3

The largest percentage of organizations that carried out scientific development of modern innovation cycles in the economic system of agro-industrial enterprises of Ukraine by sectors of activity belongs to the state sector of the economy – 48.1%, the entrepreneurial sector – 36.9% and the sector of higher education – 15%. 22.4% own investment resources were spent on fundamental developments, on applied developments – 21.3%, on scientific and technical developments – 56.3% expenses (Table 4).

In particular, for the period of 2017-2021, the investment potential with active innovation cycles of the economic system of large agro-industrial enterprises was 51% of the total number of innovatively active subjects of agro-industrial production; medium-sized enterprises accounted for an average of 35% investment potential, small enterprises – 24%.

In the agro-industrial complex of Ukraine, as of

the beginning of 2022, 474 innovative projects with a total cost of almost 41.3 billion EUR are being implemented. It was planned that the completion of these projects will create about 16 thousand new jobs in the fields of agro-industrial production (Table 5).

The identification of investment potential opportunities with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises, in the conditions of stability of local components, allows allocating resources in the matrix (A) in order to use the “corridor” of opportunities of the studied potential in relation to its unique, marginal and average level (Table 6).

The value of the “corridor” of opportunities of the researched investment potential in relation to its unique, marginal and average level is summarized in Fig. 3.



**Table 5:** The cost of innovative projects in the regions of Ukraine as of January 1, 2022

Cost of innovative projects	Units	Investment costs for innovative projects	Percentage of the total cost of innovative projects
To 10 million EUR	235	680.3	53.3
10-50 million EUR	118	2716.7	26.8
50-100 million EUR	42	2723.1	9.5
100-500 million EUR	36	7294.9	8.2
500-1000 million EUR	3	1803.1	0.7
Over 1 million EUR	7	27712.7	1.6

**Table 6:** Accumulated opportunities of investment potential of Ukraine by unique, marginal and average levels in 2017-2021, million EUR

Indicator	2017	2018	2019	2020	2021
<b>Unique level of opportunities of investment potential</b>					
Due to strategic changes in innovation cycles, in the process of which labor resources are involved	405.9	496.4	628.7	648.2	1103.6
Due to strategic changes in innovation cycles, in the process of which basic resources are involved	43.6	54.6	67.6	67.6	67.6
Due to strategic changes in innovation cycles, in the process of which circulating resources are involved	132.4	128.5	115.3	506.7	563.6
Due to strategic changes in innovation cycles, in the process of which intangible assets are involved	2.8	3.7	4.1	4.2	5.5
Due to strategic changes in innovation cycles, in the process of which financial resources are involved	29.7	36.3	21.7	32.4	50.9
<b>Total</b>	<b>614.4</b>	<b>719.5</b>	<b>837.4</b>	<b>1259.1</b>	<b>1791.2</b>
<b>Marginal level of opportunities of investment potential</b>					
Due to strategic changes in innovation cycles, in the process of which labour resources are involved	175.9	290.7	201.4	78.5	310.8
Due to strategic changes in innovation cycles, in the process of which basic resources are involved	18	14.5	4.9	15.1	20
Due to strategic changes in innovation cycles, in the process of which circulating resources are involved	41.7	27.2	38.5	40.9	51.4
Due to strategic changes in innovation cycles, in the process of which intangible assets are involved	0.05	0.03	0.1	0.02	1.1
Due to strategic changes in innovation cycles, in the process of which financial resources are involved	4.4	-5.6	-25.9	3.3	18.6
<b>Total</b>	<b>240.1</b>	<b>326.7</b>	<b>219</b>	<b>137.6</b>	<b>406.6</b>
<b>Average level of opportunities of investment potential</b>					
Due to strategic changes in innovation cycles, in the process of which labour resources are involved	278.2	345.8	418.1	470	714.3
Due to strategic changes in innovation cycles, in the process of which basic resources are involved	27.3	29.9	32.8	36.2	39.5
Due to strategic changes in innovation cycles, in the process of which circulating resources are involved	86.3	29.9	32.8	36.3	39.5
Due to strategic changes in innovation cycles, in the process of which intangible assets are involved	0.8	0.9	1	1.5	3.5
Due to strategic changes in innovation cycles, in the process of which financial resources are involved	18.2	14.9	0.07	17.5	35.4
<b>Total</b>	<b>410.5</b>	<b>479</b>	<b>527.6</b>	<b>695.7</b>	<b>885.8</b>
The Corridor of investment potential opportunities with strategic changes in the innovation cycles of the economic system of agro-industrial enterprises	203.9	240.5	309.8	563.4	905.4
$\Delta$ by year, %	—	18.24	28.81	81.86	60.7

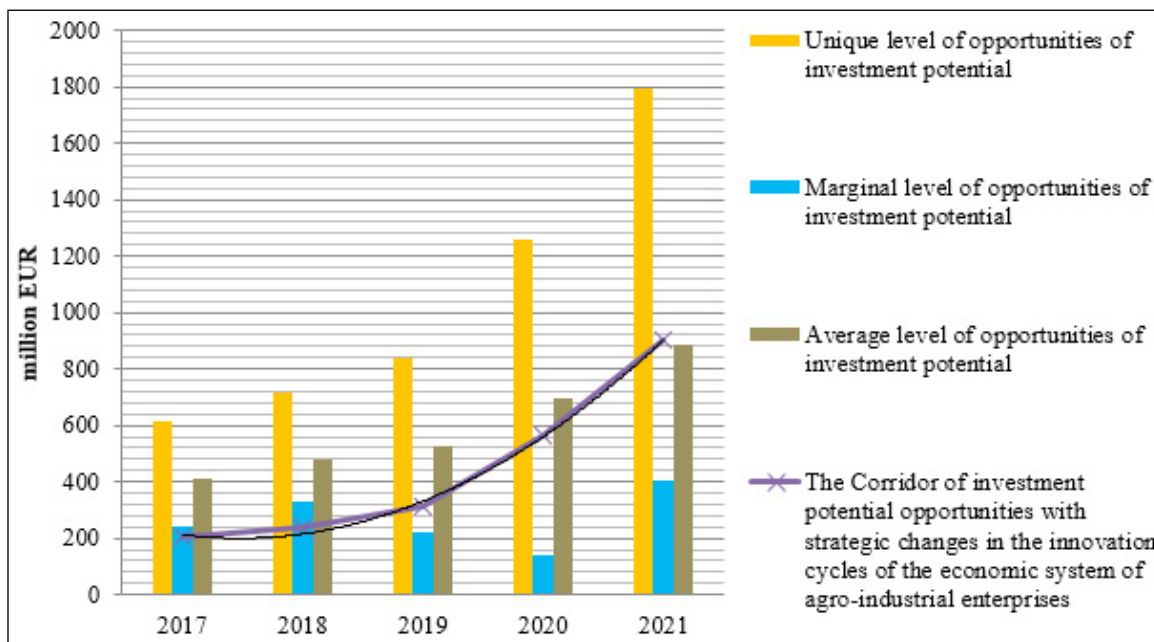


Fig. 3: Corridor of opportunities for investment potential of Ukraine for 2017-2022

The innovative type of strategic changes in the investment potential of agro-industrial enterprises of Ukraine in long-term development has gone beyond theoretical concepts and appears as the main driving force for achieving competitive advantages both on the national and on the global agricultural market.

## DISCUSSION

L.M. Gaevska (2017) concludes that the innovative potential (IP) is the strategic ability of the company to fulfil the untapped opportunities of innovative resources. To assess IP, one must be able to measure two factors: what resources are available to an enterprise and how well it can implement them (based on institutional factors, the quality of managers, etc.). V.A. Vakalyuk (2019) wrote that the innovative potential of an enterprise is its ability to achieve its goals in technology development with the available intellectual, material, technical, human, and financial resources, served by the proper infrastructure.

I. Yepifanova, and V. Dzhezdzhula (2020) propose the estimation involving the Harrington method, which allows summarizing a range of factors that determine the innovative potential of an enterprise and translate them into a dimensionless scale. The dynamics of the development of methods for assessing innovative potential was investigated

by S. Lhuillery *et al.* (2015). One of the important issues noted by researchers is the existing difficulty in measuring social and institutional factors. These include the power of the state, the honesty of the judiciary, the creativity or innovation of the population, etc.

In their study, O. Vovk *et al.* (2021) study the process of forming an innovative and investment strategy for enterprises to use their potential for modernization. The scientists created a matrix of paired expert-cognitive judgments about the choice of an innovation-investment strategy for the modernization of an enterprise using the method of analysing hierarchies by T. Saaty and L.G. Vargas (2001). Based on the analysis of data on the state and prospects of the infrastructure sector of Ukraine, they concluded that the priority innovation and investment strategies are the strategies of progressive, creative, competitive development.

## CONCLUSION

The comprehensive determination of investment potential criteria in the innovation cycles of the economic system of agro-industrial enterprises ensures the formation of an effective investment support mechanism with the activation of the emergent properties of the development of innovation and investment processes. They are the basis of public-private interaction and coexistence in

investment-oriented policy, which should be aimed not only at stimulating the concentration of capital investments, but also at the activation of direct foreign investment in the country's agro-industrial production, since the latter is characterized by a long-term nature and is not "hot capital".

The investment potential during strategic changes in the innovative cycles of the economic system of agro-industrial enterprises must function and develop, since it contributes to increasing production volumes, increasing production potential and generally strengthening the country's food security. Investment-based innovation cycles affect the depth of the process of economic growth of the country's reprocessing in general through the restoration of the existing material and technical base, the development of new types of activities. At the same time, the most important directions for improving the innovation and investment processes of agro-industrial enterprises should be transition to the policy of development of the agricultural and industrial sectors by analogy with the OECD countries, in particular the EU.

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