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УДК 658.821 FEATURES OF THE DEVELOPMENT OF COMPETITIVENESS OF THE ENTERPRISE IN THE MODERN CONDITIONS, SEARCH FOR WAYS OF ITS INCREASE

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Abstract. The article examines the main reasons that hinder the development of the mechanical engineering industry and outlines the problems that must be solved in order to overcome them. The key indicators of the effectiveness of achieving the strategic goals defined in the Project of the Recovery Plan of Ukraine were analyzed. Ensuring the competitiveness of industrial enterprises should become a priority direction of state policy.

The authors focused attention on the development of such a priority industry as mechanical engineering. For its successful development, the state must create an effective industry security system, a long-term support and strategic development program. Such a program should take into account the global situation for machine-building products, as well as contain mechanisms for stimulating domestic manufacturers to introduce innovations and the latest technologies aimed at increasing the competitiveness of products.

Keywords: competitiveness, innovative development, production potential, investment attractiveness.

Introduction.

In the current conditions of the economic situation of Ukraine, an extremely important issue is the ability of the enterprise to quickly adapt its activities to work in conditions of instability. Taking into account the desire of our country to integrate into the European economic space and to function successfully there, special attention should be paid to increasing the competitiveness of domestic enterprises.

Despite all the difficulties and threats of today, in January 2023 the indicator of business confidence in industry increased compared to December 2022 and amounted to minus 14.9 %, in the processing industry this indicator increased compared to the previous month and amounted to minus 14.3 % [1].

The damage to Ukraine's economy caused by the war, which was unleashed by Russia at the end of 2022, reaches 700 billion dollars. The foreign trade deficit reached 8.7 billion dollars (import of goods 49.4 billion, export – 40.7 billion dollars [2].

Taking into account the problems of the functioning of modern enterprises, the need to improve operations, monitor changes in supply and demand, the cost of material resources, find new ways to reduce production costs, improve product quality, and, therefore, increase competitiveness, has intensified. To move away from the distortion of mainly raw materials exports, to change the face of Ukrainian

industry to a more progressive and weighty one, to give impetus to the development of our own machine building - these should be state plans and real actions.

Analysis of recent research and results. Many domestic and foreign scientists were engaged in the study of problems of competitiveness of enterprises. Thus, in the work of Lytvyn N.Yu. considered the essence of the formation of competitive advantages of the enterprise at the expense of innovative development [3]. In the work of Bugai V.Z. and Sydorenko V.O. attention is focused on the main directions of increasing the competitiveness of the enterprise [4]. Management of the international competitiveness of the enterprise is considered by A.M. Bundyuk, K.O. Lykhashchenko [5]. In the work of I.M. Dashko a study of the main methods of assessing the level of competitiveness of enterprises are considered in the work of M.S. Zayukova [7]. The study of the mechanism of managing the competitiveness of the enterprise is considered in the work of M.S. Zayukova [7]. The study of the mechanism of managing the competitiveness of the enterprise is devoted to the work of V. V. Kryvitska. [8]. In the work of Kuzyoma V.V. considered the quality of products as a decisive factor in ensuring the competitiveness of the enterprise [9].

Formulation of the goals of the article. The purpose of this article was to determine the features of the development of the competitiveness of the enterprise in modern conditions, to find ways to increase it.

The main text.

With the beginning of the full-scale invasion of Russia on the territory of Ukraine, the trends towards a raw material orientation of the economy, a significant increase in imports, as well as significant credit borrowing abroad became even more acute.

If we look at the dynamics of industrial production indices by type of activity (as a percentage of the previous year), it becomes obvious that there is no tendency for them to grow. So, in 2017, this indicator was 111.7; in 2018 - 112.4; in 2019 - 97.8; in 2020 - 82.4 and in 2021 - 108.5% [1].

In the structure of realized industrial products (percentages), mechanical engineering in 2018 was -6.9; in 2019 -7.2; in 2020 -6.98%. This indicator was the highest in 2007 -13.7%. During 2011-2016, the total number of enterprises in the machine-building industry decreased to 6,602, that is, it decreased by 28.2%. However, in 2019, this number was 7,304 [1].

However, the machine-building industry, like other sectors of the Ukrainian economy, suffered significant losses as a result of the full-scale invasion of Russia and the conduct of military operations. It is clear that in modern conditions, our state does not have enough resources even to achieve the minimum level of development of the industry, not to mention the level that would allow integration into the economy of the European market. There are several reasons for this:

1. Insufficient updating of equipment and modernization of enterprises, use of outdated technologies.

2. High electricity prices and problems with its supply.

3. Substantial costs for passing customs formalities, a long customs clearance procedure when importing components and spare parts and when exporting finished products.

4. High risks of currency regulation.

5. Insufficient number of certified laboratories.

All this significantly increases production costs, reduces profits and inhibits the overall development of the industry.

For the successful development of all branches of the economy, the dynamic development of the machine-building industry is absolutely necessary, since it forms the production potential of the state.

To realize this goal, first of all, attention should be focused on solving the following problems:

restructuring of industrial enterprises;

- > ensuring the growth of investment attractiveness of domestic enterprises;
- training of qualified scientific and production personnel for various branches of industry;
- increasing the competitiveness of domestic products;
- > expansion of sales markets for industrial products.

Solving these tasks will make it possible to transform the machine-building industry of Ukraine into a competitive, efficient, high-tech and innovative complex that is dynamically developing and integrated into the system of international labor distribution.

The strategic goal of the Export Strategy for the Ukrainian mechanical engineering sector is to strengthen the industry's competitiveness on foreign markets [10]. This Strategy formulates a number of operational tasks, namely: strengthening human capital, providing value-added services and providing adequate infrastructure for enterprises in the machine-building sector, expanding the financial capacity of the machine-building sector and its ability to attract investors.

The working group of the National Council for the Recovery of Ukraine from the Consequences of the War "Recovery and Development of the Economy" prepared the Draft Plan for the Recovery of Ukraine, which lays down key indicators of the effectiveness of achieving strategic goals (Table 1).

All sub-branches of mechanical engineering are very dependent on the timely introduction of innovations. Outdated products will not be sold. Technology must be developed and manufactured in step with the times. The share of exports of Ukrainian manufacturers in the world market is insignificant, however, if proper conditions are created, it will grow and this will allow the country to take a confident step towards economic independence.

Table 1 - Key performance indicators (KPI) for achieving strategic goals

Characteristic	Actual values of key			Target benchmarks			
	performance			at the end of the			
	indicators by year			period			
	2019	2020	2021	2022	2025	2032	
Key performance indicators for achieving strategic goal 1 "RECOVERY":							
Index of industrial production, %	99,5	95,5	101,9	69	94	157	
(actual) % by the base (2021) year							
(target)							



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The rate of change in the volume of GDP, % (actual) % by the base (2021) year (target)	3,2	-3,8	3,4	69,7	98	142
Average price index (December to	104,1	105,0	110,0	130	181	255
	104,1	105,0	110,0	150	101	233
December), % (actual) % to base						
(2021) year (target)	2.20	2.21	2.00	1.01	2.5	2.2
Average level of competition in	2,39	2,31	2,06	1,91	2,5	3,2
recovery procurement	0.2	0.2	0.2	,		1.0
Additional volume of financial	0,3	0,3	0,3	н/д	5	10
resources available to small and						
medium-sized businesses through						
alternative financing methods, % of						
GDP						
Number of employed DSZ, thousands	388,2	384,5	404,8	259	560	600
of people						
Key performance indicators for ac	chieving	strateg	ic goal 2	<u>2 "GRO</u>	WTH":	-
Production index of the processing	100,9	94,1	102,4	61,5	87	173
industry, % (actual) % by the base	97,8	82,4	108,5	41,0	68	160
(2021) year (target), including:	98,6	91,3	105,8	51,0	71	133
- index of machine building	103,3	99,2	94,6	80,4	99	135
production;	96	91,6	114,7	71,0	102	157
- index of metallurgical production,	10	,0	,,	/ 1,0	102	107
production of finished metal products;						
- index of production of food products,						
beverages and tobacco products;						
- index of wood processing and						
manufacture of wood and cork						
products, except for furniture						
Share of processing industry in GDP,	10,8	10,1	10,3	9,4	10	12
%	10,0	10,1	10,5),т	10	12
	17.6	13,4	12.4	76	33	24
Share of gross accumulation of fixed	17,6	15,4	12,4	7,6	33	24
capital in GDP, %	5(0	505	52.4	(2.5	15	25
Depreciation of fixed assets	56,9	58,5	53,4	63,5	45	35
Economic Complexity Index (ECI), %	0,50	0,50	н/д	0,50	1,06	1,35
The number of people engaged in	16,58	15,92	15,61	10,61	13,9	16,5
economic activity aged 15-70, million						
people						
Unemployment rate of the population	8,2	9,5	9,9	32,9	11,5	8
aged 15-70, %						
Informally employed population, % of	19,2	18,4	17,4	18,7	10	5
the labor force						
The level of participation of the	63,4	62,1	61,8	58,7	62,5	63
population aged 15-70 in the labor						
force, %						
,			1	1	1	I J



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Rate of export of goods, % (actual) % by the base (2021) year (target)	106,3	97,9	139,8	74	110	192
The share of production of food	44,3	45,1	40,7	_	57	65
products, beverages and tobacco						
products in the export of agro-						
industrial complex, %						
The share of mechanical engineering	7,4	7,5	6,0	5,0	7,5	8,5
products in the export of goods, %						
The share of metallurgy products in the	21,7	19,5	24,9	17,5	20,5	25,0
export of goods, %		1.5	0.0	0.0	-	0.5
The share of the furniture industry in	1,3	1,5	0,2	0,2	1	2,5
the export of goods, %	24.9	22.2	20.1	20.5	40	12.5
The share of information and	24,8	33,3	38,1	38,5	40	43,5
communication technology services in exports, %						
The share of small and medium-sized	30	31,5	н/д	н/д	35	45
businesses in the value of export of	50	51,5	п/д	п/д	55	H J
goods, %						
The volume of foreign direct	5,2	-0,1	6,7	0,5	16	18
investments, (+ net inflow/-net	- ,-	0,12	0,,	0,0	10	10
outflow), billion dollars. USA						
Share of the number of industrial	13,8	14,9	н/д	11	19,5	25
enterprises that introduced innovations,						
%						
Energy intensity of GDP, % to the	88,5	88,9	н/д	90,0	84	70
level of 2015						
Gross domestic product per person, in	3668	3746	4833	4190	6751	1339
dollars. USA					. –	4
Share of imports in intermediate	22,1	19,5	н/д	18	17	16
consumption, %	4.2	5.2	5.0			
The share of the digital economy in	4,3	5,3	5,2	5,5	6	7,7
GDP, %	47	15	40	50	15	40
Ukraine's place in the ranking	47	45	49	52	45	40
according to the Global Innovation						
Index, place Labor productivity index in industry	98,6	99,2	н/д	81,8	89	156
Human Development Index	0,779	99,2 н/д	н/д н/д	0,750	0,815	0,940
Compiled on the basis of materials [10].	0,779	п/Д	п/д	0,750	0,015	0,940

Compiled on the basis of materials [10].

To solve this, it is necessary to develop a mechanism for partial compensation of the costs of research and development work (R&D) in priority sub-sectors of mechanical engineering from the state, regional and local budgets, and the provision of benefits and preferences for investors. It must be said that a knowledge base has already been formed regarding the best practices of the EU countries in the development of Industry 4.0. Success in this can be achieved not only through the generation of ideas and initiatives in the field of Industry 4.0, the creation of projects and tools, using international experience, but also under the condition of effective state support, the absence of which is a key challenge for the Ukrainian business community [11].

Conclusions. Thus, ensuring the competitiveness of industrial enterprises should become a priority direction of state policy and, at the same time, should be a continuous cycle of actions within the main aspects of the enterprise's activity (from innovation to marketing), aimed at achieving the established goals of the enterprise and maintaining its high competitive positions. The state should create an effective safety system for the machine-building industry, which should be based on a longterm program of support and strategic development of Ukrainian machine-building. Such a program should take into account the global situation for machine-building products, as well as contain mechanisms for stimulating domestic manufacturers to introduce innovations and the latest technologies, which are aimed at increasing the competitiveness of products.

References

State Statistics Service of Ukraine. Retrieved from <u>https://www.ukrstat.gov.ua</u>
Ukraine in 22 key figures in 2022. Retrieved from <u>https://thepage.ua/ua/economy/ukrayina-golovni-cifri-2022-roku</u>

3. Lytvyn N.Yu. (2021). Innovative management of the formation of strategic benchmarks of competitive advantages. BusinessInform. No. 1. P. 303-309.

4. Bugai V.Z., Sydorenko V.O. (2019). The main directions of increasing the competitiveness of the enterprise. Modern Economics. No. 14. P. 33-38.

5. Bundyuk A.M., Lykhashchenko K.O. (2020). Management of the international competitiveness of the enterprise Improvement of processes and equipment of food and chemical industries: coll. theses add. XVIII International of science conf. P. 31-34.

6. Dashko I.M. (2020). Study of the main methods of assessing the level of competitiveness of enterprises. Economy and the state. No. 5. P. 108-110.

7. Zayukova M.S. (2018). Strategies for ensuring the competitiveness of modern enterprises. Bulletin of Odessa National University. Economy. Vol. 23. Issue 5. P. 69-73. Retrieved from <u>http://nbuv.gov.ua/UJRN/Vonu econ 2018 23 5 17</u>

8. Krivitska V.V. (2020). The mechanism of managing the competitiveness of the enterprise in conditions of instability. Efficient economy. No. 8. Retrieved from <u>http://www.economy.nayka.com.ua/?op=1&z=8118</u>.

9. Kuzyoma V.V., Pavlyuk S.I. (2020). Product quality as a decisive factor in ensuring the competitiveness of the enterprise. Business Inform. No. 12. C. 252-258. Retrieved from <u>https://doi.org/10.32983/2222-4459-2020-12-252-258</u>

10. Project of the Recovery Plan of Ukraine. Materials of the working group "Recovery and development of the economy". 2022. Jul. Retrieved from <u>https://www.kmu.gov.ua/storage/app/sites/1/ recoveryrada/ua/economic-recovery-and-development.pdf</u>

11. Industry 4.0 as an innovative trend of Ukraine. Retrieved from <u>https://interfax.com.ua/news/blog/799334.html</u>

Анотація. В статті розглянуто основні причини, що перешкоджають розвитку галузі машинобудування та окреслено задачі, які необхідно вирішити для їх подолання. Проаналізовано ключові показники ефективності досягнення стратегічних цілей, визначених у Проєкті Плану відновлення України. Забезпечення конкурентоспроможності промислових підприємств має стати пріоритетним напрямком державної політики.

Авторами зосереджено увагу на розвитку такої пріоритетної галузі, як машинобудування. Для її успішного розвитку держава має створити ефективну систему безпеки галузі, програму підтримки і стратегічного розвитку на довгострокову перспективу. Така програма повинна враховувати світову кон'юнктуру на машинобудівну продукцію, а також містити механізми для стимулювання вітчизняних виробників до запровадження інновацій та новітніх технологій, які спрямовані на підвищення конкурентоспроможності продукції.

Ключові слова: конкурентоспроможність, інноваційний розвиток, виробничий потенціал, інвестиційна привабливість

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