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TOOLS FOR ANALYSING THE COMPETITIVENESS OF ENTERPRISES DURING THE CRISIS

The article analyses the current tools for assessing the competitiveness of enterprises in the context of the economic crisis caused by market instability, limited resources and changes in consumer behavior. Particular attention is paid to the methods that facilitate prompt decision-making and ensure the adaptability of enterprises to new challenges. Such classical analysis tools as SWOT-analysis, PESTLE-analysis, competitive profile matrix and Porter's five forces analysis are studied. Their practical effectiveness in crisis conditions is considered, as well as the shortcomings arising from their limitations in the context of rapid changes in market conditions. The article emphasizes the need to integrate these tools with modern technologies to increase their accuracy and relevance. Special emphasis is placed on digital tools, in particular, the use of Big Data, predictive analytics and business intelligence platforms. It is found that such tools allow not only to assess the competitive environment more effectively, but also to predict potential risks associated with instability. The use of innovative technologies contributes to the formation of sustainable strategies adapted to rapid changes in external and internal conditions. The article analyses practical experience of applying methods of competitiveness assessment on the examples of enterprises from various industries. The cases demonstrating the benefits of integrating strategic analysis into management decision-making processes are presented. The authors investigate how enterprises can identify their strengths and weaknesses, detect threats and look for new opportunities for development during a crisis. The authors emphasize the importance of a systematic approach to competitiveness analysis that combines traditional and innovative tools. The results of the study may be useful for business managers, analysts, researchers and business owners seeking to ensure the stability and competitive advantage of their organizations in times of crisis. The proposed recommendations are aimed at supporting the effective functioning of enterprises and promoting their strategic development in an unstable market environment.

Keywords: competitiveness, crisis conditions, sustainable development, indicators, level.

Formulation of the problem. The globalization of markets and technological advances are changing the needs and demands of the population. The nature of production technology has changed significantly over the past three decades due to the introduction of advanced manufacturing technologies. The world is experiencing global changes in all areas of activity, including industry, and businesses have to reorganize in order not to shrink their market space. Economic globalization represents an evolving model of cross-border industrial and business activity, and therefore the production strategy determines how industrial enterprises will use their production capabilities.

The current trend is to increase the importance of high value-added products and intangible assets. It is worth noting here that the industrial production development policy is aimed at highlighting sectoral priorities and highly differentiated production. In line with this, the priority of the production strategy is that industrial production should be oriented towards meeting not only the country's domestic but also external needs. Improving the production strategy is a tool for increasing the competitiveness of industrial enterprises in times of crisis.

Analysis of recent achievements and publications. Recently, the economic literature has paid much attention to the problems of competitiveness at various levels. However, the competitive advantages of enterprises in the crisis period are not sufficiently considered by the authors studying competitiveness issues and require more detailed study, especially in the context of using various instruments. A significant contribution to the development of the theory of competitive advantage was made by M. Porter, who presented the concept of competitive advantage of a country based on the formation of competitive advantages at the level of economic sectors. G. Azoyev, J.-J. Lambin, M. Porter, N. Z. Safiullin, L. N. Safiullin, G. Skudar, R. A. Fathutdinov, studying the problems of competitiveness, analyse

competitive advantages in their works. A wide range of issues related to the study of the essence of competitive advantages of an enterprise is covered in the works of domestic scholars O. Arefieva, L. Balabanova, I. Hryshova, M. Demyanenko, I. Dolzhansky, P. Klevets, V. Kuzhel, G. Zaikina, M. Malik, A. Nikolayev, O. Ivanova, O. Poltavska, S. Pokropivnyi, O. Savchuk, etc.

The purpose of the article is to review and summarize approaches to determining the competitive advantages of industrial enterprises, to highlight the main tools for their assessment, and to determine the place and role of competitive advantages in the crisis period.

Presentation of the main material. To analyze competitive priorities such as cost, quality, delivery and flexibility, we look at the overall and industry mean and standard deviation. Cost and delivery have one and two dimensions respectively, while flexibility has five dimensions. A five-point Likert scale is used for each competitive priority (1 being the least important and 5 being the most important). Controlling the control points for key changes, such as product quality, delivery on time and flexibility, assortment policy or service in accordance with local regulations. This involves at least twelve control components, such as low cost, product performance, product reliability, product durability, maximum quality of conformity, delivery speed, delivery reliability, new technological processes, product range changes, design changes, volume changes, new products.

The use of basic tools to ensure compliance with regulatory documents mostly relates to certain unique equipment, tools, materials and processes.

Process control and improvement refers to a set of methodological and behavioral practices that are implemented to control and improve the processes of producing products and services. In fact, process control and improvement can make a production process work:

- without breakdowns of equipment and devices;
- without the lack of materials;
- without lack of tools, product processing;
- without the lack of professionals and labor;
- in the presence of qualified auxiliary workers.

Only when these components are in place can the technological process be fully automated.

Based on this, it should be noted that automation requires professional maintenance, which is traditionally viewed as an auxiliary, non-productive and non-value-adding business function. In many industrial plants, the maintenance function is typically seen as a necessary and ongoing cost that should be minimized rather than viewed as an investment in process reliability. Managing equipment performance has not been a top priority in industry until recent years. Recent competitive trends and ever-increasing business pressures have put the equipment maintenance function in the spotlight like never before. The ever-increasing demands on industrial enterprises are contributing to a complete review of the practice of maximum quality compliance and equipment maintenance in industrial enterprises [3]. Maintenance is viewed from the perspective of its impact on production through its effect on equipment availability, production rates and product quality, where industrial maintenance plays an important role in terms of employees, value added and contribution to competitiveness in a crisis. The maintenance function is now seen as a critical strategy for maintaining productivity and is recognized as a key component of revenue generation. Industrial enterprises should encourage equipment operators to work together with maintenance (support) workers as part of a quality improvement program to perform tasks that prevent wear and tear on production equipment. This type of operator participation in maintenance activities is called autonomous maintenance. Industries that are closely concerned with maximum quality compliance should recognize that equipment operators have significant potential to contribute to improving equipment performance, as the «I run the equipment, you fix it» approach cannot effectively address breakdowns and defects. In this case, the employee voluntarily supports his work, creating a sense of ownership of the equipment. At the same time, industrial enterprises should strive to adapt initiatives within the framework of proactive participation of equipment operators to eliminate failures constructively by analyzing equipment breakdowns and solving problems for its recovery.

The process of implementing a maintenance program is highly dependent on the competence and motivation of the workforce, which influences significant improvements in production systems. An industrial enterprise recognizes that higher levels of quality can be achieved for both products and processes. While according to the concept of maximum quality conformity in all departments of an industrial enterprise, an ideal environment must be created that should be present throughout the life of the industrial enterprise and this must be used on a regular basis, as the improvement process never ends. The production strategy of manufacturing enterprises supports the focus on the effective operation of all structural units, such as: maintaining the efficiency of production processes, supporting the development of technologies and the quality of products, taking into account the maintenance of equipment.

Industrial enterprises must develop effective employee incentive schemes to motivate them to move forward and contribute to the success of the enterprise. In this regard, it is necessary to provide appropriate training to improve the level of knowledge and skills, as these are closely interrelated processes.

The first step towards customer satisfaction is to identify their needs and wants and then translate those needs and wants into standards. Customer satisfaction should not be limited to meeting expectations, but strive to exceed them through continuous improvement. To meet customer expectations, industrial enterprises should adopt an information program that measures customer satisfaction. Such a program will help businesses identify areas of dissatisfaction where corrective action should be taken to address the source of dissatisfaction.

The key to strategic planning for maximum quality compliance is to maintain a close relationship with the customer to fully understand their needs and to obtain feedback on the extent to which these needs are being met. The customer should be closely involved in the product design and development process, contributing at every stage to reduce the likelihood of quality problems once full production begins [5].

The customer is the most important part of the production line. The product should be focused on the customer's needs. To be customer-oriented, industrial enterprises should always provide warranties for their products sold to customers, so that customers will reduce their risk when purchasing products; and sufficient attention should be paid to customer service. In short, the desire to focus on the customer should be a long-term business strategy that never ends.

In order for industrial enterprises to be successful in the market, each unit must work properly to achieve both short-term and long-term goals, thereby recognizing that every person and every activity affects each other. This means that focusing on both short- and long-term goals adds value to business processes. At the same time, management must develop a comprehensive quality policy and implement it effectively [7]. The development of a quality policy should reflect the mission of industrial enterprises, including corporate values, expectations and focus. This requires the following:

- consideration of various sources of information in the development of the policy in the area of maximum quality compliance. This includes information from customers, employees, suppliers, competitors, society and shareholders;

- transforming the mission into its critical success factors to drive and move forward. That is, it is necessary to develop goals and methods for achieving them;

- defining key performance indicators that can be quantified as success indicators.

An important factor is the integration of various process control methods and their improvement, i.e. the ability of the process to meet high final production requirements. The technological capability is highly dependent on the specification that is developed for each process. It is important to define these capabilities as the basis for setting control standards (control points). The technological feasibility study provides the basis for economic support. Process improvement has a reciprocal relationship with continuous improvement.

Process improvement is referred to as statistical methods or statistical process control (by control points) because measurement and data analysis are very important for process improvement. Accurate data is important for both employees and management to make optimal decisions in relation to the advancement of the production strategy of industrial enterprises. In addition, industrial enterprises should design their process to be reliable, to be able to minimize the likelihood of employee error.

The correlation between the twelve competitive priorities is as follows:

- all competitive priorities, except for product customization, product range change and new product, are significantly correlated with other competitive priorities;

- competitive priorities that do not correlate significantly are classified as flexibility;

- correlations indicate that industrial enterprises place a strong emphasis on these competitive priorities. This indicates a high level of internal coherence between the competitive priority items.

Taking into account all the competitive priorities, industrial enterprises attach great importance to (in descending order): costs; quality; supply; and flexibility.

Various researchers have empirically tested this theory in Japan, Europe and the United States and found strong support for the theory of competitive progression in terms of product cost and quality.

Domestic industrial enterprises almost follow a similar path – from cost to quality, from supply to flexibility. Therefore, we can say that industrial enterprises, although they started late, are moving in almost the same direction as their counterparts in other countries.

Improvement of the production strategy depends on the values of competitive priorities:

- 1) advanced production technologies;
- 2) integrated information systems;
- 3) innovative production systems.

Competitive priorities are calculated on the basis of standards for the development of industries and types of economic activity.

Advanced production technologies consist of ten separate types of activities. The number of activities included in integrated information systems and innovative production systems is four and nine, respectively.

On this basis, we note that, in general, industrial enterprises invest more in innovative production systems, and the least preferred improvement activity is advanced production technologies.

Industrial enterprises have started restructuring to keep up with global competition. This can be seen from the fact that the average values of advanced production technologies, integrated information systems and innovative production systems for industry are higher compared to the other two sectors – chemical production and ferrous metallurgy.

Advanced manufacturing technology is a group of integrated hardware and software technologies. Advanced manufacturing technology has ten dimensions that are related to innovative manufacturing systems. These dimensions are:

- computer-aided design of production;
- computer-aided design;
- computer-aided process planning;
- computer numerically controlled machine tools;

- machines with direct numerical control;
- robotics;
- flexible production system;
- automated material handling system;
- automated guided vehicles.

Integrated information systems integrate different business functions through information systems. Integrated information systems have four dimensions:

- material requirements planning;
- production resource planning;
- corporate resource planning;
- activity-based costing.

It should be noted that resource planning at industrial enterprises is the best activity. However, it can vary depending on the specific needs of the industry, as resource planning at industrial enterprises is the most preferred for ferrous metallurgy, with a fairly high average value. Enterprise resource planning is the first step in integrating different engineering departments. Corporate resource planning and material requirements planning are the most important in supply chain management.

Advanced manufacturing technologies are soft technologies used to simplify technological processes. Advanced manufacturing technologies have nine dimensions. These dimensions include:

- training of the 1st, 2nd and 3rd levels of industrial enterprise management;

- general knowledge of control (by control points);

- waste management;
- business process reengineering;
- statistical control of processes;
- automated production;
- office automation;
- benchmarking;
- attracting labor force (youth).

The average score for each type of activity is within the range of advanced production technologies of industrial enterprises [5]. The most preferred activity for improving advanced production technologies for industrial enterprises is efficient management methods, and the least preferred activity is waste management. In addition, industrial enterprises invest in statistical control of all production processes. These correlations suggest that industrial enterprises are actively investing in production strategy as a tool to increase competitiveness.

The above measurements show that of the top 10 activities, six are related to advanced production technologies. Likewise, among the 10 least successful activities, six are related to innovative production processes. On this basis, it can perhaps be said that industrial enterprises are more likely to invest in innovative production processes than in integrated information systems.

Industrial enterprises pay special attention to the implementation of competitive priorities, which are constantly being adjusted by means of cause and effect relationships.

Adjustment of financial measures and production efficiency, as well as strategic goals for maximum compliance with the declared quality, gives good results in identifying all deviations arising in production to implement competitive priorities.

Conclusions. Thus, the latest competitive trends and ever-increasing pressure on business put the equipment maintenance function in the spotlight as never before. The ever-increasing demands

on industrial enterprises are contributing to a complete review of the practice of maximum quality compliance and equipment maintenance at industrial enterprises.

The production strategy of industrial enterprises supports the focus on the efficient operation of all structural units, such as maintaining the efficiency of production processes, supporting the development of technologies and product quality, taking into account equipment maintenance. In order for industrial enterprises to be successful in the market, each unit must work properly to achieve both short-term and long-term goals, recognizing that every person and every activity has an impact on each other. This means that focusing on both short- and long-term goals adds value to business processes.

Improvement of the production strategy depends on the values of competitive priorities: advanced

production technologies, integrated information systems, and innovative production systems. Competitive priorities are calculated on the basis of standards for the development of industries and types of economic activity.

Industrial enterprises invest in statistical control of all production processes. These correlations suggest that industrial enterprises are actively investing in production strategy as a tool for improving competitiveness.

Industrial enterprises pay special attention to the implementation of competitive priorities, which are constantly adjusted through cause and effect relationships.

Adjustment of financial measures and production efficiency, as well as strategic goals for maximum quality compliance, yields good results in identifying all deviations arising in production in the implementation of competitive priorities.

References:

1. Volkov, O. I., Denysenko, M. P. et al. (2004). *Ekonomika y orhanizatsiia innovatsiinoi diialnosti* [Economics and organization of innovative activity]. Kyiv: PH Professional. 960 p. [in Ukrainian].
2. Zakharchenko, V. I., Korsikova N. M., Merkulova M. M. (2012). *Innovatsiinyi menedzhment: teoriia i praktyka v umovakh transformatsii ekonomiky* [Innovative management: theory and practice in the conditions of transformation of the economy]. Kyiv: Center for Educational Literature. 448 p. [in Ukrainian].
3. Pokropyvnyi, S. F. (Ed.). (2011). *Ekonomika pidpriemstva* [Enterprise economics]. 2nd ed., processing and additional. Kyiv: KNEU. 528 p. [in Ukrainian].
4. Iliashenko, S. M. (2003). *Upravlinnia innovatsiynym rozvytkom: problemy, kontseptsii, metody* [Management of innovative development: problems, concepts, methods]. Sumy: University book. 278 p. [in Ukrainian].
5. Iliashenko, S. M., Shypulina, Yu. S. (2007). *Tovarna innovatsiina polityka* [Commodity innovation policy]. Sumy: University book. 281 p. [in Ukrainian].
6. Kalynovska, N. L., Hryhoriev, O. Yu. (2011). *Ryzyky innovatsiinoi diialnosti pidpriemstv* [Risks of innovative activity of enterprises]. *Problemy formuvannia ta rozvytku innovatsiinoi infrastruktury* [Problems of formation and development of innovative infrastructure]: Proceedings of the International Scientific and Practical Conference (Lviv, May 19-21, 2011). (pp. 272–273). Lviv, Publishing House of Lviv Polytechnic [in Ukrainian].
7. Shalneva, M. S., Zaitseva, K. A., & Chernysheva, M. A. (2021). Features of Corporate Innovation Risk Management. In S. I. Ashmarina, V. V. Mantulenko, M. I. Inozemtsev, & E. L. Sidorenko (Eds.), *Global Challenges and Prospects of the Modern Economic Development*, Vol. 106, pp. 1363–1372. European Proceedings of Social and Behavioural Sciences European Publisher. DOI: <https://doi.org/10.15405/epsbs.2021.04.02.162>
8. Manvelidze, A. B. (2018). Operating Expenses for Large American Air Carriers. *Strategic decisions and risk management*, Vol. 4, pp. 72–91. DOI: <https://doi.org/10.17747/2078-8886-2018-4-72-91>
9. Pastushenko, M. V. (2010). *Udoskonalennia systemy upravlinnia ryzykamy na pidpriemstvi* [Improvement of the risk management system at the enterprise]. *Zbirnyk naukovykh prats Umanskoho natsionalnoho universytetu sadivnytstva* [Collection of scientific works of the Uman National University of Horticulture]. Uman, Economic Sciences [in Ukrainian].
10. Verbitska, I. I. (2013). *Ryzik-menedzhment yak suchasna systema upravlinnia ryzykamy pidpriemnytskykh struktur* [Risk management as a modern risk management system of business structures]. *Stalyi rozvytok ekonomiky – Sustainable economic development*, 5, pp. 282–291 [in Ukrainian].

Список використаних джерел:

1. Волков О. І., Денисенко М. П. та ін. *Економіка й організація інноваційної діяльності* : підручник. Київ : ВД «Професіонал», 2004. 960 с.
2. Захарченко В. І., Корсікова Н. М., Меркулова М. М. *Інноваційний менеджмент: теорія і практика в умовах трансформації економіки*: навч. посіб. Київ : Центр учбової літератури, 2012. 448 с.
3. *Економіка підприємства* : підручник / За заг. ред. С. Ф. Покропивного. [вид. 2-ге, перероб. та доп.]. Київ : КНЕУ, 2011. 528 с.
4. Ілляшенко С. М. *Управління інноваційним розвитком: проблеми, концепції, методи*: Навчальний посібник. Суми : ВТД «Університетська книга», 2003. 278 с.
5. Ілляшенко С. М., Шипуліна Ю. С. *Товарна інноваційна політика* : підручник. Суми : Університетська книга, 2007. 281 с.
6. Калиновська Н. Л., Григор'єв О. Ю. *Ризики інноваційної діяльності підприємств. Проблеми формування та розвитку інноваційної інфраструктури*: тези доповідей Міжнародної науково-практичної конференції (Львів, 19-21 травня 2011 р.). Львів : Видавництво Львівської політехніки, 2011. С. 272–273.
7. Shalneva M. S., Zaitseva K. A., & Chernysheva M. A. Features of Corporate Innovation Risk Management. In S. I. Ashmarina, V. V. Mantulenko, M. I. Inozemtsev, & E. L. Sidorenko (Eds.), *Global Challenges and Prospects of the Modern Economic Development*. 2021. Vol. 106. P. 1363–1372. European Proceedings of Social and Behavioural Sciences European Publisher. DOI: <https://doi.org/10.15405/epsbs.2021.04.02.162>
8. Manvelidze A. B. Operating Expenses for Large American Air Carriers. *Strategic decisions and risk management*. 2018. Vol. 4. P. 72–91. DOI: <https://doi.org/10.17747/2078-8886-2018-4-72-91>
9. Пастушенко М. В. *Удосконалення системи управління ризиками на підприємстві. Збірник наукових праць Уманського національного університету садівництва*. Умань: Економічні науки, 2010. 332 с.
10. Вербіцька І. І. *Ризик-менеджмент як сучасна система управління ризиками підприємницьких структур. Сталый розвиток економіки*. 2013. № 5. С. 282–291.

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ІНСТРУМЕНТИ АНАЛІЗУ КОНКУРЕНТОСПРОМОЖНОСТІ ПІДПРИЄМСТВ ПІД ЧАС КРИЗИ

Анотація

У статті проаналізовано актуальні інструменти оцінки конкурентоспроможності підприємств в умовах економічної кризи, що зумовлена нестабільністю ринків, обмеженістю ресурсів та змінами споживчої поведінки. Особливу увагу приділено розгляду методів, які сприяють оперативному ухваленню рішень і забезпечують адаптивність підприємств до нових викликів. Досліджено такі класичні інструменти аналізу, як SWOT-аналіз, PESTLE-аналіз, матриця конкурентного профілю та аналіз п'яти сил Портера. Розглянуто їхню практичну ефективність у кризових умовах, а також недоліки, що виникають через їхню обмеженість у контексті швидких змін ринкових умов. У статті акцентовано увагу на необхідності інтеграції цих інструментів із сучасними технологіями для підвищення їхньої точності та релевантності. Окремий акцент зроблено на цифрових інструментах, зокрема застосуванні Big Data, прогнозної аналітики та платформ для бізнес-інтелекту. Виявлено, що такі інструменти дозволяють не лише ефективніше оцінювати конкурентне середовище, але й прогнозувати потенційні ризики, пов'язані з нестабільністю. Використання інноваційних технологій сприяє формуванню стійких стратегій, адаптованих до швидких змін зовнішніх і внутрішніх умов. У роботі проаналізовано практичний досвід застосування методів оцінки конкурентоспроможності на прикладах підприємств різних галузей. Наведено кейси, які демонструють переваги інтеграції стратегічного аналізу у процеси прийняття управлінських рішень. Досліджено, як під час кризи підприємства можуть ідентифікувати свої сильні та слабкі сторони, виявляти загрози й шукати нові можливості для розвитку. Автори наголошують на важливості системного підходу до аналізу конкурентоспроможності, який поєднує традиційні й інноваційні інструменти. Результати дослідження можуть бути корисними для керівників підприємств, аналітиків, дослідників та власників бізнесу, які прагнуть забезпечити стабільність і конкурентні переваги своїх організацій у кризові періоди. Запропоновані рекомендації спрямовані на підтримку ефективного функціонування підприємств і сприяння їхньому стратегічному розвитку в умовах нестабільного ринкового середовища.

Ключові слова: конкурентоспроможність, кризові умови, стійкий розвиток, показники, рівень.