

## **STRATEGIC MANAGEMENT OF ENTERPRISES COMPETITIVE ADVANTAGES OF INNOVATION-ORIENTED ECONOMY BRANCHES**

**Viktoriia Voronina<sup>1</sup>, Tetiana Voronko-Nevidnycha<sup>1</sup>, Nataliia Klymenchukova<sup>2\*</sup>,  
Anatolii Chynchyk<sup>3</sup>, Mariana Shkoda<sup>4</sup>**

**<sup>1</sup>I. Markina Department of Management, Poltava State Agrarian University,  
Skovorody 1/3, 36003 Poltava, Ukraine**

**<sup>2</sup>Department of Marketing, Economics, Management and Administration,  
National Academy of Management, Ushynskogo 15, 03151 Kyiv, Ukraine**

**<sup>3</sup>Department of Construction Economics, Kyiv National University of Construction and  
Architecture, Povitroflotsky Avenue 31, 03037 Kyiv, Ukraine**

**<sup>4</sup>Department of Entrepreneurship and Business, Kyiv National University of Technologies and  
Design, Nemyrovycha-Danchenka 2, 01011 Kyiv, Ukraine**

**\*e-mail: klymenchukova@ukr.net**

### **Abstract**

The formation of competitive advantages of enterprises on the basis of innovations is the main prerequisite for ensuring the efficiency of their activities, the direction of overcoming crisis situations in which a significant number of Ukrainian business entities in various industries and forms of ownership are. At the same time, the solution of this problem should be considered from the standpoint of improving the theory and methodology of forming competitive advantages in the context of the use of innovations. The purpose of this study is to study and systematize the theoretical and methodological aspects of competitive advantages taking into account the innovation component, as well as a description of the method of building an integrated rating of large Ukrainian companies based on hierarchical ranking procedure to determine their competitiveness.

For the current assessment of the innovation component in the article, authors used various indicators (sectors of Ukrainian economics, number of enterprises, indicators of their activity, net income, hierarchic integral rating). For higher quality analysis, the study used data from YouControl, Forbes, which ranked companies in descending order in terms of net income from sales. The methodology under consideration entails the creation of hierarchical integral rating of companies on the basis of hierarchical ranking procedure and established priority between the indicators. The rating is created on the basis of

the principle reduction of several indicators into a single index with the use of points and ranking. To process information, we use Microsoft Office Excel spreadsheets and the main built-in functions: Sum, Trend, Corel, Rank and add-in Analysis package. We determine even correlation coefficients using the built-in statistical function Corel and the Data Analysis tool, which allows you to determine the basic statistical parameters quickly and accurately.

We have systematized the main enlarged classification features that reflect the form, nature of the manifestation and sources of competitive advantage, taking into account the innovation component. Processing the financial statements of the leading companies of Ukraine, which have significant competitive advantages, allowed us to conduct a sectoral analysis of the development of enterprises in the industry markets of Ukraine; to carefully evaluate the changes that have taken place as part of the largest companies, as well as to draw generalized conclusions about the dynamics of the main sectors of the economy. Authors have developed a method of ranking the leading competitive companies of Ukraine according to the hierarchical integrated rating.

The obtained results should be used in research on the formation and development of competitive advantages of the enterprise. The integrated rating proposed in the work allows to estimate the level of

competitiveness of companies compared to previous periods and to draw a conclusion about the feasibility of investment. The authors recommend using the presented tools in developing a competitive strategy of the enterprise.

**Key words:** *Hierarchical Ranking, Innovations, Innovative Development, Integrated Rating, Competition, Competitive Advantage, Competitiveness, Strategies, Management.*

## 1. Introduction

The active development of social and economic relations leads to the need for constant and systematic search for ways to increase competitiveness and the formation of competitive advantages at the level of both the national economy and individual business entities. It is the competitive advantages generated by the enterprise that emphasize its uniqueness in a competitive environment, are the key to its competitiveness and maximum economic results. The advantages of economic development due to innovation are obvious: the value of raw materials decreases, and intellectual assets - increases. Countries such as India, China, Israel and Ireland have made considerable progress in this direction, emphasizing the importance and need for innovative development. It is easier for innovative entrepreneurs to fight competition. In modern conditions of entrepreneurship each business entity needs to develop its own key capabilities, which in combination with resources become the basis of enterprise strategy and ensure the formation of competitive advantages. Innovation is defined as a strategic social and economic goal of the EU. The strategy of the enterprise, developed taking into account the unique key capabilities, allows you to more effectively form and use their competitive advantages in order to respond in a timely manner to threats and opportunities that arise in the external environment. The formation of competitive advantages of enterprises on the basis of innovation is the main prerequisite for ensuring the efficiency of their activities, the direction of overcoming crisis situations in which a significant number of domestic business entities in various industries and forms of ownership are. The solution of this problem should be considered from the standpoint of improving the theory and methodology of competitive advantage in the context of the use of innovations and key capabilities of the enterprise. Detailed analysis of scientific papers on the research shows that from a scientific point of view, within a particular subject area, the issue of competitive advantage of enterprises is unresolved, thus determining the relevance of the research topic, which is caused by the need to study the theoretical foundations of competitive advantage

forming and improving scientific and methodological recommendations for a comprehensive economic assessment of the current state of competitive advantages of Ukrainian enterprises.

The number of studies in the field of strategic management of competitive advantages of enterprises is increasing every year. One of the first works on this topic according to sources Khodakivska *et al.*, [1], Mayovets *et al.*, [2], Markina *et al.*, [3], Risi, [4], Voronko-Nevidnichuk *et al.*, [5], according to the rating organization Thomson's Science Watch is the most cited in business and economics since 1995. According to research Ali and Alshmrany, [6], annually since 2006 the number of articles on the problem of strategic management of competitive advantages of enterprises published in journals and scientometric databases, exceeds 100.

According to Derwik *et al.*, [7], the competitiveness of the enterprise, first of all, is influenced by the account of the basic factors of its practical activity. Zhang *et al.*, [8], believes that the formation of strategic competitiveness is influenced mainly by the dynamic development capabilities of the enterprise, as well as factors of network competition, co-competition and competition in global markets. Alekseenko *et al.*, [9], dealt with aspects of external influence as factors in the formation of enterprises' competitiveness. Professor of the Harvard Business School Porter made a great contribution to the formation of approaches to the classification of competitiveness factors. He formed three approaches to the classification of competitiveness factors. The position of Anwar *et al.*, [10], Bogatyrev *et al.*, [11], Brockova *et al.*, [12], Zos-Kior *et al.*, [13], Krulický *et al.*, [14], Mazur *et al.*, [15], Semenov *et al.*, [16], which is supported by a significant number of scientists, deserves attention and is of further interest in this study. The authors legitimately believe that in the long run the enterprise's competitive advantage is based on the ability to create lower costs and faster than competitors, key competencies, which create previously unforeseen products.

It should be noted that as a result of previous researches, no single standard description of the assessment of the state of competitive advantage of companies, as well as the interpretation of its general essence. In assessing and analyzing innovation attractiveness, according to domestic and foreign researchers, the most effective is the use of economic and mathematical methods and models that have significant well-known advantages. However, economic and mathematical modeling in the field of innovation activity is a process that is practically not subject to or difficult to subject to scientific formalization [17-21]. Repeated attempts to identify general principles for creating mathematical models here have led either to the declaration of aggregate

recommendations of a fairly general nature, which are difficult to apply in practice or conversely, to the results that can be applied only to a narrow range of specific problems. Therefore, today there is a problem of choosing a method of building an integrated rating of companies based on the procedure of hierarchical ranking in order to determine their competitiveness.

Also the aspects of making quality management decisions, on the one hand, on investing funds and, on the other hand, on improving the financial position and increasing the level of competitive advantage of companies, remain insufficiently studied. These aspects include, in particular, linking the issues of comprehensive sustainable development of the company and its innovative attractiveness, the formation of a comprehensive, adequate and acceptable system of competitiveness assessment, etc. [3; 22-23].

The purpose of this study is to study and systematize the theoretical and methodological aspects of competitive advantage taking into account the innovation component, as well as a description of the method of building an integrated rating of large Ukrainian companies based on hierarchical ranking to determine their competitiveness.

## 2. Materials and Methods

For the current assessment of the innovation component in the article, authors used various indicators (sectors of Ukrainian economics, number of enterprises, indicators of their activity, net income, hierarchic integral rating). For higher quality analysis, the study used data from YouControl, Forbes, which ranked companies in descending order in terms of net income from sales. The methodology under consideration entails the creation of hierarchical integral rating of companies on the basis of hierarchical ranking procedure and established priority between the indicators. The rating is created on the basis of the principle reduction of several indicators into a single index with the use of points and ranking. To process information, we use Microsoft Office Excel spreadsheets and the main built-in functions: Sum, Trend, Corel, Rank and add-in Analysis package. We determine even correlation coefficients using the built-in statistical function Corel and the Data Analysis tool, which allows you to determine the basic statistical parameters quickly and accurately. The authors recommend to use the presented tools in the development of a competitive strategy for the company.

## 3. Results and Discussion

Having analyzed the existing interpretations of the concept of "competition" Derwik *et al.*, [7], Bogatyrev

*et al.*, [11], Brockova *et al.*, [12], Gregersen *et al.*, [17], we outlined the main approaches to the definition of economic competition: structural, behavioral, systemic, functional and within these approaches should be distinguished innovative micro-, meso- and macroeconomic approaches.

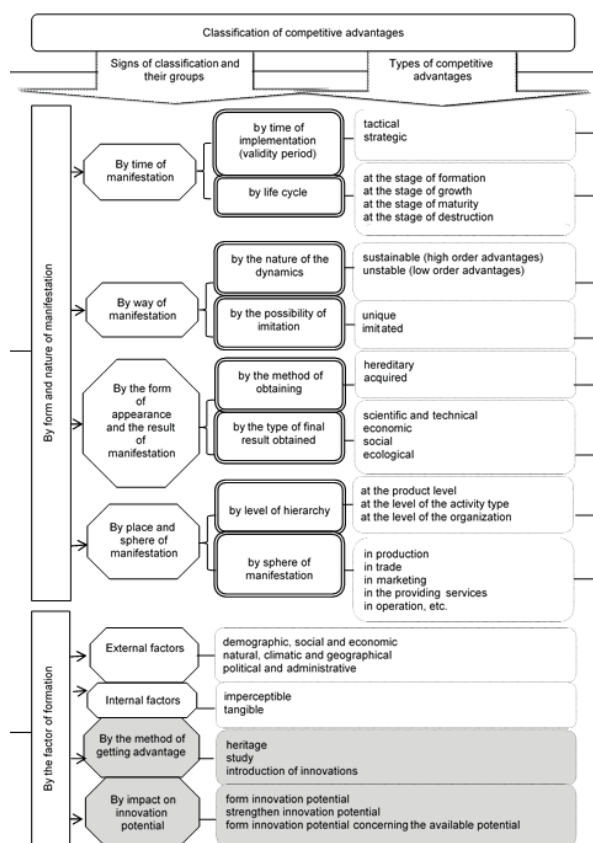
It is established that, first, competition is a self-regulatory process; secondly, competition is perceived as rivalry in the market to achieve the most favorable conditions for the existence of the organization and maximize profits; third, competition has a social (consumer) orientation. In addition, we have identified another important aspect of competition - the introduction of innovation. In the course of competition, organizations are forced to look for new products and services that are already in demand or may be in demand in the market, improve their quality, use new, more efficient methods of production and management. Achieving these parameters is possible through the introduction of innovations in the activity of organization. As a result, competition is a major factor in an organization's receptivity to innovation.

We have identified another condition: competition in the market leads to a constant change in economic conditions and market conditions, and to conduct a decent competition, companies are forced to adapt to current conditions. In other words, competition is a systemic component of the market and market relations, it forms supply and demand, pricing, economic model of the market, activates innovation processes, that is determines market conditions. Thus, competition can be seen as a dynamic process in which companies are forced to use new technologies, attract investment, adapt to ever-changing market conditions.

As a result of studying the criteria for classification of competitive advantages, it was found that the most acceptable from both scientific and practical point of view is the classification of competitive advantages of enterprises according to six criteria: the environment of formation; sphere of formation; sources of formation and the possibility of imitation; duration of action; place of formation; kind of effect from the advantage.

We have systematized the main enlarged classification features that reflect the form, nature of the manifestation and sources of competitive advantage, taking into account the innovation component (Figure 1).

Processing the financial statements of the leading companies of Ukraine, which have significant competitive advantages, allowed us to conduct a



**Figure 1. Classification of competitive advantages**  
Source: formed by the authors

sectoral analysis of the development of enterprises in the industry markets of Ukraine; to carefully evaluate the changes that have taken place as part of the largest companies, as well as to draw generalized conclusions about the dynamics of the main sectors of the economy. For higher quality analysis, the study used data from YouControl (<https://youcontrol.com.ua>), Forbes (<https://forbes.ua>), which ranked companies in descending order in terms of net income from sales.

To ensure that much of the information on sectoral affiliation is not lost in the aggregation process, information on the main economic activity was supplemented by additional verification from official websites and other open sources to clarify the specialization of each company which was included in the study sample.

The first thousand of companies in general generate about 50 - 55% of the revenue of all Ukrainian enterprises. They carry out a wide range of economic activities in various sectors of the economy: food industry (143 companies), oil and gas sector (118), electricity (83), agriculture (77), retail (66) and metallurgy (64).

The same industries are most represented in the TOP 1000 companies in terms of total net revenues, but in a slightly different order: the oil and gas sector (UAH 797 billion, which is 15.9% of total revenues of the TOP 1000), metallurgy (13.3 %), electricity (12.1%), retail trade (10.4%), food industry (8.6%), agriculture (7.6%) (Table 1).

**Table 1. Sectors of Ukraine's economy in terms of net income in 2020**

Sector	Net income, million EUR	Share in income TOP 1000, %
<b>Oil and gas sector</b>	23089,9	15,9
<b>Metallurgy</b>	19211,6	13,3
<b>Electricity</b>	17518,8	12,1
<b>Retail trade</b>	15139,1	10,4
<b>Food Industry</b>	12524,6	8,6
<b>Agriculture</b>	11026,1	7,6
<b>Transport and logistics</b>	8310,1	5,7
<b>Pharmaceutics</b>	5156,5	3,6
<b>Tobacco production</b>	4895,7	3,4
<b>Trade in motor transport</b>	4640,6	3,2
<b>Wholesale</b>	4487,0	3,1
<b>Chemical Industry</b>	4000,0	2,8
<b>Construction</b>	2915,9	2,0
<b>Engineering</b>	2063,8	1,4
<b>Non-metallic industry</b>	1991,3	1,4
<b>Telecommunications</b>	1823,2	1,3
<b>Wood processing and paper industry</b>	872,5	0,6
<b>Coke and chemical industry</b>	860,9	0,6
<b>Coal industry</b>	814,5	0,6
<b>Information Technology</b>	768,1	0,5
<b>Finances</b>	588,4	0,4
<b>Scientific research</b>	498,6	0,3
<b>Advertising and marketing</b>	342,0	0,2
<b>Water supply and utilization</b>	281,2	0,2
<b>Real estate transactions</b>	263,9	0,2
<b>Hospitality business</b>	229,0	0,2
<b>Media and cinema</b>	150,7	0,1
<b>Furniture industry</b>	144,9	0,1
<b>Health care</b>	127,5	0,1
<b>Architecture and engineering</b>	107,2	0,1
<b>Tourism</b>	89,9	0,1
<b>Light industry</b>	40,6	0,0
<b>Sports and entertainment</b>	40,6	0,0

Source: State Statistical Service of Ukraine, 2021, [24]

Sectors such as metallurgy, transport and logistics, pharmaceutics and tobacco production, despite the relatively lower number of large companies in the first thousand, generate significantly higher levels of revenue per enterprise. The basis of big business

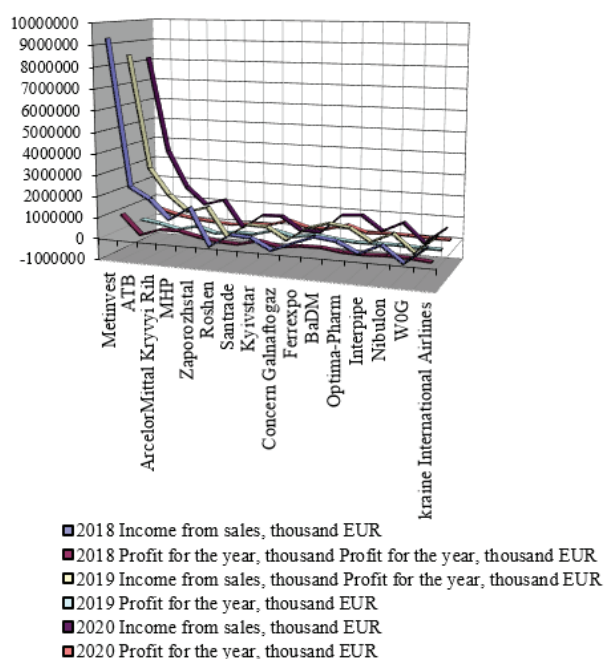


in Ukraine are industries that use mineral or land resources. Heavy industries (primarily metallurgy, oil and gas and energy), agriculture and food industry still determine the sectoral profile and international specialization of Ukraine.

We believe that when analyzing the competitive advantages of enterprises in leading sectors of the economy, it is advisable to build integrated ratings, which take into account the most important indicators of enterprise development.

To study competitive advantages and further ranking, we use the data of financial statements of leading enterprises of Ukraine, namely sales revenue and financial result for the last three years.

At the first stage we analyze the dynamics of the main indicators of 16 leading companies in Ukraine. For a visual presentation of information we graphically depict the main performance indicators of selected companies for the last three years (Figure 2).



**Figure 2. Performance indicators of the leading competitive enterprises of Ukraine for 2018-2020**  
Source: calculated by the authors

Next we develop the construction of a hierarchical integrated rating (HIR) of companies based on a hierarchical ranking procedure and the established priority between indicators. The rating is based on the principle of combining several indicators into a single index using scores and rankings.

Preliminary analysis of indicators allows to identify

the relationship between them and the possibility of application. To build an integrated rating model according to the hierarchical procedure, the following assumptions are taken into account:

- all analyzed indicators should be positive and increase the competitiveness of the company;
- financial and economic indicators must be given in the same units of measurement, that is in thousands of euros;
- profit is considered the highest priority indicator at each stage of hierarchical analysis and ranking;
- even correlation coefficients between indicators should be in the range (-1; 1), which will indicate the significance of correlations and further construction of linear dependence.

To process information we use Microsoft Office Excel spreadsheets and the main built-in functions: Sum, Trend, Correl, Rank and add-in Analysis package.

We determine even correlation coefficients using the built-in statistical function CORREL and the Data Analysis tool, which allows you to determine the basic statistical parameters quickly and accurately.

The correlation coefficients between sales revenue and financial result for the last three years are in the range from 0.47 to 0.88 which indicates the significance of correlations and further construction of linear dependence.

The coefficient of determination in the study is in the range of 0.22 - 0.78, which indicates the quality of the model and further analysis and ranking according to the hierarchical integrated rating.

Fisher's criterion is in the range from 3.94 to 48.23, it is greater than its tabular value and indicates the adequacy of the data.

Linear dependence in general is expressed by the formula:

$$Y_p = a_1 X + a_0 \quad (1)$$

The linear dependence of the financial result on sales revenue is as follows:

for 2018 ;

for 2019 ;

for 2020 .

Next we group and rank the main financial and economic indicators of 16 leading companies for 2018 - 2020.

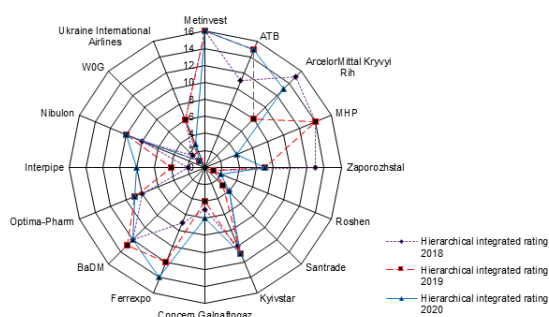
The result of data processing is grouped and summarized in Table 2.

**Table 2. Ranking of the leading competitive companies of Ukraine according to the hierarchical integrated rating, 2018 - 2020**

№	The company name	Hierarchical integrated rating 2018	Hierarchical integrated rating 2019	Hierarchical integrated rating 2020
1	"Metinvest"	16	16	16
2	ATB	11	15	15
3	"ArcelorMittal Kryvyi Rih"	15	8	13
4	MHP	14	14	4
5	"Zaporozhstal"	13	7	7
6	Roshen	1	1	2
7	"Santrade"	4	3	4
8	"Kyivstar"	10	11	11
9	"Concern Galnaftogaz"	5	4	6
10	Ferrexpo	7	12	14
11	BaDM	12	13	12
12	"Optima-Pharm"	8	9	9
13	Interpipe	2	4	8
14	Nibulon	8	10	10
15	WOG	2	1	1
16	"Ukraine International Airlines"	6	6	3

Source: formed by the authors

Analyzing the hierarchical integrated rating, we can conclude that according to the main financial and economic indicators in 2018 the leading companies are Roshen, Interpipe and WOG. In 2019, the three leaders are Roshen, WOG and Santrade, and in 2020 - WOG, Roshen and Ukraine International Airlines (Figure 3).



**Figure 3. Dynamics of the hierarchical integrated rating of the leading competitive companies of Ukraine, 2018-2020**

Source: calculated by the authors

#### 4. Conclusions

- Summing up the study, it should be noted that there is no unanimity in understanding the essence of the concept of "competitive advantage", which necessitated the presentation of the author's vision of this definition, taking into account the innovative component of this concept. According to the results of critical analysis, it was found that some scientists

have tried to systematize the variety of definitions with the allocation of scientific approaches, most of which have certain shortcomings; there is no single approach to the classification of competitive advantages, which contributed to the formation of the author's position on this issue. Thus, competitive advantage is the result of innovative activity of the enterprise, which determines the level of its competitiveness due to the peculiarities and uniqueness of products, equipment and technologies, methods of organization of production and marketing, and so on. The obtained results should be used in research on the formation and development of competitive advantages of the enterprise.

- The integrated rating proposed in the work allows to estimate the level of competitiveness of companies compared to previous periods and to draw a conclusion about the feasibility of investment. The authors recommend using the presented tools in developing a competitive strategy of the enterprise.

- The next step in the study is to analyze the sequence of use of competitive advantages of the enterprise. To do this, you can use a comparison of the costs incurred to ensure the competitiveness of the enterprise with the expected and obtained effect of the competitive advantages used by the enterprise.

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