

The determinants of an organization's value

12. Analysis methods to assess the competitiveness of enterprises

Nazgul Assylbekova*

Abstract

This paper analyzes the existing methods for assessing the competitiveness of enterprises. In the comparative analysis of methods are determined the disadvantages and feasibility of using each method. The author confirmed that at this time there is no generally accepted evaluation system to assess the competitiveness of enterprises. The author to expediently and efficiently determine the level of competitiveness of an enterprise offers a method entitled "Assessment of the competitiveness of industrial products", developed by K. Nurmagambetov.

* M.Sc., 3rd year PhD student, Faculty of Production Engineering, Warsaw University of Technology, email: nazi-tu@mail.ru.

Introduction

The assessment of an enterprise's competitiveness has important significance for the survival and development of enterprises, and also has an important reference value for enterprises decision-making. The assessment of competitiveness of an enterprise permits it to solve the following crucial issues:

- 1) to determine its position on a specified market;
- 2) to develop strategic and tactical measures of for effective management;
- 3) to choose partners for the organization of joint products production;
- 4) to attract facilities for prospective production;
- 5) to make programs of an enterprise's entrance into new sales markets, etc.

Many publications cover the questions of the assessment of an enterprise's competitiveness. These publications differ by the level of methodological and theoretical generalization: from fully formed theories (such as Porter's theory of competitive advantage and competitive advantages based on values theory etc.) to papers containing strictly particular aspects of competitiveness. Many papers are connected with analyzing the factors of an enterprise's competitiveness when enterprises differ from each other by the nomenclature of considered factors (from several pieces to two-three dozen) according to their classification and grouping (Maksimov, 1996; Baumgarten, 2005; Fathutdinov, 1999).

There are various methods for assessing the competitiveness of enterprises. Each method has its own characteristics: the authors justify the use of different approaches for the calculation of indicators of an enterprise's competitiveness, the need to consider various factors to assess, etc. Not all of the existing methods of enterprise competitiveness evaluation completely appropriate for a particular organization. Therefore it is very important to choose the method that is most suitable to the position and the activities of the organization.

The purpose of the article is based on the comparative analysis of different methods for assessing the competitiveness of enterprises to offer the most appropriate method to use.

12.1. Comparative analysis methods for assessing the competitiveness of enterprises

Currently there is no generally accepted method of assessing competitiveness. There are many methodologies for assessing the competitiveness of an enterprise used in practice or proposed by some authors as research

development. Every company evaluates its competitive position in its methodology, and the nature and effectiveness of its use does not advertise. The evaluation of the competitiveness of the enterprise is a complex multifactorial problem, which leads to the interpretation and evaluation of a set of indicators that characterize different aspects of the enterprise, which form its competitiveness.

The study and research of competitiveness of enterprises, as well as its assessments focus on the work of M. Porter (1979), Ph. Kotler (1985), G. Azoev (1996), K. Nurmaganbetov (1997), M. Gorynia (1998), R. Fatkhutdinov (1999), Z. Pierścioneek (2006) and others who develop theoretical and methodological aspects of the evaluation of competitiveness of products and enterprises. However, despite a lot of published material on this important topic, a recognized and universal technique for comprehensive assessment of the competitiveness of enterprises does not currently exist. This circumstance is explained by the complexity of the problem.

The theory of competitive advantages, authored by M. Porter, considers that business entity competitiveness must completely and most effectively use all available resources (Porter, 1985). The mathematical aspects of the theory of comparative advantages are reflected in research papers by P. Samuelson and W. Stolper (Samuelson 1994). But this concept is abstract and difficult to implement in practice. It is more appropriate for competitiveness assessment of companies which primarily operate in international markets. Moreover, this methodology is difficult to use when assessing the competitiveness of exporting enterprises as existing preferences characterize not only the company under study, but also the attractiveness of the industry as a whole.

There are a large number of firms, for which, by the ever-changing production and the lack of technical documentation the most effective evaluation method is the competence approach (Larichev and Moshkovich, 1996). The main nonformalised method is based on the results of the expert evaluation.

Some authors consider time as one of the coefficients of achieving enterprise competitiveness. The separate directions of optimization of the time parameters of enterprise activities are as follows: speed of its adaptation, terms of payments, duration of production cycle, speed of decision making, etc.

On the basis of analysis of the international experience, it is possible to provide a classification of the basic approaches and methods of enterprise competitiveness evaluation.

The most widespread method is investigation of the enterprise competitiveness on the basis of the theory of international division of labor.

A prerequisite for the achievement of a strong competitive positions by the enterprise is availability of advantages which give a chance to provide rather low manufacturing expenses in comparison with competitor.

There are widespread methods of the enterprise competitiveness evaluation based on the theory of effective competition. According to this theory the most competitive are companies where the best arranged work of all services and divisions. On the efficiency of each of the services is influenced by a number of factors, resources of the firm. Evaluation of the effectiveness of each of the units involves an assessment of the effectiveness of the use of these resources (Lobanov, 2001). There are two basic approaches to the determination of competitiveness criterion within the framework of this theory: structural and functional.

According to the structural approach, enterprise status can be evaluated in the light of knowledge of the industry monopolization level, i.e., concentration of production and capital, and the barriers to new enterprises entering the market. The basic obstacles on the way of new competitors are as follows: the profitability of large-scale manufacturing; degree of production differentiation; absolute advantages in cost of existing enterprises; amount of capital required for organization of effective manufacturing.

The functional approach consists in determination of the price-cost ratio, the level of the use of production capacities, production output, rate of return, etc. According to this approach, enterprises with more efficient production and sales and effective financial management are more competitive.

There are worth noting methods of enterprise competitiveness evaluation that are based on firm and industry equilibrium theory and the theory of production coefficients. The criterion for competitiveness within the framework of such an approach consists in possessing by the manufacturers of production coefficients which can be used with greater productivity as compared to the competitors. According to the equilibrium theory analyzed are the following: credit interest rates; relative cost of purchased tooling; relative rates of wages; relative cost of material resources (Chursin and Makarov, 2015).

Competitiveness of the enterprise is also evaluated according to quality of production with the help of the polygonal profiles method. This method is one of a few techniques to provide visualization of evaluation. Unlike other approaches, this method provides an investigation of the market segments, an evaluation of a possibility of changing production profitability, and the sale with allowances made for market requirements, as well as an analysis of the marketing network. The method is based on the identification of criteria of meeting requirements in relation to a concrete

product, on the establishment of a hierarchy of demand, their comparative significance within the spectrum which an ordinary consumer can evaluate. The scientific literature, as a rule, presents polygons of comparative characteristics of the enterprise competitiveness according to eight vectors of competence: concept, quality, price, finance, trade, after-sale service, foreign policy, and presale preparation (Pechenkin, 2011). The basic drawback of the specified method consists in the fact that it does not take into account the effectiveness of industrial activity of the enterprise and is acceptable for the enterprises with only one type of product.

Being of interest are the so-called matrix methods of assessment of enterprise competitiveness based on the use of matrix tables organized by rows and columns of elements (Dubinina, 2013). There are many matrix models, which can be used to assess the level of competitiveness of the enterprise: matrix “The growth of the industry/market share” (model BCG); matrix “market attractiveness/competitive position” (model GE/McKinsey); directional policy matrix or “industry attractiveness/competitiveness” (model Shell/DPM); matrix “stage of the market/competitive position” (model Hofer/Schendel); matrix “stage of the life cycle of products/competitive position” (model ADL/LC). Using matrix methods, executives have the opportunity to assess the level of competitiveness of potential of not only their company, but also its closest competitors, which will help to develop a strategy of market behaviour.

The said methods are evident and simple in terms of calculations. The advantages of these methods darken their drawbacks too: visualization is provided at the expense of a simplified solution with the loss its accuracy. Such methods make it possible to successfully identify the status of goods in the market and prospects for the development of these goods according to their life cycle, showing the position of several competitors and giving representation of their opportunities. The reality is that the application of such methods is effective in combination with other more accurate methods, they illustrate.

A separate group includes the methods which based on the evaluation of competitiveness of enterprise products. This group of methods is based on the idea that competitiveness is higher, the higher the competitiveness of their products. To determine the competitiveness of products uses various marketing methods, which are based on finding the ratio price-quality (Fathutdinov, 2004). The calculation of the index of competitiveness for each type of products is carried out using a parametric and economic competitiveness index. In turn, these indices are determined by summation of the partial indices for each evaluated parameter with the given weighting coefficients. Each of the partial indices on the relevant parameter is taken as the ratio of the actual values of the estimated parameter

to the value of the corresponding index of competing products (or other products, selected as basis for comparison). In this case the parametric index is determined on the basis of technical evaluation (quality) parameters of products of economic value (Tkachuk, 2015). The list of cost and technical parameters, as well as the weight of each of the parameters set by the expert.

Methods classified under this approach are defined as complex due to the fact that the assessment of the competitiveness of enterprises under each of the methods is conducted by identifying not only current but also potential competitiveness of the enterprise. The approach is based on the assertion that competitiveness is the integral value in relation to current competitiveness and competitive potential (Ivanov, 2008).

Hence, this analysis of specified approaches and methods shows that the problems of assessing competitiveness of the enterprises yield a relatively complete picture in the modern literature. As a whole, the competitiveness of the enterprise is determined given the influence of market coefficients. However, as a rule, these coefficients do not provide a complex quantitative evaluation of their competitiveness. Besides, a common drawback of the specified methods is that they are not adapted to being used in conditions of formation of market relations and give incomplete characteristics of the enterprises being estimated.

Thus, each of the approaches to the assessment of competitiveness of enterprise has both advantages and limits of efficient application and disadvantages. The main methods of evaluation, their disadvantages and feasibility of using are shown in table 12.1. Some methods and approaches within certain limits, duplicate others, but these differences are, in our view, complementary rather than mutually exclusive.

Method	Benefits	Disadvantages	Feasibility of using
The method is based on an analysis comparative advantage	Allows you to compare the scale of enterprises	Static these estimates. Makes it impossible to assess the process of enterprise adaptation to environmental conditions	It is possible to apply the method to assess the competitiveness on a macro level
The method is based on equilibrium theory of firm and industry	Used at the sectoral level	Takes into account mainly the external conditions of the company, virtually excluding the impact of the internal environment factors	The most widespread such an approach is to assess competitiveness at the industry level

Method	Benefits	Disadvantages	Feasibility of using
The method is based on the theory of effective competition	Comfortable and covers the main activities	Does not assess the dynamics indicators	It is possible to use the method to assess the competitiveness of enterprise
The method is based on the theory of product quality	Evaluates competitive based on customer value product	It seems that competitiveness is identified with the competitiveness of goods on competitive products – from their quality	The method is used to assess the competitiveness of enterprises
The matrix method	May apply not only to products but also to businesses, companies, and industries. Allows you to conduct a qualitative analysis competitive position	The complexity of the process of formation and selection strategies for certain quadrants matrices, static character matrix, taking into account only two parameters	Used to previous research a particular situation in a particular type of business or enterprise rapid assessment
The integral method	Easy calculations; unambiguous interpretation calculations	Not allow for a detailed analysis is difficult to conduct for companies with a large product range of products	Used to express the evaluation of 2 businesses
The financial and economic method	We give an objective and complete assessment of the strengths and weaknesses of the company. Preparation of market rating. Easy-to use and affordability	Not captured elements of the marketing mix. Remains unattended management company	Application is possible and necessary
Method of rating score	Quite accurately determines the position of the company under analysis compared to its competitors for a particular parameter at a define time	Complexity in calculating the initial and receiving data	It is possible for the target comparison enterprises of the industry or region
Method on the basis of the expert method	Allows quickly and without much time and labor to obtain the information necessary to develop administrative decisions	Does not take into account operational and financial performance	It can be used when required to take quick decisions

Method	Benefits	Disadvantages	Feasibility of using
Benchmarking Method	Allows you to know where your enterprise stands when compared to your competitors	Simply helps you to spot areas which need improvement. It does not contribute in solving the issues in hand	The method brings the focus thethe areas which should be given special attention

Table 12.1. Comparative characteristics of methods for assessing the competitiveness of enterprises

Source: own study on the basis Nesterenko O. (2014), *Comparative analysis methods for evaluation enterprise competitiveness*, “Scientific Journal of Odessa National Economic University”, Vol. 19, No. 4, p. 86–94.

The methods presented in table 12.1 are only part of a large number of approaches to assessing the competitiveness of an enterprise. All these methods are united as a fact, as the need to consider a variety of source data.

Taking into account the results of the comparative analysis of the methods the author suggests that for a more expedient and productive method of determining the level of competitiveness of enterprise competitiveness of manufactured goods can be used the “Evaluation of the competitiveness of industrial products” method developed by K. Nurmaganbetova (1997).

The advantage of this method is that it takes into account the most important factor affecting the competitiveness of the enterprise – the competitiveness of goods. However, this approach allows us to obtain a complete understanding of the advantages and disadvantages in the enterprise, as a company’s competitiveness takes the form of goods and affects the competitiveness of technological, organizational and economic aspects of the enterprise market.

Consider the example of this method. An example would be carried out on the basis of enterprise LLP “Alma Protex” (Datastream, 2014; LLP “Alma Protex”) and its products – apples.

Competitiveness of fruit is determined by three main factors: the ability to meet the particular needs of the potential buyer, price and sales organization.

Meeting the needs is provided by consumer properties of fruits, quantity, relevance and value of which are different for each product. A set of consumer characteristics, their levels determine, ultimately, the level of use value or utility of the fruit to the consumer. Naturally, for the consumer it will be a more attractive product with higher levels of use-value.

The indicators characterizing the level of consumer properties (LCP) of fruit (apples) are as follows: taste, energy and biological value, appearance, smell, preservation ability and freshness.

Indicators of the level of organization of the sale (LOS) of apples are as follows: culture and level of service, availability of goods to the consumer, time and place of sales organization, assortment and promotional activity.

Price is a monetary expression of value of goods. The potential buyer, choosing apples at the market tends to buy apples with a higher level of consumer properties, sales organization and lower costs.

In this method was proposed the following formula to calculate the level of competitiveness of product manufactured in an enterprise) (Petukhov and Nurmaganbetov, 2006, p. 88):

$$C_{g/c} = \left(\frac{LCP_g}{LCP_c} \right)^\alpha \times \left(\frac{P_c}{P_g} \right)^\beta \times \left(\frac{LOS_g}{LOS_c} \right)^\gamma \quad (12.1)$$

where:

$C_{g/c}$ – indicator of competitiveness of an apple of given firm,

LCP_g and LCP_c – assessment (in grades) of levels of consumer properties of an apple of given firm and competitor,

P_g and P_c – price of an apple of given firm and competitor,

LOS_g and LOS_c – assessment (in grades) of levels organization of the sale of an apple of compared firms,

α, β, γ – level of value of LCP , its price, LOS .

Coefficients α, β, γ are determined by experts in the field of marketing.

The above formula (12.1) quantifies the preference for consumer the product of given firms with respect to similar products of competing firms. If the value of indicator ($C_{g/c}$) equal to unity the estimated product has equally competitive with comparable products of competing firms. The greater extent of the figure ($C_{g/c}$) more than unity, the more the given product is competitive. Evaluated product will be uncompetitive at the value of indicator ($C_{g/c}$) less than unity.

Level of consumer properties (LCP) can only be measured in arbitrary units and only with the help of expert judgment: in points or relative ratios. LCP is determined by the following formula (Petukhov and Nurmaganbetov, 2006, p. 89):

$$LCP = q_1^{m1} \times q_2^{m2} \times q_3^{m3} \times \dots \times q_n^m \quad (12.2)$$

where:

LCP – the level of use-value of apples,

q_1, q_2, \dots, q_n – numerical score of individual consumer properties of apples,

$m1, m2, \dots, mn$ – coefficients of relative value of consumer properties of apples.

If $LCP = 10$, level of consumer properties of apples fully correspond the level of customer requirements, i.e. apples has the required utility. If $LCP = 0$ this means that for the consumer apples are completely unsuitable.

Let’s consider calculation of LCP of apples of given firm and firm – competitor. Expert score of LCP of apples is shown in table 12.2.

No.	Properties of the product	LLP „Alma Protex”	Competitor company	Coefficient of relative importance
1	Appearance	6.7	7.2	0.159
2	Preservation ability	5.1	6	0.147
3	Smell	6.9	6.5	0.156
4	Taste	6.1	5.9	0.178
5	Freshness	5.7	6.1	0.157
6	Energy and biological value	7.6	6.5	0.203
				1.000

Table 12.2. Assessment of levels of consumer properties of apples LLP “Alma Protex” and apples of Competitor, scored on a 10-point scale
Source: calculated by the authorbased on the results of Experts.

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$$\begin{aligned} LCP_g &= 6.7^{0.159} \times 5.1^{0.147} \times 6.9^{0.156} \times 6.1^{0.178} \times 5.7^{0.157} \times 7.6^{0.203} = \\ &1.35 \times 1.27 \times 1.35 \times 1.38 \times 1.31 \times 1.51 = 6.32 \\ LCP_c &= 7.2^{0.159} \times 6^{0.147} \times 6.5^{0.156} \times 5.9^{0.178} \times 6.1^{0.157} \times 6.5^{0.203} = \\ &1.37 \times 1.30 \times 1.34 \times 1.37 \times 1.33 \times 1.46 = 6.34 \end{aligned} \tag{12.3}$$

The price of one kilogram of apples:

$$P_g = 1.22\text{€}; P_c = 1.25\text{€}. \tag{12.4}$$

Level of sale organization is also measured in units, and with the help of expert assessment: in points or relative ratios. Calculation of the LOS is carried out in the same way as LCP by formula (12.3) (Petukhov and Nurmaganbetov, 2006, p. 89):

$$LOS = b_1^{k1} \times b_2^{k2} \times b_3^{k3} \times ... b_n^{kn} \tag{12.5}$$

where:
 LOS – the level of organizations of sales of apples,

b_1, b_2, \dots, b_n – numerical score of different indicators characterizing the level of organization of sales of apples,

k_1, k_2, \dots, k_n – coefficients of the relative importance of indicators of the level of organization sales of apples.

If $LOS = 10$, the level of consumer properties of apples fully corresponds to the level of customer requirements, i.e. apples has the required utility. If $LOS = 0$ this means that for the consumer the apples are completely unsuitable.

An expert assessment of the organization levels of apples sold by a firm, as well as the average score of the same indicator of competing firms are given in table 12.3.

No.	Indicators characterizing the level of organization of the sale	LLP „Alma Protex”	Competitor company	Coefficient of relative importance
1	Availability of goods to the consumer	6.3	7.3	0.15
2	Assortment	5.5	6.8	0.32
3	Promotional activity	4.3	5.2	0.1
4	Culture and level of service	6.2	6.3	0.18
5	Time and place of sales organization	6.4	7.21	0.25
				1.00

Table 12.3. Evaluation of levels of the organization of sales of apples LLP “Alma Protex” and apples of Competitor, scored on a 10-point scale

Source: calculated by the author based on the results of Experts.

$$\begin{aligned}
 LOS_g &= 6.3^{0.15} \times 5.5^{0.32} \times 4.3^{0.1} \times 6.2^{0.18} \times 6.4^{0.25} = \\
 &= 1.32 \times 1.72 \times 1.16 \times 1.39 \times 1.59 = 5.82 \\
 LOS_c &= 7.3^{0.15} \times 6.8^{0.32} \times 5.2^{0.1} \times 6.3^{0.18} \times 7.21^{0.25} = \\
 &= 1.35 \times 1.85 \times 1.17 \times 1.39 \times 1.64 = 6.66
 \end{aligned}
 \tag{12.6}$$

Next it is necessary to determine the level of competitiveness of the products LLP “Alma Protex” in relation to the products of competitors by formula (12.1). Expert methods set the value of coefficients of relative importance of individual components of the products competitiveness: $\alpha = 0.37$, $\beta = 0.35$; $\gamma = 0.28$. Substitute the values into the formula (12.1).

$$Ct_{g/c} = \left(\frac{6.32}{6.34}\right)^{0.37} \times \left(\frac{1.25}{1.22}\right)^{0.35} \times \left(\frac{5.82}{6.66}\right)^{0.28} = 1 \times 1.01 \times 0.96 = 0.97 \quad (12.7)$$

This suggests that apples of given firms are unattractive compared with apples of competing firms (although to a lesser extent). Therefore, this product is a non-competitive product.

The level of competitiveness of a given firm can be elevated due to reduced prices, improved consumer properties of apples, raises the organization of the sale.

The proposed method of evaluation of enterprise competitiveness level is based on product competitiveness. This method allows us to analyze the influence of varied factors affecting the level of competitiveness, in particular, the parameters of an external situation coupled with internal activities. In the above example were considered the main factors affecting the competitiveness of the product. Also, it is possible take into account other important factors. It depends on the type of product, on the expert opinion and on the needs of customers. This indicates that the method is universal and can be used in other areas without any problems. The main advantage of the proposed method can be considered that on the basis of determining the coefficient of the competitiveness of the product, an enterprise evaluates its capabilities and determines the most effective ways and means to improve the competitiveness of products.

In addition, important advantages of the method are its clarity, transparency and possibility of adaptation to any industry that enables ease of usage by domestic enterprises.

Conclusion

The above study demonstrates the existence of a large number of different methods for assessing the competitiveness of enterprises which differ both in the way of assessment (formal and non-formalized) and the nature of the initial interpretation of the results (based on comparative advantage, matrix, and integral methods). The variety of methods to assess competitiveness of enterprises is primarily due to the objectives that contribute to in the estimates, the number of companies competing in the industry and the accessibility of information received.

Existing methods for evaluating an enterprise's competitiveness in modern conditions have certain limits of effective using and disadvantages, the main of which is their static nature, not taking into account the parameters

of product quality, credibility of the relevant trade mark, level of social responsibility, the intensity and effectiveness of advertising and so on.

In order to solve certain problems associated with the assessment of the competitiveness of the enterprise was proposed the “Evaluation of the competitiveness of industrial products” method developed by K. Nurmagambetova. The main advantage of the proposed method can be considered that on the basis of determining the coefficient of the competitiveness of the product, an enterprise evaluates its capabilities and determines the most effective ways and means to improve the competitiveness of products.

Therefore, an important task to solve this problem, in our view, is to create an appropriate methodological framework of criteria and evaluation of competitiveness of the enterprise, choice of adequate instruments which meet the requirements of the modern market environment and contemporary trends in the industry, as well as the formation of specific criteria for the evaluation and selection parameters of assessment – competitive advantages of enterprises.

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