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COMPREHENSIVE QUANTITATIVE EVALUATION OF THE STRATEGIC POTENTIAL OF AN ENTERPRISE

Abstract. *The strategic potential of an enterprise (SPE) is perceived as an integral whole of interacting quantitative resources and qualitative capabilities. SPE is a complex phenomenon, demonstrating its various aspects in reality. Therefore, multicriteria methods may be used for its evaluation. The strategic potential of an enterprise is described by a number of criteria, therefore, an hierarchical set of criteria should be developed to assess it more accurately. Multicriteria evaluation may be aimed at determining the preference order of the considered phenomena or at quantitative evaluation of the state of a particular phenomenon (or object). It is the latter that allows us to determine the strategic potential of an enterprise .All currently used multicriteria evaluation methods have some advantages and disadvantages, therefore, the evaluation should be based on the use of several methods, and the mean value of the data obtained should be considered.*

Key words: *enterprise strategy, strategic enterprise potential, multicriteria evaluation, PROMETHEE method.*

JEL Classification: C44, C61, D81; D82; G21, O22.

1. Introduction

Today, the successful performance of an enterprise can hardly be achieved without having a particular strategy. The development of the strategy is the effort to adapt an enterprise to hardly predictable environmental changes. At the same time, it is a tool, helping an enterprise to change the environment so that it

could achieve the expected positive results in its activities. A major aim of the developed strategy is to increase enterprise competitiveness, often perceived in theory and practice as the adequate market share both in the local and foreign markets (Ginevičius, Podvezko 2004a,b). Enterprise competitiveness is the result of enterprise development, helping it not only to maintain and enlarge its market share, but to adapt itself to ever changing environmental conditions. The adaptation to these conditions should not be passive, i.e. aimed only at maintaining the current state of an enterprise. The result of the economic development of any state is the extension of its market. Therefore, enterprises should also extend the scope of their activities because, otherwise, they will lose their positions on the market and decline. Seeking for a larger market share makes the basis of the policy of increasing enterprise competitiveness. An enterprise can increase or at least maintain its market share, only if it develops at least at the rate of the general market development. The efforts aimed at achieving this make the core of the competitiveness strategy, embracing the strategic actions aimed at getting a competitive position, as well as maintaining the long-term competitive advantage, allowing an enterprise to achieve good financial results.

The main factors strongly affecting the development of the competitive strategy are closely associated with the internal and external abilities of an enterprise. These abilities may be generally described in terms of the concept of the strategic potential (Ginevičius, Podvezko 2004a). To determine the strategic potential of an enterprise (SPE) is a complicated problem because it is a complex phenomenon, showing its various aspects in reality.

2. The nature of the strategic potential

The strategy of developing enterprise competitiveness is integral by its nature because it embraces some sub-strategies, associated with the plans of achieving a competitive position, product value chain, internal competition, etc. (Ginevičius, Krivka 2010). This integrated competitiveness strategy model was formed because of the complex nature of market competition and the need for developing the strategy to deal with a great number of external and internal factors, affecting enterprise competitiveness and its position in the market.

According to the classical work of P. Drucker (1986), to predict the future of a particular business and what it should be, you need to know what it is now. The appropriate trend of particular business development should be chosen only when the existing environment of an enterprise is properly evaluated and its current (or desired) position is determined. In addition, the internal conditions, e.g. the structure of enterprise organization, its available resources, abilities, etc., should be analysed (Ginevičius, Krivka 2010; Prahalad, Hamel 1990; Rumelt 1991; Peteraf 1993; Grant 1991, 1996; Barney 1991; Teece et al. 1997, etc.).

According to the classical Ansoff model, the strategy of enterprise development may be described by two dimensions: ‘product-market’ (Ansoff 1957, 1965). It is based on the fact that each enterprise produces some product (or

provides services) and is associated with a particular market. It allows us to answer the main question about the kind of particular business and the model of its development. For this purpose, the abilities of an enterprise to perform successfully in the markets and in the production of the product should be evaluated.

Capabilities associated with internal and external conditions primarily depend on the available material and human resources. However, it is only one, quantitative, aspect. The final result depends on the quality of 'the work' of these resources. Therefore, the potentialities of an enterprise are closely associated with entrepreneurship, perceived as the efforts of an enterprise to use both internal and external opportunities (Jucevičius 1998). The effectiveness of these efforts depends on the abilities of the staff to use their professional skills because entrepreneurship can be realized only in a professionally managed organization. Thus, the strategic potential of an enterprise is the integral whole of its quantitative (material and human resources) and qualitative (entrepreneurship) abilities (Fig 1).

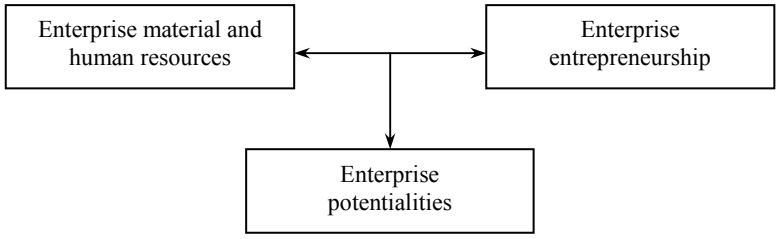

Figure 1. The model of enterprise potentialities' formation

The potential abilities of an enterprise may be considered to be its strategic potential because, based on them, an enterprise can create the effective enterprise development strategy (Ginevičius, Podvezko 2004a,b).

Successful implementation of the strategy aimed at developing enterprise competitiveness increases its strategic potential, in addition to achieving good commercial results. On the other hand, the efforts made to increase SPE provide new possibilities to increase the development of an enterprise. In any case, to be sure that the above efforts were fruitful, i.e. the investments into the increase of the strategic enterprise potential gave positive results, exceeding the expenses, quantitative SPE evaluation should be made.

3. Quantitative evaluation of the strategic potential of an enterprise

3.1. Developing a set of criteria describing the strategic potential of an enterprise

The strategic potential of an enterprise (SPE) depends on the ability of an enterprise to take into account and properly assess both the internal and external conditions of its activities (Ginevičius et al. 2010). It means that SPE is a complex phenomenon. Such phenomena usually show their various aspects in reality

(Ginevičius 2006). Practically realized aspects of SPE as a complex phenomenon are associated with enterprise activities. All of them may be presented in the so-called matrix of strategic abilities (Ginevičius et al. 2010) (Table 1).

Table 1. **The criteria of the strategic potential of enterprise**

No.	The constituents of the strategic potential of production system's managing subsystem
A. A set of criteria describing external conditions	
1	Ability to analyse macroeconomic situation in host and foreign countries
2	Ability to determine major needs of potential clients in proper time
3	Ability to analyse the demand for products and services, enabling an enterprise to provide the market with qualitative products in proper time
4	Ability to analyse the factors of success and the activities of the rival groups in the market
B. A set of criteria describing internal conditions	
5	Ability to generate new ideas in the field of developing and organizing production and to provide new competitive products and services
6	Ability to implement other new competitive ideas in the fields of producing new goods and providing new services
7	Ability to ensure the development of the production system of an enterprise and its flexibility
8	Ability to maintain the competitiveness of an enterprise
9	Ability to maintain the internal flexibility of an enterprise by using adaptive technologies and other means of production
10	Ability to maintain internal flexibility of the production system of an enterprise by forming the potential of human resources adequate for the changing objectives
11	Ability to ensure the competitiveness of enterprise products (services) allowing an enterprise to take the leading position in the present and potential markets
12	Ability to produce and supply products and services in large amounts corresponding to the potential of an enterprise and the targeted market share
13	Ability to maintain the effective performance of an enterprise by rational use of investment possibilities
14	Ability to plan and effectively implement the strategic programme of technical and social development of an enterprise

Taking into account the research objectives, the conditions presented in Table 1, may be described as technological, technical, personal, organizational, informational, financial and other conditions, depending on the resources used in production (Gradova 1999).

The next step after the construction of the matrix of strategic enterprise abilities is the formalization of business conditions, i.e. their description in terms of criteria and the development of a set of criteria (Ginevičius, Podvezko 2005). However, in doing this, several limitations should be taken into account. To perform quantitative evaluation of SPE, the weights of the criteria, in addition to their values, should be known, because the effect of each criterion on the strategic potential of an enterprise may differ. The criterion weights are determined by

experts. Both theory and practice show that experts can determine accurately the weights of only some limited number of criteria (usually, 8-10 criteria) (Ginevičius, Podvezko 2009; Podvezko 2009). As shown in Table 1, the number of the considered criteria is fourteen, which is too much for proper evaluation. The research shows that, in such cases, the number of simultaneously evaluated criteria may be reduced by grouping similar criteria and evaluating them in the particular groups (Ginevičius 2009). In our case, two groups of criteria may be obtained, which would reflect such SPE aspects as the ability to analyse and evaluate the external and internal conditions associated with enterprise performance. Thus, the hierarchical set of criteria describing SPE, which can be used for its quantitative evaluation, is obtained (Fig 2) (Ginevičius 2009).

When a set of criteria describing the strategic potential of an enterprise is developed, it may be quantitatively evaluated.

3.2. Quantitative evaluation of the strategic potential of an enterprise

In the general case, the criteria describing the considered phenomenon may be expressed in various dimensions and interpreted in different ways, i.e. the increase of the value of one criterion may indicate a better situation, while the increase of another criterion's value means the worse state of affairs. This complicates the integration of the criteria into one generalized quantity for describing the state of the considered object (or phenomenon) by a single value.

In practice, the considered problems may be successfully solved by multicriteria evaluation methods (Figueira et al. 2005; Ginevičius, Podvezko 2006, 2008; Ginevičius et al.2006; Brauers et al. 2010; Podvezko 2011; Zavadskas, Turskis 2011; Antucheviciene et al. 2010, 2011; Brauers, Zavadskas 2011; Baležentis,A., Baležentis T. 2011).

To integrate the criteria expressed in various dimensions into one generalizing quantity, they should be comparable. This may be achieved by normalizing the values of the criteria (Ginevičius 2008). The method of normalization depends on the target of multicriteria evaluation. There may be two of them: the first is the arrangement of the alternatives of the considered phenomenon into the order of preferences, while the second aim is quantitative evaluation of the state of the considered phenomenon (Ginevičius 2008). In this paper, the second case is discussed because the major aim is to determine the strategic potential of a particular enterprise.

The matrix of the statistical data or expert estimates of the criteria describing the compared objects or the available alternatives is as follows: $R = \|r_{ij}\|, i = 1,...m; j = 1,...n$, where r_{ij} is the value assigned by the experts to j-th alternative of i-th criterion, m is the number of the criteria considered and n is the number of the considered objects or alternatives (Table 2).

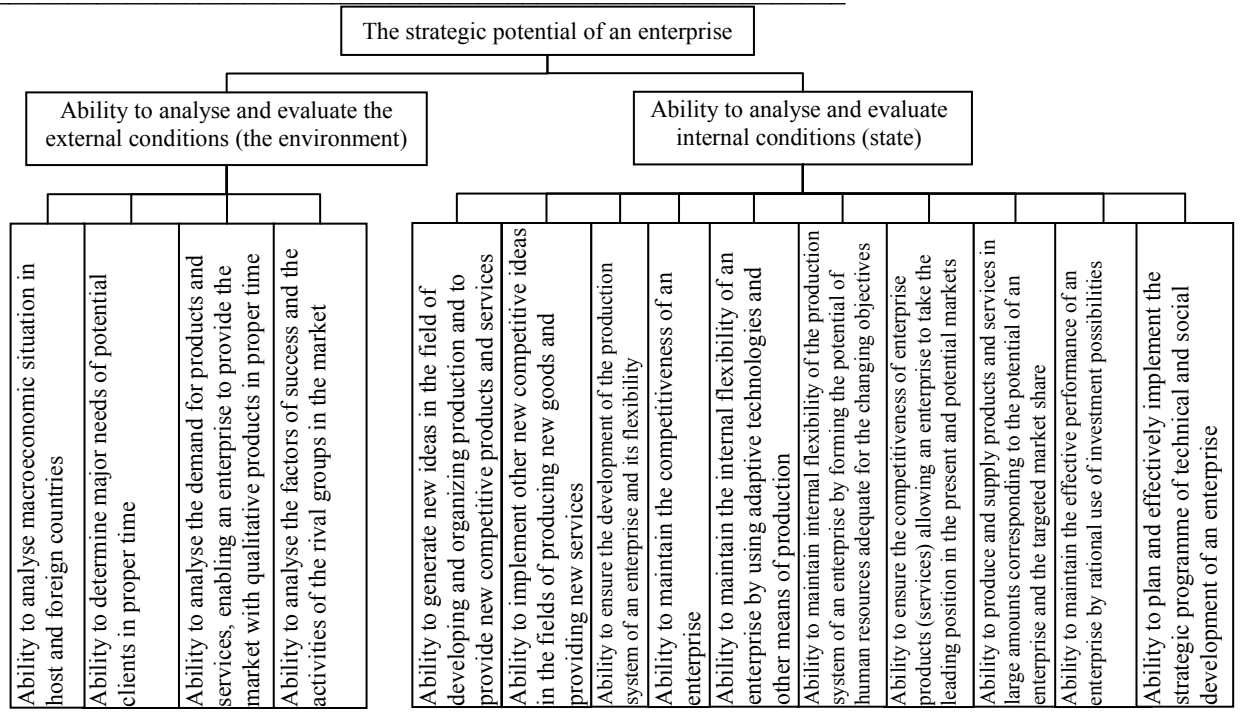

Figure 2. The hierarchical set of criteria describing the strategic potential of an enterprise, which can be used for its quantitative evaluation

Table 2. The matrix of multicriteria evaluation data

Objects / Criteria	*1*	*2*	*3*	...	*j*	...	*n*
1	r_{11}	r_{12}	r_{13}	...	r_{1j}	...	r_{1n}
2	r_{21}	r_{22}	r_{23}	...	r_{2j}	...	r_{2n}
3	r_{31}	r_{32}	r_{33}	...	r_{3j}	...	r_{3n}
⋮	⋮	⋮	⋮	...	⋮	...	⋮
i	r_{i1}	r_{i2}	r_{i3}	...	r_{ij}	...	r_{in}
⋮	⋮	⋮	⋮	...	⋮	...	⋮
m	r_{m1}	r_{m2}	r_{m3}	...	r_{mj}	...	r_{mn}

Since the major aim of the research is to arrange the considered objects according to the preference order, the data referring to each criterion are normalized by the formula (Ginevičius, Podvezko 2008):

$$\tilde{r}_{ij} = \frac{r_{ij}}{\sum_{j=1}^{n} r_{ij}}, \tag{1}$$

where $\tilde{r}_{ij}$ is the normalized value of the *j*-th variant of *i*-th criterion.

When the state of a particular object should be quantitatively evaluated, normalization based on using the formula (1) does not satisfy the aim of evaluation or is impossible because, in this case, only one object is evaluated. Then, as will be shown below, the particular criteria values are integrated into one evaluation criterion, not using any normalization method. The integration would not be possible if the criteria were expressed in various dimensions. In the case considered in the paper, one-dimensional scale, expressed in points, is used. In addition, as shown in Table 1, all the criteria are maximizing, which implies that the increase of their values indicates a better situation.

When the criteria values are found and normalized, multicriteria evaluation may be performed.

All multicriteria evaluation methods have some advantages and disadvantages. Therefore, several methods should be used and the mean values of the results obtained should be taken (Ginevičius, Podvezko 2008; Podvezko 2011).

To perform multicriteria evaluation of the strategic potential of a construction enterprise, such methods as SAW (Simple Additive Weighting), TOPSIS (Technique for Order Preference by Similarity to an Ideal Solution) (Hwang, Yoon 1980; Opricovic, Tzeng 2004; Podvezko et al. 2010; Zavadskas et al. 2010; Kalibatas et al. 2011; Liu 2011; Han et al. 2011), as well as more sophisticated approaches based on more strict logic and providing wider

information about the evaluated objects, e.g. PROMETHEE (Preference Ranking Organisation Method for Enrichment Evaluation) (Brans, Mareschal 2005; Podvezko, Podviezko 2009, 2010; Ginevičius et al. 2010), are used.

The major idea behind multicriteria evaluation methods, based on the integration of the values and weights of the criteria used into one criterion, is clearly demonstrated by the method SAW (Simple Additive Weighting). The criterion of this method S_j is calculated by the formula:

$$S_j = \sum_{i=1}^{m} \omega_i \tilde{r}_{ij} , \tag{2}$$

where ω_i is the weight of *i*-th criterion; $\tilde{r}_{ij}$ is the normalized value of *i*–th criterion for *j*–th object (alternative); $i = 1,...,m; j = 1,...,n$; m is the number of the criteria used; n is the number of the considered objects (alternatives).

The method *SAW* is based on 'classical' normalization (Ginevičius, Podvezko 2008):

$$\tilde{r}_{ij} = \frac{r_{ij}}{\sum_{j=1}^{n} r_{ij}} , \tag{3}$$

$$(i = 1, \ \ldots, m; j = 1, \ \ldots, n; \ \sum_{j=1}^{n} \tilde{r}_{ij} = 1) \cdot$$

The largest value of the criterion S_j is the best.

When one particular object is being evaluated, the initial data r_{ij} presented in Table 2 are used in the formula (1), rather than the normalized $\tilde{r}_{ij}$ values, for calculating the values of the criterion S_j of *SAW*:

$$S_j = \sum_{i=1}^{m} \omega_i r_{ij} , \tag{4}$$

It should be noted that it is possible only if the criteria of the same dimensions (points, in this case) are used.

The method TOPSIS is aimed at selecting the alternative, whose distance to the best variants is the smallest and the distance to the worst alternatives is the largest.

The criterion C_j^* of this method evaluates the total distances of each alternative to the best and the worst variants. This method is popular and commonly used in practice.

The method TOPSIS is based on vector normalization of the data:

$$\tilde{r}_{ij} = \frac{r_{ij}}{\sqrt{\sum_{j=1}^{n} r_{ij}^2}} \quad (i = 1, ..., m;\ j = 1, ...n), \tag{5}$$

where $\tilde{r}_{ij}$ is the value of i – th criterion of j –th object normalized by the method *TOPSIS*.

The best alternative V^* is calculated by the formula:

$$V^* = \{V_1^*, V_2^*, ..., V_m^*\} = \{(\max_j \omega_i r_{ij} / i \in I_1), (\min_j \omega_i \tilde{r}_{ij} / i \in I_2)\}, \tag{6}$$

where I_1 is a set of the indices of maximizing criteria; I_2 is a set of the indices of minimizing criteria; ω_i is the weight of i –th criterion $(\sum_{i=1}^{m} \omega_i = 1)$.

The worst alternative V^- is calculated by the formula:

$$V^- = \{V_1^-, V_2^-, ..., V_m^-\} = \{(\min_j \omega_i r_{ij} / i \in I_1), (\max_j \omega_i \tilde{r}_{ij} / i \in I_2)\}, \tag{7}$$

The total distance of each considered alternative D_j^* to the best alternatives and the distance D_j^- to the worst alternatives are calculated by the formulas:

$$D_j^* = \sqrt{\sum_{i=1}^{m} (\omega_i \tilde{r}_{ij} - V_i^*)^2}, \tag{8}$$

$$D_j^- = \sqrt{\sum_{i=1}^{m} (\omega_i \tilde{r}_{ij} - V_i^-)^2}, \tag{9}$$

The evaluation criterion C_j^* of TOPSIS is calculated by the formula:

$$C_j^* = \frac{D_j^-}{D_j^* + D_j^-} \quad (j = 1, 2, ..., n);\ (0 \le C_j^* \le 1). \tag{10}$$

The largest value of the criterion C_j^* correlates with the best alternative. The alternatives compared should be arranged in the descending order.

In the method PROMETHEE (Brans, Mareschal 2005; Podvezko, Podviezko 2009; Ginevičius *et al.* 2010), the values of the preference function $p(d)$, whose argument d is the difference in the values of two alternatives compared, i.e. the distance between them, are used instead of normalized values. The above function depends on two parameters – the indifference threshold q and preference threshold s. The selection of the preference function $p(d)$ for each

criterion and determination of its parameters *q* and *s* are made by a decision maker (DM) or his/her representative.

The PROMETHEE methods compare the alternative A_j and A_k by calculating the preference degree $\pi(A_j, A_k)$. The preference degree $\pi(A_k, A_j)$, expressing the preference of the alternative A_k over A_j, is also calculated (usually, $\pi(A_j, A_k) \neq \pi(A_k, A_j)$).

The preference degree $\pi(A_j, A_k)$ is calculated by the formula:

$$\pi(A_j, A_k) = \sum_{i=1}^{m} \omega_i p_t(d_i(A_j, A_k)), \tag{11}$$

where ω_i is the weight (significance) of *i*-th criterion R_i, $\sum_{i=1}^{n} \omega_i = 1$; $d_i(A_j, A_k) = r_{ij} - r_{ik}$ is the difference between the *i*-th criterion R_i values r_{ij} and r_{ik} for the alternatives A_j and A_k; $p_t(d) = p_t(d_i(A_j, A_k))$ is *t*-th preference function, selected for *i*-th criterion (*t* is one of the preference function's numbers).

The methods PROMETHEE evaluate the sums of all positive ('outgoing') preference degrees of each *j*-th alternative.

$$F_j^+ = \sum_{k=1}^{n} \pi(A_j, A_k), \tag{12}$$

and the sums of all negative ('incoming') preference degrees:

$$F_j^- = \sum_{k=1}^{n} \pi(A_k, A_j), (j = 1,2,...,n), \tag{13}$$

The method PROMETHEE II is used for calculating the differences $F_j = F_j^+ - F_j^-$ between these factors and arranging the alternatives in the descending order, based on the difference F_j.

In the present work, the same preference function (which is one of six functions) is used for all the criteria (Podvezko, Podviezko 2009) (Fig.3).

$$p(d) = \begin{cases} 0, \text{ when d } \leq \text{q} \\ \dfrac{\text{d-q}}{\text{s-q}}, \text{ when q} < \text{d} \leq \text{s} \\ 1, \text{ when d } > \text{ s} \end{cases}$$

Figure .3. V-shape with the indifference preference function

The weights of the criteria may be determined by different methods. The method AHP developed by Saaty (Saaty 1980, 2005) is applied in this research. The weights of the criteria describing the external and internal conditions, calculated by using AHP methodology (Ginevičius, Podvezko 2004b), are given in Tables 3 and 4.

Table 3. Weights and preferences of the criteria describing external conditions

The criteria describing external conditions				
No. of index	1	2	3	4
Weights	0.113	0.457	0.164	0.266
Places	4	1	3	2

Table 4. Weights and preferences of the criteria describing internal conditions

The criteria describing internal conditions										
No. of index	1	2	3	4	5	6	7	8	9	10
Weights	0.112	0.094	0.046	0.203	0.071	0.187	0.124	0.062	0.055	0.046
Places	4	5	9-10	1	6	2	3	7	8	9-10

The mean estimates of 14 criteria, describing 4 external and 10 internal conditions of four construction enterprises, were elicited from 13 experts, are presented in Table 5.

Table 5. The mean values obtained in the criteria evaluation performed by 13 experts for four enterprises

	The values of criteria describing external conditions				The values of criteria describing internal conditions									
Criterion No. / Enterprise	1	2	3	4	1	2	3	4	5	6	7	8	9	10
Enterprise 1	7.22	3.84	3.81	3.30	2.41	2.05	7.23	6.52	6.61	7.50	4.20	5.09	8.13	7.86
Enterprise 2	6.43	2.38	3.21	4.29	4.40	4.52	7.26	4.76	7.02	7.50	5.12	4.33	6.43	7.02
Enterprise 3	5.80	3.52	3.65	4.55	3.07	3.92	7.87	5.92	6.44	7.29	4.49	5.24	7.67	8.04
Enterprise 4	6.12	3.77	3.94	4.42	2.94	2.00	7.12	6.76	6.24	7.42	5.25	5.11	6.24	7.12

When multicriteria evaluation is based on an hierarchical set of criteria, the calculations proceed from the bottom, e.g. from the second hierarchical level in the considered case. Then, based on the results obtained, similar calculations are performed on the first level.

The calculation results, obtained by using the methods *SAW* and *TOPSIS* on the second hierarchical level, are given in Table 6.

Table 6. The evaluation of the strategic potential of construction enterprises on the second hierarchical level

		Evaluation of external conditions				Evaluation of internal conditions			
Method		Enterprise				Enterprise			
		1	2	3	4	1	2	3	4
SAW	Value	0.258	0.214	0.259	0.270	0.239	0.260	0.255	0.246
	Rank	3	4	2	1	4	1	2	3
TOPSIS	Value	0.712	0.244	0.772	0.897	0.380	0.593	0.549	0.469
	Rank	3	4	2	1	4	1	2	3

Both methods ranked the strategic potential of four enterprises in the same way, taking into account both external and internal conditions. In practice, the results yielded by various methods rarely match each other completely. Therefore, usually, the objects (alternatives) should be divided into groups, including the best, mediocre and the worst alternatives.

The integration of the external and internal conditions into the strategic potential of an enterprise, based on the application of the evaluation methods *SAW* and *TOPSIS* is presented in Table 7. The weight of the external conditions was evaluated by experts to be equal to 0.35, while the weight of the internal conditions was determined as 0.65.

The ranks of the enterprises, obtained in using *SAW* and *TOPSIS*, match each other, though there are slight differences in the values of the criterion S_j of *SAW*, and slight changes in the data or weights may cause changes in the ranks of the considered enterprises.

Now, we will evaluate the potential of every enterprise separately, not taking into account the potential of other enterprises, based on formula (4) and Table 5. As mentioned above, enterprise potential is evaluated in the 10-point scale. In this case, the highest theoretical estimate of the potential is equal to 10. A particular estimate value shows the real strategic potential of an enterprise at the time of evaluation. The results of calculation for the second hierarchical level are given in Table 8.

The method of evaluating the particular objects suggested in the present paper may be used, when the data on only one object are available. This is a major difference and advantage of this method compared to classical multicriteria evaluation methods, when several alternatives are compared and evaluated for rank ordering of alternatives. In the considered case, the method may be also used for

Table 7. **The evaluation of the strategic potential of an enterprise by the methods *SAW* and *TOPSIS***

Method		Enterprise			
		1	2	3	4
SAW (external conditions)	weight 0.35	0.258	0.214	0.259	0.270
SAW (internal conditions)	weight 0.65	0.239	0.260	0.255	0.246
SAW (total)		0.246	0.244	0.256	0.254
Rank		3	4	1	2
Method		Enterprise			
		1	2	3	4
TOPSIS (external conditions)	weight 0.35	0.712	0.244	0.772	0.897
TOPSIS (internal conditions)	weight 0.65	0.380	0.593	0.549	0.469
TOPSIS (total)		0.445	0.458	0.802	0.663
Rank		3	4	1	2

Table 8. **The evaluation of the external and internal conditions, influencing the strategic potential of enterprises**

		Evaluation of external conditions				Evaluation of internal conditions			
Method		Enterprise				Enterprise			
		1	2	3	4	1	2	3	4
SAW	Value	4.0734	3.4818	4.0729	4.2363	5.6357	5.6988	5.7699	5.6862
	Rank	2	4	3	1	4	2	1	3

comparing the objects (alternatives). As shown in Table 9, the potential, associated with the external conditions, ranges from 42,4% (enterprise 4) to 34,8% (enterprise 2). The potential depending on the internal conditions ranges from 56,4% to 57,7%. The multicriteria evaluation methods, used in the present research, also allowed us to rank enterprises according to the value of the theoretical strategic potential (Table 8). It can be seen that the outranking results yielded by both *SAW* and *TOPSIS* methods do not differ (Table 6).

Generalized estimates obtained for the main, first, hierarchical level, are presented in Table 9.

As shown by the calculations, the total potential of enterprises makes 50% of the maximum one. Compared to the estimates yielded by classical multicriteria evaluation methods (*SAW* and *TOPSIS*) (Table 7), the ranks 1 and 2 changed places, though the estimate values are nearly the same (51,76% and 51,79%, respectively).

Table 9. Generalized multicriteria evaluation data of the strategic potential of particular enterprises

Method		Enterprise			
		1	2	3	4
SAW (external conditions)	weight 0.35	4.0734	3.4818	4.0729	4.2363
SAW (internal conditions)	weight 0.65	5.6357	5.6988	5.7699	5.6862
SAW (total)			4.9228	5.1760	5.1787
Rank			4	2	1

As mentioned above, the method PROMETHEE yields more thorough and accurate evaluation. This method was created for determining the best alternative and involves a decision-maker for evaluating possible largest and smallest differences in the criteria values. The considered method allows us to take into account the value of each criterion, to choose the respective preference function for it and to determine the parameters of the functions, depending on the real data on the criteria values.

The names of 14 criteria, as well as the smallest (*min d)* and the largest (*max d)* differences between the criteria values and the values of the parameters *q* and *s* of the functions (Podvezko, Podviezko 2009, 2010) are given in Table 10.

The values of the preference degree $\pi(A_j, A_k)$ obtained in pairwise comparison of four construction enterprises, the totals of all positive ('outgoing') preference degree values F_j^+, negative ('incoming') preference degree values F_j^-, as well as the differences between them $F_j = F_j^+ - F_j^-$ (j=1,2, ... ,n). and the ranks of enterprises determined by using the method PROMETHEE II are presented in Table 11.

The ranks assigned to enterprises by using the method *PROMETHEE II* with respect to the external conditions matched the estimates yielded by the methods *SAW* and *TOPSIS*, while, taking into account the internal conditions, the preference was given to enterprise 2, which matched the results yielded by other methods.

The method PROMETHEE is not adapted to the evaluation of hierarchically structured criteria and can be recommended to define more accurately the calculation results referring to some particular hierarchical level.

Table 10. The numbers of the preference functions and the parameters' values of criteria

	No	Criterion	*min d*	*max d*	*q*	*s*
The criteria describing the external conditions	1	Ability to analyse macroeconomic situation in host and foreign countries	0.31	2.42	0.32	1.2
	2	Ability to determine major needs of potential clients in proper time	0.07	1.46	0.35	1.3
	3	Ability to analyse the demand for products and services, enabling an enterprise to provide the market with qualitative products in proper time	0.13	0.73	0.13	0.4
	4	Ability to analyse the factors of success and the activities of the rival groups in the market	0.13	1.25	0.13	1.0
The criteria describing the internal conditions	1	Ability to generate new ideas in the field of developing and organizing production and to provide new competitive products and services	0.13	1.99	0.6	1.5
	2	Ability to implement other new competitive ideas in the fields of producing new goods and providing new services	0.05	2.52	0.65	1.9
	3	Ability to guarantee the development of the production system of an enterprise and its flexibility	0.03	0.75	0.14	0.75
	4	Ability to maintain the competitiveness of an enterprise	0.24	2.0	0.8	2.0
	5	Ability to maintain the internal flexibility of an enterprise by using adaptive technologies and other means of production	0.17	0.78	0.4	0.78
	6	Ability to maintain internal flexibility of the production system of an enterprise by forming the potential of human resources adequate for the changing objectives	0	0.21	0.08	0.21
	7	Ability to ensure the competitiveness of enterprise products (services) allowing an enterprise to take the leading position in the present and potential markets	0.13	1.05	0.3	0.9
	8	Ability to produce and supply products and services in large amounts corresponding to the potential of an enterprise and the targeted market share	0.02	0.91	0.15	0.7
	9	Ability to maintain the effective performance of an enterprise by rational use of investment possibilities	0.19	1.89	0.5	1.7
	10	Ability to plan and effectively implement the strategic programme of technical and social development of an enterprise	0.1	1.02	0.2	1.0

Table 11. The preference degrees $\pi(A_j, A_k)$ obtained by pairwise comparison of construction enterprises

Evaluation of external conditions					
	1	2	3	4	F^+
1	–	0.681	0.131	0.100	0.913
2	0.263	–	0.040	0.0	0.303
3	0.266	0.584	–	0.0	0.850
4	0.266	0.621	0.097	–	0.984
F^-	0.795	1.886	0.268	0.100	
F	0.118	-1.583	0.582	0.881	
Rank	3	4	2	1	
Evaluation of internal conditions					
	1	2	3	4	F^+
	–	0.316	0.187	0.086	0.589
2	0.332	–	0.380	0.272	0.984
3	0.137	0.238	–	0.224	0.599
4	0.124	0.265	0.174	–	0.563
F^-	0.593	0.819	0.740	0.582	
F	-0.004	0.164	-0.141	-0.019	
Rank	2	1	4	3	

Conclusions

To determine the strategy for increasing enterprise competitive ability, the strategic potential of an enterprise, perceived as an integral whole of interacting quantitative (material and human resources) and qualitative (entrepreneurship) capabilities, should be known.

The strategic potential of an enterprise is a complex phenomenon, demonstrating its various aspects in reality. Therefore, multicriteria methods are well suited for its quantitative evaluation.

The strategic potential of an enterprise is described by a number of criteria, therefore, to evaluate it accurately, the hierarchical set of criteria should be developed as the basis of multicriteria evaluation.

There may be two aims of multicriteria evaluation: the first is associated with the arrangement of the considered alternatives in the order of preference, while the second includes the hierarchical evaluation of the state of a particular object. Using multicriteria evaluation of the second type, we may determine the strategic potential of a particular enterprise. In this case, the normalization of the criteria values will be different.

Any of the currently used and well-known methods of multicriteria evaluation has its advantages and disadvantages, therefore, the application of a

number of multicriteria evaluation methods and the use of the mean values of the obtained results may be recommended.

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