DEVELOPMENT OF BUSINESS PARTNER SELECTION

Juozas Bivainis

Department of Social Economics and Management,
Vilnius Gediminas Technical University,
Saulėtekio al. 11, LT–10223 Vilnius, Lithuania
E-mail: vvfsevk@vv.vtu.lt

The paper presents an integrative approach to business partner selection, aimed at increasing the economic validity of decision-making. The proposed model consists of the following six interrelated components: searching for partners, preliminary selection, complex assessment, negotiating with potential partners, signing of contracts, monitoring of contract implementation. Links among the components and solution of all the above tasks using the model are supported by an integrated database of partnership objects and potential as well as actual business partners. In this context, assessment of business partners is considered as a multicriteria task of ranking alternatives. The similarity function of partnership objects as well as a three-level-criteria system are adapted for solving this task. A case study is conducted to illustrate the feasibility of the proposed model, and the test results confirm its suitability.

Keywords: *business-to-business, business partners, selection, complex model, multicriteria assessment.*

1. Introduction

Today's business environment is rapidly changing due to international integration and economy globalization. Interdependence of business entities is growing, their performance depends more and more on the performance of each participant in a business chain. To work harmoniously and on this basis strengthen the competitive advantage, a sustainable chain of business partners is required.

Sustainability of a business chain is determined by mutual purposes, similar technological level, value of enterprises, toughness to take responsibility and willingness to share innovations and achievements (Lau *et al,* 2001). These factors, on the other hand, give a necessary base for the growth of business partners' relationship starting with operational purchasing relationship, to forming strategic alliances.

As to the circumstances stated above, this paper proposes a partner selection model based on the results of our investigation aimed at achieving the partnership synergy. The proposed model is oriented towards the use of modern information technologies and a decision-making support system.

2. The problem and methodology

Business partner selection is, on the one hand, a decision having principal outcomes; on the other hand, it is a hard complex task. Under current practice of business partner selection, decisions are made in principle on the basis of available experience and thus referring to an episodic

information. Therefore, the following gaps can be identified. First, partners are selected from a limited number of candidates. Secondly, assessment based on an informal, episodic information does not provide the grounds for an objective quantitative comparison of candidates. Upon completion of contracts, business entities usually reevaluate the eligibility of partners, using several parameters of business activities of the previous period without any complex and comprehensive assessment of activities in a retrospective, current and future sense (Olorunniwo, Hartfield, 2001).

There are several reasons complicating the solution of the problem of objective business partner selection. First, it is the limitation of available information. Secondly, the objectivity of business partner selection can be achieved using criteria of different contents, thus solution of the above problem outgrows into a multicriteria task. For instance, even 23 various criteria can be identified when selecting a partner (Dickson, 1996). Other authors in this field emphasize the need to refer not only to a long list of criteria but also to use both quantitative and qualitative ones (Weber *et al,* 1991). This factor sophisticates the solution of the task in a methodical respect. A special software is required as well as a higher qualification of the staff is considered when solving the task.

There are researchers who adapted statistical models, case-based reasoning, mathematical programming, fuzzy sets theory, data envelopment analysis and other specific techniques for aid in selecting business partners (Weber *et al,* 1991; Vokurka *et al,* 1996; Ghodsypour, Brien, 1998; Olorunniwo, Hartfield, 2001). Other authors emphasize the selection criteria. They propose to use for business partner selection such criteria as financial stability, links among partners, quality, technical potential, and in this way to collect information needed for assessment in the form of database (Lau, Lee, 2000; McIvor, Humphreys, 2000; Lau *et al,* 2000, 2001; Lam *et al,* 2004).

Proposals to use advanced techniques for business partner selection are mainly oriented towards modern information technologies and decision-making support systems. In this context, it is expected to achieve a synergy effect by implementing methodical and technological innovations.

3. Integrative approach to business partner selection

Business partner selection as a sophisticated multiaspect process consists of several tasks of different contents. In order to choose partners reasonably, the candidates must be known, respective information about them must be available, the eligibility of a candidate as a future partner has to be assessed. Furthermore, negotiations are required. They allow to improve conditions proposed by the candidates. The final phase is signing a contract.

Many of research papers are aimed to be used for separate stages of business partner selection. Only a few papers were identified where the selection process is considered as a complex (Lau *et al,* 2001; Schoop, Köller, 2001; Schoop, Jertila, List, 2003). Their authors emphasize the following three steps of the selection process: searching for partners, negotiating, and signing a contract. On the basis of a systematic approach to the business partner selection process, it can be clearly stated that this is not sufficient – there has to be a phase for partner eligibility assessment. On the other hand, a selection system has to include a constant analysis of partners' activities and relationship among them in order to ensure the efficiency of their functioning. The proposed complex of tasks integrated into a consequent cycle (Fig. 1) should

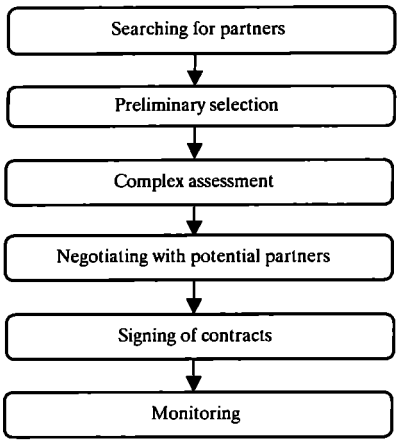

*Fig. 1. **Structure of partner selection process***

be solved using modern information technologies and could ensure a proper selection of business partners, if it is based on reliable information as well as on comprehensive analysis and complex assessment.

Thus in this context, the subsequent sections of the paper analyse in detail the most sophisticated components of the proposed model of business partner selection.

4. Searching for business partners

The problem of searching for business partners is probably the least analysed part of the business partner selection process in the relevant literature. This can be explained by the difficulty to formalize this part, while its significance can be determined by the basis formed for further assessment.

When preparing for the search of business partners, there are two essential tasks: to determine partnership objects, their features to be sought for, and information sources.

Obviously, business partners are other business entities which have various characteristics corresponding to a wide variety of features. Some of them can be listed: legal form, type of activities, product differentiation, geographical location, scale of activities, etc.

For the rationality of searching, a partnership object is defined as a feature sought for. Goods or services or both of them can be a partnership object at the highest aggregation level. In technological respect, a search is made with any partnership object which is not of the highest aggregation level.

Specification of a partnership object as a feature sought for depends on the nature of a partnership object, thus its specification is subject to subjectivity and available experience when rationalizing the specification.

Information about business partners can be received from various sources. Therefore, with respect to the process efficiency, it is reasonable to determine purposeful information sources.

No recommendations were found in the literature for determining information sources while searching for business partners, however, here it may be recommended to use other ordinary analogies when looking for a proper information source. Based upon this approach, possible information sources to search for business partners were aligned according to their relevance in the context of the least solution cost.

When comparing information sources, priority is given to secondary information sources. Respectively, due to high expenses, internal information sources have to be used before the sources of external information are considered.

The spectrum of external sources is vast. The sources have different characteristics, therefore, it is reasonable to have their sequence when searching for a business partner. However, due to a high level of uncertainty the sequence

concerned can be difficult to be determined using quantitative methods. In this respect, it is advisable to follow practical experience. According to our own experience, the following source sequence in searching for business partners in secondary information sources is proposed:

1) commercial proposals of enterprises;
2) advertisements of enterprises and other business structures;
3) centers of commercial information (databases);
4) enterprises' annual reports;
5) data of statistical agencies of countries;
6) respective information sources of international institutions (OECD, World Bank, International Monetary Fund, United Nations, EUROSTAT, etc);
7) special literature;
8) scientific literature.

Primary information is collected by targeted searching. Collection of information in the above manner supplemented by using external sources is expensive, thus the expediency of a search and its scale have to be justified by availability of a respective economic benefit, and at least the method of expert judgement has to be used.

5. Preliminary selection of partners

The purpose of preliminary selection is to select potential partners from all the business entities information on which is stored in the database.

The complexity of this task, and primarily the variety of decision variants, is determined by a great variety of partnership objects ranging from a compact indiscrete product or service to complicated complex products comprised of a variety of components and, in addition, supplemented with the follow-up services and products. This variety dictates another variety, namely, the variety of characteristics that are necessary for the description of an object in terms of both the contents and number.

Thus, in one case it is absolutely enough to have a single characteristic in order to define a certain object of partnership in terms of consumer requirements; meanwhile, in another case several hundreds of characteristics of the most different contents will be required. In turn, there can be different requirements even with respect to certain characteristics in terms of their accuracy: in some cases a product with certain characteristics is required, in other cases a range of certain characteristics is acceptable, still in other cases any product of a certain class (or type, model) will satisfy consumer's requirements.

Practical analysis distinguishes the following typical cases in terms of determination of a partnership object's characteristics:

1) exact characteristic expressed unambiguously by a quantitative indicator;
2) quantitative characteristic indicated by a certain interval that contains the following possible partial cases:
   a) only the lowest possible value of a parameter is indicated (a_{min});
   b) only the highest possible value of a parameter is indicated (a_{max});
   c) the lowest and the highest possible values of a parameter are indicated (a_{min}, a_{max});
3) qualitative characteristics expressed in a generalized way. In this case the following three typical variants are possible:
   a) name of the object is indicated (for example, potatoes, bananas, brooms, etc);
   b) name and sort or type, class, etc of the object are indicated (for example, bread of rye, cleaner for earthenware, small rock of granite, etc);
   c) name and additional qualitative and quantitative characteristics of the object are indicated (for example, bread of no

less than 5 types, nails of no less than 5 sizes, ash veneer of 4 shades, etc.).

The aforediscussed variety of possible definitions of partnership objects and their specific features are the essential factors that determine the selection technology. With respect to this, the essence of the proposed selection technology is defined by the following main steps (Fig. 2):

1) according to the identification code of a partnership object indicated in the query, the corresponding objects (products, services) are searched through and retrieved from the database;
2) the retrieved objects are checked in terms of their complexity, and according to this indication they are divided into two groups: indiscrete and complex objects;
3) conformity of the retrieved objects to the characteristics indicated in the query is checked.

In a formalized way, the checking procedures of characteristics, depending on their expression, are written as follows:

1) for characteristics that are expressed by an unambiguous quantitative indicator

$$a^d = a^u \quad (1)$$

where a is the value of the object's characteristic, d is the database indication, u is the query indication;

2) for characteristics that are queried by the lowest margin of the interval

$$a^d \geq a^u_{\min}; \quad (2)$$

3) for characteristics that are queried by the highest margin of the interval

$$a^d \leq a^u_{\max}; \quad (3)$$

4) for characteristics that are queried by the lowest and highest permissible values

$$a^u_{\min} \leq a^d \leq a^u_{\max}. \quad (4)$$

In practice, certain cases are possible when no object that satisfies all the requirements for partnership objects will be found in the database. In such cases two principally different decisions are possible:

1) to update the database with the definitions of new objects using primary information sources;
2) to retrieve the objects from the database with characteristics close to the requirements of the query.

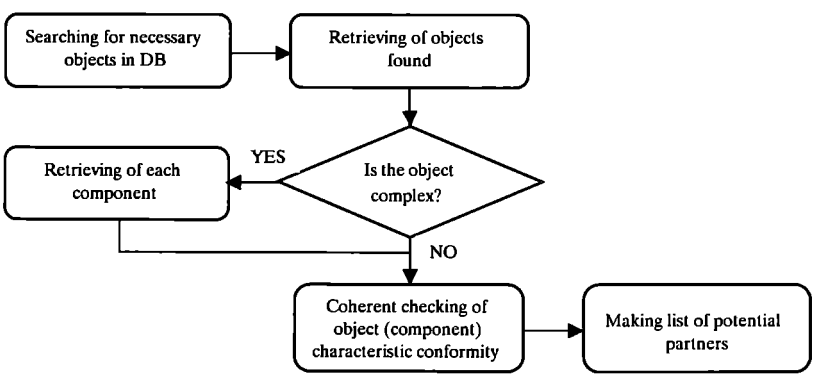

*Fig. 2. **Technological scheme of preliminary partner selection***

In the case of the second decision, it is necessary to evaluate the similarity of the objects that are defined in the database to the requirements set in the query. Here we propose to employ the function of similarity as the evaluation criterion. The value of the similarity function for each object is calculated according to the following formula:

$$B_i = \sum_{j=1}^{n} b_{ij} \cdot \qquad (5)$$

where B is the integrated value of object similarity; b is the object similarity in terms of a certain feature; r is the weight (relative importance) of an object's feature in terms of consumer requirements; i is the index of an object ($i = 1, 2, ..., m$); j is the index of an object's feature ($j = 1, 2, ..., n$).

The similarity of the objects according to the feature j ($j = 1, 2, ..., n$) is in turn determined as a normalized ratio of characteristic values defining a certain feature of the object and corresponding to the requirements determined in the query:

$$b_{ij} \qquad 1 - \left| \frac{a_j^d - a_j^u}{a_j^u} \right|, \qquad (6)$$

where a is the value of an object characteristic; d is the database indication; u is the query indication; i is the index of an object; j is the index of a characteristic.

For further analysis, it is advisable to distinguish objects with the similarity function value belonging to the interval $[\bar{B}_j, B_j^*]$, where

$$\bar{B}_i \qquad \sum_{i=1}^{m} B_i / m \qquad (7)$$

$$B_i^* = \max \{B_1, B_2, ..., B_m\}. \qquad (8)$$

According to the proposed technology of preliminary partner selection, we orient ourselves towards organizing information on the objects of partnership and potential partners in the form of an integrated database. The model of such a database should comprise three informative objects (a business partner, a partnership object, a component of a partnership object) with a necessary bi-directional in-between information link and the possibility to define each informative object by n characteristics; each business entity could determine its number (n value) with respect to its business character. Regarding a possible variety of characteristics of the business partners and partnership objects, the definition of a characteristic should be subdivided into two parts, namely, into indication and contents (Bivainis, Tamošiūnas, 2005). The definition format of each part is determined by evaluation of dissemination of the values of characteristics typical of business practice.

6. Complex assessment of business partners

Research works provide proposals to employ different quantitative and qualitative methods of decisions for assessing business partners. A certain comparative analysis of these proposals is provided in the literature (Ghodsypour, Brien, 1998). Naturally, every method has its own advantages and disadvantages; however, summarizing, it is important to reveal two main obstacles in order to understand why these proposals are not widely employed in practice. The majority of works are of a theoretical level and not suitable for practical application. Due to the employed complicated methods they require special complicated software and highly qualified specialists.

The majority of researchers in this field emphasize the necessity to take into account a rather wide spectrum of very complicated conditions when evaluating business partners. Therefore, the problem of partner assessment is ranked to the category of a multicriteria task. Thus, when forming a decision model of this problem, it is

necessary to find answers to these two essential questions concerning what set of criteria and what rules of their application can secure a required substantiation and objectivity of evaluation.

In the case analysed, we ground the decision regarding the system of criteria on the logic which is dictated by the following essential factors:

1) demand for a versatile assessment;
2) variety of partnership objects;
3) variety of business partners;
4) variety of preferences and their combinations of decision-making subjects;
5) necessity to compare alternatives (business partners).

During the last two decades, multicriteria assessments have been applied more and more intensively and in more and more diverse fields. The set of such models can be divided according to different indicators. In terms of the problem under analysis, we are particularly interested in the group of ranking models. Evaluations in the models that are classed to this group, acknowledging the discrepancy in the contents of criteria, are based on preference structures; for the formation of the latter, the principle of the preference ratio is employed (Siskos, Spyridakos, 1999; Dombi, Zsiros, 2005). Summarizing, the objective of the employment of such models is to order the elements of the set $S = \{s_1, s_2, ..., s_n\}$ according to superiority. An essential component of ranking models is a combination of criteria expressing the preference ratio. The essence of ranking is based on a pairwise comparison of all the alternatives (Ginevičius, Podvezko, 2004; Macharis *et al*, 2004). For evaluating the interrelationship among the alternatives, the preference function is applied, which expresses the ratio at which one alternative is superior to another one in terms of certain criteria (Siskos, Spyridakos, 1999):

$$F_e(s_i, s_j) = F_e[f_e(s_i) - f_e(s_j)] =$$
$$= F_e[\Delta f_e(s_i, s_j)], \forall i, j, e, \quad (9)$$
$$0 \le F_e(s_i, s_j) \le 1,$$

where F, f are function indications; s is the alternatives; D is the deviation; i, j are indexes of alternatives; e is the index of the assessment criterion.

This principle, in different modifications, is applied in different fields of science and branches of economy, and multicriterion analysis systems are created on its basis; the most popular of these are ELECTRE and PROMETHEE (Guitouni, Martel, 1998; Siskos, Spyridakos, 1999).

Thus, approaching the assessment of business partners as a multicriteria alternative ranking problem, an integrated criterion (Q) is proposed for a complex assessment, and it is expressed by the following function:

$$Q = f(q_1, q_2, ..., q_m). \quad (10)$$

where q_e is the partial criterion.

Each partial criterion q_e in turn is also of a lower level, i. e. the function of primary criteria

$$q_e = f(q_{e1}, q_{e2}, ..., q_{en}). \quad (11)$$

The functions of both an integrated criterion and each partial criterion are concretized by introducing the parameter of criterion weight. In this case, the integrated criterion function (7) takes the following expression:

$$Q = \sum_{e=1}^{m} q_e \cdot \quad (12)$$

where r is the weight of a partial criterion; e is the index of the partial criterion and, accordingly, the function of the partial criterion is

$$q_e = \sum_{l=1}^{n} q_{el} \quad (13)$$

where l is the index of the primary criterion.

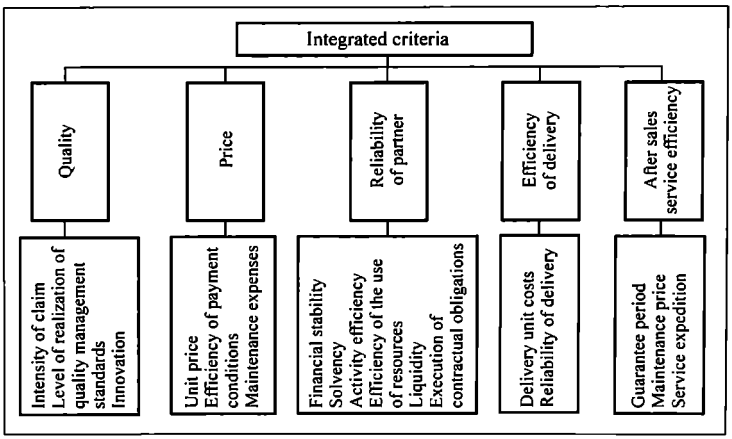

Fig. 3. Scheme of three-level assessment criteria

Examination of theoretical works and empirical investigations in the field enabled us to concretize the partial assessment criteria (Fig. 3).

The content of each partial criterion is complicated and can be more precisely expressed only through primary criteria. With respect to the latter, contrary to partial criteria, we accept the opinion that their general list, regarding the variety of partners and partnership objects and the necessity to take into account specific conditions, is meaningless. It should be concretized with regard to the character of each business entity and even can be differentiated according to partnership objects. Nevertheless, even in such circumstances, we consider it reasonable to propose the guiding primary criteria collections of each proposed partial criterion (Fig. 3).

7. Experimental investigation

Test conditions. The testing was accomplished as an example of a real-practice case. The essence of the test conditions is the following: a network of enterprises engaged in insurance business in East Europe is expanding and planning to realize a construction project of 5 administration buildings; a tentative value of this project is 10 million euros; construction sites are in Estonia, Latvia and Lithuania; for building design and construction processes a contractor is needed to be responsible for all the project realization concerns.

Database. To select a contractor, a competition was organized. The applicants invited to give proposals had also to deliver information about their activities in various aspects. Each applicant was described in a database using the above-mentioned information.

Tentative applicant selection. At this stage of selection, the procedures were not strictly formalized. Applicants to the contractor's post were assessed by the following criteria: character of activity, specialization, the scope and geography of activity, experience in working abroad, experience in large object construction. In this way, 3 from 8 applicants were left for further assessment. (In accordance

to the condition of experimental information confidentiality, the applicants here were denominated as A, B, C).

Technology of applicant complex assessment. The assessment sequence was the following:

1. A group of experts was formed. Some experts were selected from the staff of different departments suggested by the enterprises. Their competence was tested. The group was supplemented by two analysts invited from external organizations. In this way the expert group was formed of 3 members from the enterprise network, 1 analyst for construction and 1 analyst for finance.
2. The sets of partial and primary assessment criteria were concretized. The final lists of these criteria were made by common agreement of the expert group. Ten partial and 24 primary criteria were selected. The distribution of the latter criteria by partial ones was from 1 to 5.
3. The weight of the criteria was identified. It was determined by the experts under condition that the weight of the criteria had to be comparative and meeting the following requirement: the total weight of the primary criteria of each partial criterion had to be equal to unity, and the total weight of all the partial criteria had also to equal unity.
4. The database was supplemented. In accordance to the list of final primary criteria the applicants were asked to give additional information. The database was supplemented with these data.
5. Expert judgement was organized. Each expert was asked to give estimates for each applicant in the aspect of primary criteria using an earlier prepared form. The experts' estimates were processed statistically, and the most probable values were established.
6. Integrated criterion values were calculated. The calculation sequence was the following:

a) at the 5th stage the calculated primary criterion values were normalized in order to make them comparable. For the cases when a better variant matched a higher value of a primary criterion, normalization was carried out in the following way:

$$q_l^* = \frac{q_{lk}}{\max\limits_k q_{lk}}, \qquad (14)$$

and for the cases when a better variant matched a lower value of an assessment criterion, normalization was carried out by the formula

$$q_l^* = \frac{\min\limits_k q_{lk}}{q_{lk}}; \qquad (15)$$

b) the values of partial criteria were calculated by formula (13);

c) the values of an integrated criterion were calculated by formula (12),

where q is the criterion value, k is the index of criterion value, l is the index of the primary criterion, * is the sign of normalized value.

Analysis of results. The experimental results were analysed in order to establish a coherence among the contractor applicant assessment results of each criterion level and in this way to evaluate the suitability of the used multicriteria assessment model. The summarized analysis results (Table) showed that applicant A assessed by an integrated criterion had the highest value (a maximum criterion value) – from 24 primary criteria even 12 (50%) and from 10 partial criteria 5 (50%) values were the highest, and the lowest values were established for 7 primary and 2 partial criteria. It showed a clear coherence among the primary, partial and integrated criteria; on the other hand, there were warnings about the possibility of wrong decisions in assessing business partners by primary as well as by partial criteria, and proved that wrong decisions could be avoided only by

Table. Comparison of contractor applicant assessment results

Contractor applicant assessment parameters	Contractor applicants		
	A	B	C
Number of the highest primary criterion values	12	7	5
Number of the lowest primary criterion values	7	3	14
Number of the highest partial criterion values	5	2	3
Number of the lowest primary criterion values	2	5	3
The highest value of integrated criterion	+		
The lowest value of integrated criterion		+	

a complex (using an integrated criterion) assessment.

The further comparison of differences in the values of integrated, primary and partial criteria was meaningful: if the highest (contractor applicant A) and the lowest (contractor applicant B) integrated criterion values differed only about 0.2 times (20%), some partial criterion values differed 3 times, primary criteria 20 times, when the value relationship of the other criteria was even converse. These results obviously prove that only a complex multicriterion assessment provides for objective decisions.

8. Conclusions

In the context of international integration and economic globalization, collaborative business networks are created where operational business partnership becomes strategic. Partnership synergy becomes one of the most important factors determining possibilities for enterprises to compete locally and globally. Under these conditions it becomes necessary to ground well business partner selection, but in practice there is the lack of modern methodical instruments for this purpose.

The proposed model, consisting of six interrelated components of different contents (searching for partners, their preliminary selection, complex assessment, negotiating with potential partners, signing of contracts, monitoring of contract implementation) covers the overall cycle of business partner selection. Links among the components as well as solution of each task of the model are based on an integrated database of possible as well as actual business partners and partnership objects.

In terms of importance and complexity, partner assessment is distinguished from all the other model components. In order to reduce expenses, business partner assessment is divided into two consistently solved tasks. For the first task, the similarity function of partnership objects is proposed in order to select partner candidates. Universality of application is typical of the function concerned. The quantitative assessment thereof reduces the subjectivity. For the second task, complex assessment of partners is regarded as a multicriterion task of ranking the alternatives, which is solved using a three-level criterion system. Two parameters of the criteria system are proposed to be controlled. These are a set of primary criteria, the weight indicating the relative importance of primary and partial criteria which make the system flexible and adaptable in various conditions, while quantitative assessment ensures the objectivity of decision-making.

REFERENCES

Bivainis, J., Tamošiūnas, A. (2005), Business partner selection system. In: Proceedings of International Scientific Conference UNITECH'05, Gabrovo, Vol. III, p. 165–172.

Dickson, G. W. (1996), An analysis of vendor selection systems and decisions. *Journal of Purchasing*, Vol 2. No 2, p. 28–41.

Dombi, J., Zsiros, A. (2005). Learning multicriterion classification models from examples: decision rules in continuous space. *European Journal of Operational Research*, Vol. 160, No 3, p. 663–675.

Ghodsypour, S. H., Brien, C. O. (1998), A decision support system for supplier selection using an integrated analytic hierarchy process and linear programming. *International Journal of Production Economics*, No 56–57, p. 199–212.

Ginevičius, R., Podvezko, V. (2004), Complex evaluation of the use of information technologies in the countries of Eastern and Central Europe. *Journal of Business Economics and Management*, Vol. 5, No 4, p. 183–192.

Guitouni, A., Martel, J.-M. (1998), Tentative guidelines to help choosing an appropriate MCDA method. *European Journal of Operational Research*, Vol. 109, No 2, p. 501–521.

Lam, K. C., Ng, T., Hu, T., Skitmore, M., Cheung, S. O. (2004), Decision support system for contractor prequalification artificial neural network model. *Engineering Construction and Architectural Management*, Vol. 7, No 3, p. 251–256.

Lau, H. C. W., Chin, K. S., Pun, K. F., Ning, A. (2000), Decision supporting functionality in a virtual enterprise network. *Expert Systems with Applications*, No 19, p. 261–270.

Lau, H. C. W., Lau, P. K. H., Chan, F. T. S., Ip R. W. L. (2001), A real time performance measurement technique for dispersed manufacturing. *Measuring Business Excellence*, Vol. 5, No 1, p. 9–15.

Lau, H. C. W., Lee, W. B. (2000), On a responsive supply chain information system. *International Journal of Physical Distribution and Logistics Management*, Vol. 30, No 7/8, p. 598–610.

Lau, H. C. W., Lee, W. B., Lau, P. K. H. (2001), Development of an intelligent decision support system for benchmarking assessment of business partners. *Benchmarking: An International Journal*, Vol. 8, No 5, p. 376–395.

Macharis, C., Springael, J., De .Brucker, K., Verbake, A. (2004), PROMETHEE and AHP. The design of operational synergies in multicriterion analysis. Strengthening PROMETHEE with ideas of AHP. *European Journal of Operational Research*, Vol. 153, No 2, p. 307–317.

Mclvor, R. T., Humphreys, P. K. (2000), A case-based reasoning approach to the make or buy decision. *Integrated Manufacturing Systems*, Vol. 11, No 5, p. 295–310.

Olorunniwo, F., Hartfield, T. (2001), Strategic partnering when the supply base is limited: a case study. *Industrial Management and Data Systems*, Vol. 101, No 1, p. 47–52.

Schoop, M., Jertila, A., List, T. (2003), Negoist: a negotiation support system for electronic business--to-business negotiations in E-commerce. *Data and Knowledge Engineering*, Vol. 47, No 3, p. 371–401.

Schoop, M., Köller, J. (2001), A three-phase model of electronic marketplaces for software components in chemical engineering. In: Papers of First IFIP Conference on E-Commerce, E-Government, E-Business, I3E 01, Kluwer Academic Publishers, p. 507–522.

Siskos, Y., Spyridakos, A. (1999), Intelligent multicriterion decision support: overview and perspectives. *European Journal of Operational Research*, Vol. 13, No 2, p. 236–246.

Vokurka, R. J.; Choobineh, J., Vadi, L. (1996), A prototype expert system for the evaluation and selection of potential suppliers. *International Journal of Operations and Production Management*, Vol 16, No 12, p. 106–127.

Weber, C.; Current, J.; Benton, W. (1991), Vender selection criteria and methods. *European Journal of Operational Research*, Vol 50, No 1, p. 2–18.

VERSLO PARTNERIŲ ATRANKOS TOBULINIMAS

Juozas Bivainis

Santrauka

Verslo partnerių atranka, viena vertus, yra atsakingas esminių padarinių turintis sprendimas, kita vertus, nelengvas kompleksinis uždavinys. Dabartinė verslo partnerių atrankos praktika turi daug subjektyvumo, iš esmės sprendimai grindžiami sukaupta patirtimi, epizodine informacija. Neformalus, epizodine informacija grin-

džiamas vertinimas nesudaro prielaidų kiekybiškai ir kartu objektyviai palyginti kandidatų tinkamumo. Paprastai įmonės, pasibaigus sutarčių terminui, vertina iš naujo partnerių tinkamumą pagal kelis jų paskutinio laikotarpio veiklos parametrus, nuodugniai nevertindamos jų retrospektyvos, dabarties ir ateities.

Straipsnyje pateiktas verslo partnerių atrankos modelis, leidžiantis iš esmės padidinti sprendimų pagrįstumą. Modelį sudaro šeši tarpusavyje susiję komponentai: partnerių paieška, preliminari atranka, kompleksinis įvertinimas, derybų su potencialiais partneriais, sutarčių sudarymo, sutarčių vykdymo monitoringas. Komponentų ryšiai ir visų uždavinių sprendimas grindžiamas partnerystės objektų ir galimų bei esamų verslo partnerių integruota duomenų baze.

Iš visų modelio komponentų savo reikšmingumu ir sudėtingumu išsiskiria preliminari partnerių atranka ir kompleksinis jų vertinimas. Preliminarios atrankos paskirtis yra iš visų ūkio subjektų, apie kuriuos sukaupta informacija duomenų bazėje, išrinkti potencialius partnerius, t. y. tokius, kurie tenkina partnerystės objektui keliamus reikalavimus. Tam pritaikyta partnerystės objektų panašumo funkcija, kuriai būdingas taikymo universalumas, o kiekybiniai vertinimai pagal ją sumažina subjektyvumą. Tokia partnerių preliminarios atrankos technologija kelia tam tikrus informacijos organizavimo reikalavimus, todėl siūloma informaciją apie partnerystės objektus ir galimus partnerius organizuoti integruotos duomenų bazės forma. Tokios duomenų bazės modelis turėtų būti sudarytas iš trijų informacinių objektų (verslo partneris, partnerystės objektas, partnerystės objekto komponentas), tarp kurių būtinas abiejų krypčių informacinis ryšys ir galimybė kiekvieną informacinį objektą aprašyti pagal daugelį charakteristikų, kurių skaičių kiekvienas verslo subjektas galėtų nusistatyti atsižvelgdamas į savo verslo specifiką.

Kompleksinis partnerių vertinimas traktuojamas kaip daugiakriterinis alternatyvų rangavimo uždavinys, sprendžiamas taikant trijų pakopų kriterijų sistemą. Ji grindžiama logika, kurią diktuoja tokie svarbiausi veiksniai: įvairiapusiško įvertinimo poreikis, partnerystės objektų įvairovė, verslo partnerių įvairovė, sprendimus priimančių subjektų prioritetų ir jų derinių įvairovė, alternatyvų (verslo partnerių) lyginimo būtinybė. Numatyti du valdomi kriterijų sistemos parametrai – žemiausios pakopos kriterijų rinkinys ir šios bei vidurinės pakopos kriterijų reikšmingumai daro sistemą lanksčią, pritaikomą įvairiomis sąlygomis, o kiekybiniai vertinimai užtikrina sprendimų objektyvumą. Remiantis nagrinėjamos srities metodinio pobūdžio darbų analize ir empiriniais ieškojimais parengtas vidurinės pakopos kriterijų sąrašas. Skirtingai nuo jų, dėl partnerių ir partnerystės objektų įvairovės ir būtinumo atsižvelgti į specifines sąlygas bendras žemiausios pakopos kriterijų sąrašas, manytume, nėra tikslingas, todėl apsiribojome orientacinio šių kriterijų sąrašo sudarymu.

Eksperimentas, atliktas realaus praktikos atvejo pavyzdžiu, patvirtino praktinį siūlomo modelio priimtinumą, apibendrinti eksperimento rezultatai pateikti straipsnyje.

Įteikta 2006 m. sausio mėn.
Priimta spausdinti 2006 m. vasario mėn.