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The instruments of the enterprises rating activity

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Abstract. The necessity of enterprise rating activity based on multiple criteria, as well as the significance of self-rating in modern business environment has been proven. The tools for enterprise rating evaluation, including structured methods for rating, and a system of indicators for rating evaluation of the enterprise's functioning were developed. Thereupon, technology of enterprises rating evaluation was improved and the procedure for selecting functional strategies for their activities according to rating results (partial and complex ratings and rankings) was proposed.

Key words: rating activity, rating, ranking, rating evaluation method, technology, polycriterial rating activity, system of indicators, strategy, enterprise.

INTRODUCTION

In modern dynamic environment, enterprise's activity must be accompanied by permanent tracking of effectiveness and coherence of all the key operation areas (industrial, technological, financial, human resources, innovation, marketing, foreign trade, etc.) to ensure the effective operation and determine strategic targets for the development. In order to diagnose problem areas in time and develop measures to address them, comprehensive assessment of economic entities on the basis of rating is used, it allows creating a coherent objective idea of the internal conditions of the industrial enterprises within self-analysis, defining its current place among competitors and form a basis for realistic forecast of enterprise development in the future. Despite the many scientific works on rating and significant results obtained by globally recognized experts and Ukrainian rating agencies, there are a number of important issues to be addressed in this area. In particular, the key methodological problem is that rating developers focus only on the assessment of the financial conditions and solvency of companies, and do not take into account results from other areas of their operation. This leads to ineffective and biased ratings and rankings of enterprises and thus hampers the development of rating technology. Moreover, the lack of uniformity within the system of indicators for rating evaluation and common interpretation tools for results presentation leads to conscious manipulation of rating results. This adversely affects all rating process participants, especially the enterprises – where rating is held – as they can suffer significant losses and damages due to inadequate decision-making based on rating. Therefore, tools for enterprise rating evaluation need improvement, with the development and implementation of rating methods and techniques, indicators and criteria based on multidisciplinary framework being primary tasks which confirm the relevance of this work.

ANALYSIS OF THE LITERATURE ON THE PROBLEM

Despite the crucial role of rating evaluation in ensuring conditions for effective functioning and development of enterprises, development of theoretical and applied framework for rating has not yet been properly studied. Methodology and tools for ranking evaluation of enterprises and organizations of different areas and fields of activity were studied in the research conducted by a number of domestic and foreign scientists: S.Aivazian, I.Alieksieiev, T.Anderson, O.Volkov, P.Harmydarov, M.Davison, H.Dieieva, O.Dobykina, M.Elkhori, S.Ishchuk, O.Karminskyi, V.Kovalova, R.Kostyrko, Ye.Krykavskyi, D.Kuvshynov, Yu.Lysenko, A.Mazaraki, A.Miedviediev, Ye.Nehashev, A.Neznamova, A.Peresetskyi, A.Petrov, Y.Petrovych,

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V.Pliut, P.Polovtseva, N.Prytula, H.Prosvietov, V.Prohorova, R.Saifulin, S.Salyhf, D.Fennel, Z.Khelvih, Yu.Tsal-Tsalko, I.Chulipa, H.Shadrina, A.Sheremeta etc. The abovementioned authors focused their attention on the development of methodology for businesses activity ranking to assess their financial and economic situation and develop enterprise management systems based on rating. However, despite the significant diversity of methods for rating systems, the results obtained using different approaches are often different, and thus are incommensurable and cannot be compared with each other, making it impossible to use a unified approach to the interpretation of ratings and creating the opportunity for abuse. Some authors misclassify similar rating methods and techniques putting them in different classification groups, thus complicating the process of selecting the most appropriate methodological framework for rating based on the objectives of the rating survey. Moreover, the focus of the existing rating methods and techniques on the use by financial institutions (primarily financial and credit system) introduces several limitations (such as accounting, regulatory ones) for the use in the process of enterprise rating in general, and therefore requires expanding and clarification.

THE PURPOSE OF THE PAPER

The purpose of the article is to improve methods, criteria and indicators for rating evaluation on multicriteria basis.

PRESENTATION OF THE MAIN RESEARCH MATERIAL

Based on the results of literature analysis and the study of rating experience, we can argue that the rating evaluation plays a crucial role in ensuring success of the enterprises. Specifically, the rating evaluation, carried out by the company itself, is now used as an effective diagnostic tool and lays the foundation for diversified decision-making. Enterprise ratings also form the basis for competitive analysis, becoming an active element of the advertising campaign and one of the key factors for creating the image in relations with the public and public authorities. [1] The special value of ratings for businesses consists in establishing the preconditions for obtaining credit and investment resources, including the ones provided on concessional terms in order to avoid funding crisis, ensure continuity of the production process and stimulate development.

The conducted research suggests that enterprise rating is a type of activity that involves a comprehensive assessment of manufacturing, financial, economic, marketing, human resources and other areas of the studied enterprise and building rating based on the abovementioned information, which briefly reflects its real position in a ranking list according to the developed scale and allows us to make a realistic forecast of its development in the short and long term. [2] Since rating is actively applied as one of the most effective diagnostic tools in enterprise management system, it should be noted that the abovementioned notion should not be mixed up with “rating management”. The latter implies a much broader range of functional activities and is aimed at making diverse managerial decisions based on the rating results to influence the company, its subsidiaries, employees, etc. [3-6].

Therewith, we consider it necessary to identify rating with "rating activities" and "rating evaluation" because they are processes aimed at obtaining the same result - rating. Rating is a certain score that is valid at a specified time or during a period of time and which is attributed to the industrial enterprise being rated and is considered to be the most suitable for its positioning according to the selected criterion or a set of criteria among other similar entities. Modern structure types of enterprise and organizations ratings are extremely diverse [1, 5, 7-11], however, they include the most characteristic types: rating by the duration - long-term and short-term ratings, by the subject of rating - credit and non-credit ratings, by the reliability of company conducting rating - investment, speculation, outsider ratings, by the directions for use - public and custom rankings, etc.

Development of a specific rating type for the target group of enterprises involves the drawing up of special lists - rankings, where rated enterprises are positioned according to the ratings obtained, which proves that the notions of "rating" and "ranking" are different. We disagree with the viewpoint of some researchers [1, 19; 11, 84] who argue that ranking is "a list of entities that are ranked based on one indicator". These rankings are formed mainly in the periodical publications (the indicators are: income, assets and profit) and their information content is very poor. In a complex rating, for example, a number of different activity indicators are taken into account (financial, HR, etc.) which enables the drawing up of rankings, where enterprises and organizations are ranked according to obtained generalized polydimensional rating scores. In view of the above mentioned information, ranking is a list of objects (entities), placed in a single list, and ranked according to the established criterion (mono- or multidimensional), which reflects operations effectiveness of the enterprise covered by this list. It should be noted that in the case of developing ratings and rankings by specialized companies (rating agencies), both notions become rating products which are the objects for sale for the interested users.

Despite the importance of ratings and rankings for management, recent events in the global economy against the backdrop of the financial and economic crisis have damaged the reputation and dented trust in ratings, even the ones conducted by recognized international specialized companies (Moody's Investors Service, Fitch Ratings and Standart & Poor's). This situation led to the need for the development of enterprises self-rating and

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created new requirements for methodology and methods applied in rating in this area.

A detailed study of current rating environment and its trends makes it possible to argue that there are a number of reasons behind the low level of effectiveness and objectivity of ratings and rankings made by specialized agencies:

- Lagged ratings, leading to “post factum” reaction of the rating agencies to the macro- and microeconomic changes in the activities of their researched entities, although the key task of these agencies is to use complex methods to carry out an objective prognostic evaluation and to provide opportunity to predict possible crisis trends;

- A tendency to give priority to qualitative parameters of evaluation and predominant use of expert analysis, which creates the preconditions for the development of ratings with a significant level of subjectivity, which adversely affects their adequacy and reasonableness;

- Identical methods of assessment used for rating of entities belonging to different categorical groups by size, activities, organizational and legal forms, intensify such positive ratings features as comparability and flexibility, however, it makes it impossible to conduct a comprehensive activity analysis of the investigated entity, thus reducing the efficiency of the resulting value;

- Biased conservative attitude of international rating agencies experts to developing countries, and the practice of overstated ratings for enterprises representing highly developed countries, create a high risk of discrepancy between the developed rating and the real state of the company in the domestic environment and encourage rating abandoning.

The consequence of the above mentioned errors in the methods applied by rating agencies are significant losses suffered by the industrial enterprises – rated entities which, guided by disclosed false information about their market place, made inadequate management decisions. In particular, international industrial companies Steel Corporation Arcelor Mittal, aerospace giant The Boeing Company, world famous car manufacturers General Motors, Nissan, Toyota, manufacturers of mobile equipment Nokia, Sony Ericsson, Samsung, which in recent years have occupied leading positions in the world rankings, now scale down production, slash jobs and ask government for help in order to avoid bankruptcy [12].

At the same time, huge financial losses were also suffered by rating companies due to a sharp drop in trust in them by interested users. The study of some analytical and journalistic materials, as well as statistical data reflected in the financial statements of internationally recognized rating agencies and their holding companies-owners allowed to say that the most powerful international operators of rating market Moody's (owned by Dan and Brand street Inc., USA), Fitch Ratings (owned by The McGraw-Hill Companies, USA) Standart & Poor's (owned by Fimalac SA, France) declare a catastrophic decline in revenues, losses and the loss of a huge number of customers. In particular, in 2012, at Moody's, the proportion of operating income (income from rating) decreased by more than 50% (from 61.08% ($1258.87 million) to 39.5% ($732.13 million)) of its total amount compared with 2006, which was the biggest decline of profitability among key international rating agencies for the last 6 years (a drop within Standart & Poor's amounted to 15%, within Fitch IBCA - 27%) [13; 14]. These trends prove that there are serious problems in the modern rating environment that hamper the development of enterprise rating evaluation, since the latter accuse rating agencies of manipulating information, particularly in providing biased ratings, which is unacceptable in economic studies area [15, 42-43; 16, 30].

As to the features of the rating market in Ukraine, it should be noted that domestic rating operators (Credit-Rating Ltd., RA IBI-Rating Ltd, RA Expert Rating Ltd., Riurik Ltd., Ukrainian Credit Rating Agency Ltd., Standard Rating Ltd., etc.), while preparing rating evaluation of the enterprises, focus their attention on analyzing and identifying their solvency and financial condition, excluding manufacturing and technological, marketing, foreign trade, HR, innovation activities [7, 16]. Moreover, domestic rating companies actively develop rating methods and techniques for financial-credit institutions (banks, insurance companies, asset management companies, etc.) while the spread of rating evaluation of other enterprises, particularly those working in the field of production, is extremely limited [17].

Quality, completeness and accuracy of ratings depends on the selected method of rating, i.e. a set of economic-mathematical, technical, technological, social, organizational and administrative methods and techniques necessary to determine ratings and rankings formation. The research helped to improve enterprise rating methods typology (Table 1) [2].

The choice of the most appropriate methods of rating depends on the list of factors of micro and macro environment for the operation of industrial enterprises. The most important macroeconomic factors include: the stability and predictability of the environment for rated enterprises, organizational and legal framework for their activities, the impact of the international economic environment, etc.

The study of modern enterprises operation showed that their rating evaluation requires complexity and multidimensionality in order to take into consideration performance of all areas of activity and form an adequate generalized effectiveness indicator - rating. Under such conditions, polycriterial approach to entities rating evaluation is of exceptional importance [18].

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Table 1. Industrial enterprise rating methods typology

Typological features of rating methods	Rating methods types according to relevant typological features
1	2
By the authorship of rating companies	- Copyright methods (including methods developed by company experts); - Methods of rating agencies; - Methods of state authorities.
By recognition	- International; - National.
By the type of enterprise activity	- Industrial enterprises; - Trade organizations; - Banking, insurance and other financial institutions; - Educational, health, sports and other non-profit organizations; - Travel companies; - Consulting companies, etc.
By the level of technological implementation	- Computerized; - Manual; - Mixed
By the duration of the developed rating evaluation	- Methods for short-term ratings; - Methods for long-term ratings
By the ranting subject	- Elementwise; - Complex
By the level of formalization	- Quantitative; - Qualitative; - Combined
By the type of component indicators integration	- Additive; - Multiplicative
By the form of assessment	- Static; - Dynamic
By the type of ranking drawing up	- Single list; - Categorical list
By the type of ranking building	- Number based; - Points based; - Index based
By the degree of transparency	- Open; - Closed
By tracking type	- Remote; - Insider; - Combined
By the rating information support	- Based on public reporting; - Based on specially conducted research
By the type of ratings evaluation results representation	- Numeric; - Literal
By results illustration	- Table; - Graphics
By the type of comparison	- With the standard; - With the average for the industry; - With normative values. - Combined

Polycriterial rating activity, unlike monocriterial approach, enables to explore not only financial, but also industrial, technical, HR, marketing and other areas of business based on a specially designed exponential-criteria tools, these areas, being interconnected, create a decisive influence on the efficiency of its functioning, particularly in the industry. Thus it does not only provide prerequisites for the development of generalized rating indicator which comprehensively reflects the state of the company and its competitive position in the ranking, but also enables us to track power and direction of each element's impact of each of these areas on a total rating with a view to taking management decisions regarding the reasonability of the selected functional strategies. Given the above mentioned information, there is a need for the development and implementation of polycriterial rating (Fig. 1) in order to improve enterprises' economic diagnosis and, consequently, the effectiveness of the management system (Fig. 1) [19].

The determining factor in the implementation of polycriterial rating is the creation of exponential matrices X^I of the size n*m for each of the areas of enterprise operation (financial, economic, industrial, technological, human resource and market), i.e. we set the values of n parameters for m companies being rated. In order to meet the criterion of optimal size and other fundamental criteria, on the basis of which the selection of indicators for rating evaluation is carried out, the most representative indicators (see Fig. 2) are selected for each of the areas, these indicators form the most objective and complete picture of the studied companies efficiency.

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STEP 1.
Information support of polycriterial rating of enterprise activity

Information sources: No.1, "Balance sheet", the No.2, "Income statement", No.1-ПВ "Report on industrial production", No.1-innovation "Survey of innovation activity of industrial enterprises", No.11-ОЗ "Report on the presence and movement of assets", No.1-ПВ "Report on the work", reports on faults, technological equipment passports, forms containing the results of equipment time management, the average industry standards for indicators, reports on the company market value establishment, market surveys, etc.

STEP 2.
Developing the indicators systems for activity rating based on key areas of operation

- To assess **FINANCIAL AND ECONOMIC AREA (F):** financial independence coefficients, current liquidity, return on invested capital, and return on equity;
- To assess **PRODUCTION AREA (P):** the cost effectiveness of production, production flow, proportion of defects in sold products, product updates;
- To assess **TECHNOLOGICAL AREA (T):** yield on capital investment, fixed assets renewal, capital-labor ratio, the extensive use of machinery, capacity load;
- To assess **HR AREA (H):** factors of productivity, staff turnover, the average wage within the company, effectiveness of time management;
- To assess **MARKET AREA (M):** indicators of market share, profitability, capitalization level, receivables and payables payback period

STEP 3.
Construction of input exponential matrices for key areas of operation of entities which undergo polycriterial rating

Fill the input matrices X^I in accordance with ranking objects according to the data obtained:

$$X^I = \begin{pmatrix} x_{11} & x_{1j} & x_{1n} \\ x_{i1} & x_{ij} & x_{in} \\ x_{\cdot} & x_{\cdot} & x_{\cdot} \end{pmatrix},$$

where: x_{ij} – the value of the i-th indicator of the 1st area of the j-th enterprise; i = [1;m] – index number j = [1, n] – company number.

STEP 4.
Normalization of the exponential matrix elements and turning them into standardized ones to eliminate inadequacy and create the model matrix

The matrix of standardized indicators (Z^I) will be as follows:

$$Z^I = \begin{pmatrix} z_{11} & z_{1j} & z_{1n} \\ z_{i1} & z_{ij} & z_{in} \\ z_{m1} & z_{mj} & z_{mn} \end{pmatrix},$$

where: $z_{ij} = \frac{x_{ij} - \overline{x_i}}{s_i}$, $\overline{x_i} = \frac{\sum_{i=1}^{n} x_i}{m}$ - average value of the i-th indicator for the total number of enterprises ; $s_i = \sqrt{\frac{\sum_{j=1}^{n} (x_{ij} - \overline{x_i})^2}{m}}$ - the standard deviation of the i-th indicator.

STEP 5.
Construction of model matrix for each of the key areas of enterprise by selecting standardized matrix elements that correspond to the best values of these elements within the exponential matrix in terms of their value approximate to regulatory criteria

Model matrix for the i-th area of activity:

$$\mathbf{Z^{IE}} = (z_1^E \; z_2^E \; z_3^E \ldots z_m^E),$$

where: z_i^E → normative criterion.

STEP 6.
Calculation of partial rating scores using taxon approach and its generalization using additive convolution with the adjustment of factors weight according to Thurstone matrix

Partial and generalized ratings for each of the companies are calculated using the formulas:

$$R_{oj}^I = (\sum_{j=1}^{n} z_{ij} - z_i^E)^2; \; R_{oj} = \sum_{j=1}^{n} R_{oj}^I * k^I,$$

where: R_{oj}^I - partial ranking score for I-th area; generalized rating; k^I – weight factor for I-th area, defined by Thurstone matrix;

with: $R_{oj}^I \rightarrow \min$, $R_{oj} \rightarrow \min$.

STEP 7.
Development of final rankings

The position of enterprises in the ranking (r_{ij}) is established based on the criterion which minimizes their partial estimates and generalizes rating (higher position corresponds to a lower rating).

Fig. 1. Implementation of polycriterial enterprise rating activity

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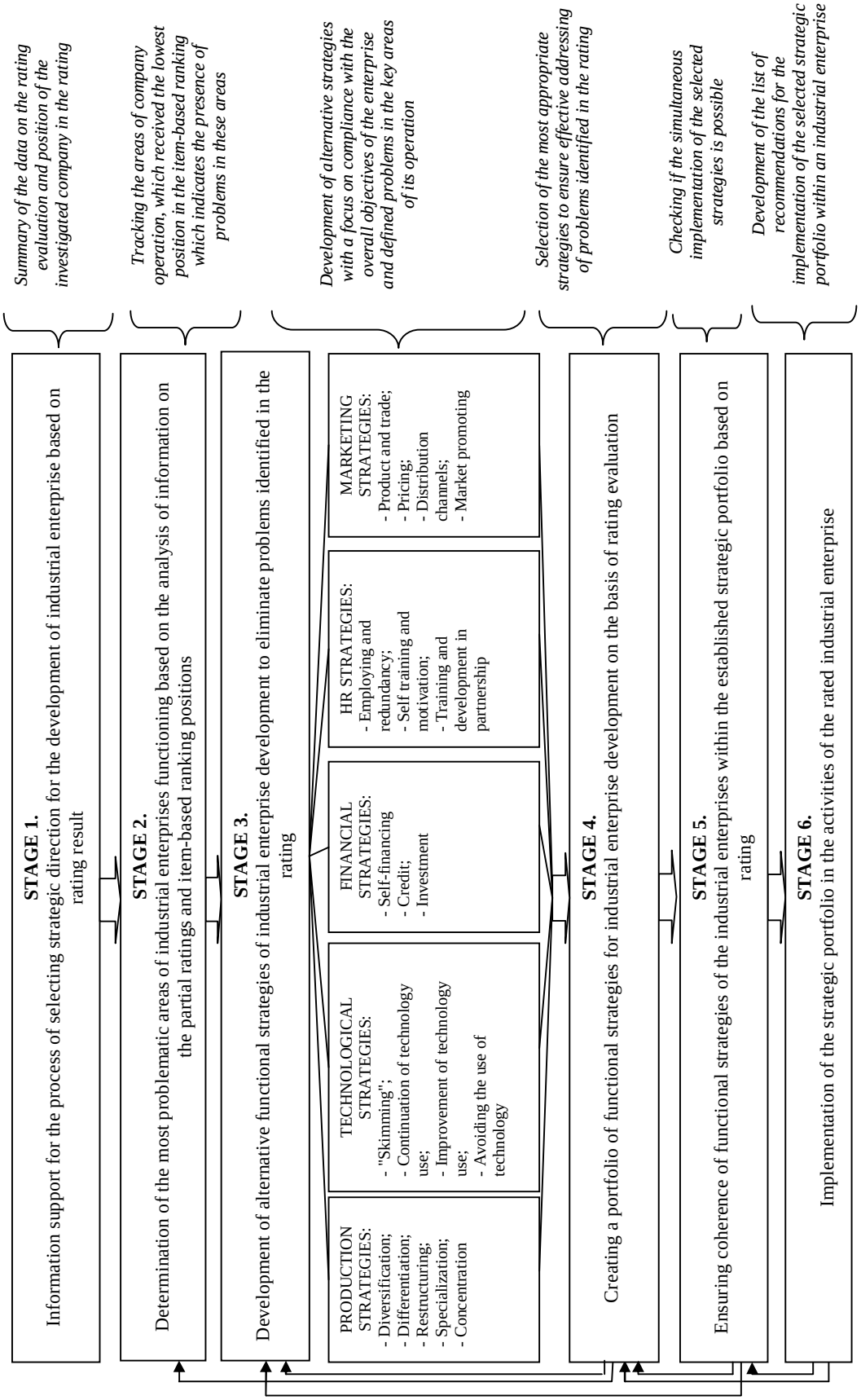

Fig. 2. Selection of functional development strategies for industrial enterprises based on rating results

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In this context, the crucial task is the adequate choice of the development direction for the studied enterprises, which, given the strong position, should ultimately provide the solution to the problems discovered in the process of rating [20]. The proposed process for selecting functional development strategies of industrial enterprises on the basis of the rating results is displayed in Fig. 2.

It should be noted that in order to address issues of one of the areas, within a functional strategies portfolio creation, that is carried out within the fourth stage of the proposed functional strategies selection process, one should not always use only those strategies that are directly linked with the specified area. For example, the maximum success in financial, HR and market areas (high level of financial stability due to the lack of credit obligations and the availability of reliable counteragent, highly qualified staff, as well as strong market activity both in Ukraine and abroad) will make it possible for a company to gain a leading position in the final ranking. However, according to the results of the partial ranking r(T), the company may have some technological problems which hamper the development, because a number of labour-consuming manufacturing operations are currently performed using primitive equipment. It is obvious that the problems associated with obsolete and run-down equipment or other obstacles that may arise in the technological field of the enterprise require the use of not only one of the technological strategies (e.g., "abandoning the use"), but also financial strategies (to determine the sources of financing for the purchase of new equipment) as well as improvements using HR strategies, because the use of new equipment requires the improvement in employees' skills and abilities, especially when it comes to introducing modern precision equipment. Similar mutual impact may occur in the process of improvement of any other area of enterprise operation, so all managers should use the principle of consistency and coherence while creating corrective measures based on rating results to develop a comprehensive set of the most optimal strategic decisions.

CONCLUSIONS

Rating evaluation of companies and organizations is one of the most widely used management technologies in the economic analysis of the conditions and development prospects in modern competitive environment. However, the dynamic and unstable economic conditions, where the rated enterprises are working today, require the selection of adequate methods and techniques for rating procedures and the development of generalized rating by rating agencies. Consequently, complete and logical structuring of tools used for entities rating (rating methods, principles, criteria, indicators, and strategic points) is exceptionally important. Using the tools the rating agency can quickly choose the most efficient operation environments (both its own and the ones of the rated entity) taking into account the results of a comprehensive analysis, and obtain the basis for their further improvement.

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