Aspect-Oriented, Key-Index Based Regional Business Entities’ Evaluation Framework

T.L. Bezrukova¹, Yu.N. Stepanova¹, I.I. Shanin¹, Yu.V. Busarina¹, S.Yu. Nesterov¹

Abstract:

The paper is devoted to the features of regional business entities’ efficiency and performance evaluation framework based on significant aspects and highlighting key features including rank tests. Features are suggested to allow planning and justifying obtained results including ranked business development priorities.

Consistently, the authors analyze indicators of four types of linked activity: financial, production, managerial, and social. The paper also defines that in current conditions the balanced focus of indicators is the only way to the effective and high-performance evaluation of regional business development.

Moreover, it is proved that evaluating the average weighted stability index allows establishing appropriate management system.

Keywords
Regional business, business entities, resource potential, stability index, management system

JEL classification codes: O52, Q19, L26

¹ Bezrukova Tatyana Lvovna, D.Sc, professor, department of economics and finance, Voronezh State University of Forestry and Technologies named after G.F. Morozov, Voronezh, Russian Federation.
¹ Stepanova Yulia Nikolaevna, Ph.D, associate professor, department of economics and finance, Voronezh State University of Forestry and Technologies named after G.F. Morozov, Voronezh, Russian Federation, corresponding author Julia_vrn@inbox.ru
¹ Shanin Igor Igorevich, Ph.D, associate professor, department of economics and finance, Voronezh State University of Forestry and Technologies named after G.F. Morozov, Voronezh, Russian Federation.
¹ Busarina Yulia Vladimirovna, Ph.D, associate professor, department of economics and finance, Voronezh State University of Forestry and Technologies named after G.F. Morozov, Voronezh, Russian Federation.
¹ Nesterov Sergey Yurievich, Ph.D, associate professor, department of economics and finance, Voronezh State University of Forestry and Technologies named after G.F. Morozov, Voronezh, Russian Federation.
**Introduction**

Development of business framework plays a key role in modern socioeconomic context. We consider the entrepreneurship as a specific economic behavior based on the process of searching new opportunities for business as well as innovation-oriented character and abilities in raising funds from various sources. In authors’ opinion, the regional business development is a key factor in providing sustainable economic and social development of the region.

However, inability to obtain objective data for local business entities efficiency evaluation purposes interrupts the process of planning its further development and problem statement for achieving strategic objectives (Kusakina, 2016; Vovchenko et al., 2017; Akopova et al., 2016).

Due to the novelty of the issue and business evaluation tools, the need of developing the aspect-oriented, regional business entities evaluation framework based on detailed analysis of core indicators of regional business entities (Ryzhkov, 2016). Evaluating the end-indicators of business activity is a challenge due to applying a set of criteria and every single business line evaluation. Selection of criteria depends both on management decisions and entities’ autonomy level. Thus, some note the profitability level, others note production costs.

As of today, business entities’ efficiency evaluation consists in calculating financial indicators only. Financial results herewith could be obtained only as a result of inner processes, satisfying needs of society, and effective human, informational, and organizational capital utilization. In this regard, the issue of developing business evaluation framework covering every single line of regional business development becomes vital.

**Methods**

Defining principles, we should note that applying the system approach in the regional business framework efficiency analysis indicates its structure including a set of elements related both with external macro-environment and together. Furthermore, efficiency evaluation assumes analyzing all the lines of business through the framework of indicators (Stepanova, 2015; Vovchenko and Panasenkova 2013; Ivanova et al., 2017).

It is notable that both Russian and foreign authors are in development of evaluation indicators, but many of them identify analysis only with economic efficiency along with calculating corresponding indicators. Regarding foreign efficiency frameworks, we note that they are not adapted for Russian business conditions and could not indicate real state of business.
When choosing the way of business activity evaluation we should mind aligning actual and planned figures both on pre- (costs and materials) and post-stages (revenues, performance indicators) of analysis (Goldstein, 2013; Suryanto, 2016; Thalassinos et al., 2012). Analyzing the relation between costs and results is vital. Such analysis requires custom math tools like building production function. Analyzing the function allows assessing the effect of costs on the performance results (Ovchinnikova, 2015; Havlicek et al., 2013).

It is clear that evaluation framework should include both qualitative and quantitative indicators highlighting compatibility of business entities to their goals. The core indicators’ criteria selection requires the analytical approach and math techniques considering business activity’s features. After evaluating it is recommended to operate specific terms as follows: estimating the feature and value of index through reference matching; formal procedure of evaluating the staff performance through collecting assignment reports; custom indicator revealing milestones towards the goal.

**Results**

In light of this, the regional business entities’ evaluation framework includes data on four types of activity: financial, production, managerial, and social as follows:

**Table 1. Aspect-oriented business entities’ evaluation framework**

| FPMS Elements     | Indicator                                      |
|-------------------|------------------------------------------------|
| F-Financial activity | Innovation criterion                           |
|                   | Economic activity indicators                   |
|                   | Profit ratios                                   |
| P- Production activity | Output volumes                                |
|                   | Labor efficiency                                |
|                   | Level of production automation                  |
| M – Managerial activity | Manageability index                            |
|                   | Goal achievement index                         |
|                   | Management structures efficiency index          |
| S – Social activity   | Social demand index                            |
|                   | Staff training and development index            |
|                   | Social work efficiency index                    |

The efficiency of every type of activity is characterized by target values of corresponding indicators.  
*F – Financial activity:* We should evaluate it from the region’s innovation criterion along with profitability and economic activity indicators’ point of view. Innovation criterion defines the return on investments values. The higher NPV rate is
considered more efficient. Economic activity indicators benchmark the financial stability of the entity in market economy depending on resource efficiency and stability of economic growth as well as highlight the profit margin. Profit ratios are the resultant indicators of business efficiency and include profit margin, margin on sales, return on assets, and production profitability.

Due to the stativity of financial activity indicators, they highlight the results of a certain period without considering the prospective returns on investments. Thus, we should supplement the efficiency evaluation framework with production, organizational and social activity indicators.

**P – production activity:** We should define it through production output, labor efficiency, and production automation level indicators.

Output values are crucial in planning both production and marketing sectors’ activity. It is important to indicate the production capacity in monetary terms as follows:

\[ PO = (CB + GS - OB) \times PI, \]  

Where PO – finished-product output  
CB – closing balance;  
GS – goods sold;  
OB – opening balance;  
PI – percentage of adjusting the price policy through the period.

Labor efficiency defines the staff performance and could be measured as ratio of work done for a certain period. Improving the labor efficiency leads to increasing in values of entity’s performance indicators. Production automation level refers to technical equipment and high capital input.

**M – managerial activity:** It is stated as one of the basic activities providing continuous increase in labor efficiency and management system lines improving. We suggest calculating three transparent indicators there as follows:

1. Manageability index:

\[ Im = \frac{1}{Z} \sum_{i=1}^{m} \frac{Ef}{Es} \]  

Where Z is to number of management levels  
m is to number of heads for current management level;  
Ef and Es are to employees (fact or normative) per 1 head for every management level.

2. Goal achievement index is calculated as follows:

\[ Iga = \frac{Me}{Pe} \]  

where Me is to management economies,  
Pe is to production efficiency
3. Management structures’ efficiency is evaluated as follows:

\[ Mse = \frac{R}{Nm} \]  \hspace{1cm} (4)

where \( R \) is to revenues of the entity, 
\( Nm \) is to number of management staff.

When calculating the indicators noted above, we should mind that only dynamic indicators make sense. There we mean the necessity of comparing values of, at least, two conditions of the system (actual data compared to planned indicators).

\( S – social activity: \) It considers effect of increasing the labor efficiency, decrease in staff turnover, staff training and development included.

1. Social demand index is calculated as follows:

\[ Isd = Cn \times E (St_1 - St_2) \]  \hspace{1cm} (5)

where \( Cn \) is to new employee costs (ratio of recruitment costs to number of picked candidates, 
\( E \) is to average number of employees, 
\( St \) is to staff turnover index (ratio of dismissed employees to average number of staff).

2. Staff training and development index is calculated as follows:

\[ Itd = Cs \times Et \times N - Ctd \]  \hspace{1cm} (6)

Where \( Cs \) is to salary costs per month, 
\( Et \) is to training employees, 
\( N \) is to period under analysis, 
\( Ctd \) is to staff training and development costs

3. Social work efficiency index is determined as follows:

\[ Isw = En \times Dw \times (LE_1 - LE_2) \]  \hspace{1cm} (7)

where \( En \) is to number of employees, 
\( Dw \) is to days worked per month 
\( LE \) is to labor efficiency (ratio of sales volume to number of employees).

Social work efficiency evaluation should consider both qualitative and quantitative indicators. Quantitative measurements involve ratios of financial, material, time expenditures to the strategic and tactical objectives’ implementation. Qualitative measurements include referencing of the actual result with social service standards.

Consequently, the system is efficient in cost-management of: production performance, efficiency indicators such as revenues, return on sales, assets, capital; labor cost efficiency, quality issues, labor conditions, wage levels at different management and production levels providing the bounds for proper entity’s management framework performance (Morkovina, 2015).

**Discussions**
Aspect-oriented, key-index based regional business entities efficiency evaluation framework should be justified depending on the sector specifics. After applying the evaluating tools we could observe the effect on internal and external environment determining the quality and activity issues depending on business entity’s potential (Bazieva, 2016; Sharma, 2014).

As an example, effect on shifts in external environment could be different, but we highlight four generalized types such as: production, competitive, innovation, and entrepreneurial. The comparison of economic behaviors is presented in Table 2. According to the Table 2, every type of effect has its preferable feature. We note that such a pattern is rather approximate. Thus, the pick of certain management framework should be complemented with calculation of entity’s sustainability and attractiveness index.

**Table 2. General features pattern**

| Type of effect | Management features | Entity’s objectives | R&D objectives | Competitio n behavior | Awarding for |
|----------------|---------------------|---------------------|----------------|-----------------------|--------------|
| Production     | Minimum-management  | Minimization of costs| Cost saving, Reliability improvement | Price competition response | Cost saving |
|                | . Allocation of certain responsibilities |                      |                |                       |              |
|                | . Financial control. |                      |                |                       |              |
|                | . Production-focused |                      |                |                       |              |
| Competitive    | Equilibrium production and marketing. | Providing efficient gains | Production modernization | Price competition response | Cost saving |
|                | . Flexible management. |                      |                |                       |              |
|                | . Long-term planning |                      |                |                       |              |
| Innovation     | Notation in management | Providing short-term capacity | Product development | Market development strategy | Novelty     |
|                | . Project-management |                      |                |                       |              |
|                | . Shift-sensitivity  |                      |                |                       |              |
We define average weight of business entity in the revenues of the region’s business sector multiplied by region’s competition intensity index (in points from 1 to 10: 0 is to non-competitive conditions, 10 is to stiff competition). We calculate it as quotient of region’s production volume and number of region’s business entities.

After calculating the competition intensity values we shall arrange them as follows:
- 1-2 is to low;
- 2-4 is to weak;
- 4-6 is to mean;
- 6-8 is to high;
- 8-10 is to stiff.

Weighing factor is calculated by multiplying the revenue share and competition intensity index for the certain region. The result will be minimal-stability regions with indicators of the lower range. 5 points are considered the upper value. Measures of increasing the sustainability index include developing resources of expected growth at every single line of profitability as well as evaluating the investment policy and competition status of entities.

Business entities’ attractiveness is calculated as follows:

$$A = \alpha G + \beta R - \gamma T$$  \hspace{1cm} (8)

where $G$ is to growth opportunities for business entities in the region; $R$ is to profitability opportunities; $T$ is to business sustainability; $\alpha,\beta,\gamma$ are weighting factors indicating the custom entity’s solutions ($\alpha + \beta + \gamma = 1$).

G and R ratios are calculated via specific point scales (Tables 3 and 4).

| Table 3. Evaluation of business entities’ projected growth shift in the region (G) |
|---------------------------------|---------------------------------|
| Factor                          | Intensity scale |
|---------------------------------|-----------------|
| Growth rate in the sector       | decrease        | increase      |
| Dynamics of locational market development | decrease        | increase      |
| Technology renewal rate         | increase        | decrease      |
| Fill rate                       | increase        | decrease      |
Table 4. Evaluation of business entities’ projected profitability shift in the region (R)

| Factor                              | Intensity scale |
|-------------------------------------|----------------|
|                                     | -5             | +5             |
| Profitability fluctuations          | high           | none           |
| Sales fluctuations                  | high           | none           |
| Price fluctuations                  | high           | none           |
| Demand cycle                        | high           | none           |
| Demand to production capabilities rate | low           | high           |
| Geographic concentration            | high           | low            |
| Competition rate                   | high           | low            |
| Government regulation              | heavy          | none           |

Entities’ competitive status is defined by set of success factors at strategic capital investments, strategy efficiency, and efficiency of entity’s capacity (Bezrukova, 2016). Key success factors include most noticing features of the business entity. Identifying these features is a major priority. The key success factors are noted as follows:

1. Technology based: expert in a certain field of science; skills in production innovations; skills in developing brand-new products; expert in certain technology.
2. Production based: low-cost production; product quality; high equipment utilization rate; low cost production location; skilled labor availability; product design and efficient preproduction.
3. Staff skill based: know-how in quality management; project development experts; technology experts; fast switching from R&D to production.
4. Management based: information super-system; business sensitiveness; managerial know-how skills.

Final sequence includes decision-making depending on investment strategy (Table 5).

Table 5. Decisions depending on the investment strategy

| Profit expectations | Capital productivity gains | Market position          | Capital investments policy |
|---------------------|----------------------------|--------------------------|----------------------------|
| +                   | +                          | Empower, retain          | invest                     |
| +                   | 0                          | Retain, expand           | plow back profits          |
| +                   | -                          | Go with the flow         | Capture the full benefits  |
| 0                   | -                          | Slow withdrawal          | Liquidate assets           |
| -                   | -                          | Fast withdrawal          | -                          |
We could pick a proper management framework when applying indicators noted before.

**Conclusion**

Finally, effective management leads the regional business system to the ultimate goal applying a set of performance evaluation tools. Methods of management depend on the market environment and its sustainability. We recommend applying four types of well-known methods: control-based, extrapolation-based, forecasting-targeted (strategic planning, strategic position determination); flexible decisions-based (strategic objectives ranking, weak signals management, contingency management). Obviously, the management pattern shifts at environment sustainability’s decreasing. Usually, deepening the management pattern leads to increasing of costs and turns to be deleterious when the external environment is stable (Stepanova, 2015; Nikolova et al., 2917; Theriou 2015; Stroeva et al., 2015).

Thus, precision in calculating the environment instability index and establishing the optimal management framework are the major objectives of business entity (Morkovina, 2016; Carstina et al., 2015; Arslan-Ayaydin et al., 2014). In terms of strategic development, the framework includes indicators of reasonable achievement results as well as obtaining competitive edge at milestone positions along with highlighting key features like index values’ ranking that allows planning and justifying the pick of proper strategy and evaluate the achieved results.

**References**

Akopova, S.E., Przhedetskaya, V.N. 2016. Imperative of State in the Process of Establishment of Innovational Economy in the Globalizing World. European Research Studies Journal, 19(2), 79-85.

Arslan-Ayaydin, O.D., Barnum, M.B., Karan and Ozdemir, H.A. 2014. How is Moral Hazard Related to Financing R&D and Innovation. European Research Studies Journal, 17(4), 111-132.

Bazieva A., Bezrukova T. 2016. Small industrial entities’ competitive factors. Vestnik KRSU, 16(2), 7-9.

Bezrukova, T., Shanin, I., Borubaeva, G. and Volodina, E. 2016. Features of sustainable business development in innovation economy. Actual research lines of the 21st century: Theory and practice, 4(3), 62-64.

Carstina, S., Siminica, M., Cîrciumaru, D. and Tănăsie, A. 2015. Correlation Analysis of the Indicators of Asset Management and Profitability. International Journal of Economics and Business Administration, 3(2), 3-21.

Goldstein, G. 2013. Management fundamentals. Taganrog, TSUT publ., 230 p.

Havlíček, K., Thalassinos I.E. and Berezkinova, L. 2013. Innovation Management and Controlling in SMEs. European Research Studies Journal, 16(4), 57-70, Special Issue on SMEs.

Ivanova, A.E., Mackaev, M.M., Platonova, K.T., Elagina, V.N. 2017. Theoretical Basis for Composition of Economic Strategy for Industry Development. European Research
Studies Journal, 20(1), 246-256.
Kusakina, O., Bannikova, N., Morkovina, S. and Litvinova, T. 2016. State stimulation of development of small entrepreneurship in developing countries. European Research Studies Journal, 19(2), 276-284.
Morkovina, S., Panyavina, E. and Avdeeva, I. 2015. Efficient infrastructure of supporting small and medium industrial entities. Voronezh, NAUKA-UNIPRESS publ., 220 p.
Morkovina, S., Panyavina, E., Panasenko, D. 2016. Economic features of business development in forest sector. Socioeconomic phenomenon and process, 11(8), 58-65.
Nikolova, V.L., Rodionov, G.D., Afanasyeva, V.N. 2017. Impact of Globalization on Innovation Project Risks Estimation. European Research Studies Journal, 20(2B), 396-410.
Ovchinnikova, T., Khorev, A., Bezrukova, T., Salikov, Y. and Byhonova, N. 2015. Innovation manifestations of competition in contemporary concept of marketing. Mediterranean Journal of Social Sciences, 6(36), 53-58.
Ryzhkov, A., Bezrukova, T., Borisov, A. 2016. Challenges and opportunities of business development in Russia. Actual research lines of the 21st century: Theory and practice, 4(2-22), 136-140.
Sharma, S. 2014. The Conflict and Challenge Integrating the “Others” in Europe. European Research Studies Journal, 17(4), 67-92.
Stepanova, Yu., Zulpuev, R. and Davydenkova, Yu. 2015. Determining factors and conditions of efficient business entities’ performance. Actual research lines of the 21st century: Theory and practice, 3(4-3), 176-178.
Stepanova, Yu., Sibiryarkina, I., Suhova, V. 2015. Risk Aspects of Creation of Investment E-platform as a Tool of Support for Small Innovative Enterprises. Asian Social Science, 11(20), 119-126.
Stroeva, O., Lyapina, I., Konobeeva E. and Konobeeva, O. 2015. Effectiveness of Management of Innovative Activities in Regional Socio-Economic Systems. European Research Studies Journal, 18(3), 63-67.
Suryanto, T. 2016. Dividend policy, information technology, accounting reporting to investor reaction and fraud prevention. International Journal of Economic Perspectives, 10(1), 138-150.
Thalassinos, I.E., Ugurlu, E. and Muratoglu, Y. 2012. Income Inequality and Inflation in the EU. European Research Studies Journal, 15(1), 127-140.
Theriou, G.N. 2015. Strategic Management Process and the Importance of Structured Formality, Financial and Non-Financial Information. European Research Studies Journal, 18(2), 3-28.
Vovchenko, G.N., Panasenkova, T. 2013. Trends of Formation the Russia’s Innovation Potential. World Applied Sciences Journal, 27(10), 1362-1366.
Vovchenko, G.N., Holina, G.M., Orobinskiy, S.A., Sichev, A.R. 2017. Ensuring Financial Stability of Companies on the Basis of International Experience in Construction of Risks Maps, International Control and Audit. European Research Studies Journal, 20(1), Special Issue "Russia and EU: Development and Horizons", 350-368.