Analytical model of the Interrelation between Enterprise’s Activity and its Financial Stability

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Abstract. To inquire aims of diversification as the most important Russian enterprises resultatives increase mechanism, the article considers scheme of enterprise functioning in diversification motives and aims interconnection and executes analyzing firm activity character change with its diversification and character of financial impact on its diversification. Analyzing particular diversification aims has allowed considering threats and negative factors, obligate to taking into account in forming enterprise activity diversification strategy to taking into account its specialties. Forming enterprise activity and financial sustainability basic assessing figures ordered graph and considering their calculation formulas has allowed modeling this graph. Practical realizing modeling enterprise activity diversification and financial sustainability basic figures ordered for a research object – St-Petersburg oil-gas machine-making enterprise taking into account presented graphic interpretation of its financial condition shows this research practical sustainability and opportunity to spread into other industries. The elaborated graph is the basis to form economically-mathematical models and algorithms of defining several kinds of enterprise’s credits. Besides that, it is one of effective instruments of complex economic analysis, which is the base of backgrounding potential enterprise development destinations with statistic modeling enterprise production process parameters. Therefore, elaborated graph practical realization helps to sufficient increasing effectiveness of managing enterprise.

1. Introduction
Diversification is one of the most important mechanisms for strategic development of an enterprise related to ensuring competitiveness and increasing the efficiency of its operations. Diversification is not limited to introducing diversity in the range of products or services provided. It is considered in a broader sense as an expansion of the sphere of activity of enterprises in various branches of the national economy. Analysis of Russian enterprises’ activities shows that many of them diversify operations, pursuing the goals of introducing innovations in the production program and the enterprise management system in order to improve their position on the market, to respond promptly and adequately to changes in the market situation, and to increase the operational efficiency. At the same time, the relationship between the diversification of the enterprise's operations and its financial stability is traced, subject to the management decisions on choosing the goals and directions for development of the enterprise. Problems of strategic development of the enterprise on the basis of diversification and provision of its financial stability have attracted various researchers’ attention for
many years. But, unfortunately, the modern Russian economy has some specific factors that do not allow copying foreign experience in this sphere in Russia. For this reason Russian researchers consider this problem given both the specifics of the economy as a whole and industry specific features (Ushich (2016); Zhukova (2014); Kuzmenko and Zotkov (2015); Rodionov and Kudryavtseva (2016); Klochkov (2018)). In this regard, the paper is aimed to form mechanism of diversification, taking into account the main goals, forms, methods, economic advantages and threats of diversification as a strategic development direction of the enterprise. To achieve the set aim, a scheme of the company's functioning has been formed in relation to the diversification objectives and goals, on the basis of which an ordered graph of the main diversification indicators of enterprise operations and its financial stability has been developed. The perceived interrelation between the basic diversification indicators of the enterprise operations and its financial stability while carrying out their qualitative estimation allows modelling and estimating various management policies of the enterprise and choosing the best one (Sokolitsyn, et al., (2016); Sokolitsyn, et al., (2016); Rudskaya, et al., (2017, 2018); Dvas (2018)).

2. Main part
In the current economic situation, the majority of both foreign and Russian companies are considering diversification of their operations as a strategic approach to improve their effectiveness in the conditions of uncertainty of the modern market economy. In this connection there is scientific and practical necessity to analyze the literature on the problems of improving the diversification mechanism given the main objectives, forms, methods, economic advantages and threats of diversification as a strategic development approach of the company. It is necessary to research interdependent diversification factors as a strategic direction for development and sustainable effective functioning of enterprises in the short and long term perspective, procedures to enhance managerial decision-making on business diversification strategies taking into account their specifics. For example, Kuzmin, et al., (2015) considered the concept of a project approach to diversifying the enterprise's activities, which proposed statistical and dynamic economic-mathematical models aimed at optimization of enterprise diversified development. Based on empirical analysis A. Lee, et al., (2016) showed how diversification impacts the sustainability of Korean construction companies and found out that in order to efficiently generate diversification strategies in Korea's economic environment, construction firms need to diversify the life cycle of a project, focusing on more profitable projects, engineering and consulting in a short-term period. Alternatively, they should enter an asset management market to get long-term operating profits. The importance of the optimal choice of direction for the trade activity of the enterprise as one of the most important components of enterprise diversification is justified in foreign literature in more detail than in Russian literature (Shpak, et al., (2016)). Three models for diversifying the company's trading activities are proposed. The first model is based on the evaluation of the sales channels potential. By means of the second model, the optimal quantitative distribution of products between sales channels is determined, which ensures high profitability of each unit in the assortment and the entire enterprise. The third model is the optimal distribution of products between sales channels, given the cooperation experience between enterprises and sales channels in the past, which ensures a minimum risk and sufficient profitability of each sales channel. It is noted that the results obtained by the proposed models are compared with the enterprise data to identify the advantages of each model.

The results of the research presented in the paper by scientist Selçuk (2015) are of particular interest for the development of the Russian economy. The paper analyses the relationship between diversification and profits in developing countries and shows that diversified firms in emergency markets make more profits than single-segment firms in the same industries. It is proved by the existence of a premium for diversification. In addition, the results of tests conducted are quite interesting for Russian corporations, which revealed the relationship between diversification and success at the firm level, rather than at the level of an individual enterprise (Mackey, et al., (2017)). The papers (Barnes, et al., (2015) and Yang, et al., (2017)) study what is the influence degree of enterprises’ operations diversification on their performance given the industry specifics. Barnes, et al., (2015) assessed the impact of diversification on the results of agricultural business by determining the economic viability of firms in Scotland and Sweden. They have shown that farms which open up additional businesses outside traditional agriculture, diversify and get revenue from two or more
agricultural enterprises are economically stronger than narrowly-specialized farms. Yang, et al., analyzed the impact of hotel business diversification on its performance. Thus, the analyzed published sources show the complexity and wide possibilities of enterprise operations diversification for improving the effectiveness of the enterprise’s strategic development.

**Investigation of the diversification goals as the most important mechanism for increasing the efficiency of Russian firms**

At the present time various prerequisites for operations diversification have been formed at enterprises of the national industry. Therefore, diversification in Russia will be carried out simultaneously at different stages, in contrast to the world practice, where this phenomenon has evolved naturally. Determining the diversification goals is an important aspect in considering this economic phenomenon. The goals of production diversification depend directly on the financial condition, possibilities of the enterprise and attractiveness of industries for firms. An analysis of the results of some foreign and national research studies of this problem makes it possible to identify certain objectives and goals that most often serve as incentives for expanding the entrepreneurial activity of an enterprise (figure 1).

As a result of diversification, there is a constant floating and the distribution of capital between different spheres, depending on the decrease or increase in the rate of profit, the fluctuations in profitability in various industry segments are smoothed out, and the company becomes more stable. Table 1 shows the interrelated but multidirectional processes that arise from operations of the company which pursues a diversification strategy aimed to enhance stability.

| traditional production | new production (diversification) |
|------------------------|---------------------------------|
| a drop in the rate of return; | high rate of return; |
| capital extraction. | capital investment. |
| decrease in the volume of traditional production | increase in the volume of production of new products |
| negative economies of scale | Positive economies of scale |
| reduction in supply | increase in supply |
| increase in price of the goods | decrease in price of the goods |
| increase in profits | decrease in profits |
| settle of losses | settle of profits |

In general, we can distinguish two main trends of the company's development: strengthening of traditional business (monobusiness) or creating a diversified enterprise (diversification). When considering the problem of diversification, it is reasonable to analyze the financial impact of this growth strategy on the enterprise development. The impact of finances on development directions is very significant and usually requires a vast expenditure of financial resources with a high risk associated with obtaining an appropriate return on investment (table 2).

| Financial impact | Related diversification | Nonrelated diversification |
|------------------|------------------------|---------------------------|
| type of financial return | moderate return | high return |
| distribution of financial return over time | mid to long term period | long-term period |
| necessary financial resources | medium amount of financial resources | large amount of financial resources |
| level of risk in the strategy | Moderate | high |
| possibility of financial synergy | High | high |

Due to the fact that the diversification of the firm has a certain dualism, the management team when choosing a development direction of should consider both the positive and negative consequences of this phenomenon in each individual case. Often when considering the issues of diversification, such important factors as problems of developing a common corporate strategy,
specifics of business interaction are not taken into account. It is the lack of a circumspect consistent development strategy of the firm which must be seen as the main factor of many failures of the diversification strategy. By analyzing a number of specific goals that entrepreneurs seek to achieve through diversification, their common threats to a business have been identified:

**Figure 1.** The scheme of enterprise operation in interrelation of the diversification incentives and goals

1. **Increasing business stability.** Don’t-put-all-your-eggs-in-one-basket approach is used in economic practice. This principle is one of the most common arguments of diversified Russian companies. But basically this approach is reasonable for portfolio investors who reduce the risk of capital investment in the stock market. At the same time, to implement the diversification strategy at a single firm level is not so simple. Due to a real deficit of professional managers in Russia it is still possible to have benefits when one management team administers several diverse businesses. So sometimes the benefits from the professionalism of the management team can exceed the drawbacks from dispersion of resources. This strategy loses its effectiveness when the company achieves a certain size. It is often too expensive for Russian firms to develop several different directions.

2. **Increasing the size of the business.** You cannot estimate a company solely by its size. There are more important criteria like the amount of profit and indicators of operating profitability. In Russia, companies often increase their business only because they do not know how to spend money. This indicates that there is no strategy for the company-wide development, which is a mandatory condition for diversification efficiency.

3. **Use of available resources.** Russian practice proves the fact that when the low cost of a purchased business is the determining criterion for its acquisition, serious problems usually arise in adapting this business to the activities of the company as a whole. So the new owner often has to change the corporate strategy dramatically, which may be more expensive in the long run.

4. **Increasing the efficiency through synergy.**

While the scale effect prevails over the losses from the complication of the controlled object, the total sum of these effects has a positive sign and the company's value really increases as the range of
activities expands. But from a certain threshold value, the growth rates of the scale effect slow down, and the losses rise at an increasing rate. As a result, cash flows decrease, and the enterprise devalues, contrarily to the projected growth of its value. Thus, we can talk about the existence of some optimal diversification level, which maximizes business efficiency.

Also, we must not forget about financial constraints on the rate at which an optimal level of diversification is achieved. As practice shows, underestimation of the fact that not every diversification is efficient and cost-effective, drove many enterprises with an unreasonably high growth to the brink of bankruptcy. It is important to understand that business diversification is not a universal tool for solving all economic problems.

As a result, it is possible to formulate the following negative factors, which must be taken into account when forming an expansion strategy:
1. inefficient use of funds;
2. red tape;
3. decrease in motivation and quality of work;
4. dispersion of the management team’s attention;
5. brand dilution;
6. lack of information

Strategic directions of diversification policy and the results of economic activity depend on the financial situation, business characteristics and trends of the company's evolution. But diversification of the enterprise as a way of development has a strong impact on its financial condition. Thus, there is a certain relationship between diversification of the company and its financial stability.

Modeling an ordered graph of the enterprise's diversification main indicators and its financial stability

Analysis of financial indicators allows identifying critical points in the company activities, to define the causes of problems and to plan actions to address them. At the same time, it is important not only to assess the current financial condition of the enterprise, but also to project the obtained data on the nearest or more distant future, that is, to predict the expected parameters of financial condition on the basis of financial analysis.

In order to strengthen its position and survive in a competitive struggle, the company has both to increase its revenue and profit, and expand its market niche. This is achieved by increasing its share in the total volume of market transactions both by means of increasing the volume of output and through diversification of products. In competitive environment, the company in an effort to ensure rapid growth, is forced to implement more profitable, but more risky projects. Therefore, in order to maintain financial stability, it is important to find a "golden mean", that is, to choose a growth model that would give the company an opportunity to develop and avoid bankruptcy. Growth rates consistent with such a model are considered sustainable.

It is important to understand that for an unambiguous, elaborated and exhaustive analysis of the enterprise financial condition it is not enough to assess only the common used financial indicators according to the relevant criteria. The evaluation criteria should be adjusted based on statistical data, given the industry specifics and characteristics of a particular business. The main indicators of the enterprise’s operations diversification and financial stability were estimated for the given study object St-Petersburg oil-gas machine-making enterprise LLC SCB Gazstroymashina, on the basis of the modelled ordered graph and taking into account the industry specifics. This enterprise makes science-constructive elaborations and manufacturing equipment for oil-gas industry enterprises and energetic complex objects. Conditionally current enterprise activity can be divided into following key destinations: manufacturing equipment in own production complex; elaborating and manufacturing equipment on customer requirements; consulting and recommendations on effective providing oil and gas industries enterprise with technic means.

Firm production usage sphere is wide. It is demanded by both big enterprises, executing extorting, transforming and transporting oil and gas, and engineering-exploitation infrastructure organizations, executing direct giving natural raw to consumers and responsible for pipeline quality. Biggest product consumers are Gazprom OJC, Russian VINCs and building organizations. Gazprom OJC share in the enterprise revenue exceeds 60%. SCB Gazstroymashina specialists actively participate R&D works of gas holding.
Company activity analysis shows that Gazstroymashina has started process of widening activity on production diversification basis. The enterprise started more active serial manufacturing a particular product. Firstly it refers to rising manufacturing goods for conducting pipelines, for example, centrators. The enterprise has increased manufacturing products with sufficiently shorter production cycle, but not abandoning orientation on high-capital and technologic projects on projecting new equipment. Such development way on business diversification base last years is popular for Russian oil-gas enterprises. Widening made product nomenclature and also choosing new destinations of functioning in crises situations strengthen firms economic position.

Assessing financial sustainability of researched enterprise functioning and development on base of researching enterprise functioning in diversification motives and aims interconnection, analyzing changes of character of enterprise activity in its diversification and financial impact on its diversification uses ordered graph of basic Gazstroymashina activity and financial sustainability figures. This graph is constructed on statistic data base on 20 quarters in 2012 – 2016 for enterprise – research object.

Calculation of the estimated indicators complex used in the modelled ordered graph of the main indicators of enterprise’s operations diversification and financial stability taking into account researched enterprise specific is presented in table 3.

**Table 3.** Calculation of the estimated indicators complex used in the modeling of the ordered graph for researched enterprise

| Indicator name, legend | Calculation formula |
|------------------------|---------------------|
| Assets turnover (CA)   | \( C_A = \frac{R}{A} \) |
|                        | where \( R \) – revenue for the reporting period; \( A \) – average balance sheet assets of the enterprise for the reporting period. |
| Current assets turnover (CCC) | \( C_{CC} = \frac{R}{CC} \) |
|                        | where \( R \) – revenue in the reporting period; \( CC \) – average balance sheet current assets of the enterprise for the reporting period. |
| Non-current assets turnover (CFC) | \( C_{FC} = \frac{R}{FC} \) |
|                        | where \( R \) – revenue in the reporting period; \( FC \) – average balance sheet non-current assets of the enterprise for the reporting period. |
| Payable accounts turnover (CCI) | \( C_{CI} = \frac{R}{CI} \) |
|                        | where \( R \) – revenue for the reporting period; \( CI \) – account payable for the reporting period. |
| Receivable accounts turnover (CDI) | \( C_{DI} = \frac{R}{DI} \) |
|                        | where \( R \) – revenue in the reporting period; \( DI \) – accounts receivable for the reporting period. |
| Ratio of equity and borrowed funds (CLOM) | \( C_{LOM} = \frac{(LM + CI)}{CR} \) |
|                        | where \( LM \) – borrowed funds; \( CI \) – accounts payable; \( CR \) – own funds (capital and reserves). |
| Ratio of equity capital provision (COM) | \( C_{COM} = \frac{CR - FC}{CC} \) |
|                        | where \( CR \) - own funds (capital and reserves); \( FC \)– noncurrent assets, \( CC \) – current assets. |
| Current liquidity ratio (CTL) | \( C_{CTL} = \frac{CC}{(CI + LM)} \) |
|                        | where \( CC \) – current assets; \( CI \) – accounts payable; \( LM \) – borrowed funds. |
| Ratio of internal growth rate (CIGT) | \( C_{IGT} = \frac{SE}{CR} = DN \times R_{out} \) |
|                        | where \( SE \) – accumulation fund; \( CR \) - owned funds (capital and reserves); \( DN \) – rate of net profit distribution to the accumulation fund; \( ROM \) – return on equity. |
| Return on commercial output | \( R_{CR} = \frac{BP}{C} \times 100 \). |
The main indicators complex of the enterprise’s operations diversification and financial stability were estimated for the given study object taking into account the researched enterprise industry specifics (table 4).

Hence, it is reasonable to build a multidimensional model, which is a graphic interpretation of the financial condition of the enterprise - the study object (figure 2). On certain financial parameters it defines areas of feasible and crisis activity on the basis of the general recommended values for oil and gas industry enterprises (Sokolitsyn, et al., 2016).

**Table 4.** Calculation of the basic estimated indicators complex used in the modelled ordered graph for the study object – Saint-Petersburg machine building enterprise of the oil and gas complex.

| №  | Indicator                              | Balance sheet data for the reporting period / Estimated values for the same period, thousand rubles. |
|----|----------------------------------------|-----------------------------------------------------------------------------------------------------|
| 1  | Non-current assets (FC)                | 664                                                                                                  |
| 2  | Current assets (CC), including:        |                                                                                                     |
|    | Receivable accounts (DI)               | 6980                                                                                                 |
|    | Stock and costs (C)                    | 1261                                                                                                 |
|    |                                        | 734                                                                                                  |
| 3  | Capital and reserves (CR)              | 3890                                                                                                 |
| 4  | Short-term liabilities (STP), including:|                                                                                                     |
|    | Borrowed funds (LM)                    | 3754                                                                                                 |
|    | Accounts payable (CI)                  | 0                                                                                                    |
|    |                                        | 3754                                                                                                 |
| 5  | Assets (A)                             | 7644                                                                                                 |
| 6  | Revenue (R)                            | 11611                                                                                                |
| 7  | Prime cost (C)                         | 10450                                                                                                |
| 8  | Balance profit (BP)                    | 1161                                                                                                 |
| 9  | Net profit (NP)                        | 882                                                                                                  |
| 10 | Return on commercial output ($\text{R}_{\text{CP}}$) | 11.11%                                                                                              |
| 11 | Return on equity ($\text{R}_{\text{OM}}$) | 29.84%                                                                                              |
| 12 | Return on assets ($\text{R}_A$)        | 15.18%                                                                                              |
| 13 | Return on sale ($\text{R}_s$)          | 9.99 %                                                                                               |
| 14 | Assets turnover ($\text{C}_A$)         | 1.52                                                                                                 |
| 15 | Current assets turnover ($\text{C}_{\text{CC}}$) | 1.66                                                                                               |
| 16 | Non-current assets turnover ($\text{C}_{\text{NC}}$) | 17.48                                                                                              |
| 17 | Payable accounts turnover ($\text{C}_{\text{CI}}$) | 3.09                                                                                               |
| 18 | Receivable accounts turnover ($\text{C}_{\text{DI}}$) | 9.20                                                                                               |
| 19 | Ratio of equity and borrowed funds ($\text{C}_{\text{LOM}}$) | 0.96                                                                                               |
| 20 | Ratio of equity capital provision ($\text{C}_{\text{OM}}$) | 0.46                                                                                               |
| 21 | Current liquidity ratio ($\text{C}_{\text{CL}}$) | 1.86                                                                                               |
| 22 | Ratio of internal growth rate ($\text{C}_{\text{IGT}}$) | 5.67%                                                                                               |
Figure 2. Graphic interpretation of financial condition of the given enterprise.

Legend: \( R_A \) - Return on assets; \( C_{IL} \) - Current liquidity ratio; \( C_{COM} \) - Ratio of equity capital provision; \( C_A \) - Assets turnover; \( C_{LOM} \) - Ratio of equity and borrowed funds.

Taking into account the given facts, the ordered interrelation between basic indicators of diversification operations and financial stability of the enterprise can be represented by the following graph (figure 3), where the central indicators of the company's diversification activity and financial stability are represented by the volume of revenue and the coefficient of internal growth rate. As can be seen from the graph, if an enterprise plans to change the revenue volume, for example, by increasing it through diversification of products, it will affect its entire system of financial stability indicators. Conversely, if it aims to change the internal rate of growth by changing the amount of reinvested net profit, it will affect the indicators of financial stability and diversification operations.

Figure 3. The ordered graph of main indicators of enterprise activity diversification and its financial stability.

Legend: \( P \) – product price; \( N \) – volume of sales in natural units; \( R \) – revenue; \( C \) – prime cost; \( PR, BP, NP \) – profit on sales, balance and net profit, respectively; \( DN \) – rate of net profit distribution to the accumulation fund (AF); \( PT \) – income tax amount; \( A, CC \) and \( FC \) – total, current and non-current assets, respectively; \( CR \) – capital and reserves; \( LM \) – borrowed assets; \( CI \) – payable accounts; \( C_A, C_{CC}, C_{FC}, C_{CI} \) – assets turnover, current assets turnover, non-current assets turnover, payable accounts turnover, respectively; \( C_{LOM}, C_{COM}, C_{CL}, C_{IGT} \) – ratio of equity and borrowed funds, ratio of equity capital provision, current liquidity ratio, ratio of internal growth rate, respectively; \( R_{OM}, R_{CP}, R_A, R_s \) – return on equity, return on commercial output, return on assets and return on sale, respectively.

As can be seen from inquiry results (figure 2 and table 4), considered oil-gas industry has sufficient difference in both average and individual figures from normative and recommended numbers in several economic sources, which shows necessary to take into account industrial and specific features of researched enterprise.
As can be seen from table 4, formed basic assessment figures complex is sufficient to assess financial sustainability of enterprise – research object with taking into account its specific conditions.

Inquiry results shows that forming the ordered graph of main indicators of enterprise activity diversification and its financial stability be executed on sufficient statistic base of researched enterprise taking into account its industrial and specific conditions of both functioning and development.

Conclusions
Results of researching enterprise functioning in diversification motives and aims interconnection, analyzing changes of enterprise activity character in its diversification and character of financial impact on its diversification taking into account its industry, scale and financial sustainability had allowed sufficiently define both industrial and specific features of researched enterprise activity aims, motives and character taking into account haven financial resources.

The perceived relationship between the indicators of product diversification and financial stability provided they are qualitatively evaluated allows modelling and evaluating various strategies of the enterprise development and choosing the best one. Thus, when analyzing and modeling the enterprise’s operations, it is necessary to take into account the specifics of their functioning, the specifics of the industry and products, as these factors have a significant impact on the efficiency of companies’ operations.

Results of analyzing figures, characterizing its long-term financial sustainability, allows defining figures’ contents, background financial sustainability factors and assessment criteria taking into account oil-gas industry specific. Besides that, they allow finding and economically backgrounding oil-gas industry enterprises activity diversification basic destinations, differing with taking into account their development condition, oil-gas equipment market conjuncture and industry specific. Executed inquires allow interconnect enterprise diversification motives and aims with elaborating new scheme of enterprise functioning and development, taking into account diversification background. Elaborated graph allows define factors and indicators interconnection of enterprise diversification and financial stability and is the base to elaborate economically-mathematical models and algorithms of defining several kinds credits for enterprise diversification, and also one of effective instruments of complex economic analysis, which is the base for backgrounding potential most effective enterprise diversification, in compliance with its specifics and threats to its effective development.

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References
[1] Barnes, A.P., et al., 2015, The influence of diversification on long-term viability of the agricultural sector. Land Use Policy, 49, 404-412
[2] Kuzmenko, S.V., Zotkov, O.M., 2015, Enterprise production activity diversification and entrepreneurial activity effectiveness. In Youngs and science: VI Russian science-technical students, postgraduate and young scientists conference collection, Publisher: Siberia federal university, Krasnoyarsk: Russia
[3] Kuzmin, O.Y., Feshchur, R.V., and Drymalovska, K.V., 2015, The concept and the instruments of project approach to diversification of enterprise activities. Actual Problems of Economics, 174 (12), 415-422
[4] Lee, S., et al., 2016, Impact of Business Portfolio Diversification on Construction Company Insolvency in Korea. Journal of Management in Engineering, 32 (3), article number 05016003
[5] Mackey, T.B., Barney, J.B. and Dotson, J.P., 2017, Corporate diversification and the value of individual firms: a Bayesian approach. Strategic Management Journal, 38 (2), 322-341
[6] Rodionov, D.G., Kudryavtseva, T.J., 2016, Factors of the effective development of the St. Petersburg instrument engineering cluster. International Journal of Economics and Financial
[7] Selcuk, E.A., 2015, Corporate diversification and firm value: evidence from emerging markets. International Journal of Emerging Markets, 10 (3), 294-310

[8] Shpak, N., Krylych, T. and Greblikaite, J., 2016, Diversification models of sales activity for steady development of an enterprise, Sustainability (Switzerland), 8 (4), article number 393

[9] Sokolitsyn A.S., et al., 2016. Corporative industrial firms enterprises activity diversification management and providing financial sustainability mechanisms improvement, Polytechnic university press, St-Petersburg

[10] Sokolitsyn, A.S., et al., 2016. Corporative industrial structures activity management and providing financial sustainability mechanisms improvement, Polytechnic university press, St-Petersburg

[11] Ushich, K.Y., 2016, Financial viability assessment for defining enterprise diversification destinations. J: Economics, sociology and law, 7(1), 49-54

[12] Yang, Y., Cao, Y. and Yang, L.-T.G., 2017, Product diversification and property performance in the urban lodging market: The relationship and its moderators. Tourism Management, 59, 363-375.

[13] Zhukova, O., 2014, Interrelation between figures of enterprise activity diversification and its financial sustainability. International science-inquiry journal, 9(28), 75-77.

[14] Klochkov, Y., Klochkova, E., Volgina, A., Dementiev, S. (2016). Human factor in quality function deployment. Source of the Document Proceedings - 2nd International Symposium on Stochastic Models in Reliability Engineering, Life Science, and Operations Management, SMRLO 2016, 7433156, pp. 466-468. DOI: 10.1109/SMRLO.2016.81

[15] V. E. Shehepinin, V. A. Leventsov, B. F. Zabelin, E. A. Konnikov and E. O. Kasianenko, "The content aspect of the tendency to reflect the actual result of management," 2017 6th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, 2017, pp. 657-662. doi: 10.1109/ICRITO.2017.8342509

[16] Klochkov, Y., Klochkova, E., Didenko, N., Frolova, E., & Vlasova, N. (2018). Development of methodology for assessing risk of loss of a consumer through the fault of an outsourcer. Paper presented at the 2017 International Conference on Infocom Technologies and Unmanned Systems: Trends and Future Directions, ICTUS 2017, 2018-January 719-724. doi:10.1109/ICTUS.2017.8286101

[17] Kudryavtseva, T., Rodionov, D., Kravchenko, V., Maryta, V. (2016). Special economic zones as an instrument of industrial policy pharmaceutical clusters in Russia. Proceedings of the 28th International Business Information Management Association Conference - Vision 2020: Innovation Management, Development Sustainability, and Competitive Economic Growth, p.1008-1018.

[18] Plotnikova, E.V., Pavlova, D.I. (2016). Assessment of housing stock and its influence on Sustainable regional development management. Proceedings of the 28th International Business Information Management Association Conference - Vision 2020: Innovation Management, Development Sustainability, and Competitive Economic Growth, p. 2639-2648

[19] Rudskaya, I. A., & Rodionov, D. G. (2018). Comprehensive evaluation of Russian regional innovation system performance using a two-stage econometric model. Espacios, 39(4)

[20] Dvas, G. V., & Dubolazova, Y. A. (2018). Risk assessment and risk management of innovative activity of the enterprise. Paper presented at the Proceedings of the 31st International Business Information Management Association Conference, IBIMA 2018: Innovation Management and Education Excellence through Vision 2020, 5650-5653.

[21] Rudskaya, I., Rodionov, D., & Degtereva, V. (2017). Assessment of the effectiveness of regional innovation systems in Russia. Paper presented at the Proceedings of the 29th International Business Information Management Association Conference - Education Excellence and Innovation Management through Vision 2020: From Regional Development Sustainability to Global Economic Growth, 3437-3449.