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THE METHODOLOGY OF CALCULATING THE RATE OF EFFECTIVENESS OF THE INNOVATIVE POTENTIAL OF ENTERPRISE

Innovation management is called to reduce the degree of this risk. It consists of a number of stages, the central of which is to make management decisions on the choice and implementation of a particular development strategy and specific strategy. Management decisions are not possible without reliable and complete information about the object of management. In its turn, the definition of enterprise development strategy depends on the main characteristics of the existing innovation potential of the enterprise, which is a necessary condition for innovation and acts as a significant factor in increasing the competitiveness of the enterprise. Therefore, in order to objectively evaluate the current situation, find competitive advantages and improve the management of the company as a whole, it is necessary to analyze the existing innovation potential and identify reserves for improving its efficiency.

Complexity of the enterprise innovative potential as a subject of research and its multifaceted nature cause a large number of approaches to its evaluation. Thus, there are resource, result and diagnostic groups of approaches, which include in their composition various methods of evaluation of innovative potential, which, in their turn, determine the basic parameters of the relevant methodological approach [1-3]. We consider it advisable to offer a comprehensive approach to evaluateing the innovation potential of the enterprise, which is based on the resource and productive approaches to its measurement, and allows to conduct a quickly and fully diagnostic of the state of the existing innovation potential of the enterprise. According to the proposed approach, methods for evaluateing innovation potential should be based on a system of interrelated indicators and be targeted. That is why the following evaluation goals have been identified: to analyze the effectiveness of using innovative potential and the contribution of its elements to the overall result of the enterprise functioning, as well as to determine the degree of relevance between the available innovation potential and the chosen enterprise development strategy (or innovation project). Achieving the first of these evaluation goals involves the use of performance criteria and quantitative indicators that allow to integrate as much as possible with the enterprise accounting system (or serve as the basis for its creation). The method of calculating the indicator of the efficiency of the innovative potential use based on the implementation of factor analysis using the method of

chain substitutions is universal in nature and can therefore be recommended for evaluation by different enterprises. The second objective can be achieved by using qualitative and quantitative indicators and appropriate methods of processing them in order to calculate an aggregate indicator of relevance based on the graphical addition method [7-8]. This indicator makes it possible to compare the existing innovation potential of a particular enterprise with its current development strategy (or new innovation projects), as well as to compare the innovation potentials of different enterprises.

The scientific works of many scientists are devoted to the study of the essence of innovative potential of the enterprise and methods of its evaluation. Thus, the concept of innovation potential was first introduced into the scientific circulation by Freeman (1982). According to the scientist, innovation potential is an opportunity, a means and a stock which can be activated and used to solve problems connected with creation of innovations for the purpose of growth of economic system. Drucker (1993) studied the practical aspect of innovation potential. The scientist believed that innovation begins with an analysis of existing potential for its effective use. Balázs (1995) evaluated the potential of new organizational forms of management and understanding of their functioning in newly created innovation systems in order to enhance the flow of knowledge into the industry account of academic and university studies.

In paying tribute to the completed research, it should be noted that they do not reflect a comprehensive approach to research the problem of evaluating the innovation potential of the enterprise. This gap in the theory and practice of management is to be filled by the methods of evaluateing the innovative potential of the enterprise, which will allow to make rational management decisions and manage effectively not only innovation activity, but also the enterprise as a whole.

In our opinion, the enterprise's IP efficiency is the ratio of the effect obtained from the implementation of activities using innovative technologies to the costs incurred for this labor, financial, material and technical (information and technological) resources [4-6]. Therefore, for the implementation of the indicated direction of evaluation, we suggest to use the ROI (Return on Investment) indicator. At the same time, the conclusion about the effective use of a business entity IP can be made if the obtained values of return on IP costs

are positive and increase in dynamics. The proposed methodology also allows to calculate and estimate the magnitude of the impact of each component of IP on the change in the overall efficiency of its use, which makes it possible to increase the positive impact of some factors in a timely manner and minimize the negative impact of others.

To build a factor model for calculating the effectiveness of IP, an indicator (E_{IP}), is used that characterizes the amount of IP resources that was spent to obtain $ 1 profit (1):

$$E_{IP} = \frac{The\ cost\ of\ IP\ resources}{Product\ Revenue} \qquad (1)$$

Making certain transformations, a factor model of the following form is obtained (2):

$$E_{IP} = \left(\frac{C_{sal}}{income} + \frac{C_{mr}}{income} + \frac{C_{dep}}{income} + \frac{C_{fr}}{income} \right)$$
$$* \frac{income}{profit} = \left(K_{sal} + K_{mr} + K_{dep} + K_{fr} \right)$$
$$* \frac{1}{ROS} \qquad (2)$$

where:

C_{sal} – costs for salary;

C_{mr} – costs for material resources;

C_{dep} – depreciation costs for fixed assets (costs for IT resources);

C_{fr} – costs for financial resources

ROS – profitability of sales;

K_{sal} – salary ratio;

K_{mr} – material ratio;

K_{dep} – depreciation ratio;

K_{fr} – capacity of financial resources.

Thus, a mixed-type factor model was obtained. To evaluate the impact of each factor on the resultant indicator in this system, we apply the method of chain substitutions:

$$E_{IP0} = \left(K_{sal0} + K_{mr0} + K_{dep0} + K_{fr0} \right) * \frac{1}{ROS_0} \quad , \quad \text{and}$$

accordingly

$$E_{IP1} = \left(K_{sal1} + K_{mr1} + K_{dep1} + K_{fr1} \right) * \frac{1}{ROS_1}.$$

Then $\Delta E_{ip} = E_{ip1} - E_{ip0}$.

where:

E_{IP0}, K_{sal0}, K_{mr0}, K_{dep0}, K_{fr0}, ROS_0 – indicators of the previous period;

E_{IP1}, K_{sal1}, K_{mr1}, K_{dep1}, K_{fr1}, ROS_1 – indicators of the reporting period.

Determining the size of the impact of each factor on the resulting indicator of the effectiveness of the use of IP:

$E_{IP}' = \left(K_{sal1} + K_{mr0} + K_{dep0} + K_{fr0} \right) * \frac{1}{ROS_0}$, then, under the influence of this factor (K_{sal}), the resulting indicator will change: $\Delta E_{IP}^{sal} = E_{IP}' - E_{IP0}$;

$E_{IP}'' = \left(K_{sal1} + K_{mr1} + K_{dep0} + K_{fr0} \right) * \frac{1}{ROS_0}$, then:

$\Delta E_{IP}^{mr} = E_{IP}'' - E_{IP}'$;

$E_{IP}''' = \left(K_{sal1} + K_{mr1} + K_{dep1} + K_{fr0} \right) * \frac{1}{ROS_0}$, then:

$\Delta E_{IP}^{dep} = E_{IP}''' - E_{IP}''$;

$E_{IP}'''' = \left(K_{sal1} + K_{mr1} + K_{dep1} + K_{fr1} \right) * \frac{1}{ROS_0}$, then:

$\Delta E_{IP}^{fr} = E_{IP}'''' - E_{IP}'''$;

$E_{IP}''''' = \left(K_{sal1} + K_{mr1} + K_{dep1} + K_{fr1} \right) * \frac{1}{ROS_1}$, then:

$\Delta E_{IP}^{ROS} = E_{IP}''''' - E_{IP}''''$.

Thus, the performance of enterprise IP evaluation based on factor analysis enables all interested parties to evaluate the degree of impact of each component of innovation potential on the efficiency of its use, as well as to adjust the results of the analysis of the policy of innovation activity management in order to increase the positive impact of one factor and minimize the negative impact of the others.

REFERENCES:

1. Goncharov V.M., Zos-Kior M., Rakhmetulina Zhibek B. The investment component of ukrainian agrarian enterprises' development in conditions of land reform / V.M. Goncharov, M. Zos-Kior, Zhibek B. Rakhmetulina // Актуальні питання економіки. – 2013. – №10 (148). – С. 118-125.

2. Bilan Y., Zos-Kior M., Nitsenko V., Sinelnikau U., Ilin V. Projecting the social component of the efficient management of land resources / Y. Bilan, M. Zos-Kior, V. Nitsenko, U. Sinelnikau, V. Ilin // Journal of Security and Sustainability Issues – 2017. – № 7(2). – P. 287-300.

3. Gryshko V., Zos-Kior M., Zerniuk O. Integrating the BSC and KPI systems for improving the efficiency of logistic strategy implementation in construction companies / V. Gryshko, M. Zos-Kior, O. Zerniuk // International Journal of Engineering & Technology – 2018. – Vol 7, № 3.2 – P. 131-134.

4. Гнатенко І.А., Рубежанська В.О. Вплив глобалізації на національний та регіональні ринки праці в Україні / І.А. Гнатенко, В.О. Рубежанська // Вісник Одеського національного університету імені І.І. Мечникова. – 2016. – №3. – Т 21. – С.109-112.

5. Гнатенко І.А., Рубежанська В.О. Державне регулювання ринку праці з позицій стратегічного та стейкхолдерно-орієнтованого підходів / І.А. Гнатенко, В.О. Рубежанська // Бізнес Інформ. – 2018. – №8. – С.100-105.

6. Гнатенко І.А., Рубежанська В.О. Логіка впровадження інноваційних заходів на регіональний ринок праці в умовах його циклічного розвитку / І.А. Гнатенко, В.О. Рубежанська // Бізнес Інформ. – 2017. – №8. – С. 110-115.

7. Hnatenko I., Rubezhanska V. Architectonics of the concept of the national labour market regulation / I. Hnatenko, V. Rubezhanska // Journal Management. – 2018. – 1 (27). – С. 79-90.

8. Гнатенко І.А., Рубежанська В.О. Регіональний ринок праці Луганської області: сучасний стан та причини незадовільного функціонування / І.А. Гнатенко, В.О. Рубежанська // Науковий економічний журнал «Інтелект XXI». – 2018. – 1. – С. 39-44.