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COMPOSITE METHODOLOGY EFFICIENCY OF INNOVATIVE DEVELOPMENT OF SMALL BUSINESS

In the article developed a compositional methodology that has been used to improve the approach to evaluating the effectiveness of innovative small business development, which differs by taking into account the evolution of the "efficiency" concept, methods of its evaluation and features of its application in the innovation sphere of small business, which allow to formulate a list of indicators to measure efficiency and further manage innovation processes at different levels of the economy.

Keywords: composition, methodology, efficiency, classification, method, indicators, criteria, innovative development, small business.

Formulation of the problem. Highly developed countries pay particular attention to the mechanism for evaluating the performance of innovative small business enterprises, since it is the small business that provides not only faster return on investment, but also the highest profitability of projects. Small business is also actively shaping a mobile competitive environment that responds quickly to changes in the preferences of potential buyers and helps to lower prices and improve the quality of goods, through the introduction of the latest technologies and STP results, that is why the issue of evaluating the effectiveness of small business innovation development is extremely relevant today.

It should be noted that in modern science there are many approaches to the classification of efficiency, and the variety of definitions of the concept of testifies to the polymorphic nature of this definition, since each of the interpretations characterizes the term "efficiency" from different aspects, the importance of which is formed in accordance with the objectives and aims of the study. Against this background, the urgent question arises of classifying the most common interpretations of the "efficiency" concept and its rational definition in terms of enterprise innovation activity. Also in the process of reviewing the scientific and methodological literature on the effective evaluation of innovation activity and enterprise development in the current economic development conditions, numerous and varied methodological

approaches to the outlined issues were identified that also requires appropriate critical analysis.

The previously unsolved part of the overall problem. Questions about the concept, formulation and evaluation of the category "efficiency" were researched by scholars of both foreign and domestic classical schools [1-3] and were further developed in the works of modern scholars [4-7]. In recent decades the views of scholars and practitioners on the nature of efficiency as an economic category have become more one-sided, but many issues remain under-explored. The same applies to methods for assessing the effectiveness of innovation implementation and for evaluating the innovation performance of small businesses as a whole. This issue is devoted to a relatively large number of works by both domestic and foreign scientists [4; 5; 8-12], who offer different methods of evaluating the efficiency of innovation and innovation development of enterprises, based on different criteria, the importance is determined in accordance with the object and the necessary evaluation objectives, therefore some questions about the appropriateness of using one or other evaluation method remain debatable. Taking into account the above mentioned and basing on the results of thorough research [13; 14], a composite methodology was proposed to evaluate the effectiveness of innovative small business development.

Formulating the goals of the article. The purpose of the article is to develop a compositional methodology, which takes into account the evolution of the "efficiency" concept, methods of its evaluation and features of its application in the innovation sphere of small business, the use of which will improve the approach to assessing the effectiveness of innovative development of small business at different levels of the economy.

The main results of the study. First of all it should be noted that an objective and comprehensive assessment of the effectiveness of any enterprise innovation activity is impossible without determining the essence of the fundamental category "efficiency", without exploring its content and basic approaches to its definition, without highlighting the features of its manifestation in the innovation sphere. Based on these positions, in the previous works of the author [13; 14], the existing views of well-known scientists on the essence of the concept of "efficiency", the evolution of the "efficiency" concept and the advantages and disadvantages of the selected methods of evaluating the innovative development of small business effectiveness were explored. The classical compositional technique consists of two components types – composite units and composite connections [15]. But the composition is

not the chaotic scatter of these two types of components, but rather arranged composition units, united by the composite links into one. The proposed compositional technique is presented in Fig. 1, consists of six major interconnected compositional units (elements), namely:

1. Evolutionary gradation of approaches to the term "efficiency";
2. Classification of performance by characteristics;
3. Performance evaluation criteria;
4. Performance evaluation methods;
5. The strategy of innovative development of the small business entity is defined;
6. Main indicators for evaluating the effectiveness of innovative development.

Consider the basic elements of the compositional model in more detail.

1. In the process of evolution of the study of this problem, scientists have identified various approaches [1; 2; 7, 16], each interpreted the effectiveness from different points of view. A more detailed study on the evolution of approaches and its temporal interpretation by the author was carried out in the previous work [13]. Fig. 1 presents the end result of the study, where, from the author's point of view, the temporal space of sequential evolutionary approaches to interpret the term "efficiency" is represented from the required approach, as the primary one, to the target one, as the most rational one in modern economic conditions.

2. In modern science, there are also many approaches to classifying efficiency by its types or characteristics. Types of efficiency are usually distinguished by the variety of effects obtained from the activity of enterprises [5; 9; 16]. Based on the study, the author identified 11 main features of effectiveness, which are presented in Fig. 1. Focusing on the trait selected, depending on the purpose and mission of the enterprise, not only influences the choice of ultimate performance criteria, but also directly influences the choice of a particular static or dynamic method of performance evaluation.

3. According to the author, the performance evaluation criteria should have such characteristics as the ease of measuring the quantitative evaluation of the indicator; ease of obtaining information on the basis of which this indicator is constructed and evaluated; uniqueness of interpretation of the received information. The criteria for evaluating the effectiveness of innovative development should also reflect a comprehensive approach to determining performance. The author considers that the main criterion for evaluating the efficiency of innovative development of the enterprise is the criterion of commercial efficiency with adjustment to the strategic direction of the small business entity [13; 14]. However, evaluating the effectiveness of an

enterprise's innovative development should be done not by one but by a whole system of interrelated criteria and indicators, which are presented in the proposed composition method.

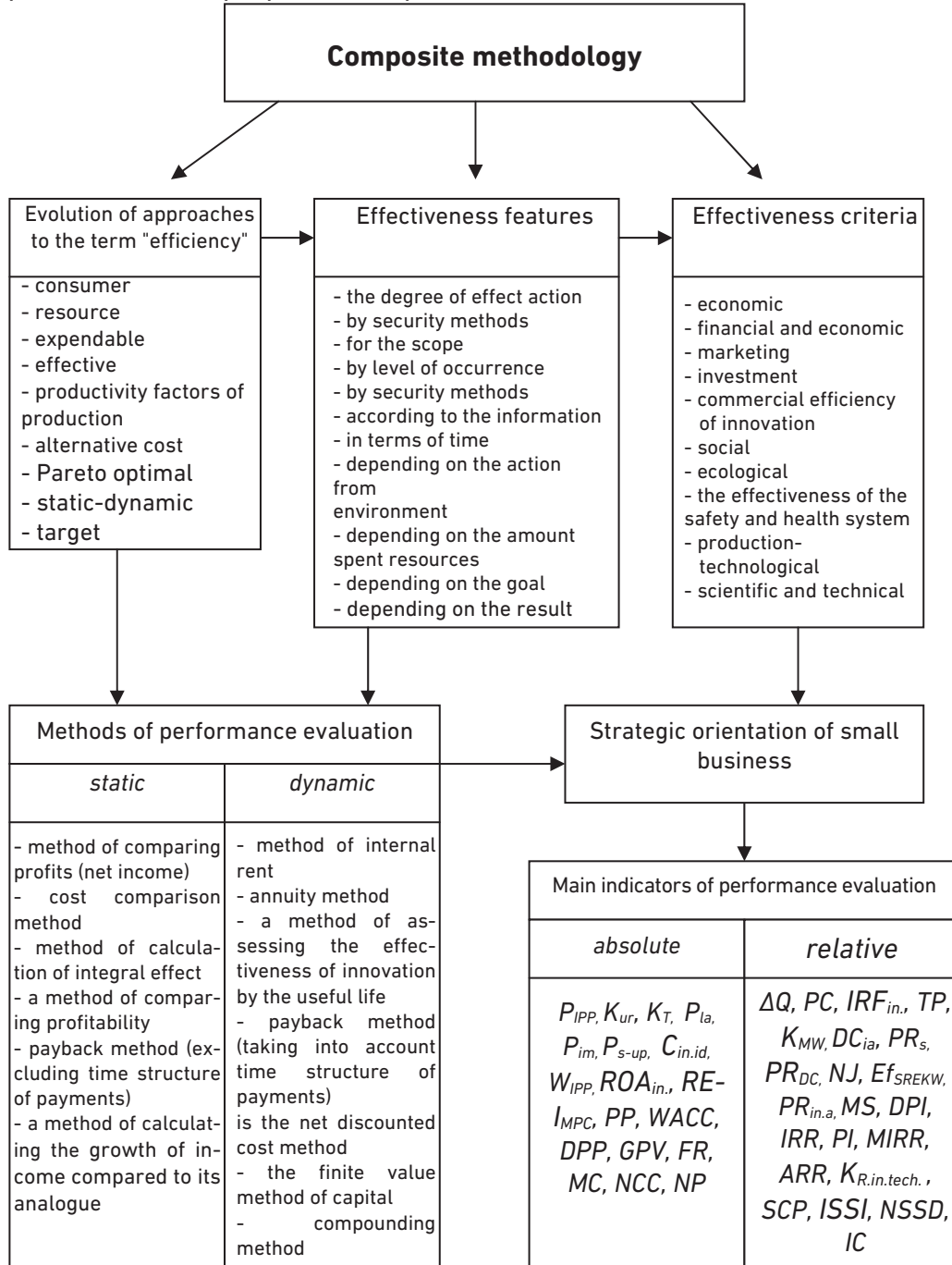


Fig. 1. Composite methodology for assessing the effectiveness of innovative small business development
Source: elaborated by the authors



4. Given that the end result of innovative development is the development and implementation of innovative programs and projects, which typically require significant resources, and given that innovative development is carried out under uncertainty, especially when implementing decisions are being made new technologies and the expansion of the core business of an enterprise in a new technical base, a new market, etc., should be clearly defined by the methods of evaluating its economic or commercial efficiency, which, in the author's opinion, provide the most accurate, correct and clear assessment of a particular project or estimate innovate the whole enterprise. In this regard, in the author's view, it is advisable to use the methods shown in Fig. 3 in the practical use of enterprise innovation performance assessment. 1. Based on the analysis [8; 13; 14; 16] of the most common methods of assessing the effectiveness of innovation, it was concluded that despite the wide variety of criteria and indicators of performance evaluation, all methods of evaluation can be divided into two fundamental groups: static and dynamic methods, each of which has its own advantages and disadvantages [13; 16], and the choice of which depends directly on the selected feature of efficiency and the determined strategic direction of the small business entity.

5. The strategy of innovative development of the small business entity is defined. The peculiarity of using this compositional technique is to determine the necessary indicators of performance assessment not only in the context of small business innovation activity and intensification of its production, but also with a clear alignment of all elements (especially performance evaluation indicators) with the chosen strategic direction of a specific small business entity.

6. The last element shown in Fig. 1 in the context of the compositional methodology are the main indicators of the evaluation of the effectiveness of innovative development, which have the decoding below.

1) Absolute indicators for evaluating the effectiveness of innovative small business development, expressed in absolute terms:

- P_{IPP} – increase in productivity of industrial production personnel,
- Kur – increase of material resources utilization rate,
- KT – increase of working capital turnover process,
- Pla – profits from innovative licensing and patent activity,
- Pim – profits from the introduction of inventions, utility models and know-how,
- $Ps-up$ – profits from the implementation of new ideas and successful start-up,

- *Cin_{id}* – reducing the cost of production by implementing innovative ideas and upgrading equipment,
- *WIPP* – rising wages of industrial production personnel,
- *ROAin.* – reducing occupational accidents by improving innovation and occupational safety at work,
- *REIMPC* – reducing the environmental impact of production processes involved in the implementation of an innovative project by reducing the MPC,
- *NPV* – net present value,
- *WACC* – weighted average cost of capital,
- *PP* – payback period,
- *DPP* – discounted payback period,
- *GPV* – integrated present value,
- *FR* – increase of the fund return of innovative products,
- *MC* – decrease in material consumption index of innovative products,
- *NP* – increase in the number of received patent patents,
- *NCC* – increasing the number of copyright certificates received for innovation.

2) Relative indicators for evaluating the effectiveness of small business innovation development, expressed as a percentage:

- *ΔQ* – sales growth from innovation,
- *PC* – improving production capacity,
- *IRFin.* – an increase in the release of finance through the use of innovation,
- *TP* – decrease in the rate of turnover of personnel in the enterprise,
- *KMW* – reducing the moral wear of innovative equipment,
- *DCia* – increase in the share of debt capital in intensive innovation activity,
- *PRs* – increase of profitability of innovative products sold,
- *PRDC* – increase of the profitability index of *DCia*,
- *EfSREKW* – improving the efficiency of innovative *НДБКР*,
- *PRin.a* – increase of profitability of investment activity,
- *MS* – increase in market share,
- *NJ* – increase the share of new jobs through the implementation of innovative projects,
- *DPI* – discounted profitability index,
- *IRR* – internal rate of return,
- *PI* – profitability index,
- *MIRR* – modified internal rate of return,
- *ARR* – simple return on investment,

- *KR.in.tech.* – increase of fixed assets renewal indicators due to innovative technologies,
- *SCP* – increasing the share of computerization of innovative production,
- *ISSI* – increasing the share of science intensive,
- *NSSD* – increasing the share of staff with a scientific degree involved in the project,
- *IC* – increase of commercialization index of developed innovative projects.

The logical and complementary combination of the main elements of the proposed compositional methodology, will improve the approach to assessing the effectiveness of innovative small business development, which takes into account the evolution of the concept of "efficiency", methods of its evaluation and features of its application in the innovation sphere of small business, which allows to form measuring and managing innovation processes at different levels of the economy.

Conclusions. Thus, the article developed a composite methodology for evaluating the effectiveness of innovative small business development, for the formation of which a study of the "efficiency" concept evolution was conducted, on the basis of which the main approaches identified by different classification features were identified. Each of these approaches characterizes the concept of "effectiveness" in various aspects, the importance of which is formed in accordance with the chosen strategies and defined goals of small business. Also, according to the chosen compositional methodology, the indicators of innovation development efficiency are distinguished by the variety of effects obtained from innovation activity, the priority of which varies depending on the micro or macro level of the economy, which takes into account the proposed system of absolute and relative indicators of quantitative assessment of business innovation performance. Using the results of work in the current conditions of development of the Ukrainian economy innovation sector will allow consciously choose the best methods for measuring the efficiency of innovative activity of the enterprise in the individual innovative projects context depending on its strategic goal, which will allow to choose the most profitable of the projects, as well as to interest a wider range of potential investors, including foreign ones.

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КОМПОЗИТНА МЕТОДИКА ОЦІНКИ ЕФЕКТИВНОСТІ ІННОВАЦІЙНОГО РОЗВИТКУ МАЛОГО БІЗНЕСУ

В роботі розроблено композиційну методику, застосування якої дозволило удосконалити підхід до оцінки ефективності інноваційного розвитку малого бізнесу, і яка враховує еволюції поняття «ефективність», методів її оцінювання та особливостей її застосування в інноваційній сфері малого бізнесу, що дає змогу сформулювати перелік показників для вимірювання ефективності та подальшого управління інноваційними процесами на різних рівнях економіки.

Ключові слова: композиція, методика, ефективність, класифікація, метод, показники, критерії, інноваційний розвиток, малий бізнес.

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КОМПОЗИТНАЯ МЕТОДИКА ОЦЕНКИ ЭФФЕКТИВНОСТИ ИННОВАЦИОННОГО РАЗВИТИЯ МАЛОГО БИЗНЕСА

В работе разработано композиционную методику, применение которой позволило усовершенствовать подход к оценке эффективности инновационного развития малого бизнеса, и которая учитывает эволюцию понятия «эффективность», методов её оценки и особенностей её применения в инновационной сфере малого бизнеса, что позволяет сформировать перечень показателей для измерения эффективности и управления инновационными процессами на различных уровнях экономики.

Ключевые слова: композиция, методика, эффективность, классификация, метод, показатели, критерии, инновационное развитие, малый бизнес.
