UDC 65.01
JEL Classification: C01, D24, M11, M21, M54
DOI: 10.15587/2312-8372.2019.162670

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IMPROVEMENT OF THE SYSTEM OF INDICATORS FOR THE EFFICIENCY EVALUATION OF THE PRODUCTION CAPACITY OF INDUSTRIAL ENTERPRISES

Об'єктом дослідження є особливості формування, використання та удосконалення системи показників для оцінки ефективності виробничого потенціалу промислових підприємств. Однією із визначальних характеристик розвитку промислового підприємства та формування його перспективи, незалежно від поставлених цілей – забезпечення оптимальної конкурентоспроможності, стабільності, стійкого розвитку тощо – є його потенціал, зокрема виробничий. З'ясовано, що виробничий потенціал – це наявні та потенційні можливості виробництва реального обсягу продукції (відповідно до потреб ринку), наявність факторів виробництва, забезпеченість його основними видами ресурсів. Тут важливе значення мають аналіз, систематизація, узагальнення та пояснення факторів, що впливають на ефективність виробничого потенціалу промислового підприємства в системі забезпечення його конкурентоспроможності. В контексті цього удосконалено графічну модель взаємозв'язку стратегічних планів і програм промислових підприємств. А також враховано особливості, роль і місце виробничих потужностей промислового підприємства в ієрархії чинників (конкурентних сил), що визначають його конкурентоспроможність. В процесі дослідження використовувалися методи системного аналізу, систематизації, узагальнення та методи економіко-математичного моделювання. За результатами дослідження встановлено, що для ефективного використання виробничого потенціалу промислових підприємств необхідно забезпечити управління на основі повної та об'єктивної інформації про стан складових виробничого потенціалу за системою відносних показників (коефіцієнтів). Ця система повинна відповідати сучасному розумінню сутності поняття «ефективність», її видам (фінансово-економічна, виробнича, комерційна), стратегічним планам і програмам, та стратегії. Удосконалено систему показників для оцінки ефективності виробничого потенціалу промислових підприємств, яка враховує ієрархію чинників (конкурентні сили), що визначають його конкурентоспроможність з урахуванням основних сил, що діють у мікросередовищі підприємства. Представлені дослідження доцільно враховувати при удосконаленні фундаментальної (поглибленої) системи діагностики виробничої діяльності промислових підприємств (як часткової діагностичної цілі в системі цілей економічної діагностики).

Ключові слова: *ефективність виробничого потенціалу підприємства, виробнича програма підприємства, виробничі потужності підприємства, операційний менеджмент.*

1. Introduction

One of the basic (defining) characteristics of the development of an industrial enterprise and the formation of its prospects, regardless of the goals set, is to ensure optimal competitiveness, stability, sustainable development, etc. – its potential [1, 2]. At the same time, it should be noted that the achievement of the success of an industrial enterprise directly depends on the efficiency of using its production potential [3]. On the basis of the theory [3–5] and the practice of business, it was found that efficiency characterizes the degree of achievement of a goal, result, but not the result itself, but the version of correctness, accuracy, striving for it. At the same time, relying on the understanding of the essence of the «efficiency» concept [2–4] and supporting the opinion of top managers of management, it is reasonable to note that the efficiency of using the production potential can be determined by a system of relative indicators (coefficients) characterizing the components of the production potential. Here, analysis, systematization, generalization and explanation of the factors influencing the efficiency of the production potential of industrial enterprises are important, based on the theory and technology of scientific research [2, 5]. In the context of this, it has been established that the object of sharp discussions (research) are the features of the formation and use of a system of indicators for assessing the efficiency of the production potential of industrial enterprises. All this led to the relevance of the work. And also identified *the object of research* – features of the formation, use and improvement of the system of indicators to assess the efficiency of the industrial potential of industrial enterprises. Therefore, *the aim of research* is the formation of theoretical positions and the development of practical recommendations for improving the system of indicators for assessing the efficiency of the production potential of industrial enterprises (based on economic and mathematical modeling, based on the characteristics of economic observations and measurements).

ISSN 2226-3780

2. Methods of research

In the research process, the following general scientific and special methods were used, as [5, 6]:

1) methods of system analysis, systematization, generalization, graphical method – to clarify the essence of the content of the categories «production program of the main production units», «production potential» and «efficiency»;

2) methods of economic-mathematical modeling – for the formation (construction) of a system of ratios (equations) of indicators for assessing the efficiency of the production potential of industrial enterprises.

3. Research results and discussion

Research [4, 6] and Fig. 1 allow to conclude that the production program of the divisions of the main production of industrial enterprises is an aggregate of products of a certain nomenclature (of a specific type). This nomenclature must be made in the planned period in certain quantities according to the specialization and production capacity of these units. Here it is necessary to consider:

1) features, the role and place of production capacity of an industrial enterprise in the hierarchy of factors (competitive forces) determining its competitiveness (Fig. 2);

2) the main forces operating in the microenvironment of the enterprise [7–9].

In the context of this, it has been established [1, 3, 6], to assess the compliance of the production program (Q_f) ith the production capacity (P_c) available at an industrial enterprise for the production of a specific range (specific types and/or varieties) of products (in accordance with market needs) use a system of relative indicators (coefficients). It is important to justify the security of the production program of an industrial enterprise labor and raw materials [2, 6].

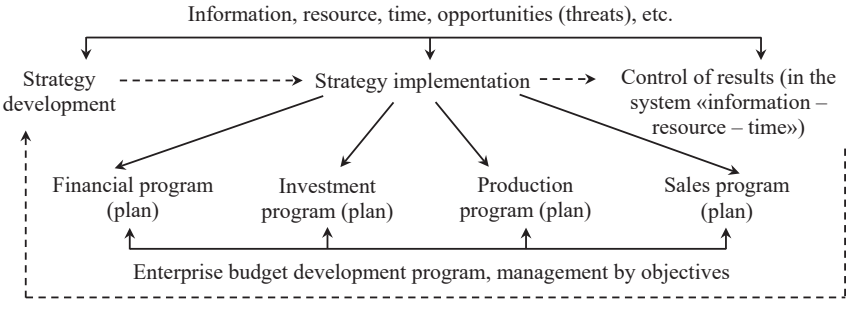

Fig. 1. Model of interrelation of strategic plans and programs of industrial enterprises (improved [10] on the basis of [11, 12])

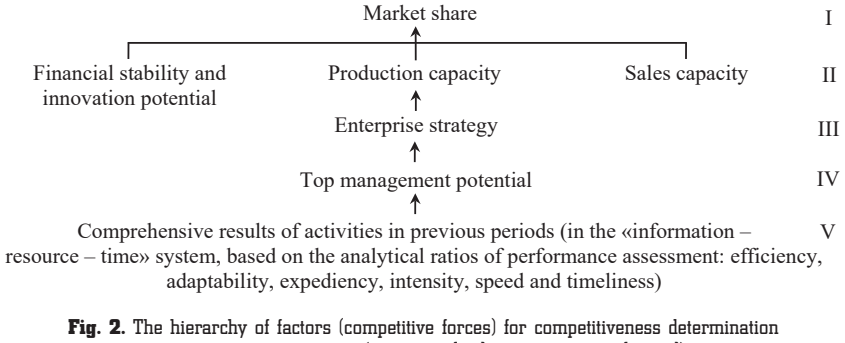

Fig. 2. The hierarchy of factors (competitive forces) for competitiveness determination of industrial enterprises (improved [13] on the basis of [6, 11])

So, it is reasonable to estimate the degree of formation Q_f using the indicator (coefficient) of the use of production capacity of an industrial enterprise (k_{pc}) – formula (1) [6]:

$$k_{pc} = \frac{Q_f}{P_c} \le 1, \text{ unit share.} \quad (1)$$

At the same time, it is found that in order to assess the efficiency of the use of production equipment by an industrial enterprise in the manufacture of a specific (specific) type of product, it is necessary to calculate [6]:

1) equipment extensive use ratio (k_{ext}):

$$k_{ext} = \frac{T_f}{T_k} \le 1, \text{ unit share;} \quad (2)$$

2) equipment heavy use ratio (k_{int}):

$$k_{int} = \frac{P_f}{P_p} \le 1, \text{ unit share;} \quad (3)$$

3) integral ratio ($k_{integral}$):

$$k_{integral} = k_{ext} \cdot k_{int} \le 1, \text{ unit share;} \quad (4)$$

4) capacity reserve (R_c):

$$R_c = 1 - k_{integral} < 1, \text{ unit share,} \quad (5)$$

where T_f – the actual time of production equipment during the reporting period, h; T_k – calendar fund of working time for the year, h; P_f – the actual performance of the unit of production equipment, is involved in the manufacture of target products, natural units per hour; P_p – the nameplate capacity of a production equipment unit, participates in the manufacture of target products, natural units per hour [2, 4, 6].

Based on the results of the conducted research, it can be stated:

1) production potential – the existing and potential possibilities for the production of real output, the availability of production factors, the availability of basic resources (labor, material, financial, energy) [3, 6, 14];

2) for effective use of the industrial potential of industrial enterprises, it is necessary to ensure management on the basis of complete and objective information about the state of the components of the industrial potential by the system of relative indicators (1)–(5) [6], as well as determine the object and subject of management. The system of coefficients (1)–(5) corresponds to the modern understanding of the essence of the «efficiency» concept, its types (financial and economic, production, commercial [2]), strategic plans and programs and strategies [1, 3, 10] (Fig. 1). It also takes into account the hierarchy of factors (competitive forces) deter-

mining its competitiveness (Fig. 2), taking into account information [7–9].

The presented studies should be taken into account when improving the fundamental (in-depth) system for diagnosing the production activities of industrial enterprises (as a partial diagnostic goal in the system of economic diagnostics goals [2]) to form and support management decisions in the operational management system (based on the method of determining optimal production programs [14]).

4. Conclusions

According to the research results, the essence of the category «production potential» is clarified. According to the authors of this work, these are the existing and potential possibilities for the production of real output (in accordance with the needs of the market), the presence of production factors, the availability of its main types of resources. For the effective use of the production potential of industrial enterprises, it is necessary to ensure management on the basis of complete and objective information about the state of the components of the production potential by a system of relative indicators (coefficients). This system should correspond to the modern understanding of the essence of the concept of «efficiency», its types (financial and economic, industrial, commercial), strategic plans and programs, and strategies. The scientific novelty of this research consists in improving the system of indicators for assessing the efficiency of the production potential of industrial enterprises, which, unlike the existing ones, takes into account the hierarchy of factors (competitive forces) determining its competitiveness taking into account the main forces operating in the enterprise micro-environment.

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