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# MODEL FOR ASSESSING TECHNOLOGICAL RESOURCES IN THE ECONOMIC SECURITY OF BUSINESS IN THE PROCESS OF EUROPEAN INTEGRATION

***Introduction.*** *The modern processes of European integration and globalization of the world economy the issue of forming an effective system of evaluating technological resources of economic security acquires dominant importance. Analysis of recent research and publications. Despite thorough scientific developments regarding the formation of an effective system of economic security of business a significant number of tasks are unsolved and require further scientific research.*

***The purpose of the paper*** *is the theoretical and methodological substantiation of the feasibility of determining the main determinants of the reproduction of the potential of technological resources of economic security in the process of European integration, which will allow to determine the strategic orientations of its development taking into account the key challenges of today.*

***Results.*** *Identified sources of reproduction of technological resources and a proposed system of indicators for their assessment, which allow creating certain potential opportunities to achieve the goals of economic security of business. The proposed model for assessing the technological resources of economic security of business in the process of European integration allow the distribution of tools for ensuring economic security of business between various sources of reproduction of these resources in proportions that ensure the achievement of the best results of system activity over a long period.*

***Conclusions.*** *Model of assessment of technological resources of economic security of business in the process of European integration was proposed makes it possible to carry out a comprehensive economic assessment of the level of development of technological resources of business, to determine the sources of their reproduction and to outline the main determinants of ensuring economic security of business.*

***Keywords:*** *technological resources, sources of technological resources, indicators for assessing the level of development of technological resources, determinants of financial and economic security*

## INTRODUCTION

The processes of European integration are aimed at ensuring the effective development of any technical and economic systems and are based on the wide application of scientific management methods and the use of technological resources. The modern processes of European integration and globalization of the world economy even more intensively demonstrate the need to use modern achievements of science and technology in production, the problem of modernization of the Ukrainian economy and its transfer to an innovative path of development.

In these conditions, the activation of the internal resources of enterprises to increase their technological potential is of great importance. Therefore, an important task of forming a high-quality system of economic security of business is the determination of the strategic directions of this process, among which the issue of forming an effective system of evaluating technological resources of economic security acquires dominant importance.

One of the main elements of the production system is technological resources – the ability of the production system to achieve the set goals, opened by a set of methods for converting raw materials, materials and semi-finished products into a finished product, which this system has.

The main goal of technological resource management is to achieve such parameters that would correspond to the goals of the enterprise. However, the relatively low level of organizational and economic conditions of this process significantly complicate the formation of effective control actions on technological resources.

***Analysis of recent research and publications.*** Studies of the theoretical-methodological and applied provisions of the formation of the system of economic security of business in the process of European integration are presented in the scientific works of such scientists as B.O. Denisov, O.L. Malyuta, O. Sorokivska, N. Popadynets, et al.

Despite thorough scientific developments regarding the formation of an effective system of economic security of business and ensuring its sustainable functioning, a significant number of tasks are unsolved and require further scientific research. In particular, this concerns issues related to the development of an effective toolkit

The **PURPOSE** of the paper is the theoretical and me-

thodological substantiation of the feasibility of determining the main determinants of the reproduction of the potential of technological resources of economic security in the process of European integration by conducting an assessment of their condition and the impact of technological resources on the financial results of business, which will allow to determine the strategic orientations of its development taking into account the key challenges of today.

## RESULTS

Technological resources according to their role in the production process can be divided into the following groups: resources, due to the nature of the design of the manufactured products; resources due to the nature of the methods of manufacturing products; resources determined by the nature of the means of production; resources due to the nature of the personnel involved in the preparation of production. Indicators of the capabilities of technological resources are shown in Table 1.

Analysis of the technological resources of the enterprise (Table 1) allows you to determine the composition of the opportunities for increasing the profits of the enterprise, opened up by a combination of sources of these resources: saving raw materials, materials, energy; reduction in the number of employees; improvement of the mode of functioning of the production system; improvement of the mode of functioning of preparation of production.

Consider the impact of technological resources on profit and elements of the cost of production (Table 2).

Carrying out relevant work in order to obtain products with the necessary consumer properties and a high level of quality leads to a reduction in the profit of the enterprise $(-\Delta P)$ due to an increase in the cost of their production.

The release of products of the required quality level increases the cost of pre-production, which is reflected in the cost of production $(+\Delta C_v)$, requires high costs for materials $(+\Delta C_m)$, wages and social security contributions $(+\Delta Cz)$.

On the other hand, an increase in the price of products of a certain quality increases the profit of the enterprise $(+\Delta P)$. Due to more rational use of the fixed assets of the production system, the costs of maintenance and operation of equipment $(-\Delta C_o)$ and general production costs $(-\Delta Cor)$ are reduced, and the costs of special technological preparation are reduced $(-\Delta C_t)$.

The ability of the enterprise's technological resources to create products with low levels of material consumption, energy intensity and labor intensity of products have an impact on reducing the cost of production. In connection with the decrease in the level of material consumption and energy intensity, the costs of maintaining and operating equipment are reduced. Reducing the complexity of manufacturing products leads to a decrease in overhead and general business expenses $(-\Delta Coh)$ per unit of production. Reducing the capital intensity of products makes it possible to reduce the cost of maintaining and operating equipment.

The ability of technological resources to increase the flexibility of the enterprise allows you to accelerate the turnover of its working capital and thereby increase profits.

Providing a rational mode of functioning of the enterprise, technological resources can reduce losses in production caused by violation of the terms of production preparation. Reducing losses leads to a decrease in the following items of calculation: wages of production workers, social security contributions, general production costs.

The rational mode of operation of the production preparation system ensures a reduction in the labor intensity of the work of engineering and technical personnel, increases the level of organization of their work, and increases profits by accelerating the turnover of working capital. All elements ultimately lead to a reduction in the cost of production due to the costs of developing new products.

Thus, the change in income $(\Delta D)$ obtained by expanding the capabilities of the technological resources of the production system ($\Delta Y_p$, $\Delta Y_n$, $\Delta Y_m$, $\Delta Ye$, $\Delta Y_t$, $\Delta Y_f$, $\Delta Yg$, $\Delta Y_o$, $\Delta Y_{op}$) can be expressed as follows:

$$\begin{aligned}\Delta D = {} & +\Delta P(\Delta Y_p, \Delta Y_t, \Delta Y_{op}) \\ & +\Delta C_m(\Delta Y_p, \Delta Y_n, \Delta Y_m) \\ & +\Delta Cz(\Delta Y_p, \Delta Y_n, \Delta Y_t, \Delta Y_o) \\ & +\Delta C_v(\Delta Y_p, \Delta Y_n, \Delta Y_{op}) \\ & +\Delta C_o(\Delta Y_n, \Delta Ye, \Delta Y_f) \\ & +\Delta C_t(\Delta Y_n, \Delta Y_m, \Delta Ye) \\ & +\Delta Cor(\Delta Y_t, \Delta Y_f, \Delta Y_o) \\ & +\Delta Coh(\Delta Y_t, \Delta Y_o)\end{aligned} \quad (1)$$

Increasing the level of flexibility of the enterprise leads to the fact that the content of work to maintain the technological resources of production expands and deepens. In this regard, the tasks solved in order to achieve high technical and economic indicators of products and improve the technical level of production are becoming increasingly important. The main directions of their solution are connected with the improvement of the management of the preparation of production, in which an important role is played by a clear organization of labor.

At present, for the most part, the organization of labor of engineering and technical workers is not subject to revision, despite the increase in the volume of work; at the same time, their implementation is carried out by creating additional units, without a decisive change in the organizational structure, which leads to the fact that there are units that duplicate each other's work.

All this is due to the fact that with an increase in the volume of work, an increase in the level of renewal and complexity of products, the organization of labor in the subdivisions of the production system remains the same.

Only the transition to a new progressive control technology using mathematical methods and modern computer technology makes it possible to improve the quality, efficiency and efficiency of management decisions, to ensure the possibility of introducing the tasks of optimal management of production preparation.

Table 1 – **Technological resources of the enterprise**

| Sources of technological resources | Characteristics of technological resources |
|---|---|
| Design of manufactured products | The ability to produce products with the most rational use of raw materials and materials (material consumption of products) |
| | Possibility of production with the most rational use of fuel and energy (energy intensity of products) |
| | Possibility of production with the most rational use of labor resources (labor intensity of products) |
| | Possibility of production with the most rational use of fixed assets (capital intensity of products) |
| Production methods | Possibility of production with the most rational use of materials (material consumption of products) |
| | Possibility of production with the most rational use of energy and fuel for technological purposes (energy intensity of products) |
| | The possibility of rational use of labor resources (labor intensity of products) |
| | Possibility of rational use of fixed assets (capital intensity of products) |
| The nature of the means of production | The ability to produce products with a minimum amount of special technological support (the level of unification of support) |
| | Possibility of production at a rational level of costs for tool production (product cost) |
| The nature of the staff | Possibility of producing products of a given quality level (technical level) |
| | The possibility of functioning of the PS in a stable mode (mode of operation) |
| | Possibility of preparation of production with the most rational use of personnel (labor intensity of preparation of production) |
| | Possibility of functioning of the pre-production system in the most rational mode (pre-production mode) |

Table 2 – **Impact of technological resources on profit and elements the cost of the company's products**

| Technology Resources | Characteristics of the impact of technological resources on profit and elements of the cost of production (+) - increase, (-) - decrease |
|---|---|
| Increasing the technical level of products $(Y_p)$ | Profit ( ). Material costs (+). Energy costs (+). Wage costs for production workers and social security contributions (+). Expenses for the development of new products (+). |
| Increasing the level of product unification $(Y_n)$ | Material costs (-). Energy costs (-). Wage costs for production workers and social security contributions (-). Expenses for the maintenance and operation of equipment (-). The cost of special technological equipment (-). The cost of developing new products (-). |
| Reducing the level of material consumption of products $(Y_m)$ | Costs for materials (-). Costs for special technological support (-). |
| Reducing the level of energy intensity of products $(Ye)$ | Energy costs (-). Expenses for the maintenance and operation of equipment (-). The cost of special technological equipment (-). |
| Reducing the level of labor intensity of products $(Y_t)$ | Wage costs for production workers (-). Social security contributions (-). General production costs (-). |
| Reducing the level of capital intensity of products $(Y_f)$ | Equipment maintenance and operation costs (-). General production costs (-) |
| Increasing the level of flexibility $(Yg)$ | Profit (+). |
| Increasing the level of organization $(Y_o)$ | Wage costs for production workers (-). Social security contributions (-). General production expenses (-). |
| Increasing the level of organization of production preparation $(Y_{op})$ | The cost of developing new products (-). Profit (+). |

## CONCLUSIONS

Thus, based on the results of the research a model for assessing the technological resources of economic security of business in the process of European integration was proposed, which makes it possible to carry out a comprehensive economic assessment of the level of development of technological resources of business, to determine the sources of their reproduction and to outline the main determinants of ensuring economic security of business.

The scientific novelty of the obtained results lies in the improvement of the methodical approach to the assessment of the level of technological resources of the economic security of business, which, unlike the existing ones, takes into account the influence of the sources of reproduction of technological resources on the economic performance of the enterprise and allows taking into account their potential impact on the economic security of the business.

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## МОДЕЛЬ ОЦІНЮВАННЯ ТЕХНОЛОГІЧНИХ РЕСУРСІВ ЕКОНОМІЧНОЇ БЕЗПЕКИ БІЗНЕСУ У ПРОЦЕСІ ЄВРОПЕЙСЬКОЇ ІНТЕГРАЦІЇ

***Вступ.*** *У сучасних умовах євроінтеграції та глобалізації світової економіки важливим завданням формування якісної системи економічної безпеки бізнесу є формування ефективної системи оцінки технологічних ресурсів економічної безпеки. Незважаючи на ґрунтовні наукові розробки з формування ефективної системи економічної безпеки бізнесу, значна кількість завдань є невирішеною та потребує подальшого наукового пошуку.*

***Метою статті*** *є теоретико-методичне обґрунтування доцільності визначення основних детермінант відтворення потенціалу технологічних ресурсів економічної безпеки у процесі євроінтеграції, що дозволить визначити стратегічні орієнтири його розвитку з урахуванням ключових викликів сучасності.*

***Результати дослідження****. Визначено джерела відтворення технологічних ресурсів та запропоновано систему індикаторів їх оцінювання, які дозволяють створити певні потенційні можливості задля досягнення цілей економічної безпеки бізнесу. Запропонована модель оцінювання технологічних ресурсів економічної безпеки бізнесу у процесі євроінтеграції дозволяє розподіляти інструменти забезпечення економічної безпеки бізнесу між різними джерелами відтворення цих ресурсів у пропорціях, які забезпечують досягнення найкращих результатів діяльності системи протягом тривалого періоду.*

***Висновки.*** *Модель оцінювання технологічних ресурсів економічної безпеки бізнесу у процесі євроінтеграції дає змогу здійснити комплексне економічне оцінювання рівня розвитку технологічних ресурсів бізнесу, визначення джерела їх відтворення та окреслення основних детермінант забезпечення економічної безпеки бізнесу.*

***Ключові слова:*** *технологічні ресурси, джерела технологічних ресурсів, показники оцінювання рівня розвитку технологічних ресурсів, детермінанти фінансово-економічної безпеки*