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The doctrine and formalization of factors influencing the activity and management system of the enterprise under risk conditions: pragmatic and analytical aspect

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Abstract

The author identified internal and external factors influencing the activity of the business entity. On the basis of a critical analysis, it is proposed to distinguish the influence factors according to the direction of action into factors of direct and indirect influence. Thanks to this distribution, a system of indicators for management is substantiated, which must be constantly monitored in order to implement anti-crisis measures in a timely manner and carry out effective activities of the business entity in the long term.

It is argued to single out in a separate group unexpected influencing factors that may manifest themselves in the near future in the course of the business entity's activity. This gradation of factors involves their division according to the direction of action, i.e. direct and indirect influence.

The conceptual principles of the effectiveness of the business entity are summarized and the main elements of its formation are highlighted. This management concept is presented by the author using a graphic method.

An integral indicator of the enterprise's performance against challenges has been substantiated and formed through formalization, which is characterized as a measure of the influence of the external and internal environment on its development and competitiveness in a strategic perspective.

Analytical evaluation, grouping, and generalization are the basis for the formation of proposals regarding directions for counteracting the negative impact of all types of factors on the business entity's activities.

Keywords: influencing factors; direct influence; indirect influence; management efficiency; external environment; internal environment; business entity.

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1. Introduction

The effectiveness of the management of the business entity depends on the level of its adaptation to the challenges of the internal and external environment, which adjust the stages and methods of achieving the company's goals in a competitive environment. Research and formation of a system of indicators that would reflect the constant impact on the quality of enterprise management will allow early detection of risk situations and the development of a set of solutions for their elimination. Taking into account the challenges of the competitive environment, the issue of forming such a system of indicators is important. The problems that exist at the same time require qualitative identification of the business entity's activities in a competitive environment. In addition, there is the question of studying and researching the most significant indicators of influence on the efficiency of the business entity.

2. Literature review

Having conducted an analysis of literary sources, we can state that there is no single approach to the selection of management efficiency assessment indicators. Such uncertainty affects the quality of work of business entities, which, in turn, affects the economy of the state as a whole. Because of this, the issue of choosing an evaluation indicator, which can act as an identifier of the specific weight of the influence of a certain factor in the management decision-making system, is important.

The second important element that will ensure the comprehensiveness and completeness of the research area under consideration is the development of an integral indicator. The latter should be based on a system of indicators that are grouped in a certain way to establish the effectiveness of decision-making. Thus, it is necessary to determine the system of indicators that have the greatest impact on the management activity of the business entity.

Scientists V.M. Seredynska, O.M. Zagorodna, and R.V. Fedorovych [1] propose to form indicators according to the flow of economic phenomena and processes, focusing on the main classification features. They propose to form indicators according to the following criteria, namely: according to the nature of the display of economic phenomena, processes, objects; assignment of cause-and-effect relationships; content; as a result of the influence of the factor; calculation methodology. The formation of this system of indicators according to the beliefs of scientists is a sufficient basis for conducting an effective analysis of the management of the business entity.

Kaplan R. and Norton D. in their research propose a system of indicators that takes into account financial, tangible and intangible assets. Scientists have proposed the following criteria for determining a comprehensive assessment of a business entity's activity, namely: finances, human potential, internal processes and client base. The presented system of indicators gives an assessment of the real state of the enterprise's activity and determines its ways of successful development in the long term. This system of indicators combines long-term and short-term goals of the enterprise, with clearly defined objective criteria and subjective indicators.

In order to carry out an effective assessment of the management of the business entity, it is necessary to determine the optimal methods of calculation. Thus, S. Vasylyk [3] in his scientific work cites the following methods: cluster analysis, rating method according to a certain group of indicators, balance method. The scientist proposes to conduct a rating of business entities by choosing indicators of the same type (direction), which will allow to correctly assess the effectiveness of management of the business entity.

In turn, M. Vysochyna suggests conducting an analysis of management efficiency in accordance with the methods of rank evaluation, which is built on the principle of a normative system of indicators. This system provides for the assignment of values based on the regularity of the ratio of rates of their increase, i.e. the faster one indicator grows relative to another, then its rank will be correspondingly higher. However, the main drawback of this calculation method is the unstable economic situation and the ambiguity of the assessment of the level of efficiency [4].

Our selective analysis of evaluation methods allows us to state that neural network computing systems and expert systems are the most effective.

The method of evaluating the level of management efficiency proposed by scientists N. Lepetyukha and I. Rudskaya [5] is also relevant, which involves its implementation in several stages (information space of evaluation, determination of the matrix of indicator values, determination of the reference value of the indicator, calculation of the Euclidean distance, calculation of the value of the integral indicator, conclusions based on research results). This evaluation method makes it possible to determine not only the efficiency of the business entity's activity, but also its competitiveness in the market environment.

In general, the analysis of scientific research allows us to state that there is a lack of research on this issue, which creates problems in defining a single system of indicators for evaluating the effectiveness of management of the business entity. Since any business entity interacts with the external environment, it is logical to take into account external factors on the effectiveness of business management. Thus, it is appropriate to conduct an analysis taking into account the factors influencing the external and internal environment of the business entity's functioning.

The purpose of the article is to study the factors influencing the effectiveness of the management of the business entity and to identify them.

3. Methodology research

The article uses the method of summarizing and evaluating the factors of the internal and external environment that directly affect the efficiency of the business entity. Using the method of critical analysis, the identification of external and internal environmental factors by direction of influence (direct and indirect influence) was carried out. Taking into account the obtained results and applying the methods of formalization and modeling, a model of the analysis of the efficiency of the

business entity was determined and their indicators were substantiated. The main elements of the company's activity were summarized and the concept of its effective management was formed using the graphic method.

On the basis of economic and mathematical principles, the justification of indicators of the level of efficiency of the enterprise in a competitive environment was carried out. Accordingly, with the use of grouping, graphic methods, questionnaires and generalization, the methodology of the process of analyzing the efficiency of the business entity is illustrated. Taking into account the results of research by various methods and their generalization, it is possible to more qualitatively determine the level of effective activity and eliminate negative phenomena with the aim of its further development.

4. Results

The hypothesis of the study is that in order to evaluate the management of a business entity, it is advisable to include external and internal indicators, and not focus exclusively on the overall efficiency of the economic activity of the business entity under study. Since the factors influencing the external and internal environment are both natural and random variables, it is necessary to determine the most influential of them on the management of the enterprise's activities. Thus, in order for the economic system to function and develop in a competitive environment, it is necessary to develop a system of measures to counteract the influence of negative factors.

Negative factors are economic processes that, in the process of interaction during the financial and economic activity of a business entity, reduce economic benefits or lead to the liquidation of the entity in general. In turn, positive economic factors make it possible to stabilize the company's financial condition and provide opportunities for its development in a competitive environment.

It should be noted that external factors represent an environment of influence that exists outside the business entity's activities, and accordingly, internal factors are directly related to the financial and economic activities of the business entity.

Modern conditions of enterprise development in a competitive environment require not only knowledge of the factors of the internal environment, but also require their clarification for a specific direction of activity. The internal environment at the enterprise is formed according to the beliefs and vision of the enterprise's activities by its management in accordance with the regulatory and legal framework of the state. The conducted analysis of the scientific literature on the components of the internal environment in general can be formed according to the following categories, that is, the purpose of activity, structure, material and technical support, culture, internal organizational processes and personnel potential [6, p. 72].

Summarizing, it should be noted that in general there are extremely many influencing factors. However, in theory and practice, organizational and resource factors are often distinguished in their composition. They have both direct and indirect influence (Table 1).

Table 1
The influence of internal factors on the activity of a business entity

No	The name of the internal factor	The influence of the factor			
7,45	The name of the internal factor	direct	indirect		
1	entire enterprises	+	-		
2	structure (number and composition of divisions)	+	-		
3	tasks of the enterprise	+	+		
4	material and technical support	+	-		
5	personnel potential	+	+		
6	internal organizational principles (making managerial decisions)	+	+		
7	marketing activity (related to the sale of products)	+	+		
8	financial activity (effective use of funds)	+	-		
9	individual factors of the enterprise are related to the specifics of the	+	+		
	enterprise's activities				
10	organizational culture	+	+		
11	corporate culture	+	+		

Source: author's position

Scientist V. Hrynchutsky [7] in his scientific work singles out the following factors of the internal environment: production-technical, social, informational, economic, marketing and organizational. From the point of view of the internal environment of the business entity, we consider it appropriate to highlight the following factors: structure ($\lambda 1$), enterprise tasks ($\lambda 2$), material and technical support ($\lambda 3$), human resources ($\lambda 4$), internal organizational processes ($\lambda 5$), opportunity adaptation to the external environment ($\lambda 6$) and enterprise potential ($\lambda 7$). This effect can be represented mathematically as follows (formula 1)

$$E_1 v_1 = \kappa_1 \lambda_1 + \kappa_2 \lambda_2 + \kappa_3 \lambda_3 + \kappa_4 \lambda_4 + \kappa_5 \lambda_5 + \kappa_6 \lambda_6 + \kappa_7 \lambda_7 \tag{1}$$

where $E_I v_I$ - the amount of influence of the internal environment on the activity of the business entity, κ - the weighting factors

that characterize the degree of influence on the resulting indicator, and
$$\sum_{i=1}^{7} \kappa_i = 1$$
.

According to the proposed factors, for their mathematical authentication, it was appropriate to conduct a questionnaire survey among the managers of the enterprise in order to determine the most influential internal factor on the efficiency of the business entity. Its results are summarized in Table 2.

Table 2
Results of the survey of heads of business entities (100 respondents)

№	Internal factors	Percentage assessment
1	structure (number and composition of units)	49
2	task of the enterprise (activity policy)	53
3	material and technical support	92
4	human resource	78
5	internal organizational processes (making managerial decisions)	65
6	marketing activity (related to the sale of products)	81
7	financial activity (effective use of funds)	68
8	adaptability of the business entity to changes in the external environmen	88
9	potential of the enterprise	94

Source: author's position

The survey was conducted among respondents and each factor was evaluated with the highest score of 100 %. Factors that scored more than 70 % are influential in the process of making effective management decisions and decide the direction of further development of the business entity. The surveyed part of the respondents believes that an important role in the development process of the enterprise belongs to material and technical support (92 %), which is quite logical, since it is one of the main elements of activity. Personnel potential (78 %) and marketing activities (81 %) are also extremely important. They provide production, sales and other processes at the enterprise.

The possibility and reality of their implementation is important in the process of making effective management decisions. In general, if management quickly adapts to changes in economic processes, the company's activity will not be threatened with bankruptcy or complete liquidation. In principle, the same is confirmed by the survey data of respondents, who note the importance of adaptation processes in the company's activity in 88 % and the company's potential in 94 %.

The study of the enterprise's activity system as a management object involves the assessment of the quality of the formed internal structure of the business entity and the interaction of its components with the systems of the external environment. Accordingly, it is advisable to single out such areas of external influence on the management activity of the business entity as factors of action and the level of the hierarchical structure (Table 3).

The influence of external factors on the activity of a business entity

No॒	The name of the external factor	action factors		level of the hierarchical structure			
		direct	indirect	Regional	National	International	
1	suppliers	+	-	+	+	-	
2	legislative framework	+	+	-	+	+	
3	competitors	+	-	+	+	+	
4	consumers	+	+	-	+	=	
5	taxes	+	-	-	+	-	
6	economic relations in the state	+	+	-	+	-	
7	geographical location	+	-	+	-	-	
8	political changes	+	+	+	+	+	
9	social changes	+	+	+	+	+	
10	events of other countries	-	+	+	+	+	
11	group interests	-	+	-	+	+	
12	historical system	=	+	+	+	+	
13	scientific and technological progress	+	+	-	+	+	
14	demography	+	+	+	ı	=	
15	international environment	-	+	-	-	+	
16	institutional environment	+	+	+	+	-	
17	investment climate	+	+	+	+	+	
18	type of economic activity	+	-	-	+	+	

Source: author's position

The greatest influence on the quality of management has direct action factors, which involve a direct impact on all levels of the enterprise's activity. For example, a significant factor is the regulatory and legislative framework. She acts as the coordinator of the business entity's actions and determines the direction of its development in a competitive environment. Instead, the stimulators of the enterprise's development are consumers and competitors, who directly demand the solution of tasks in accordance with their needs and modern challenges.

The scientist Matushevska O. singles out the tax system among the dominant factors of influence, which in the process of change, mostly in the direction of increasing taxes, becomes the cause of unprofitable activities of enterprises [8]. Thus, the tax burden on the activity of a business entity should be regulated by the state, and if necessary, appropriate state programs should be created to optimize or reduce taxes, and not increase them unjustifiably. An equally important element in adjusting the activity of a business entity is investment. They, as factors of influence, allow to reduce the negative impact on the activity and expand the areas of activity.

Thus, Kipa D. notes in his studies that legal, economic, political and international elements must be attributed to the factors of the external environment of indirect influence [9].

He considers it appropriate to include the material base, demographic fund, socio-cultural environment, scientific and technical progress, and ecological environment as factors of direct influence. The author proposes to consider the proposed influencing factors in the case of their influence on the financial and economic activity of the business entity, because otherwise they must be ignored in connection with the formation of correct management decisions.

An important aspect is the level of the hierarchy of managerial influence on the activity of the business entity. Thus, regional, national and international influences are distinguished in the external environment. We can mathematically represent this influence on the activity of the business entity as follows:

$$F = \rho_1 \xi_1 + \rho_2 \xi_2 + \rho_3 \xi_3 \tag{2}$$

where F – the magnitude of the influence of the equation of the hierarchical structure on the efficiency of enterprise management, ρ - the weighting coefficient of the measure of influence of factors, ξ_1 - the level of influence of the regional environment, ξ_2 - the level of influence of the national environment,

Thus, we can assume that the effectiveness of managing the business entity directly depends on the level of hierarchical construction.

An important issue in the process of managing a business entity is taking into account the system of external factors that most affect the results of its work. Such information is necessary for management to develop a system of anti-crisis measures to eliminate risk situations. In the process of analyzing the scientific literature [7, 8, 9, 10, 11], we suggest dividing not only by the factor of action and hierarchical structure, but also taking into account the challenges of modern society. That is, to rank economic indicators and determine the most influential of them according to the type of economic activity of the business entity.

All factors of the external environment, which make its activities vulnerable to new challenges and threats, have a significant impact on the effectiveness of management. In order to analyze the impact of the external environment on the activity of the business entity, we offer the following system of indicators: finance (v_1) , economy (v_2) , social security (v_3) and security (v_4) (formula 3).

$$E_2 v_2 = \gamma_1 v_1 + \gamma_2 v_2 + \gamma_3 v_3 + \gamma_4 v_4 \tag{3}$$
 where $E_2 v_2$ is the influence of external factors on the efficiency of enterprise management, γ is the weighting coefficient of the measure of the influence of factors on the resulting indicator and $\sum_{i=1}^4 \gamma_i = 1$. Let's analyze the dynamics of changes in indicators by group during 2018–2022 (Table 4).

Table 4
System of indicators of influence on the efficiency of management of business entities

System of indicators of influence on the efficiency of management of business entities						
Year	2018	2019	2020	2021	2022	2018/2022 (-/+)
Finances						
dynamics of the NBU discount rate level (%)	18,0	13,5	6,0	9,0	25,0	+7
dynamics of implementation of the State budget by tax	753815,6	799776,0	851115,6	1107090,9	949764,4	+195948,8
dynamics of gold and foreign exchange reserves (million US dollars)	20820,43	25302,16	29132,89	30940,95	28494,46	+7674,03
dynamics of the state debt of Ukraine (million hryvnias)	2 168 627,1	1 998 275,4	2 551 935,6	2.671 827,6	4 071 683, 1	+1 903 056
inflation rate dynamics (%)	109,8	104,1	105,0	110,0	126,6	+16,8
dynamics of devaluation of the national currency (%)	99,3	85,5	119,4	96,5	134,1	+34,8
Economy						
GDP dynamics (million hryvnias)	3558706	3974564	4194102	5459574	5191028	+1 632 322

to Ukraine	4455	5860	-868	6687	838	-3617
from Ukraine	-5	648	-950	-198	344	+339
index of capital investments by types of economic activity	116,4	115,5	61,8	113,0	127,0	+11
dynamics of Ukraine's balance of payments (million US dollars)	2877	5980	1990	487	-2900	-23
dynamics of devaluation of the hryvnia against the dollar	99,3	85,5	119,4	96,5	134,1	+34,8
	Socia	ıl welfare				
dynamics of the minimum stage (UAH)	3723	4173	5000	6500	6700	+2977
dynamics of the average pension (UAH)	2576,89	3019,62	3410,60	3915,75	4622,59	+2045,7
dynamics of the unemployment rate (thousands)	341,7	338,2	459,2	295,0	186,5	-155,2
dynamics of the unemployment rate (thousands)	1853	2027	2189	2393	2589	+736
remittances to Ukraine (million USD)	11111	11921	11980	14019	12757	1646
dynamics of the labor migration equation (millions)	3,2	3,2	3	3	-	-
documents for the departure of Ukrainian citizens abroad to permanent residence (persons)	8551	11311	3889	5942	2592	-5959
	Se	curity				
dynamics of import of goods and services (million hryvnias)	-1914893	-1947599	-1681526	-2286067	-2712325	-797432
dynamics of export of goods and services (million hryvnias)	16036416	1636416	1637399	2224704	1840563	-14195853
budget of the Ministry of Defense of Ukraine (billion hryvnias)	86,6	101,4	118,01	116,2	134,5	+47,9
dynamics of allocation of funds for ecology (billion hryvnias)	8,76	9,45	9,03	11,06	11,4	+2,64

Source: [2, 12–15]

In the course of the conducted research, there is a tendency to increase the value of indicators, which, in turn, negatively affects the social situation of the population and the security of the state. So, for example, export-import operations in Ukraine reflect a tendency to increase the amount of imports compared to the exporter, and it reaches 8 % of GDP in certain periods of time. The war started by the Russian Federation led to a decrease in the population by 6.7 million people, which has a negative impact on the availability of labor resources in Ukraine as a whole, massive destruction of critical infrastructure, civilian objects, etc.

It should be noted that the number of labor immigrants is increasing and, at the same time, the amount of remittances to Ukraine is increasing, which allows us to conclude that labor immigrants are the largest investors in the development of Ukraine's economy. Therefore, not all factors influencing the internal and external environment cannot be predicted due to their sometimes spontaneous nature. Unexpected factors are one category of influencing factors, they have both a positive and a negative effect on the development process of a business entity. Therefore, this category foresees the occurrence of unforeseen situations in the business entity's activities in the near future, which can lead to both positive and negative economic effects (i.e., profit or loss) (Table 5).

Table 5
The influence of unexpected factors in the near future on the activities of the business entity

No	Name	Unforeseen factors		
		direct influence	indirect influence	
	internal factor			
1	material and technical support	+	=	
2	software	-	+	
3	insufficient level of personnel qualification	+	=	
4	incomplete use of the resource base	+	+	
5	the impossibility of financing due to financial, production and	+	+	
	economic changes in the external environment			
	external factors			
1	war	+	+	
2	inflation	+	+	
3	competitors with a higher rate of return	=	+	
4	dependence on the infrastructure of the region	+	+	
5	natural disasters (earthquakes, tsunamis, volcanic eruptions, etc.)	+	-	
6	regulatory framework	+	-	

Source: author's position

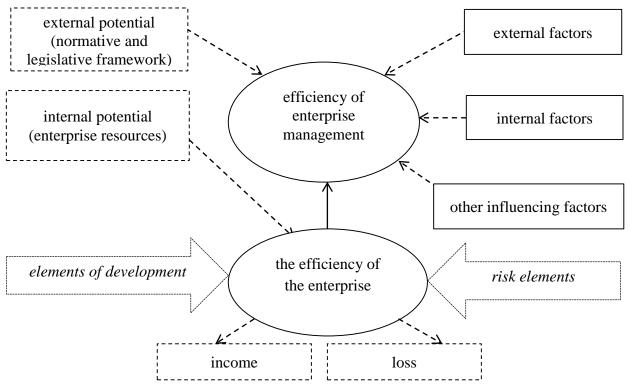
Imperfect study of problems both in the internal and external environment leads to negative consequences of the activity of the business entity. Therefore, the issue of conducting a comprehensive assessment of the system of influence factors becomes important. According to the results of our research, we can state that the efficiency of management of the business entity is influenced by a system of factors, which can be mathematically represented as follows:

$$Ev = E_1v_1 + E_2v_2 + \theta \tag{4}$$

 E_1v_1 – the influence of internal factors on the efficiency of enterprise management; E_2v_2 – the influence of external factors on the efficiency of enterprise management, θ - other influencing factors.

Summarizing the above, we state that the internal environment in the narrow sense of this concept represents the financial and economic potential of a business entity, which allows it to function in a competitive environment. Instead, it is advisable to consider the external environment as a source for replenishing the internal potential of the enterprise. Considering the fact that the external environment includes, among others, the resources of competing enterprises, it is necessary to be prepared that this certainly poses a threat to a specific business entity.

Thus, in the course of the conducted research, we can schematically depict the relationship between the potential of the enterprise and the influence of factors on the economic activity of the business entity (Fig. 1).



Source: author's position

Fig. 1. The relationship between the potential, results and efficiency of the business entity

It follows that the following elements are the main directions of countering the negative impact of all types of factors:

- 1) innovative processes that involve the modernization of economic and all other processes at the enterprise (creativity, differentiation, high level of customer service, flexibility in choosing an assortment strategy of the business entity);
 - 2) the economic potential of the business entity, which will allow it to compete with competing enterprises;
- 3) the level of the company's balanced and formed relations with regional and state institutions regarding its development in a competitive environment;
 - 4) regulatory framework, which will be aimed at simplifying the taxation system and optimizing their amount.

5. Conclusion

In the course of the analysis of the external and internal environment, it was proved that for the correct assessment of their influence, it is important to filter factors and identify the amount of their contribution to the activity of the business entity. At the same time, the allocation of specific factors that take into account the type of economic activity of the business entity and allow developing a more effective management system is justified. Maximum consideration of the spectrum of influence of factors on the company's activity will allow to form an effective model of anti-crisis management, which will enable the subject to develop actively and effectively in a competitive environment. At the same time, it is appropriate to consider the distinction between factors of direct and indirect influence. In the future, scientific research should be developed in the

direction of a better system of digital identification of the influence of various factors for the development of a qualitative system of evaluation and consideration in the management of activities.

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