METHODICAL APPROACH TO MANAGING THE EFFICIENCY OF THE CONFECTIONERY SECTOR ENTERPRISE STRUCTURES ACTIVITY

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Abstract

To date, the need to ensure the effective functioning and achievement of high economic results requires entrepreneurial structures to implement the model of monitoring and diagnostics (M & D) in the system of efficiency management.

The research was carried out using methods of analysis and synthesis, logical generalization. The verification of the proposed model of monitoring and diagnostics in the system of efficiency management was carried out using the matrix method with the calculation of a generalized efficiency indicator on the basis of open financial and economic reporting of Ukrainian confectionery industry enterprises. The theoretical substantiation was made thanks to the processing of scientific works by economists, based on regulatory acts regulating the economic activity of Ukrainian enterprises, in particular the food industry.

In the course of the research, it was found that the actual connection between the growth rates of the main indicators of the investigated confectionery industry enterprises does not correspond to the normative dynamic model, that is, all the conditions of efficiency are not met. The diagnostics of the matrix model parameters made it possible to draw the following conclusions: for each of the investigated confectionery industry aggregates, certain problems are characteristic, which is evidenced primarily by the absence of enterprises with the reference state of the processes of forming the results of the activity in 2017. Only one factory has achieved a certain balance in the field of activity efficiency management in 2017. In general, the current economic conditions of the Ukrainian enterprises have caused the fact that the overwhelming majority of enterprises are characterized by a state of maturation of the efficiency crisis and crisis conditions.

The M & D model helps to adjust the current activity according to the warning signals it generates using the feedback mechanism. Important requirements for monitoring and diagnostics system are the ability to adequately reflect the dynamics of managed processes, balance and consistency of indicators. The M & D model allows identifying the weak points (symptoms) of the existing management system, analyzes and identifies the causes of their occurrence. According to the results of the study, a diagnostics is established that allows us to determine the direction of the company's future and serves as the basis for developing a strategy for managing the effectiveness of the activity.

Key words: *Monitoring, Diagnostics, Confectionary industry, Matrix efficiency model.*

1. Introduction

Nowadays, the need to ensure the effective functioning and achievement of high economic results requires entrepreneurial structures to develop effective strategies for managing economic results, which determines the relevance of the research topic.

In order to build a modern system for managing the performance of business structures, it is important and appropriate to create and constantly update a set of indicators to be able to adequately evaluate and timely influence the processes of generating economic results and rational use of available resources.

The statistical, methodological and methodological bases of enterprise budget management do not allow in the shortest possible time to organize a system of indicative monitoring and diagnostics that would fully

cover the most important economic, financial and social spheres and mechanisms. To this purpose, we consider it is justified that the monitoring and diagnostics subsystems as the most informative, impartial and relevant.

2. Materials and Methods

Problems of methodology, theoretical and practical justification of issues related to accounting, analysis and management of economic results of enterprises are investigated by a wide range of scientists, such as Nusianov [1], and Kryvenko [2]. In the writings of Nalivaiko [4], and Ligonenko [5], considered the question of modeling the dependence of economic results on various factors. The problems of defining the essence and estimation of the economic results of the enterprise, taking into account its financial status, are quite fully disclosed in the works of Kostyrko [6].

In order to describe the practical essence of monitoring and diagnosis model matrix method was used, which allows us to analyze large amounts of financial information converting them into a convenient tabular form. The effectiveness of the proposed model is demonstrated by analyzing the 5 main enterprises of the confectionery shop in Ukraine, the financial statements of which are in the public domain.

3. Results and Discussion

3.1 Theoretical basis of monitoring and diagnosis model

For the most complete and comprehensive process of research, we consider it is necessary to determine the interpretation of the concepts of "entrepreneurial structure" and "efficiency".

Entrepreneurial structure is an independent entity that is formed to meet the needs of society and is an organized set of objects and processes (management, production, organizational, information) that are interconnected and interact with each other in order to profit the entrepreneur and / or a positive social effect [1].

The efficiency of business structures largely depends on the speed of response to changes in the environment and on preventive measures to reduce its instability. However, the solution of these problems becomes almost impossible within the traditional organizational structure. The advantage of forming an effective system of organization of business structures is manifested in the emergence of a synergistic effect due to the systemic properties of the new structure, improving the efficiency of use of available resources, which creates the preconditions for the sustainable development of the national economy [2].

Along with the choice of a specific development strategy, the ability of business entities to adapt to technological, market and other changes is of great importance today. In this case, any business structure can choose from four behaviors: passive expectation; active expectation, that is, the willingness to qualify (effectively) meet change; preparation for change; and stimulating desired change. The best options are to prevent or encourage change. Thus, in a changing world, businesses are able to respond flexibly and timely while maintaining their course without dynamic changes [3].

In order to ensure high efficiency and flexibility of strategic decisions, it is necessary to review traditional methods of enterprise management, implement modern approaches to making strategic decisions based on the principles of monitoring and diagnostics.

Monitoring is an observation process based on commit operations and determining the nature of changes in the status/parameters of an object. Purposeful monitoring instruction is; information support for analysis, evaluation and forecasting of the object's condition, identification of causes and threats of deviations of its parameters from the established ones [4].

The needs of any company in monitoring are individual, but at the same time there are a number of basic, common monitoring tasks that are characterize most of them:

- Tracking with a specified frequency of the selected set of indicators.

- Identification of the main positive and negative tendencies of efficiency of activity of business structures as a whole and on separate indicators.

- Preparation of information on identified "bottlenecks" in the activity and timely familiarization of managers;

- Evaluation of the completeness and effectiveness of the implementation of decisions on the management of the efficiency of business structures.

Information support of management needs should be considered as the most significant aspect of the practical application of monitoring. The peculiarity of the monitoring (information gathering), as well as the requirement for it is the objectivity and independence of the obtained data and the protection of the emerging picture from the subjective interpretation of the information, which is achieved by the clarity, certainty of the indicators, fixed quantitatively. Therefore, it is advisable to start building a system for monitoring the effectiveness of business structures, with the formation of a system of indicators and determining the criteria for their evaluation.

In the process of forming a system of indicators of monitoring financial results, it is necessary to: apply a comprehensive systematic approach in substantiating the methodological principles of indicators, to determine the possibilities of applying modern methods of

analysis of processes in general and its individual components, to take into account the specific activity of business structures and development priorities.

The number and composition of indicators for monitoring is determined individually for each enterprise, taking into account the importance of the impact of various factors on the final results. For monitoring, it is necessary to use those that determine the operational characteristics of the enterprise. In addition, the selected indicators of enterprise management should be able to infuse on the basis of tactical decisions.

Conducted researches allows to systematize indicators of activity of business structures in the following areas: indicators of efficiency of activity, indicators of cost effectiveness, indicators of resource efficiency, indicators of resource costs.

Monitoring system is closely linked to diagnosis, since it is the diagnostics that makes it possible to comprehensively evaluate the effectiveness of business structures. Diagnosis is aimed at identifying trends and current state of the object of study and is inextricably linked to management. It is it that forms the information basis for managerial decisions, both operational and strategic in nature, and is therefore of paramount importance for the implementation of the management process as a whole.

The diagnosis identifies the negative aspects and trends of the entity's development and develops a strategy for its development, which eliminates the existing deficiencies and increases the efficiency of the activity.

A modern monitoring and diagnosis system (M and D model) must meet the following requirements:

- Comprehensively describe the state of the enterprise and its performance, creating an information basis for management decisions.

- To present information in real time and real value (without errors).

- Display key performance metrics, possibly detailing them with additional metrics.

- Be clear and convenient for analysis.

To timely and visually inform the company executives about the results revealed during the diagnostics monitoring, a special information system is created, which can be implemented with any software tool that supports the simplest graphical presentation of information. As such, Excel can be used as the simplest and least expensive tool.

The relationship between the M and D model in the enterprise performance management system is shown in Figure 1.
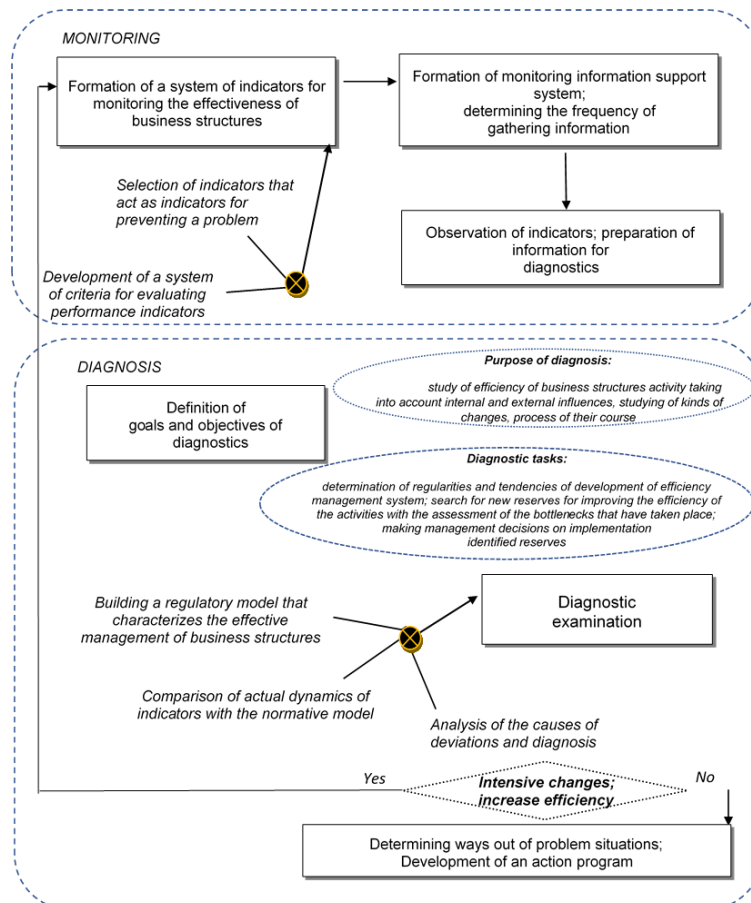

Figure 1. The interconnection of the M and D model in the business performance management system

It should be noted that the effective functioning of the M and D model is possible only with the full automation of the financial processes of the enterprise. The use of automated programs in the formation and use of information can significantly accelerate the decision-making process to quickly correct the economic situation.

The M and D model helps to correct the current activity according to the warning signals it generates using the feedback mechanism. The effectiveness of the enterprise management system as a whole depends on the efficiency of the implemented monitoring and diagnostics system.

The essence of diagnosis is to identify pathological changes in the system under study and diagnosis. By using the word "diagnosis", they mean, firstly, the statement of the results of the study of someone or something, secondly, the conclusion on these results based on indicators, standards, characteristics, etc. Diagnosis is a prerequisite for successful operation and development of the enterprise, as it is the first step towards solving the problem and its localization.

Ligonenko, revealing the issues of crisis management, notes that diagnostics of the crisis of enterprise development by its content and direction is a diagnosis of problems that have arisen during the functioning of the enterprise and can lead to negative consequences for its life. To create the necessary analytical basis for solving these problems is the main task of diagnostics [5].

Exploring the directions of the concept of diagnostics, Kostyrko concludes that "… the whole structure of the situational and target field of diagnostics is represented as a set of the following elements: process - object (economic system or element); target function; procedures - methods of processing and transformation of information for the purpose of making corrective decisions or reviewing decisions" [6].

Modern diagnostics is manifested simultaneously in four aspects:

1) Information - as a system of knowledge, based on special information aimed at further use in the process of development and decision-making.

2) Analytical - as an analytical basis, which provides the basis for assessing the state of the object of study.

3) Dynamic - in the form of studying the dynamics and studying the possible trends of changes in the conditions of operation and condition of the object.

4) Functional - as a control function that provides feedback to the control object through the implementation of diagnostic procedures.

In general, the diagnosis distinguishes two extreme states - the norm and the crisis, between which there are a number of transitional. The normal state of an enterprise, that is, the most commonly accepted state of affairs, is a state of temporary equilibrium that can change gradually and in a certain way. A crisis is a state of destruction or restructuring of an economic system, when it cannot exist in its old form, to wit significant and often irreversible changes of the system are revealed [7].

Any process is an interconnected cycle. Performance diagnosis is no exception, and consist of the steps of defining the purpose, collecting and organizing information about the object of diagnosis and performing diagnostic procedures with a summary of their results. All diagnostic cycles are linked by the unity of the tasks being solved and aimed at improving the efficiency of business structures.

Important requirements for the diagnostic system are the ability to adequately reflect the dynamic of the managed processes, the balance and consistency of indicators. During diagnosis the weaknesses (symptoms) of the existing management system are identified, the reasons for their occurrence are analyzed and the results are revealed.

It is well known that a perfectly functioning business entity is characterized by an expanded distribution of performance - from entry to exit, which is fully consistent with the focus on the maximum result. In dynamics, this means that the growth rates of indicators characterizing financial results (output) must outpace the growth rates of indicators that determine the state of assets of the enterprise (transformation), which in turn must outpace the growth rates of indicators characterizing changes in volume and structure resources used (input).

The ordering of indicators into a normative series was carried out on the basis of coefficients, in the calculation of which the selected indicators were included. In doing so, we took into account the economic patterns of efficiency gains (Figure 2). High steady growth rates of activity efficiency of business structures can be ensured if the indicators increase in the following sequence shown in Figure 2.

3.2 Application of the M&D model in the confectionery industry of Ukraine

On the basis of analytical calculations, the growth of indicators in 2013 - 2017 (Table 1) was determined, which allowed to establish the actual growth rates of indicators of the studied enterprises of the confectionery industry.

The actual relationship between the growth rates of the key indicators of the selected enterprises in most periods of the study does not meet the regulatory model, that is to say not all the conditions of efficiency are fulfilled. In addition, the obtained models of
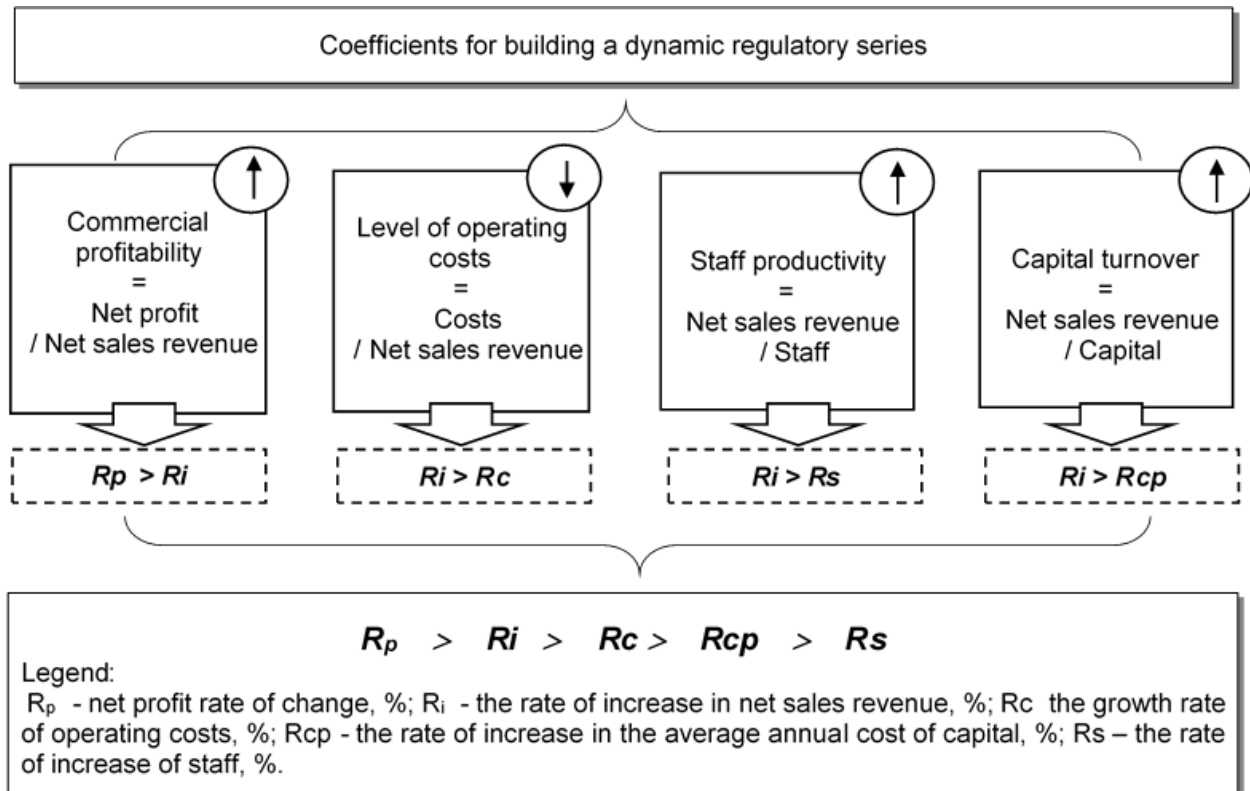
Figure 2. Normative dynamic model of indicators development of business structures to
ensure the effectiveness of their activities

Table 1. The actual dynamic range of efficiency indicators the confectionery industry of Ukraine for 2013-2017

Parameters	Rate of change, %					Model of the relationship between performance, costs and resources
	Rp	Ri	Rc	Rcp	Rs	
"Kyiv confectionery fabric ROSHEN" PJSC						
2014 / 2013	887	59.2	69.6	96.4	100.2	Rp > Ri < Rc < Rcp < Rs
2015 / 2014	31.7	85.1	97.7	93	54.7	Rp < Ri < Rc > Rcp > Rs
2016 / 2015	35.6	92.7	84.8	91.6	111.8	Rp < Ri > Rc < Rcp < Rs
2017 / 2016	70.6	111.6	105	106.5	88.7	Rp < Ri > Rc < Rcp > Rs
2017 / 2013	*70.5*	*52.1*	*60.5*	*87.4*	*54.3*	*Rp > Ri < Rc < Rcp > Rs*
"Kharkov Biscuit Factory" PJSC						
2014 / 2013	354.6	117.6	118.6	111.2	95.1	Rp > Ri < Rc > Rcp > Rs
2015 / 2014	122	154.4	144.1	127.7	97.7	Rp < Ri > Rc > Rcp > Rs
2016 / 2015	74.7	118.1	108.7	118.6	99.4	Rp < Ri > Rc < Rcp > Rs
2017 / 2016	122.4	108.6	114.3	114.4	96.2	Rp > Ri < Rc < Rcp > Rs
2017 / 2013	*395.4*	*233.1*	*212.2*	*192.6*	*88.9*	*Rp > Ri > Rc > Rcp > Rs*
"Dominic" PJSC						
2014 / 2013	1111.5	125.7	121	105.9	89.9	Rp > Ri > Rc > Rcp > Rs
2015 / 2014	161.6	144.3	140.5	116.2	93.3	Rp > Ri > Rc > Rcp > Rs
2016 / 2015	88.2	110.5	111.1	114.9	95.4	Rp < Ri < Rc < Rcp > Rs
2017 / 2016	96.9	105.4	109.6	112.1	93.7	Rp < Ri < Rc < Rcp > Rs
2017 / 2013	*1534.2*	*211.1*	*207.2*	*158.7*	*74.8*	*Rp > Ri > Rc > Rcp > Rs*
"Lviv confectionery fabric SVITOCH" PJSC						
2014 / 2013	7.9	138.2	133.1	111.2	102.2	Rp < Ri > Rc > Rcp > Rs
2015 / 2014	12198.1	171.4	149.3	152.9	98	Rp > Ri > Rc < Rcp > Rs
2016 / 2015	86.4	98.1	103.9	143.1	96	Rp < Ri < Rc < Rcp > Rs
2017 / 2016	46.5	101.2	108.3	109.1	109.4	Rp < Ri < Rc < Rcp < Rs
2017 / 2013	*1534.2*	*235.1*	*223.5*	*265.3*	*105.1*	*Rp > Ri > Rc < Rcp > Rs*

interconnection of the main performance indicators of confectionery enterprises are multidirectional multifactorial nature, which does not allow to form a sufficiently clear idea about the depth of manifestation of certain tendencies in performance management.

For diagnostics of efficiency of activity of business structures, we consider it expedient to apply the matrix method with the calculation of the generalized indicator of efficiency (Figure 3). The matrix method is based on the concept of presenting the production process as an input-output in the form of a matrix model. The input consumes resources and generates costs, and the output determines the results of activities in a cost-effective manner. The matrix method allows to integrate partial indicators in such a way that the results of the activity are measured by a single number, which enables the management of the enterprise to make timely decisions.

Thus, the use of a matrix approach, on the one hand, allows us to evaluate individual performance indicators,

and on the other hand, to systematize the ratio of paired indicators and thereby comprehensively evaluate the effectiveness of the enterprise. This method not only provides a generalized description of the state of the enterprise and shows the dynamics of its development, but also allows to determine changes in the process and results of activity, identify reserves for improving the efficiency of activity. In addition, it is quite easy to automate, allowing it to be used in both small and large enterprises.

To diagnose the enterprises activity efficiency, a 5 X 5 matrix was formed, the elements of which are relative indicators obtained by dividing the output indicators of the normative dynamic model (Table 2). The matrix of single indices is symmetric about the main diagonal - each indicator under the main diagonal corresponds to the inverted index over the main diagonal. The choice of a direct or inverse indicator to obtain a generalized estimate is determined by their economic content.
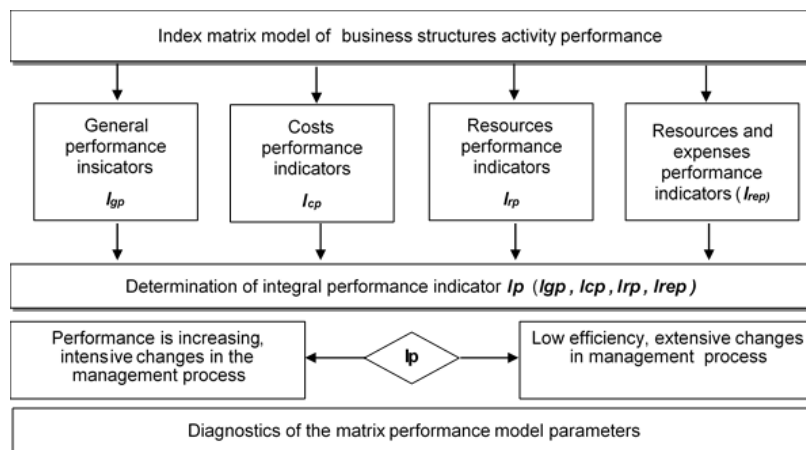

Figure 3. Diagram of business structures performance diagnostics based on a matrix model

Table 2. Matrix model for performance diagnostics of business structures

Nominator / Denominator		Results		Costs	Resources	
		Net profit (P)	**Revenue (R)**	**Costs (C)**	**Average annual cost of capital (AC)**	**Staff (S)**
Results	**Net profit (P**	P/P *1,000*	I/P Assign revenue to profit	C/P Assign costs to profit	AC/P Assign capital to profit	S/P Assign staff to profit
	Revenue (R)	P/R Commercial profitability	R/R *1,000*	C/R The level of costs in fates	AC/R Capital input of revenue	S/R Labor input of revenue
Costs	**Costs (C)**	P/C Costs profitability	R/C Return on costs	C/C *1,000*	AC/C Assign capital to costs	S/C Assign staff to costs
Resources	**Average annual cost of capital (AC)**	P/AC Capital profitability	R/AC Capital turnover	C/AC Assign costs to capital	AC/AC *1,000*	S/AC Assign staff to capital
	Staff (S)	P/S Staff profitability	R/S Staff productivity	C/S Costs per employee	AC/S Capital per employee	S/S *1,000*

After forming of the matrix elements their aggregation is conducted. Partial performance indicators are defined as the arithmetic mean of the indices of the matrix corresponding area. On the basis of the efficiency integral indicator values, the characteristics of changes occurring at the studied enterprises are given (Table 3).

At the final stage of the study, the parameters of the matrix model were diagnosed. Options for text diagnoses based on a comprehensive assessment of the performance of the confectionery industry are presented in Table 4.

Table 3. Summary of the performance evaluation results of the confectionery industry in Ukraine

Years	Igp	Icp	Irp	Irep	Ip	Characterization of changes in the performance management process
"Kyiv confectionery fabric ROSHEN" PJSC						
2014	14,996	6,800	4,815	0,708	5,023	Intensive
2015	0,372	0,598	0,847	1,418	0,949	Extensive
2016	0,383	0,756	0,637	0,843	0,695	Extensive
2017	0,633	0,868	0,941	1,085	0,951	Extensive
"Kharkov Biscuit Factory" PJSC						
2014	3,015	1,991	2,303	1,157	1,969	Intensive
2015	0,790	0,959	1,249	1,301	1,161	Intensive
2016	0,632	0,887	0,891	1,005	0,917	Extensive
2017	1,127	1,011	1,105	1,094	1,057	Intensive
"Dominic" PJSC						
2014	8,844	5,112	6,361	1,244	4,818	Intensive
2015	1,120	1,088	1,478	1,358	1,317	Intensive
2016	0,798	0,894	0,953	1,066	0,947	Extensive
2017	0,920	0,923	0,991	1,074	1,007	Extensive
"Lviv confectionery fabric SVITOCH" PJSC						
2014	0,057	0,549	0,686	1,250	0,749	Extensive
2015	71,179	41,437	51,785	1,250	36,525	Intensive
2016	0,881	0,888	0,803	0,904	0,917	Extensive
2017	0,460	0,682	0,676	0,992	0,751	Extensive

Table 4. Diagnostics of the parameters of the matrix efficiency model

Enterprise	2014	2015	2016	2017
"Kyiv confectionery fabric ROSHEN" PJSC	1 1 0 1 0 0 1 0 0 0 Balance state	0 0 0 0 0 1 0 1 1 1 The state of maturation of the efficiency crisis	0 0 1 0 1 0 0 0 0 0 The state of maturation of the efficiency crisis	0 0 1 0 1 0 0 1 1 1 The state of maturation of the efficiency crisis
"Kharkov Biscuit Factory" PJSC	1 1 0 1 1 1 1 1 1 1 Balance state	0 0 1 0 1 1 1 1 1 1 Balance state	0 0 1 0 0 0 0 1 1 1 The state of maturation of the efficiency crisis	1 1 0 1 0 0 1 1 1 1 Balance state
"Dominic" PJSC	1 1 1 1 1 1 1 1 1 1 Reference state	1 1 1 1 1 1 1 1 1 1 Reference state	0 0 0 0 0 0 0 1 1 1 The state of maturation of the efficiency crisis	0 0 0 0 0 0 1 1 1 1 The state of maturation of the efficiency crisis
"Lviv confectionery fabric SVITOCH" PJSC	0 0 1 0 1 1 0 1 1 1 The state of maturation of the efficiency crisis	1 1 1 1 1 0 1 1 1 1 Balance state	0 0 0 0 0 0 0 1 1 1 The state of maturation of the efficiency crisis	0 0 0 0 0 0 0 0 0 0 Crisis state

Diagnostics of the parameters of the matrix model, which was conducted, allows to draw the following conclusions: for each of the studied set of the confectionery industry enterprises there are specific problems, which is first of all evidenced by the absence of enterprises with a reference state of the processes of results of activity formation in 2017. Only "Kharkov Biscuit Factory" PJSC achieved a certain balance in the field of performance management in 2017. In general, the current economic conditions of business management of Ukrainian enterprises have led to the fact that the overwhelming majority of enterprises are characterized by the state of maturity of the efficiency crisis and the crisis state.

4. Conclusions

- In conclusion, the proposed methodical approach to managing the performance of business structures based on a matrix approach, which has a complex nature. It is focused on open official accounting and statistical information; takes into account industry specificity of production activity; has a relatively simple and clear procedure for calculating and interpreting the results, which were obtained; based on the use of quantitative methods of performance evaluation, which increases the objectivity of the results.

- Early diagnostics of problems of the enterprise will allow to concentrate managerial efforts on their decision, to define necessary resources, methods and means of influence.

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