

Determining the factors affecting the stability of enterprise functioning

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Abstract. The paper analysis and highlights are the main factors of internal and external environment that affects the stable functioning of the enterprise. The factor “energetics”, which is necessary to take into account while elaborating of intellectual system of evaluation of the condition of stable functioning of enterprise was grounded.

Keywords: sustainability, factors, state assessment, forecasting, intelligent system.

I. INTRODUCTION AND PROBLEM STATEMENT

Modern enterprises are functioning in a specific environment characterized by high dynamics of change. The creation of favorable business conditions for the sustainable functioning of enterprises is one of the main management’s tasks at the present stage. The factors influence of non-stationary external environment and various internal disturbances cause the creation of crisis situations. Development and implementation of intelligent systems for assessing the stage and predicting the stable functioning of the enterprise will allow the enterprise to adapt to the changes of the external environment, assess the possible risks and mitigate them to avoid the threats of negative consequences and ensure its sustainable functioning.

From the general systems’ theory, any system has a certain threshold of sustainability, which cannot be overcome by negative factors. Functioning’s sustainability of objects (enterprises) is understood as their ability to withstand the impact of damaging factors in emergency situations in order to maintain output in the planned volume; to prevent or limit the threat to life and health of personnel, population and material damage, as well as to ensure restoration of disrupted production in the shortest possible time [1]. Sustainability is formed under the influence of many factors internal (production, strategic management, finance, research and design development organization, personnel, strategy, organizational structure) and external environment (suppliers of labor, financial, information, material and other resources, consumers, competitors and state of the economy, natural, social and political factors). Consequently, the factor of sustainability – the causes that can cause its violation, classified according to the environment of origin, nature and direction of impact, object of impact, etc [2].

Each factor can have a different impact on the stability of an enterprise.

One of the most important environmental factors affecting the stable functioning of an enterprise is energy since any

production process or type of public service involves the use of energy – electricity and heat. Therefore, energy security and energy efficiency are prerequisites for successful economic development of any enterprise, region of Ukraine and the state as a whole. Energy security is considered as an open, dynamically developing, hierarchical system, the effective functioning of which ensures the neutralization of actual and potential threats to the interests of the enterprise, arising in the process of production, processing, transportation and use of non-renewable and alternative energy resources and derived from them all types of energy [3].

II. PROBLEM SOLUTION AND RESULTS

During the research, the following results were obtained:

- based on general systems theory, the notion of sustainability in the functioning of an enterprise is given;
- the main internal and external environmental factors influencing the stable functioning of the enterprise have been analysed and highlighted;
- the factor “energetics” in the context of energy security is proposed and justified and should be taken into account when developing an intelligent system for assessing the condition and forecasting the stable functioning of an enterprise.

III. CONCLUSIONS

Thus, the peculiarities of the development of modern enterprises have made it possible to identify the factors affecting the sustainable functioning of the enterprise. This made it possible to formalize the occurrence’s processes of negative threats or anomalies, which makes it possible to build a systematic model for monitoring the processes of enterprise’s functioning.

REFERENCES

- [1] Ruban I., Martovytskyi V., Lukova-Chuiko N., “Approach to Classifying the State of a Network Based on Statistical Parameters for Detecting Anomalies in the Information Structure of a Computing System”, *Cybernetics and Systems Analysis*, 2018, 54(2), pp. 302–309.
- [2] Ruban I. V., Martovytskyi V. O., Kovalenko A. A., Lukova-Chuiko N. V., “Identification in Informative Systems on the Basis of Users’ Behaviour”, *Proceedings of the International Conference on Advanced Optoelectronics and Lasers, CAOL, 2019-September*, pp. 574–577.
- [3] Ruban I., Martovytskyi V., Lukova-Chuiko N., “Designing a monitoring model for cluster supercomputers”, *Eastern-European Journal of Enterprise Technologies*, 2016, 6(2), pp. 32–37.