

## **MODELS AND SOFTWARE SOLUTIONS FOR THE PROBLEM OF DIAGNOSING THE FINANCIAL STATE OF IT-ENTERPRISE**

**Goloskokov O.E., Tkachenko D.V.**

*National Technical University  
"Kharkiv Polytechnic Institute",  
Kharkiv*

Nowadays the Ukrainian economy is in a relatively unstable state. Consequently, Ukrainian enterprises require effective management. It is impossible to effectively manage without knowing the state of the control object. Therefore, the problem of diagnosing the financial status of the enterprise is relevant. Exact determination of financial condition provides an adequate understanding of the situation and the direction of the necessary actions.

The object of research is an IT-company. The problem is the need to find an exact solution to the problem of diagnosing the financial status of a company, taking into account the parameters, which characterize the financial situation. Thus, the main task of this work is solving the problem of diagnosing the state of financial IT-companies.

Authors conducted a critical analysis of Ukrainian and foreign publications. It has been established that the existing approaches to the solution of the problem of diagnosing have a number of shortcomings.

The work defines the object of the research and formulates the statement of the problem of diagnosing. Mamdani fuzzy inference algorithm has been chosen as a method of solving the problem. A fuzzy inference is an approximation of the following dependence  $Y = f(x_1, x_2, \dots, x_{10})$ , where  $Y$  – financial condition of the company.

In the work software was developed and the numerical example was solved. The financial states of the company were established during the process of numerical study and also were investigated changes in financial states depending on the variation of input parameters.

Thus, the developed mathematical apparatus allows analyzing financial groups of indicators, the solution of the problem of diagnosing and assessing the level of skills of managers. The obtained results provide an opportunity to develop effective management decisions and thereby increase the effectiveness of the enterprise's functioning process in the future.