

## ABSTRACT

Explanatory note size – 142 pages, contains 1 illustration, 6 tables, 11 applications, 77 references.

**Topicality.** Examines the problem of automating the analysis of economic feasibility of investment projects in software systems, particularly the lack of effective methods for predicting project success under uncertainty and limited adaptability to dynamic market changes. The main features of existing solutions to the problem, their advantages and disadvantages are shown. The need for improving software for investment project analysis by integrating adaptive machine learning models with classical efficiency assessment methods has been identified, which will ensure increased accuracy of analysis and prompt investment decision-making.

**The aim of the study.** The main target is to improve software for automated evaluation of investment projects using machine learning.

Object of research: Processes of analyzing the economic feasibility of investment projects.

Subject of research: Machine learning methods, architectural solutions of software systems, and approaches for improving software for analyzing the economic efficiency of investment projects.

To achieve this goal, the **following tasks** were formulated:

- Investigation of theoretical foundations for analyzing the economic efficiency of investment projects.
- Analysis of modern approaches and machine learning methods for forecasting economic indicators.
- Identification of key parameters affecting the feasibility of investment projects.
- Development of software architecture for investment analysis.
- Implementation of machine learning models for predicting the effectiveness of investment decisions.

- Testing and evaluation of the accuracy of the developed system.
- Practical testing of the software product using real or simulated investment data.

**The scientific novelty** of the results of the master's dissertation is the proposed improved software that integrates adaptive machine learning models with classical investment analysis methods through the application of ensemble methods and dynamic model retraining. The proposed solution ensures improved accuracy in assessing risks of investment projects, system adaptability to changing market conditions, and automation of the investment decision-making process. The result has been achieved through the development of a hybrid architecture of the software system that combines ensemble machine learning methods with classical economic analysis algorithms.

**The practical value** of the obtained results is creating a tool that enables enterprises, investors, and financial analysts to make more informed assessments of investment project feasibility. The use of the software contributes to reducing financial risks, improving resource management efficiency, and optimizing investment activities.

**Relationship with working with scientific programs, plans, topics.** Work was performed at the Department of Informatics and Software Engineering of the National Technical University of Ukraine «Kyiv Polytechnic Institute. Igor Sikorsky».

**Approbation.** The scientific provisions of the dissertation were tested at the IX International Scientific and Practical Conference of Young Scientists and Students "Software Engineering and Advanced Information Technologies" (SoftTech-2025) – Kyiv.

**Publications.** The scientific provisions of the dissertation published in:

- 1) Software for analyzing the economic feasibility of investment projects using machine learning models / Horpinchenko Y. S., Viecherkovska A. S. // Proceedings of the IX International Scientific and Practical Conference of Young Scientists and Students "Software Engineering and Advanced Information

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