

ABSTRACT

Explanatory note size – 89 pages, contains 12 illustrations, 29 tables, 6 applications.

Topicality. Examines the problem of document flow, shows the main features of the existing document flow control systems, their advantages and disadvantages. The need for the development of an optimized document management system using the blockchain network, which provides comprehensive document processing, has been identified.

The aim of the study. The main target is to ensure the signing, processing and delivery of electronic documents in a more secure, reliable and efficient way for all participants using the blockchain network.

The object of research: Approaches and processes for creating software for managing electronic documents.

The subject of research: Methods, software architecture, means of creating signature software, delivery and processing of electronic documents using the blockchain network.

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

- analysis of existing software solutions for document flow management;
- study of the potential of blockchain technologies in the context of document flow management;
- formulation of requirements for the developed software product;
- development of a method of signing and monitoring the status of documents through smart contracts;
- software architecture design and development of smart contracts for process automation;
- software prototype implementation;
- conducting experiments to assess the effectiveness of the developed method and the security of the developed software.

The scientific novelty of the results of the master's dissertation is improved methods that provide an optimized way of storing data related to documents in the blockchain, as well as an innovative solution in the blockchain network that allows the control of entire groups of documents. The result was achieved by developing a document flow control system using the blockchain network.

The practical value of the obtained results is that implemented methods are combined within one system and are as easy to use as possible for the user. This system can be used to facilitate the process of document circulation in enterprises with a significant accounting component or in enterprises in which documents have complex connections.

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 V International Scientific and Practical Conference of Young Scientists and Students “Software Engineering and Advanced Information Technologies SoftTech-2023” - Kyiv.

Keywords: BLOCKCHAIN, ELECTRONIC DOCUMENTS, SMART CONTRACTS, DATA SECURITY, AUTOMATION OF PROCESSES, PRIVACY.