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# THE ROLE OF BLOCKCHAIN TECHNOLOGIES IN COMBATING CORRUPTION IN PUBLIC SERVICE

## *РОЛЬ БЛОКЧЕЙН-ТЕХНОЛОГІЙ У БОРОТЬБІ З КОРУПЦІЄЮ НА ПУБЛІЧНІЙ СЛУЖБІ*

*В державному секторі України корупція становить значну проблему, що значно підриває довіру громадян до державних інституцій. Для подолання та запобігання корупції пропонується використання блокчейн-технологій, що є ефективним інструментом завдяки децентралізації, прозорості та автоматизації процесів через смарт-контракти. Впровадження даної технології в державне управління може позитивно вплинути на чесність та прозорість у державних закупівлях, контроль та управління бюджетними коштами, а також захист різноманітних виборчих процесів. Однак, на противагу перевагам, існують також і певні виклики, як висока вартість впровадження чи правові обмеження. Метою даної роботи є аналіз потенціалу блокчейну в боротьбі з корупцією в Україні та можливості його інтеграції в публічну службу.*
*Ключові слова: блокчейн, смарт-контракти, корупція, публічна служба, державні ресурси.*

Corruption is one of the most significant issues that impacts Ukraine's development, ruins civil trust in governmental institutions and prevents the economics from growing. Conventional anti-corruption methods usually fail because they lack transparency and the centralized governance structure. Based on decentralization, transparency and cryptography, blockchain technologies can act as an effective solution to overcome difficulties.

Blockchain is a decentralized, distributed, and public digital ledger that stores transactions in a sequence of cryptographically linked blocks. Blockchain technology is based on three key concepts, that are decentralization, cryptography and smart-contracts [1]. Blockchain can securely protect government registries from unwanted interference, increase transparency, and reduce corruption in government agencies that manage them [2]. Public procurement is one of the most vulnerable areas. Utilizing smart contracts based on blockchain can automate and transparently track contract execution, decreasing abuse opportunities. This would enhance trust in the procurement process and guarantee efficient use of budgetary resources. Blockchain technologies can also be applied to create secure digital identification systems, ensuring transparency and authenticity in electoral processes. This could prevent fraud and safeguard fair elections, which are fundamental to democratic governance [3].

Several countries around the globe have successfully implemented blockchain technology in public administration to fight corruption, enhance transparency and ensure data consistency. For instance, in 2012 Estonia was the first nation to integrate blockchain technology which has been in use in its e-government registries in order to preserve public records and digital identities. Georgia has utilized blockchain in managing land registries to decrease fraud and increase trust in property dealings. In the United Arab Emirates, blockchain is implemented to improve government document verification, removing physical paperwork processes and reducing bureaucratic inefficiencies. These global instances illustrate the feasibility and advantages of adopting blockchain in the public sector [3].

Nowadays, the Ministry of Digital Transformation is actively working on integrating blockchain technologies in public administration to enhance transparency and fight corruption. Recently, in collaboration with international partners, Ukraine has digitalized 31 state services, reducing corruption channels [4].

Nevertheless, implementation of blockchain might have some difficulties:

Technical Complexity: it requires significant technical skills and resources to successfully integrate blockchain into Ukrainian government agencies

Legal Barriers: it is vital to possess a stable legal framework in order to regulate blockchain in the public sector.

Financial Costs: integrating new technologies into government agencies also requires investment, which can be challenging with the situation in Ukraine [5].

Summary.

Blockchain technologies have a bright future ahead in fighting corruption in Ukraine's public sector. By automating procedures, ensuring data consistency, as well as improving transparency, the implementation of blockchain can minimize misconduct. Nevertheless, for the integration to be successful, it is truly important to overcome technical, legal, and financial difficulties. Finally, it also requires close collaboration between the public sector, private sector and civil society.

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