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DEVELOPMENT OF THE INSTITUTIONAL ENVIRONMENT FOR RWA-TOKENISATION AS A MECHANISM FOR SUSTAINABLE FINANCING OF HROMADAS IN UKRAINE

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Abstract. The article is devoted to the study of institutional prerequisites and mechanisms for implementing the tokenisation of real-world assets (RWA) as an innovative tool for sustainable financing of local hromadas in Ukraine. In the context of the digital transformation of the global financial system and the need to diversify funding sources for territorial development – especially in the post-war reconstruction period – there is a growing demand for alternative mechanisms to attract investment at the local self-government level. The authors analyse the current state of the institutional environment for implementing RWA-tokenisation in Ukraine, identifying key obstacles and opportunities for the development of digital financial instruments in municipal governance. A conceptual model of the institutional-functional architecture of the RWA-tokenisation ecosystem is developed, incorporating regulatory, organisational-institutional, technological, financial-economic, compliance, and informational-educational components. A comprehensive SWOT analysis of the potential for real asset tokenisation in Ukrainian local hromadas reveals significant opportunities to create innovative financing mechanisms for infrastructure projects and to enhance the investment attractiveness of territories. Four scenarios for the development of the institutional environment are proposed: "institutional stagnation," "experimental phase," "integrated RWA ecosystem," and "technological transformation". Based on empirical research into the readiness of territorial hromadas to implement blockchain technologies, practical recommendations are formulated for creating an effective institutional foundation for RWA tokenisation. The study results can inform public policy on the digitalisation of municipal finance and support the implementation of pilot projects to tokenise public assets.

Keywords*:* RWA-tokenisation, institutional environment, local hromadas, sustainable financing, blockchain technologies, municipal assets, digital transformation.

JEL Classification: E52, E62, E22, H72, H73

1. INTRODUCTION

In the context of the global financial system's transformation driven by digitalisation and the decentralisation of public governance, Ukraine faces an urgent need to identify innovative mechanisms to attract financial resources to support the development of local hromadas. This issue is particularly relevant in the framework of Ukraine's post-war reconstruction, where traditional sources of funding (such as subsidies, grants, and local taxes) fall short of meeting the scale of investment needs confronting hromadas.

One of the promising directions for enhancing the financial capacity of territorial hromadas is the implementation of real-world asset (RWA) tokenisation mechanisms based on distributed ledger

(blockchain) technology. RWA-tokenisation, understood as the conversion of rights to physical or intangible assets into digital tokens, enables the mobilisation of investment through innovative financing models, increases the liquidity of existing hromada assets, and creates new economic opportunities for local development.

Despite the potential of RWA tokenisation as an innovative funding tool, its large-scale adoption in Ukraine remains constrained by several critical factors. In particular, most local hromadas lack an adequate understanding of tokenisation, its mechanisms, and its potential benefits for socio-economic development. Moreover, state authorities have yet to demonstrate readiness to integrate such instruments into public governance practices. The situation is further complicated by the absence of a developed institutional environment, deficiencies in the regulatory framework, and insufficient cooperation among key stakeholders. Collectively, these challenges underscore the need for a thorough study of the institutional prerequisites for the practical application of tokenisation as a means of sustainable financing for local hromadas.

2. THEORETICAL BACKGROUND

The application of innovative investment attraction tools for local development is receiving increasing attention from both the academic community and practitioners. This is driven by global trends in the digital transformation of the financial sector, as well as the urgent need to identify new sources of sustainable financing for the post-crisis recovery of local hromadas, particularly amid limited budgetary resources.

The implementation of RWA tokenisation as a tool for sustainable financing of local hromadas requires a well-developed institutional environment adapted to the conditions of economic digital transformation, particularly in public administration, financial markets, and the legal regulation of virtual assets.

Scholarly sources emphasise that the digital economy generates new demands on institutional structures. Specifically, (Mashchenko & Radiev, 2023) point out that key factors in the development of the digital sector include a practical regulatory framework, digital infrastructure, and institutions capable of adapting to rapid technological change. Similarly, Blishchuk & Domsha (2020) highlight the importance of integrating digital technologies into public administration systems to enhance their efficiency, while Radiev (2018) substantiates the need for institutional modernisation in response to global digital shifts. Institutional transformations must be accompanied not only by the development of digital tools but also by the renewal of government regulatory mechanisms. (Tkachenko & Shtets, 2021) emphasise the need to improve the state control system in the context of digitalisation, particularly by creating new administrative structures. This view is supported by Pustovarov (2020), who considers digital transformation as a component of systemic national development management.

In the legal dimension, the issue of RWA tokenisation is directly related to the regulation of virtual assets. As noted by Hudima, Ustymenko, Dzhabrailov & Chernykh (2022), a gap persists in Ukraine between the practical circulation of digital assets and their legal status, creating legal uncertainty and hindering innovative financial initiatives. At the level of public policy, digital mechanisms are gradually being institutionalised. In particular, the Resolution of the Cabinet of Ministers of Ukraine No. 689 dated June 11, 2025, sets requirements for the issuance of wallets with digital identification and establishes basic conditions for the legally recognised circulation of tokenised assets.

Recent academic publications outline the significant potential of RWA tokenisation to attract investment, mobilise hromadas' internal resources, and increase transparency in public asset management. Specifically, in the studies by Riabokin & Kotukh (2024) and Guley, Kotukh, & Riabokin (2024), this tool is viewed as an innovative financing channel for territorial development projects, capable of mobilising household savings, expanding investment opportunities for enterprises, and enhancing trust in local budgets. In the international context, Feh & Roesti (2024) emphasise that

tokenisation of real-world assets is becoming a driver of change in global trade, opening new channels for liquidity mobilisation and reducing transaction costs.

The analysis of foreign scientific sources also reflects a growing academic focus on developing an institutional environment for real-world asset (RWA) tokenisation in the context of sustainable development. (Tanveer, Ishaq & Hoang, 2025) emphasise that tokenisation enhances market efficiency and reduces transaction costs, creating the conditions for broader investor participation. Lavayssière (2025) examines the legal structures of tokenised assets and outlines models for their transfer, laying the foundation for regulatory frameworks in the digital economy. Císař et al. (2025) demonstrate the potential of bond tokenisation to lower transaction costs and improve market liquidity, which is highly relevant for state and municipal finance. Malamas et al. (2024) propose a blockchain architecture for issuing green bonds that can be adapted for sustainable investment projects at the local level. (Kaisto, Juutilainen & Kauranen 2024) analyse ownership issues related to tokens under European law, emphasising the need to harmonise digital and traditional property rights. Verstappen (2025) explores the transfer of property rights via tokens, highlighting existing legal barriers and the need for new institutional mechanisms within private law systems.

Thus, both Ukrainian and international scholarship demonstrate that RWA-tokenisation represents not only a technological innovation but also a multidimensional institutional reform. Its effective implementation requires synchronised development of digital infrastructure, legal certainty, and financial mechanisms to strengthen the sustainability and investment autonomy of local hromadas.

3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

Despite the growing interest of local self-government bodies in innovative financing instruments, Ukrainian territorial hromadas currently lack sufficient awareness of the essence of RWA tokenisation and its practical applications for financing infrastructure projects or broader territorial development. There is no clear understanding of the necessary institutional mechanisms and regulatory tools required for implementation, which assets can be tokenised to attract investment, or what results can be achieved through the integration of blockchain innovations into municipal governance systems.

This situation is quite natural: distributed ledger technologies and asset tokenisation are rapidly evolving globally, transforming traditional financing models. Meanwhile, Ukrainian hromadas – as potential users and beneficiaries of these technologies – are struggling to adapt to new challenges. They lack a clear understanding of how to use RWA tokenisation to achieve sustainable development goals and how to modernise municipal financing mechanisms and attract private capital through digital instruments.

These issues require systematic elaboration by the expert community to develop a coherent understanding of the comprehensive approach needed to apply RWA tokenisation in local government operations.

This study aims to develop theoretical principles and practical recommendations for establishing an institutional framework for the tokenisation of tangible assets to ensure sustainable financing for territorial hromadas in Ukraine.

To achieve this goal, the following methods were used:

– the method of analysis and synthesis to examine international experience in implementing blockchain technologies in municipal governance and academic publications on asset tokenisation;

– the comparative method to contrast traditional municipal financing mechanisms (such as municipal bonds, subsidies, and grants) with innovative approaches based on distributed ledger technologies;

– a systems approach to consider RWA tokenisation as a comprehensive tool influencing all aspects of local development financing;

– institutional analysis to explore the necessary regulatory, organisational, and technological changes

in the field of local finance;

– SWOT analysis to assess the strategic strengths, weaknesses, opportunities, and threats of implementing tokenisation;

– scenario planning to model alternative development paths for the institutional environment;

– an empirical survey method to study the readiness of territorial hromadas to implement innovative financial instruments.

4. RESULTS AND DISCUSSION

The development of an institutional environment for asset tokenisation at the local hromada level in Ukraine is a critical factor in ensuring the effectiveness and sustainability of this financing mechanism. The institutional climate encompasses a system of formal and informal rules, organisations, procedures, and mechanisms that regulate tokenisation processes, token circulation, and the protection of the rights of all stakeholders.

In the context of decentralisation and the growing need for financial resources to support recovery and development, RWA tokenisation may serve as an alternative source of capital mobilisation for hromadas. However, the success of its implementation largely depends on the existence of an appropriate institutional framework that guarantees legal certainty, transaction transparency, and investor protection.

The analysis of Ukraine's current institutional environment reveals the presence of certain foundational elements – such as constitutional principles of local self-government, legislative bases for regulating virtual assets, and experience in managing municipal property. At the same time, there is a clear need for further development of a specialised regulatory framework, process standardisation, and the establishment of appropriate institutional mechanisms at the local level. The regulatory framework for RWA tokenisation refers to a comprehensive system of legal acts, procedural standards, and institutional mechanisms that ensure legal clarity, technological interoperability, and operational efficiency of real-world asset tokenisation processes at the territorial hromada level.

The formation of an institutional environment for the effective implementation of real-world asset (RWA) tokenisation in Ukraine should be viewed not as a simple collection of actors but as a complex ecosystem operating based on interdependence, regulatory interaction, and purposeful coordination across the public, private, and civil sectors at different levels. The establishment of such an ecosystem, particularly at the hromada level, requires not only technical and financial infrastructure, but also a new paradigm of institutional cooperation capable of integrating both central public authorities and local change agents – municipalities, civil society organisations, local businesses, and individual investors.

A key prerequisite for implementing RWA tokenisation at the territorial hromada level is a resilient institutional architecture that balances public interest, commercial viability, and technological innovation. Central to this structure are local self-government bodies, which own or manage communal assets that can be tokenised, and which also initiate the creation of new assets (infrastructure objects, social projects, green initiatives) through RWA tokenisation mechanisms. In the context of Ukraine's ongoing decentralisation reform, RWA tokenisation is seen as a tool for expanding sources of local development financing – particularly by transforming illiquid assets into digital financial instruments that can attract external capital.

At the same time, the effectiveness of these processes largely depends on the regulatory environment shaped by the involvement of several central government bodies, including the National Bank of Ukraine, the National Securities and Stock Market Commission, the Ministry of Digital Transformation, and the State Financial Monitoring Service. A critical aspect is the clear delineation of responsibilities among these institutions, supported by unified approaches to asset qualification, token issuance regulation, intermediary licensing, and the introduction of compliance standards aligned with Ukraine's international commitments in anti-money laundering and counter-terrorism financing.

Technology providers play a special role in building the institutional ecosystem, as they are responsible not only for developing but also for adapting blockchain solutions to national specifics – taking into account compatibility with state information systems, cybersecurity, and digital user identification. This includes both traditional blockchain platforms and private distributed ledger networks such as Hyperledger Fabric or R3 Corda. In this context, the Ukrainian IT sector holds significant potential as a driving force of technological innovation in public governance and infrastructure project financing.

The integration of traditional financial institutions into the RWA tokenisation ecosystem is another critical factor that enables the connection between digital assets and conventional financial service channels. Moreover, the involvement of banks, investment funds, and custodial platforms helps mitigate operational risks associated with new instruments by leveraging existing infrastructures for risk assessment, liquidity management, and compliance with financial reporting standards.

A diverse range of actors generates investor demand for tokenised assets – from private individuals seeking alternative savings or investment opportunities in local projects, to institutional players such as pension funds, insurance companies, and venture capital funds. The development of such a multi-level investment environment requires a high degree of transparency, asset standardisation, and the ability to assess associated risks. This, in turn, requires a compliance infrastructure natively integrated into the logic of digital tokenisation platforms.

Civil society institutions also represent an integral part of the ecosystem. In a decentralised economy, they act as key intermediaries between government authorities and citizens. Their involvement in RWA tokenisation processes can help build public trust in new financial instruments and facilitate the adaptation of these tools to the specific needs and priorities of local hromadas.

Educational and research institutions are no less critical in the RWA-tokenisation ecosystem, as they contribute to human capital development, provide expert support, establish methodological foundations, and facilitate the testing of tokenisation models through pilot projects.

A comprehensive analysis of the institutional environment requires identifying and describing the structural components that ensure systemic support for RWA tokenisation. These components include: regulatory and legal – the regulatory framework that provides legal legitimacy to digital assets; organizational and institutional – the set of actors and mechanisms that coordinate interactions between them; technological – digital infrastructure, protocols, and standards; financial and economic – asset valuation mechanisms, financing models, and the business logic of tokenization; compliance – integrated AML/KYC tools that ensure operational security through embedded technology solutions; informational and educational – systems for building knowledge, qualifications, communication, and public awareness regarding innovation.

The proposed institutional-functional architecture of the RWA tokenisation ecosystem (Fig. 1) represents an integrated system of interconnected components and actors that ensures the coordinated implementation, management, and development of real-world asset tokenisation processes at the local hromada level.

As of today, Ukraine lacks a consolidated institutional support model for RWA tokenisation. Fragmented regulatory approaches, limited inter-agency coordination, and the absence of effective platforms for dialogue between public, private, and civil society sectors characterise the current landscape. Building an institutional ecosystem will require not only legal reforms but also the creation of communication channels, the enhancement of municipalities' institutional capacity, and the establishment of mechanisms for cross-sectoral coordination and support for experimental implementation formats – including pilot projects, innovation hubs, and regulatory sandboxes.

The integration of RWA tokenisation into Ukrainian territorial hromadas could significantly strengthen local authorities' investment and financial capacity, particularly by modernising hromada investment passports. Investment passports serve as tools to promote territorial development, identify strategic sectors, and highlight local infrastructure opportunities.

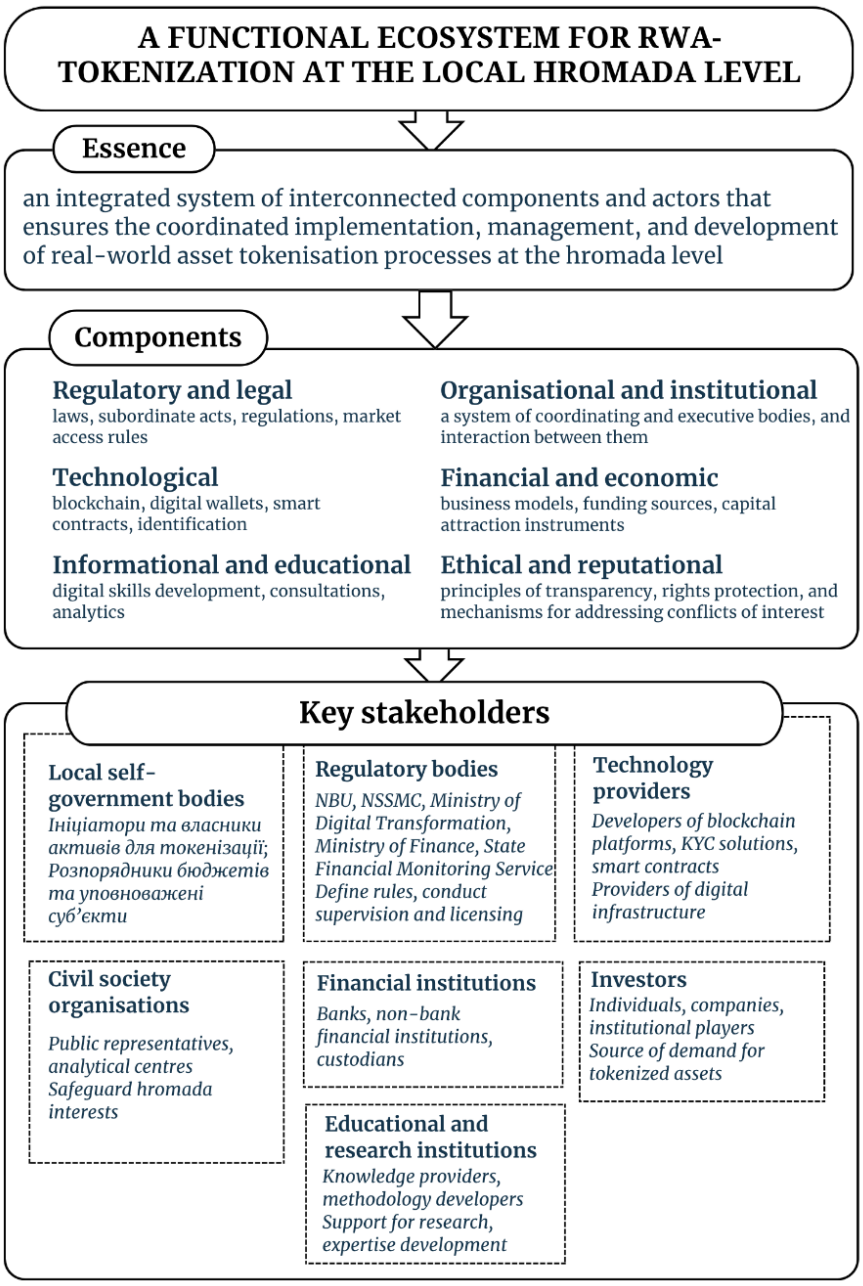

*Fig. 1. Institutional-functional architecture of the RWA-tokenisation ecosystem**
Source: author's elaboration

The implementation of RWA tokenisation projects offers the potential to revitalise these investment passports, integrate them into the digital environment, and transform and diversify financing instruments at the local level. This approach fully aligns with Ukraine's strategic orientation toward sustainable development. Presidential Decree No. 722 of 30 September 2019 officially adopted the Sustainable Development Goals (SDGs) through 2030, outlining the national priorities in this domain and committing Ukraine to integration with the European sustainability reporting framework.

Subsequently, Cabinet Resolution No. 1015-r of 18 October 2024 approved the "Strategy for the Implementation of Sustainability Reporting by Enterprises," which provides for the phased adoption of ESG reporting principles in line with EU standards. These documents establish the institutional foundation for adapting Ukraine's non-financial reporting system to European requirements and promoting business transparency in the context of sustainable economic growth. From 2026 to 2028, large and medium-sized companies are expected to begin publishing reports in accordance with the European Sustainability Reporting Standards (ESRS).

Given that ESRS reporting must disclose a company's social, environmental, and governance impact, RWA tokenisation of local projects offers businesses the opportunity to invest in initiatives aligned with the Sustainable Development Goals (SDGs) – such as the development of green infrastructure or social housing – and incorporate these efforts into their ESG portfolios. Investors in such companies may view tokenised assets as a way to implement their own ESG strategies while simultaneously supporting local hromadas.

However, unlocking this potential requires creating an enabling institutional foundation. One of the key prerequisites for building an adequate infrastructure for real-world asset tokenisation in Ukraine is the development of a national institutional environment that ensures legal certainty, technological interoperability, and digital identity of market participants. In this context, the introduction of digital identification regulation plays a significant role, particularly through the adoption of the Cabinet of Ministers of Ukraine Resolution No. 689 of 11 June 2025, "On Requirements for Issuing Wallets with Digital Identification".

The document defines the functional, methodological, and technological conditions for creating digital wallets that comply with a high level of electronic identification. Such wallets enable the storage and processing of identification data, the creation of a qualified electronic signature, interaction with other users, and complete control over personal data. Critical are the functionalities that enable secure, astute contract signing, pseudonymized data storage, transaction history tracking, and access to dashboards that ensure transparency in interactions with third parties.

For local hromadas that may attract investment through the tokenisation of communal property assets, the institutionalisation of digital identity enables the establishment of a reliable mechanism for investor verification, the conclusion of legally binding contracts, and the transparent circulation of digital ownership rights. This, in turn, increases trust in tokenised financial instruments among citizens, small businesses, and institutional investors.

Furthermore, the document's provisions are aligned with DSTU EN 301 549:2022, which is harmonised with the European accessibility standard EN 301 549 V1.1.2 (Accessibility requirements for ICT products and services in public administration in Europe, 2015-04). This opens the prospect for cross-border use of digital identity in tokenisation platforms. Taking these standards into account enables the integration of tokenisation infrastructure into the broader European digital ecosystem, which is particularly important given Ukraine's aspiration for digital and economic integration with the EU.

Thus, the adopted requirements for digital wallets constitute an institutional precondition for implementing tokenisation as a new financing mechanism for local development projects. They provide the fundamental technical and legal guarantees for transparent digital interaction between citizens, local self-government bodies, investors, and regulators. This contributes to the formation of a decentralised and sustainability-oriented financial model in which digital trust, asset programmability, and public accountability form the foundation of a new hromada economy.

To practically assess the readiness to implement these opportunities, the authors are conducting a nationwide survey of territorial hromadas within a research initiative to identify the institutional prerequisites for implementing RWA tokenisation in Ukraine. The central objective of this study is to examine the level of institutional readiness among hromadas to adopt RWA tokenisation as a new model for sustainable local development financing based on digital technologies.

The survey specifically focuses on exploring the potential of real-world asset tokenisation to enhance municipal asset management efficiency, attract investment, and assess local self-government bodies' awareness of modern DeFi solutions.

The empirical base is being formed through a questionnaire distributed among representatives of local self-government bodies, enabling the collection of data on both the current financial status of hromadas and their institutional and organisational capacity to implement innovative investment mobilisation instruments. As of the time of this article's preparation, approximately 200 completed

questionnaires have been analysed, covering nearly all regions of Ukraine (except for Lviv and Luhansk oblasts).

Preliminary results indicate a notable level of interest in digital technologies among hromadas: 30,7% of respondents expressed interest in using blockchain technologies, with 1% ready for immediate implementation and 29,7% indicating the need for additional consultations. Regarding institutional readiness for RWA tokenisation projects, 13% of hromadas showed interest: 3.6% in full-scale implementation and 9.4% in piloting individual asset tokenisation projects. However, 63% of respondents cited a lack of sufficient information and regulatory clarity to support relevant administrative decisions.

These findings point to the existence of initial conditions for the formation of an institutional environment for tokenisation at the local governance level, while also emphasising the need for comprehensive measures to strengthen hromadas' institutional capacity. The survey results can serve as a foundation for designing the institutional architecture of Ukraine's RWA tokenisation ecosystem.

Given the gathered data, the current evolution of financial technologies, and Ukrainian hromadas' aspirations to enhance their economic autonomy, there is a growing need for an in-depth analysis of the potential of real-world asset tokenisation as a mechanism for sustainable financing. In this context, a SWOT analysis (Table 1) serves as a valuable tool for strategic planning, enabling a structured assessment of internal strengths and weaknesses, as well as external factors influencing the successful implementation of blockchain solutions in local resource management practices.

Tab. 1

SWOT Analysis of Institutional Environment Development for RWA-Tokenisation as a Mechanism for Sustainable Financing of Local Hromadas in Ukraine

Strengths (S)	**Weaknesses (W)**
• Constitutional principles of local self-government and decentralisation of asset management authority • Existence of the Law of Ukraine "On Virtual Assets" as a basic regulatory framework • Development of e-governance systems and digital registries of communal property • Existing experience in managing municipal bonds and local government borrowing • Use of electronic platforms for public procurement as a foundation for open bidding mechanisms • Increasing international financial support and donor interest in innovative financial instruments • Established national requirements for wallets with digital identification • Political and regulatory support for sustainable development at the national level	• Fragmented legislation on digital financial assets and blockchain technologies • Absence of specific regulation for tokenisation, particularly of municipal assets • Lack of unified asset valuation standards at the local hromada level • Insufficient integration of existing real estate and land resource registries • Limited institutional capacity of local self-government bodies in the field of digital innovation • Budgetary prioritisation of defence over digital infrastructure development
Opportunities (O)	**Threats (T)**
• Creation of a favourable regulatory environment within the decentralisation reform framework • Development of public-private partnerships with technology companies • Establishment of funding mechanisms for recovery programmes through international donors and investors • Integration with European crypto-asset regulatory initiatives (MiCA) • Creation of specialised institutions (registries, intermediaries, arbitration bodies) • Possibility of attracting grant funding from international	• Possible shifts in political priorities and changes in state regulatory direction • Legal conflicts between international and national DeFi regulations • Risks of economic instability and inflationary pressures • Potential tightening of customs and currency controls • Risks of financial system destabilisation due to unregulated

organisations for technological infrastructure development • Expansion of professional training systems in digital financial instruments • Integration of RWA tokenisation projects into hromada investment passports as a tool to enhance investment attractiveness • Involvement of enterprises reporting on SDGs/ESG according to European ESRS standards in funding tokenised local projects • Use of tokenised assets in public-private partnerships with corporate investors interested in fulfilling ESG commitments	token circulation • Potential conflicts of interest between different levels of government over asset control • Technological barriers and dependency on foreign platforms • Uncertainty regarding the legal status of stablecoins in national legislation

Source: author's elaboration

The implementation of a comprehensive SWOT analysis is driven by the need to identify strategic advantages and potential risks associated with integrating distributed ledger technologies into the municipal finance system. Considering the specifics of Ukraine's legal framework, the operational characteristics of territorial hromadas, and global trends in the development of decentralised financial instruments, this analysis provides a foundation for a well-reasoned strategy to introduce asset tokenisation as an innovative mechanism for attracting local-level investment.

The results reveal significant potential for the development of real-world asset tokenisation in Ukraine's local hromadas. Strengths such as constitutional principles of local self-governance, the advancement of digital technologies, and a legal foundation create a strong base for innovation. Particularly noteworthy are the opportunities to establish specialised institutions, develop public-private partnerships, and align with European standards – all of which enhance the prospects for successful and sustainable implementation.

The main obstacles remain the fragmented nature of legislation, the absence of specialised regulation, and the lack of asset valuation standards. These weaknesses require a systematic approach and coordination across different levels of government. It is critically important to overcome the limited integration of public registries and the insufficient institutional capacity of local self-government bodies.

Successful implementation will depend on creating a stable regulatory environment that reduces the impact of political fluctuations and economic instability. It is essential to actively pursue grant funding from international organisations and invest in the development of professional training systems.

The most promising approach involves a phased implementation of tokenisation, beginning with pilot projects in hromadas that possess advanced digital infrastructure. In parallel, efforts must focus on improving the legislative framework, establishing standards, and training qualified professionals. Particular attention should be paid to minimising cybersecurity risks and ensuring the stability of the financial system.

In analysing the potential development paths for the institutional environment supporting RWA tokenisation in Ukrainian hromadas, four scenarios can be identified (Figure 2). These scenarios are based on the combination of two key factors: the level of institutional readiness of territorial hromadas and the degree of development of the regulatory and technological infrastructure (basic or advanced). The scenarios illustrate how the institutional environment may either facilitate or hinder the implementation of RWA-tokenisation as a mechanism for sustainable local development financing.

The "Institutional Stagnation" scenario is characterised by a low level of readiness among hromadas to adopt innovative financial instruments, a conservative regulatory approach, and only basic technological infrastructure. Under this scenario, real-world asset tokenisation remains a subject of theoretical discussion, with no practical implementation within the local self-governance system.

The "Integrated RWA Ecosystem" scenario represents the most optimistic development path, combining a high level of institutional readiness among hromadas with progressive regulatory frameworks and advanced technological infrastructure. This scenario envisions the effective operation of

a digital identification system through wallets (in line with Cabinet Resolution No. 689), the widespread adoption of ESG reporting in line with ESRS standards, and the creation of transparent investment mechanisms for green infrastructure and social housing projects.

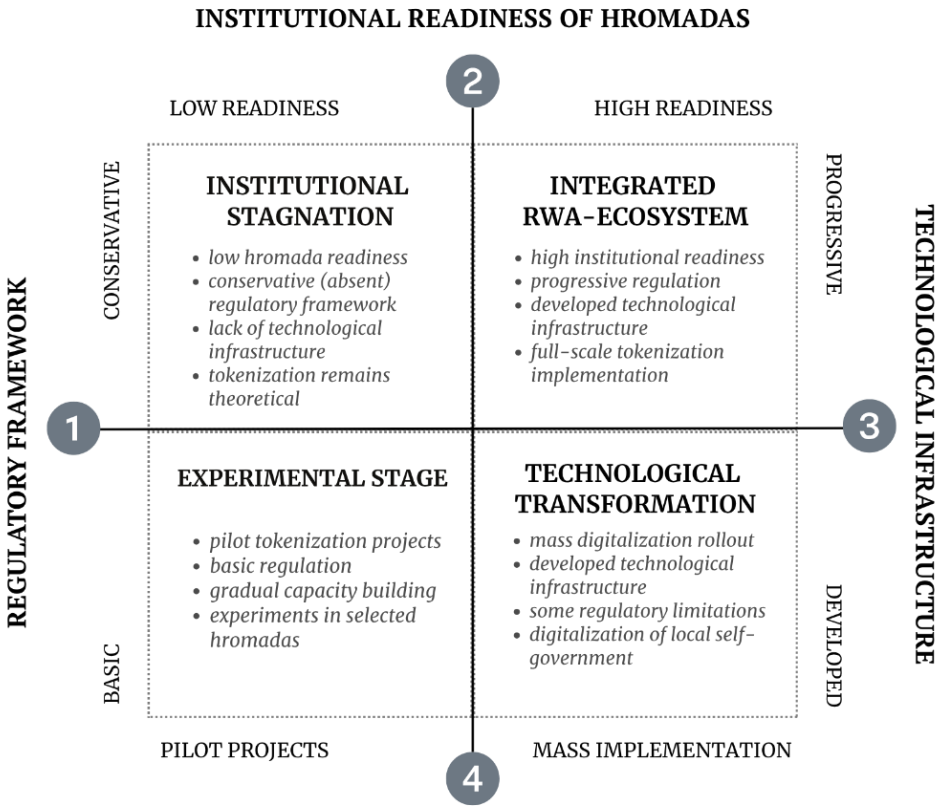

Figure 2. Scenario Matrix for the Development of the Institutional Environment for RWA-Tokenisation in Ukrainian Hromadas

**Source: author's elaboration*

The "Experimental Stage" scenario is defined by the implementation of limited pilot tokenisation projects in select forward-looking hromadas, with gradual capacity building and the phased development of regulatory frameworks. This scenario reflects a step-by-step approach to introducing innovations in municipal finance by testing RWA tokenisation mechanisms at the local level.

The "Technological Transformation" scenario assumes large-scale digitalisation of local self-government processes supported by advanced technological infrastructure, but constrained by underdeveloped specialised regulation for tokenisation. In this case, hromadas actively adopt digital tools, yet real-world asset tokenisation evolves in a fragmented and uncoordinated manner.

The institutional support for implementing RWA tokenisation at the territorial hromada level requires a systemic approach encompassing legal, organisational, technological, financial, and educational dimensions. The formation of an integrated ecosystem – within which key components and actors operate in a coordinated manner – is a fundamental prerequisite for deploying digital financing mechanisms at the local level. In view of this, the following practical recommendations are proposed:

Develop a national concept for the digitalisation of public finance management processes, with a specific focus on RWA tokenisation. This concept should include dedicated provisions for applying this instrument to the activities of territorial hromadas, including priority directions, potential tokenisation targets, implementation stages, and inter-agency coordination parameters.

Introduce a comprehensive legal experimentation mechanism (regulatory sandboxes) to allow the piloting of hromada asset tokenisation models – even in the absence of a fully established regulatory framework – with the participation of local authorities, technology providers, financial intermediaries,

and investors.

Harmonise the regulatory framework by:

– defining the legal status of tokenised assets, particularly in the context of communal property;

– standardising legal mechanisms for the circulation of tokens that represent ownership or income rights.

Strengthen the institutional capacity of local self-government bodies by creating training programmes on digital asset management, developing standardised project models for tokenisation, and supporting intermunicipal cooperation in this area.

Unify approaches to asset valuation and audit for those subject to tokenisation, including by developing methodological guidelines on market valuation, risk management, impact evaluation, and monitoring of social outcomes.

Establish a payment infrastructure based on stablecoins that can serve as a digital settlement mechanism within smart contracts. The use of stablecoins denominated in the national currency or backed by regulated assets will facilitate:

– improved transaction efficiency among RWA project participants;

– integration with decentralised financial protocols;

– transparency of cash flows and automation of settlements.

The implementation of these recommendations will help create a robust institutional infrastructure capable of supporting a sustainable financing model for local development through the tokenisation of hromada assets. This will enable the integration of innovative technologies with democratic governance principles, opening new opportunities for the financial self-sufficiency of hromadas amid the digital transformation of the public sector.

5. CONCLUSIONS

The conducted research highlights the significant potential of real asset tokenisation as an innovative mechanism for sustainable financing of local hromadas in Ukraine. In the context of decentralisation and post-war reconstruction, tokenisation can be an effective tool for attracting investment, improving the management of communal property, and stimulating local economic development.

A key prerequisite for the successful implementation of tokenisation mechanisms is the establishment of an appropriate institutional environment. This includes improving the regulatory framework, creating effective coordination mechanisms among stakeholders, developing technological infrastructure, and enhancing the competencies of all participants involved in the process.

The proposed conceptual model of the institutional environment and the practical recommendations for implementing tokenisation mechanisms at the hromada level can serve as a foundation for developing national policy in this area and for implementing pilot projects.

Promising directions for further research include developing methodological approaches to assess the economic efficiency of tokenising various asset types, designing innovative contract models tailored to sector-specificities, and studying the socio-economic impacts of tokenisation mechanisms across different kinds of hromadas.

The practical implementation of the proposed recommendations will enable the formation of an innovative ecosystem for the tokenisation of tangible assets in Ukraine's hromadas. This will promote the financial self-sufficiency of territorial hromadas, attract investment into local projects, and ultimately contribute to the sustainable development of Ukraine as a whole.

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Each author contributed equally to all aspects of this research, including Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Validation, Visualisation, Writing – original draft, and Writing – review & editing.

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Рябокінь Марина, Котух Євген. Розвиток інституційного середовища для RWA-токенізації як механізму сталого фінансування місцевих громад в Україні. *Журнал Прикарпатського університету імені Василя Стефаника*, **12** (4) (2025), 125-137.

Стаття присвячена дослідженню інституційних передумов та механізмів впровадження токенізації реальних активів (RWA) як інноваційного інструменту сталого фінансування місцевих громад в Україні. В умовах цифрової трансформації світової фінансової системи та необхідності диверсифікації джерел фінансування територіального розвитку, особливо в контексті повоєнної відбудови, актуалізується потреба у пошуку альтернативних механізмів залучення інвестицій на рівні місцевого самоврядування.

Авторами проаналізовано сучасний стан інституційного середовища для впровадження RWA-токенізації в Україні, виявлено основні перешкоди та можливості розвитку цифрових фінансових інструментів у практиці муніципального управління. Розроблено концептуальну модель інституційно-функціональної архітектури екосистеми RWA-токенізації, що включає нормативно-правовий, організаційно-інституційний, технологічний, фінансово-економічний, комплаєнс та інформаційно-освітній компоненти.

Проведено комплексний SWOT-аналіз потенціалу токенізації реальних активів для місцевих громад України, який виявив значні можливості для створення інноваційних механізмів фінансування інфраструктурних проєктів та підвищення інвестиційної привабливості територій. Запропоновано чотири сценарії розвитку інституційного середовища: "інституційний застій", "експериментальний етап", "інтегрована RWA-екосистема" та "технологічна трансформація".

На основі емпіричного дослідження готовності територіальних громад до впровадження блокчейн-технологій сформульовано практичні рекомендації щодо створення ефективного інституційного підґрунтя для RWA-токенізації. Результати дослідження можуть бути використані для розробки державної політики у сфері цифровізації муніципальних фінансів та реалізації пілотних проєктів токенізації комунальних активів.

Ключові слова: RWA-токенізація, інституційне середовище, місцеві громади, стале фінансування, блокчейн-технології, муніципальні активи, цифрова трансформація.