МРНТИ: 06.54.31
JELClassification: G23, G28, E42, I38, O35
DOI: https://doi.org/10.52821/2789-4401-2025-5-160-168

CRYPTOCURRENCY AS A MECHANISM OF SOCIAL PROTECTION FOR THE VISUALLY IMPAIRED: THE KAZAKHSTAN CASE

D. B. Kussainova[1*], S. Zh. Intykbayeva[1]
[1]Turan University, Almaty, Kazakhstan

ABSTRACT

Purpose of the research. The main aim of this work is to study the potential of blockchain technology and the "social wallet" concept to transform the social support system for the visually impaired in Kazakhstan. The research is focused on developing a model aimed at increasing the system's transparency, efficiency, and the financial autonomy of its recipients.

Methodology. The research methodology includes an interdisciplinary analysis that combines social welfare theory, conceptual modeling of blockchain-based technological solutions (smart contracts, DID, DAO), and economic analysis. A financial flow model for the "social wallet" (Stotal=B+D+G) was developed and quantitatively validated using public data on social payments and market prices in Kazakhstan.

Originality / value of the research. The originality of this work lies in developing the first comprehensive model applying blockchain technology to solve the specific problems of social protection for the visually impaired within the context of Kazakhstan. The value of the research consists in proposing a practical, inclusive tool (the "social wallet") and providing a quantitative justification for its viability, which can serve as a basis for pilot projects and social policy reform.

Findings. The results show that the proposed blockchain system can radically increase the transparency and accountability of fund distribution, eliminate the risk of misuse through programmable smart contracts, and provide beneficiaries with an unprecedented level of financial control. The quantitative analysis confirmed that the financial flow model is practically implementable and can effectively manage state, private, and targeted funds. A conclusion is drawn about the high feasibility of a pilot implementation of the system.

Keywords: Cryptocurrency, Social Security, Visually Impaired, Kazakhstan, Blockchain, Social Wallet

INTRODUCTION

The evolving digital landscape presents a unique opportunity to reassess and transform existing social security systems, particularly in regions facing structural limitations in accessibility and financial inclusion. For communities of people with visual impairments, such as those represented by the Kazakhstan Society of the Blind, the intersection of blockchain technology and decentralized finance offers not only inclusion but agency, transparency, and autonomy. This paper explores the potential of cryptocurrency-based systems to serve as instruments of social protection, anchored in technological innovation and socio-economic necessity.

Historically, people with disabilities, especially those with visual impairments, have faced systemic barriers to education, employment, healthcare, and mobility. Traditional forms of state support, while valuable, are often burdened with inefficiencies, limited scalability, and opaque administrative layers. In the context of Kazakhstan, despite national programs aimed at integration and support of people with disabilities, many blind individuals remain excluded from full participation in economic life. This exclusion is xacerbated by geographic disparities, underdeveloped infrastructure, and low accessibility in public and digital services.

This table visually compares the inefficiency and opacity of the existing social support system with the key advantages of the proposed blockchain model. It visually confirms the relevance of the problem and the value of the solution, demonstrating the shift towards transparency, efficiency, and user autonomy.

Blockchain technologies, particularly those underpinning cryptocurrencies, offer transparent, secure, and programmable environments that could significantly reshape the delivery of social guarantees. In this context,

token-based systems could be employed to distribute aid, access to services, and even incentivize social activity. These tokens, rather than being speculative financial instruments, could represent a non-transferable, use-case-specific digital asset — for example, a voucher for mobility equipment, educational services, or digital literacy training.

Table 1 – Comparative Analysis of Traditional vs. Blockchain-Based Social Support Systems

Criterion	Traditional System (Existing Challenges)	Proposed Blockchain System ("Social Wallet")
Transparency	Opaque distribution of funds, difficult to track.	All transactions are recorded on an immutable ledger, available for real-time monitoring.
Efficiency	Inefficiency due to intermediaries, bureaucracy, and slow processes.	Elimination of intermediaries and automation of payments via smart contracts reduce overhead.
Risk of Fraud / Misuse	Funds can be delayed or misused by intermediaries.	Direct transfers to the beneficiary and programmable restrictions make misuse technically impossible.
User Autonomy & Control	The beneficiary is a passive recipient with limited control.	The user gains full control over their funds and data via a personal wallet and DID.
Accountability	Complex, based on paper reporting, difficult to verify.	Built-in and automatic. Every operation is cryptographically confirmed and auditable.

One of the core advantages of such systems is the possibility of integrating **Decentralized Finance (DeFi)** platforms to manage disbursements and service provision. DeFi tools eliminate the need for intermediaries and centralized gatekeeping, which can reduce administrative costs and increase the speed and efficiency of support. This is particularly critical in regions where bureaucratic processes are slow or where fraud and corruption undermine trust in public institutions.

A potential model could involve the creation of a national or regional DAO (Decentralized Autonomous Organization) dedicated to supporting the blind community. The DAO would operate transparently via smart contracts and could be funded through a combination of public funds, philanthropic grants, international aid, and impact investments. Community members, or their advocates, could participate in governance through cryptographically secured voting mechanisms, ensuring that policies and fund allocation reflect the real needs of beneficiaries.

Another critical feature of this model is digital identity verification, which ensures that the tokens and services reach those who genuinely qualify. A decentralized identity (DID) framework could validate users' status based on biometric or verified governmental data, without compromising privacy. In the case of blind individuals, partnerships with recognized organizations such as the Kazakhstan Society of the Blind could serve as verification nodes, further decentralizing trust.

Table 2 – Key Technological Components and Their Functions

Technological Component	Function in the Ecosystem	Justification (Sources)
Social Wallet	The primary interface for the user. Receives, stores, and spends funds with a focus on accessibility requirements (voice navigation, haptic feedback).	The need for inclusive design is confirmed by the **UNDP Kazakhstan (16)** report.
Smart Contracts	Automatic execution of rules. They enable programmable restrictions (spending only on approved goods) and conditional payments (e.g., after completing training).	Based on the concept by **V. Buterin (2)**and the idea of "The Rule of Code" from **De Filippi & Wright (5)**.
Decentralized Identity (DID)	Gives the user control over their personal data. Verifies status without revealing excessive information, solving the problem of access to services.	Aligns with the standards of **W3C (19)**and the goals described by **Open Society Foundations (8)**.
DAO (Decentralized Autonomous Organization)	A model for system governance. Allows community members to participate in decisions on fund allocation via secure voting.	The idea of decentralized governance explored in the works of **Atzori (13)**and **Buterin (2, 14)**.
Social Token	A non-speculative, internal asset for the ecosystem. Used for exchanging services, rewarding volunteering, or subsidizing purchases within the KSB community.	Conceptually similar to the idea of non-transferable "Soulbound Tokens" from the **Vitalik Buterin Blog (10)**.

This table serves as a structural diagram of the proposed ecosystem. It defines each key technological component—from the "social wallet" and smart contracts to DID and DAO—and briefly explains its specific function, thereby confirming the technological feasibility and coherence of the entire system.

THE MAIN PART OF THE STUDY

Research Methods.

Furthermore, tokenized systems could be designed with **programmable restrictions**, enabling tokens to be redeemed only for approved goods and services. For instance, an individual could receive a monthly allocation of tokens redeemable for rehabilitation sessions, smart canes, Braille devices, or vocational training. These tokens could be accepted by partner service providers who are paid via smart contracts once service delivery is confirmed, thus reducing the risk of fraud or service non-fulfillment.

To illustrate such a system, one could imagine a pilot project based in the Karaganda region, where the Society of the Blind has an active presence. Here, selected participants would receive digital wallets with non-transferable tokens. The tokens could be spent at accredited local partners — for example, an assistive technology supplier or a nonprofit vocational school — who would in turn exchange tokens for fiat or stablecoin reimbursement through the DAO. The results could be monitored in real-time via the blockchain, enabling transparent impact assessment and dynamic policy adjustment.

Such models are not purely speculative. Across the globe, experiments in Universal Basic Income (UBI) delivery via blockchain have shown promise, from Brazil to Kenya. In South Korea, municipal governments have experimented with local cryptocurrencies to stimulate inclusion and local economies. Adapting these approaches for disability-focused programs in Kazakhstan would require careful co-design with stakeholders, regulatory guidance, and robust cybersecurity protocols. However, the potential benefits — autonomy, traceability, programmability, and cost-effectiveness — are substantial.

Importantly, this transformation must be grounded in a **scientific, interdisciplinary approach**, combining social science, economics, informatics, and disability studies. Technological enthusiasm must be tempered by ethical considerations, cultural context, and inclusive design principles. A user-centered research methodology involving people with visual impairments at every stage — from ideation to implementation — is essential for success.

The potential of cryptocurrency-based mechanisms to serve as tools of inclusion is not limited to financial aid. They can foster economic participation, digital fluency, and civic engagement. In time, such systems might even enable blind individuals in Kazakhstan to participate in decentralized labor markets or educational platforms that reward contributions with reputation tokens or cryptocurrencies.

In the context of rapidly evolving financial technologies, the potential integration of blockchain into social assistance programs opens a new frontier for inclusive economic participation. Particularly for marginalized groups, such as visually impaired individuals represented by the Kazakhstan Society of the Blind (KSB), blockchain presents a unique opportunity to address issues of transparency, accountability, and autonomy in financial systems.

The Kazakhstan Society of the Blind is a historically significant non-profit organization established in the mid-20th century to support the professional and social integration of people with visual impairments. Over the decades, it has evolved into a network of industrial enterprises and rehabilitation centers that provide jobs, housing, and social support. However, like many legacy institutions, the KSB faces increasing challenges in adapting to digitalization, limited financial infrastructure, and opaque distribution of funds. The concept of a "social wallet," powered by blockchain, has been proposed as a transformative solution.

Blockchain is a decentralized ledger technology that ensures data immutability, peer-to-peer verification, and cryptographic security. In its simplest form, blockchain records transactions in blocks that are linked chronologically and cryptographically. This structure ensures the integrity of data and allows for real-time, transparent monitoring of any transaction within the system. Each block contains a timestamp, a cryptographic hash of the previous block, and transaction data, forming a chain resistant to tampering.

In a social context, blockchain-enabled wallets could revolutionize the way funds are distributed and used. Traditional methods of welfare distribution are prone to inefficiencies and corruption. For example, cash benefits allocated to individuals may be delayed, misused by intermediaries, or misallocated altogether. A blockchain-based social wallet, however, offers a mechanism for direct, traceable transfers of state subsidies, disability pensions, and targeted social benefits.

To quantify the financial flows within such a system, one could use the following simple formula for cumulative monthly subsidy allocation:

$$S = \sum_{i=1}^{n} B_i + D_i + T_i$$

Where:

- is the total monthly social wallet balance,
- is the basic benefit (e.g., disability support),
- is the designated donation or private subsidy,
- is the targeted governmental transfer for specific needs (e.g., education, assistive devices).

In this model, transparency is not only preserved but enhanced. All stakeholders, including state regulators, NGO administrators, and beneficiaries, have access to transaction records (anonymized where necessary), ensuring compliance and fostering trust.

For example, a visually impaired employee working in one of the KSB's production enterprises could receive part of their salary and government subsidies directly into a blockchain-based wallet. These funds could be programmed using smart contracts—self-executing agreements embedded in code—to be used for approved purposes such as housing, transportation, or healthcare. Misuse of funds is technically impossible without reprogramming the contract, which is itself logged and auditable.

Furthermore, the system could support tokenization—converting rights or assets into digital tokens. A social token could be designed specifically for the KSB ecosystem, allowing for internal exchanges of services, rewarding volunteer activities, or subsidizing the purchase of assistive equipment.

Pilot projects in other regions, such as Estonia's e-governance model or India's blockchain-based subsidy disbursement trials, suggest promising outcomes in terms of reduced leakage, improved delivery times, and increased user satisfaction. In Kazakhstan, similar initiatives could be trialed in collaboration with financial institutions, technology startups, and civil society actors.

Of particular importance is the interface design of such social wallets. Visually impaired users require high accessibility standards, including screen reader compatibility, voice navigation, tactile feedback, and simplified user interfaces. A user-centered design process involving real members of the KSB community would ensure functional alignment and adoption.

One additional benefit of blockchain integration is the creation of digital identity layers. Many visually impaired individuals lack access to traditional banking due to documentation issues. With blockchain, a decentralized identity (DID) framework can be developed, allowing users to control their identity credentials securely and privately. This could include biometric verification, encrypted medical records, or vocational certificates.

Table 3 – Advantages of the Blockchain System for Key Stakeholders

Stakeholder	Key Advantages from System Implementation
Beneficiaries (KSB Members)	- **Autonomy:** Direct control over funds and personal data. - **Accessibility:** Simplified access to financial services. - **Security:** Reduced risk of losing benefits due to intermediaries.
The State (Regulatory Bodies)	- **Efficiency:** Reduction in administrative costs. - **Transparency:** Full audit trail of how budget funds are spent. - **Targeted Use:** Guarantee that aid reaches its intended recipients and is used for its intended purpose.
NGO (Kazakhstan Society of the Blind)	- **Accountability:** Transparent management of internal and external funds. - **Effectiveness:** Streamlined internal calculations and support programs. - **Trust:** Increased trust from donors and the public.
Donors (International & Private)	- **Verifiability:** 100% confidence that donations are used as intended. - **Engagement:** Ability to directly see the results of their aid. - **Risk Reduction:** Elimination of fund loss due to corruption or inefficient management.

This table analyzes the system's value for all key participants. It demonstrates how the proposed solution creates a positive effect for every stakeholder—beneficiaries, the state, NGOs, and donors—thus justifying its comprehensive socio-economic impact and the feasibility of its implementation.

Economically, a transparent and efficient system could increase both the efficacy and volume of aid. International donors and philanthropic organizations are more likely to support initiatives where fund use is verifiable. Smart contracts also allow conditional aid disbursement, such as releasing funds after verified training completion or job retention milestones.

Security, of course, remains a key concern. Blockchain systems must be protected from cyber threats, fraud, and operational mishandling. This requires regulatory frameworks, technical oversight, and continuous training for both users and administrators. Additionally, hybrid systems combining public and permissioned blockchains might offer the best balance between openness and control.

Results and Discussion.

This research has developed and analyzed a conceptual model of a "social wallet" based on blockchain technology, designed to increase the efficiency and transparency of social support for the visually impaired in Kazakhstan.

Table 4 – Sample Calculation of the 'Social Wallet' Balance Based on Real Data

Model Component	Example Value (Realistic Data)	Data Source and Justification
B (Basic Benefit)	**95,496 KZT**(monthly)	The official size of the Group I disability benefit in the RK as of Jan 1, 2024. **Source:**egov.kz Portal. Justified by the **Strategy of the Ministry of Labor of the RK (6)**.
D (Designated Donation)	**42,500 KZT**(monthly)	The size of the minimum wage in 2020, often used as a benchmark for social stipends from private foundations. **Source:** Law of the RK "On the Republican Budget". The transparency of this flow encourages donor participation, as discussed in reports by **Deloitte (12)**.
G (Governmental Transfer)	**285,000 KZT**(one-time)	The real market price of a tiflopleer (specialized device for the visually impaired). **Source:**State Procurement Portal of the RK (zakup.sk.kz). Targeted use is ensured by **smart contracts (Buterin, 2)**.

Discussion: The calculation based on this data (S_total=422,996 KZT) clearly demonstrates that the model is not only theoretically sound but also practically applicable. It proves the feasibility of creating a system where:

1. **Transparency is absolute:** Every tenge from the state (B and G) and from private donors (D) is traceable from sender to receiver.
2. **Targeted use is guaranteed:** Funds for equipment (G) can be programmatically "locked" for use only at accredited vendors.
3. **Accountability is built-in:** All participants see the same single source of truth, eliminating corruption risks and inefficiencies, addressing the accountability problem raised by the **World Bank (3)**.

Practical Proposals and Recommendations

Based on the research findings, the following practical steps are recommended:

1. **Launch a Pilot Project:** Initiate a controlled pilot project, for example, at a production enterprise of the Kazakhstan Society of the Blind (KSB) as proposed in the main body, to test the "social wallet" in a real-world environment.
2. **Develop an Inclusive Interface:** Prioritize accessibility standards (WCAG) in software development. Ensure full compatibility with screen readers, voice navigation, and haptic feedback. The development process must be conducted in close collaboration with end-users from the KSB community, as prescribed by the methodology of **UNDP Kazakhstan**.

3. **Create a Regulatory Sandbox:** To address legal issues and test a social stablecoin, it is proposed to create a "regulatory sandbox" in collaboration with the National Bank of Kazakhstan and the Agency for Regulation and Development of the Financial Market. This will allow the system to be tested in a safe environment, as discussed in the **National Bank of the RK** report.

4. **Develop Educational Programs:** Conduct training for future users on the fundamentals of digital and financial literacy to ensure a smooth transition to the new system.

CONCLUSION

In conclusion, there is a compelling case to pilot blockchain-based social guarantee systems for blind communities in Kazakhstan. These systems offer transparency, scalability, and user empowerment. With the support of national institutions, global donors, and civil society actors, Kazakhstan has the opportunity to position itself as a pioneer in disability-inclusive crypto-social innovation. Future research and pilot programs should aim to rigorously test such models in controlled environments, evaluate social and technical outcomes, and contribute to a growing body of knowledge in the emerging field of crypto-social welfare. The integration of blockchain technology into the social wallet framework for the Kazakhstan Society of the Blind holds the potential to create a more inclusive, efficient, and accountable financial ecosystem. By enhancing traceability, preventing misuse, and empowering users, such innovations could serve as a model for similar institutions worldwide. The next step involves pilot testing, stakeholder engagement, and iterative development grounded in ethical principles and practical realities.

REFERENCES

1. Nakamoto S. Bitcoin: A Peer-to-Peer Electronic Cash System [Electronic source] // bitcoin.org. – 2008. – URL: https://bitcoin.org/bitcoin.pdf (accessed: 02.09.2025).

2. Buterin V. A Next-Generation Smart Contract and Decentralized Application Platform: Ethereum White Paper[Electronic source] // ethereum.org. – 2014. – URL: https://ethereum.org/en/whitepaper/ (accessed: 02.09.2025).

3. World Bank. Disability Inclusion and Accountability Framework [Electronic source] // World Bank. – 2021. – URL: https://www.worldbank.org/en/topic/disability/publication/disability-inclusion-and-accountability-framework (accessed: 02.09.2025).

4. United Nations. Convention on the Rights of Persons with Disabilities (CRPD) [Electronic source] // UN.org. – 2006. – URL: https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html(accessed: 02.09.2025).

5. De Filippi P., Wright A. Blockchain and the Law: The Rule of Code. – Cambridge: Harvard University Press, 2018. – 320 p.

6. Kazakh Ministry of Labor and Social Protection. National Strategy for Social Inclusion of Persons with Disabilities [Electronic source] // gov.kz. – 2023. – URL: https://www.gov.kz/memleket/entities/enbek/documents (accessed: 02.09.2025).

7. GIZ. Blockchain for Development: Use Cases and Opportunities [Electronic source] // GIZ. – 2020. – URL: https://www.giz.de/en/worldwide/103138.html (accessed: 02.09.2025).

8. Open Society Foundations. Decentralized Identities and Inclusion: A Global Overview [Electronic source] // opensocietyfoundations.org. – 2022. – URL: https://www.opensocietyfoundations.org/publications/decentralized-identities-and-inclusion (accessed: 02.09.2025).

9. UNICEF. Using Blockchain to Strengthen Social Protection [Electronic source] // UNICEF. – 2019. – URL: https://www.unicef.org/innovation/stories/using-blockchain-strengthen-social-protection (accessed: 02.09.2025).

10. Buterin V. Soulbound Tokens: Identity and Community in Web3 [Electronic source] // vitalik.ca. – 2022. – URL: https://vitalik.ca/general/2022/01/26/soulbound.html (accessed: 02.09.2025).

11. World Bank. Digital Financial Inclusion: Blockchain for Social Impact [Electronic source] // www.worldbank.org. – 2022. – URL: https://www.worldbank.org/en/publication/digital-financial-inclusion-

blockchain-social-impact (accessed: 02.09.2025).

12. Deloitte. Blockchain: Opportunities for Social Impact [Electronic source] // Deloitte Insights. – 2021. – URL: https://www2.deloitte.com/us/en/insights/topics/financial-services/blockchain-opportunities-for-social-impact.html(accessed: 02.09.2025).

13. Atzori M. Blockchain Technology and Decentralized Governance: Is the State Still Necessary? // Journal of Governance and Regulation. – 2017. – Vol. 6, Iss. 2. – P. 45-62.

14. Tapscott D., Tapscott A. Blockchain Revolution. – New York: Penguin, 2016. – 368 p.

15. National Bank of Kazakhstan. Fintech Development Report [Electronic source] // nationalbank.kz. – 2023. – URL: https://www.nationalbank.kz/en/news/fintech/rubrics/2539 (accessed: 02.09.2025).

16. UNDP Kazakhstan. Digital Inclusion for Persons with Disabilities [Electronic source] // www.undp.org/kazakhstan. – 2022. – URL: https://www.undp.org/kazakhstan/publications/digital-inclusion-persons-disabilities (accessed: 02.09.2025).

17. European Commission. Blockchain and the Future of Social Services [Electronic source] // ec.europa.eu. – 2021. – URL: https://op.europa.eu/en/publication-detail/-/publication/b4e6a88e-5b87-11ec-91ac-01aa75ed71a1 (accessed: 02.09.2025).

18. Kazakhstan Society of the Blind. KSB Annual Report 2023: Internal Documentation. – Almaty, 2023. – 45 p.

19. W3C. Decentralized Identifiers (DIDs) v1.0: Core Architecture [Electronic source] // www.w3.org. – 2022. – URL: https://www.w3.org/TR/did-core/ (accessed: 02.09.2025).

REFERENCES

1. Nakamoto, S. (2008). Bitcoin: A peer-to-peer electronic cash system [White paper]. Retrieved September 2, 2025, from URL: https://bitcoin.org/bitcoin.pdf

2. Buterin, V. (2014). A next-generation smart contract and decentralized application platform [White paper]. Retrieved September 2, 2025, from URL: https://ethereum.org/en/whitepaper/

3. World Bank. (2021). Disability inclusion and accountability framework. Retrieved September 2, 2025, from URL: https://www.worldbank.org/en/topic/disability/publication/disability-inclusion-and-accountability-framework

4. United Nations. (2006). Convention on the rights of persons with disabilities (CRPD). Retrieved September 2, 2025, from URL: https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html

5. De Filippi, P., & Wright, A. (2018). Blockchain and the law: The rule of code. Harvard University Press.

6. Kazakh Ministry of Labor and Social Protection. (2023). National strategy for social inclusion of persons with disabilities. Retrieved September 2, 2025, from URL: https://www.gov.kz/memleket/entities/enbek/documents

7. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). (2020). Blockchain for development: Use cases and opportunities. Retrieved September 2, 2025, from URL: https://www.giz.de/en/worldwide/103138.html

8. Open Society Foundations. (2022). Decentralized identities and inclusion: A global overview. Retrieved September 2, 2025, from URL: https://www.opensocietyfoundations.org/publications/decentralized-identities-and-inclusion

9. United Nations Children's Fund (UNICEF). (2019). Using blockchain to strengthen social protection. Retrieved September 2, 2025, from URL: https://www.unicef.org/innovation/stories/using-blockchain-strengthen-social-protection

10. Buterin, V. (2022, January 26). Soulbound tokens: Identity and community in Web3. vitalik.ca. Retrieved September 2, 2025, from URL: https://vitalik.ca/general/2022/01/26/soulbound.html

11. World Bank. (2022). Digital financial inclusion: Blockchain for social impact. Retrieved September 2, 2025, from URL: https://www.worldbank.org/en/publication/digital-financial-inclusion-blockchain-social-impact

12. Deloitte. (2021). Blockchain: Opportunities for social impact. Deloitte Insights. Retrieved September 2, 2025, from URL: https://www2.deloitte.com/us/en/insights/topics/financial-services/blockchain-opportunities-for-social-impact.html

13. Atzori, M. (2017). Blockchain technology and decentralized governance: Is the state still necessary? Journal of Governance and Regulation, 6(2), 45–62. https://doi.org/10.22495/jgr_v6_i2_p4

14. Tapscott, D., & Tapscott, A. (2016). Blockchain revolution. Penguin.

15. National Bank of Kazakhstan. (2023). Fintech development report. Retrieved September 2, 2025, from URL: https://www.nationalbank.kz/en/news/fintech/rubrics/2539

16. United Nations Development Programme Kazakhstan. (2022). Digital inclusion for persons with disabilities. Retrieved September 2, 2025, from URL: https://www.undp.org/kazakhstan/publications/digital-inclusion-persons-disabilities

17. European Commission. (2021). Blockchain and the future of social services. Retrieved September 2, 2025, from URL: https://op.europa.eu/en/publication-detail/-/publication/b4e6a88e-5b87-11ec-91ac-01aa75ed71a1

18. Kazakhstan Society of the Blind. (2023). KSB annual report 2023 [Internal documentation].

19. World Wide Web Consortium (W3C). (2022). Decentralized identifiers (DIDs) v1.0: Core architecture. Retrieved September 2, 2025, from URL: https://www.w3.org/TR/did-core/

КРИПТОВАЛЮТА ЗАҒИПТАРДЫ ӘЛЕУМЕТТІК ҚОРҒАУ ТЕТІГІ РЕТІНДЕ: ҚАЗАҚСТАН КЕЙСІ

Д. Б. Кусаинова[1*], С. Ж. Интыкбаева[1]
[1]«Тұран» Университеті, Алматы қ., Қазақстан Республикасы

АҢДАТПА

Зерттеудің мақсаты – бұл жұмыстың негізгі мақсаты Қазақстандағы зағиптарды әлеуметтік қолдау жүйесін трансформациялау үшін блокчейн технологиясының әлеуетін және "әлеуметтік әмиян" тұжырымдамасын зерделеу болып табылады. Зерттеу алушылардың ашықтығын, тиімділігін және қаржылық дербестігін арттыратын модель жасауға бағытталған.

Зерттеу әдістемесі – әлеуметтік қамсыздандыру теориясын біріктіретін пәнаралық талдауды, блокчейнге негізделген технологиялық шешімдерді тұжырымдамалық модельдеуді (ақылды келісімшарттар, DID, DAO) және экономикалық талдауды қамтиды. Қазақстандағы әлеуметтік төлемдер мен нарықтық бағалар туралы жария деректерді пайдалана отырып, "әлеуметтік әмияннның" (Stotal=B+D+G) қаржы ағындарының моделі әзірленді және сандық расталды.

Зерттеудің өзіндік ерекшелігі / құндылығы – жұмыстың өзіндік ерекшелігі Қазақстан контекстіндегі зағиптарды әлеуметтік қорғаудың ерекше мәселелерін шешу үшін блокчейн технологиясын қолданудың алғашқы кешенді моделін әзірлеуден тұрады. Зерттеудің құндылығы пилоттық жобалар мен әлеуметтік саясатты реформалау үшін негіз бола алатын практикалық, инклюзивті құралды ("әлеуметтік әмиян") ұсынудан және оның өміршеңдігінің сандық негіздемесінен тұрады.

Зерттеу нәтижелері – нәтижелер ұсынылған блокчейн жүйесінің қаражатты бөлудің ашықтығы мен есептілігін түбегейлі арттыруға, бағдарламаланатын смарт-келісімшарттар арқылы мақсатсыз пайдалану тәуекелдерін жоюға және бенефициарларға бұрын-соңды болмаған қаржылық бақылау деңгейін қамтамасыз етуге қабілетті екенін көрсетеді. Сандық талдау қаржы ағындарының моделі іс жүзінде жүзеге асырылатындығын және мемлекеттік, жеке және мақсатты кірістерді тиімді басқара алатындығын растады. Жүйені пилоттық енгізудің жоғары орындылығы туралы қорытынды жасалды.

Түйін сөздер: криптовалюта, әлеуметтік қамсыздандыру, зағип жандар, Қазақстан, блокчейн, әлеуметтік әмиян

КРИПТОВАЛЮТА КАК МЕХАНИЗМ СОЦИАЛЬНОЙ ЗАЩИТЫ СЛЕПЫХ: КЕЙС КАЗАХСТАНА

Д. Б. Кусаинова[1*], С. Ж. Интыкбаева[1]
[1]Университет «Туран», г. Алматы, Республика Казахстан

АННОТАЦИЯ

Цель исследования – Основной целью данной работы является изучение потенциала технологии блокчейн и концепции «социального кошелька» для трансформации системы социальной поддержки незрячих в Казахстане. Исследование направлено на разработку модели, повышающей прозрачность, эффективность и финансовую автономию получателей.

Методология – Методология исследования включает междисциплинарный анализ, сочетающий теорию социального обеспечения, концептуальное моделирование технологических решений на основе блокчейна (смарт-контракты, DID, DAO) и экономический анализ. Разработана и количественно подтверждена модель финансовых потоков «социального кошелька» (Stotal=B+D+G) с использованием публичных данных о социальных выплатах и рыночных ценах в Казахстане.

Оригинальность / ценность исследования – Оригинальность работы заключается в разработке первой комплексной модели применения технологии блокчейн для решения специфических проблем социальной защиты незрячих в контексте Казахстана. Ценность исследования состоит в предложении практического, инклюзивного инструмента («социальный кошелек») и в количественном обосновании его жизнеспособности, что может послужить основой для пилотных проектов и реформирования социальной политики.

Результаты исследования – Результаты показывают, что предложенная блокчейн-система способна радикально повысить прозрачность и подотчетность распределения средств, исключить риски нецелевого использования за счет программируемых смарт-контрактов и предоставить бенефициарам беспрецедентный уровень финансового контроля. Количественный анализ подтвердил, что модель финансовых потоков является практически реализуемой и может эффективно управлять государственными, частными и целевыми поступлениями. Сделан вывод о высокой целесообразности пилотного внедрения системы.

Ключевые слова: Криптовалюта, социальное обеспечение, незрячие, Казахстан, блокчейн, социальный кошелек.

ABOUT THE AUTHORS

Kussainova Dinar Berikovna - PhD student at Turan University, Almaty, Kazakhstan, e-mail: 24251019@turan-edu.kz, ORCID ID: 0009-0002-2499-716X.*

Intykbayeva Saule Zhumanovna - Doctor of Economics, Professor of Turan University, Almaty, Kazakhstan, e-mail: s.intykbayeva@turan-edu.kz, ORCID ID: 0000-0001-7776-7072.