

Blockchain Technology and Social Policy Transformation: A Critical Examination and Recommendations

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ABSTRACT

In recent years, Blockchain technology has emerged as a transformative innovation with significant implications on both a global and local scale. Its potential to revolutionise social policy in Turkey is profound and offers avenues for the development of transparent, reliable and participatory systems. As the concept of work evolves, traditional social protection and security systems rooted in conventional employment models must adapt to this changing landscape. In an era prioritising citizenship ties, the importance of financial stability and efficiency has never been greater, necessitating the formulation of precise needs-based social protection policies. Through its ability to enhance the accuracy of identifying individuals in need, the blockchain holds the promise of optimising resource allocation and facilitating the effective implementation of needs-based social policies.

This study seeks to delve into the transformative potential of Blockchain technology within social policy systems in Turkey, with a specific focus on social assistance practices, and to provide recommendations for its integration. The significance of this study lies in its exploration of Blockchain's decentralised digital structure of the blockchain, which ensures data integrity and is pivotal in establishing fair and transparent social assistance mechanisms. By pioneering research in this area, this study aims to bridge existing gaps in the literature and contribute to a deeper understanding of Blockchain's impact on social assistance in Turkey.

Methodologically, the study will start with an exhaustive review of the relevant literature to establish a robust conceptual and theoretical framework. Subsequently, the collected data will undergo descriptive analysis to provide comprehensive interpretation and reporting.

In conclusion, the findings of this study affirm the unique benefits that Blockchain technology offers to the social policy system in Turkey, including increased efficiency, equity, and transparency within social assistance systems. By addressing implementation challenges, Blockchain can be tailored to suit the needs of social assistance programs, providing invaluable support to policymakers and decision-makers in shaping future policies. The integration of Blockchain technologies not only facilitates efficient resource allocation but also enables timely and accurate responses to social protection needs. Ultimately, it enables the simultaneous implementation of a rights-based, needs-driven social policy model, thus paving the way for transformative changes in social welfare systems.

Keywords: Blockchain, Digital transformation, Social Assistance, Social Policy, Social Security

Introduction

The technological advancements of the past half-century signify a transformative era, with innovations like computers, smart devices, and virtual reality catalysing revolutionary changes across various sectors (Özpençe & Noyan, 2022, p. 1). Today, the ongoing evolution of technology enhances internet and computer utilisation, shifting physical services to digital platforms in business and transactions. Despite blockchain's emergence in 2009, its full potential and technical challenges remain incompletely understood by scientists and entrepreneurs (Borowik, Wawrzyniak, & Cichosz, 2019, p. 78). Industry 5.0 underscores blockchain's global impact, influencing diverse sectoral initiatives (Nofer, Gomber, Hinz, & Schiereck, 2017, p. 183). Blockchain stands out as a 21st-century revolutionary technology still in development (Borowik, Wawrzyniak, & Cichosz, 2019, p. 60).

Originally detailed by Satoshi Nakamoto in 2008, blockchain's foundational principles for Bitcoin set forth its mathematical

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underpinnings (Nakamoto, 2008, p. 1). Initially linked with Bitcoin, the blockchain has since expanded into broader application domains (Nakamoto, 2008, p. 1). Beyond cryptocurrencies, blockchain technology addresses critical inefficiencies and cost challenges within the financial sector, making it pivotal therein (Nofer, Gomber, Hinz, & Schiereck, 2017, p. 183). Moreover, blockchain offers a programmable, incorruptible digital ledger with vast potential across various aspects of daily life (Mendi, 2012, p. 182). It has facilitated innovations such as distributed recording systems, decentralised network architectures, cryptographic key structures, and smart contracts (Di Pierro, 2017, p. 92).

Blockchain technology, as defined and implemented by Nakamoto, primarily builds trust within distributed systems. It seeks to enable secure interactions and data sharing among various stakeholders by ensuring the accuracy and integrity of data without relying on a central authority. Blockchain accomplishes this through mechanisms such as smart contracts, decentralised network architecture, encryption techniques, and its distributed ledger structure. Specifically, it facilitates the creation of a distributed, tamper-proof document storage system where data, including content and timestamps, cannot be altered undetectably and can be stored in a verifiable manner (Di Pierro, 2017, p. 92). This shift represents a move from "trusting people to trusting maths" (Antonopoulos, 2014), positioning blockchain as a distributed database of records, although its full potential has yet to be realised (Borowik, Wawrzyniak, & Cichosz, 2019, p. 60).

Blockchain technology is generally categorised into two types: public and private blockchains. Public blockchains have an open structure where anyone can participate, view, and own all the activities on the chain (Borowik, Wawrzyniak, & Cichosz, 2019, p. 60). Bitcoin, for instance, exemplifies a public blockchain where users can freely join the network by purchasing cryptocurrency. In contrast, private blockchains have a centralised governance structure, requiring permission to participate, and are often used within a single organisation or between multiple partner organisations. Both public and private blockchains maintain high security standards to safeguard data integrity, with data encrypted and stored in a series of blocks, and each block's information verified in relation to previous blocks. Since adding new blocks requires the consensus of all system users, these systems are considered more secure than most traditional network technologies (Borowik, Wawrzyniak, & Cichosz, 2019, p. 60).

Blockchain technology facilitates the secure and transparent management of digital data without relying on a central authority. This decentralised structure enhances data integrity and reliability while ensuring that transactions and information are securely recorded without the need for a centralised control mechanism. Each block of data is connected to the cryptographic hash of the preceding block, ensuring the immutability and security of the data (Swan, 2015, p. 22). Additionally, the absence of a central control point reduces risks such as data manipulation or theft (Tapscott & Tapscott, 2016).

As technology becomes increasingly integrated into social policies and practices worldwide, significant transformations are occurring in service delivery, accessibility, and governance. Consequently, addressing the impacts of digital transformation and technological advancements on social policies and practices (such as social security, social assistance, and data management) has become essential. In this context, examining the opportunities and challenges presented by Blockchain technology is crucial for enhancing the efficiency and effectiveness of social security, social assistance, and data management services the key pillars of social policy. This examination is necessary to develop broader access systems and improve service delivery in these areas.

The potential impacts of blockchain technology on social policy extend to various areas. Notably, the transparency it offers in managing social assistance and public services can contribute to reducing corruption and irregularities (Catalini & Gans, 2016, p. 43). For instance, blockchain can enhance fairness and efficiency in aid distribution processes. Additionally, its application in digital identity verification systems can mitigate the risks of identity theft and provide more secure storage of individuals' identities (Tether, 2018, p. 89). These benefits can bolster governance processes and promote social justice, particularly in developing countries (Swan, 2015, p. 60). By fostering more efficient and accountable operations in both the public and private sectors, blockchain technology can serve as a powerful tool for facilitating social transformation.

The Place and Importance of Blockchain Technology in Social Policies

The evolution of the digital world has triggered a comprehensive transformation across various sectors, including social policy. In this context, blockchain technology holds the potential to significantly influence social policies, offering substantial opportunities for reshaping and improving current systems. In recent years, the integration of blockchain technology has become a critical focus for policymakers, academics, researchers, and experts, particularly in key social policy areas such as social security, social assistance applications, and data management. However, due to the relatively recent development of this technology, its widespread application remains limited, and most existing studies are focused on proof of concept and understanding technical aspects (Türkmen & Durbilmez, 2019, p. 40). Discussing the long-term impacts and potential benefits of blockchain for society can offer valuable insights for social policymakers. This involves exploring the multidimensional relationship between blockchain technology and data management in important social policy areas, such as social security and social assistance applications, and assessing its implications for social policy (Rossi & Bianchi, 2004, p. 1).

Historically, blockchain technology has provided a mechanism through which entities can collaborate without the need for third-party supervision or control, thereby establishing a certain level of trust. This is applicable not only in developed countries but also in developing nations, although the rates of adoption and implementation vary depending on economic conditions, infrastructure, and legal frameworks. In developed countries, blockchain technology can facilitate the creation of voluntary and self-sustaining regulatory systems. These systems function similarly in social policy implementation, encompassing central and local bodies, businesses, and specialised services (Borowik, Wawrzyniak, & Cichosz, 2019, p. 68). In developing countries, while cryptocurrencies are typically used to increase access to banking services, blockchain has recently been employed in aid and social programs to ensure the correct delivery of international aid, enhance transparency, and reduce corruption. Atzori (2015) posits that blockchain technology can restructure not only policies but also society as a whole. This is particularly significant for reorganising social policy practices in poorer nations (Nofér, Gomber, Hinz, & Schiereck, 2017, p. 186). Additionally, blockchain can facilitate more efficient and reliable management of contracts and regulatory processes within the realm of social policy (Borowik, Wawrzyniak, & Cichosz, 2019, p. 68).

The transparency, security, and traceability provided by blockchain technology offer promising opportunities for the more efficient and reliable management of social security systems, social assistance processes, and data management (Nakamoto, 2008, p. 1). Applying blockchain in areas such as social benefits, citizen records, and government services enables more transparent and trustworthy transactions (Catalini & Gans, 2016, p. 5). In particular, blockchain can help reduce the risks of fraud in social assistance distribution and facilitate more effective resource management. Additionally, blockchain technology underscores significant trends and developments in digital social assistance, reflecting the ongoing evolution of technology-enabled social welfare systems.

Online application portals and algorithmic decision-making systems illustrate how technology is transforming the delivery, access, and management of social assistance services. These digital innovations promise enhanced efficiency, accessibility, and even privatisation of social assistance processes, while simultaneously exerting profound and multifaceted effects on social policy (Rossi & Bianchi, 2004, p. 1). In particular, blockchain-based systems make it possible to trace social assistance payments, ensuring they reach the intended recipients while reducing the dependence on a centralised governing authority (Catalini & Gans, 2016, p. 8). Additionally, storing citizens' credentials using blockchain technology can improve personal data security and offer stronger protection against data breaches (Tapscott & Tapscott, 2016, p. 47). Blockchain's role in social policy extends beyond enhancing existing systems to enabling the creation of new social service models. For instance, blockchain-based voting systems can promote more reliable and transparent democratic processes (Mougayar, 2016, p. 112), encouraging greater social participation and increasing citizens' influence on public policy decisions.

Empowerment and Transparency Aspects of Blockchain

The empowerment and transparency offered by blockchain technology are relevant not only in developing countries but also in developed nations. Blockchain, fundamentally a distributed ledger technology, enables the secure storage and management of data without relying on a central point of control. Each transaction is stored in a block, and these blocks are linked together in a chain (Buterin, 2014, p. 5). This structure ensures that data are transparently verified, making any alterations difficult (Narayanan et al., 2016, p. 34).

The core principles of the blockchain include transparency, security, and a decentralised structure. Transparency ensures that every transaction is traceable on the blockchain, reducing the risk of fraud (Tapscott & Tapscott, 2016, p. 78). Security is maintained through cryptographic methods, as each block contains the hash code of the preceding block, making data tampering nearly impossible (Zohar, 2015, p. 112). The decentralised structure distributes data across multiple nodes rather than relying on a central server, enhancing the system's reliability and resilience (Miller & Valasek, 2016, p. 19). Overall, the blockchain provides a secure and decentralised means of recording and verifying transactions. Various consensus mechanisms have been developed to improve the technology's efficiency and security (Gadekallu et al., 2022, p. 3). Blockchain-based systems also serve as a shared infrastructure among all participants, eliminating the need for a central authority. This fosters automation and simplifies operations. However, such solutions can introduce challenges, including potential abuses, ambiguous accountability, and differing user opinions (Borowik, Wawrzyniak, & Cichosz, 2019, p. 60).

Blockchain technology has the potential to enhance the protection of social policies and practices, particularly in developing countries where there are numerous threats and challenges in implementing and recording social policies, social benefits, social security systems, and database management. These issues can be addressed using blockchain technology. However, several challenges and concerns persist, including the promise of blockchain in social policy implementation alongside the limitations it faces. The key challenges include throughput, latency, size, security, resource waste, usability, and issues related to versioning, hard forks, and multichains (Borowik, Wawrzyniak, & Cichosz, 2019, p. 60). In light of these challenges (Rossi & Bianchi, 2004, p. 3), Glaser (2017) suggests that the blockchain system, serving as a user interface between the digital and real worlds, may act as a weak link that undermines trust.

Moreover, digital technologies in social assistance present significant barriers to the adoption of blockchain due to biases stemming from concerns about the impact of these technologies on individual decision-making processes and potential data privacy violations. Consequently, ongoing discussions focus on overcoming these challenges by addressing security, privacy, accessibility, and technical difficulties. Specifically, disparities in access to technology and digital skills intensify the digital divide, hindering the equitable provision of social assistance and increasing social inequalities (Rossi & Bianchi, 2004, p. 2). Thus, the expansion of digital platforms and data-driven decision-making processes raises fundamental issues regarding justice, transparency, and power distribution in the management of social assistance (Schou & Hjelholt, 2019). In this context, it is crucial to explore the ethical and normative dimensions of digital social assistance and to critically evaluate the core values and principles of social policy in the digital age (Rossi & Bianchi, 2004, p. 3).

Potential Uses of Blockchain in Social Policies in Turkey

Monitoring the consensus protocols employed to ensure the proper functioning of blockchain networks in the realms of social policy, data management, social security, and social assistance is essential for evaluating the effectiveness and reliability of these technologies. Current uses and case studies of blockchain technology in social policy illustrate its potential to enhance the efficiency and transparency of various social services. Below, we examine blockchain applications in areas such as social benefits, social security systems, and data management:

Social Assistance Practices

Blockchain technology is essential for enhancing transparency, security, efficiency, and traceability in the distribution of social aid and support programs. In Turkey, where social assistance applications play a crucial role, this technology can make the delivery of aid to individuals and the overall distribution systems more reliable. Specifically, smart contracts can be used to ensure that assistance reaches the intended recipients, thereby improving the distribution process, enhancing monitoring, and preventing misuse, all while making aid processes more accountable and auditable. In this context, using blockchain-based systems for the collection and distribution of social aid is a significant solution for fostering donor trust in the system (Çaybaşı & Peker, 2024, p. 112). By managing aid payments through blockchain, intermediaries can be eliminated, ensuring that assistance reaches the target audience directly, without delays or reductions. Furthermore, smart contracts allow for the automatic transfer of aid to those in need.

One of the most significant challenges in distributing social assistance is ensuring that aid actually reaches those in need. The decentralised structure of blockchain technology allows all transactions to be recorded in a transparent and traceable manner, facilitating the accurate delivery of assistance to the right individuals and providing proof of this (Mendi, 2012, p. 181). This technology enables the monitoring of recorded information, including both in-kind and cash assistance, and the oversight of these transactions. Additionally, its decentralised nature aids in detecting fraudulent or erroneous transactions across Turkey, thereby helping to prevent corruption within the system.

One of the major challenges in distributing social assistance is safeguarding the personal data of individuals registered in the system. In this context, blockchain technology plays a crucial role in protecting these data. Fan (2021) highlighted the importance of effective charity management, arguing that the information from these organisations should be publicly accessible for auditing purposes, while the system must be observable, verifiable, decentralised, and tamper-proof. He proposed an Ethereum-based public aid platform to address these needs (Çaybaşı & Peker, 2024, p. 110). Using the cryptographic solutions provided by the blockchain can help securely store the information of individuals enrolled in social assistance programs in Turkey and prevent unauthorised access.

Identity management is another area significantly influenced by blockchain technology (Pineda, Jabba, & Nieto-Bernal, 2024, p. 11). Using blockchain in personal identity verification processes for social benefits and other government services can help prevent identity fraud and streamline the management of identity and social benefits for migrants and refugees. Decentralised identity systems empower individuals by granting them greater control over their personal information, thereby reducing the risk of identity theft (Pineda, Jabba, & Nieto-Bernal, 2024, p. 11). By offering a secure and decentralised identity management system, the blockchain can enhance the efficiency of accessing government services.

In Turkey, the Ministry of Family and Social Services provides assistance to families that fall below the established standards, which consider factors such as family income, the number of family members, and ownership of assets like land or property. In the realm of social assistance, individuals often refrain from declaring any assets to qualify for state support, allowing those who do not report property to benefit from social assistance. Blockchain technology can help digitise property records, such as land, houses, and title deeds, to prevent forgery or deception. By managing land registry and property records with blockchain

technology, it becomes crucial for preventing injustice and fraud, as well as protecting the rights of individuals who are genuinely in need (Türkmen & Durbilmez, 2019, p. 34).

Blockchain technology presents challenges in social assistance applications, but it also offers significant advantages. One of the primary benefits is the prevention of misuse of social assistance. With this technology, all information and transactions are recorded in distributed ledgers, which helps prevent erroneous or fraudulent transactions and is crucial for detecting any potential manipulation. This level of transparency can also address issues related to social assistance not reaching those in need.

Social Security Applications

Social security practices and systems are a crucial component of social policy in our country. Prior to the transition to a digital platform, short-term (maternity, illness, and occupational accidents) and long-term (disability, old age, and death) insurance branches in social security were managed through an archive system. This approach led to issues such as lost documents and incorrect, incomplete, or inaccurate transactions. Additionally, work related to social security systems and insurance branches was conducted centrally, requiring citizens to visit the social security institution in Ankara for their transactions and to monitor their processes.

With the establishment of social security institutions in the provinces and the shift to a digital platform, all transactions have begun to occur online, making the follow-up process significantly easier. However, the rise of cyber-attacks and security vulnerabilities associated with technology has highlighted the importance of implementing blockchain technology to create a more secure system for monitoring transactions. Analysing the potential effects of blockchain technology on social security practices in Turkey reveals that its capacity to enhance data security and transaction transparency offers substantial advantages.

Blockchain technology is a decentralised digital platform that enables data to be recorded in an immutable form. This technology ensures the security and accuracy of data, particularly when storing information related to the social security institution, transactions concerning short- and long-term insurance branches, premium payments, and pension information, all of which are vital to social security allowances. Data recorded with this technology and any subsequent changes are documented in each block, making it impossible to alter the historical data. The application of blockchain technology in managing pension funds, social security systems, and ensuring data integrity can enhance system efficiency and make transaction processes more reliable and transparent.

Smart contracts, a crucial component of blockchain technology, play a significant role in reducing human error and expediting transactions that occur automatically when specific conditions are met within the social security system. In developed countries, personnel wages are typically processed using digital methods (Akıncı & Kaya, 2024, p. 652). However, these methods place the employer in charge of tax and Social Security Institution (SSI) deductions from gross wages, which can lead to disruptions due to the varying operational structures of institutions (Deloitte, 2017, p. 11). By implementing smart contracts, it is anticipated that wage calculations will occur within a unified framework, minimising human errors that arise when different institutions handle these processes separately (Owens & Jong, 2017, p. 6).

Smart contracts enable employers to code personnel wages as gross amounts without the need to perform tax and social security premium deductions manually. Instead, they allow for the automatic deduction of taxes and social security premiums, which are then transferred to the relevant authorities, while the net wages are deposited directly into the employees' accounts (Akıncı & Kaya, 2024, p. 652). This automation not only reduces the responsibilities placed on firms but also facilitates a more efficient tax collection for the administration (Yıldız, 2019, p. 58).

Moreover, blockchain-based smart contracts can actively enhance the management of social security systems, including short- and long-term insurance branches and pension funds, ensuring that actuarial fund accounts are delivered accurately and punctually. Despite the reliability of the blockchain technology, it remains vulnerable to cyber-attacks, which can compromise the personal data contained within the blockchains. Therefore, it is crucial to address these data protection issues effectively, ensuring that the integrity of blockchain systems and the rights of individuals are upheld (Gündal, 2024, p. 29). Such automation can lead to more effective and accurate management of social security systems in Turkey.

The transition to a chip ID card system, replacing the old ID cards, and the ongoing integration of these chip cards with identity verification systems into the social security framework are significant developments in our country. In this context, blockchain technology presents considerable advantages for identity verification and access control. These systems create a secure and immutable platform for verifying individual identities. Particularly in areas such as premium payments and pension distribution, blockchain enables the swift detection of fraud, errors, or irregularities. It allows for the secure storage of personal information while providing authorised access.

Thanks to its decentralised architecture, the system is more resilient against data breaches, enhancing security during access to social security services and preventing unauthorised entry (Karahan & Tüfekci, 2019, p. 186). Furthermore, this secure access

contributes to the overall integrity of social security services. However, challenges arise from the immutable nature of the blocks in the blockchain. The inability to alter or delete data recorded on these blocks complicates requests for the correction or deletion of incorrectly processed personal information in the social security system, creating implementation difficulties for data controllers (Gündal, 2024, p. 29).

Fraud, false applications, and misrepresentations are significant issues faced in social security applications, disrupting both social security practices and the actuarial finance system. Blockchain technology can enhance transparency and traceability for every transaction and data update, aiding in the detection and prevention of fraud, which ultimately benefits the social security institution and the country. This technology has the potential to curb fraud and minimise data manipulation within social security systems. The implications of blockchain necessitate a reevaluation by social policymakers of their approaches and strategies regarding this technology. Consequently, comprehending the impacts of blockchain on social security systems can inform and shape future implementation strategies.

Data Management and Security

In the traditional approach using a centralised database, a third party controls the database, while in the blockchain approach, a copy of the database is accessible to all participants, effectively preventing data corruption and destruction. In this distributed structure, any modifications to the data must be recorded across all computers in the system. This process necessitates approval and verification from most data network, making it nearly impossible for a cyber-attack to succeed (Mendi, 2012, p. 182).

Blockchain technology can significantly enhance security by maintaining data in a distributed structure (Ünal & Uluyol, 2020, p. 168) and cryptographically protecting each transaction. In the context of the digital age, blockchain is crucial for safeguarding individuals' privacy in data management, particularly in health, social security, and social assistance—key components of social policy practices. This technology improves the quality and efficiency of health services by ensuring the confidentiality and accessibility of health data, which is vital for the social security system. Moreover, the integration of blockchain with health data and social security applications in Turkey holds substantial potential for enhancing data security, transparency, accessibility, and process efficiency. However, the integration of blockchain into existing social security and health systems may be time-consuming and costly, requiring significant infrastructure development. To effectively implement blockchain in health data and social security, Turkey's legal framework must be adapted to accommodate this technology.

Challenges in the Implementation of Blockchain Technology in Social Policy Applications in Turkey

Blockchain technology offers innovative solutions in Turkey's social policy and implementation areas. However, alongside these innovations, there are various challenges that may arise during the design and implementation stages of this technology. Therefore, considering Turkey's geographical, demographic, and cultural diversity, as well as its current constitutional, technological, and political structure, the challenges that may be encountered during the implementation of this technology can be examined under the following headings:

Legal Regulations

The legal frameworks in Turkey, such as the constitution, regulations, and labour laws, may not be sufficiently developed to support the implementation of blockchain technology. Consequently, comprehensive revisions in legal regulations may be needed for the successful deployment of this technology. Moreover, aligning blockchain-based solutions with the existing constitutional arrangements could require a lengthy and complex process. The effective application of blockchain technology depends on the harmonious functioning of multiple factors, including government policies, legal frameworks, and technical infrastructure. However, it should not be overlooked that when used correctly and efficiently, this technology can provide significant benefits (Golosova & Romanovs, 2018: 1).

Technical infrastructure and education deficits

Blockchain technology has a complex structure, consisting of a series of intricate concepts and processes that individuals without prior knowledge may find difficult to understand and apply (Sarmah, 2018: 27). For the application of blockchain technology in Turkey's social policy sector, it is essential to first ensure the necessary digital infrastructure. However, internet access and technological infrastructure are limited, especially in Turkey's rural and disadvantaged regions. Despite various improvements being made in this area in line with technological developments, existing gaps must be addressed for the effective implementation of this technology. Specifically in Turkey, there are deficiencies in the technical infrastructure, education, and skilled human

resources required for the full implementation of blockchain technology in social policy. The limited knowledge and skills of public employees and social policy practitioners regarding blockchain technology, which are critical for the application of this technology, negatively affect the effectiveness and sustainability of projects. This situation hinders the full realisation of the potential benefits of this technology and leads to various disruptions in its implementation.

High Costs

Blockchain technology is costly and resource-intensive. In both the public and private sectors, particularly in social policy fields, high costs are encountered during the application phase of this technology. To ensure the application and sustainability of blockchain technology in Turkey's social policy sector, it is necessary to overcome financial and limited budget constraints.

Culture and Structural Differences

Turkey has a cosmopolitan structure due to its cultural and structural diversity. This may lead to low levels of societal acceptance in some regions when introducing new technologies, and the society may not be fully prepared for these innovations. Additionally, the lack of collaboration between public institutions contributes to various challenges in the adoption process of these technologies. The intensive application of social assistance policies in rural areas and among disadvantaged groups further accentuates structural differences.

In conclusion, for blockchain technology to be integrated into social policy applications in Turkey, regulations must be developed, technical infrastructure strengthened, costs optimised, and data security ensured. Once these challenges are overcome, blockchain technology can offer innovative solutions in many areas, ranging from the distribution of social assistance to the management of employment policies.

Reshaping Social Policies with Blockchain Technology in Turkey

In recent years, blockchain technology has garnered attention for its features such as transparency, security, and decentralisation (Yapıcı, Oral, Yumuşak, & Eren, 2024, p. 458), positioning it as an innovative solution capable of driving significant changes in social policies. For Turkey, a developing country in a digitally globalised world, it is crucial to ensure systematic information flow storage and effective data utilisation in social security, social benefits, and data systems, which play a vital role in social policy practices (Altunbaşak, 2018, p. 368).

This study examines how blockchain technology is transforming the traditional concepts of social policy practices and underscores the necessity for coherent and responsive policy frameworks that address the complexities of the digital age. In this context, analysing how blockchain can reshape social policy in Turkey—currently adapting to digital platforms—is crucial for understanding the technology's effects at both local and national levels. The impacts of blockchain technologies on social policy practices prompt significant changes across various fields. Notably, concepts such as digital citizenship and digital rights, along with technology-enabled participation and interaction (Çatlı & Keskin, 2021, p. 209), are vital for the democratisation of welfare provision processes. Additionally, the rapid advancement of digital technology has altered individual expectations regarding digital citizenship and rights (Öztürk, 2021).

Conclusion and Recommendations

To enhance and evaluate the effectiveness of blockchain applications in social policy areas, pilot projects and tests must be conducted considering today's technological transformations. It is essential to measure the performance of the developed theories and applications. The adoption of blockchain technology in Turkey can drive significant transformations and improvements across various social policies. Specifically, using blockchain for recording social assistance, social security, and data management systems will enhance the security, transparency, and accuracy of these systems. Furthermore, this application can serve as an effective resource for energy and environmental management aligned with sustainable development goals, while also ensuring transparency and accuracy in the protection of personal data and the management of social assistance programs through blockchain.

Encouraging collaboration among public institutions, private sector entities, Civil Society Organisations (CSOs), municipalities, the Ministry of Family and Social Services, Regional Directorates, universities, and policymakers is crucial. This collaboration is particularly important for understanding and enhancing the impact of blockchain technology on social policies. In addition, continuous innovation and research should be undertaken to maximise the potential of blockchain in the realm of social policy through these partnerships. Establishing an active research environment will help keep pace with technological advancements and address emerging challenges. In this context, relevant stakeholders are carefully examining the potential impacts of blockchain on

social policy, necessitating the development of various applications and strategies to analyse both the opportunities and challenges of integrating this technology into social assistance and security. A comprehensive integration of blockchain into social policy practices will require a significant transformation process.

In conclusion, blockchain technology holds significant potential for transforming social policies, contributing to the development of more transparent, secure, and effective systems. To fully harness this potential, it is essential to carefully evaluate existing studies and application examples. Furthermore, integrating blockchain technology with social policies in Turkey could lead to substantial advancements in the quality of life for the country, society, and individuals. However, appropriate regulations and training will be necessary to facilitate this process. Additionally, realising the positive effects of blockchain on social policies will require the establishment of suitable legal and regulatory frameworks.

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