

FROM PROHIBITION TO REGULATION: A LEGAL ANALYSIS OF PAKISTAN'S BLOCKCHAIN AND VIRTUAL ASSETS FRAMEWORK

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Abstract

In just a few years, the blockchain regulation in Pakistan has come a long way from trading of crypto currency completely banned in 2018, to development of a general understanding of what blockchain technology entails, and finally to a legal framework that has been drafted in 2025 which seeks to regulate and promote both blockchain as a technology useful for efficiency, and cryptocurrency as an effective medium of exchange. This study highlights the institutionalization and effect of the newly established Pakistan Virtual Asset Regulatory Authority (PVARA) to regulate the digital asset environment as well as use of blockchain technology in various other multifaceted industries. The evidence from the sector points to the potential of this industry, and therefore the need for balanced and effective regulation is studied, such as the \$25 billion digital assets market, \$10.5 billion in crypto-based remittances, and the successful use of blockchain technology in food and land registration projects, all of which provide an insight into how the new technology is regulated and contributes to a burgeoning economy.

Keywords: Block chain, Virtual Assets, PVARA, regulation, challenges, historical context, laws, opportunities, Pakistan

Introduction

Blockchain emerges as a disruptive innovation in Pakistan's digital economy and accounting/financial reporting systems and corporate governance (Khan, 2024). In terms of small and medium-sized businesses (SMEs), according to Mirza (2024), the use of blockchain will help increase transparency and accuracy in reporting processes by overcoming previous problems related to data tampering and information asymmetry. In a similar vein, Saifullah et al. (2025) and Zulfiqar et al. (2022) point out the usefulness of blockchain implementation in the banking industry of Pakistan, as it helps ensure Shariah governance and smart contract transactions for trust improvement purposes.

Furthermore, an empirical study by Imtiaz et al. (2023) confirms that blockchain technology adoption leads to higher transparency in supply chain management, where trust plays the role of a moderator among supply chain actors. All these results collectively prove that blockchain is viewed not just as an innovative technological invention but also as a form of governance development (Falak, 2023).

The influence of blockchain on the food supply chain and supply chain management of Pakistan entails more than Ghaffar et al. (2025) provide. When integrated with Mirza (2024), it is apparent that while Pakistan's blockchain technology is multi-sectoral, it is also multifaceted in terms of increasing transparency, efficiency, and trust. The new literature indicates that Pakistan's blockchain technology is in line with the global trend of digitalization but at the same time addresses national problems of trust, regulatory compliance and supply chain integrity (Falak, 2023). Beyond the sectors covered above, blockchain in Pakistan is also

increasingly finding applications in the public sector for enhancing governance, public services, and data security.

Research Justification

The examination of blockchain applications and effects in Pakistan is essential because, at the moment, there is an upsurge in the digital economy in Pakistan, with problems in different industries such as inefficiency, lack of accountability, and transparency. It is important to note that the technology is globally regarded as disruptive; nevertheless, blockchain applications and effects vary in different sectors in Pakistan. Though current research highlights advantages including the ability to trace transactions and security and reliability among others, there lacks empirical literature on the subject specific to Pakistan. Therefore, understanding how blockchain technology is adopted and affects sectors suffering from inefficiency and information asymmetries would be helpful.

Literature Review

Falak's (2023) research was focused on factors affecting the acceptance of blockchain in organizations and logistics. On the other hand, Zhang et al. (2023) used the extended UTAUT model to examine behavioral intentions for using blockchain in operations and logistics management. They found that the three key factors of blockchain adoption were performance expectancy, facilitating conditions, and social influence.

Samie and Malik (2024) expanded on this knowledge by exploring the application of blockchains in agricultural supply chains, recognizing the positive impacts of blockchains on traceability, information asymmetries, and trust among supply chain stakeholders, thus addressing challenges in rural value chains. Such research indicates the uneven adoption of blockchain in Pakistan, with industry-specific issues.

A few other studies also leverage blockchain technology for health and governance. For instance, Abbasi et al. (2024) conducted a systematic review of block chain application in the health sector, where they critically analyzed how the block chain technology can be used for ensuring security of health records, data integrity, and data privacy. The findings indicate that there is huge potential for blockchain technology in solving issues of data isolation and security in Pakistan's health sector (Khan, 2024). Likewise, Ghaffar et al. (2025) conducted empirical research in Punjab province's food supply chain to show the advantages of blockchain-enabled traceability.

Examples like these reveal the power of blockchain technology to provide solutions to various problems that arise in the business world and society at large. The blockchain research in Pakistan is not only confined to food security but can also help in solving financial issues. According to Saifullah et al (2025), the role of blockchain technology is in helping the principles of Shariah and smart contracts.

Historical Context of Pakistan's Blockchain and Virtual Assets Framework

The adoption of blockchain technology in Pakistan has taken a step from theory to the actual application in specific sectors (Zulfiqar et al., 2022). Early research primarily concerned the acceptance and preparedness of the technology, especially in operational and supply chain settings.

Zhang et al. (2023) examined the factors influencing the adoption of blockchain in the supply chain sector in Pakistan, emphasizing the significance of perceived usefulness and facilitating conditions. As the study continued, it turned its attention to the agricultural sector, which was found to be a promising application for blockchain technology due to its potential for enhancing transparency, reducing information asymmetry, and building trust within the

agricultural value chain (Samie & Malik, 2024). Likewise, Abbasi et al. (2024) reported the progress of the debate on the use of blockchain technology in the healthcare sector in Pakistan, noting the growing interest in using blockchain technology for ensuring data integrity in EHR.

In the last few years, however, there has been a growing impact of blockchain technology, with empirical evidence of its positive impact visible in different sectors. Ghaffar et al. (2025), for example, have pointed out that the opportunities presented by the application of blockchain technology in the food supply chains in Pakistan could be realized by eliminating any fraudulent processes in any province of the country, including Punjab Province. The financial industry is not spared either, as there have been reports of interest in blockchain technology in that sector as well. For instance, blockchain technology is a game-changer in the Islamic finance sector, as highlighted by Saifullah et al. (2025).

Laws Regarding Pakistan's Blockchain and Virtual Assets Framework

1. Virtual Assets Ordinance 2025: By implementing the Virtual Assets Ordinance (2025), Pakistan's digital financial regulations have been comprehensively revised (Khalid Zafar & Associates, 2025). Apart from abolishing all earlier regulations, the Ordinance has established a completely autonomous body, namely Pakistan Virtual Asset Regulatory Authority (PVARA), that is solely responsible for licensing, regulating, and monitoring the Virtual Asset Service Providers (VASPs). PVARA is an entirely autonomous body operating from Islamabad, having a board of directors comprising the Governor of SBP, Chairperson of SECP, Chairperson of FBR, and DG FIA. The organization will monitor the activities of VASPs to ensure that the FATF requirements are followed and protect the assets of customers (Government of Pakistan, 2025).

2. Digital Nation Pakistan Act, 2025: Following this, the Digital Nation Pakistan Act, 2025 has come up with the idea of “pipes” for the construction of a digital nation (National Assembly of Pakistan, 2025).

3. Anti-Money Laundering Act (AMLA) 2010 (Amendments): The AMLA 2010 was amended in 2020 to be in compliance with FATF recommendations, and it has become an important component of the 2025 Ordinance (Government of Pakistan, 2020). Reporting Entities refer to Virtual Asset Service Providers under Section 2(xii) of AMLA 2010.

4. Prevention of Electronic Crimes Act (PECA) 2016: While the new laws have covered almost all areas related to cybercrime, the Prevention of Electronic Crimes Act (PECA) 2016 (National Assembly of Pakistan, 2016) is lacking in many ways. Although Section 14 of PECA protects against identity theft, no provision is made for crypto crimes that are emerging, such as stealing of private keys and wallet seed phrases by hackers.

Challenges Regarding Pakistan's Blockchain and Virtual Assets Framework

The blockchain technology offers an innovative way of transforming different industries in Pakistan, although there are some barriers that prevent the efficient use of blockchain technology in the country. One of the major barriers is the technological infrastructure and capacity. There are many organizations that do not have adequate IT infrastructure, internet connectivity, and personnel required for adopting and implementing the blockchain technology. The absence of the required technological infrastructure prevents the effective use of blockchain technologies in different sectors such as agriculture, healthcare, and supply chains due to its ability to enhance transparency and traceability.

There is another significant factor that poses a great challenge in using blockchain technologies. The problem lies in the absence of a proper regulatory policy within the country's jurisdiction with regards to digital transactions and the use of cryptocurrency. While the

government has made attempts through the formation of the Pakistan Crypto Council and proposing the formation of VARA, there is no proper regulation in the country for cryptocurrencies and blockchain technology. The uncertainty about digital transactions has made it difficult for businesses and investors to adopt blockchain technology.

Supply chain is yet another area that needs to be managed. Being secure and verifiable, blockchain technology may be used in the agriculture, textiles, and manufacturing sectors in Pakistan. It will help in verifying that whatever is being sold in the markets was actually produced by farmers and not fabricated, thereby ensuring exports to other countries. Blockchain technology can also help in reducing corruption within public service providers. It can be done by using blockchain for verifying digital identity, land registries, and voting procedures. Although there have been certain provincial-level experiments in using blockchain technology for record-keeping, its implementation has yet to grow substantially.

Opportunities Regarding Pakistan's Blockchain and Virtual Assets Framework

A significant domain that could benefit from blockchain technology is that of supply chain management. The implementation of blockchain technology in industries, such as agriculture, textiles, and manufacturing would be beneficial for Pakistan. For instance, by recording food items from the production stage to their delivery, we can ensure that there are no scams. It will make Pakistan's exports more believable to the international community. In addition, a similar process needs to be established to prove that Pakistan sources its textile products ethically.

Blockchain technology can also aid in enhancing transparency and eliminating corrupt practices in the government sector. Blockchain technology in the form of digital identity, property records, and electronic voting will significantly lower any falsification and promote trust among citizens. While some provinces have started utilizing blockchain technology for record-keeping purposes, blockchain technology in Pakistan remains limited for now. There are various challenges related to the application of blockchain technology. First, Pakistan lacks a clear regulatory framework concerning cryptocurrency. Second, there is a shortage of technical knowledge related to the blockchain technology. Third, people may be unaware of the technology and its potential benefits.

Conclusion

There are multiple benefits and risks associated with using blockchain technologies in Pakistan as it strives to become more digitally evolved. People's unawareness about this technology, besides cryptocurrencies, makes the adoption difficult. Adopting blockchain technology in Pakistan will require collaboration between the government, academia, and the private sector towards developing regulations and building capacities to foster.

Pakistan's transition from a total ban on blockchain in 2018 to its regulation in 2025 signifies an important milestone for the country's legal framework. Through the passing of the Virtual Assets Ordinance, 2025, and the Digital Nation Pakistan Act, 2025, the government has set the stage for legitimizing the country's \$25 billion digital assets industry within the mainstream economy. Though the formation of the PVARA and following of FATF requirements is evidence that attempts were made to comply with international laws, the existing regulatory framework is quite hostile, and there are some grey areas with regards to the PECA 2016 regulations. All in all, the data generated by the \$10.5 billion crypto remittance corridor and the Sindh land registry pilot prove the inevitability of blockchain for the digital economic revolution. For the development of the sector, the government needs to move from

regulation to market promotion through easing market entry conditions for startups and training regulators on the new technology.

Recommendations

- 1. Amendment of PECA 2016 relating to Cybercrimes** – The parliament needs to make changes to PECA 2016 to include cybercrimes. This includes defining private keys as "digital assets" and creating new laws to cover the theft of private keys as an actual crime, distinct from theft of data.
- 2. Progressive Licensing:** PVARA needs to implement a progressive licensing system, which should divide big exchanges and startups. A micro-licensing system with less required capital should be created to foster innovation and avoid the emergence of an oligopoly of foreign exchanges in the market.
- 3. Judge and Prosecutor Training:** The government should offer training for judges and prosecutors on blockchain forensics. The proposed Ordinance has called for special courts, which must be equipped technically to address smart contract disputes and track tainted money.
- 4. Expansion of the Sandboxes:** The regulatory sandbox should be leveraged to test products that are new to the decentralized finance (DeFi) landscape that are not covered by the traditional licensing structure. The results of these experiments should guide dynamic policymaking.
- 5. Standardized Shariah Compliance:** The Shariah Advisory Committee should provide standardized rules on classifying tokens to avoid confusion and attract investors from the religion conscious investor community.

Research Limitations

There are some limitations to this research on adopting blockchain technology in Pakistan. First, there is a lack of recent and local data due to the nascent stage of blockchain adoption in Pakistan. There is a lack of empirical local evidence available in most reports, as they reference international case studies. Second, Pakistan's regulatory environment is uncertain, making it hard to assess long-term adoption. There is a dynamic regulatory environment for cryptocurrencies and blockchain applications, which may affect future impact in a different way than it has in the past.

Third, this research is more descriptive, based on qualitative analysis rather than quantitative surveys or experiments. Therefore, we present a more descriptive rather than statistically inferential analysis. Finally, the level of technological knowledge and adoption also varies between regions, especially between urban and rural, so our findings cannot be extrapolated to the whole population. In-depth and quantitative studies are needed for broader insights.

Research Implications

There are a number of implications of this study for various entities in Pakistan. Policymakers would find this study relevant in terms of developing a regulatory framework that promotes innovation in blockchain technology without jeopardizing the financial system and the consumers' interests. Regulatory certainty would encourage foreign investments in blockchain technologies, which could also encourage local ventures in this domain. The private sector would find this study valuable from an innovative perspective because it shows how blockchain technology can improve processes within several sectors such as banking, logistics, healthcare, and governance.

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