Blockchain Adoption Challenges and Solutions in Bangladesh

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ABSTRACT

Background: The idea of insurance was discovered several millennia before Christ (BC). In the second and third millennia BC, traders from China and Babylonia practiced shifting or dispersing risks. Today, insurance is the foundation of the economy, but expanding its penetration is difficult in emerging nations. The fourth insurance industry revolution in the developed world was sparked by the recent advent of Blockchain, IoT, Big Data, and InsurTech.

Objective: To boost insurance coverage in Bangladesh, this study examines the problems with and potential solutions to blockchain technology.

Research Methodology: To identify the themes and factors pertaining to problems and solutions in implementing blockchain in Bangladesh insurance business, this study used a systematic literature review. To find pertinent material from Google Scholar, several keywords were employed. The filtered studies were examined based on inclusion and exclusion standards.

Findings: This report outlined many obstacles to blockchain adoption in the Bangladesh insurance sector as well as potential remedies. The proposals could help policymakers improve the insurance industry's service delivery.

Keywords: blockchain, Insurance Industry, Digital Technologies, Bangladesh.

JEL Classification: G22

Paper Type: Systematic Literature Review (SLR) / Review Article

Submitted: 15th April 2025	Revision: 15th May 2025	Accepted: 15th June 2025

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1. Introduction

1.1 Background

Blockchain technology has emerged as a foundational innovation in the Fourth Industrial Revolution (4IR), redefining the structure of data management and secure digital transactions. Operating as a decentralized and immutable digital ledger managed by a distributed network of computers, blockchain eliminates the need for third-party intermediaries. Every transaction is transparent, permanently recorded, and validated through consensus algorithms using cryptographic hashes, thereby fostering trust and data integrity across a wide range of sectors. These characteristics make blockchain applicable not only in digital finance but also in sectors such as healthcare, supply chain management, market monitoring, intelligent energy systems, and personal data privacy.

In the context of Bangladesh, blockchain adoption is gaining momentum as the country aims for sustainable development and digital transformation. However, the broader implementation of this technology remains hindered by multiple structural and policy-related challenges. While various sectors such as governance, healthcare, farming, information authentication, security, internet architecture, and data management have shown interest in exploring blockchain's potential, they have not yet been able to fully capitalize on its benefits (Hussain et al., 2022).

1.2 Research Problem

Despite the growing global momentum in blockchain deployment, Bangladesh lacks a well-structured Blockchain Technology Acceptance Model (TAM) that could facilitate systematic adoption. This absence has resulted in fragmented efforts by developers and researchers, with most published work remaining at the conceptual or theoretical level. The current regulatory environment further exacerbates this issue. The Bangladesh Bank, under the Foreign Exchange Regulation Act (FERA) of 1947 and the Money Laundering Prevention Act (MLPA) of 2012, deems Bitcoin and other cryptocurrencies as illegal, posing significant hurdles to implementation efforts (Hussain et al., 2022).

Moreover, there is a scarcity of expert researchers, a lack of technical resources, and poor awareness about blockchain among the wider population. These gaps have limited progress in integrating blockchain into key development areas. While blockchain technology can contribute to reducing corruption through cryptocurrency-enabled transparency, the current policy landscape has severely restricted such avenues. This policy-induced stagnation is further compounded by infrastructure limitations and a lack of formal strategic direction (Hussain, 2022).

1.3 Blockchain and the Insurance Sector in Bangladesh

Blockchain's relevance to Bangladesh is particularly evident in the insurance sector, which functions under a dual system comprising conventional insurance and Islamic insurance (Takaful), regulated by the Insurance Development and Regulatory Authority (IDRA). The current insurance system suffers from inefficiencies, lack of transparency, and poor trust among the population. Specific challenges facing the Takaful industry include the scarcity of professionals skilled in both insurance and Shariah law, lack of standardized practices, and conflicting regulatory approaches (Zhang et al., 2021).

Blockchain offers a promising solution to many of these challenges. Through secure and shared digital records, automation of manual tasks via smart contracts, and efficient transaction validation, blockchain can significantly improve the delivery of both conventional and Takaful insurance services. It also enables the mobilization of savings, Halal investment vehicles, and transparent Zakat distribution mechanisms—enhancing financial inclusion in a predominantly Muslim population (Zhang et al., 2021).

The manual nature of the claim settlement process in Bangladesh could be completely restructured with blockchain-based systems. Smart contracts would ensure automated execution of terms and real-time disbursement of funds to policyholders. Similarly, reinsurance operations could be streamlined through secure data sharing between insurers and reinsurers. However, challenges remain, particularly in the integration of blockchain with existing IT systems. The lack of universal standards and interoperability, coupled with high implementation costs, makes this transition complex (Nusrat, 2021).

1.4 Institutional and Socioeconomic Barriers

The insurance industry in Bangladesh is also grappling with broader institutional and socioeconomic constraints. Mamun (2016) identified four core problem areas: marketing, human resource management, operational inefficiencies, and ethical concerns. Among these, marketing failures—including unqualified agents, poor public understanding of policies, and negative perceptions of insurance—pose significant barriers to growth. Additional issues include weak IT support, lack of technical knowledge, and unethical practices such as agent malpractice (Mamun, 2015; 2016).

Ali (2018) highlighted how legal limitations and the volatile capital market deter insurers from making high-return investments, contributing to the sector's stagnation. Moreover, insurance companies are concentrated in urban areas, leaving rural populations underserved. Cultural and religious misconceptions, especially among the 90% Muslim population, further reduce demand for insurance products (Reza & Iqbal, 2007). Inadequate marketing budgets, lack of trained personnel, and minimal investment in talent development continue to limit the sector's scalability (Islam, 2019).

Nevertheless, with Bangladesh's GDP growing from 5.57% in 2010 to 7.8% in 2019, and increasing literacy and income levels, the long-term demand for insurance is likely to rise. Blockchain presents an opportunity to bridge these gaps—particularly in rural and agricultural sectors—by enabling low-premium microinsurance and simplified loan services for farmers (Ali, 2020).

1.5 Research Objectives

To address the identified gaps, this study is guided by the following objectives:

1. To review the status and theoretical discussions of blockchain adoption in Bangladesh across major sectors.
2. To identify the challenges and limitations inhibiting its application, with a focus on the insurance industry.
3. To analyze how blockchain technology can enhance insurance services, particularly Takaful offerings.
4. To suggest actionable strategies and policy recommendations to foster blockchain integration in Bangladesh.

1.6 Research Questions

This research aims to explore the following questions:

- What are the key technical, regulatory, and socio-cultural challenges in adopting blockchain technology in Bangladesh?
- How can blockchain be effectively implemented in the Bangladeshi insurance sector?
- What policy interventions and infrastructural support are required to overcome existing barriers and promote blockchain adoption?

1.7 Significance of the Study

This study offers a comprehensive assessment of blockchain's potential role in transforming Bangladesh's insurance sector. By drawing attention to policy gaps, technical constraints, and institutional inefficiencies, it proposes a way forward for the sustainable adoption of this emerging technology. The research contributes to academic literature by filling the void in practical and sector-specific blockchain studies in the South Asian context. It also informs policymakers, technology developers, and financial institutions about how to overcome adoption hurdles through regulatory reform, awareness campaigns, and technical capacity-building.

2. Literature Review

2.1 Immaturity and Lack of Standardization

Blockchain technology remains in its developmental phase globally, and this immaturity presents a major barrier to its widespread adoption in Bangladesh. The lack of standardized programming languages for blockchain development is a significant challenge. According to the University Grants Commission (UGC), the undergraduate curriculum in Bangladesh is limited to programming languages such as C, C++, Java, C#, PHP, and Python. While these are foundational, they may not be sufficient to support advanced blockchain applications (Hussain et al., 2022).

Scalability issues in major public blockchain platforms also hinder adoption. Although private blockchain networks theoretically offer better scalability, they are often inaccessible to the public and limit broader innovation. Moreover, implementation costs are substantial, and compatibility with existing legacy systems remains a persistent technical constraint. Expertise, infrastructure, and public awareness about blockchain are all currently insufficient to support adoption at scale in Bangladesh.

Table 1: Characteristics of reviewed blockchain adoption studies in Bangladesh insurance sector

No.	Journal name/ Conference Name	Paper topic/ Conference paper Name	Method	Year	Author
1	UIU Institutional Repository	Problems and Prospects of Blockchain Technology in Bangladesh Economy.	Exploratory	2020	(Tasnim, 2020)
2	Emerging Technology in Computing, Communication and Electronics	Smart Grid Implementation with Consortium Blockchain: A Proposed Model for Bangladesh.		2020	(Rhydwan et al., 2020)
3	23rd International Conference on Computer and Information Technology	Towards Using Blockchain Technology for Microcredit Industry in Bangladesh		2020	(Asaduzzaman et al., 2020)
4	Electronic Research Journal of Social Sciences and Humanities	Use of Blockchain Technology in Banking in Bangladesh; Usefulness, Hurdles and Recommendations		2021	(Syeda, 2021)
5	Third World Quarterly	Will blockchain emerge as a tool to break the poverty chain in the Global South?		2017	(Kshetri, 2017)
6	Corporate Governance and Organizational Behavior Review	Digital Opportunities in the Healthcare Enterprises during COVID-19: An Empirical Analysis of the Developing Country	Quantitative	2021	(Mahboob, 2021)
7	Journal of King Saud University - Computer and Information Sciences	A Blockchain-based Land Title Management System for Bangladesh	Exploratory	2020	(Kazi et al., 2020)
8	2nd International Conference on Robotics, Electrical and Signal Processing Techniques	A Novel Framework for Blockchain Based Driving License Management and Driver's Reputation System for Bangladesh		2021	(Mazumder et al., 2021).

9	Tbs news	Blockchain technology: Bangladesh perspective		2020	(Ariful, 2020)

2.2 Infrastructure, Implementation Cost, and Piracy

Internet scarcity presents another critical limitation. Despite an increase in internet users—from 54.12 million in December 2015 to 108.19 million in August 2020—Bangladesh ranked 98th out of 175 countries in internet speed. This limits the practicality of deploying blockchain systems, which require stable, high-bandwidth infrastructure (BTRC, 2020).

Moreover, implementing blockchain incurs high costs, especially since most software must be imported. With a 92% software piracy rate, local developers often rely on unauthorized software, reducing reliability and security. The domestic software industry has not yet matured to the level where blockchain solutions can be developed and maintained locally. These factors further raise the barriers to adoption for both public and private institutions.

2.3 Awareness, Education, and Law Enforcement

Public awareness and digital literacy regarding blockchain remain very low in Bangladesh. Many people, including professionals, are unfamiliar with blockchain's purpose, functioning, and potential applications. Weak law enforcement, low income levels, and moral degradation further contribute to this gap. Without national awareness campaigns and educational programs, blockchain adoption will remain limited to isolated use cases.

A significant impediment is also the absence of a regulatory framework that provides legal guidance and incentives for adopting new technologies. The lack of clearly defined regulations causes uncertainty, making investors and organizations reluctant to experiment with blockchain solutions (Hussain et al., 2022).

2.4 Review Approach and Thematic Analysis

The authors conducted a systematic literature review to extract themes from recent academic studies and technical papers focused on blockchain adoption in Bangladesh. The review collected metadata from each article, including author name, year of publication, country, publication type, and findings. From this analysis, a narrative synthesis was developed to identify recurring challenges and proposed solutions.

Table 2: **Blockchain adoption in Bangladesh Insurance Industry: Issues & Solutions**

No. of Studies	Issues	Solutions
Study 1	• Vendor lock-in occurs when a vendor's system fails for any reason. • Bangladesh also lacks blockchain experts to fully use the technology. • Its implementation is hampered by a lack of resources, such as cash • Many businesses are unaware of the advantages of blockchain technology, which hinders adoption. • Indefinite uncertainties prevent a regulatory framework. • Radical shift in business models will deter firms from adopting it. • Integration with legacy systems required to match with the business' computer system.	• Expanding blockchain knowledge • Establishing blockchain research institutes and finding blockchain experts to raise awareness and knowledge in Bangladesh • Before using blockchain, companies must grasp the governance model.
Study 2	• Maintaining data privacy and defending the system from cyber-attacks is difficult.	• Nil

Study 3	• Database technology is insecure, unchangeable, and concerns trust and privacy.	• Nil
Study 4	• Interfaces for blockchain ledgers are not user-friendly • Inefficient system • A lack of blockchain standards • Cyber-threat • Lack of privacy and security trust • Understanding of this technology • No hard and fast rules. • Interoperability across platforms and other IT systems is currently lacking.	• Blockchain has to be scalable enough to handle massive user transactions quickly. • Encryption needs both public and private keys. The user who saves and processes the keys protects the keys. • Setting up "appropriate data models and blockchain-enabled business processes" with "authentication and communication protocols" is required. • Collaboration is essential to pilot "high levels of projected change," create trust, and detect and manage repercussions. • Developers and companies must educate regulators and establish blockchain use guidelines. Industry groups must create cryptocurrency standards and practises. • "Embed sustainable issues into the growing industry code of conduct," industry groups must do.
Study 5	• Blockchain applications are still in their infancy. • Regulators and state authorities' responsibilities are unclear. • The blockchain's functionality may potentially clash with regulatory constraints, such as the inability to modify or erase data held in a public ledger. • Miners had to do repeated calculations (called hashing) to get a 'magic number' that made the block genuine and acceptable to other participants. • The hardware affects energy usage. • Data miners keep their hardware hidden. • Transactions require network bandwidth. GS economies with network congestion may be worse.	• Nil

	• Many GS economies lack technical advancement. • Lack of information & Lack of user-friendly applications • Blockchain has a bad reputation because to its relationship with bitcoin, which has been used for criminal operations including money laundering and drug trafficking	
Study 6	• Robotics and blockchain would demand a large initial investment in Bangladeshi healthcare.	• Nil
Study 7	• Widespread digital illiteracy	• Government must enact new Blockchain policies and legislation. • They should train authorities and the public to implement this high-tech solution. • Security attack simulation and deterrent may be added to the system.
Study 8	• Nil	• Simplifying Fabric network core protocols and execution processes will boost scalability.
Study 9	• Regulatory issue • Lack of trust • Technology cost • Data safety • Investment in integrating new technology with legacy systems	• Nil

The synthesis of the selected studies revealed several common themes. These include vendor lock-in, lack of expert personnel, insufficient financial resources, and limited awareness of blockchain's benefits. Moreover, the absence of a governance model and lack of integration with legacy systems further inhibit adoption.

Cybersecurity and privacy risks, non-user-friendly interfaces, the absence of blockchain standards, and a lack of interoperability across platforms and IT systems were also frequently cited. These issues are intensified by a shortage of technical knowledge and minimal regulatory clarity on data protection, record-keeping, and system upgrades (Syeda, 2021; Kshetri, 2017).

In sectors like healthcare, robotics and blockchain integration demand large investments, which pose a significant hurdle in Bangladesh. Regulatory issues, lack of trust, high technology costs, and data safety concerns persist in nearly all reviewed sectors. To address these, the reviewed literature recommends expanding blockchain knowledge, establishing dedicated research institutions, training public officials, and implementing a comprehensive national blockchain strategy (Tasnim, 2020; Kazi et al., 2020).

3. Research Methodology

3.1 Methodological Approach

The literature review addressing the challenges and solutions in adopting IoT in Pakistan was conducted using a Systematic Literature Review (SLR) methodology. Relevant articles were identified based on the keywords listed in Table 3 and were selected according to the inclusion and exclusion criteria outlined in Table 4. The SLR approach facilitates the identification, selection, and critical appraisal of existing research to answer a clearly defined research question (Dewey & Drahota, 2016).

Table 3 Keywords Selections

Block chain	Literature and conference proceedings on blockchain in the Bangladesh financial industry, particularly insurance and health insurance.	Studies not in English Magazine, newspaper, thesis, report data Studies in non-financial fields including education, manufacturing	Papers publishing platforms such as Google scholar and emerald were opted as the exploring means for this review. Following blend of search, terms are applied: Blockchain * AND (insurance sector*) AND (challenge* OR obstacle* OR issue* OR disadvantage* OR threat). The exploration was

Past works available since 2020 Primary and secondary research	Large-scale data analytics and other technologies	carried out between 2020 to 2021.

Table 4 Selection Criteria

Technology	Criteria	Bangladesh
Blockchain	**Identification**	15
	Screening	13 after removing 2 duplicates
	Eligibility	12 after removing 1 archive
	Included	9 after removing 3 full articles

4. Findings of the Included Studies

The systematic literature review identified a wide range of challenges that hinder the adoption of blockchain technology in Bangladesh's insurance sector. Through content analysis, the issues were thematically categorized based on frequency and relevance. The findings indicate that both technical and non-technical barriers exist at multiple levels, including infrastructure, regulatory frameworks, business culture, and user literacy.

One of the foremost challenges is **vendor lock-in**, which arises when systems are tied to a particular vendor and become vulnerable in the event of vendor failure (Tasnim, 2020). Compounding this is the **shortage of blockchain experts**, which severely limits the capacity for blockchain development and deployment within the country (Tasnim, 2020). Financial constraints also emerge as a significant barrier; integrating robotics and blockchain into sectors such as healthcare requires substantial upfront investment, which is not readily available (Mahboob, 2021). The high cost of installing and integrating new technologies remains one of the most frequently cited concerns (Ariful, 2020).

A widespread **lack of awareness** among companies regarding blockchain's benefits further limits adoption. Additionally, blockchain's association with illicit activities such as hacking, money laundering, and drug trafficking has contributed to a **negative public perception**, undermining trust and acceptability (Kshetri, 2017). The **absence of clear regulations** is another pressing issue. Regulatory bodies and state authorities often have unclear responsibilities, and immutable public ledgers conflict with the legal right to data erasure, commonly referred to as the "right to be forgotten" (Kshetri, 2017). Open, permissionless distributed ledger systems currently lack regulatory oversight, although private or permissioned blockchains are more manageable through administrator control or outsourcing contracts. While some global authorities have initiated Distributed

Ledger Technology (DLT) research, a coherent DLT regulatory framework is yet to emerge (World Bank Group, 2017).

The need for **fundamental changes to existing business models** is another major deterrent (Tasnim, 2020). Distributed ledger interfaces are typically non-intuitive, and full compatibility with existing systems demands industry-wide coordination and costly infrastructure overhauls (World Bank Group, 2017). Most blockchain networks remain **incompatible** with one another, as the 6,500+ existing blockchain platforms generally operate as stand-alone systems without common communication protocols. Security features also vary significantly, creating further integration barriers. Establishing **industry-wide blockchain standards** could promote collaborative application development, proof-of-concept trials, and more seamless integration (Finextra, 2020).

Other technical limitations include **low system efficiency**, **high transaction latency**, and **excessive energy consumption** (Syeda, 2021). The absence of **official blockchain protocols** and central authorities managing protocol governance leads to inconsistencies in the way data is transmitted and verified (Syeda, 2021). Additionally, **technology illiteracy** among users remains a significant concern, as blockchain adoption requires advanced understanding of encryption, hash functions, and decentralized storage (Syeda, 2021; Shams & Aswini, 2020).

The lack of standardized **interoperability** mechanisms is another critical issue. Without commonly accepted data models and secure communication protocols, it is difficult to integrate blockchain into existing IT ecosystems. Interoperability also influences competition; allowing users to switch providers encourages market competitiveness and cost-efficiency (itransition, 2020). As blockchain is still in its **infancy stage**, especially in developing countries, it suffers from limited pilot applications and low institutional readiness (Kshetri, 2017).

In addition to these constraints, **energy consumption in proof-of-work consensus mechanisms—**which require miners to compute resource-intensive hashes**—**poses environmental and logistical concerns. Mining hardware requires substantial power and is often hidden, raising additional transparency issues (Kshetri, 2017). Limited **network bandwidth** also affects transaction throughput, especially in GS (Global South) economies with infrastructural bottlenecks (Kshetri, 2017).

A **shortage of skilled blockchain developers** further exacerbates the issue. The global supply-demand gap in blockchain expertise is particularly pronounced in countries like Bangladesh. Technical professionals are often reluctant to relocate, making recruitment even more difficult (Shams & Aswini, 2020). Finally, **digital illiteracy**, especially in rural and underserved regions, severely restricts the reach of blockchain-based solutions. As

Tasnim (2020) notes, raising awareness, building research institutions, and nurturing local blockchain talent are essential to addressing this gap.

Other critical issues include the need for **robust blockchain governance** models, which determine how people, institutions, and protocols interact in a decentralized system (Tasnim, 2020). Blockchain also needs to be **scalable** enough to handle large volumes of user transactions. Since every node store and verifies each transaction, public blockchain systems often face performance bottlenecks. On-chain scaling methods such as **sharding—**which divides the blockchain network into smaller, parallelizable pieces**—** can improve efficiency and throughput (Leewayhertz, 2021). Moreover, blockchain relies on **public and private key encryption**, placing the burden of key security on users themselves (Syeda, 2021).

Ultimately, **interoperability**, **authentication standards**, and **communication protocols** are necessary for integrating blockchain into existing ecosystems. Successful pilot programs require stakeholder **collaboration** to manage risks, build trust, and track implementation outcomes. Developers and firms must also take responsibility for **educating regulators** and establishing clear user guidelines. Furthermore, **industry consortia** should work toward developing ethical codes of conduct and setting **cryptocurrency and DLT standards** (Syeda, 2021). Finally, government support is critical: comprehensive blockchain legislation and training for public administrators are urgently needed to enable sustainable deployment of this high-potential technology (Kazi et al., 2020).

Table 5: Blockchain Adoption Challenges in Bangladesh Insurance Industry

Vendor lock-in
Bangladesh lacks blockchain experts
A lack of investment funding
Unaware of the potential of blockchain technology
Regulatory vacuum
This technology is transforming business paradigms dramatically.
Interfaces for blockchain ledgers are not user-friendly
Inefficient system
A lack of blockchain standards
Misunderstanding of technology
No clear criteria exist.
Blockchain applications are still in their infancy.
The miners' proof-of-work consensus requires a lot of energy.
Additional bandwidth is necessary to relay network transactions.
Minimal tech skills
E-illiteracy

5. Proposed Solutions

To address the multifaceted challenges surrounding blockchain adoption in Bangladesh's insurance industry, the literature proposes several strategic and policy-level solutions. A primary recommendation is the development of blockchain expertise through the establishment of specialized research institutes and targeted training programs. These institutions would serve as hubs for innovation, workforce development, and technical leadership in blockchain application across sectors (Tasnim, 2020).

Regulatory reform also emerges as a critical enabler. The government must enact comprehensive blockchain legislation that clearly outlines the legal framework, defines stakeholder responsibilities, and introduces institutional oversight. Such regulatory clarity would reduce uncertainty, build investor confidence, and create an enabling environment for innovation (Kazi et al., 2020). Alongside regulation, public awareness campaigns are essential. Educating citizens and businesses about the nature and benefits of blockchain through mass media, academic forums, and grassroots outreach could dispel misconceptions and promote informed adoption, especially in rural and underserved communities.

Another important solution lies in establishing national and sector-specific standards for blockchain systems. Industry-wide collaboration is required to develop interoperable data models, authentication protocols, and secure communication standards. These efforts would ensure compatibility between blockchain platforms and existing IT systems, thereby enhancing system efficiency and scalability (Syeda, 2021). Furthermore, the deployment of blockchain-based smart contracts can streamline insurance operations by automating claims management processes. This would not only reduce administrative delays but also enhance transparency and customer satisfaction.

Pilot projects with clear governance mechanisms are also recommended to test blockchain implementations in controlled environments before full-scale deployment. Such initiatives can help stakeholders assess technical feasibility, operational efficiency, and regulatory compliance. Moreover, blockchain presents a transformative opportunity for inclusive finance. Insurance providers can use blockchain to develop low-premium microinsurance products and simplified loan facilities tailored for farmers and rural populations, thereby addressing financial exclusion and risk vulnerability (Ali, 2020).

To overcome the blockchain developer shortage, the literature calls for academic-industry partnerships, scholarships, and professional incentives that encourage students and professionals to specialize in blockchain technologies. Finally, international collaboration with established blockchain networks, consortia, and knowledge hubs can accelerate capacity-building and expose Bangladeshi stakeholders to global best

practices. Collectively, these solutions offer a roadmap for integrating blockchain into Bangladesh's insurance sector in a manner that is efficient, inclusive, and future-ready.

Table 6: **Blockchain Adoption Solutions in Bangladesh Insurance Industry**

Expanding blockchain knowledge.
Establishing blockchain-focused research centres.
Identifying blockchain experts to educate and teach Bangladeshis.
Before adopting blockchain, companies must grasp the governance model.
Blockchain has to be scalable enough to handle massive user transactions quickly.
The user who saves and processes the keys protects the keys.
Collaboration is essential to pilot "high levels of projected change," create trust, and detect and manage repercussions.
Developers and companies must educate regulators and help set blockchain use guidelines. Industry groups must create cryptocurrency standards and practises.
Government must create new Blockchain policies and legislation.
They should teach authorities and educate the public to properly implement this high-tech solution.

6. Conclusion

The adoption of blockchain technology in Bangladesh's insurance sector presents a transformative opportunity to enhance transparency, efficiency, and financial inclusion. However, as highlighted by the literature, realizing this potential requires a holistic approach to overcoming key barriers such as limited expertise, regulatory ambiguity, interoperability issues, and low public awareness.

The proposed solutions emphasize the importance of institutional support through the development of blockchain-focused research centers, regulatory reforms that foster legal clarity and investor confidence, and robust public education campaigns to build grassroots understanding. Technical measures such as standardization, smart contract integration, and the initiation of pilot programs are essential to ensure practical, scalable, and secure implementation.

Moreover, by fostering academic-industry partnerships and promoting international collaboration, Bangladesh can address the skills gap while aligning its strategies with global best practices. If implemented effectively, these measures can pave the way for a blockchain-enabled insurance ecosystem that is not only technologically advanced but also equitable, customer-centric, and resilient to future challenges.

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