An Analysis of the Key Elements and Consequences of Blockchain Adoption in the Financial Industry with an Emphasis on Stakeholder Trust

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Abstract: This study aimed to identify and analyze the principal elements and consequences of blockchain adoption in the financial industry, with particular emphasis on the role of stakeholder trust. This qualitative study was conducted through a systematic review of the literature and thematic analysis of scholarly publications published between 2006 and 2026. Relevant studies were identified from major international and Iranian scientific databases using combinations of keywords related to blockchain, financial services, FinTech, adoption, trust, transparency, security, regulation, and digital finance. After screening titles, abstracts, and full texts according to predetermined inclusion and exclusion criteria, 64 eligible studies were included in the final analysis. Data were extracted using a structured review framework covering technological, organizational, regulatory, economic, behavioral, and trust-related factors. Qualitative content analysis and thematic synthesis were then applied to identify recurring adoption determinants, dimensions of stakeholder trust, positive consequences, and major implementation challenges. The synthesis indicated that technological characteristics were the most frequently identified determinant of blockchain adoption, reported in 55 studies (85.94%), followed by stakeholder trust in 52 studies (81.25%), perceived usefulness and relative advantage in 49 studies (76.56%), regulatory and legal conditions in 46 studies (71.88%), and organizational readiness in 43 studies (67.19%). Trust in technological integrity was the most prominent trust dimension, identified in 50 studies (78.13%). The most frequently reported positive consequence was increased transparency and auditability, observed in 51 studies (79.69%), followed by improved transaction efficiency in 48 studies (75.00%) and enhanced data integrity and security in 46 studies (71.88%). Regulatory and legal uncertainty was the most common challenge, identified in 45 studies (70.31%), followed by privacy concerns in 39 studies (60.94%) and cybersecurity vulnerabilities in 37 studies (57.81%). Blockchain adoption in the financial industry is a multidimensional sociotechnical process in which stakeholder trust plays a central mediating and reinforcing role between technological capabilities, institutional conditions, perceived risks, and implementation outcomes. Successful adoption depends not only on technical performance but also on regulatory clarity, organizational readiness, privacy protection, effective governance, and the ability to demonstrate tangible value to stakeholders.

Keywords: Blockchain, Financial Industry, Stakeholder Trust, FinTech, Technology Adoption, Financial Transparency, Digital Finance

1. Introduction

The financial industry is undergoing a profound technological transformation driven by the convergence of digital platforms, artificial intelligence, distributed ledger technologies, advanced analytics, and automated

decision-making systems. Within this broader transformation, blockchain has emerged as one of the most influential technologies because of its potential to redefine the mechanisms through which financial transactions are recorded, verified, monitored, and trusted. Blockchain technology is generally characterized by distributed data storage, cryptographic verification, immutability, transparency, traceability, and the capacity to execute transactions without relying exclusively on centralized intermediaries. These characteristics have attracted considerable attention across banking, FinTech, accounting, auditing, supply chain finance, investment management, insurance, taxation, and financial reporting. Recent studies have increasingly examined blockchain not simply as an information technology innovation but as an institutional infrastructure capable of altering established relationships among organizations, customers, regulators, auditors, investors, and other stakeholders [1-3]. Its expansion has consequently raised important questions regarding the conditions under which financial actors accept blockchain systems, the value that organizations and users perceive in adopting them, and the degree to which trust can be transferred from conventional institutions and intermediaries toward technologically mediated financial environments.

The strategic importance of blockchain in finance derives largely from its capacity to address longstanding problems associated with information asymmetry, transaction costs, reconciliation delays, fragmented databases, limited transparency, fraud risk, and dependence on multiple intermediaries. Financial institutions traditionally operate through complex centralized infrastructures in which verification, recordkeeping, authorization, settlement, and compliance are frequently performed by separate actors and information systems. Blockchain can potentially integrate several of these functions within a shared and verifiable transaction architecture, thereby reducing duplication, facilitating real-time access to financial information, and improving the reliability of records. In accounting and financial management, blockchain has been increasingly discussed as a mechanism for improving data quality, reducing opportunities for manipulation, and providing more timely and reliable information for decision making [4, 5]. Its applicability has also been extended to financial reporting, taxation, investment processes, smart contracts, and corporate transactions, suggesting that the technology may influence not only operational efficiency but also the broader informational infrastructure of financial markets [6, 7]. These developments have made blockchain adoption a strategically significant concern for both traditional financial organizations and technology-oriented financial enterprises.

Blockchain has particular relevance to financial transparency because it provides mechanisms through which transaction histories can be recorded in a manner that is difficult to alter retrospectively and can, depending on system design, be verified by authorized participants. In environments where financial reporting credibility and transaction accountability are critical, such characteristics may contribute to improved confidence in the authenticity and completeness of financial information. Studies addressing financial reporting have highlighted blockchain's capacity to improve transparency, enhance security, reduce information distortion, and strengthen the reliability of accounting information [8, 9]. Similar arguments have been advanced in relation to Islamic banking and digitally transformed financial institutions, where the integration of blockchain with artificial intelligence has been proposed as a means of enhancing the transparency, efficiency, and integrity of auditing and financial reporting processes [10]. More recent work has also emphasized the synergistic relationship between blockchain and artificial intelligence, suggesting that blockchain-based verification mechanisms can support more reliable AI-enabled financial reporting and decision-making systems [11, 12]. Accordingly, blockchain adoption increasingly needs to be understood within an ecosystem of interconnected digital technologies rather than as an isolated technological implementation.

Another central area of blockchain application concerns auditing, assurance, and fraud detection. Traditional auditing often relies on periodic assessment, sampling procedures, delayed data retrieval, and retrospective evaluation of financial records. Blockchain-based infrastructures may enable continuous or near-real-time verification of transactions, potentially allowing auditors and organizations to detect anomalies earlier and to reduce the informational gap between transaction occurrence and assurance activity. Research on real-time auditing indicates that blockchain can contribute to enhanced financial transparency and fraud detection by providing continuously updated and verifiable transaction records [13]. Empirical evidence has also suggested that blockchain applications may improve audit quality through enhanced accessibility, reliability, and traceability of financial information [14]. In supply chain finance, blockchain has been discussed as a means of overcoming accounting, accountability, and assurance barriers by improving visibility among transaction participants and establishing shared records of financial and operational events [15]. These developments further demonstrate that the consequences of blockchain adoption extend beyond transaction processing and can influence institutional accountability, assurance practices, and relationships among multiple stakeholders.

Despite these advantages, the acceptance of blockchain technology within financial organizations remains far from automatic. Financial-sector adoption depends on a complex interaction among perceived usefulness, technological readiness, organizational resources, regulatory conditions, risk perceptions, competitive pressure, and managerial support. Research on financial innovation has demonstrated that blockchain adoption is shaped by multiple determinants and that successful implementation can influence the performance of financial firms [16]. Similarly, studies integrating innovation diffusion and technology–organization–environment perspectives have shown that blockchain adoption, particularly in supply chain financing, depends on technological advantages, compatibility, organizational capacity, and environmental conditions rather than on a single technological characteristic [17]. In strategic supply chain finance, decision makers must additionally consider risk aversion, stakeholder behavior, incentives, and the economic consequences of adopting blockchain within interdependent networks [18]. Thus, adoption is better conceptualized as a multilevel institutional and behavioral process in which technological capabilities interact with organizational decision structures and ecosystem relationships.

Organizational readiness is especially important because blockchain frequently requires substantial modifications to existing financial architectures, data structures, governance procedures, and business processes. Established financial institutions often operate legacy systems that have evolved incrementally over decades, making technological integration costly and organizationally complex. Implementation may require new infrastructure, specialized expertise, changes in employee responsibilities, adjustments in governance mechanisms, and extensive coordination with external partners. Studies examining the application of blockchain in financial management have highlighted both the opportunities created by decentralization, transparency, and automation and the challenges associated with technical complexity, regulation, implementation costs, and organizational resistance [19]. Research from a managerial and futures-oriented perspective similarly suggests that the capacity to apply blockchain depends on financial managers' assessments of organizational readiness, strategic utility, and future integration potential [20]. Consequently, financial organizations must evaluate blockchain not simply in terms of whether the technology functions technically, but whether it can be assimilated into existing organizational structures and create sustainable value.

The potential contribution of blockchain to financial performance constitutes another major dimension of the adoption debate. Financial institutions are unlikely to implement emerging technologies at scale unless they anticipate measurable operational, strategic, or economic benefits. Evidence from banking suggests that blockchain

adoption may be associated with improved financial performance when it enhances efficiency, reduces operational friction, and supports more effective resource utilization [21]. In emerging economies, blockchain and FinTech are also increasingly examined within broader efficiency frameworks that consider the interaction between technological innovation and institutional conditions [22]. At the same time, systematic research on decentralized finance and FinTech startups has emphasized that blockchain can create opportunities related to financial inclusion, reduced intermediation, innovative service delivery, and new business models, while also generating substantial regulatory, governance, cybersecurity, and scalability challenges [23]. These findings indicate that the performance consequences of blockchain are conditional and depend on implementation context, organizational capabilities, and the maturity of the surrounding financial ecosystem.

The significance of blockchain is also evident in supply chain finance, where financing decisions often depend on information from multiple organizations with unequal levels of transparency and varying incentives. Blockchain can potentially improve the availability and credibility of transaction data, thereby reducing uncertainty between financing institutions, suppliers, buyers, and other actors. Research has demonstrated that blockchain-based financial technology can influence supply chain disruption risk by strengthening data integration and improving information visibility across interconnected organizations [24]. Blockchain has also been incorporated into intelligent risk-management systems designed to support financing decisions by increasing the availability of structured and traceable information [25]. Such applications demonstrate that blockchain's financial relevance extends beyond conventional banking and accounting into broader interorganizational networks in which financing, operational risk, and information sharing are closely interconnected. However, these settings also highlight the importance of mutual confidence among participants, since shared technological infrastructure can function effectively only when organizations trust the integrity of the system and the rules governing participation.

Trust is therefore one of the most consequential dimensions of blockchain adoption in the financial industry. Financial transactions inherently involve uncertainty, information asymmetry, and exposure to opportunistic behavior, making trust a fundamental condition of exchange. Conventional financial systems have historically addressed this problem through regulated intermediaries, institutional reputation, legal enforcement, and centralized verification mechanisms. Blockchain modifies this arrangement by introducing technological mechanisms intended to reduce dependence on centralized trust. Nevertheless, blockchain does not eliminate trust; rather, it redistributes it across technological infrastructure, governance mechanisms, financial institutions, regulatory authorities, developers, and network participants. Research on blockchain implementation in financial services has emphasized that transparency and verifiability can contribute to stronger user confidence, particularly when stakeholders perceive transaction records as accurate and resistant to unauthorized alteration [26]. Studies focusing directly on customer acceptance have similarly shown that adoption of blockchain-based financial transactions and cryptocurrency-related services is affected by customers' relational perceptions and willingness to trust new forms of financial interaction [27]. Accordingly, stakeholder trust should be conceptualized as a dynamic construct shaped by both technological and institutional factors.

Transparency is closely connected with trust because stakeholders are more likely to rely on a financial system when they can verify how transactions are recorded and processed. Blockchain's distributed ledger architecture may improve transparency by creating synchronized transaction histories that can be independently validated by authorized actors. In public and organizational governance contexts, blockchain has consequently been proposed as a mechanism for reducing corruption, strengthening accountability, and improving transparency in administrative and financial processes [28]. Within banking and financial businesses, blockchain-based value

creation has likewise been linked to transparency, efficiency, service innovation, and the redesign of traditional financial processes [29]. At the same time, transparency cannot be considered unconditionally beneficial. Excessive visibility may create privacy concerns, particularly where financial records contain sensitive personal or corporate information. Therefore, the relationship between transparency and trust depends on whether blockchain systems provide appropriate controls over access, confidentiality, and data governance while preserving the verifiability that makes distributed ledgers valuable.

Security is another major factor shaping stakeholder confidence. Blockchain is frequently associated with enhanced security because transactions are cryptographically linked and distributed across multiple nodes, reducing the possibility of unilateral record manipulation. However, blockchain-based finance remains vulnerable to several forms of risk, including compromised private keys, smart-contract vulnerabilities, insecure interfaces, flawed implementation, data leakage, and governance failures. The practical security of blockchain systems therefore depends not only on the distributed ledger itself but also on the broader technological and organizational environment in which it operates. The growing integration of blockchain with data-mining techniques for financial anomaly detection illustrates one approach to strengthening risk monitoring by combining transaction integrity with analytical tools capable of identifying suspicious patterns [30]. In addition, the convergence of blockchain with AI and big-data analytics is increasingly being considered within sustainable finance because these technologies can jointly enhance information processing, risk assessment, and financial decision-making [31]. These developments indicate that stakeholder trust is likely to depend increasingly on the perceived reliability of integrated digital financial ecosystems rather than on the reputation of a single technology.

The emergence of autonomous and AI-enabled financial systems further reinforces the importance of blockchain as an institutional mechanism. As artificial intelligence increasingly participates in financial analysis, transaction execution, and decision support, questions concerning data integrity, accountability, and autonomous action become more significant. Blockchain has been proposed as a potential economic and financial infrastructure capable of supporting autonomous AI through verifiable records, programmable transactions, and decentralized coordination [32]. At the organizational level, interpretive structural research has similarly shown that blockchain and artificial intelligence can jointly improve accounting information systems through interrelated technological and organizational mechanisms [33]. The growing integration of these technologies suggests that future financial systems may rely increasingly on automated processes whose acceptance depends heavily on whether stakeholders believe that the underlying data, algorithms, and transaction mechanisms are transparent, auditable, and governed appropriately.

At the same time, blockchain's institutional acceptance is strongly affected by regulatory legitimacy. Financial institutions operate under extensive legal and supervisory requirements concerning consumer protection, data privacy, anti-money-laundering controls, capital adequacy, transaction monitoring, taxation, and financial reporting. Blockchain systems that do not align with these requirements may face substantial barriers regardless of their technical capabilities. The development of blockchain-based value-added tax systems illustrates how distributed ledger technologies may support more transparent and efficient fiscal administration while simultaneously raising questions about legal design, interoperability, privacy, and regulatory implementation [6]. Similar concerns arise across accounting and financial reporting, where organizations must balance technological innovation with recognized professional standards and legal requirements [4, 5]. Regulatory clarity can therefore strengthen stakeholder trust by establishing recognizable responsibilities, dispute mechanisms, data protections,

and compliance expectations, whereas regulatory ambiguity can amplify perceived risk and delay institutional adoption.

Another important consideration concerns the ability of blockchain to create value across different stages of financial information processing. Blockchain may influence the input stage by improving the reliability and authenticity of source data, the processing stage by automating verification and reconciliation, and the output stage by increasing the timeliness and credibility of financial reporting. However, each of these potential benefits is accompanied by threats related to data permanence, system complexity, governance, and implementation cost [9]. Evidence linking blockchain adoption to higher corporate financial reporting quality further suggests that the technology can have material consequences for the information environment of firms [34]. These effects are particularly important because financial reporting quality influences investors, creditors, regulators, auditors, managers, and other stakeholders. If blockchain can enhance the reliability of reported information, it may strengthen trust not only in specific transactions but also in broader organizational reporting processes.

Despite the growing literature, existing research remains fragmented across different disciplines, technologies, sectors, and stakeholder groups. Some studies emphasize technological performance, while others focus on accounting quality, organizational readiness, audit effectiveness, financial performance, supply chain financing, transparency, regulatory conditions, or customer acceptance. This fragmentation makes it difficult to obtain an integrated understanding of which elements most consistently shape blockchain adoption and how those elements are related to stakeholder trust. Moreover, studies often discuss trust implicitly through concepts such as transparency, security, reliability, accountability, data integrity, and institutional confidence rather than examining trust as a central analytical construct. Recent research on blockchain-based financial reporting, banking, auditing, supply chain finance, and digital financial systems nevertheless suggests that these dimensions are deeply interconnected [13, 17, 21, 34]. A comprehensive synthesis is therefore necessary to identify the principal technological, organizational, regulatory, economic, and behavioral elements associated with blockchain acceptance and to clarify how their consequences may strengthen or weaken confidence among stakeholders.

This need is particularly important in light of the continuing evolution of FinTech and the increasing convergence of blockchain with artificial intelligence, smart contracts, automated auditing, risk analytics, and decentralized financial services. Research has demonstrated that blockchain can support financial innovation and organizational performance, yet its value depends on successful integration with existing institutional structures and stakeholder expectations [16, 22]. Studies of emerging applications further demonstrate that blockchain can simultaneously create new efficiencies and introduce new sources of uncertainty, particularly regarding governance, accountability, privacy, interoperability, and regulatory responsibility [23]. From this perspective, stakeholder trust becomes a pivotal concept connecting the technical properties of blockchain with actual adoption behavior and subsequent organizational outcomes. Understanding this relationship is essential because technological systems in finance ultimately depend on the willingness of users, organizations, regulators, investors, and partners to rely on the processes and information generated through them.

Accordingly, the aim of the present study was to identify and analyze the principal elements and consequences of blockchain adoption in the financial industry, with particular emphasis on the role of stakeholder trust.

2. Methods and Materials

This study employed a qualitative research design based on a systematic review of the literature and qualitative analysis of relevant scholarly publications concerning blockchain adoption in the financial industry, with particular

emphasis on the role of stakeholder trust. The review covered studies published between **2006 and 2026**, allowing the research to encompass both the conceptual foundations that preceded the widespread emergence of blockchain technology and the subsequent development of blockchain-based financial applications, institutional adoption models, and trust-related research. The study population consisted of peer-reviewed journal articles, conference papers, scholarly reviews, and other academically credible publications indexed in major international and Iranian scientific databases. International databases considered in the review included Web of Science, Scopus, ScienceDirect, SpringerLink, IEEE Xplore, and Google Scholar, while relevant Iranian academic databases were also examined to identify domestic studies addressing blockchain technology, financial innovation, digital transformation, stakeholder trust, and institutional adoption. The search strategy was designed around combinations of English and Persian keywords related to "blockchain," "blockchain adoption," "financial industry," "financial services," "digital finance," "FinTech," "stakeholder trust," "institutional trust," "technology acceptance," "transparency," "security," "decentralization," and "financial innovation." Studies were considered eligible when they directly addressed the determinants, dimensions, mechanisms, barriers, facilitators, or consequences of blockchain adoption within banking, insurance, investment, payment, capital-market, FinTech, or related financial contexts, or when they provided substantive evidence concerning the formation, maintenance, or transformation of stakeholder trust in blockchain-enabled environments. Publications whose principal focus was exclusively technical, such as cryptographic algorithm development, computational architecture, cryptocurrency price prediction, or blockchain applications unrelated to the financial sector, were excluded unless their findings had a direct conceptual relationship with stakeholder trust or organizational adoption. Duplicate publications, non-scholarly materials lacking sufficient methodological transparency, and studies whose full texts were unavailable for meaningful analysis were also excluded. The final analytical sample was therefore constructed purposively on the basis of relevance, scientific credibility, conceptual richness, and direct contribution to explaining the principal elements and consequences of blockchain acceptance in the financial industry.

Data collection was conducted through a structured document-review procedure developed specifically for the systematic extraction and organization of information from the selected studies. A researcher-designed literature review and data-extraction framework served as the principal data collection instrument and was used to ensure consistency across the reviewed publications. For each eligible study, bibliographic and methodological information was recorded together with its theoretical perspective, research context, financial subsector, stakeholder group, investigated blockchain application, determinants of adoption, identified benefits and risks, trust-related constructs, and reported organizational, technological, regulatory, behavioral, and economic consequences. Particular attention was given to evidence concerning perceived security, transparency, traceability, privacy, decentralization, technological reliability, regulatory clarity, interoperability, organizational readiness, perceived usefulness, perceived risk, transaction efficiency, governance arrangements, and the credibility of blockchain-based financial systems. Since stakeholder trust constituted the central analytical emphasis of the study, the data collection framework was designed to differentiate among various forms of trust, including trust in blockchain technology, trust in financial institutions, trust among transaction participants, trust in regulatory mechanisms, and trust in the integrity and reliability of blockchain-based processes. The extraction process also recorded the stakeholder categories addressed in each study, including customers, investors, employees, managers, financial institutions, technology providers, regulators, business partners, and other actors involved in financial ecosystems. To enhance methodological consistency, publications were reviewed in successive stages consisting of initial title screening, abstract assessment, full-text eligibility evaluation, and detailed content extraction. Relevant

textual segments, conceptual propositions, reported findings, and recurring explanatory factors were systematically recorded and categorized. This procedure provided an organized qualitative dataset through which both frequently identified adoption factors and less frequently discussed but theoretically significant trust-related dimensions could be examined in an integrated manner.

The collected material was analyzed through qualitative content analysis and thematic synthesis in order to identify, classify, and interpret the principal elements associated with blockchain adoption and its consequences for the financial industry and stakeholder trust. Analysis began with repeated reading of the selected publications to obtain an overall understanding of the conceptual and empirical patterns emerging from the literature. Relevant statements, findings, constructs, and explanatory propositions were then identified as meaning units and assigned preliminary codes according to their substantive content. Coding was initially conducted at an open level so that concepts could emerge from the reviewed evidence without being restricted to a single pre-established technology-adoption framework. Similar codes were subsequently compared and consolidated into broader conceptual categories reflecting technological, organizational, environmental, regulatory, economic, behavioral, and trust-related dimensions of blockchain acceptance. During the next analytical stage, relationships among categories were examined to distinguish antecedent conditions facilitating or inhibiting blockchain adoption from the consequences that followed its implementation. Particular analytical attention was devoted to the reciprocal relationship between adoption and stakeholder trust. Accordingly, trust was examined not merely as an outcome of blockchain implementation but also as a potentially decisive antecedent influencing stakeholders' willingness to accept and participate in blockchain-based financial systems. Themes relating to transparency, immutable recordkeeping, data integrity, security, reduction of intermediary dependence, accountability, privacy concerns, technological uncertainty, regulatory ambiguity, and governance were therefore analyzed in terms of their possible positive or negative effects on trust formation. The final thematic synthesis involved integrating related categories into a coherent explanatory structure representing the key elements of blockchain adoption and its major consequences at stakeholder and financial-industry levels. Constant comparison among studies was applied throughout the analysis to identify convergence, divergence, contextual variation, and recurring patterns across different financial subsectors and stakeholder populations. To strengthen analytical rigor, codes and themes were repeatedly reviewed against the original studies, conceptually overlapping categories were merged, ambiguous categories were refined, and themes lacking adequate evidential support were reconsidered. The resulting analytical framework was used as the basis for organizing the findings and for explaining how technological attributes, institutional conditions, regulatory environments, organizational capabilities, perceived risks and benefits, and stakeholder trust collectively shape the acceptance and consequences of blockchain technology within the contemporary financial industry.

3. Findings and Results

The systematic review and qualitative synthesis resulted in a final analytical corpus of 64 studies published between 2006 and 2026 that directly addressed blockchain adoption in the financial industry, its determinants and consequences, or the role of stakeholder trust in blockchain-enabled financial environments. Examination of the general characteristics of the reviewed literature indicated that publication activity was relatively limited during the earlier years of the review period but increased substantially following the expansion of blockchain applications in banking, financial technology, digital payments, investment services, insurance, and capital markets. Of the 64 studies included in the final synthesis, 6 studies (9.38%) were published between 2006 and 2015, 19 studies (29.69%)

between 2016 and 2020, and 39 studies (60.94%) between 2021 and 2026, indicating that the majority of the evidence base reflected relatively recent developments in blockchain-enabled financial services. In terms of geographical scope, 21 studies (32.81%) were conducted in Asian financial markets, 14 studies (21.88%) focused on European contexts, 8 studies (12.50%) originated from North America, 6 studies (9.38%) examined Middle Eastern contexts, and 5 studies (7.81%) were conducted in other individual national settings, while 10 studies (15.63%) adopted multinational, cross-country, or non-country-specific conceptual perspectives. Regarding financial subsectors, banking and payment services represented the most frequently examined context, accounting for 24 studies (37.50%), followed by FinTech and digital financial services with 15 studies (23.44%), capital markets and investment services with 9 studies (14.06%), insurance with 6 studies (9.38%), cryptocurrency-related financial services with 5 studies (7.81%), and mixed financial-sector contexts with 5 studies (7.81%). Methodologically, 23 studies (35.94%) used quantitative approaches, 17 studies (26.56%) employed qualitative designs, 9 studies (14.06%) adopted mixed-method approaches, and 15 studies (23.44%) consisted of conceptual, review-based, or theoretical analyses. The most frequently represented stakeholder populations were customers and end users, financial managers and employees, institutional decision makers, regulators, investors, and technology providers. Across the reviewed literature, the findings consistently indicated that blockchain adoption in finance was not determined by technological capability alone; rather, adoption emerged from the interaction of technological characteristics, organizational preparedness, regulatory conditions, perceived economic value, risk perceptions, and the level of stakeholder trust in both the technology and the institutions responsible for implementing it.

Table 1. Principal Elements Influencing Blockchain Adoption in the Financial Industry

Main dimension	Key elements identified in the reviewed studies	Frequency (n)	Percentage of studies (%)	Analytical interpretation
Technological characteristics	Security, immutability, transparency, traceability, system reliability, scalability, interoperability, technological complexity	55	85.94	Technical performance and perceived technological integrity constituted the most frequently identified foundation of blockchain acceptance.
Stakeholder trust	Trust in technology, institutional trust, trust among transaction parties, confidence in data integrity, perceived credibility	52	81.25	Trust functioned as both an antecedent to adoption and a mechanism through which blockchain characteristics were translated into acceptance.
Perceived usefulness and relative advantage	Faster transactions, improved efficiency, reduced processing time, automation, improved access to financial services	49	76.56	Adoption was more likely when stakeholders perceived clear operational or strategic advantages compared with conventional systems.
Regulatory and legal environment	Regulatory clarity, legal recognition, compliance requirements, data protection, governance standards	46	71.88	Regulatory certainty strengthened adoption, whereas ambiguity regarding legal accountability and compliance discouraged institutional commitment.
Organizational readiness	Management support, technological infrastructure, employee capabilities, financial resources, digital strategy	43	67.19	Financial institutions required sufficient internal capacity to integrate blockchain into existing systems and processes.
Perceived risk	Cybersecurity risk, privacy concerns, financial uncertainty, operational risk, legal risk, reputational risk	41	64.06	High perceived risk reduced willingness to adopt blockchain, particularly when users lacked knowledge of system governance and accountability mechanisms.
Economic considerations	Implementation cost, transaction cost reduction, return on investment, cost efficiency	38	59.38	Expected cost reductions encouraged adoption, but substantial initial investment and uncertain returns remained important barriers.

Compatibility and integration	Compatibility with legacy systems, integration with organizational processes, technical standardization	35	54.69	Compatibility was particularly important for established financial institutions operating complex legacy infrastructures.
Stakeholder knowledge and awareness	Blockchain literacy, technical understanding, prior experience, awareness of benefits and risks	32	50.00	Greater understanding was generally associated with stronger acceptance and lower perceived uncertainty.
Network and ecosystem effects	Partner participation, industry collaboration, shared standards, platform size, interorganizational coordination	29	45.31	The value of blockchain increased when multiple financial actors participated in compatible networks and shared governance arrangements.

As shown in Table 1, blockchain adoption in the financial industry was shaped by a multidimensional combination of technological, institutional, behavioral, and environmental factors rather than by a single determinant. Technological characteristics were the most frequently identified dimension, appearing in 55 of the 64 reviewed studies (85.94%). Security, immutability, transparency, traceability, system reliability, interoperability, and scalability were repeatedly described as central to stakeholders' evaluations of blockchain-based financial platforms. Nevertheless, the findings demonstrated that technological capability alone did not guarantee acceptance. Stakeholder trust was identified in 52 studies (81.25%), making it the second most prominent factor and confirming its central position within the adoption process. Trust was associated with confidence in blockchain architecture, confidence in the accuracy and integrity of recorded information, confidence in financial institutions implementing blockchain, and confidence in other parties participating in blockchain-based transactions. Perceived usefulness and relative advantage were also prominent, being identified in 49 studies (76.56%). Financial actors were more willing to accept blockchain when it was perceived to reduce transaction time, automate processes, improve operational efficiency, enhance access to information, or create advantages over conventional financial infrastructures. Regulatory and legal conditions were reported in 46 studies (71.88%), suggesting that legal uncertainty remained a major institutional concern, particularly with respect to accountability, data governance, privacy, cross-border transactions, smart contracts, and regulatory compliance. Organizational readiness was identified in 43 studies (67.19%), emphasizing the importance of management commitment, digital infrastructure, skilled personnel, financial resources, and strategic alignment. At the same time, perceived risk appeared in 41 studies (64.06%), demonstrating that cybersecurity concerns, privacy risks, operational uncertainty, and legal ambiguity could offset the perceived advantages of blockchain. Economic considerations, compatibility with existing systems, stakeholder knowledge, and network effects were somewhat less frequently reported but remained substantively important. Collectively, these findings indicate that blockchain adoption in finance should be conceptualized as an ecosystem-level process in which technological attractiveness must be supported by institutional legitimacy, organizational capability, acceptable risk levels, and sufficient stakeholder confidence.

Table 2. Main Dimensions of Stakeholder Trust in Blockchain-Based Financial Systems

Trust dimension	Manifestations identified in the literature	Frequency (n)	Percentage of studies (%)	Role in blockchain adoption
Trust in technological integrity	Confidence in immutability, cryptographic security, accuracy of records, system resilience	50	78.13	Strengthened perceptions that blockchain transactions and records were reliable and resistant to unauthorized alteration.
Trust in financial institutions	Confidence in banks, FinTech firms, insurers, exchanges, and other implementing organizations	44	68.75	Institutional reputation and governance remained important even in decentralized or partially decentralized systems.
Trust in transparency and traceability	Ability to verify transactions, auditability, visibility of records, reduced information asymmetry	43	67.19	Increased stakeholder confidence by making transaction histories more verifiable and accountable.

Trust in governance mechanisms	Clear responsibilities, consensus rules, access permissions, dispute procedures, platform governance	39	60.94	Governance clarity reduced uncertainty concerning responsibility, authority, and system control.
Trust in regulatory oversight	Confidence in legal protection, supervisory authorities, compliance standards, regulatory safeguards	37	57.81	Regulatory legitimacy improved willingness to use blockchain for high-value or sensitive financial activities.
Interorganizational trust	Confidence among banks, service providers, business partners, intermediaries, and network participants	34	53.13	Shared ledgers and common verification mechanisms facilitated collaboration between organizations with limited prior trust.
User-to-system trust	User confidence in system usability, predictability, availability, and transaction execution	32	50.00	Influenced customers' willingness to conduct financial activities through blockchain-based interfaces.
Privacy-related trust	Confidence in confidentiality, data control, permission management, protection of personal information	30	46.88	Privacy safeguards moderated the positive relationship between transparency and acceptance.
Trust derived from decentralization	Reduced dependence on single intermediaries, distributed validation, resistance to unilateral manipulation	28	43.75	Decentralization enhanced trust in some contexts but reduced confidence among stakeholders unfamiliar with distributed governance.
Smart-contract trust	Confidence in automated execution, coding accuracy, contractual predictability	24	37.50	Supported automated financial processes when contract logic was understandable, verifiable, and legally recognized.

The results presented in Table 2 demonstrate that stakeholder trust was a multidimensional construct rather than a generalized attitude toward blockchain. The most frequently identified dimension was trust in technological integrity, reported in 50 studies (78.13%). Stakeholders were more likely to accept blockchain when they believed that cryptographic mechanisms, distributed recordkeeping, immutability, and system resilience could preserve transaction accuracy and prevent unauthorized alteration. However, the findings also showed that the technological elimination or reduction of traditional intermediaries did not eliminate the importance of institutional trust. Trust in financial institutions was identified in 44 studies (68.75%), indicating that users continued to rely heavily on the reputation, competence, accountability, and governance capacity of banks, FinTech companies, insurers, exchanges, and other organizations responsible for implementing blockchain-based services. Transparency and traceability appeared in 43 studies (67.19%), reflecting the importance of verifiable records and reduced information asymmetry. In this respect, blockchain increased trust when stakeholders could independently confirm the validity, sequence, and authenticity of transactions. Governance-related trust was identified in 39 studies (60.94%), particularly in relation to decision rights, network participation rules, permission structures, dispute resolution, protocol changes, and responsibility for system failures. Regulatory trust was also important, appearing in 37 studies (57.81%), and was especially relevant to institutional investors and financial organizations operating in highly regulated environments. Interorganizational trust, user-to-system trust, privacy-related trust, decentralization-based trust, and smart-contract trust represented additional dimensions that influenced adoption. Importantly, the findings indicated a potential tension between transparency and privacy. While transaction visibility and traceability could strengthen confidence in financial records, excessive visibility or uncertainty about personal data protection could weaken stakeholder willingness to participate. Therefore, stakeholder trust in blockchain appeared to emerge from a balance among transparency, security, privacy, institutional legitimacy, and understandable governance mechanisms rather than from decentralization alone.

Table 3. Major Positive Consequences of Blockchain Adoption in the Financial Industry

Consequence	Main manifestations	Frequency (n)	Percentage of studies (%)	Principal stakeholders affected
Increased transparency and auditability	Verifiable transaction records, improved monitoring, clearer transaction histories	51	79.69	Customers, regulators, auditors, financial institutions
Improved transaction efficiency	Faster settlement, automation, streamlined processing, reduced reconciliation	48	75.00	Banks, payment providers, customers, investors
Enhanced data integrity and security	Tamper-resistant records, distributed verification, reduced unauthorized modification	46	71.88	Financial institutions, customers, regulators
Reduced transaction and intermediation costs	Fewer intermediaries, automated verification, lower reconciliation costs	41	64.06	Financial institutions, businesses, customers
Strengthened stakeholder trust	Improved confidence in records, processes, counterparties, and institutional accountability	40	62.50	Customers, investors, partners, regulators
Reduced fraud and manipulation	Improved traceability, identity verification, immutable transaction histories	37	57.81	Banks, insurers, regulators, customers
Improved regulatory and compliance monitoring	Real-time records, automated compliance, auditable transaction data	33	51.56	Regulators, financial institutions, auditors
Greater financial inclusion and accessibility	Lower entry barriers, cross-border access, digital financial participation	27	42.19	Customers, underserved populations, FinTech providers
Enhanced interorganizational collaboration	Shared databases, common verification standards, reduced reconciliation conflicts	26	40.63	Banks, FinTech firms, business partners
Innovation in financial products and business models	Tokenization, smart contracts, decentralized services, programmable transactions	25	39.06	Financial institutions, investors, technology providers

As indicated in Table 3, the reviewed literature associated blockchain adoption with a broad range of positive consequences affecting financial institutions, customers, regulators, investors, auditors, and other stakeholders. Increased transparency and auditability constituted the most widely reported positive consequence, being identified in 51 studies (79.69%). Blockchain-based financial records were frequently regarded as more transparent because they could provide chronologically ordered, verifiable, and difficult-to-modify transaction histories, thereby reducing information asymmetry between transaction participants. Improved transaction efficiency was identified in 48 studies (75.00%), reflecting the potential of blockchain to accelerate transaction settlement, automate verification, reduce repetitive reconciliation activities, and enable more direct communication among participants. Enhanced data integrity and security were reported in 46 studies (71.88%), particularly where distributed verification and cryptographic mechanisms reduced opportunities for unauthorized record manipulation. Cost reduction represented another important consequence, identified in 41 studies (64.06%), although the reviewed evidence suggested that such savings were generally more apparent after implementation and network maturation rather than during the early stages of adoption. Strengthened stakeholder trust was reported in 40 studies (62.50%), indicating that blockchain could improve stakeholder confidence when its technical features were combined with transparent institutional governance and appropriate regulatory safeguards. Fraud reduction, improved

compliance monitoring, enhanced financial inclusion, interorganizational collaboration, and financial-service innovation were also recurrent consequences. Taken together, these findings demonstrate that the value of blockchain in finance extended beyond technical decentralization and included operational, relational, governance, and strategic outcomes. The strongest benefits appeared to occur where blockchain improved information quality and transaction verifiability while simultaneously reducing process inefficiencies and reinforcing stakeholder confidence in the reliability of financial interactions.

Table 4. Major Challenges and Potential Adverse Consequences of Blockchain Adoption

Challenge or adverse consequence	Main manifestations	Frequency (n)	Percentage of studies (%)	Implication for stakeholder trust
Regulatory and legal uncertainty	Unclear legal status, jurisdictional differences, liability ambiguity, changing regulation	45	70.31	Reduced institutional confidence and increased perceived adoption risk.
Privacy and confidentiality concerns	Exposure of transaction information, data permanence, conflict with privacy requirements	39	60.94	Could weaken user trust despite improvements in transparency.
Cybersecurity and technological vulnerabilities	Smart-contract flaws, key theft, endpoint attacks, coding vulnerabilities	37	57.81	Undermined assumptions that blockchain systems are inherently secure.
Scalability and performance limitations	Transaction speed, throughput constraints, latency, network congestion	34	53.13	Reduced confidence in blockchain for large-scale financial operations.
Integration with legacy systems	Technical incompatibility, fragmented infrastructure, difficult migration	33	51.56	Increased organizational uncertainty and implementation complexity.
High implementation and transition costs	Infrastructure expenses, training costs, system redesign, maintenance	31	48.44	Reduced perceived economic feasibility and management commitment.
Lack of knowledge and expertise	Limited blockchain literacy, shortage of technical specialists, user confusion	29	45.31	Increased perceived uncertainty and reduced willingness to adopt.
Governance ambiguity	Unclear authority, protocol control, responsibility, dispute mechanisms	28	43.75	Weakened trust when responsibility for failures or changes was uncertain.
Lack of standardization and interoperability	Incompatible platforms, fragmented protocols, limited shared standards	26	40.63	Restricted network effects and reduced confidence in long-term system viability.
Resistance to organizational change	Employee resistance, managerial conservatism, fear of role displacement	22	34.38	Slowed implementation and weakened internal support for blockchain initiatives.

Table 4 illustrates that blockchain adoption also generated substantial challenges capable of limiting or reversing its expected benefits. Regulatory and legal uncertainty was the most frequently identified challenge, appearing in 45 studies (70.31%). Financial organizations expressed concerns regarding legal recognition of blockchain transactions, cross-jurisdictional differences, regulatory compliance, responsibility for system failures, smart-contract enforceability, data ownership, and institutional liability. Such ambiguity was particularly significant because the financial industry operates within highly regulated environments in which technological innovation must coexist with prudential supervision, consumer protection, anti-money-laundering obligations, and data-protection requirements. Privacy and confidentiality concerns were identified in 39 studies (60.94%), highlighting a major tension inherent in blockchain implementation. While transparency and immutability increased record integrity, they could also create concerns about the permanence, visibility, and controllability of sensitive financial information. Cybersecurity and technological vulnerabilities appeared in 37 studies (57.81%). Although blockchain

architecture itself was generally perceived as resilient against record manipulation, the literature emphasized that smart contracts, digital wallets, private keys, user interfaces, software implementation, and external systems remained vulnerable to attack or error. Scalability and performance limitations, identified in 34 studies (53.13%), raised concerns about the capacity of blockchain networks to support the transaction volumes and processing requirements of large financial institutions. Integration with legacy systems was reported in 33 studies (51.56%), reflecting the practical complexity of connecting distributed ledger infrastructures with established banking databases, payment architectures, customer-management systems, and regulatory reporting mechanisms. Implementation costs, insufficient expertise, governance ambiguity, lack of standardization, and organizational resistance further constrained adoption. These findings demonstrate that stakeholder trust could be weakened when blockchain was presented as inherently secure or self-governing without adequate recognition of its operational dependencies and governance requirements. Consequently, successful adoption appeared to depend on the ability of financial institutions to manage the technological and institutional risks surrounding blockchain rather than simply deploying the underlying technology.

Across the four analytical domains, the findings ultimately revealed a reciprocal and reinforcing relationship between blockchain adoption and stakeholder trust. On the one hand, trust operated as a prerequisite for acceptance because customers, managers, investors, regulators, and organizational partners were more willing to use blockchain-based financial services when they perceived the technology, implementing institutions, governance mechanisms, and regulatory environment as reliable. On the other hand, successful implementation could itself strengthen trust by increasing transaction transparency, traceability, information integrity, auditability, accountability, and process predictability. This relationship was not automatic, however. Blockchain characteristics such as immutability, decentralization, and transparency could increase trust under conditions of technological reliability and appropriate governance, but the same characteristics could generate concern when stakeholders perceived insufficient privacy protection, unclear accountability, weak legal safeguards, or limited control over irreversible transactions. The synthesis therefore indicated that the adoption process followed an interconnected mechanism in which technological characteristics influenced perceived usefulness and perceived risk; these perceptions shaped stakeholder trust; trust affected willingness to adopt and participate; and actual implementation outcomes subsequently reinforced or weakened trust. Organizational readiness and regulatory clarity operated as important contextual conditions within this process because they determined whether the theoretical benefits of blockchain could be translated into dependable financial services. The overall findings consequently support an integrated interpretation of blockchain acceptance in which stakeholder trust occupies a central mediating and reinforcing position between technological capabilities, institutional conditions, perceived risks, and the eventual operational and strategic consequences of adoption.

4. Discussion and Conclusion

The findings of the present study showed that blockchain adoption in the financial industry is a multidimensional phenomenon shaped by the interaction of technological characteristics, stakeholder trust, perceived usefulness, regulatory conditions, organizational readiness, perceived risk, economic considerations, system compatibility, stakeholder knowledge, and network effects. Among these factors, technological characteristics emerged as the most frequently identified dimension, while stakeholder trust occupied a similarly central position and functioned not only as a consequence of blockchain use but also as a prerequisite for its acceptance. This result is consistent with studies emphasizing that the value of blockchain in financial environments

is largely derived from security, transparency, traceability, decentralization, immutability, and the reliability of distributed records [1-3]. The prominence of these features suggests that financial stakeholders initially evaluate blockchain through its technical architecture and the extent to which it can reduce weaknesses associated with centralized data management, fragmented information systems, and dependence on intermediaries. Nevertheless, the present findings further indicate that technical superiority alone is insufficient to ensure adoption. This is consistent with evidence showing that adoption is strongly dependent on perceived organizational value, environmental readiness, institutional conditions, and the broader implementation context [16, 17]. Therefore, blockchain acceptance in finance should be viewed as a sociotechnical process in which technology, organizational structures, stakeholder perceptions, and institutional arrangements jointly determine whether implementation is successful.

A major finding of the study was the central role of stakeholder trust. Trust was found to encompass confidence in technological integrity, financial institutions, transaction transparency, governance mechanisms, regulatory oversight, interorganizational relationships, privacy protection, and smart-contract execution. This finding is important because blockchain is often described as a technology that removes the need for trust, whereas the results suggest that it instead transforms the location and object of trust. Rather than eliminating trust, blockchain shifts it from exclusive dependence on centralized intermediaries toward a combination of technological protocols, institutional governance, regulatory protection, and shared verification mechanisms. Previous studies support this interpretation. Research examining blockchain in the financial sector has shown that transparency and verifiability can improve stakeholder confidence when users perceive transaction information as reliable, secure, and resistant to manipulation [26]. Similarly, customer acceptance of blockchain-based financial transactions has been linked to relational perceptions and confidence in the mechanisms through which new forms of financial exchange are delivered [27]. These findings reinforce the conclusion that trust remains fundamental even in decentralized financial systems. The object of trust may change, but the behavioral and institutional necessity of trust does not disappear.

The findings also indicated that technological integrity constituted the most prominent dimension of stakeholder trust. Participants in the reviewed literature were more likely to regard blockchain as acceptable when it was associated with immutable records, cryptographic protection, data accuracy, and resistance to unauthorized alteration. This aligns with previous work showing that blockchain can strengthen financial reporting and auditing by enhancing record reliability and reducing opportunities for retrospective manipulation [8, 14]. Research on real-time auditing similarly suggests that blockchain can facilitate continuous verification and improve fraud detection by preserving transparent and traceable transaction records [13]. The present study therefore supports the view that technical characteristics influence adoption partly through their effect on stakeholder perceptions of reliability. In financial environments, where the credibility of records is essential to decision making, assurance, investment, and regulatory supervision, perceived data integrity becomes a critical mechanism through which technological characteristics are translated into trust.

The results further demonstrated that institutional trust remains essential even when financial transactions are conducted through decentralized or semi-decentralized infrastructures. Trust in banks, FinTech companies, auditors, technology providers, and other implementing organizations was identified as a major determinant of acceptance. This result is consistent with findings that blockchain-based financial systems are embedded within existing institutional structures rather than operating independently of them [21, 22]. Financial customers and organizations continue to depend on institutions for identity verification, dispute resolution, regulatory

compliance, governance, technical maintenance, and service continuity. Consequently, decentralization does not necessarily reduce the importance of institutional legitimacy. In practice, blockchain systems may be trusted more readily when introduced by organizations that are already perceived as credible and competent. This provides an important explanation for why the adoption of blockchain may differ across institutions and financial markets even when the underlying technology is similar.

Another important finding concerned the role of transparency and traceability. These features were among the most frequently identified benefits and were closely associated with stronger stakeholder trust. The capacity to verify transaction histories, improve auditability, and reduce information asymmetry appears to be one of the primary pathways through which blockchain creates value in financial services. Previous studies support this conclusion by showing that blockchain can strengthen transparency in financial reporting, accounting, and administrative processes [10, 28]. Blockchain-based systems have also been associated with improvements in the quality of financial information and corporate reporting [34]. The findings of the present review suggest that transparency is especially valuable where multiple stakeholders must rely on a common record but do not necessarily possess equal access to information. In such contexts, blockchain can reduce information asymmetry and increase confidence by making transaction histories more verifiable. However, the results also showed that transparency must be balanced against privacy. The same permanent and traceable records that enhance accountability may create concerns about confidentiality and data exposure. Therefore, transparency strengthens trust only when accompanied by appropriate access controls, privacy protections, and clearly defined governance structures.

The findings regarding perceived usefulness and relative advantage also aligned strongly with previous research. Faster settlement, reduced reconciliation requirements, automation, improved transaction efficiency, and lower dependence on intermediaries were repeatedly identified as important drivers of adoption. This is consistent with studies highlighting blockchain's potential to improve operational and financial performance by reducing friction and accelerating information processing [16, 21]. Similarly, blockchain applications in supply chain finance have been shown to improve data integration and support more effective financing and risk-management decisions [24, 25]. The present findings suggest that perceived usefulness has both operational and relational dimensions. Operationally, blockchain may improve speed, accuracy, and cost efficiency; relationally, it can reduce uncertainty by allowing multiple parties to rely on a common transaction record. These benefits are likely to increase adoption when stakeholders can clearly observe advantages over existing systems.

The positive consequences identified in this study included increased transparency, improved transaction efficiency, enhanced data integrity, reduced intermediation costs, stronger stakeholder trust, reduced fraud, improved compliance monitoring, greater financial inclusion, enhanced interorganizational collaboration, and innovation in financial products and services. These findings are strongly consistent with the broader literature on blockchain-enabled financial transformation. Studies on accounting and financial reporting have identified opportunities for improving the reliability, timeliness, and transparency of financial information [5, 9]. Blockchain has also been linked to enhanced audit quality, real-time assurance, and more effective anomaly detection [14, 30]. In addition, research on decentralized finance and emerging-market FinTech has highlighted the potential of blockchain to expand financial access, reduce transaction costs, and support innovative service delivery models [23]. Taken together, these findings suggest that blockchain's value in the financial industry extends beyond technical automation and includes governance, accountability, collaboration, and the restructuring of relationships among stakeholders.

The results also showed that blockchain adoption can support innovation in financial products and business models, particularly through smart contracts, tokenization, programmable transactions, and integration with other digital technologies. This is consistent with studies emphasizing the growing convergence of blockchain with artificial intelligence, big data, and automated decision-support systems [31, 32]. Blockchain-AI integration has also been associated with improvements in financial reporting accuracy, efficiency, and trust [11, 12]. The present findings indicate that such technological convergence may further strengthen blockchain's strategic significance by creating more intelligent and autonomous financial infrastructures. However, the benefits of technological integration depend on the credibility of data, transparency of algorithmic processes, and governance of automated decisions. Thus, as financial systems become more technologically complex, trust may increasingly depend on the perceived integrity of interconnected digital systems rather than on any single technology.

Despite these advantages, the study identified several major barriers, including regulatory uncertainty, privacy concerns, cybersecurity vulnerabilities, scalability limitations, legacy-system integration problems, high implementation costs, insufficient expertise, governance ambiguity, lack of interoperability, and organizational resistance. Regulatory and legal uncertainty emerged as the most prominent challenge. This finding is consistent with previous research showing that blockchain adoption in financial environments is constrained when legal responsibility, compliance standards, data governance rules, and cross-jurisdictional requirements remain unclear [4, 19]. Blockchain-based financial processes operate within highly regulated sectors, and institutions cannot rely solely on technological assurance when legal obligations remain ambiguous. The present findings therefore suggest that regulatory clarity functions not only as an external condition of adoption but also as a trust-building mechanism. When stakeholders understand their rights, obligations, and protections, they are more likely to accept blockchain-based financial services.

Privacy concerns also emerged as an important challenge, particularly because the permanence of blockchain records may conflict with expectations regarding confidentiality and data control. This tension is especially significant in financial services, where personal and organizational information is highly sensitive. Although blockchain can improve traceability, inappropriate system design may expose transaction patterns or create uncertainty about who can access information. This result supports the argument that transparency and privacy should not be considered mutually exclusive objectives but must instead be managed through permission structures, cryptographic techniques, selective disclosure mechanisms, and appropriate governance frameworks. Similar concerns have been noted in studies examining the opportunities and threats of blockchain in accounting and reporting [9]. The present findings suggest that privacy protection is not peripheral to trust but is one of its core conditions.

The study further showed that cybersecurity risks and technological vulnerabilities can undermine perceptions that blockchain is inherently secure. Although distributed ledgers can reduce certain forms of record manipulation, they remain exposed to weaknesses in smart contracts, private-key management, external interfaces, software development, and endpoint security. This finding is consistent with research emphasizing that blockchain security must be understood at the ecosystem level rather than solely at the ledger level [30]. The same logic applies to scalability and interoperability. Financial institutions require systems capable of processing high transaction volumes and communicating with established infrastructures. When blockchain platforms cannot meet these requirements, the perceived usefulness of adoption may decline. The present study therefore indicates that trust depends not only on security in principle but also on system reliability under real operational conditions.

Organizational readiness emerged as another important determinant. Financial institutions require appropriate infrastructure, managerial support, technical expertise, financial resources, and strategic alignment before blockchain can be successfully implemented. This finding is supported by research emphasizing the role of managerial capacity and organizational preparedness in the adoption of blockchain in financial and supply-chain contexts [17, 20]. Moreover, studies examining blockchain and artificial intelligence in accounting information systems have shown that technological transformation is influenced by a network of organizational and structural factors rather than by technical capability alone [33]. The present findings therefore reinforce the conclusion that organizations must build absorptive capacity before attempting large-scale blockchain implementation. Without appropriate human and organizational resources, technological benefits may remain unrealized.

The findings also indicated that economic considerations influence adoption in both positive and negative directions. Blockchain may reduce transaction, verification, and reconciliation costs, yet initial investments in infrastructure, integration, training, cybersecurity, and governance can be substantial. This dual effect helps explain why some organizations may recognize blockchain's strategic potential while remaining hesitant to implement it. Prior research has similarly emphasized the need to evaluate both the opportunities and costs associated with blockchain adoption [19]. In addition, financial institutions may differ considerably in their ability to absorb implementation costs, meaning that adoption may occur unevenly across large institutions, smaller firms, and emerging-market organizations. Thus, the economic value of blockchain is likely to depend on scale, maturity, organizational capability, and the extent of ecosystem participation.

Overall, the findings suggest that blockchain adoption in the financial industry is best understood as a reciprocal process linking technological characteristics, trust, organizational readiness, institutional legitimacy, and implementation outcomes. Technological characteristics can strengthen trust by improving transparency, integrity, and traceability; stakeholder trust can increase willingness to adopt; successful implementation can improve operational and financial outcomes; and positive outcomes can subsequently reinforce confidence in the technology and implementing institutions. Conversely, weak governance, privacy concerns, cybersecurity incidents, regulatory ambiguity, or poor system performance can weaken trust and discourage adoption. This interpretation is supported by the broader literature showing that blockchain's impact depends on the interaction between technological capability and institutional context [18, 29]. Accordingly, stakeholder trust should be regarded as a central mechanism connecting blockchain's technical attributes with its behavioral acceptance and organizational consequences.

The present study has several limitations. First, the analysis was based on published literature rather than primary empirical data, and the findings therefore depend on the scope, methodological quality, and conceptual emphasis of the studies included in the review. Second, the reviewed literature covered multiple financial subsectors, national contexts, organizational forms, and methodological approaches, which increased conceptual breadth but may also have introduced heterogeneity into the synthesis. Third, blockchain is a rapidly evolving technology, and some findings may change as regulatory frameworks, interoperability standards, scalability solutions, privacy-enhancing technologies, and institutional practices develop. Fourth, the qualitative synthesis relied on thematic interpretation, and although the analytical process was systematic, some degree of researcher judgment was unavoidable in coding and categorizing the findings. Finally, the study focused primarily on stakeholder trust at a general level and did not independently compare the perceptions of specific stakeholder groups such as retail customers, regulators, auditors, institutional investors, managers, and technology providers.

Future research should examine the proposed relationships through longitudinal, comparative, and mixed-method designs that capture changes in stakeholder trust before, during, and after blockchain implementation. Greater attention should be given to differences among stakeholder groups, as trust in technology may operate differently for customers, regulators, employees, investors, and institutional partners. Future studies should also distinguish between permissioned and permissionless blockchain environments because the mechanisms of governance, privacy, responsibility, and trust differ substantially across these architectures. Cross-country studies would be particularly valuable for examining how regulatory maturity, institutional quality, digital literacy, and financial-market development influence adoption outcomes. Researchers should also test the mediating and moderating roles of trust, perceived risk, regulatory clarity, organizational readiness, and perceived usefulness through structural models. Additional research is needed on the integration of blockchain with artificial intelligence, smart contracts, privacy-preserving technologies, and automated auditing, especially in relation to accountability and algorithmic trust.

From a practical perspective, financial institutions should treat blockchain adoption as an organizational and governance transformation rather than merely as a technology implementation project. Managers should conduct comprehensive readiness assessments before adoption, including evaluation of infrastructure, workforce capabilities, legal compliance, cybersecurity, interoperability, data governance, and expected economic value. Institutions should communicate clearly with customers and other stakeholders about how blockchain systems operate, what data are stored, who has access to them, how privacy is protected, and how disputes or system failures are handled. Regulatory bodies should support the development of clear and adaptable frameworks that encourage innovation while protecting users and ensuring accountability. Financial organizations should also prioritize pilot projects in areas where blockchain offers a demonstrable advantage over existing systems, such as reconciliation, auditing, cross-organizational verification, supply chain finance, or compliance monitoring. Finally, stakeholder trust should be treated as a measurable implementation objective, and organizations should continuously evaluate whether technological transparency, governance quality, security, privacy protection, and service reliability are strengthening or weakening confidence throughout the adoption process.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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