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EXPLORING THE POTENTIAL OF BLOCKCHAIN TECHNOLOGY ADOPTION IN THE SRI LANKAN CONSTRUCTION INDUSTRY: OPPORTUNITIES AND BARRIERS TO IMPLEMENTATION

D.W.J.W. Bandara[1], P.L.I. Wimalaratne[2], Udayangani Kulatunga[3] and A. Wijayasiri[4]

ABSTRACT

Blockchain technology promises to be a transformative solution for the Sri Lankan construction industry that has been plagued by systemic inefficiencies, corruption & fragmented workflows. Global research points out that Blockchain will make a difference to increase the transparency of documents, automate and operate contracts and optimize supply chain. However, despite being a potential in Sri Lanka, it is limited in adoption because of the technical, organizational and regulatory barriers. This research employs a qualitative approach using the research onion model to link characterizations of the benefits and challenges related to Sri Lanka, based on Systematic Literature Review (SLR) technique. Accordingly, 10 Scopus indexed papers were selected for detailed analysis followed by manual content analysis. The study found that Blockchain offers financial process efficiency e.g. lower late payments via smart contracts, transparency improvement (immutable records suppressing fraud), and corruption prevention (tamper proof e-procurement system). Despite these, implementation costs and regulatory uncertainty, as well as technical scalability issues are the challenges preventing adoption. The industry is also fragmented and has a low level of digitalization, thus making integration complex. Its implications underline both the call for pilot projects, regulatory modernization, and stakeholder education to bridge the theory to practice gap, and the fact that theoretical potential has a powerful influence on the perception of risk. Once addressed, the barriers that Sri Lankans face in its construction sector can open the doorway to adopt blockchain to have better accountability, attract foreign investment, and be in tune with the global sustainability benchmarks.

Keywords: *Blockchain Technology; Construction Industry; Procurement Efficiency; Regulatory Challenges; Sri Lanka.*

[1] MPhil Scholar, Department of Building Economics, University of Moratuwa, Sri Lanka, jayampathibandara.uom@gmail.com
[2] Lecturer, Department of Building Economics, University of Moratuwa, Sri Lanka, indraniw@uom.lk
[3] Professor in Building Economics, Department of Building Economics, University of Moratuwa, Sri Lanka, ukulatunga@uom.lk
[4] Senior Lecturer, Department of Computer Science and Engineering, University of Moratuwa, Sri Lanka, adeeshaw@cse.mrt.ac.lk

1. INTRODUCTION

A blockchain is a form of decentralized, distributed ledger technology that creates a record of transactions in a secure, transparent and tamper-proof way across the network of computers (Chen & Bellavitis, 2020; Cong & He, 2019). Blockchain was originally set up as the backbone for things like Bitcoin, but blockchain technology has since become a widespread massive technology with uses everywhere other than purely digital currencies. Immutability, decentralization and consensus-based validation are its core features, and the data integrity, security and trust are offered by non-trust parties (Chen et al., 2024; Lashkari & Musilek, 2021) .

Blockchain has also been put to global use in finance, supply chain management, healthcare, energy, and transportation industries (Kshetri, 2021; Santhi & Muthuswamy, 2022). It serves as the underpinnings in the financial sector that support the peer-to-peer DeFi (decentralized finance) platforms, which do not have a middleman in their transactions (Vasishta et al., 2025). Therefore, Blockchain can enhance transparency, offer provenance and traceability of goods, while reducing fraud for goods in supply chains (Ming et al., 2024). Across the energy industry, blockchain is utilized in peer-to-peer energy trading and the grid (Seven et al., 2022).

While blockchain adoption in the construction industry is still emerging, it is gaining attention for addressing fragmentation, inefficiency, and distrust among stakeholders (Abdelghany, 2024; Amico & Cigolini, 2023). Key applications include smart contracts for automated payments, transparent procurement processes, secure data sharing, and improved supply chain management (Singh et al., 2024; Za'ba, 2023). Research highlights increased trust and transparency as primary benefits, though challenges like integration complexity and skill shortages persist (Abdelghany, 2024; Amico & Cigolini, 2023).

However, the Sri Lankan construction industry is a dominant force in national economic growth and prone to inefficiency, opacity and frequent disputes (Karunaratne & Abeynayake, 2023; Nitharsan & Francis, 2022). The greatest change that has the potential to transform the sector is the blockchain, as the sector transforms itself to modernize and align its practices with the best practices globally (Bandara, 2023). In this Sri Lankan context where corruption and a lack of trust permeate the political and wider society, there is relevance in its role to support streamlining contract management and reduce corruption (Nitharsan & Francis, 2022) and its ability to help engender trust among project participants (Kosala et al., 2021). The adoption of a blockchain could improve the project delivery, attract foreign investment, and set standards for accountability and performance (Bandara, 2023; Karunaratne & Abeynayake, 2023).

Despite the global momentum and clear advantages of blockchain technology, its integration into the Sri Lankan construction industry remains limited (Bandara, 2023; Karunaratne & Abeynayake, 2023). The sector continues to grapple with inefficiencies, fragmented processes, and a lack of stakeholder trust. While digital tools have been introduced, the full potential of blockchain to address these systemic issues has yet to be realized. Barriers such as technical complexity, high implementation costs, regulatory uncertainty, and limited awareness further hinder widespread adoption (Faraji et al., 2024). As such, there is a need to systematically identify both the benefits and challenges of blockchain integration in this context to inform policy, practice, and future research.

Although international research has explored blockchain's transformative potential in various industries, there is a notable lack of comprehensive, context-specific studies focused on the Sri Lankan construction sector. Most existing literature either addresses global trends or examines isolated aspects of blockchain adoption. There is a notable lack of comprehensive, context-specific studies on the practical benefits, unique challenges, and stakeholder perceptions within Sri Lanka's construction environment. This research aims to fill that gap by providing a holistic analysis of both the benefits and obstacles associated with blockchain integration in the Sri Lankan construction industry.

2. LITERATURE REVIEW

2.1 SRI LANKAN CONSTRUCTION INDUSTRY

While the construction industry globally has begun to approach blockchain technology, its entry into the construction industry of Sri Lanka is still limited. There are inefficiencies, fragmented processes and the lack of stakeholder trust to overcome in the sector (Hirusheekesan et al., 2023). Digital tools have been introduced, but blockchain has not yet fully enabled it to solve these systemic issues (Anuradha et al., 2023; Gamage et al., 2024). However, technical complexity, high implementation costs, regulatory uncertainty and lack of awareness slow down the process further (Sendanayake et al., 2024). This calls for a need for a systematic identification of both benefits and challenges in blockchain integration in this context to provide evidence to inform policy, practice and future research (Anuradha et al., 2023; Gamage et al., 2024).

Although there has been international research on blockchain's potential in transformation in different industries, there is a dearth of systematic, context-specific studies in the Sri Lankan construction (Gamage et al., 2024). Research on the practical benefits and unique challenges in Sri Lanka's construction environment is not sufficient. This research seeks to address this gap with the holistic analysis of both the benefits of adopting blockchain in the Sri Lankan construction industry and its stumbling blocks (Nitharsan & Francis, 2022).

Blockchain technology provides a strong solution to entrenched problems through decentralized transparency, automation and immutability (Sinniati & Darma, 2023). For instance, blockchain based e-procurement systems will take corruption out of the equation as they provide tamperproof records of bids and transactions, allowing the accountability of the whole duration of the procurement. One key blockchain feature that is smart contracts, facilitate automation of payment releases based on predefined milestones, thereby lowering delays and disputes endemic to Sri Lanka's project based work flows (Anuradha et al., 2023). In addition, this automation reduces the need for third party involvement by eliminating through learning, reducing administrative costs and improving efficiency. Blockchain's ledger manages to be a completely decentralized ledger, allowing real time visibility into the supply chain for stakeholders to verify material and mitigate counterfeit which is a major strength when the country itself relies on a complicated and many demarcated supply chain (Sinniati & Darma, 2023). Introduction of standardization protocols in the procurement functions on blockchain platforms could bridge regulatory gaps and develop trust among contractors, suppliers and clients. Case studies conducted in Sri Lanka show that blockchain can lead to a 15% reduction in construction costs and accelerate project timelines to conform to global best practice, proving how blockchain application in procurement can help pull the sector on

par with global best practice (Anuradha et al., 2023; Nitharsan & Francis, 2022; Sendanayake et al., 2024).

2.2 BENEFITS OF IMPLEMENTING BLOCKCHAIN TECHNOLOGY TO THE CONSTRUCTION INDUSTRY

Table 1 highlights the benefits of using Blockchain in the construction industry.

Table 1 : Benefits of implementing blockchain technology to the construction industry

Benefits	References
Transparency and Trust Enhancement	(Kiu et al., 2020; Lu et al., 2021; Pishdad-Bozorgi & Yoon, 2022; Udeh et al., 2024)
Supply Chain Management Optimization	(Azmi et al., 2022; Celik et al., 2023; Kiu et al., 2020; Qian & Papadonikolaki, 2020)
Project Monitoring and Risk Management	(Amoah & Oh, 2021; El Khatib et al., 2022; Kang et al., 2022; Liu et al., 2023; Rane & Potdar, 2021; A. K. Singh et al., 2023; Udokwu et al., 2021)
Smart Contracts and Procurement Efficiency	(Cheng et al., 2023; Heydari et al., 2024; Kiu et al., 2020; Liu et al., 2023; Özkan et al., 2021; Shang et al., 2023)
Data Security and Process Integrity	(Kiu et al., 2022; Lou & Lu, 2022; Pan et al., 2022)
Cost and Time Efficiency	(El Khatib et al., 2022; Sadeghi et al., 2022; Shu et al., 2022; Wang et al., 2022)
Dispute Resolution Acceleration	(Abeywickrama et al., 2024; Ashipala, 2025; Dincer, 2024; Kirkwood & Chaisse, 2022; Kiu et al., 2020; Olawumi et al., 2021; Son & Lien, 2022; Mohammed & Alharthi, 2022)

The benefits blockchain technology brings to the construction sector range from solving the systemic inefficiencies and creating collaboration among the stakeholders. Blockchain's immutable ledger offers transparency and trust enhancement, which helps the stakeholders to verify the authenticity of data, thus enhancing accountability (Cheng et al., 2021; Kang, 2022). This is a very important feature for Supply Chain Management Optimization, where blockchain makes it possible to track materials from origin to site in real time, reducing counterfeits and delays, and complying with sustainability standards (Bakhtiarizadeh et al., 2022; Cheng et al., 2021). Blockchain is interconnected with Internet of Things (IoT), in terms of integration with Project Monitoring and Risk Management, to enable real time progress updates and early detection of deviations before they occur and take proactive action in case of risk mitigation (Cheng & Chong, 2022; Kang, 2022). The Smart Contract and Procurement Efficiency improves the workflows by automating the payments upon the agreed conditions (e.g., the milestone completions), minimizing the time and cost associated with the procurement cycle (Weerapperuma et al., 2023; Ye et al., 2022; Yu et al., 2024). By having blockchain's decentralized architecture, Data Security and Process Integrity are ensured as encrypted records prevent malicious hacking and alterations of sensitive project data (Kang, 2022; Ye et al., 2022). Together, these features contribute to cost and time efficiency by eliminating manual work, rework, and disputes. Studies show that these features can lead to saving 15 to 20 % in a project budget (Yu et al., 2024). Blockchain's ability to leave an auditable trail of actions, contracts, and communications facilitates fast dispute

resolution , and reducing litigation costs (Cheng et al., 2021). By addressing these aspects, blockchain puts itself at the centre of the modernization of the ways of construction in the entire world.

2.3 CHALLENGES OF IMPLEMENTING BLOCKCHAIN TECHNOLOGY IN THE CONSTRUCTION INDUSTRY

The adoption of blockchain technology in the construction industry faces multifaceted challenges across technical, organizational, legal, and operational domains. Table 2 shows the challenges of implementing blockchain technology to the construction industry.

Table 2 : Challenges of implementing blockchain technology to the construction industry

Challenge category	Specific challenges	Reference
Technical	Scalability and performance issues	(Khan et al., 2021; Perera et al., 2020; Rahman et al., 2022; Sanka & Cheung, 2021)
	Integration with existing systems	(Plevris et al., 2022; A. K. Singh et al., 2024; Waqar et al., 2024)
	Data privacy and security concerns	(Teisserenc & Sepasgozar, 2021; Wenhua et al., 2023)
	Lack of standardization	(Teisserenc & Sepasgozar, 2021; Xu et al., 2023)
Organizational (Attributes)	Resistance to change ***(non-payment are part of the inherent culture in the construction industry)***	(Gurgun et al., 2022)
	Lack of skilled personnel	(Elbashbishy et al., 2022; Khuc et al., 2024; A. K. Singh et al., 2023)
	High initial implementation costs	(Gamage et al., 2024; Su et al., 2023; Waqar et al., 2024)
	Unclear return on investment	(Khuc et al., 2024; A. K. Singh et al., 2024; Waqar et al., 2024)
Legal and Regulatory	Regulatory uncertainty	(Khuc et al., 2024; A. K. Singh et al., 2024; Zhuk, 2025)
	Lack of legal frameworks	(A. K. Singh et al., 2024; Zhuk, 2025)
	Smart contract enforceability	(Gamage et al., 2024; Zhuk, 2025)
Industry specific	Fragmented nature of construction industry	(Aasen & Klakegg, 2023; Elbashbishy et al., 2022; Plevris et al., 2022)
	Low digitalization level	(Aasen & Klakegg, 2023; Gamage et al., 2024; A. K. Singh et al., 2024)

Challenge category	Specific challenges	Reference
	Complex supply chains	(Plevris et al., 2022; A. K. Singh et al., 2023; Wu et al., 2022)
Cultural and Social	Lack of trust in new technology	(Aasen & Klakegg, 2023; Elbashbishy et al., 2022; A. K. Singh et al., 2023)
	Limited awareness and understanding	(Gamage et al., 2024; Khuc et al., 2024; A. K. Singh et al., 2024)
Operational	Difficulty in managing large volumes of data	(Elbashbishy et al., 2022; Elsaeidy, 2024; Waqar et al., 2024)
	Energy consumption concerns	(Plevris et al., 2022; Su et al., 2023)
	Interoperability issues	(Elbashbishy et al., 2022; Plevris et al., 2022; Waqar et al., 2024)
	Lack of proven use cases	(A. K. Singh et al., 2024; Waqar et al., 2024)

Scalability and performance issues tend to be technical barriers since blockchain's computationally heavy tasks cannot process large-scale real-time data, and integration of blockchain with legacy systems such as Enterprise Resource Planning (ERP) and Building Information Modelling (BIM) tools has a lack of interoperability with decentralized ledgers (Khuc et al., 2024; Plevris et al., 2022). Current data privacy and security concerns, however, exist because blockchain's transparency conflicts with the requirements of confidentiality for sensitive contracts, as well as the issue of a lack of standardization, making cross-platform compatibility difficult (Khuc et al., 2024; Plevris et al., 2022). The entrenched practices of entrenched cultures, such as the non-payment cultures and misgivings regarding automation, are compounded by huge initial costs of infrastructure and low rate of investment relative to investment, which makes them not attractive (Gamage et al., 2024; Khuc et al., 2024). Smart contracts further face legal and regulatory uncertainty, which is not addressed by most existing frameworks with respect to smart contract enforceability and liability in decentralized systems. Coordination tends to be more difficult in industry-specific hurdles such as fragmentation, low digital maturity and complex multi-tiered supply chains that place limits on the potential of blockchain to expedite workflow. Cultural resistance is driven by a lack of awareness about the beneficial aspects that blockchain offers and doubt on its reliability primarily by traditional stakeholders. One of the main issues with blockchain is operational ones: for instance, it is energy intensive and requires energy consensus in its blockchain, as well as interoperability with blockchain and IoT/BIM (Plevris et al., 2022).

3. METHODOLOGY

This study's data collection process involved the utilization of Scopus database, a comprehensive repository of peer reviewed academic literature, to collect relevant research papers following SLR technique. The search string "Construction" AND

"Blockchain" AND "Sri Lanka" was applied to filter studies specifically addressing blockchain adoption in Sri Lanka's construction sector. Ten articles were selected for this study based on inclusion criteria that include relevance to the study's objectives, publication in English, and empirical or theoretical insight on applying blockchain technologies. Topics selected for the worked papers ranged from smart contracts to supply chain transparency to regulatory challenges and thus made up a foundational dataset for analysis. The manual content analysis approach was used for data analysis. Key themes such as "benefits," "challenges," and "implementation strategies" were identified through manual content analysis process, with findings cross-validated to ensure consistency.

Rationale for Filter Selection

The search strategy employed Title, Abstract, and Keywords as search fields to ensure relevance and precision, capturing studies explicitly addressing blockchain applications in construction. The publication year range (2019–2025) prioritizes recent advancements in blockchain technology while accommodating pre-2023 studies to establish foundational trends. The subject/research area filters (Blockchain, Construction, Sri Lanka) focus the scope on context-specific challenges and opportunities, addressing the gap in localized research. Document types were limited to articles and conference papers to prioritize peer-reviewed, empirically validated insights while excluding non-academic sources. Language restrictions (English) ensure accessibility and academic rigor, given Sri Lanka's reliance on English-language technical documentation. This filtering approach minimizes noise from irrelevant disciplines (e.g., fintech) and ensures alignment with the study's objectives of analysing blockchain's viability in Sri Lanka's construction industry.

Table 3 shows the inclusion criteria of the secondary data collection.

Table 3 : Inclusion criteria.

Categories	Filters
Search fields	Title, Abstract, Keywords
Publication year	From 2019 to 2025
Subject/Research area	Blockchain. Construction, Sri Lanka
Document type	Articles, conferences
Language	English

Figure 1 presents the flow diagram of the study selection.

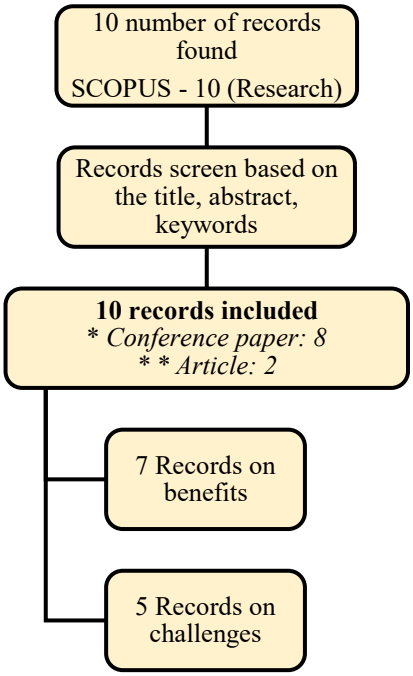

Figure 1: Flow diagram of the study selection.

4. DATA ANALYSIS

4.1 BENEFITS OF IMPLEMENTING BLOCKCHAIN TECHNOLOGY TO THE SRI LANKAN CONSTRUCTION INDUSTRY

The data for seven key studies have been analysed and a strong consensus on the transformative benefits for Sri Lanka's construction industry has emerged from the analysis. Table 4 shows the analysis of benefits of implementing blockchain technology to the Sri Lankan construction industry.

Table 4 : Benefits of implementing blockchain technology to the Sri Lankan construction industry

Benefit category	Specific benefits	References						
		1	2	3	4	5	6	7
Contract Management	Streamlined contract execution, reduced disputes, and automated compliance tracking.	✓	✓	✓		✓	✓	✓
Financial Processes	Faster transactions, reduced late payments, and minimized third-party intermediation.	✓	✓	✓	✓	✓	✓	✓
Transparency and Trust	Immutable records enhancing stakeholder trust and reducing fraudulent activities.	✓	✓	✓	✓	✓	✓	✓
Corruption Mitigation	E-procurement systems reducing bribery and bid-rigging in public projects.	✓	✓	✓	✓	✓	✓	✓
International Trade	Simplified cross-border transactions and reduced documentation delays.	✓	✓	✓	✓	✓	✓	✓

Benefit category	Specific benefits	References						
		1	2	3	4	5	6	7
Security and Data Integrity	Encrypted, tamper-proof ledgers for secure financial and contractual data.	✓	✓	✓	✓	✓	✓	✓

Sources : 1 : (Karunaratne & Abeynayake, 2023), 2 : (Bandara, 2023), 3 : (Nitharsan & Francis, 2022) , 4 : (Weerakoon & Chandanie, 2021), 5 (Kosala et al., 2021), 6 : (Abeywickrama et al., 2024), 7 : (Gamage et al., 2024)

All studies consistently acknowledged Financial Processes as the most universal benefit of blockchain, as it makes it possible to speed up transactions, minimize late payments, as well as decrease the need for third party intermediaries arranged through smart contracts. Also, papers had supported both Transparency and Trust and Security and Data Integrity beyond all papers, reflecting blockchain's ability to record to immutable ledgers and encrypted ledgers and to thus deter fraud and engender stakeholder confidence. Researchers emphasized that blockchain's great potential for streamlining e-procurement systems and smooth cross-border transactions would effectively tackle Sri Lanka's persistent problems of bid-rigging and bureaucratic delays and unanimously supported Corruption Mitigation and International Trade. Six studies supported the use of Contract Management for automating compliance tracking and reducing disputes, but one study did not specifically cover this area. The results collectively suggest that blockchain may help overcome systemic inefficiencies in Sri Lanka's construction sector, most critically in high stakes fields like public procurement sector and foreign cooperation. At the same time, near universal agreement across studies means that future pilot projects for targeting these theoretical benefits, in real world applications, are needed.

4.2 CHALLENGES OF IMPLEMENTING BLOCKCHAIN TECHNOLOGY IN THE SRI LANKAN CONSTRUCTION INDUSTRY

Five key studies on the analysis of challenges for the installation of blockchain technology in Sri Lanka's construction industry demonstrate systemic issues within technical, organizational and socio-cultural areas of implementation. Table 5 presents the analysis of challenges of implementing blockchain technology in the Sri Lankan construction industry.

Table 5 : Challenges of implementing blockchain technology in the Sri Lankan construction industry

Challenge category	Specific challenges	References				
		1	2	3	4	5
Technical	Scalability and performance issues	✓	✓		✓	✓
	Integration with existing systems	✓	✓	✓		✓
	Data privacy and security concerns	✓	✓		✓	✓
	Lack of standardization	✓	✓	✓		✓
Organizational	Resistance to change	✓	✓		✓	✓
	Lack of skilled personnel	✓	✓	✓	✓	✓
	High initial implementation costs	✓	✓	✓	✓	
	Unclear return on investment	✓	✓		✓	✓

Challenge category	Specific challenges	References				
		1	2	3	4	5
Legal and Regulatory	Regulatory uncertainty	✓	✓	✓	✓	
	Lack of legal frameworks	✓	✓	✓	✓	✓
	Compliance issues	✓	✓	✓	✓	
	Smart contract enforceability	✓	✓		✓	✓
Industry-Specific	Fragmented nature of construction industry	✓	✓	✓		
	Low digitalization level	✓	✓	✓	✓	✓
	Complex supply chains	✓	✓	✓	✓	
	Project-based structure	✓	✓		✓	✓
Cultural and Social	Lack of trust in new technology	✓	✓	✓	✓	✓
	Limited awareness and understanding	✓	✓	✓	✓	✓
	Resistance from traditional stakeholders	✓	✓		✓	✓
Operational	Difficulty in managing large volumes of data	✓	✓	✓		✓
	Energy consumption concerns	✓	✓		✓	✓
	Interoperability issues	✓	✓	✓	✓	
	Lack of proven use cases	✓	✓	✓	✓	✓

Sources: 1 : (Bandara, 2023),2 : (Gamage et al., 2024), 3 : (Weerakoon & Chandanie, 2021), 4 : (Kosala et al., 2021), 5 : (Karunaratne & Abeynayake, 2023)

Technical challenges such as scalability issues (cited in 4 out of 5 studies) and integration with legacy systems (cited in 4 out of 5 studies) highlight the sector's struggle to adapt blockchain to existing workflows, particularly in a context where digital maturity is low (noted universally as "Low digitalization level" across all studies). Among the cited in 4 out of 5 studies that identified high initial costs and unclear Return on Investment (ROI), there was organizational resistance; and the lack of skilled personnel is acknowledged generally. Theoretically, there is a dearth of tailored policies to guide the adoption of blockchain (all studies) and the lack of a legal framework (cited in 4 out of 5 studies), while smart contract enforceability (cited in 4 out of 5 studies) marks a gap in Sri Lanka's judicial system. The sector suffers from structural inefficiencies (cited in 3 out of 5 studies; industry specific barriers such as fragmentation and complex supply chains) displayed through industry fragmentation (cited in 3 out of 5 studies) due to the project-based structure of the sector (cited in 3 out of 5 studies) that is not conducive of long term blockchain integration. Generally, distrust in technology and awareness is low (universal) feeding into culture of distrust—and is typical of traditional stakeholders who are sceptical of digitization. Practically, there are limitations of energy consumption concern (cited in 3 out of 5 studies), interoperability issues (cited in 4 out of 5 studies) and unproven use cases (all studies), which instil a scepticism in blockchain's feasibility. Clearly, Bandara (2023) and Karunaratne and Abeynayake (2023) tell us these findings point to the fact that, apart from technological solutions, Sri Lanka's blockchain adoption challenges need to be addressed with regulatory modernization, needs training the workforce and pilot projects to show their validity.

5. CONCLUSION

Upon synthesis of 10 selected studies specific to Sri Lankan context, this study concludes 6 benefits of using Blockchain, and 23 specific challenges the industry face while implementing Blockchain. 23 challenges were categorised into six categories as Technical, Organizational, Legal and Regulatory, Industry-Specific, Cultural and Social, and Operational. This study indicates how great the opportunity is for blockchain technology to be integrated in the construction industry of Sri Lanka. On the benefits side, the possibility that blockchain could help desk into which it has already been deployed speeds of transaction time, reduce late payments, and significantly increase transparency, reduce human error, and higher levels of trust and security is widely acknowledged by all studies considered, and these can be used to mitigate corruption, improve international trade, to automate contract management. However, challenges analysis shows that, in addition to technical barriers (such as scalability, interoperability), organizational resistance (due to high costs, lack of skills), and legal regulatory voids (impossible smart contracts) systemic barriers reduce the likelihood of adoption: the digital maturation of the industry is low, the culture in which is sceptical or not, and all the operational difficulty that comes with the way of energy efficient on data management. Most critically, the absence of proven use cases is essentially inevitably near universal. To unlock the potential of blockchain, it is recommended to further research via multi-pronged strategy: Collaborative pilot projects to show ROI, regulatory modernization to address compliance gaps, and targeted training programs to have technical expertise.

The study's methodological design is intentionally focused to ensure precision and relevance, though this specificity creates clear boundaries for its scope. By concentrating exclusively on the Scopus database and using a narrow search string—"Construction" AND "Blockchain" AND "Sri Lanka"—the research guarantees that all selected articles directly address the core topic within the specified context. Therefore, this research has a limitation inherent in the selection criteria adopted. This deliberate approach, however, means that relevant literature from other academic databases or papers using related but different keywords may not be included. Similarly, the timeframe of 2019 to 2025 was strategically chosen to capture the most recent advancements in a rapidly evolving technological field. While this provides a valuable snapshot of the current state of research, it also establishes an opportunity for future studies to build upon this work by employing a broader search strategy across more databases and a longer historical period to map the evolution of the topic.

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