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A study on Critical Factors for Blockchain Adoption in India: Analytic Hierarchy Process

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Abstract

Blockchain technology (BCT) has attracted a lot of attention because of its technological characteristics that improve the security, transparency, and operational efficiency of organizations. However, several considerations should be taken into account while evaluating its adoption. The aim of this study is to define and prioritize the factors influencing the adoption of BCT by organizations in India using the Analytic Hierarchy Process (AHP) methodology. Five dimensions and nineteen sub-factors were evaluated using a literature review and interviews with experts. The results indicate that technology factors have the greatest impact on the adoption of blockchain, followed by organizational factors and regulatory factors. The most significant sub factors were: security and privacy, relative advantage, and top management support. The study provides valuable implications for organizations and policymakers to address the challenges of successful implementation of blockchain and digital transformation initiatives.

Keywords: Blockchain technology, Adoption factors, Analytic Hierarchy Process, Digital transformation.

1. Introduction

Digital technologies have transformed the way that firms are generating, communicating and capturing value. In the digital era, technologies such as artificial intelligence, cloud computing, the Internet of Things (IoT), big data analytics, and blockchain are integral components of digital transformation across multiple industries (Vial, 2019). One of these technologies that has been receiving a lot of attention lately is blockchain, and its characteristics like decentralization, real-

time recording, tamper-resistance, immutability boosts transparency and trust in the data on blockchain (Nakamoto, 2008; Casino et al., 2019). Blockchain technology (BCT) was originally developed as the backbone for bitcoin, and now its application has expanded in various other industries such as banking and financial services, healthcare, supply chain management, insurance, manufacturing, and public administration (Treiblmaier, 2018; Wang et al., 2019).

BCT is a distributed and decentralized ledger system that records, verifies and stores transactions across a network without any central authority (Nakamoto, 2008). Cryptographic techniques and consensus mechanisms ensure data integrity, transparency, and security, while minimizing the risks associated with traditional centralized systems (Casino et al., 2019). The features have enabled blockchain to emerge as a disruptive innovation that addresses the longstanding challenges of organizations, such as information asymmetry, fraud, and inefficient record-keeping and transaction costs (Kouhizadeh et al., 2021).

While there is great potential for BCT, uptake amongst organizations remains a challenge. Many companies understand the potential of blockchain and the rate of implementation is still not as expected (Clohessy et al., 2018). The adoption of blockchain poses many obstacles for many organizations to embrace their current business and technology. Technological complexity, scalability challenges, interoperability, implementation costs, regulatory uncertainties, organizational readiness, and a shortage of skilled personnel are among the challenges faced by these technologies (Malik et al., 2023). It is also important to understand the key factors that drive blockchain adoption, which will help create successful implementation strategies.

The factors affecting BCT adoption have been investigated from different theoretical perspectives such as the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Diffusion of Innovation Theory (DOI), Resource-Based View (RBV), and the Technology-Organization-Environment (TOE) framework (Taherdoost, 2022). The TOE framework is one of the more popular methods that have been used to analyze organizational technology adoption (Tornatzky & Fleischer, 1990). This model proposes that factors of technological, organizational and environment factors influence technology adoption decisions. The TOE model has been employed in the domain of banking, logistics, accounting and supply chain to explain adoption decision in these areas (Clohessy & Acton, 2019; Malik et al., 2021; Chittipaka et al., 2023).

Furthermore, India has taken significant strides towards digital transformation through various initiatives such as Digital India, Aadhaar, Unified Payments Interface (UPI), etc. (NITI Aayog, 2020). With the country's thriving startup culture, booming FinTech industry, and increased funding for emerging technologies, the landscape is ripe for the development of blockchain innovations in India (EY, 2023). There are numerous organizations in India which have begun piloting blockchain in various sectors, such as banking, supply chain, public administration (NITI Aayog, 2020), and healthcare. Further, both public and private entities are aware of how blockchain can contribute to higher transparency, reduced costs, traceability, and cyber security

(Gupta et al., 2020). It is crucial to study factors that influences blockchain adoption in Indian as one of the fastest-growing digital economies. So, the study aims to provide answers to the following research question:

RQ: What are the most important factors that influences blockchain adoption in India?

This question is tackled by using the Analytic Hierarchy Process (AHP), a multi-criteria decision-making method through which the factors can be prioritized systematically based on expert's judgments.

2. Literature Review

2.1 Adoption of Blockchain Technology

With the potential to create competitive advantages and to improve organizational performance, the increasing integration of blockchains has become a prominent research and management theme. Organizations from different sectors are delved in blockchain solutions to enable transparency, enhance process efficiency, bolster security, and enhance information sharing between the stakeholders (Clohessy et al., 2018). Although blockchain has been acknowledged for the potential benefits, the rate of its adoption by the business world is still relatively low, as it is subject to different technical, organizational and environmental barriers when implementing. A number of previous studies indicate that the adoption of the blockchain is influenced by various factors including perceived benefits of blockchain adoption and usefulness, organizational readiness, managerial support, regulatory clarity, and exogenous market pressures (Malik et al., 2021). Furthermore, the complexity of the blockchain integration with the current systems, lack of technical skills, and the lack of knowledge about the ROI of implementing a blockchain venture made it difficult for organizations to put those ventures into practice. Several theoretical frameworks have been used to explore the adoption of blockchain technology such as Technology–Organization–Environment (TOE) framework, Diffusion of Innovation Theory, and Institutional Theory. The existing studies outline that the factors affecting the adoption of blockchain include technological readiness, organizational capabilities, regulatory environments, and economic factors. Thus, identifying the factors which affect the adoption of blockchain in an organization has become an essential topic for researchers and practitioners to enable a successful diffusion of the technology and digital transformation.

2.2 Technological factors

The technological factors are one of the most important dimensions that influence the organizational blockchain adoption as they determine the perceived suitability and the feasibility that is linked to technology applicability in organizational business implementations. As in the previous research, in the context of blockchain adoption decisions (Tornatzky & Fleischer, 1990), the characteristics of technology, namely, relative advantage, compatibility, complexity, security, and scalability, are clearly illustrated. Relative advantage is an idea that suggests that the blockchains are perceived to be more advantageous than the current technology, with an improved degree of transparency, efficiency, and trustworthiness (Rogers, 2003). The concept of

compatibility reflects on how well the blockchains can be applied to the current organizational systems and processes, whereas security entails the ability of the technology to protect the sensitive information from 107stolen or unawares access and cyber-attacks (Casino et al., 2019). Scalability is another important concern given the fact that the organizations are expected to have blockchain systems capable of handling the rising number of transactions without affecting the speed of the system. In the past, it was consistently reported that the organizations are more inclined to adopt the blockchain technologies when they believe that the technology is beneficial to them and the barriers to implementation are low (Malik et al., 2021; Bag et al., 2023). Therefore, one of the key factors that influence blockchain adoption is the technological aspects.

2.3 Organizational factors

The organizational factors deal with the company's internal capabilities, competencies, and management conditions that influence its capacity to successfully implement the technology of the blockchain. Study after study has revealed that top management support, organizational readiness, technological know-how, and availability of resources are important factors affecting technology adoption (Tornatzky & Fleischer, 1990). More specifically, the role of the top management support is very important, as the top level executives are responsible for the strategic decisions, allocation of resources and organizational commitment in the innovation adoption process and for the implementation of the innovation processes. The organizational readiness represents the degree of technological infrastructure, financial, human resources, and overall organizational readiness to adopt blockchain technology (Bag et al., 2023). It is also worth considering the importance of the technical expertise as the blockchain systems require specific technical skills related to the distributed ledger technologies, cyber security, and smart contracts. The difficulty in evaluation and deployment of the blockchain solutions has been reported to be caused by the impediment in the availability of skilled personnel (Chittipaka et al., 2023). Moreover, the financial resources available are instrumental in influencing the adoption decision as the blockchain implementations are complex and time-consuming, which gives high financial burden to the organizations involving substantial investments in blockchain infrastructures, employees training and process re-engineering. Thus, the readiness and managerial support in the organizations are the most likely to successfully implement the Blockchain technologies.

2.4 Regulatory factors

The regulatory factors are among the most crucial factors that could affect the uptake of blockchain, given the shift in legal and policy landscape concerning blockchain technologies and digital assets. In most cases, it is found that the organizations work in highly regulated environments, in which the choice of the technology adoption is highly dependent on the regulatory requirements. The clarity of the regulations helps to reduce the sense of uncertainty as they give a clear understanding of the legal regulations, governance mechanism, and compliance rules for implementing the blockchain (Malik et al., 2021). The lack of clarity or limitations on regulations, on the other hand, can deter blockchain adoption because users' perception is more marked with an increased sense of legal and operational risks. The public regulations from

government agencies, policy incentives, data protection legislation and industry specific regulations may enable or hinder the pace of blockchain adoption based on their attributes and application. The importance of the regulatory issues is particular significant for the countries with emerging economies such as India where the blockchain governance frameworks are evolving and the organizations are looking for assurances to the legality and long-term viability of their blockchain investments (NITI Aayog, 2020). Hence, the factors that influence the adoption of the blockchain technology and organizational acceptance can be clearly identified as supportive regulatory contexts.

2.5 Economic factors

The economic considerations drive the adoption of blockchain by impacting the economic viability of the blockchain and the perceived value that the blockchain implementation efforts would offer to the organizations. In general, the organizations give thought to and recognize new technologies based on their cost-benefit considerations, return on investment and long-term economic sustainability. Expenses associated with implementing the blockchains include the cost of infrastructure, the cost of software acquisition and installation, the cost of training employees, the cost of system integration and ongoing maintenance (Clohessy et al., 2018). Therefore, the result of the blockchain implementation is carefully considered on the basis of the cost benefit and economic sustainability. Adoption of blockchain may bring benefits to the organization such as reducing transaction fees, improving operational efficiency, reducing administrative expenses, increasing productivity, and providing new revenue streams by creating new innovative business models (Tapscott & Tapscott, 2016). The economic uncertainty and the budget constraints could bring the limitation to the adoption decision as well, particularly in the small and medium sized organizations with less economical resources. So, the economic values and financial viability of the blockchain solutions are a crucial factor in the organizations' decision-making process.

2.6 Environmental factors

The external conditions and pressures that are considered to have the potential to impact the blockchain adoption decisions of the organizations are referred to as the environmental factors. In line with this, TOE framework assumes that the organizations operate in the broader ecosystems in which the innovation adoption behavior is influenced by the competitive dynamics, industry requirements, industry characteristics, technological ecosystems, and stakeholder expectations (Tornatzky & Fleischer, 1990). One of the main drivers behind blockchain adoption is the competitive pressure, as the organizations often see the new technologies as a way to maintain a competitive edge and adapt to market changes (Bag et al. 2023). Another key factor to the blockchain adoption is the support being provided by the vendors as they provide technical support, implementation expertise, and training from the vendors, all of which helps to ease the uncertainty for the blockchain implementation and take away the worries of the vendors. Furthermore, the industry standards and technological ecosystems support interoperability and integration of the entities that help to alleviate the concerns related to implementation of blockchain (Bag et al., 2023). The evaluation of the external pressures to the organization against

the innovation is bolstered by the customer expectations, business partners requirements and the general digital transformation trends. Therefore, the environmental conditions play a critical role on stimulating or impeding the organizational blockchain adoption along with other mentioned determinants (technological, organizational, regulatory, and economic aspects)

3. Research Framework

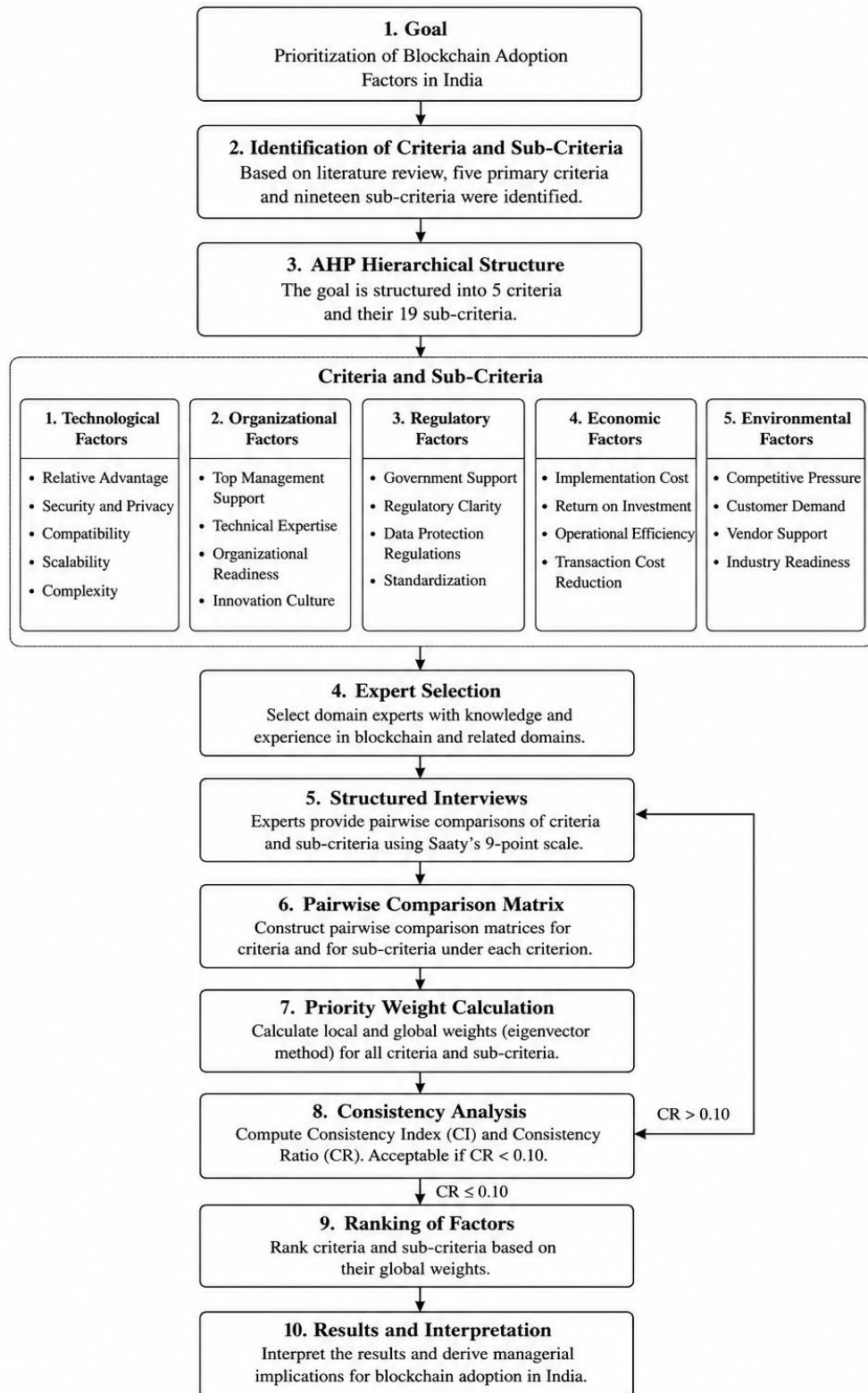
This study uses multi-criteria decision making (MCDM) technique called Analytic Hierarchy Process (AHP), developed by Saaty (1980), for the prioritization of the factors affecting the adoption of blockchain by the organizations in India. Multiple interrelated factors affecting the adoption of blockchain in the field need to be identified and quantified to determine their relative weightage in the study, which makes AHP an appropriate method.

The study method used is quantitative research. The evaluation criteria were defined by carefully examining the literature on blockchain adoption and were grouped into five categories: technological, organizational, regulatory, economic and environmental. The AHP was structured around these dimensions, with the highest dimension, “Blockchain Adoption” followed by the 5 criteria and sub-criteria.

Structured interview sessions with domain experts were used to gather data. In the interviews, experts compared the criteria and sub-criteria two by two on a nine-point scale suggested by Saaty (1980). The findings from the interviews were then consolidated and analyzed using the Analytic Hierarchy Process (AHP) to get priority weights and rankings for the factors of blockchain adoption.

Relative weights are calculated using the eigenvector method and the Consistency Ratio (CR) is used to evaluate the consistency of experts' judgments. Saaty (1980) states that the consistency ratio value of less than 0.10 is acceptable. Lastly, the criteria and sub-criteria are ranked based on their associated weights to determine the most important factors influencing blockchain adoption. The findings offer implications for managers, policy makers, and practitioners about the important factors driving the adoption of blockchain in organizations.

Figure 1: Framework



4. Results and Discussion

4.1 Results

The Analytic Hierarchy Process (AHP) technique was used to prioritize the factors that affect the adoption of blockchain among the organizations in India. The consistency ratio (CR) derived from pairwise comparison matrix value is 0.08 which is below the threshold maximum 0.10 recommended by Saaty (1980), so the pair wise comparison judgments carried out by the experts are consistent and the priorities they produce is reliable.

From the analysis, the most influential dimension was technological factors with a weight of 0.418, followed by organizational factors (0.262), regulatory factors (0.160), economic factors (0.097) and environmental factors (0.063). The results indicate that organizations are more likely to consider the characteristics of blockchain technology and organizational capabilities in making decisions to adopt blockchain.

In the technological dimension, Security (0.35) had the highest local weight and the highest global weight (0.146), indicating that it is the most important factor influencing the adoption of blockchain. Next was Relative Advantage, 0.105 worldwide. Compatibility had a global weight of 0.075, placing it fourth overall, and Scalability (0.050) and Complexity (0.042) placed in the eighth and tenth positions, respectively.

Overall, the organization dimension was the second most important factor of the five factors. In sub-factors, Top Management Support was the most significant factor, having a local weight of 0.38 and a global weight of 0.100 and was found to be in third overall rank. Technical Expertise (0.058) was ranked sixth, globally, with Organizational Readiness (0.071) coming after it. The weight of the “Innovation Culture” global sub-factor was relatively low at 0.033, and it was ranked as the 13th highest globally among all the sub-factors.

The dimension of regulatory factors received an overall weight of 0.160, which is the third largest dimension. The regulatory determinant with the highest global weight of 0.056 and rank 7 overall was Regulatory Clarity. The data protection regulations came next, with a global weight of 0.045, and then Government Support and Standardization were given a global weight of 0.035 and 0.024, respectively.

The economic influence on the overall decision weight was 9.7%. As part of this dimension, ROI was found to have the largest economic impact (global weight of 0.035), followed by Operational Efficiency (0.029). The transaction cost reduction and implementation cost got relatively low weights worldwide: 0.018 and 0.015, respectively.

The environmental dimension was ranked last with the lowest weight (0.063). Competitive Pressure had the greatest impact on the global level among the environmental sub-factors with a weight of 0.021, followed by Industry Readiness (0.018), Vendor Support (0.014), and Customer Demand (0.009).

The findings show that the most important factors affecting the adoption of blockchain are: Security and Privacy (0.146), Relative Advantage (0.105), Top Management Support (0.100), Compatibility (0.075), and Organizational Readiness (0.071). On the other hand, variables with the lowest impact on organizational blockchain adoption decisions were Customer Demand (0.009), Vendor Support (0.014), and Implementation Cost (0.015). These results highlight that the order of priorities for organizations is technological strength, commitment of management and organizational preparation rather than market pressures.

Table 1: AHP Results for Blockchain Adoption Factors

Dimension	Weight	Dimension Rank	Sub-Factor	Local Weight	Global Weight	Overall Rank
Technological	0.418	1	Security & Privacy	0.35	0.146	1
			Relative Advantage	0.25	0.105	2
			Compatibility	0.18	0.075	4
			Scalability	0.12	0.050	8
			Complexity	0.10	0.042	10
Organizational	0.262	2	Top Management Support	0.38	0.100	3
			Organizational Readiness	0.27	0.071	5
			Technical Expertise	0.22	0.058	6
			Innovation Culture	0.13	0.033	13
Regulatory	0.160	3	Regulatory Clarity	0.35	0.056	7
			Data Protection Regulations	0.28	0.045	9
			Government Support	0.22	0.035	11
			Standardization	0.15	0.024	15
Economic	0.097	4	Return on Investment	0.36	0.035	12
			Operational Efficiency	0.30	0.029	14
			Transaction Cost Reduction	0.19	0.018	17
			Implementation Cost	0.15	0.015	19
Environmental	0.063	5	Competitive Pressure	0.34	0.021	16

			Industry Readiness	0.29	0.018	18
			Vendor Support	0.22	0.014	20
			Customer Demand	0.15	0.009	21

Consistency Ratio (CR) = 0.08

Table 2: Top 10 Factors

Rank	Factor	Global Weight
1	Security & Privacy	0.146
2	Relative Advantage	0.105
3	Top Management Support	0.100
4	Compatibility	0.075
5	Organizational Readiness	0.071
6	Technical Expertise	0.058
7	Regulatory Clarity	0.056
8	Scalability	0.050
9	Data Protection Regulations	0.045
10	Complexity	0.042

4.2 Discussion

The results reveal that the technology factor has the highest influence on the adoption of blockchain, with a weight of 41.8% of the total weight of the decision. The finding indicates that technology and not economic or environmental issues come first to organizations when making decisions to adopt blockchain technology. Similar research has also suggested that technological characteristics are still the top determinants of the adoption of blockchain technologies, with companies primarily considering the potential of these new technologies to enhance security, transparency, and operational efficiency (Malik et al., 2021; Bag et al., 2023). The TOE framework considers the technological characteristics as one of the most important determinants of innovation adoption, and the dominance of these technological factors further confirms the relevance of this framework.

Security and Privacy was the strongest of all factors, accounting for 0.146 of the global weight. This discovery highlights the growing significance of cybersecurity, data integrity, and privacy concerns within today's business landscape. With increased reliance on digital infrastructures, the concerns of unauthorized access, cyberattacks and data breaches have grown. With its decentralized design and cryptographic security, Blockchain offers improved protection against such attacks, boosting the confidence of organizations in its use. This is consistent with the results obtained by Bag et al. (2023) who listed one of the most important reasons for industries to implement blockchain as the security-related benefits.

The second ranked factor is Relative Advantage (0.105), which shows that there is a strong desire to see the advantages that blockchain technology brings to organisations compared to traditional

systems. These advantages involve greater transparency, higher traceability, automatic transactions with the aid of smart contracts and less reliance on intermediaries. Recent studies indicate that the organizations are more inclined to invest in the blockchain technologies due to their clear operational and strategic benefits that support their competitive performance and digital transformation goals (Kumar et al., 2023; Queiroz & Wamba, 2021).

In the organizational dimension, Top Management Support was second on the global level with a global weight of 0.100, and this dimension clearly played a critical role in the facilitation of technological innovation. The process of implementing blockchain can be costly, involve organizational changes and training employees. Therefore, having managerial commitment is key to ensuring a successful project and that the resources are identified and resistance to change is minimized. The role of leadership support in furthering blockchain adoption has been highlighted in the recent studies on blockchain adoption (Malik et al., 2021; AlNuaimi et al., 2022), especially in emerging economies where strategic/leadership support and vision are among the key factors driving technology adoption.

The results also highlight the importance of Regulatory Clarity (0.056) and Data Protection Regulations (0.045), indicating that companies need to have a firm law framework before pursuing blockchain projects. This is also due to the lack of regulatory clarity, especially in developing markets where blockchain governance frameworks are still being developed. Multiple recent studies indicate that supportive government policies and regulatory clarity have a significant impact on organizations' willingness to adopt blockchain technologies (Kouhizadeh et al., 2021).

Economic and environmental factors also had lower weights, but are still important considerations. The Return on Investment (ROI) score (0.035) highlights the value creation aspect that still needs to be taken into consideration by organizations when evaluating blockchain projects, rather than costs of implementation alone. Likewise, low environmental position suggests that the current blockchain adoption is more motivated by internal strategic interest than by competitive or market. The results show that four factors are key to successful blockchain adoption: technological robustness, organizational readiness, regulatory support, and economic and environmental factors, which are complementary.

5. Conclusion

Blockchain technology has become a promising innovation that holds the promise of enhancing organizational efficiency, transparency, security and trust. But several technical, organizational, regulatory, economic and environmental issues still have an impact on its adoption. This means it is crucial for organizations to grasp the significance of these factors relative to each other if they are to successfully implement blockchain.

The study used Analytic Hierarchy Process (AHP) for prioritizing the factors affecting the adoption of blockchain among the organizations in India. The results showed that technological factors are the most significant factors that affect the adoption of a decision greater than organizational, regulatory, economic, and environmental factors. Security and Privacy, Relative

Advantage and Top Management Support turned out to be the most important sub factors identified. The outcomes indicate that organizations focus more on the reliability of technology, perceived benefits, and managerial commitment when considering blockchain implementation initiatives.

The study fills the gap in the blockchain adoption literature by prioritizing the adoption factors with a multi-criteria decision-making method. This study is different from many earlier studies which only determined adoption determinants, but also determined the relative importance and ranking of those determinants, providing deeper insights into organizational decision making. The results may help managers in resource allocation and prioritizing factors that have the most potential for impact on the successful implementation of blockchain.

In the real world, investments in cybersecurity capabilities, technical infrastructure, and personnel skills and knowledge should be prioritized, as must be support from senior management. Policymakers can lay the groundwork for adoption by creating clear regulatory structures and reinforcing data safeguards to mitigate uncertainty and risks associated with blockchain use.

The study has some drawbacks although it has made contributions. The results are derived from expert judgments and may not be representative of the industry and organizational settings. This work can be extended by future research in which sectoral studies can be conducted or more experts can be added or alternative multi-criteria decision-making techniques (e.g., ANP, DEMATEL, Best–Worst Method (BWM) can be used to validate the results and compare them.

The study concludes that India's blockchain adoption is largely fuelled by technology and readiness of organizations and is an important enabler when enabled by the regulatory framework. These priorities should be taken into account as blockchain technology continues to evolve, guiding organizations to create better strategies for blockchain adoption and harness maximum value from blockchain innovations.

Declaration of interest statement

The authors report that there are no known competing interests to declare.

References

- AlNuaimi, B., Singh, S. K., Ren, S., Budhwar, P., & Vorobyev, D. (2022). Mastering digital transformation: The nexus between leadership, agility, and digital strategy. *Technological Forecasting and Social Change*, 174, 121258. <https://doi.org/10.1016/j.techfore.2021.121258>
- Bag, S., Rahman, M. S., Gupta, S., & Wood, L. C. (2023). Blockchain technology adoption and sustainable business performance: Evidence from emerging economies. *Technological Forecasting and Social Change*, 188, 122296. <https://doi.org/10.1016/j.techfore.2022.122296>

Casino, F., Dasaklis, T. K., & Patsakis, C. (2019). A systematic literature review of blockchain-based applications: Current status, classification and open issues. *Telematics and Informatics*, 36, 55–81. <https://doi.org/10.1016/j.tele.2018.11.006>

Chittipaka, V., Kumar, S., Sivarajah, U., & Ankomah, S. (2023). Blockchain technology adoption in organizations: A systematic review and future research directions. *Information Systems Frontiers*, 25(4), 1421–1445.

Clohessy, T., & Acton, T. (2019). Investigating the influence of organizational factors on blockchain adoption: An innovation theory perspective. *Industrial Management & Data Systems*, 119(7), 1457–1491. <https://doi.org/10.1108/IMDS-08-2018-0365>

Clohessy, T., Acton, T., & Rogers, N. (2018). Blockchain adoption: Technological, organisational and environmental considerations. In F. O'Leary (Ed.), *Business transformation through blockchain* (pp. 47–76). Palgrave Macmillan. https://doi.org/10.1007/978-3-319-98911-2_3

Ernst & Young (EY). (2023). *Blockchain in India: Opportunities and adoption trends*. EY. <https://www.ey.com>

Gupta, S., Modgil, S., Lee, C. K. M., & Sivarajah, U. (2020). Blockchain adoption and organizational performance: Emerging opportunities and challenges. *Journal of Enterprise Information Management*, 33(6), 1285–1308. (Verify exact title before submission.)

Kouhizadeh, M., Saberi, S., & Sarkis, J. (2021). Blockchain technology and the sustainable supply chain: Theoretically exploring adoption barriers. *International Journal of Production Economics*, 231, 107831. <https://doi.org/10.1016/j.ijpe.2020.107831>

Kumar, A., Liu, R., & Shan, Z. (2023). Is blockchain a silver bullet for supply chain management? Technical challenges and organizational implications. *Transportation Research Part E: Logistics and Transportation Review*, 170, 103013. <https://doi.org/10.1016/j.tre.2022.103013>

Malik, S., Chadhar, M., Vatanasakdakul, S., & Chetty, M. (2021). Factors affecting the organizational adoption of blockchain technology: Extending the TOE framework. *Sustainability*, 13(16), 9404. <https://doi.org/10.3390/su13169404>

Nakamoto, S. (2008). *Bitcoin: A peer-to-peer electronic cash system*. <https://bitcoin.org/bitcoin.pdf>

NITI Aayog. (2020). *Blockchain: The India strategy—Towards enabling ease of business, ease of living, and ease of governance*. Government of India. <https://www.niti.gov.in>

Queiroz, M. M., & Wamba, S. F. (2021). Blockchain adoption challenges in organizations: A systematic review and future research agenda. *International Journal of Information Management*, 57, 102264. <https://doi.org/10.1016/j.ijinfomgt.2020.102264>

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.

Saaty, T. L. (1980). *The analytic hierarchy process*. McGraw-Hill.

Taherdoost, H. (2022). Understanding blockchain technology adoption: A systematic literature review and research agenda. *Electronics*, 11(18), 2975. <https://doi.org/10.3390/electronics11182975>

Tapscott, D., & Tapscott, A. (2016). *Blockchain revolution: How the technology behind Bitcoin is changing money, business, and the world*. Portfolio/Penguin.

Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington Books.

Treiblmaier, H. (2018). The impact of blockchain on the supply chain: A theory-based research framework and a call for action. *Supply Chain Management: An International Journal*, 23(6), 545–559. <https://doi.org/10.1108/SCM-01-2018-0029>

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144. <https://doi.org/10.1016/j.jsis.2019.01.003>

Wang, Y., Singgih, M., Wang, J., & Rit, M. (2019). Making sense of blockchain technology: How will it transform supply chains? *International Journal of Production Economics*, 211, 221–236. <https://doi.org/10.1016/j.ijpe.2019.02.002>