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From the Principal's Desk



It gives me an immense pleasure and pride to publish the proceedings of the National Conference on “*Exploring Pillars for Viksit Bharat 2047.*” This conference has provided a valuable academic platform for academicians, researchers, and information professionals to deliberate on the changing role of different contributors to the development of the nation and achievement of the objectives.

The National Conference on “Exploring Pillars for Viksit Bharat- 2047” is a visionary platform aimed at fostering dialogue, innovation, and collaboration to realize the goal of a Developed India by 2047. The conference brought together policymakers, academicians, industry leaders, entrepreneurs, students, and civil society to deliberate on transformative strategies for inclusive, sustainable, and technology-driven national growth.

This national conference successfully addressed contemporary issues, recent trends, and challenges and role of various sectors in achieving objectives of Viksit Bharat. Through keynote addresses, panel discussions, paper presentations, and interactive sessions, the conference paved way to generate actionable insights and policy-oriented recommendations for nation-building. Let this conference serve as a catalyst for ideas that empower our citizens, strengthen our institutions, and contribute to building a prosperous and self-reliant India.

I extend my sincere appreciation to the Editor, Miss Dipali Chavan for her dedicated efforts in bringing out this conference issue. I also congratulate the organizing committee, reviewers, authors, and all contributors for their academic involvement and commitment towards the success of this conference.

I am confident that this publication will serve as a valuable reference source for researchers, students, and professionals in the field of Commerce and Management and Social Sciences. I wish the journal every success and hope it will inspire further research and innovation in the field and Vision of Viksit Bharat-2047.

Dr. Gurunath Fagare
Principal
Kisan Veer Mahavidyalaya, Wai

From the Editorial Desk



We are pleased to present this special issue of the journal dedicated to the National Conference on “*Exploring Pillars for Viksit Bharat 2047*”, organized by the Department of Commerce and Management, BCA, and Psychology, History, Political Sciences, Economics in association with IQAC. This issue provides a platform for academicians, researchers and information professionals to share their research findings, experiences and innovative practices related to the application for “*Exploring Pillars for Viksit Bharat 2047*”.

This enthusiastic participation of academicians, researchers, and scholars across the nation reflects the collective intellectual commitment towards contributing to the vision of Viksit Bharat 2047 — a developed, self-reliant, and globally competitive India. The research papers submitted cover diverse dimensions such as economic growth, sustainable development, digital transformation, governance, reforms, social empowerment, innovations, and entrepreneurship. Each contribution adds meaningful insight into the structural and strategic pillars required to achieve the national vision of Vikasit Bharat

As Chief Editor, I sincerely appreciate the dedication of all authors, reviewers, members of the organizing committee, and IQAC for maintaining academic rigor and quality throughout the review and publication process. The success of this conference is a testament to our institution’s commitment to fostering research culture, interdisciplinary dialogue and academic excellence.

I sincerely appreciate the valuable contributions made by the authors, whose scholarly papers have enriched the knowledge and added literature through this journal issue. I am also grateful to the reviewers and editorial board members for their critical evaluation and constructive suggestions, which helped maintain the academic quality of the publication. Special thanks are due to the organizing committee and all contributors who worked tirelessly for the successful completion of this conference journal.

My personal gratitude goes to the eminent personality Hon’ble Dr. Deepak Karanjikar, Advisor, Viksit Maharashtra, Government of Maharashtra who had accepted our invitation as Chief Guest of Inaugural Function and Keynote Speaker, shared his views and ideas. Dr. Parashram Patil , Advisor, Viksit Maharashtra, Government of Maharashtra had accepted our invitation as Resource Person and Dr. Major Ashok Giri, Principal A.S.S.M, Medha for sharing their valuable views in Valedictory function.

We owe our sincere thanks to Hon’ble Shri. Madandada Bhosale, President, Janata Shikshan Sanstha, Wai who is the constant source of inspiration and driving force behind the execution of innovative ideas. We are thankful to secretary Hon’ble Dr. Jayawant Chaudhari for his kind support in the venture. I express my gratitude to Hon’ble. Principal Dr. Gurnath Fagare for his constant support. The organizing committee member also contributed a lot for the success of the Conference. The said conference would not have been successful without cooperation and support of the faculty, library staff and administrative staff. I thank all of them for their kind support and cooperation.

I am confident that this issue will serve as a useful source of knowledge and inspiration for professionals, researchers and students. I hope it will encourage further research and innovation, contributing to the continuous development of Viksit Bharat in digital era.

Executive Editor

Miss. Dipali Chavan

Assistant Professor, Department of Commerce and Management
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From the Editorial Desk

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Abstract

Blockchain and Digital Ledger Technology (DLT) have emerged as transformative innovations with the potential to revolutionize diverse industries like financial services, supply chain, healthcare, governance, and more. Originally designed to support decentralized digital currencies (e.g., Bitcoin), blockchain's core characteristics are immutability, decentralization, transparency, and cryptographic security that present novel opportunities for improving trust and efficiency in multi-party systems. This paper reviews the development of blockchain and DLT, explores theoretical foundations, examines applications in multiple sectors, discusses key challenges, and outlines future research directions.

Keywords: Blockchain, Distributed Ledger, Decentralization

Introduction

Digital systems that require trusted collaboration among multiple participants have historically depended on centralized intermediaries (e.g., banks, clearinghouses). However, these centralized models can be costly, opaque, and vulnerable to single points of failure.

Blockchain is a secure, shared digital system for recording information that cannot easily be changed. A specific type of distributed ledger seeks to remove central intermediaries by enabling secure, decentralized record keeping. **Digital Ledger Technology (DLT)** more broadly refers to any distributed system that maintains synchronized copies of a ledger across nodes without a central authority.

Blockchain structure is a chain of cryptographically linked data blocks stored across a distributed network, ensuring security, transparency, and immutability. A typical blockchain consists of data blocks that are encrypted, digitally secured, algorithmically protected. Each block contains:

- Transactions
- A timestamp
- A cryptographic hash of the previous block

This forms a tamper-evident chain that strengthens integrity.

Distributed Ledgers

A **Distributed Ledger** is a decentralized digital system for recording transactions or data across multiple network nodes, where each participant maintains a synchronized copy of the ledger. Unlike traditional centralized databases, a distributed ledger does not rely on a single central authority to validate, store, or control the data.

In a distributed ledger system, updates to the ledger are validated through a consensus mechanism and then replicated across all participating nodes. This ensures that all copies remain consistent and accurate. The use of cryptographic techniques secures the data, making unauthorized alterations highly detectable and practically infeasible.

Literature Review

Early Work in Blockchain

The foundational paper by Satoshi Nakamoto (2008) introduced blockchain as part of Bitcoin's architecture. Later studies focused on improving how blockchain systems agree, grow, and protect privacy.

Academic Studies on DLT

Researchers have investigated the potential of Distributed Ledger Technology (DLT) to enhance auditability, streamline transaction reconciliation processes, and strengthen trust among multiple stakeholders within complex, multi-party systems.

Comparisons with Traditional Databases

Unlike centralized databases, DLT ensures:

From the Editorial Desk

- Decentralization
- Immutable records
- Automated trust without intermediaries

However, traditional databases still perform better in raw throughput and latency.

Sectorial Applications

Financial Services

Blockchain in financial services provides **faster, cheaper, more secure, and transparent solutions** for payments, lending, asset management, and regulatory compliance. Blockchain supports:

- Cross-border payments
- Smart contracts
- Tokenization of assets

Real-world cases: Ripple, Ethereum-based decentralized finance (DeFi) platforms.

Supply Chain

Blockchain technology improves end-to-end traceability within supply chains, enabling transparent tracking of products from their origin to the end customer. For instance, in the case of perishable goods, blockchain facilitates accurate monitoring, reduces the risk of fraud, and enables faster, more effective product recalls.

Healthcare

Blockchain in healthcare can significantly enhance security, transparency, and efficiency while empowering patients with greater control over their medical data. However, widespread adoption requires overcoming regulatory, technical, and operational challenges. DLT has potential in:

- Secure patient data sharing
- Health records interoperability
- Credential management
- Reduced fraud
- Better patient empowerment
- Increased transparency.

Government and Identity

- Governments can use blockchain to create secure digital IDs for citizens. It can be useful for reducing identity fraud, gives citizens control over personal data, provide simplified access to public services.
- Blockchain prevents tampering with land ownership records.
- Blockchain can support secure electronic voting.
- Government contracts and spending can be recorded on blockchain, which can be helpful for corruption reduction, auditability improvement, tracking fund usage in real time. This is especially valuable in developing nations fighting misuse of public funds.
- Secure sharing of medical data between hospitals and agencies.
- Blockchain can streamline tax reporting and reduce fraud.
- Used for tracking government supply chains (e.g., food distribution, defense equipment).

Methodology:

This study employs a mixed-method research design combining case study analysis and prototype implementation. Secondary data were collected from peer-reviewed journals, government publications, and documented blockchain implementations. System performance was evaluated based on transaction speed, security features, and scalability metrics.

Challenges and Limitations

- Scalability : Scalability refers to a blockchain network's ability to handle a growing number of transactions efficiently without compromising performance, cost, or decentralization. It is one of the biggest barriers to mass adoption.
- Energy Consumption: Blockchain's energy footprint depends heavily on its consensus mechanism—Proof of Work is costly, while PoS and newer models are far more sustainable for enterprise adoption.

- **Regulatory Uncertainty:** Regulatory uncertainty in blockchain stems from fragmented laws, cross-border complexities, and unresolved issues around privacy and financial compliance. Organizations must balance innovation with proactive risk management until clearer global standards emerge.
- **Interoperability:** Interoperability is essential for blockchain's long-term viability, enabling collaboration across networks and integration with existing systems. While solutions like Polkadot, Cosmos, and cross-chain bridges are advancing, security and standardization remain critical challenges. Multiple ledgers with differing protocols challenge seamless integration.
- **Privacy vs Transparency:** Blockchain inherently promotes transparency, but this can conflict with privacy requirements. The future lies in hybrid solutions—combining open auditability with advanced privacy-preserving techniques to meet both regulatory and enterprise demands. Balancing transparency with confidentiality is an on-going research topic.

Conclusion

In this paper, I have illustrated and discussed the key traits of distributed ledger technologies and blockchain platforms in particular, with a focus on the technical mechanisms Blockchain and DLT represent disruptive innovations with the capacity to reshape many sectors. Despite technical and regulatory challenges, continued research — in scalable architectures, governance, and applications — will determine how widely these technologies are adopted. Blockchain possesses certain properties like transparency, security, traceability, tradeability, privacy and data auditability, and when harnessed in the proper direction it can bring about major change in the technical world. Hashing makes the blockchain robust, as it impedes changes in older transactions without altering the whole sequence of blocks that follow. Mechanisms such as Proof of- Work and Proof-of-Stake ensure that the publishing rights of new blocks are given to nodes that prove their reliability.

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