

Editorial: Blockchain and Digital Transformation

Mika Westerlund and Gregory Sandstrom

Welcome to the 1/2 issue of the Technology Innovation Management Review. This edition continues to explore the topic of blockchain (distributed ledger) technology. The current issue takes digital transformation as a broad context to frame the rise of blockchain. In furthering the educational and research dissemination of distributed ledger technology topics, this TIM Review edition has uses cases related to healthcare management, banking and financial services, and innovation diffusion, and includes one interview with industry practitioners.

The issue opens with **Jason Windawi's** paper, "The Diffusion of Blockchain as a General Purpose Technology Driving Digital Transformation". The author identifies and explores the notion of a "general purpose technology" (GPT) that involves the transformation of existing industries as well as the creation of entirely new ones. The paper deals with processes of innovation according to three implementation clusters: Digital Economies, Digital Finance, and Extra-Institutional Trust. The first involves physical, data, and creative economies, the second, digital assets, digital money, and the pragmatic innovation of programmable money. The paper hovers quickly over decentralised finance (DeFi), stablecoins, and CBDCs, along with digital trust and digital governance. Overall, it makes a broad appeal to the innovation, reinvention, and recombination of institutions with other GPTs, including but not limited to distributed ledgers.

A team paper follows, by **Abu Naser Mohammad Saif, K. M. Anwarul Islam, Afruza Haque, Hamida Akhter, S.M. Masudur Rahman, Nusrat Jafrin, Rasheda Akter Rupa, and Rehnuma Mostafa**, titled "Blockchain Implementation Challenges in Developing Countries: An evidence-based systematic review and bibliometric analysis". The research asks: what are the challenges of adopting blockchain technology in developing countries? The authors searched 1,298 published documents from 2016-2021 in the Scopus, Web of Science, IEEE Xplore, and ScienceDirect databases, finding 19 appropriate publications for research analysis using a PRISMA flow diagram. The findings are displayed partly with the help of VOSviewer. The results identify four comprehensive themes as broad challenges for accelerating the blockchain adoption and implementation process in developing countries: technological, governance, organizational and environmental, and knowledge.

In the next paper by **Marc Pilkington**, "Can Blockchain Improve Healthcare Management?", the overlap with Internet of Things (IoT) is most evident. IoT specifically gets involved through Electronic Health Records (EHRs). This paper investigates what EHRs are and why their management matters. It looks at offline and off-chain data containers for EHRs, including data lakes, as well as consumer wearables. The paper asks: does the plurality of organizational and institutional arrangements and healthcare data vehicles shed new light on blockchain-powered EHRs, thereby enabling a deeper patient-centric turn in healthcare management? The research includes topics involving public-private-partnerships, multi-stakeholder engagement, and supply chain tracking, plus the digital identity of users.

The fourth paper is by **Anitha Kumari and N. Chitra Devi**, "The Impact of FinTech and Blockchain Technologies on Banking and Financial Services". The paper explores how FinTech and blockchain technologies are influencing the banking and financial services industries. Regarding FinTech, it provides an overview of decentralized finance and digital banking, specifically looking at payments and deposits, investments, smart solutions, and enhanced reachability. On the topic of blockchain, the paper looks at identity theft, fraud detection, anti-money laundering, auditing and accounting, operational efficiencies, banking product and service innovation. Overall, the paper takes a general approach to the impact of digitalization trends on the banking and financial services sector.

The final article comes as an interview with **Maryanne Morrow and Matthew Midson** on the topic of "Blockchain and Digital Transformation in Financial Services". We divided the interview into two parts. For part I, we looked at digital transformation and the adoption of DLTs, technology and innovation, markets and money management. Regarding general blockchain and digital transformation, the interviewees believe distributed ledger systems can connect consumer financial services through technology in a new way driven by developer teams and projects. This innovation-driven opportunity impacts banks and financial institutions that collect data from customers and clients (KYC). The distributed ledger technology is starting to impact how transactions move through institutional finance, including the reduction of

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transaction settlement time. In terms of markets and money management, DeFi was considered as a misnomer for institutional finance. Whereas while stablecoins were seen as an interesting idea, they are still unregulated in most jurisdictions. Non-fungible tokens (NFTs) are illiquid, speculative investments and a new asset marketplace. The value-added by NFTs comes from tokens that carry attributes, meaning information exchange that is valuable beyond just finance.

Part II of the interview focuses on governance and legal issues, future opportunities, development needs and research pathways. The interviewees confirmed that finding the right use case is of paramount priority. A distributed ledger (blockchain) backend can be used to increase operational efficiency and streamline information processes for financial services. Due to the “distributed” feature of the technology, it allows both private and public conversations and alliances to form. The nimbleness of FinTech companies enables them to identify a problem and seek to build a solution for it, potentially in collaboration with large financial institutions. What we are witnessing is financial institutions becoming by necessity also technology companies. Among the advice provided during the interview for aspiring tech entrepreneurs, everyone should be aware of this new distributed ledger technology, including the impact it is starting to make on finance.

For future issues, we invite general submissions of articles on technology entrepreneurship, innovation management, and other topics relevant to launching and scaling technology companies, and for solving practical business problems in emerging domains such as artificial intelligence and blockchain applications in business. Potential contributors could also consult the TIM Review topic model (<https://topicmodeling.timreview.ca/#/model>) to examine the dominant publication themes so far, which might help with ideas for valuable future contributions. Please contact us with potential article ideas and submissions, or proposals for special issues.

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