Blockchain Media Practices and Their Impact on Media Industry Development (Postprint)

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Abstract

In blockchain networks, the technology primarily automates the recording, identification, and management of participants, subjects, elements, content, and other data pertaining to events, while also enabling the continuous updating and refinement of relevant information over time. Compared to traditional media, blockchain media entails lower operational costs and can integrate online viewpoints with real-time commentary, thereby impacting the reach and influence of traditional media and potentially disrupting the development of the entire traditional media industry. In response to this phenomenon, this study investigates the fundamental nature of blockchain within the context of the current blockchain boom, while simultaneously providing a detailed analysis of the concept and evolution of blockchain media, with the aim of offering theoretical guidance for future research endeavors.

Full Text

Blockchain Media Practice and Its Impact on the Development of the Media Industry

Abstract

In blockchain networks, events are automatically recorded, identified, and managed through their associated personnel, themes, elements, content, and other data, with the capability to update and refine relevant information over time. Compared with traditional media, blockchain media requires significantly lower costs while integrating online perspectives with real-time commentary, which has impacted the reach and popularity of conventional media and even poses challenges to the entire traditional media industry. This study examines the fundamental nature of blockchain amid the current hype, offering a detailed analysis of the concept and development of blockchain media to provide theoretical references for future research.

Keywords: blockchain media; media industry; application development

1.1 Concept of Blockchain Media

As modern society places increasing emphasis on scientific information, blockchain media has emerged alongside developments in information technology, with the internet permeating all sectors and influencing national life. To enhance media development while reducing costs and improving efficiency, enterprises require efficient, convenient, and user-friendly technologies—demands that have catalyzed the advent of blockchain media technology. This technology can publicize its source code within the Bitcoin electronic system environment, enabling broader understanding of its technical details. Featuring a complete design architecture applicable to media industries worldwide, blockchain media has attracted substantial attention from media organizations, internet technology companies, and financial institutions.

According to Baidu Baike, blockchain refers to a peer-to-peer network that utilizes distributed data arrangements to identify, disseminate, and record information. During operation, it can intelligently record and validate all nodes within the system, retrieving and broadcasting useful information—hence blockchain media is also termed the "Internet of Value." As a novel information organization and dissemination method tailored to modern needs, blockchain media represents a distinct media format that reorganizes data information through centralized peer-to-peer networks, ensuring the continuity and sustainability of distributed database nodes while continuously enriching data storage as events evolve to enhance traceability, immediacy, and censorship resistance.

1.2 Characteristics of Blockchain Media

1.2.1 Decentralization Blockchain's vision employs combinations of different nodes to form a peer-to-peer network without central coordinating nodes or institutions. Modifying node rights requires ensuring equality among all nodes. Each participating organizational node functions as a self-center, which is crucial for blockchain technology application. In recent years, escalating demands for data confidentiality have accentuated the decentralization of blockchain media.

1.2.2 High Security Blockchain functions as an immutable and unfalsifiable database that evolves over time. As blocks are added, they become timestamps that preserve the entire network' s transaction history while providing retrieval capabilities. Each node generates numerous blocks stamped with timestamps and broadcast across the network, enabling all participants to obtain complete transaction data copies. Once verified and added to the blockchain, information is permanently preserved. Altering historical information requires controlling over 50% of system nodes, making blockchain computing recognized as highly effective data technology—security increases with more transaction nodes.

Blockchain system security is generally established through robust proof-of-work

mechanisms, with each transaction encrypted. Forging a transaction requires falsifying not only the target block but all subsequent linked blocks. When a forger' s speed cannot exceed blockchain' s growth rate, the forged chain is quickly detected and discarded.

1.2.3 De-creditization Blockchain' s fundamental innovation lies in its novel credit formation mechanism. Traditional internet models rely on trusted third-party institutions to establish credit between strangers, whereas blockchain transforms this centralized credit model from inception. It employs recognized mathematical algorithms to establish a "trust" network between machines, creating credit through technology itself. Without central third-party platforms, participants need not know transaction counterparts or seek third-party guarantees—trust in the blockchain' s common algorithm suffices, as the algorithm generates credit and achieves consensus.

1.3 Blockchain' s "Production Relations"

Production relations constitute social relationships formed during material production, encompassing ownership of production materials, interrelationships among producers, and product distribution forms. Ownership of production materials serves as the foundation and decisive factor. In blockchain, data information represents the production materials, collectively owned by participants. No individual can conduct original distribution of digital assets or monopolize data resources—such actions are prohibited in blockchain. All participants equally engage in community construction and management, receiving co-construction feedback according to individual contributions. Reward distribution is automatically executed by consensus mechanisms without dominant authority, rendering all blockchain behaviors verifiable, traceable, and immutable. This fundamentally ensures equality in blockchain production relations, representing a typical manifestation of this new social form. As a novel information organization form, blockchain profoundly impacts content dissemination under these new production relations.

2. Blockchain Operation Method

Blockchain operation primarily achieves network-wide propagation and recording following new media data updates. In blockchain media, information obtained at each node is recorded within the same fixed block to facilitate future source tracing and queries. During this phase, every node can locate a specific section within applicable blocks to share important data recording and storage responsibilities, thereby demonstrating functional integrity. Upon completing designated work and updating data information according to event changes, nodes broadcast the results network-wide. All data must be completed within blocks and be novel and intuitive to be recognized as valid information by other nodes. Upon accepting block data, other nodes construct new blocks at the

chain' s tail, extending the blockchain and ensuring new information sustainability.

3. Impact of "Blockchain Production Relations" on Media Industry

China's traditional media industry maintains stringent news production requirements, mandating professional skills and high ethical standards among practitioners while rigorously reviewing content, quality, and promotional angles to ensure alignment with social development needs. High-quality content continuously enhances media credibility, which in turn establishes a solid foundation for news authenticity and public trust. However, these high thresholds prevent many blockchain media content exchange platforms from becoming news production platforms. Consequently, while blockchain production relations can accommodate media institutions, they cannot replace or function as media institutions themselves.

From an alternative perspective, blockchain technology plays a crucial role in ensuring sustainable traditional media development. CIVIL, a blockchain media production relations platform, aims to sustain traditional media' s development by bypassing conventional institutional structures to become a news publishing and information production platform. Nevertheless, without professional journalism and media-skilled personnel, such platforms face severe developmental obstacles. Media institution professionals, trained through centralized systems, often remain skeptical of blockchain production relations, resulting in minimal participation from established media talent. Conversely, the rise of self-media has concentrated media-skilled individuals in blockchain for freelance writing. To address quality concerns, the CIVIL platform employs news verification functions to review self-media content, ensuring transmitted information is truthful and socially responsible. This verification mechanism has gradually evolved into community autonomy, reducing low-quality news dissemination, though the authenticity of self-media news remains difficult to guarantee.

From a regulatory standpoint, the blockchain industry requires strengthened scientific supervision for healthy development. Its decentralized structure and anonymity may undermine traditional media authority, and because blockchain technology remains in early stages, most research teams are startups lacking investment enthusiasm and potentially compromising information transmission through immature, insecure technologies.

Technically, blockchain supervision relies on joint completion by all network nodes. If malicious actors acquire 51% computing power, they can arbitrarily tamper with or forge data, causing ledger records to lose value and compromising news authenticity. Furthermore, blockchain' s synchronous real-time updates and high-speed computing demands impose stricter requirements on network speed, stability, and security, consuming substantial network throughput and power resources.

Moreover, whether through integrated or independent development, China' s

media industry structure remains centralized, with editorial boards determining all content, development objectives, and review methods. News production follows a bottom-up approach. To improve data resource utilization and reduce transmission time, media organizational forms must achieve infinite flattening while fulfilling centralization requirements throughout news production and dissemination. This issue extends beyond existing media systems and mechanisms, being closely related to high standards and strict requirements in news publishing. While blockchain does not directly impact traditional media' s news production, it redefines information dissemination order. On blockchain platforms, media institutions must prioritize user feedback and evaluation for long-term sustainable development, as this represents community consensus and indicates future development directions.

In summary, blockchain' s expansion may generate network effects that guide news dissemination. Compared with traditional media, its lower rigor in production processes, practitioner qualifications, and content review may trigger false reporting or poor-quality news circulation, significantly hindering credibility enhancement. Therefore, strengthening blockchain media production relations is essential to jointly build a healthy and secure network environment.

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Note: Figure translations are in progress. See original paper for figures.