Research on the Innovative Development of Marketing Digitalization Based on Blockchain Technology

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Abstract: With the continuous development of the digital economy, corporate marketing activities are undergoing an in-depth transformation from traditional models to intelligent and credible ones. Blockchain technology, with its core characteristics of "decentralization, traceability, and immutability", provides brand-new technical support and development space for the digital innovation of marketing. Focusing on the application of blockchain technology in marketing scenarios, this paper explores how it reshapes the marketing ecosystem in terms of brand traceability, user data management, and transparency of advertising placement. Blockchain not only improves the transparency and security of the marketing process but also establishes a more credible and interactive value chain between enterprises and consumers.

***Keywords*:** blockchain technology; digital marketing; data credibility; smart contracts; marketing innovation

1. Introduction

In recent years, the global digital wave has driven corporate marketing models to accelerate into a new phase of intelligence and data-driven operations. However, traditional digital marketing still faces numerous pain points in data security, information symmetry, and ad fraud, which undermine marketing efficiency and user trust. Leveraging its features such as distributed ledgers, smart contracts, and information traceability, blockchain technology offers a new approach to addressing these issues.

2. Overview of Blockchain Technology and Analysis of the Background of Marketing Digitalization

2.1 Core Principles and Evolution Path of Blockchain Technology

The core principle of blockchain is based on decentralization[1]. It realizes synchronous data storage across multiple nodes through distributed ledgers, preventing a single entity from controlling data. For encryption, asymmetric encryption technology is adopted to ensure the security of data transmission and storage and prevent information tampering. Consensus algorithms (such as Proof of Work and Proof of Stake) ensure data consistency among distributed nodes and maintain network stability. Smart contracts are pre-programmed automated execution protocols that can complete transactions or tasks without third-party intervention.

2.2 Current Development Status and Challenges of Digital Marketing

Currently, digital marketing relies on big data and artificial intelligence to achieve precision upgrading, but it still faces significant challenges:

Data Silos: Severe data fragmentation exists among enterprises and platforms, making it difficult to form comprehensive user profiles and thus affecting marketing accuracy.

Ad Fraud: Frequent occurrences of fake traffic and click farming distort the effectiveness of advertising campaigns, resulting in the waste of corporate marketing resources.

User Privacy Leakage: Some platforms over-collect and misuse user data, triggering a user trust crisis and restricting the long-term development of marketing activities.

The industry is in urgent need of technical solutions to address these pain points.

2.3 Theoretical Logic of Blockchain Empowering Marketing

Its immutability can break data silos, enabling trusted cross-platform data sharing and helping enterprises build a comprehensive understanding of users.

Encryption technology and decentralized storage can protect user data sovereignty, allowing users to independently control the scope of data authorization, alleviating concerns about privacy leakage, and enhancing user trust in marketing

activities.

3. Application Practices of Blockchain in Marketing Digitalization Scenarios

3.1 Brand Traceability and Consumer Trust Building

In brand traceability scenarios, blockchain can record the entire lifecycle information of products, from production, processing, and logistics to sales[2]. Once data at each stage is uploaded to the chain, it becomes immutable. Consumers can query product origin, production standards, circulation routes, and other information by scanning a QR code, enabling them to intuitively understand product quality.

3.2 User Data Rights Confirmation and Privacy Protection Mechanism

Blockchain empowers users with data ownership rights. User data is stored on the chain in encrypted form, with ownership belonging to the user. Through an authorization mechanism, users can independently decide to share data with specific enterprises or marketing campaigns.

The entire process of data usage is traceable, preventing enterprises from misusing data without permission. This mechanism not only ensures user privacy and security but also allows users to participate in data value distribution on a voluntary basis, enhancing user recognition and stickiness to marketing activities and promoting the transformation of marketing from "one-way push" to "two-way trust".

3.3 Transparency and Anti-Fraud in Digital Advertising Placement

Blockchain can build a digital advertising transaction platform based on smart contracts, where the rights and interests of advertisers, media parties, users, and other participants are clearly defined through contracts:

Before advertising placement, smart contracts pre-set placement objectives, pricing methods, and effect measurement standards.

During placement, data such as ad impressions, clicks, and conversions are uploaded to the chain in real time, allowing all participants to view them instantly and preventing data fraud.

After the advertising campaign ends, smart contracts automatically settle fees based on actual results, reducing interference from intermediate links.

4. Paths and Countermeasures for Blockchain-Driven Marketing Innovation

4.1 Strengthening Technical Infrastructure and Formulating Industry Standards

At the technical level, it is necessary to increase investment in blockchain infrastructure, promote the construction of hardware such as node deployment and computing power support, and improve network operation efficiency and stability.

4.2 Building a Diversified and Collaborative Ecosystem

Enterprises (as initiators of marketing needs): Should select suitable blockchain technology solutions based on their business characteristics (e.g., brand traceability for FMCG, precision advertising for internet enterprises). They should prioritize launching application pilots in scenarios with high user touch frequency (e.g., membership systems, promotional activities) to accumulate practical experience and gradually promote application.

Platforms (as technical hubs): Should build open blockchain marketing service platforms that not only provide basic services such as data interaction and smart contract deployment but also develop visualized management tools to help enterprises monitor the flow of marketing data and campaign effects in real time.

Users: Need to enhance their understanding of blockchain through popular science and case demonstrations (e.g., obtaining coupons or points by authorizing data), be guided to actively participate in data rights confirmation, and clarify their rights in data value distribution.

Third-Party Institutions (e.g., technical auditors, value assessors): Can be introduced to supervise the authenticity of data and the compliance of contracts within the ecosystem, and scientifically calculate data value to ensure the fair distribution of interests among all parties.

4.3 Improving Legal Supervision and Data Compliance Systems

Improving legal supervision and data compliance systems in the field of blockchain marketing requires balancing technical characteristics and industry realities to build a "hierarchical supervision and dynamic adaptation" system:

Data Rights Confirmation: Clarify the legal boundaries of user data ownership, usage rights, and income rights in blockchain scenarios. Distinguish between public data and personal privacy data, stipulate the legal procedures for enterprises

to obtain user data (e.g., explicit notification, written authorization), and prohibit evasion of data compliance requirements in the name of "decentralization".

Smart Contracts: Establish a "pre-review + in-process monitoring + post-event accountability" mechanism. Require enterprises to submit contracts to regulatory authorities for review before deployment, focusing on verifying the fairness of rights and obligations clauses and the legality of execution logic. Meanwhile, use technical tools to monitor the contract execution process in real time.

Differentiated Compliance Guidelines: Issue differentiated compliance guidelines, setting hierarchical compliance requirements for enterprises of different sizes (large platforms, SMEs) and different application scenarios (brand traceability, advertising placement) to reduce compliance costs for SMEs.

Cross-Departmental Supervision Collaboration: Establish a cross-departmental supervision and collaboration mechanism (involving market supervision, cyberspace administration, and judicial departments) to achieve supervision data sharing and law enforcement coordination, and accurately crack down on illegal activities such as false marketing and data trafficking using blockchain, thereby creating a safe and orderly legal environment for blockchain marketing innovatio[3].

5. Conclusion

The rise of blockchain technology has injected new vitality into the development of marketing digitalization, and it has shown promising application prospects in improving data credibility, enhancing user interaction, and optimizing placement efficiency. In the future, efforts should be made in three aspects — technological innovation, institutional construction, and ecological collaboration — to promote the in-depth integration and sustainable development of blockchain in the marketing field, and help enterprises build a new paradigm of digital marketing centered on "trust".

References

[1] Xinyue Wang,Bo Zhang,Linyi Tang.Sales investment, marketing digitalization, and corporate growth[J].International Review of Financial Analysis,2025,102104146-104146.

[2] Qiulian Sun.Analysis of the Influence of E-commerce on the Innovative Development of Marketing[C]2020:-DOI:10.2991/MSIE-19.2020.24.

[3] Xueyi Wang,Yuqian Li,Lingli Yao.The innovation and development of marketing mode of traditional metal enterprises under the background of digitalization[J].Industrial Engineering and Innovation Management,2024,7(2).