Application of Blockchain News Production Based on Digital Encryption Technology

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***Abstract*—Blockchain technology provides a new logic for digital content production. At present, the Internet is a "one center, multi node" technology architecture. Blockchain constructs the underlying structure of "multi center, multi node". The block chain's digital encryption, backtracking, distributed account book and time stamp can solve the problems that the network data is easy to tamper with and not easy to save. Meanwhile, it provide a new technical support for the verification of news data. On the basis of Hasche Algorithm, the information after user's signature and authorization can be disclosed in the network, which can ensure the security of user's personal information. On the other hand, the application of blockchain in the field of news production can reshape the trust mechanism between communicators and users. This study uses observation and induction to describe the application scenarios of blockchain technology in the media industry. The application of blockchain technology will change the existing mode of news production and distribution. Specifically, Based on the main chain and parallel chain of DAG account book, this study considers that blockchain technology has a strong application value in the fields of news copyright protection, news source verification, advertising traffic fraud control and so on.**

Keywords- Hasche Algorithm; digital money; blockchain; News Production

I. INTRODUCTION

Since the emergence of Bitcoin in 2008, a peer-to-peer electronic cash system marks that the blockchain technology has entered the public vision.[1] The concept of digital currency was first proposed in 1983.[2] Blockchain technology is closely related to digital currency. Bitcoin invention relies on the workload proof mechanism of Hashcash.[3] At present, the network society constructed by the underlying technology of Internet brings great challenges to the authenticity of news and the credibility of media. Network empowerment provides opportunities for the production of network rumors. The rapid, convenient, timely and rapid production of news must rely on a large number of news practitioners, which not only increases the economic cost of media operations, but also may produce error risk in multiple information exchanges. Blockchain is "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way"[4] Blockchain technology is based on the principle of cryptography, which is characterized by distributed data storage, consensus mechanism, cryptocurrency and smart contract, and will become the underlying technology that affects the effect of media fusion. Yuan Yong[5], He Pu[6] Compare with the application of special currency technology.

The objective impact of Internet technology on media convergence has become a consensus of the industry. Nowadays, blockchain technology, which is widely used in financial, logistics and e-commerce scenarios. The characteristics of blockchain technology are also applicable to the media industry. In fact, scholars at home and abroad have begun to study the application of blockchain in the field of media. Blockchain technology, characterized by distributed data storage, consensus mechanism, cryptocurrency and smart contract, which provides a new way to solve the problem of content fault in all levels of media integration. Blockchain technology include distributed ledger, content can not be tampered and data validation, which provides a new technical guarantee for the media to avoid the risk of fake news production. At the same time, "decentralization", national participation and digital currency incentive mechanism also play a positive role in reshaping the relationship between media users, helping to solve the pain point of current media integration and broaden the profit space of media integration. In the process of financial media news production, the authenticity of information sources directly affects the objective authenticity and brand value of news products.

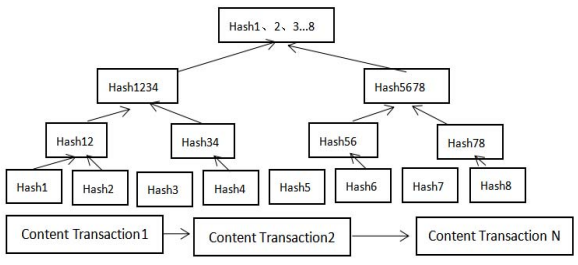

Figure 1. Blockchain transaction model based on hash algorithm

The empowerment of social media users has changed the way of news production and communication. UGC content has become one of the sources of media information. The concealment of the Internet makes it difficult to verify the authenticity of information sources, and the lack of encryption makes news products at risk of malicious tampering. The

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characteristics of UGC can quickly spread fragmented content in a short time. There is the possibility of anti setting the agenda of traditional media, which often makes some media in an awkward situation of true and false when screening sources or following up news hot spots.

Up to now, nearly 40 blockchain news platforms have emerged in the world, such as Public Q (PBQ), Civil in the United States, Atmchain in Switzerland and Billion Books in China. In March 2019, after the US blockchain news platform Civil went online, it started to develop platform tokens, proposed to establish a global recordable news platform, reverse the news production mode, support content producers, and provide a platform to combat "fake news". Civil started to develop platform tokens. Facebook covers 2.7 billion users in the world, it try to use blockchain to reshape user system, improve user information security, improve the sense of advertising experience of social media users. At the same time, Facebook considers building online payment system with blockchain technology. Up to now, domestic and foreign media giants have realized the advantages of blockchain technology in maintaining the security of users' personal information. The business practice of the media industry outlines the value of blockchain technology for the transformation of traditional media, and provides a reference for false news, user privacy protection, content payment and the identification of source authenticity in the era of truth after governance.

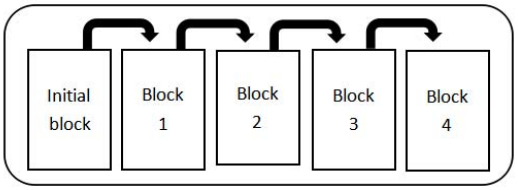

Figure 2. Storage layer of blockchain

The self issued token of blockchain platform can make the media and users provide content obtain economic benefits, endow the fragmented content with economic value, and provide technical support for users and media to identify the authenticity, value and identity of the author. Traceability technology can reduce the value loss caused by advertising cheating. More Than This, the "decentralized" information supervision mode brings positive changes to the existing media profit model. It can be said that blockchain technology will reshape the social relationship among users, media and platform, and form a new media form. In the token system, the circulation of virtual digital currencies such as bitcoin brings opportunities for content payment, which is conducive to the storage, sharing and synchronization of data in the computer network. Decentralized content block is conducive to improving the problem of data loss or forgery in the centralized storage system, facilitating journalists to collect and sort out news materials, and reducing the time cost of information acquisition. One information block has a data storage capacity of 1MB and can record massive information. When the new block is produced, the content in the previous block can be saved to the next block smoothly, thus forming a chain structure of traceable source, which brings a new network operation scheme for news verification.

II. Various Application Scenarios of Blockchain Technology in Media Field

In 2018, lots of countries increased the supervision of token issuance (ICO). The transaction script languages supported in bitcoin system mainly include P2P KH, P2P K, MS (limited to 15 keys), p2sh and op'u return, etc[7].The combination of blockchain technology and media industry began to test the water, covering news production, online games, copyright protection, digital advertising and other scenes. The profit model of media integration is the content economic transformation structure of media, which is related to the sustainable development of traditional media organizations in the era of social media. The emergence of social media has overturned the profit model of "secondary sales". In the new media ecology, the traditional media advertising business shrank and the profit growth fell into a bottleneck period. The "pay wall" of the New York Times makes profits by subscribing to user content. In 2018, the Guardian makes profits by "reader income driven" mode. The Huffington Post makes profits from traffic dividends generated by "free content + interactive platform" mode. There are also profit models such as Guangming Daily mode, Pengpai mode and Nandu mode in domestic media integration. The current profit model of media convergence mainly includes hairstyle + advertising, content paid subscription, free use + advertising, free + charging, digital advertising, offline experience services and carrier traffic dividend. Expanding the core business advantages of media, launching differentiated high-quality content in different clients, improving user stickiness, and realizing the benign transformation between high-quality user resources and advertising benefits are the key to realizing the profit of media integration. However, these profit models in the use of media organizations reflect the profit point is not obvious. These profits are hard to replicate. It is mainly reflected in three aspects: first, the accuracy of user portrait is not enough, and the accuracy of content transmission is not high. Advertising is limited. Second, there are too many media convergence terminals. The homogeneity of media content is obvious. The operation mode is difficult to realize the benign transformation of user resources and advertising revenue. Third, the lack of communication channels with brand effect. Blockchain technology reshapes the concept of news production. The essence of blockchain technology is a linked database composed of various data blocks. The number of nodes saving the complete blockchain information has risen to more than 10000[8]. The consensus mechanism and encryption algorithm of blockchain technology can record every node information of content production. The content production in cyberspace is facing many nodes. It is difficult to trace the source and easily be tampered.

Blockchain technology makes information production and communication chain transparent. It can help news producers track information sources, check the processing information records of each node, and avoid the information risk of false news communication. Time stamp can record every information modification, save the original information and

track the content flow. The bad records of false news production or dissemination will affect the credit records of media or users, squeeze the production space of false news, and provide the basis for users to judge the authenticity of news content.

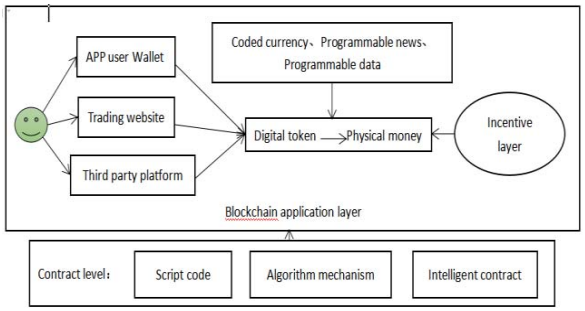

Figure 3. Application layer, incentive layer and contract layer of blockchain news transaction

The application of blockchain technology in digital copyright protection in the current Internet infrastructure. There are malicious tampering, plagiarism and plagiarism in the production and exchange of content, which is not conducive to the healthy operation of China's copyright market. Under the background of Internet plus, digital copyright protection has become a thorny issue. The characteristics of blockchain technology including traceability, timestamp, consistent trust mechanism and automatic certificate storage, make it possible to improve the ability of digital copyright protection. The consensus mechanism of blockchain technology builds a relatively transparent content exchange consumption platform for authors and users. Timestamps and data records in blocks can verify copyright information and protect the interests of creators. From the aspects of copyright confirmation, use and maintenance, we can mobilize the initiative of creators. The trust mechanism of blockchain established by hash algorithm can weaken the influence of the third-party platform. Key management can protect the user's personal privacy information, and the content can only appear in the information block after authorization. In the future, there will be a direct relationship between content producers and consumers. The reward model of platform digital currency ensures the income of creators. Users also receive income in forwarding and sharing, and have the right to continue consuming purchased content.

Blockchain technology is conducive to improving the communication effect of digital advertising. Comcast, Disney and other media giants have begun to lay out blockchain technology in the field of advertising. The integration of blockchain technology and digital advertising will affect the existing advertising ecological pattern. The attention of digital advertising users will be further improved with the support of blockchain technology. The blockchain platform requires users to conduct real name authentication. The transparency of advertisers and consumers' identities is insufficient in controlling false digital advertising, traffic fraud and invalid delivery. The content of blockchain cannot be tampered, which requires advertisers to provide real advertising content. The records of false digital advertisements will be stored in the original data block library. Because of this, blockchain technology can identify machines or malicious click consumers, remove them from the block database, and avoid the loss of advertisers' traffic.

Traceable technical features facilitate users to query the integrity records of advertisers at any time, while limiting advertisers and consumers. Distributed ledger enables users to monitor the content of digital advertising and various problems in the process of dissemination. Users are not only consumers of digital advertising content, but also supervisors of digital advertising communication. Data blocks on the blockchain can help advertisers effectively measure the conversion rate of consumers' purchase behavior. Combined with big data technology to solve the current difficulties of user portrait, reduce the ineffective dissemination of information flow advertising.

All kinds of data blocks on the blockchain can combine the advantages of big data and artificial intelligence to help advertisers detect the conversion rate of consumers' purchase behavior. It is convenient for advertisers to integrate user resources and realize the precise placement of advertisements. Moreover, it can solve the problem of user portrait in traditional digital advertising. The main information of users' daily consumption behavior, social background, professional characteristics, living habits and so on can be recorded in the distributed ledger, which can not only effectively filter users' repeated click behavior, but also clearly record users' interests and preferences and other information. User labels generated by user information on distributed ledgers are the basis for advertisers to specify delivery strategies.

III. CONCLUSION

Blockchain is a kind of Internet infrastructure technology. Distributed ledgers, traceability, independent storage of data blocks, and "decentralized" technical features. Blockchain can record user information safely and solve the problem of user information security in current media content publishing. "Blockchain + media" can be used as a new scheme for media profit. Users can pay for any piece of information they want to read. Bring new ways for media content profitability and digital content consumption. However, there will be new problems when exploring the path of "blockchain + media". Break the situation of media integration. It is not only necessary to reasonably apply blockchain technology, but also to rationally consider the possible risks of "blockchain + media" integration mode.

The content production and distribution platform based on blockchain technology needs to issue virtual tokens. Tokens flow between users, media, and platforms. Original or sharing behavior can get corresponding token rewards, which can be used to pay for fragmented content. As a way of information circulation, token circulation has changed the way of information exchange in which media content is freely released and users can freely access. The token incentive mechanism of blockchain will enhance the enthusiasm of media and users in content production and communication. On the one hand, it will find a new fulcrum for media profits. On the other hand, improving the enthusiasm of users' consumption content helps to form a benign interactive public

opinion environment. Today, countries are constantly improving the regulatory mechanism of bitcoin. But we should also guard against the economic bubble generated by bitcoin transactions. Many of the "mines" in the bitcoin deal have been shut down. The transaction risk in digital currency should not be underestimated. The use of blockchain in the media industry needs to solve the problem of legal supervision. How to establish a blockchain application law scheme that adapts to the national conditions is a problem to be discussed in the future. Both commercial media and mainstream media need to achieve a win-win situation of social and economic benefits. The economic model of blockchain is to establish a trust mechanism based on blockchain encryption algorithm. Using the consensus mechanism of nodes in the distributed ledger framework, the eco economic model is designed. Blockchain develops token incentive mechanism based on smart contract. Issue ecological circulation token wallet application through blockchain. The first public offering of digital tokens for financing, the start of ecological mode. Platform tokens obtained through the incentive mechanism can be used to exchange knowledge, services or piecemeal information and sell these content credentials to users. "Blockchain + media" economic model [9] consensus mechanism provides trust guarantee for both parties. Blockchain technology application has established a more secure information exchange environment, and a new economic model is brewing. It is worth mentioning that whether the economic value of virtual currency can realize equal exchange with real currency is still a question. The benefit discount of platform token for media practitioners must also be considered.

The advantages of blockchain technology provide a new technical guarantee for the media to avoid the risk of false news production. At the same time, "decentralization", national participation and digital currency incentive mechanism also reshape the media user relationship. Blockchain technology features can solve the industry pain of current media convergence. Build new profit space for media content production. There will also be negative problems in the application of blockchain technology, but at present, it seems to have positive significance.

The record of user data in blockchain is beneficial to target data classification of target user group. Blockchain media will become a channel to release life information. The service capacity of local media will be further enhanced. Media content can also be more in line with the daily needs of users. The application of blockchain technology will deepen the influence of media in social development. High quality user data improves the advertising revenue of advertisers. Adjust advertising production and delivery strategy according to user satisfaction at any time. Sharing advertising can bring benefits to users. Consumer advertising has also become a way to earn revenue. It can be said that the application of blockchain technology will bring more profit points to the media. The liquidity of media convergence will be greatly enhanced. From the perspective of practice, we still have a lot to explore at the intersection of blockchain technology and new media technology. In the age of 5G, the use and consumption of media will develop in the direction of situational and intelligent. Whether the application of blockchain technology will bring new technical problems under the premise of improving user information insecurity. It also needs to be observed in the application of existing blockchain news websites. From the application of blockchain in other industries, the application of Internet underlying technology still has the ability to change social industries.

Blockchain technology has a profound impact on media brand and image. Bring users a more participatory media experience. Layout of new technology has become the consensus of the media industry. The media industry should balance the risk and outlet of new technology properly. First of all, we need to correctly understand the characteristics of blockchain technology, which will have a positive impact on news production, copyright protection, digital advertising and other media industries. Secondly, we should be good at summing up the experience and lessons of block chain media platform operation at home and abroad. Finally, the media industry should also be aware of whether the incentive rules for platform token issuance are standardized? Will there be a bubble in the process of token trading? How to establish a unified logo and industry standard for digital content copyright protection? The development of media industry is inseparable from technical support and brand content

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