Blockchain-Empowered Journalism and the Suppression of the Right to be Forgotten: Postprint

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Abstract

Blockchain technology was first applied to Bitcoin transactions and is essentially a decentralized distributed ledger database. Its rapid development has transcended the monetary domain, with applications in big data, communications, education, and other fields, and has currently entered the Blockchain 3.0 era. When applied to the journalism industry, this technology can effectively prevent the generation of fake news and reshape news production and distribution processes, yielding considerable economic and social benefits. In the digital era, conflicts exist between user data traces and infringement issues arising from data theft on one hand, and user data autonomy on the other. Characteristics of blockchain technology, such as immutability, can inhibit claims to the right to be forgotten, creating a tension with this right. The subjects of technology use and rights claims are always human beings, and the ultimate purpose of technological progress is to empower people. Only by adhering to the concept of technology for social good can balance be sought between the right to be forgotten and blockchain technology, enabling blockchain technology to provide impetus for the convergence reform of journalism under scientifically controllable conditions.

Full Text

Preamble

Blockchain technology enables true decentralization by transforming each user into a dissemination center. Employing distributed computing and storage mechanisms, the entire system operates and maintains itself through collective node participation without any mandatory control center. Consequently, every user becomes a publisher, disseminator, and receiver of news, while the guiding role of authoritative media may be dissolved.

During the WEB1.0 era represented by portals, user data production was passive—for instance, personal information required for website registration. In the WEB2.0 period characterized by social platforms, users actively produced data encompassing intimate details of daily life. As WEB2.0 evolves toward the interconnected WEB3.0, the boundary between active and passive data production disappears. Regardless of what type of data users publish, it constitutes significant traces of individuals in cyberspace, making memory the norm and forgetting the exception. Although data ownership technically remains with users, media entities have violated their autonomy over personal data processing, establishing a "panopticon" for user surveillance. It is against this backdrop that user consciousness of subjective rights, represented by privacy rights and the right to be forgotten, has awakened, calling for formal recognition of the right to be forgotten.

User anonymity in the digital realm protects personal privacy but simultaneously increases the difficulty of tracing real identities, creating opportunities for news infringement behaviors such as content laundering and plagiarism. Moreover, as infringing news disperses across internet nodes, tracing its source requires substantial human resources, making it difficult to investigate minor infringement cases. Blockchain systems store all historical data since the genesis block through a block data structure. This long-chain architecture offers higher efficiency in source tracing compared to the network structure of internet dissemination, as any piece of data on the chain can be traced to its origin. The chain structure also determines that information propagation follows a sequential rather than dispersed pattern. When one node publishes news, it notifies other nodes, and similar information published subsequently by other nodes is also announced. Due to this chronological order, subjects of news infringement can be rapidly identified, thereby safeguarding the news copyright of individuals or organizations.

1.2 Traceability Safeguards News Copyright

Users survive in the internet through data rather than real-name systems. While identity anonymity protects personal privacy, it increases the difficulty of tracing real identities, providing a "gap" for news infringement behaviors such as plagiarism and content laundering. Simultaneously, as infringing news disperses through various internet nodes, tracing its source requires substantial human resources, making it difficult to investigate cases with minor social impact. Blockchain systems store all historical data since the genesis block through a block data structure. This long-chain architecture offers higher efficiency in source tracing compared to the network structure of internet dissemination, as any piece of data on the chain can be traced to its origin. The chain structure also determines that information propagation follows a sequential rather than dispersed pattern. When one node publishes news, it notifies other nodes, and similar information published subsequently by other nodes is also announced. Due to this chronological order, subjects of news infringement can be rapidly

identified, thereby safeguarding the news copyright of individuals or organizations.

2.2 Implementation of the Right to be Forgotten Regulates News Production

Social media platforms, as the primary venues for user data publication, have designed mechanisms for users to delete historical data. However, these mechanisms are "pseudo-mechanisms," as user data information continues to reside on social media server terminals. The absence of clear legal penalties provides media entities opportunities to exploit legal loopholes to defend their unauthorized appropriation of user privacy, leaving infringement cases unchecked. Legislation on the right to be forgotten can not only protect user rights but also regulate the chaotic news industry in the digital age, restoring market rationality.

2.3 User News Consumption Practices and Rights Claims Drive Legislation

Beyond disputes over the relationship between the right to be forgotten and privacy and personal information rights, legislative difficulties also stem from insufficient case law, leaving judicial authorities without adequate incentives to prioritize the issue. A review of right to be forgotten cases—whether Europe' s "Gonzalez case"or China's "Ren v. Baidu case"—reveals their frequent connection to various media outlets. Media organizations often transform user privacy into news content placed on the internet without data subjects'consent. As intelligent technology iterates and market competition in the news industry intensifies, judicial cases involving the appropriation of user historical data are anticipated to increase, accelerating legislative progress on the right to be forgotten as the case library expands and ultimately clarifying its relationship with other rights for formal inclusion in legal statutes.

Blockchain employs cryptographic principles to encrypt data, uses timestamps for temporal marking, and adopts consensus mechanisms to make data immutable. This characteristic, combined with traceability, curbs fake news production. Once fake news published by a chain node is identified, the node cannot delete data to defend itself as the information publisher. Through historical data tracing, the responsible party can be located and held accountable within a short timeframe. However, the high transparency of blockchain technology may also be exploited by malicious actors who steal historical data from user nodes for commercial algorithmic analysis or other personal purposes. Due to this immutability, user nodes cannot delete their own data, creating a new contradiction—the challenge of protecting the right to be forgotten, a new right in the digital age.

3. Emerging Contradictions: The Conflict Between Blockchain and the Right to be Forgotten

With blockchain as the technical architecture foundation for news production platforms, users exchange views on news within weak-connection relationship models, forming a social media platform unique to the journalism industry that centers on news production while constructing interpersonal networks as a secondary function. Under these conditions, personal data left behind by users may have its privacy stolen due to blockchain' s immutability, infringing upon the right to be forgotten. The most direct conflict between blockchain and the right to be forgotten lies in the clash between immutability and the concept of forgetting, but the contradictions extend beyond this fundamental tension and can be analyzed from three perspectives.

3.1 Technical Contradictions

Blockchain was originally designed to serve virtual currency transactions. During transactions, arbitrary modification or deletion of data could trigger trust crisis events such as fraud, undermining blockchain' s fundamental purpose of ensuring transparency and fairness in monetary exchanges. Immutability means that when a user node publishes data involving personal privacy, it is permanently recorded in the data block. High decentralization implies that modifying data information can only be achieved by altering data across all nodes on the chain, requiring substantial costs and lacking practical operational significance. Even if the news industry attempts to delete user data information, technical implementation remains difficult. The blind application of blockchain thus creates a direct conflict between its inherent immutability and users' right to be forgotten.

Additionally, in public blockchains, any user can download complete data information from the chain. Since users' right to be forgotten cannot be guaranteed, a gray industrial chain may emerge that profits from selling user privacy data to the news industry.

3.2 Contradictions in News Production

Centered on restoring objective truth in news, blockchain and the right to be forgotten create conflict. During news production, media inevitably employ users' historical data information (the 5Ws) and continuously restore objective truth through dynamic reporting. Technological development may render immutability non-absolute, enabling blockchain to serve the news industry while protecting users' right to be forgotten. However, as privacy infringement issues proliferate, users may refuse to retain any personally relevant data information on the blockchain unless explicitly permitted. Without access to historical data from users who experienced news events firsthand, news production' s ability to restore objective truth will be significantly diminished, undermining blockchain' s original vision for journalism. The resulting difficulty in restoring objective

facts will further intensify the post-truth phenomenon, further marginalizing the status of truth.

3.3 Legal Contradictions

At the subject definition level, existing social media platforms such as Weibo allow identity verification through official certification. Blockchain's decentralized characteristics mean there is no power center on the chain, with each user node operating independently in anonymous form. When news infringement occurs, it becomes impossible to quickly identify whether the infringing node is an individual or a media organization, requiring substantial time during investigation to clarify the subject. Furthermore, subjects exercising the right to be forgotten may include not only individual users but also media organizations that face competitors stealing their historical data for commercial purposes. Clear definitions are needed regarding whether the right to be forgotten applies to natural persons or corporate organizations.

At the object definition level, a common technical controversy arises: when a technology is used to infringe upon human rights, should the technology itself be identified as an infringement object? For instance, when algorithmic technology steals user privacy, there is uncertainty about whether the algorithmic technology itself should be punished alongside the responsible tech company. Similarly, since blockchain operates based on unified protocols, the technology itself becomes a power center. When its introduction into journalism infringes upon the right to be forgotten, questions remain about whether blockchain technology should be included within the scope of legal objects when formulating regulations, beyond holding the object of infringement accountable.

4. Pathways to Resolving Contradictions

In the artificial intelligence era, technological penetration into journalism is inevitable. As various emerging technologies are placed before the news industry, the contradiction between blockchain and the right to be forgotten will evolve into alternative forms of conflict. Specifically, resolving the tension between technology and individual rights should proceed from three dimensions: technical, news production, and legal.

4.1 Technical Dimension: Upholding the Principle of Technology for Good

Bio-politics and techno-politics constitute the two major frontiers of contemporary political philosophy, with "life governance" as the constitutive core of bio-politics [**?**]. In the digital era, when social information, fingerprints, and even facial features are incorporated into data algorithms, each user's individual data is endowed with uniqueness. Once this personal privacy-related data is stolen, it may endanger people' s property and personal safety. From this perspective,

personal data information is not merely symbolic code but users' "second life" in the digital age. Techno-politics posits that intelligent technology, upgrading at exponential speeds, has deeply intervened in the configuration of human communities, pushing them toward cyborgization. Artificial intelligence enables media to become not only what McLuhan called "extensions of man" but also allows humans themselves to survive as media forms.

In reality, every technology since the dawn of humanity has been accompanied by impacts on life ethics. The contradiction between blockchain technology and the right to be forgotten similarly stands on opposite ends of a scale. Blockchain can revolutionize the entire news production model and resolve current media chaos, while the right to be forgotten serves as a crucial right protecting user privacy from infringement in the digital age. Ignoring the construction of this right is tantamount to harming "life." As Paul Levinson noted, "all technology is the flip side of the knife" —technology itself is neutral. When technology pushes humanity forward, it must adhere to the "good," namely application toward domains that humans aspire to for a better life. When disputes arise, it tends toward "evil," infringing upon individuals' basic rights. Humans remain the subjects of technology, and guiding blockchain' s positive application in journalism while respecting users' individual rights represents the true key to resolving technological contradictions.

4.2 News Production Dimension: Liquid News Truth and Liquid Data Memory

Marx proposed the "organic movement of the press," suggesting that continuous reporting on the same event by multiple newspapers could restore the complete picture of the event. This concept shares common ground with today' s "liquid news," as achieving news truth requires media to continuously excavate news events. The dynamic development of blockchain technology may render immutability non-absolute, making it difficult for media to search for information users have already deleted. However, the memory of user data that has been publicly disclosed still exists. By continuously following and organizing user information, the restoration of objective truth can be achieved through a transition from liquid news truth to liquid data memory. Although this may entail substantial time costs, it represents the most feasible approach.

4.3 Legal Dimension: Clarifying Subjects and Objects

Regardless of whether machines may acquire certain subject status in the future, "based on human dignity, humans can only exist as subjects and must never become objects or tools—this is the basic value position that modern rule of law must uphold" [**?**]. Each new technology application grants humans new rights: the internet gave the public a voice, artificial intelligence endowed users with information choice, and blockchain, as an emerging technology, should empower rather than disempower people. Particularly in the digital age where

user privacy is frequently violated, the right to be forgotten requires stronger protection. Before immutability can be altered, the mandatory binding force of law serves as an effective means to safeguard user rights. Within blockchain operating systems, platforms bear responsibilities for automatic trace retention, reminders, supervision, regular deletion, and data protection. If they abandon these responsibilities, judicial system intervention is required for oversight.

Although current legislation on the right to be forgotten remains disputed in China, resulting in similar cases being adjudicated only from the perspective of personality interests, the continuous improvement of the judicial system necessitates clarifying that the subject of the right to be forgotten is always the user. Only by constructing corresponding legal regulations around users' legitimate interests can users exercise their right to be forgotten within blockchain systems and the broader digital space.

Blockchain 3.0 represents a tremendous opportunity for journalism, reshaping the entire news production process and completely breaking down barriers between users and media. Whether at the technical level or in news workflows, protecting users' legitimate rights and interests should be the primary objective. Only on this foundation can we explore the balance between technology and rule of law, enabling technology to be used for "good" in the bidirectional influence and mutual construction between humans and technology in the AI era.

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