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A Discussion on the Legal Regulation of the Circulation and Use of Public Data in China

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Abstract

As a core element of the digital economy, public data possesses public, property, and security attributes. Its circulation and utilization not only concern economic development but also involve national governance and social equity. By analyzing the legal attributes of public data and examining the current status and issues in China's authorized operation of public data and the opening of government data, this study identifies shortcomings such as unclear ownership, lack of profit distribution mechanisms, prominent security risks, and imperfect legal systems. It proposes that China should establish a legal regulatory framework centered on "ownership confirmation—classification—authorization—distribution—responsibility—security" and build a unified ownership system, a classified and hierarchical management system, a market-oriented authorization and operation mechanism, and a full-chain supervision system. The research concludes that improving the legal regulation of public data circulation and utilization is not only a crucial step in advancing the construction of the data factor market and the implementation of the digital China strategy, but also an inevitable choice to enhance national governance capabilities and the competitiveness of the digital economy.

Keywords

public data, data factor market, data governance

1. Introduction

1.1 The Connotation and Scope of Public Data

In the new wave of technological revolution and industrial transformation characterized by digitalization, networking, and intelligence, data has been recognized as a key production factor on par with land, labor, capital, and technology. Public data is considered a crucial foundation for enhancing national governance capabilities and standards in the information age (Cheng, X., 2023, pp. 77-94). As

early as 2015, central-level regulatory documents began incorporating references to "public data" (The State Council's Opinions on Promoting the Innovative Development of Cloud Computing and Cultivating New Forms of Information Industry (Guo Fa [2015] No. 5); The State Council's Notice on Issuing the Action Outline for Promoting Big Data Development (Guo Fa [2015] No. 50)). Public data refers to data resources generated, collected, and stored by state organs and enterprises during the performance of public management and service functions, which can be recorded, processed, and utilized electronically. It is characterized by public origin, public purpose, and social impact. According to definitions in policy documents by the National Data Administration, National Development and Reform Commission, and other departments, public data primarily includes government administrative data held by government agencies, data generated by public institutions in providing public services, and data legally obtained by the state that should be made accessible (National Data Administration. The First Batch of Common Terminology Explanations in the Data Field).

From an academic perspective, public data differs fundamentally from corporate commercial data and private personal data. Its generation logic stems not from market competition, but rather from the needs of government functions and social public services. There are significant distinctions between public data and private or commercial data: private data emphasizes individual control, commercial data prioritizes corporate interests, while public data reflects the collective interests of the nation and society. Additionally, the circulation mechanisms vary significantly. Private data circulation typically requires individual consent, commercial data circulation relies on contractual agreements and market mechanisms, whereas public data circulation often depends on legal authorization and institutional arrangements. Moreover, private and commercial data primarily serve individual or corporate interests, while public data utilization aims to maximize public welfare. Therefore, accurately defining the scope of public data is essential for discussing its circulation, utilization, and legal regulation. Professor Zhang Xinbao and Dr. Cao Quanzhi pointed out that public data possesses "public nature" because it originates from the exercise of public authority or provision of public services. Consequently, its ownership and utilization methods should differ from those of private and corporate data (Zhang, X. B., & Cao, Q. Z., 2023, pp. 41-55).

In practice, public data primarily encompasses the following categories: 1) Government data, generated by administrative departments at all levels during governance processes, including information on population, industry and commerce, taxation, transportation, and social security. 2) Public service data, produced by public institutions (such as education, healthcare, power supply, water utilities, and meteorology) during service delivery. 3) Research and public welfare data, including scientific findings and environmental monitoring data generated by research institutions and public-funded projects. 4) Nationally mandated data collected for national security or social governance purposes. The core attribute of public data lies in its "public nature". As it originates from government or public institutions performing official duties, it differs from private information's individual characteristics

and corporate data's market-oriented nature. This public nature manifests in three aspects: 1) Public origin: Data comes from government departments or public institutions supported by public funds. 2) Public function: Data serves social governance and public interest realization. 3) Public benefit: Open data utilization should benefit the general public rather than specific entities. Despite its public nature, public data inherently possesses property attributes. It can be stored, transmitted, and traded, generating market value. After anonymization, cleaning, and integration, public data can become productive factors driving digital economy development. Therefore, recognizing its property attributes forms the foundation for establishing legal frameworks governing public data circulation. Additionally, public data carries social and security dimensions beyond its property attributes. As public data encompasses sensitive domains such as social governance, national security, and public services, it contains personal information like demographic and medical data. Any misuse or leakage could lead to privacy violations, market monopolies, or even national security risks. Therefore, the legal attributes of public data must strike a balance between public interest, property rights, and security considerations.

In conclusion, public data possesses both public and proprietary attributes along with security concerns, resulting in a complex and multidimensional legal nature. This composite nature dictates that its circulation and utilization should not be entirely market-driven or administratively controlled, but rather achieve a balanced equilibrium through legal frameworks.

1.2 Institutional Value of Public Data Circulation and Utilization

Public data, regarded as the "raw materials" of the digital economy, serves as a crucial catalyst for its growth. When governments effectively manage and distribute their vast datasets, it significantly reduces corporate data acquisition costs while driving industrial innovation and business model upgrades. For instance, opening up transportation data can fuel the development of smart mobility and autonomous driving technologies, while sharing meteorological data can advance precision agriculture and disaster prevention systems.

The circulation and utilization of public data can enhance the scientific and refined level of social governance. By opening public data, governments can promote social participation, enhance policy transparency, and strengthen public oversight. For example, the disclosure of fiscal budget data and environmental monitoring data helps improve government credibility and the effectiveness of social governance.

Public data constitutes a vital component of the data factor market (Fan, J. J., 2024, pp. 68-81). Without orderly circulation of public data, structural imbalances would emerge in the data market, resulting in uneven distribution of data resources and market monopolies. By entering the market through authorized operations, public data not only enhances market supply but also creates demonstration effects, driving improvements in mechanisms for data ownership confirmation, trading, and pricing.

The openness and circulation of public data must be conducted within the framework of safeguarding national security and social equity. On one hand, it is essential to prevent data breaches that endanger national security and personal privacy. On the other hand, we must avoid the monopolistic exploitation

of public data by a few enterprises, which could exacerbate the digital divide. Therefore, legal regulations governing the circulation and utilization of public data play a vital role in maintaining social equity and national security.

Internationally, the openness and utilization of public data have become a crucial component of digital economy policies. The European Union's Open Data Directive explicitly requires member states to disclose high-value datasets, facilitating cross-border data utilization. In January 2009, the Obama administration released the "Memorandum on Transparent and Open Government," followed by the launch of Data.gov in May that year, marking the systematic implementation of open government data policies in the United States. These initiatives aim to enhance transparency and encourage public and corporate reuse and value-added development of public data (Zhang, Z. Q., & Jiang, H., 2016, pp. 27-28). Japan's public data strategy, particularly its "Society 5.0" initiative, emphasizes integrating cyberspace with the physical world through technologies like the Internet of Things (IoT), big data, and artificial intelligence (AI). In documents such as the "AI Strategy" and "IoT Strategic Plan", the Japanese government identifies the effective use of public data as a key element to promote AI applications in critical sectors including healthcare, transportation, and infrastructure. This supports national industrial upgrading and addresses social challenges. These experiences demonstrate that the circulation and utilization of public data not only generates economic benefits but also strengthens national competitiveness and international governance influence.

Public data, as a special type of data resource, combines elements of publicness, property, security, and personal information protection. In terms of legal attributes, it differs from both private data and purely commercial data, exhibiting multidimensional and composite characteristics. The institutional value of public data circulation and utilization is reflected in promoting the development of the digital economy, optimizing social governance, facilitating the construction of the data market, and ensuring social equity and national security. Therefore, legal regulation of public data circulation and utilization is not only an inevitable requirement for legal systems to respond to the challenges of the digital era, but also an important aspect of building a digital China and achieving the modernization of the national governance system and governance capabilities.

2. The Current Situation and Problems of Public Data Circulation and Utilization in China

2.1 The Current Situation of China's Public Data Circulation and Utilization Policies and Practices

(1) Institutional layout at the national level

In the era of the digital economy, public data has gradually been regarded as an important factor of production. The Fourth Plenary Session of the 19th CPC Central Committee first proposed "to treat data as a factor of production in distribution, officially recognizing data as a factor of production." Subsequently, a series of laws, regulations, and policy documents such as the "Data Security Law", the "Personal Information Protection Law", the "Overall Layout Plan for Digital China Construction", and the "Digital China Construction 2025 Action Plan" were successively issued, forming an institutional

framework with security as the premise, openness as the orientation, and utilization as the goal.

The December 2022 release of the "Opinions of the CPC Central Committee and the State Council on Establishing a Data Infrastructure System to Better Leverage Data as an Economic Factor" emphasized the need to "focus on data property rights, circulation and trading, revenue distribution, and security governance. It called for active participation in formulating international high-standard digital rules, aiming to establish a data infrastructure system that adapts to data characteristics, aligns with the laws of digital economic development, safeguards national data security, and highlights innovation leadership." This provides top-level institutional guidance for the circulation and utilization of public data. The establishment of the National Data Administration in 2023 further demonstrates the state's emphasis on public data management and utilization, marking China's entry into a new phase of institutionalized and standardized public data circulation and application.

(2) Local exploration and pilot practice

Driven by national policies, some regions have pioneered the exploration of authorized operations and market-oriented utilization of public data. As a national leader in public data authorization pilot programs, Shenzhen has implemented government data openness in transportation, healthcare, education, and other sectors while establishing a data trading platform (Guangdong Provincial Government Services and Data Administration. Experience Sharing: Accelerating the Construction of Digital Shenzhen, Building a Benchmark for New Smart Cities and a Model for Digital China Cities). Shanghai established China's first data exchange, promoting compliant circulation of public and enterprise data. Zhejiang Provence introduced the nation's first local regulation in public data management—the "Zhejiang Public Data Regulation"—developing an integrated intelligent data platform across provincial, municipal, and county levels. The province has also hosted continuous data innovation competitions and issued China's first provincial-level operational guidelines for public data authorization.

These local explorations have provided practical experience for the circulation and utilization of public data in China, but many problems have also been exposed.

(3) Preliminary construction of public data authorization operation mechanism

"Public Data Authorized Operation" is an innovative mechanism in China's public data utilization sector. In 2024, the General Office of the CPC Central Committee and the State Council issued the "Opinions on Accelerating the Development and Utilization of Public Data Resources," further emphasizing the inclusion of public data authorized operation within the "Three Major and One Important" decision-making scope. Under strong national policy guidance, regions across the country are actively advancing legislative work related to public data authorized operation. Some local governments have experimented with entrusting state-owned enterprises with public data operations, promoting data circulation through market-oriented approaches. This initiative has achieved social utilization of public data resources and stimulated industrial innovation to some extent. However, due to the lack of clear ownership definition and unified national legal standards, this mechanism remains

in its exploratory phase with numerous uncertainties.

2.2 Main Problems in the Circulation and Utilization of Public Data

(1) Unclear ownership and legal positioning

Currently, the ownership of public data in China remains undefined. Some scholars argue that public data should be state-owned with government-managed administration, while others propose a "state-owned, government-managed, and socially shared" model. The absence of unified legal regulations often results in unclear rights holders and ambiguous usage permissions when public data enters circulation. This not only reduces data utilization efficiency but also creates potential conflicts of interest.

(2) Lack of profit distribution mechanism

The utilization of public data involves multiple stakeholders including governments, enterprises, and the general public. In practice, the absence of a clear profit-sharing mechanism often leads to ambiguous revenue attribution during authorized operations and commercial applications (Tong, N. N., Yang, M. X., Mo, X. Y. et al., 2023, pp. 23-35). While businesses can generate substantial commercial value through public data usage, the public—being the true source of this data—frequently receive inadequate compensation. This imbalance in benefit distribution may exacerbate social inequities.

(3) Insufficient data opening and low utilization efficiency

While China has made progress in government data openness, the overall level of public data accessibility remains limited. Most regions have only established data catalogs, with truly machine-readable and accessible data resources still insufficient. Compared to the EU and the US, China's public data openness needs improvement in both scope and depth. For instance, the US data.gov platform has already made over 250,000 datasets publicly available, while China lags behind in quantity, quality, and accessibility.

(4) Privacy protection and data security risks are prominent

Public data often contains vast amounts of sensitive personal information, such as demographic, healthcare, and educational data. During the process of opening and utilizing such data, the absence of strict security measures can easily lead to privacy breaches and information misuse (Li, Y., 2014, pp. 439-444). Although the Personal Information Protection Law establishes principles and restrictions for public sector handling of personal information, practical implementation of public data circulation still faces technical and managerial loopholes like "insufficient anonymization" and "incomplete de-identification." Moreover, the misuse of public data may endanger national security. For instance, if public data in sectors like energy, transportation, and communications is leaked, it could be exploited by foreign entities, thereby compromising the security of critical national infrastructure.

(5) Market order is not standardized and monopoly risk

The exploration of public data authorization mechanisms has, to some extent, driven the development of the data market. However, due to the absence of unified national regulatory frameworks, local pilot programs have encountered issues of irregular market practices. In some regions, a small number of

state-owned enterprises monopolize the operation rights of public data, resulting in a lack of competitiveness and transparency in data utilization, and even posing risks of secondary monopolies. This phenomenon contradicts the fundamental goal of public data to "benefit all citizens."

(6) The legal system is not perfect

While China has enacted the Data Security Law and Personal Information Protection Law, it has yet to establish a dedicated legislation governing the circulation and utilization of public data. The current legal framework remains fragmented and principle-based, lacking concrete operational provisions. Critical issues such as defining the scope of public data openness, establishing unified authorization mechanisms, and distributing benefits all lack clear legal support. This institutional gap has hindered the further development of public data circulation and utilization.

Public data, as an emerging legal issue, remains in its nascent stage of theoretical exploration. Academic circles exhibit significant divergence regarding ownership rights, legal attributes, and regulatory frameworks, with a lack of consensus-driven theoretical achievements. This theoretical lag directly results in institutional designs and legal practices lacking solid academic foundations. Compared to the EU and the US, China's public data legislation started later, with existing provisions scattered across fragmented regulations like the Data Security Law, Government Informatization Regulations, and Government Information Disclosure Regulations. This fragmented state hinders the formation of systematic and operational frameworks. Meanwhile, public data circulation involves multiple government departments, yet a widespread "data silos" phenomenon persists. The absence of cross-departmental coordination mechanisms leads some agencies to prioritize data collection over sharing, even treating data as "departmental assets," which obstructs public data sharing and circulation. Effective public data openness and circulation require technical measures such as data governance, privacy protection, and cybersecurity. However, some local governments lack sufficient data governance capabilities, talent reserves, and technical expertise, resulting in superficial data openness that fails to meet societal and market demands.

China's public data circulation and utilization have entered a phase of institutional exploration. While the national government has established top-level design frameworks and local authorities have launched pilot programs, the authorization and operation mechanisms for public data are still in their infancy. However, persistent challenges—including ambiguous ownership rights, lack of benefit distribution mechanisms, insufficient openness, prominent security risks, irregular market practices, and incomplete legal systems—continue to severely hinder orderly circulation and efficient utilization of public data. These issues stem from theoretical research and legislative delays, departmental barriers, and inadequate technical capabilities. Moving forward, it is imperative to promote standardized and legally compliant public data circulation and utilization through a multi-dimensional approach combining institutional improvements, legal regulations, and technological safeguards.

3. Legal Regulation Logic of Public Data Circulation and Utilization

Public data inherently combines public and proprietary attributes, creating a dual challenge of balancing social welfare with market efficiency in its circulation and utilization. While the open access to public data serves to enhance government transparency, optimize social governance, and ensure equity and justice, its market integration as a production factor demands improved resource allocation efficiency and innovation-driven development. Overemphasizing market efficiency risks monopolizing or misusing public data, potentially harming public interests. Conversely, excessive focus on public attributes may stifle the market value of data, leading to resource wastage. Therefore, establishing a balance between public welfare and market efficiency remains the fundamental principle in regulating public data through legal frameworks.

Another prominent contradiction in the circulation and utilization of public data lies in the conflict between openness and security protection. While open sharing enhances transparency and innovation capabilities, public data often contains sensitive information and personal privacy. Without effective safeguards, this could lead to data breaches, misuse, or even national security risks. Although the Data Security Law and Personal Information Protection Law have established the principle of prioritizing security, striking a balance between "maximizing openness" and "security first" remains a key challenge in institutional design.

The circulation and utilization of public data require a dual approach of state leadership and societal participation. The government maintains macro-management authority through authorized operation mechanisms and data trading platforms, while the public and market entities seek more accessible and convenient ways to leverage these resources. Balancing national strategic security with stimulating social innovation has become a key principle in regulating public data systems.

3.1 Basic Principles of Public Data Legal Regulation

(1) Principle of public interest priority

The legal nature of public data dictates that public interest must be the primary objective in its circulation and utilization. This principle requires: the use of public data must not harm the overall social interest; the distribution of benefits from public data should reflect universal sharing; and the opening of public data should prioritize serving public welfare, scientific research, and infrastructure development.

(2) Safety and control principle

Data security is the baseline for public data circulation. The Data Security Law explicitly states in its first article that "national sovereignty, security, and development interests must be safeguarded" (Data Security Law of the People's Republic of China, Article 1: This Law is formulated to regulate data processing activities, ensure data security, promote data development and utilization, protect the legitimate rights and interests of individuals and organizations, and safeguard national sovereignty, security and development interests). Therefore, all public data circulation and utilization must be conducted within controlled parameters, including measures such as classification and tiered protection,

cross-border flow review, and cybersecurity safeguards.

(3) Legal compliance principle

Public data circulation must be based on legal compliance, in line with the requirements of the Personal Information Protection Law, the Cybersecurity Law and other laws. Especially when it comes to personal privacy data, the principles of minimum necessity and de-identification should be strictly followed.

(4) Fair and reasonable principle

The opening and utilization of public data should avoid the formation of a new unfair pattern. When promoting data authorization and operation, the government should prevent the formation of a monopoly of state-owned enterprises or specific entities, and ensure the equal status of different market entities in the utilization of data.

(5) Transparency and oversight

The process of opening and using public data should be transparent and subject to public and social supervision. By establishing open data catalogs, open use rules and regulatory mechanisms, public trust can be enhanced and data abuse can be prevented.

3.2 Regulatory Model of Public Data Circulation and Utilization

(1) Ownership

The foundational principle of public data governance lies in clarifying ownership. The prevailing consensus advocates a "state-owned, government-managed, society-shared" framework. Specifically, state ownership signifies that public data belongs to the nation, representing the collective interests of society. The government exercises management authority through mechanisms including data openness, authorization, and security oversight. Within legal frameworks, stakeholders enjoy both utilization rights and beneficiary rights. This model prevents public data from becoming "ownerless" or "fragmented across departments," ensuring the fulfillment of public-interest objectives.

(2) Open

The essence of public data openness lies in classification and tiered management. Data should be categorized into three levels based on their importance and sensitivity: 1) High-sensitivity data (involving national security, public safety, and critical livelihoods, such as defense and energy data, which must be strictly restricted) 2) General-sensitive data (including personal information or trade secrets, requiring limited disclosure after de-identification) 3) Low-sensitivity data (such as public information on transportation, weather, and geography, which can be prioritized for wider access). This tiered approach ensures "maximizing openness where feasible, prioritizing disclosure where possible, and maintaining security where necessary".

(3) Authorization

In the utilization of public data, "authorized operation" has emerged as a significant institutional innovation. The fundamental principle involves the government granting specific entities (primarily state-owned enterprises or public institutions) legal or policy authorization to manage public data,

while facilitating data circulation through market mechanisms. This approach maintains national control over public data while enhancing utilization efficiency through market-oriented approaches. However, legal regulations are essential to prevent authorized operations from creating "secondary monopolies".

(4) Regulatory

The circulation and utilization of public data must establish a comprehensive regulatory framework encompassing three key phases: Pre-event oversight through data openness cataloging and cross-border flow reviews; In-process monitoring of data usage to prevent unauthorized exploitation; and Post-event accountability mechanisms for penalizing data breaches and misuse. This dynamic regulatory system requires multi-stakeholder participation involving governments, enterprises, and society to achieve diversified governance.

4. Construction of Legal Regulation Path for Public Data Circulation and Utilization in China

Under the background of data factorization and the digital China strategy, the circulation and utilization of public data in China urgently require the establishment of a sound legal regulatory system. Although existing systems are mentioned in laws and policies such as the "Data Security Law", "Personal Information Protection Law", and "Regulations on Government Information Disclosure", there are still issues such as fragmentation, strong principle-based nature, and lack of operational details. The legal regulatory logic for the circulation and utilization of public data is an institutional response formed on the basis of composite attributes such as publicness, property, and security. Its core lies in balancing public interest and market efficiency, open sharing and security protection, and state control and social participation. In terms of specific approaches, a logical framework of "ownership confirmation—openness—authorization—supervision" should be established. This involves clarifying the ownership of public data through legislation, building a classified and graded open system, a market-oriented authorization and operation mechanism, and a dynamic supervision system across the entire chain. At the same time, emphasis should be placed on comparing and learning from international experiences and aligning with international rules to ensure China's initiative in global digital governance. This ensures both national security and public interest while unleashing the economic and social value of public data.

In conclusion, the institutional design for future public data circulation and utilization should adhere to the following guiding principles: 1) Establish a property rights framework for public data under the principle of state ownership with government management, while considering social sharing. 2) Implement differentiated circulation regulations based on the importance and sensitivity of public data, creating a classified and tiered management system. 3) Within legal boundaries, allow specific institutions to operate public data through market mechanisms to drive value transformation, establishing authorized operation and market-oriented mechanisms. 4) Improve benefit distribution and accountability mechanisms to reasonably balance interests among the state, market entities, and the

public. 5) Strengthen security safeguards and regulatory measures to ensure public data circulation and utilization under the premise of national security and personal privacy protection.

4.1 Construction of Public Data Ownership System

Public data generated or managed by government agencies at all levels during the performance of public functions shall be owned collectively by the state, not individual departments. Its legal status should be defined as state-owned, government-managed, and socially shared. State ownership ensures public data does not become departmental interests or local resources, guaranteeing unified national ownership of data assets. Government management entails authorities as custodians and administrators of public data, responsible for proper preservation, rational utilization, and lawful disclosure. Social sharing grants the public and enterprises legal rights to access and utilize public data within legal frameworks. By enacting the Public Data Management Law or amending the Data Security Law, the ownership of public data shall be clarified. Data catalogs shall specify ownership, circulation methods, and usage boundaries for different types of public data. Specialized institutions like the National Data Administration shall uniformly exercise functions of rights confirmation, management, and openness for public data.

4.2 The Classification and Grading Management System of Public Data

Public data is categorized into three types based on their nature and purpose: 1) Sensitive Data: Public data involving national security and social stability, such as military, diplomatic, and public safety information. 2) Restricted Data: Public data related to citizens' privacy or commercial secrets, including medical records, educational data, and business registration records. 3) Open Data: Public data that can be freely shared with society, such as weather forecasts, transportation data, geographic information, and statistical statistics.

Based on classification, public data is categorized into three levels—General, Important, and Core—according to their significance and associated risks, with differentiated access policies implemented. General-level data: Open access is the default, with restrictions as exceptions. Important-level data: Requires official review and authorization before use. Core-level data: Generally not open to the public, but may be authorized for research or security purposes under specific conditions.

4.3 Public Data Authorization Operation Mechanism

Public data authorization operation refers to the government's legal authorization to entrust specific public data to qualified operators for market-oriented development and utilization. The primary models include: 1) Data Exchange Model: Standardized trading and utilization of public data through dedicated platforms. 2) State-Owned Enterprise Model: Development and service of public data by state-controlled data operation companies. 3) Hybrid Model: Allowing private capital participation in public data utilization while maintaining government control over core data.

The authorization conditions, scope and duration for operation shall be clearly defined. The rights and obligations of the government and the operator shall be specified in the authorization contract. A

supervision and review mechanism for operation activities shall be established to prevent abuse or illegal use.

4.4 Mechanism for Benefit Distribution and Responsibility for Public Data Circulation and Utilization

The circulation and utilization of public data involve three stakeholders: the state, enterprises, and the public. To achieve balanced interests through institutional arrangements, three key principles should be implemented. First, ensure that public data usage aligns with national strategies and public interests. Second, allow enterprises that bear risks and costs to obtain reasonable returns through lawful utilization. Finally, enhance public services and promote inclusive applications to enable the public to benefit from public data utilization.

Operational entities must implement data security measures and bear legal liability for any data breaches or misuse. If public data utilization infringes upon citizens' privacy rights or corporate trade secrets, civil liabilities shall apply. For serious violations including national security breaches and illegal cross-border data transfers, corresponding administrative penalties or even criminal liabilities shall be imposed.

4.5 Security Guarantee and Supervision Mechanism for Public Data Circulation and Utilization

Before opening or authorizing the operation of public data, a national security and privacy protection risk assessment must be conducted. Public data involving personal information should undergo de-identification. Dynamic supervision and traceability mechanism: Utilize blockchain and other technologies to achieve full traceability of data circulation.

The National Data Administration will lead the establishment of a cross-departmental coordination mechanism, and set up specialized public data regulatory agencies in key industries such as medical care, finance and transportation. A public participation mechanism will be established to enhance the transparency of public data governance.

The legal regulatory path for the circulation and utilization of public data in China should be a closed-loop system of "rights confirmation—classification—authorization—allocation—responsibility—security". Through a unified ownership system, scientific classification and grading, standardized authorization and operation, fair benefit distribution, strict responsibility mechanisms, and comprehensive security safeguards, orderly circulation and efficient utilization of public data can be achieved. In the construction of the system, it is necessary to absorb international experience while being grounded in China's national conditions, forming a public data governance model with Chinese characteristics, thereby providing a solid legal guarantee for the development of the digital economy and the modernization of national governance.

5. Conclusions and Perspectives

The legal nature of public data is inherently complex, differing from both ordinary personal information and traditional state assets. It combines public and proprietary attributes, serving as both a foundational resource for national governance and a crucial production factor driving digital economic development. Its legal framework should be defined as "state-owned, government-managed, and socially shared" to prevent fragmentation and departmental self-interest. Although China has established foundational regulations like the Data Security Law and Personal Information Protection Law, along with the National Data Administration, the sector still faces challenges including unclear ownership, fragmented management, inefficient circulation mechanisms, and relatively high security risks. Particularly in the commercial utilization of public data, there remains a lack of clear legal basis and standardized operational mechanisms.

The fundamental framework for regulating public data in China should follow the sequence of "rights confirmation—classification—authorization—allocation—accountability—security". In institutional development, the process should begin with clarifying ownership rights of public data. Next, establish a classification and grading system to scientifically differentiate between open and restricted scopes. Thirdly, enable market-oriented development of public data through authorized operations. Building on this foundation, improve mechanisms for benefit distribution, accountability systems, and security safeguards, ultimately forming a closed-loop governance structure for public data.

Overall, public data serves as a crucial pillar for the modernization of national governance systems and capabilities, as well as a core resource for the development of the digital economy (Liu, J. F., & Yu, Y. W., 2023, pp. 93-100). Its circulation and utilization not only involve economic efficiency but also concern national security, social equity, and the protection of individual rights. By establishing a scientific, rational, and operational legal regulatory framework, China can unleash the immense potential of public data while safeguarding public interests, thereby promoting the high-quality development of digital China and the digital economy. In the future, as international rules continue to evolve and domestic systems remain refined, public data governance will advance to a higher level of standardization and legalization. Researchers and legislators should maintain close attention to this field, striving to establish a China-characteristic legal system for the circulation and utilization of public data that balances openness and security, efficiency and fairness, contributing China's wisdom and solutions to global data governance.

References

Cheng, X. (2023). On data rights. *Journal of the National Prosecutors College*, *31*(05), 77-94.

Data Security Law of the People's Republic of China, Article 1: This Law is formulated to regulate data processing activities, ensure data security, promote data development and utilization, protect the legitimate rights and interests of individuals and organizations, and safeguard national sovereignty, security and development interests.

Fan, J. J. (2024). Research on the Integration of Public Data into the Data Element Market Model. *Journal of Information Resource Management*, *14*(02), 68-81.

Guangdong Provincial Government Services and Data Administration. Experience Sharing: Accelerating the Construction of Digital Shenzhen, Building a Benchmark for New Smart Cities and a Model for Digital China Cities. Available from: https://zfsg.gd.gov.cn/xxfb/ywsd/content/post_4677766.html [Accessed 11th November 2025].

Li, Y. (2014). Analysis of Mobile Internet Information Security Threats and Vulnerabilities. *Communication Technology*, *47*(04), 439-444.

Liu, J. F., & Yu, Y. W. (2023). The Conceptual Definition, Influencing Factors, and Development Path of Digital Government Transformation. *Nandu Xuetan*, *43*(06), 93-100.

National Data Administration. The First Batch of Common Terminology Explanations in the Data Field. Available from: https://www.nda.gov.cn/sjj/zwgk/zcfb/1230/20241230160715745237413_pc.html [Accessed 11th November 2025].

The State Council's Opinions on Promoting the Innovative Development of Cloud Computing and Cultivating New Forms of Information Industry (Guo Fa [2015] No. 5); The State Council's Notice on Issuing the Action Outline for Promoting Big Data Development (Guo Fa [2015] No. 50).

Tong, N. N., Yang, M. X., Mo, X. Y. et al. (2023). Data Finance: A Model Framework for Promoting Interest Distribution in Public Data Authorization Operations in the New Era. *E-Government*, *2023*(01), 23-35.

Zhang, X. B., & Cao, Q. Z. (2023). Research on Legal Mechanisms for Public Data Ownership Authorization. *Comparative Law Studies*, *2023*(03), 41-55.

Zhang, Z. Q., & Jiang, H. (2016). Seven Years of Experience and Insights from Data Openness in the United States. *Communication World*, *2016*(24), 27-28.