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2025 Volume 3, Issue 9
Lecture Notes in Education, Arts, Management and Social Science
ISSN(Online): 2705-053X

Research on the Modernization of China's Data Governance System

Chang Liu*
Dalian University of Finance and Economics, School of Liberal Arts, Dalian 116622, Liaoning, China

**Author to whom correspondence should be addressed.*

Abstract: Data serves as a key driving force for the development of the digital economy, propelling Chinese enterprises into a new era of digitalization. With the rapid growth of the digital economy, a series of legal risks inevitably arise, including risks to the security of citizens' personal information, digital monopolies among market entities, and the impact of computer program codes and algorithms on the existing regulatory framework. At the same time, China currently faces challenges such as weak compliance management within enterprises, insufficient legislative supply, and outdated market supervision models. To promote the steady development of China's digital economy and build a data governance system that is both legal and modern, in line with the country's economic development needs, efforts should be made from multiple angles, including enhancing citizens' awareness of personal information security, strengthening compliance management at the enterprise level, and improving market supervision and regulatory frameworks at the government level.

Keywords: Digital economy; Data legalization; Compliance management

Online publication: October 26, 2025

1. Introduction

At present, the world is in the midst of the sixth technological revolution. The digital economy has become an important part of the "Digital China" construction. The G20 Hangzhou Summit released the "G20 Initiative on Digital Economy Development and Cooperation," emphasizing that the digital economy is a collection of economic activities that take digital knowledge and information as core production factors, rely on modern information networks, and promote efficiency improvement and economic structure optimization through efficient use of information and communication technologies. It has dual attributes: on the one hand, it can promote the digital transformation of enterprises, innovate organizational models, and help improve China's digital economy. On the other hand, it is accompanied by challenges such as the leakage of citizens' personal information, difficulties in enterprise compliance management, and digital monopolies. This article will explore how to build a data legalization and modern governance system that meets the needs of China's economic development on the basis of promoting the development of the digital economy in response to the aforementioned problems.

2. Trends and legal risks of the digital economy

2.1. Trends of the digital economy

The digital economy is a new economic system that emerged from the rapid development of the Internet, computers, and artificial intelligence, combined with the market economy. It generally refers to the economic output brought about by various digital investments, including but not limited to the application of digital skills, the popularization of digital devices, the promotion of digital intermediate products and services, and the large amount of data generated during the transmission of the digital value chain [1]. With the rapid development of new technologies such as 5G, artificial intelligence, cloud computing, the Internet of Things, and driverless vehicles, the behavior patterns and social structure of the economy and society have been profoundly changed, triggering significant transformations. The development of the digital economy has mainly gone through three stages: "germination - development - prosperity" [2]. The promotion of economic modernization through digital means is reflected in the following three aspects.

First, optimizing digital infrastructure to promote the steady development of the digital economy. Currently, China is optimizing infrastructure construction through two methods. One is the new infrastructure evolved from pure information networks, such as 5G, artificial intelligence, the Internet of Things, and blockchain. The other is upgrading traditional infrastructure with new digitalization, such as smart courts and smart transportation. These two types of digital infrastructure, from information communication, industrial Internet infrastructure, and smart city construction, have jointly promoted the steady development of China's digital economy.

Second, China is actively promoting the digitalization of industries. By applying digital technologies and data resources, traditional industries are being upgraded and transformed to achieve a deep integration of digital technology and the real economy. This not only improves the output and efficiency of traditional industries but also gives rise to new applications such as smart agriculture, intelligent transportation, smart logistics, and digital government. Industrial digitalization provides computer technology, services, and infrastructure support for industrial production, promoting the digital transformation of various industries, enhancing industrial efficiency, and thus promoting the vigorous development of China's data industry, including digital product manufacturing, digital product services, and digital technology applications [2].

Third, strengthening international cooperation in the digital economy to enhance China's international economic influence. China is constantly strengthening digital economy cooperation with neighboring countries and promoting international exchanges. Currently, China shows a trend of digital industries going global in international trade, with high business volumes in areas such as electronic consumption, smart home appliances, and smart vehicles. This has enhanced China's international influence, and in the future, it will continue to expand the international market, presenting a trend of globalization and digitalization.

2.2. Risks Brought by the Development of the Digital Economy

With the vigorous development of the digital economy, a series of legal risks have emerged, especially threats to citizens' personal information security, digital monopolies among market entities, and the impact of computer program codes and algorithms on the existing regulatory system. These risks cannot be ignored.

First, the development of the digital economy poses risks to citizens' personal information security. In the Internet economy, relevant information platforms extract a large amount of personal information from consumers, and even require users to undergo real-name authentication. They analyze users' social strata, preferences, etc., to achieve the purpose of platform profit. At the same time, some operators obtain users' personal information through inducement, deception, or illegally trade users' personal information for profit. These behaviors easily lead to the risk of personal information leakage, providing opportunities for some cybercriminals. Some platform merchants violate regulations and provide consumers' information to third parties at will, causing users to lose trust in the relevant platforms and exerting significant negative pressure on the development of the digital economy.

Second, digital monopolies among market entities infringe upon consumers' legitimate rights and interests. The

extensive application of technologies such as artificial intelligence, facial recognition, portrait collection, and geolocation has made the issue of privacy protection increasingly prominent, leading society to gradually transform from a "society of strangers" to a "society of transparent people", and has triggered problems such as "big data price discrimination", "algorithmic discrimination", and data monopolies. Many users encounter situations where they cannot smoothly click on links or have links blocked when switching between different competing platforms during online shopping, greatly reducing their shopping experience. The aforementioned methods have harmed consumer rights and disrupted the market economic order.

Thirdly, the widespread application of computer program codes and algorithms has impacted the existing regulatory system in China's economic field. Digital economy enterprises, as platform controllers, set the internal operation rules of the platform and adopt methods such as algorithm black boxes and algorithmic hegemony through code programming, leaving the platform participants in a passive acceptance position. By taking advantage of the opacity of algorithms and the protection of intellectual property rights and trade secrets, platforms refuse to disclose the details of their algorithms, leading to an excessive pursuit of commercial interests and the implantation of numerous value biases and unfair factors during the platform programming process. If this behavior continues, it will make the erosion of public rights by algorithms increasingly common, thereby triggering a series of social problems and trust crises [3].

3. Real challenges in the construction of a data-focused legal governance system

In the development of the digital economy, apart from risks such as personal information security, digital monopolies, and algorithmic black boxes, there are also a series of practical challenges that require our joint efforts to address and resolve. These mainly include weak compliance management by enterprises, a lack of relevant regulations and normative documents on data, and insufficient market supervision models.

3.1. Weak compliance management by enterprises

Enterprise compliance is a new form of governance that adapts to the requirements of digital economic development. Although China has gradually strengthened compliance management for central enterprises in accordance with the law and relevant departments have achieved certain results in promoting enterprise compliance reform pilots, there are still some problems with weak compliance management by enterprises. First, a complete data management mechanism has not yet been established, which leads to significant differences in data compliance management among enterprises of different scales. Due to the lack of a unified management system, enterprises often lack clear guidance and norms when handling data, thereby increasing the risks of data leakage and abuse. In addition, the responsibilities and management subjects within enterprises are not clear enough, and communication between departments is not smooth, which is not conducive to the effective exchange and security of data. Second, the data security risk assessment system is not yet complete. Many enterprises do not have corresponding emergency plans for data security incidents and lack assessment systems, such as risk identification and risk evaluation. Responses to data security incidents are lagging, and effective emergency working institutions have not been established. Third, the current data transaction service mechanism is still not perfect. Existing data trading platforms lack key elements such as clear data trading rules, data trading subjects, and data trading scopes, which, to some extent, restrict the standardization and efficiency of data transactions.

3.2. Insufficient data-related regulations and normative documents

While the digital economy is booming, it requires comprehensive legislation to support it. Government regulations should be continuously updated to provide important support for the governance of the digital economy. Currently, China's legislative work is committed to promoting the healthy and steady development of the digital economy by formulating high-quality legal norms.

In terms of digital economy legislation, there are still problems such as insufficient overall, systematic, and forward-

looking aspects, which need to be further improved and strengthened to meet the needs of digital economic development. Traditional law is difficult to solve the problems involved in the digital economy and requires new perspectives for legislation. At the same time, there are relatively few departmental regulations and normative documents under the supervision of the digital economy, and there are also few regulations in areas such as intellectual property protection, network domain name registration, network operation service security management, and network financial security.

3.3. Insufficient market supervision models

With the rapid advancement of the digital economy, the traditional one-way supervision mechanism has shown its limitations and cannot fully adapt to the rapid development of the digital economy, thereby to some extent the construction process of the digital economy's legal governance system. In the digital economy's internet-based market, there is a certain degree of diversity. Its ability to regulate and shape public policies in a reverse direction is no longer passive acceptance of regulation and adaptation to public policies, but rather it will carry out "crowdsourced" innovations in some emerging fields to prompt the government to confirm or adapt.

4. Pathways for the construction of a data legal governance system in the context of the digital economy

China's digital economy and digital technology are growing rapidly, and the continuous improvement of digital infrastructure has provided strong support for the optimization and upgrading of traditional industries, promoting the steady progress of industrial digitalization. However, the globalization of the data economy has also brought about risks such as personal information security issues, digital monopolies among market entities, and the impact of computer program codes and algorithms on the existing regulatory system. To build a complete data legal governance system and promote the steady development of China's digital economy modernization, the following measures should be taken.

4.1. Enhance citizens' awareness of personal information security

When using related online platforms, citizens should enhance their awareness of personal information protection. Firstly, it is recommended that citizens install anti-virus software on their computers, mobile phones, and other devices to promptly remove malicious programs such as Trojans and viruses. Secondly, when registering on related websites, individuals should be particularly cautious about not exposing too much private information to protect their privacy. They should download software from official app stores and set strong passwords for websites to prevent information leakage due to password uniformity. Thirdly, when making online purchases and sending parcels, citizens should pay attention to the details of address filling. It is recommended to fill in the address of the workplace or only the name of the residential complex to avoid filling in the real home address and prevent information leakage.

4.2. Enterprises should strengthen compliance management

Enterprises should enhance compliance management in both civil and criminal aspects. In response to the new changes brought about by the development of the digital economy, they should establish a relatively complete compliance management system. The content should cover the supervision of transaction contracts, labor employment, intellectual property infringement, and data management in the digital economy from a civil perspective, and conduct regular compliance reviews. From a criminal perspective, they should supervise areas such as commercial bribery and personal information infringement, and set up a dedicated compliance department to maintain the security of data resources. At the same time, to ensure the security of enterprise and user data, we should actively adopt technical means to classify and protect general data, important data, and core data, and implement classified supervision measures to ensure the security and compliance of data. When the data collected by enterprises involves personal sensitive data, important data, and core data, they should immediately take measures such as data desensitization, data encryption, pseudonymization, de-

identification, and anonymization for the relevant data, and implement technical processing such as replacement, filtering, encryption, masking, and deletion for sensitive field information or direct identifiers in the data, so that the information processed by technology cannot be identified to a specific information subject when combined with other additional information.

Furthermore, to promote the healthy development of data transactions, it is recommended that enterprises establish a complete data transaction mechanism. Specifically, enterprises should improve the data transaction service mechanism and standardize data transaction behavior. Firstly, it is crucial to formulate detailed data transaction rules, including clearly defining the data transaction subjects, objects, scope, process, price, and payment mode, to ensure the compliance and transparency of data transactions. Secondly, to ensure the security of data transactions, relevant transaction rules should be clearly defined, covering due process rules, legal compliance rules, and personal information protection rules, to ensure the legality and security of data transactions. Thirdly, a complete data trading platform should be established. This platform should have functions such as user information management, data transaction security management, and basic technical support, and have a clear data transaction price.

4.3. Strengthen market supervision mechanisms

A complete social credit system can reduce the operating costs of the market under the digital economy and promote communication among market entities. Therefore, a complete credit system should be established to supervise the transaction security of the market. Firstly, the personal information credit archives and enterprise credit management archives should be improved. The administrative department of archives should be responsible for the overall planning and unified supervision of personal and enterprise credit archives across the country to ensure the standardized management and effective utilization of credit archives. Establish scientific and unified management standards and norms, and conduct de-identification processing on sensitive data to protect citizens' personal privacy. When conducting credit evaluations based on credit information, ensure the authenticity of the data. Secondly, promote the sharing of credit information to facilitate communication and exchanges among enterprises. To break down data silos and isolated data islands, information sharing among various departments should be promoted to enhance the connectivity among market entities. Put forward targeted suggestions and improve the risk prevention and control level of the industry. To facilitate the cross-departmental, cross-regional, and cross-system flow of credit information, credit data from areas such as industry and commerce, taxation, judiciary, banking, securities, and insurance should be integrated into the People's Bank of China's credit information system, thereby breaking down data barriers and achieving information intercommunication and sharing [6]. This will help enhance the comprehensiveness and accuracy of the credit information system, providing financial institutions with more comprehensive and accurate credit assessment bases, and promoting the healthy development of the financial market.

4.4. Improve relevant government regulations.

Relevant government regulations should be improved to provide institutional guarantees for the construction of a data-based legal governance system. First, the provisions of the Data Security Law should be detailed at the regulatory level. Although the Data Security Law stipulates the data classification and grading protection system, risk assessment, reporting, information sharing, monitoring and early warning mechanisms, emergency response mechanisms, and review systems, providing an important direction for China's data security governance, the legal provisions are still relatively macroscopic and lack specific detailed regulations. For example, the law does not provide clear guidance on the methods, standards, and scope of data classification and grading. Therefore, corresponding data security governance regulatory policies should be formulated to ensure comprehensive data security protection.

Secondly, it is recommended to formulate specialized regulations for internet cases. Although the adoption of new digital trial methods represents an upgrade, it is not a complete overhaul but rather a reshaping and construction based on the existing "physical society" [7]. Therefore, on the basis of existing laws, regulations, judicial interpretations, and

guiding documents, and by widely soliciting opinions from all sectors of society, the legal status, online trial rules, and trial procedures of internet cases should be included in the scope of regulation formulation for comprehensive standardization. Specifically, systematic regulations should be formulated for key links such as the filing procedures, trial processes, jurisdiction, electronic evidence collection, and cross-examination of internet cases to ensure the standardization and effectiveness of internet case trials. This will facilitate the equal participation of all in judicial activities and better promote the stable operation of the digital economy, thereby building a data-based legal governance system that meets social needs.

5. Conclusion

The development of the digital economy has brought about significant changes to the modernization process of the data governance system and has also posed numerous risks and challenges to the existing economic governance model. Practice has shown that traditional regulatory measures are no longer suitable for the development needs of the digital economy era, and innovation and transformation are urgently needed. A modern data governance system that suits the development of contemporary society should be established [8]. The construction of China's digital economy governance system should respect the spontaneous order of market development and create a favorable market environment. It should be carried out from the aspects of enhancing the security awareness of personal information at the individual level, strengthening compliance management at the enterprise level, and improving market supervision and legislation at the government level. A data-legalized governance system for the digital economy should be established to promote the leapfrog development of China's digital economy.

Funding

2025 First Batch of Key Research Projects of Dalian Federation of Social Sciences, "Research on Policy Measures for the Innovative Development of Digital Trade in Dalian" (Project No.: 2025dlskzd168)

Disclosure statement

The author declares no conflict of interest.

References

[1] Zhang M, 2017, Great Transformation: Global Value Chain and Next-Generation Trade Governance. China Economic Press, 2017: 141.

[2] Zheng H, Xiang F, Yang S, 2024, Balanced Development: Research on Digital Economy and Data Legalized Governance. Journal of Chongqing University of Arts and Sciences (Social Sciences Edition), 43(03): 87–99.

[3] Xiao Y, Zhou P, 2021, Digital Economy, Industrial Upgrading and Employment Quality: An Empirical Study Based on Mediating Effects and Panel Threshold Effects. Journal of Chongqing University of Arts and Sciences (Social Sciences Edition), 35(03): 68–80.

[4] Ma C, 2018, Social Risks of Artificial Intelligence and Their Legal Regulation. Legal Science (Journal of Northwest University of Political Science and Law), 36(06): 51.

[5] Ma C, 2018, Bidirectional Construction of Order in the Internet Age. Political and Legal Forum, 36(01): 133.

[6] Shen G, Hou Z, 2022, Research on the Current Situation and Path of Credit Information System Construction in the Bohai Rim Region in the Internet Age. Commercial Economy, (7): 166–170.

[7] Ma C, 2022, Theoretical Expression of Digital Law. China Law, 2022(03): 119–144.

[8] Mao J, Wang X, 2023, Legalization of Data Governance in China: Challenges, Positioning and Logic. Legal Application, 2023(12): 140–151.