Research on the Current Situation of China's Government Data Opening and Solutions

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Abstract— *In the current era of big data, data has emerged as a brand new information carrier. It has not only attracted large-scale attention in the society, but also become a hot topic in the industry. The resulting big data boom has become a remarkable phenomenon. As a kind of data, government data is a sleeping treasure house for the digital economy, containing huge resource value, and the orderly opening and sharing of government data can fully reflect the value of government data, promote local economic development, and improve government Service and governance capabilities. Studying the legal path of government data opening and sharing has important practical significance for further building and improving China's data governance, developing China's digital economy, and promoting the construction of digital ecology. After researching and analyzing the domestic government data opening legislation status and local government data opening status and defects, it can be seen that the cause of the problem lies in the lack of system, which should be changed and solved through effective regulations and systems. Finally, starting from the top-level design of government data opening, relying on the experience of local legislation, a government data opening system suitable for China's national conditions is constructed from the legal system and institutional framework.*

Keywords— Government data, government data opening, system construction, top-level design.

I. INTRODUCTION

The original intention of China's open data movement is to make better use of public data resources and improve the level and quality of public services through information technology. In the era of digital economy, data has become a new type of production factor and an essential means of production in contemporary economic and social life. Only by making data open and shared, that is, circulated, can the value of data and the vitality of the digital economy be stimulated and economic benefits generated. Data, as the core factor of production in the digital economy, has become increasingly prominent as a multiplier for improving production efficiency. Although some local governments have successively issued norms or policies for public data sharing and opening, in general, no consensus has been reached on the theoretical basis of data opening, which has resulted in unclear legal positioning of public data, imperfect governance systems, and institutional design. The basis for practical operation is ambiguous. In the field of academic research, there are not many legal works on the opening of public data, and a large number of literatures are concentrated in the fields of public management and library information; while data law research is more concentrated on the ownership of personal information and data resource pools, and less public data is involved. Legal issues related to open sharing. With the rapid development of the digital economy, the demand for open and shared public data is increasingly strong. It is necessary to further explore the development trend of public data, including government data, in China, and the problems that may exist in the construction of legal systems and policy systems.

## II. LEGISLATIVE STATUS OF OPEN GOVERNMENT DATA IN CHINA

2.1 The "Data Security Law" creates conditions for the rule of law

In China, the legal framework for government data opening is still not perfect. Although the "Regulations on Information Disclosure" provide a legislative reference for the opening of government data, the establishment of a data rights system needs to be improved. As an important legislative achievement, the "Data Security Law" stipulates the opening of government data at the level of national law for the first time, creating legal conditions for the opening of government data. The law clarifies the opening principles of "fairness, fairness, and convenience" and the opening requirements of "timely and accurate", and also briefly elaborates on open data catalogs and open platforms. This has created conditions for the maximum openness and utilization of government data, making China's government data open practice and local legislation out of the dilemma of "no law to follow". However, although the "Data Security Law" has created legal conditions for the opening of government data, its core system and specific norms still need to be further improved through other legislation. Therefore, the legal framework of China's government data openness still needs to be further improved.

2.2 Local legislation increases year by year

In recent years, the local legislation of China's government data opening has gradually increased. This article uses "Peking University Magic Weapon" as the main search engine, and uses "data openness" as the keyword to conduct a "full-text" search of all "local regulations", and can retrieve 73 local regulations, 45 local government regulations and 1,330 local norms sex file. After 4 levels of exclusion: ① Exclude normative documents; ② Exclude duplicate and invalid documents; ③ Exclude slogan-like documents without specific framework settings; ④ Exclude documents that are only set up for a small aspect of the government opening system. In the end, a total of 38 legislative samples meeting the above conditions were obtained. The research on the above samples, especially the distribution of samples in terms of time, space and effectiveness level, can

show the overall development trend of China's local government data open legislation.
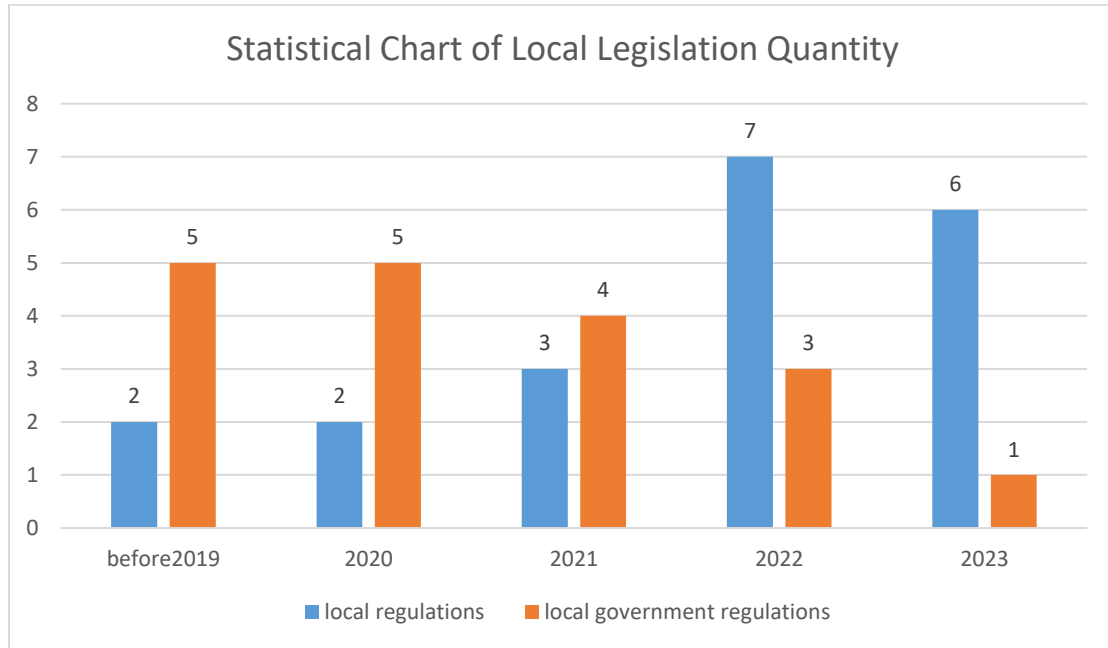
It can be seen from the figure that before the promulgation of the "Data Security Law", some local governments have carried out local legislation on government data opening under the guidance of central policies. Compared with the practice of data openness, the local legislation of China's government data openness started late, but overall it has shown a steady growth momentum. In the past two years, local legislation has shown a high degree of concern for government data opening. As shown in the figure, the formulation of government regulations has decreased year by year, while local regulations have increased year by year. It can be seen that more and more governments have raised the opening of government data to local regulations after passing the practice of government regulations. As of April 2023, the local regulations implemented in 2023 will soon catch up with the implementation in 2022 local regulations. In terms of space, local legislation involves 22 provincial-level administrative regions, mainly distributed in the east and south of China, most of which are economically developed provinces and cities, and all four municipalities directly under the Central Government have also implemented relevant legislation.

From the perspective of the specificity of legislation, more and more governments tend to formulate more comprehensive local regulations. Legislation specifically for government data is largely regulated by government regulations, while more governments have summarized government data into a chapter in local regulations. The transition from single legislation to comprehensive legislation has become the development trend of local data open legislation in China.

III. ANALYSIS OF THE DILEMMA OF CHINA'S GOVERNMENT DATA OPENING

3.1 Special legislation for government data opening is not enough

At present, the existing "Data Security Law" in China has made certain regulations on the opening of government data, but it still has certain defects. The "Data Security Law" is more about regulating data security, such as the requirement of Article 42 "standardized and unified, safe and controllable", and also mentions the principle of openness and open requirements, but does not specify the specific system construction This requires more legislation to improve China's government data openness system.

At the local level, due to the limited jurisdiction of local governments in terms of legislation, it is difficult to directly define public data, and this responsibility belongs to the central government. The promulgation of relevant laws and regulations by local governments is a breakthrough in the power of local legislation, and there are certain legal obstacles unless the pilot is authorized. At present, many cities have implemented local legislation on the rights, processing and opening of data. But in general, the open sharing of government data is still under the influence of the government information disclosure system. For government data, only personal privacy and commercial secrets are used to distinguish the degree of openness. The current local legislation still needs more discussion on the opening of government data.

3.2 China's government data open content and standards are unbalanced and uncoordinated

At present, China's public data opening still has problems such as insufficient, uncoordinated, unbalanced, and

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unsustainable. First of all, the market and society's demand for open data has not been fully met, manifested in the problems of small amount of open data, low capacity, coarse granularity, and low quality, and the opening of real-time dynamic, high granularity, and high-capacity datasets is rare , the opening of public datasets other than those from government departments is also insufficient. Secondly, there is a lack of linkage and coordination between data opening efforts in various regions, cross-level and cross-regional connectivity between local platforms has not been fully realized, and there are obvious differences in the content and standards of open data in various regions. In addition, the number of open platforms, the number, capacity, and type of open datasets are very uneven among regions.

3.3 Local governments have a negative attitude towards opening up

At present, data opening work in various places focuses more on the goal of developing the digital economy and targeting large and medium-sized enterprises, but has not yet given equal attention to its role in promoting the development of a digital society. Some places are cautious or even negative about the opening of government data.

(1) There is no way to rely on

Although some local governments have successively issued norms or policies for public data sharing and opening, in general, no consensus has been reached on the theoretical basis of data opening, which has resulted in problems such as unclear legal positioning of public data, and simplification of related system design and practice.

(2) Not paying enough attention

Due to the high cost of government data opening, fear of taking certain uncertain risks, and lack of awareness of the role of data providers in some local governments, some local governments do not pay enough attention to government data opening.

(3) Uncoordinated regional development

The openness of government data provides support for innovation and entrepreneurship and the promotion of high-quality economic development in cities with relatively developed economies in the east. As a result, relevant companies and organizations committed to open government data will tend to innovate and start businesses in these cities, while others have not opened up their governments. Cities with data will receive less related investment, and the allocation of related technologies and information resources will not be able to achieve regional balance, and the data gap will become more and more obvious.

(4) Imperfect governance

The grassroots government data opening system is not yet perfect, and there is no clear data opening standard, so it is impossible to scientifically evaluate the effectiveness of government data opening in promoting the modernization of grassroots government governance, which hinders the in-depth development of government data opening. On the other hand, in the process of government data opening, privacy and data security should be weighed, attention should be paid to issues of fairness and private collaboration, and the danger of misuse

of data and content should be guarded. At present, local governments lack effective platform governance, and regulatory mechanisms related to government data opening have not yet been formed.

IV. THE SYSTEM CONSTRUCTION OF CHINA'S GOVERNMENT DATA OPENING

4.1 The main line and content of the top-level design of China's government data opening

The opening of government data is an institutionalized opening, which should have a top-level system design, which can only be constructed and provided by the central government. The system design should include the confirmation of the "big data national strategy" in the form of laws, regulations, rules or policies, and provide a legal basis for the collection, processing, transmission, utilization and security capabilities of government data in an all-round way, so as to reflect national information. strengths and data capabilities.

Specifically, the top-level design of the Chinese government's data opening should focus on comprehensive opening and active opening. There are six major parts of the supplementary provisions.

The general provisions include the legislative basis, legislative purpose, basic principles of openness, leading institutions, and definitions of basic concepts for government data opening. Among them, the legislative basis is mainly to formulate laws and regulations on government data opening based on national laws and regulations and the rules and regulations of relevant government departments. The purpose of the legislation is to promote the disclosure of government information and promote the utilization and development of government information resources. The basic principles of openness include openness, legality, standardization, convenience, efficiency and security. The leading agency refers to the leading agency and management agency of government data opening.

Data collection and storage and platform construction management stipulates the methods, procedures, data updates, data catalogs, platform construction standards, platform management processes, etc. of government data collection and storage. This part is mainly to ensure the standardization and security of government data collection, storage, integration and management.

Data openness stipulates the open scope, open standards, open types, open procedures, openness and personal privacy protection, open commercial use and its specifications, etc. of government data. Data opening is an important content of government data opening legislation. By specifying the scope, standards and procedures of government data opening, it ensures the legality, regulation and effectiveness of government data opening.

Data sharing is the openness of data within the government system. On the premise of data openness, it can play a role in improving government governance capabilities and service levels. The regulations on data sharing are designed to promote the sharing and utilization of data between departments within the government to improve government work efficiency and service levels.

Guarantee Supervision and Legal Responsibilities stipulates the government data security management mechanism, assessment mechanism, supervision mechanism, types of legal responsibilities, applicable circumstances, applicable procedures, etc. This part is mainly to ensure the security management of government data and ensure the standardization and security of government data.

The supplementary provisions stipulate the scope of application of the legislation and the implementation time. The appendix is a supplementary provision to the legislation on open government data, which aims to improve the legislative system on open government data and ensure the standardization and effectiveness of open government data.

3.2 The framework construction of China's government data opening

(1) Taking the principle of fairness as the main consideration of the principle of openness

In order to effectively promote the opening of government data, many international organizations and countries have proposed some principles of data opening. For example, in 2007, more than 30 countries put forward 8 principles for open government data, which include the following: ①Comprehensiveness, that is, all public data that is not restricted by statutory privacy, security or special permissions can be; ②Fundamental, that is, the data is collected at the source, and the granularity of the data should be kept as high as possible, and the data cannot exist in the form of aggregation or modification; ③Timeliness, that is, the government should provide it as soon as possible on demand; ④Accessibility, that is, the provision of data should be accessible to all users as much as possible, and serve all purposes as much as possible; ⑤Machine processability, that is, the data structure should be reasonable, Allow automatic processing; ⑥non-discriminatory, that is, the data should be available to anyone without registration; ⑦non-proprietary, that is, the format of the data should be such that no entity can monopolize it; ⑧Permission-free, meaning that the data is not subject to any copyright, patent, trademark, or trade secret statutes, allowing only reasonable privacy, security, and special permission restrictions.

It can be seen that these principles generally strengthen the goal of government data opening, while solving some difficulties in government data opening. However, there are imperfections in these principles, and new open government data principles need to be introduced. First of all, these principles do not consider the fairness of obtaining government data, and the principle of fairness can be introduced to assist in the construction of an open government data system. Due to the size gap between enterprises and individuals, there are also considerable differences in the means and capabilities of obtaining data. For example, the ability of enterprise-level crawlers to obtain web page data far exceeds the ability of individuals to obtain data. In addition, when the government signs exclusive agreements with enterprises, it often ignores the premise of "public interest", which may lead to data monopoly. Therefore, in this case, such exclusive agreements should be open and transparent, and they need to be reviewed regularly.

Secondly, the existing principles of government data opening are still difficult for ordinary people to use conveniently, and the principle of convenience should be introduced to reconstruct the government data opening system. In the face of massive government data, it is often difficult for individuals to use such huge data, and enterprises can use their advantages to develop and utilize these data more easily. Therefore, a more scientific and service-oriented government data open platform should be built to make up for the gap between enterprises and individual differences.

(2) Take the data catalog as the open object of government data

As far as the current domestic local legislation is concerned, the data catalog management system is generally adopted, and the open government data is regulated by compiling a catalog of public data resources. However, we need to start by discussing the concept of government data itself. The definition of government data is divided into two levels: narrow sense and broad sense. Government data in the narrow sense refers to government affairs data, that is, data obtained by government departments or authorized agencies authorized by government departments. Government data in the broad sense includes more extensive non-private data. Data, such as data that is not generated by the government but is of public interest. These data need to be promoted and standardized through government legislation to ensure that public interests are maintained. When conditions permit, they can be developed through authorization, and provided and managed centrally by the government to the society. Article 42 of the "Data Security Law" also directly stipulates the open use of government data through the open government data directory. Therefore, the construction of data catalogs is not only a necessary consideration for local governments to open data, but also an important part of the national government data open system.

(3) Consider high-value data as an open scope

The opening of government data is a gradual process. In the process of promotion, it is necessary to prioritize the opening of important data and ensure that the quality of data opening meets the requirements. Determining the priority of data opening can reduce the pressure on administrative agencies, effectively use administrative resources, and at the same time provide high-quality data resources and data elements for the public and enterprises more effectively. During the development of China's data opening system, it has always been emphasized to promote the priority opening of government data in key areas, which can reduce the pressure on administrative agencies by giving priority to the opening of high-value data sets, and can also provide high-quality data resources and data for the public and enterprises more effectively. elements. Government data opening can also introduce the concept of data cooperation and governance, and formulate more goal-oriented data opening policies, so that ordinary people can feel the inclusiveness, convenience and effectiveness of data acquisition and services, and avoid government data opening from falling into formalism. quagmire.

Therefore, government data opening should focus on giving priority to important data, and at the same time introduce the concept of data cooperative governance, formulate more

goal-oriented policies, make government data opening more targeted and effective, and enable the public and enterprises to better use Data resources to promote economic development and social progress.

The opening of government data must be a gradual process, and it is impossible to achieve it in one step. We should give priority to the opening of important data. At the same time, this also meets the quality requirements of open data, so that the cost of acquisition and utilization will not be increased due to the redundancy of data. Promoting the priority opening of government data in key areas is also the path and mechanism that has been emphasized in the development of China's data opening system. The Action Plan for Promoting the Development of Big Data, the 14th Five-Year Plan for the National Economic and Social Development of the People's Republic of China and the Outline of Long-term Goals for 2035, and the Implementation Outline for Building a Government Ruled by Law (2021-2025) are also relevant The scope of priority opening in government data opening is stipulated.

In terms of specific solutions, government data opening can give priority to opening high-value data sets, so as to reduce the pressure on administrative agencies, so that government data opening can be targeted. Currently, the concept of high-value datasets has been adopted by the European Union's Open Data Directive. The so-called high-value data sets refer to those data that "have high commercial potential", can accelerate "value-added information products" and promote "key data sources for the development of artificial intelligence", such as geospatial, earth observation and environment, meteorology and statistical data. Determining the priority of data opening can reduce the pressure on administrative agencies to a certain extent and effectively use limited administrative resources. For public empowerment and commercial utilization, it can also provide high-quality data resources and data elements for the public and enterprises more effectively. In addition, government data opening can also introduce the concept of data cooperation and governance, and formulate more goal-oriented data opening policies. Under the guidance of the principles of fairness, convenience, and ecology, the government's data opening should make ordinary people feel the inclusiveness, convenience, and effectiveness of data acquisition and services, and prevent government data opening from slipping into the quagmire of formalism.

(4) Take data security as the limit of open scope

Due to the existence of the Personal Information Protection Law, when the government uses personal information, it often bypasses the protection of the Personal Information Protection Law through desensitization operations. However, this has brought about two problems, one is the data that has been desensitized, and there is a possibility of reverse analysis, and the other is the data that has been desensitized, and its value is also greatly lost. The EU's approach is to use a personal information processing method that makes personal information unidentifiable to a specific information subject without additional information. China's personal information protection legislation also absorbs this content and requires personal information processors to fulfill the obligation of de-

identification. De-identification processing only limitedly eliminates the direct identification of personal information, but does not completely eliminate the indirect identification, and personal identity still has the risk of identification. Therefore, unlike anonymized personal information, identified personal information still belongs to the category of personal information and is subject to the adjustment of the "Personal Information Protection Law". These are actions taken by the government without seeking the opinions of information sources for the sake of the public interest. However, the "Interim Measures for Public Data Opening and Security Management in Zhejiang Province" stipulates that public data involving personal information can only be obtained after the informed consent of the information subject can be included in the limited scope of opening, and the right to dispose of personal information has been obtained from the source.

If the personal information is subdivided, then the utilization and processing of personal information will be more perfect, and different opening methods can be carried out reasonably according to the sensitivity of personal information. In specific cases, it is also possible to balance the interests of personal information protection with public interests and the legitimate interests of others, and the two types of personal information that can directly identify the subject and data that eliminates direct identifiers have a high risk of re-identification through limited open access. Be protected and utilized.

In the opening of government data, is the use of data agreed in advance or exceptions to data opening determined in advance. This seems to be a question about purpose limitation. However, setting an overly stringent standard will run counter to the original intention of data openness. We may be able to apply the principle of purpose limitation to personal information, but government data does not only contain personal information. Data open for discussion. Generally speaking, it is in line with the original intention of the government to open data to provide for exceptions to data opening and to fully open it on the basis of protecting data security. However, there is no final conclusion on the generalization of exceptional circumstances. There are only consensuses such as state secrets, and there is not much discussion on other circumstances. What level of exceptions do we need to make without negatively impacting open government data? First of all, in the general provisions of the Data Security Law, it is mentioned that "the legitimate rights and interests of individuals and organizations, safeguarding national sovereignty, security, and development interests" are the starting point for maintaining data security. , personal information, business secrets, confidential business information and other data shall be kept confidential in accordance with the law and shall not be disclosed or illegally provided to others." However, in the "Interim Measures for Public Data Opening and Security Management in Zhejiang Province", commercial secrets and personal information are restricted rather than prohibited. of value.

4.3 Systematic construction of China's government data opening

(1) Three different legislative paths

①Legal Interpretation Program

On the premise of not changing the current laws and regulations, through the interpretation of Article 1 of the "Regulations on the Disclosure of Government Information" and the above-mentioned relevant policies of the Central Committee of the Communist Party of China and the State Council, the legal basis for the opening and reuse of government data is clarified. The advantage of this plan is that it "makes the constitution and laws move from paper construction to reality at a lower cost", while the disadvantage is that the relevant clauses are too abstract, "more than politically declarative but not practically operable".

②Special legislation

By directly enacting separate laws such as the "Government Data Opening Law" to formally establish China's government data opening system. The advantage of this plan is that it provides a legal basis for the opening of government data, but the disadvantage is that the legislative process takes a long time, and it is difficult to solve problems such as "low rule of law" and "rise of illegality" in the short term.

③Combination of legal interpretation and legislation

A compromise between the revision of the Regulations on Open Government Information and the special legislation of the Open Government Data Law. "The opportunity to amend the "Regulations on the Disclosure of Government Information" should not be missed at present to provide basic institutional support for government data opening involving government data definitions, opening methods, and opening exceptions." However, with the continuous accumulation and summary of practical experience in data opening, Especially when the revision of the "Regulations on the Disclosure of Government Information" can no longer meet the needs of practice, the special legislation of the "Government Data Opening Law" should be officially launched. The focus of this law is to provide the public with an authoritative legal basis for the redevelopment of government data. It should focus on the definition and scope of government data, the obligatory subject of data openness, exceptions to data openness, organizational structure and related system guarantees, and unified data disclosure. Platform and other content to develop.

(2) Regulatory system with Chinese characteristics

One of the characteristics of China's constitutional system lies in the ambiguity of the boundaries between the central and local powers in the Constitution. This ambiguity has brought unexpected flexibility, which is actually equivalent to giving the central government more authority. As long as the abuse of data rights by the local government may involve the final decision of the central government and may affect the control of the central government and the local interests of other provinces and cities, the central government can use the flexibility brought about by this ambiguity to intervene and intervene, thereby Safeguard the overall interests of the country. In fact, the successful implementation of the open government data system is inseparable from the role of local governments, but it may also bring potentially huge risks. The behavioral inertia of local governments can easily push the economic logic of data openness to the point where it cannot be added. For example, if it violates the central government's big

data national strategy, the collusion between government and enterprises may also lead to huge losses in the country's long-term interests and overall interests. In this case, in order to prevent local governments from abusing the autonomy of government data opening, it is necessary to build a legal and reasonable legal supervision mechanism.

First of all, for the main body of supervision, the General Office of the State Council has compiled the "Notice on Printing and Distributing the Guidelines for the Development of Government Websites", which states that the State Council and governments at all levels are the main body of supervision, and the General Office of the State Council is responsible for supervising the administrative affairs of all general offices. However, in practice, there are differences in the administrative departments of local governments, and there are also differences in the methods, and the responsibility for supervision is not clear. Secondly, in terms of the mode of supervision, China lacks corresponding laws and regulations, the use of supervision methods is not systematic, and cannot be well connected with government data opening. Regulatory agencies shirk each other and shirk their responsibilities, and the effect of supervision cannot be guaranteed. Most of the current regulatory methods are more traditional and directly borrowed from other regulatory fields, such as user complaint handling mechanisms, emergency plans, performance evaluations, and random inspections. The opening of government data has its own characteristics, and the most suitable method should be adopted to promote the development of the regulatory system. Finally, in terms of regulatory relief. If the administrative organ infringes on the interests of the obligee, the obligee can choose administrative reconsideration and administrative litigation for relief. However, data-related issues often require strong professional ability, and it is difficult for reconsideration agencies or judges to give clear judgments. Therefore, when dealing with data-related issues, it is necessary to take targeted measures to solve them according to their particularity.

From the analysis of the EU system, we can get the following enlightenment. Compared with the traditional government data opening model, the EU's government data authorization operation model also constructs a "two-level supervision" relationship that is more conducive to ensuring data security, which are implemented by government data operation agencies and big data centers (big data bureaus) respectively. The first level of supervision is the supervision activity implemented by the government data operation agency for the federated learning process. The government data operation agency is responsible for reviewing the identity of the government data user, signing a data service agreement, recording and tracing the data utilization of the federated learning participants, supervising and regulating the data utilization behavior of all participants, supervising the entire model aggregation process, and ensuring the transmission model parameter security. The second level of supervision is a supervision activity implemented by the Big Data Center (Big Data Bureau) for the entire government data authorization operation system. The government's big data center (big data bureau) as an overall management organization plays a leading

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role, implements unified supervision and management, conducts verification and review of the work of government data operation agencies and the use of government data, and points out the lack of work and existence of government data operation agencies. Risks and hidden dangers, implement the whole process management of government data authorization operation before, during and after the event.

V.   CONCLUSION

This paper sorts out and analyzes the current situation of government data opening, and conducts in-depth research on the system construction of government data opening. The main conclusions of this paper are as follows: We have gained some practical experience at the local level, and many local governments have tried and explored the establishment of an open government data system. According to the experience of building an open government data system outside the domain and the actual situation of China's open government data system, it can be considered that what China needs is the following top-level design: ①laws and policies related to government data opening; ②national unified data opening rules; ③government data opening Platform and other supporting facilities.

In the process of selecting the topic and writing this article, the author read a large number of documents and made a detailed combing at the normative level, and then carried out analysis and research on related issues. However, due to the author's academic level and limited time, there are still many imperfections in this article. For example, the research on government data opening system in this paper only focuses on the link of opening, but lacks a complete consideration of the dynamic system process. At present, the promulgation and implementation of the "Data Security Law" has made a certain top-level design for the government data opening system at the national legal level, and created legal conditions for maximizing the opening and utilization of government data. On this basis, the core system and specific norms of government data openness still need to be constructed and improved through other laws or administrative regulations at the national level, so as to solve various problems existing in local legislation and practice of government data openness in China. In this process, more and more scholars will pay attention to this field and carry out in-depth research, so as to effectively promote the development of the open government data system.

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