Foreign Government Data Classification and Grading Licensing Agreements and Recommendations for China (Postprint)

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Abstract

[Purpose/Significance] This study examines the formulation and application of classified and graded authorization protocols for government data, aiming to provide references for government data authorization approaches and to promote the security management and open utilization of government data. [Method/Process] Employing the web survey methodology, this research investigates foreign government data open platforms to ascertain the application status of their classified and graded authorization protocols for government data, and conducts in-depth comparative analyses. Simultaneously, grounded in China's actual circumstances and drawing upon beneficial experiences from foreign governments, it proposes recommendations and conceptual frameworks for formulating China's classified and graded authorization protocols for government data. [Results/Conclusion] Most foreign governments employ multiple types of data authorization protocols, enabling appropriate open utilization arrangements for various data categories. China should, based on practical realities and under the premise of clarifying exempted open data types, data opening methods, and the rights and responsibilities of entities involved in data open utilization, clearly delineate data licensing objects and their ownership rights, and formulate classified and graded authorization protocols for government data suited to China's context.

Full Text

Preamble

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Foreign Government Data Classification and Hierarchical Licensing Agreements and Recommendations for China

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Abstract:
[Purpose/Significance] This paper studies the formulation and application of government data classification and hierarchical licensing agreements, aiming to provide references for government data authorization methods and to promote the security management and open utilization of government data. [Method/Process] Using network survey methods, we investigated foreign government data open platforms to understand the application of their data classification and hierarchical licensing agreements and conducted in-depth comparative analysis. Simultaneously, based on China's actual conditions and absorbing beneficial foreign experiences, we propose recommendations and conceptual frameworks for developing China's government data classification and hierarchical licensing agreements. [Result/Conclusion] Most foreign governments employ multiple types of data licensing agreements, enabling appropriate open utilization arrangements for various data types. China should, based on its actual circumstances and under the premise of clearly defining exempted data types, data opening methods, and the rights and responsibilities of data utilization subjects, clarify licensing objects and their ownership rights to formulate licensing agreements suitable for China's government data classification and hierarchical system.

Keywords: open government data; classification and hierarchical management; licensing agreement
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On April 9, 2020, the Central Committee of the Communist Party of China and the State Council issued the "Opinions on Constructing a More Perfect Market-oriented Allocation System and Mechanism for Factors," which pointed out the need to "promote and improve the data classification and hierarchical security protection system applicable to big data environments" [1]. On July 2, 2020, the "Data Security Law of the People's Republic of China (Draft)" was officially released, proposing that "the state shall implement classified and hierarchical protection of data based on its importance in economic and social development, and the degree of harm to national security, public interests, or the legitimate rights and interests of citizens and organizations if it is tampered with, destroyed, leaked, or illegally obtained or utilized" [2]. In short, data classification and hierarchical management refers to categorizing data according to its types and attributes and selecting appropriate open utilization methods. Research on government data licensing agreements has increasingly attracted domestic scholars' attention. For example, Li Jiajia explored foreign open data licensing mechanisms and proposed implications for China [4]; Diliya elaborated

on types of open data licenses and discussed the importance and strategies of government data open licensing in China [5]; Huang Ruhua et al. investigated and analyzed the adoption of foreign government data open licensing agreements and recommended that China adopt Creative Commons licenses [6], and additionally studied types of international open data licensing agreements [7]; Fan Jiajia expounded on the theoretical basis for formulating government data open licensing agreements and subsequently constructed a textual framework for Chinese government data open licensing agreements [8]. These studies have positive significance for promoting the formulation and improvement of China's government data licensing agreements. However, existing research has not developed applicable government data classification and hierarchical licensing agreements based on China's actual conditions and the different types and attributes of government data. The government data classification and hierarchical licensing agreements discussed in this paper provide action guidelines for data open utilization subjects under the premise of government data classification and hierarchical management, maximizing the release of government data open value.

The "China Local Government Data Open Report" (First Half of 2020) first emphasized the need to provide differentiated open licensing for different types of datasets [3]. However, currently, the vast majority of China's government data open platforms still adopt single licensing agreements, and some platforms have not even formulated licensing agreements. This situation has become one of the factors hindering the open utilization of government data in China.

With the deepening development of government data opening, research on government data licensing agreements is also receiving increasing attention from domestic scholars. For example, Li Jiajia explored foreign open data licensing mechanisms and proposed implications for China [4]; Diliya elaborated on types of open data licenses and discussed the importance and strategies of government data open licensing in China [5]; Huang Ruhua et al. investigated and analyzed the adoption of foreign government data open licensing agreements and recommended that China adopt Creative Commons licenses [6], and additionally studied types of international open data licensing agreements [7]; Fan Jiajia expounded on the theoretical basis for formulating government data open licensing agreements and subsequently constructed a textual framework for Chinese government data open licensing agreements [8]. These studies have positive significance for promoting the formulation and improvement of China's government data licensing agreements. However, existing research has not developed applicable government data classification and hierarchical licensing agreements based on China's actual conditions and the different types and attributes of government data. Therefore, the author selects government data classification and hierarchical licensing agreements as the research object, starting from investigating the application of foreign government data classification and hierarchical licensing agreements, and based on this, combined with China's specific realities, proposes recommendations and conceptual frameworks for developing China's government data classification and hierarchical licensing agreements. This paper has certain practical significance for reasonably arranging open utilization

methods for various types of government data in China and further promoting the realization of government data open value.

2 Investigation of Foreign Government Data Classification and Hierarchical Licensing Agreements

In May 2017, the World Wide Web Foundation released the latest "Open Data Barometer" (4th edition) [9]. According to this report, the top five countries in government data openness are the United Kingdom, Canada, France, the United States, and South Korea. Using network survey methods, we investigated the government data open platforms of these five countries, focusing on reading the licensing agreements provided by the platforms to understand the application of each country's government data classification and hierarchical licensing agreements. The survey found that, except for Canada, the government data open platforms of the United Kingdom, France, the United States, and South Korea all adopted different types of data licensing agreements. The following discussion will focus on the classification and hierarchical licensing agreements of these four countries, with comparative analysis emphasizing applicable objects, licensing conditions, and compatibility.

2.1 Types of Government Data Classification and Hierarchical Licensing Agreements by Country

2.1.1 United Kingdom The United Kingdom currently adopts the Government Licensing Framework formulated by the National Archives on January 20, 2016 [10], which includes six licensing methods (see Table 1). Among them, the Open Government Licence is the official default license, with the vast majority of open data using this license, which allows users to utilize data for commercial or non-commercial purposes. The Open Software Licence is not a specific licensing agreement but rather a series of licenses issued by the Open Source Initiative that the UK employs to enable government departments to more flexibly open software source code (due to the numerous agreements, they are not listed here). In addition, to expand the utilization scope of government data under certain specific circumstances, the framework also includes: the Open Supreme Court Licence to allow users to utilize Supreme Court data; the Developer Licence to allow registered members to research data to determine its commercial viability; the Non-Commercial Government Licence for data utilization for non-commercial purposes; and the Charged Licence, which charges fees to permit data reuse beyond the scope stipulated by law.

Table 1 Types of UK Government Data Classification and Hierarchical Licensing Agreements

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
Open Government Licence	Information protected by copyright or database rights [11]	Free copying, publishing, distribution, transmission, and adaptation of data for commercial or non-commercial purposes	Must attribute data source (e.g., data provider name) and provide link to this license
Non-Commercial Government Licence	Same as above	Free copying, publishing, distribution, transmission, and adaptation of data for non-commercial purposes [12]	Same as above
Charged Licence	Same as above	Copying, publishing, distribution, transmission, and adaptation of data for commercial or non-commercial purposes after payment [14]	If dataset reuse exceeds scope stipulated in 2015 Public Sector Information Regulations, this license may be used to charge for data reuse under the Freedom Protection Act [13]

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
Open Supreme Court Licence	Supreme Court data	Free copying, publishing, distribution, transmission, and adaptation of data for commercial or non-commercial purposes	Must attribute data source and provide link to this license; personal data; information not disclosed without data provider consent or under information access law; public institution logos and royal coats of arms (unless part of document/dataset); military insignia; third-party rights not licensable by provider; other IP rights; identity documents like passports [15]
Open Software Licence	Software and source code developed by government departments and other public sectors [16]	Free access, use, modification, and sharing of software and source code for commercial or non-commercial purposes [17]	Without permission, may not use licensor's name or original contributors' names, trademarks; except as explicitly stated, does not grant licenses to licensor's trademarks, copyrights, patents, trade secrets or other IP rights; does not grant patent manufacturing, use, sale, import rights [18]

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
Developer Licence	Any dataset licensed by the licensor	Evaluate data to determine need; utilize data to realize ideas or propositions, such as identifying potential benefits or commercial opportunities; use data in articles and activities aimed at promoting knowledge sharing, such as academic papers, industry journals, and conferences; display data or create working prototypes to demonstrate or promote how to use data [19]	Commercial utilization of data or inclusion in products and services is not permitted; if wishing to use data to provide commercial products or services, must negotiate with licensor

2.1.2 France To avoid the proliferation of data licensing agreements, France enacted Law No. 2016-1321, the "Digital Republic," on October 7, 2016, which stipulated the creation of a definitive list of licensing agreements that government departments could use to authorize data utilization. The list includes licenses applicable to public information (data, documents, etc.) and licenses applicable to software source code of government departments. Among them, public information uses the Open Licence and the Open Database Licence. The Open Licence was released by the public administration department Etalab in October 2011 to allow users to utilize data for commercial or non-commercial purposes. The Open Database Licence was formulated by the international non-profit organization Open Knowledge Foundation, allowing users to utilize databases (excluding database contents) for commercial or non-commercial purposes. To open and utilize software source code of government departments, France similarly adopts licensing agreements formulated by the Open Source

Initiative, with specific agreement types listed (see Table 2). Additionally, if government departments wish to use licensing agreements other than those above, they must follow specific procedures and contact the Etalab task force under the premise of complying with the "Law on the Relations between the Public and the Government" [20].

Table 2 Types of French Government Data Classification and Hierarchical Licensing Agreements

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
Open Licence (Licence Ouverte version 2.0)	Any public data provided or published by administrative departments as stipulated by the "Law on the Relations between the Public and the Government"; any data provided under this license [21]	Non-exclusive, free copying, modification, extraction, transformation, dissemination, and distribution of data, as well as creation of derivative data for commercial or non-commercial purposes	Data provided may include reusable personal data, but reuse of personal data must comply with personal information protection laws
ODC Open Database Licence (ODC Open Database Licence v1.0)	Databases protected by copyright (excluding database contents) [22]	Non-exclusive, free distribution, transmission, display, demonstration, and creation of derivative databases by any means and in any form for commercial or non-commercial purposes	Does not apply to computer programs for establishing or operating databases; does not include patents for data and databases; does not include trademarks related to databases

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
Apache License (Apache License version 2.0)	Software source code, documentation source code, and configuration files, etc. [23]	Global, non-exclusive, free, royalty-free, irrevocable patent license and copyright license to use, reproduce, display, distribute, make, and sell works and derivative works	Does not grant licensee's name, trademark, service mark, or product name unless necessary to describe work origin and copy file content
BSD 2-Clause "Simplified" License	Software and source code	Reproduction and use of works in source and binary forms [24]	May not use copyright owner's name or promote derivative products without prior written permission
BSD 3-Clause "New" or "Revised" License	Software and source code	Reproduction and use of works in source and binary forms [25]	Same as above

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
CeCILL-B Free Software License Agreement (CeCILL-B Free Software License Agreement)	Software and related documentation files	Use software without restrictions on application fields; translate, change, modify, and reproduce software; distribute true copies of software in source or object code form; if contributing to software, may distribute adapted software under other agreements (must indicate software licensed under this agreement in documentation and copy IP notices; provide written knowledge, IP statements, and licenses for software use in accessible format; mention software licensed under this agreement on modified version pages and copy IP notices; if providing software to third parties, ensure third parties comply with stipulated obligations) [26]	If licensor owns patents protecting all or part of software functions and components, licensor commits not to enforce patent rights against licensee; if patent is transferred, transferee assumes stipulated obligations

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
MIT License (MIT license)	Software and source code	Use, reproduce, modify, publish, distribute, sublicense, and sell software and its copies [27]	None
CeCILL Free Software License Agreement 2.1 (CeCILL Free Software License Agreement v2.1)	Software and source code	Use software without restrictions on application fields; translate, adapt, modify, and reproduce software; distribute true copies of software in source or object code form; if contributing to software, distribution of modified software is subject to this agreement (must accompany copy of this agreement, liability limitation provisions, and explain conditions for effective access for at least three years from distribution of modified software) [28]	Same patent provisions as above

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
CeCILL-C Free Software License Agreement (CeCILL-C Free Software License Agreement)	Software and source code	Use software without restrictions on application fields; translate, adapt, modify, reproduce software, and create derivative software; distribute true copies of software in source or object code form; if contributing to software, distribution of modified software is subject to this agreement (must accompany copy of this agreement, liability limitation provisions, and explanation; provide access to software source code during distribution period) [29]	Same patent provisions as above

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
GNU General Public License 3.0 or later versions (GNU General Public License v3.0 or v3.0+)	Software and source code	Reproduce program source code verbatim; transmit works based on program or generated modified versions in source code form; transmit works in object code form [30]	None
GNU Lesser General Public License 3.0 or later versions (GNU Lesser General Public License v3.0 or v3.0+)	Software and source code	Transmit modified version of work; independently transmit object code of chosen projects; independently transmit collective works; combine different works; combine protected works with works licensed under GNU GPL v3.0; if modifying program, must provide means to reproduce software [31]	None

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
GNU Affero General Public License 3.0 or later versions (GNU Affero General Public License v3.0 or v3.0+)	Software and source code	Reproduce program source code verbatim; transmit works based on program or generated modified versions in source code form; transmit works in object code form	None
Mozilla Public License 2.0 (Mozilla Public License v2.0)	Software and source code	Non-exclusive, free use, reproduction, provision, modification, display, distribution, and other utilization of works; make, use, sell, import, and otherwise transfer works [32]	Does not grant trademark, service mark, or other usage rights of work contributors

2.1.3 United States The US Copyright Act stipulates that any work of the federal government is not subject to copyright. Therefore, the United States uses the Creative Commons CC0 license (CC's latest version 4.0 can be applied to both data and databases) to place federal government data in the public domain, waiving all rights. This license grants users the right to utilize data for commercial or non-commercial purposes. For data composed of local governments, universities, public organizations, or private organizations, numerous licenses are adopted based on local laws or the data publisher's wishes. The survey found that in addition to using the CC0 license, non-federal government data mainly adopts Creative Commons Attribution licenses, Open Database Licenses, and Open Data Commons Public Domain Dedication and Licence. Among them, the Creative Commons Attribution license allows users to utilize data for commercial or non-commercial purposes; the Open Database License grants users the right to utilize databases for commercial or non-commercial

purposes; and the Open Data Commons Public Domain Dedication and Licence grants users the right to utilize both databases and their contents for commercial or non-commercial purposes, as shown in Table 3 :

Table 3 Types of US Government Data Classification and Hierarchical Licensing Agreements

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
Creative Commons CC0 License (Creative Commons CC Zero License, CC0)	Materials with copyright or related rights [33]	Reproduce, modify, distribute, and demonstrate works for commercial or non-commercial purposes	Rights other than copyright or related rights, such as trademark or patent rights, and third-party publicity rights, personality rights, privacy rights, etc.
Creative Commons Attribution License (Creative Commons Attribution License, CC-BY)	Copyright-protected data	Redistribute material or remix, transform, and build upon material in any medium or format for commercial or non-commercial purposes (must provide license link and indicate if changes were made) [34]	None

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
Open Database License (Open Database Licence, ODbL)	Copyright-protected databases (excluding database contents) [35]	Extract and reuse databases; create derivative databases; establish collective databases; create temporary or permanent copies; distribute, disseminate, display, lend, provide, or demonstrate databases for commercial or non-commercial purposes	Does not apply to computer programs for making or operating databases; does not include patents for data and databases; does not include trademarks related to databases
Open Data Commons Public Domain Dedication and Licence (Open Data Commons Public Domain Dedication and Licence, PDDL)	Databases and their contents	Freely copy, distribute, and use databases; generate products from databases; modify, transform, and build upon databases for commercial or non-commercial purposes [36]	None

2.1.4 South Korea To adapt CC licenses to South Korea's legal system including copyright law, the Ministry of Culture, Sports and Tourism adjusted them, thereby developing Korean versions of CC licenses [37]. The Korean version of CC licenses includes six types (see Table 4), among which Attribution 2.0 is the officially recommended sole license and also the license with the fewest restrictions. Other licenses provide more options for local governments and public organizations' data open utilization. However, since the Korean version of CC licenses has not incorporated the database rights covered in the latest CC

license 4.0, they are only applicable to data. The various data licensing agreements differ only in licensing conditions.

Table 4 Types of South Korean Government Data Classification and Hierarchical Licensing Agreements

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
Attribution 2.0 Korea (CC-BY)	Works protected by copyright law or other laws	Reproduce, distribute, and modify works or create derivative works for commercial or non-commercial purposes (must attribute author and source; may freely choose license for derivative works)	Rights other than copyright or related rights, such as trademark or patent rights, and third-party publicity rights, personality rights, privacy rights, etc.
Non-Commercial - Attribution 2.0 Korea (CC-BY-NC)	Same as above	Reproduce, distribute, and modify works or create derivative works for non-commercial purposes (must attribute author and source; may freely choose license for derivative works)	Same as above
Attribution - No Derivatives 2.0 Korea (CC-BY-ND)	Same as above	Reproduce and distribute works for commercial or non-commercial purposes (cannot modify works or create derivative works)	Same as above

License Name	Applicable Objects	Licensed Rights	Licensed Obligations
Attribution - Share Alike 2.0 Korea (CC-BY-SA)	Same as above	Reproduce, distribute, and modify works or create derivative works for commercial or non-commercial purposes (must attribute author and source; derivative works must use same license as original work)	Same as above
Attribution - Non-Commercial - Share Alike 2.0 Korea (CC-BY-NC-SA)	Same as above	Reproduce, distribute, and modify works or create derivative works for non-commercial purposes (must attribute author and source; derivative works must use same license as original work)	Same as above
Attribution - Non-Commercial - No Derivatives 2.0 Korea (CC-BY-NC-ND)	Same as above	Reproduce and distribute works for non-commercial purposes (must attribute author and source; cannot modify works or create derivative works)	Same as above

2.2 Comparison of Foreign Government Data Classification and Hierarchical Licensing Agreements

While the content of government data classification and hierarchical licensing agreements varies by country, their basic characteristics are fundamentally consistent. Specifically, agreements are formulated based on national copyright laws and related legislation; all agreements stipulate users' obligations and responsibilities; all agreements retain moral rights and transfer some economic rights; and all agreements are irrevocable and non-exclusive. The main differences among countries' government data classification and hierarchical licensing agreements lie in three aspects: applicable objects, licensing conditions, and agreement compatibility [38]. The following sections focus on comparing these three aspects.

2.2.1 Applicable Objects The most direct manifestation of open data licensing objects is databases. However, since databases involve the "data" content within databases, the database structure itself, and other aspects, and there is often a need for software source code open utilization in reality, licensing objects for open data present certain complexity [4]. This has resulted in licensing agreements applicable to different objects.

As shown in Table 5 , the default or commonly applied data licensing agreements of the United Kingdom and the United States are applicable to data, databases and their contents, and software source code. The UK, to maximize the release of government data value under certain specific circumstances, has also formulated or adopted other licensing agreements applicable to the above data types. France has separately adopted licensing agreements applicable to these three categories. To flexibly adapt to software source code open utilization needs, like the UK, France has adopted a series of licensing agreements formulated by the Open Source Initiative applicable to software source code. South Korea's various data licensing agreements, however, are only applicable to data because they have not incorporated the database rights in the latest CC 4.0 license. Therefore, in terms of applicable objects, the licensing agreements of the UK, France, and the US have the broadest coverage, but clearly, the UK's data licensing agreements are more flexible, capable of adapting to authorized utilization of the same open object under different environments or conditions.

Table 5 Applicable Objects of Foreign Government Data Classification and Hierarchical Licensing Agreements

Country	License Name	Applicable Objects
UK	Open Government Licence	Data, databases and their contents
	Non-Commercial Government Licence	Data, databases and their contents

Country	License Name	Applicable Objects
	Charged Licence	Data, databases and their contents
	Open Supreme Court Licence	Data, databases and their contents, software source code
	Open Software Licence	Software source code
	Developer Licence	Data, databases and their contents, software source code
France	Licence Ouverte version 2.0	Data, databases and their contents
	ODC Open Database Licence version 1.0	Databases
	Apache License version 2.0	Software source code
	BSD 2-Clause “Simplified” License	Software source code
	BSD 3-Clause “New” or “Revised” License	Software source code
	MIT License	Software source code
	CeCILL-B Free Software License Agreement	Software source code
	CeCILL Free Software License Agreement v2.1	Software source code
	CeCILL-C Free Software License Agreement	Software source code
	GNU General Public License v3.0 or later	Software source code
	GNU Lesser General Public License v3.0 or later	Software source code
	GNU Affero General Public License v3.0 or later	Software source code
	Mozilla Public License v2.0	Software source code
US	Creative Commons CC0 License	Data, databases and their contents, software source code
	Creative Commons Attribution License	Data, databases and their contents
	Open Database Licence	Databases

Country	License Name	Applicable Objects
	Open Data Commons Public Domain Dedication and Licence	Databases and their contents

2.2.2 Licensing Conditions Given the numerous types of government data classification and hierarchical licensing agreements across countries and inconsistent applicable scenarios, to reasonably compare their differences in licensing conditions, we focus on comparing each country's default or commonly adopted data licensing agreements. Table 6 lists the specific licensing conditions of each country's government data classification and hierarchical licensing agreements (the UK's Open Software Licences formulated by the Open Source Initiative are not listed in the table as the UK has not specified them).

As shown in Table 6 , the CC0 license adopted by the United States has the fewest licensing conditions. Under this agreement, users can modify and commercially utilize open data without attribution or share-alike requirements. In contrast, the default licensing agreements of the UK, France, and South Korea require users to attribute data sources or share under the same license. Therefore, the CC0 license adopted by the US can promote open data acquisition and utilization to a greater extent.

Table 6 Licensing Conditions of Foreign Government Data Classification and Hierarchical Licensing Agreements

Country	License Name	Attribution	Share-Alike	C
UK	Open Government Licence	Yes	No	Y
	Non-Commercial Government Licence	Yes	No	N
	Charged Licence	Yes	No	Y
	Open Supreme Court Licence	Yes	No	Y
	Developer Licence	Yes	No	N
France	Licence Ouverte version 2.0	Yes	No	Y
	ODC Open Database Licence version 1.0	Yes	Yes	Y
	Apache License version 2.0	Yes	No	Y
	BSD 2-Clause "Simplified" License	Yes	No	Y
	BSD 3-Clause "New" or "Revised" License	Yes	No	Y
	MIT License	Yes	No	Y
	CeCILL-B Free Software License Agreement	Yes	No	Y
	CeCILL Free Software License Agreement v2.1	Yes	Yes	Y
	CeCILL-C Free Software License Agreement	Yes	Yes	Y
	GNU General Public License v3.0 or later	Yes	Yes	Y
	GNU Lesser General Public License v3.0 or later	Yes	Yes	Y
	GNU Affero General Public License v3.0 or later	Yes	Yes	Y
	Mozilla Public License v2.0	Yes	No	Y

Country	License Name	Attribution	Share-Alike	C
US	Creative Commons CC0 License	No	No	Y
	Creative Commons Attribution License	Yes	No	Y
	Open Database Licence	Yes	Yes	Y
	Open Data Commons Public Domain Dedication and Licence	No	No	Y
South Korea	CC-BY 2.0 Korea	Yes	No	Y
	CC-BY-NC 2.0 Korea	Yes	No	N
	CC-BY-ND 2.0 Korea	Yes	No	Y
	CC-BY-SA 2.0 Korea	Yes	Yes	Y
	CC-BY-NC-SA 2.0 Korea	Yes	Yes	N
	CC-BY-NC-ND 2.0 Korea	Yes	No	N

2.2.3 Agreement Compatibility As shown in Table 7 (the UK's Open Software Licences are not listed as the UK has not specified them), the UK's default government data licensing agreement has strong compatibility, being compatible with Creative Commons Attribution 4.0 (CC-BY) and Open Data Commons Attribution licenses. Both licenses include copyright and database rights, meaning that when using either license to authorize open data, the conditions of the UK's Open Government Licence are automatically satisfied. Other data licensing agreements formulated by the UK do not have compatibility with other agreements.

France's government data licensing agreements are not only compatible with Creative Commons Attribution (CC-BY) and Open Data Commons Attribution licenses but also compatible with the UK's Open Government Licence. The ODC Open Database Licence adopted by France is compatible with Public Domain and CC0. Additionally, the Open Data Commons Public Domain Dedication and Licence, as a public domain dedication license, is compatible with Public Domain, CC-BY, CC-BY-SA, CC-BY-NC, and CC-BY-NC-SA.

The CC0 license adopted by the United States has strong compatibility, being compatible not only with Public Domain but also with numerous CC license types, including CC-BY, CC-BY-SA, CC-BY-NC, and CC-BY-NC-SA. The Creative Commons Attribution (CC-BY) license is compatible with Public Domain, CC0, CC-BY-SA, CC-BY-NC, and CC-BY-NC-SA. The Open Database Licence is compatible with Public Domain and CC0 and has good compatibility. The Open Data Commons Public Domain Dedication and Licence, as a public domain dedication license, is compatible with Public Domain, CC-BY, CC-BY-SA, CC-BY-NC, and CC-BY-NC-SA.

Although the Korean version of CC licenses is based on Creative Commons licenses, it does not have CC license compatibility because the Korean version explicitly restricts the prohibition of using information protected by other laws, making it impossible for the Korean version to become a subset of CC licenses [41].

Table 7 Compatibility of Foreign Government Data Classification and Hierarchical Licensing Agreements

Country	License Name	Compatibility
UK	Open Government Licence	Compatible with Creative Commons Attribution 4.0 and Open Data Commons Attribution licenses
	Non-Commercial Government Licence	None
	Charged Licence	None
	Developer Licence	None
	Open Supreme Court Licence	None
France	Licence Ouverte version 2.0	Compatible with Creative Commons Attribution, Open Data Commons Attribution, and UK's Open Government Licence
	ODC Open Database Licence version 1.0	Compatible with Public Domain and CC0
	Apache License version 2.0	Compatible with LGPL 3.0 or later and MPL 1.1
	BSD 2-Clause "Simplified" License	Compatible with Apache 2.0, LGPL 2.1 or later, and MPL 1.1
	BSD 3-Clause "New" or "Revised" License	Compatible with Apache 2.0, LGPL 2.1 or later, and MPL 1.1
	MIT License	Compatible with BSD-new
	CeCILL-B Free Software License Agreement	Compatible with CeCILL and CeCILL-C under specific conditions
	CeCILL Free Software License Agreement v2.1	Compatible with GNU GPL, GNU Affero GPL, and EUPL
	CeCILL-C Free Software License Agreement	Compatible with CeCILL under specific conditions
	GNU General Public License v3.0 or later	Compatible with GPL 3.0 or later
	GNU Lesser General Public License v3.0 or later	Compatible with GPL 3.0 or later

Country	License Name	Compatibility
	GNU Affero General Public License v3.0 or later	Compatible with Affero GPL 3.0
	Mozilla Public License v2.0	None
US	Creative Commons CC0 License	Compatible with Public Domain, CC-BY, CC-BY-SA, CC-BY-NC, CC-BY-NC-SA
	Creative Commons Attribution License	Compatible with Public Domain, CC0, CC-BY-SA, CC-BY-NC, CC-BY-NC-SA
	Open Database Licence	Compatible with Public Domain and CC0
	Open Data Commons Public Domain Dedication and Licence	Compatible with Public Domain, CC-BY, CC-BY-SA, CC-BY-NC, CC-BY-NC-SA

3 Current Application of Government Data Classification and Hierarchical Licensing Agreements in China

Based on the "China Local Government Data Open Report" (First Half of 2020), we investigated 130 provincial, sub-provincial, and prefecture-level government data open platforms in China and found that China lags behind foreign governments in applying government data classification and hierarchical licensing agreements. Among the 130 platforms, except for five whose links could not be opened (Ningxia Hui Autonomous Region, Xinjiang Uygur Autonomous Region, Nanjing, Foshan, and Liuzhou), 61 platforms have no licensing agreements, 62 platforms have formulated single-type licensing agreements, and only Shanghai, Sichuan Province, and a few others have formulated multiple types of licensing agreements (see Table 8). In terms of content, the licensing agreements of China's government data open platforms are relatively simple, with only one or two sentences of overview. Although Sichuan's data open platform states that "users have the right to freely access, obtain, disseminate, and add value to existing open data (except application-based data), and application-based open data can be freely accessed, obtained, and add-valued under specific conditions," it is not difficult to see that the statement is too brief. Shanghai's data open platform provides a user manual indicating how users can obtain "unconditionally open data" and "conditionally open data," but it is still insufficient. Specifically, it also fails to clearly specify open data types and corresponding data utilization methods, nor does it provide detailed explanations regarding exempted open data.

Table 8 Current Application Status of China's Government Data Licensing Agreements

Licensing Agreement Adoption	Platform Regions
No licensing agreement	Hainan, Hubei, Jiangsu, Jiangxi, Shaanxi, Ningbo, Bengbu, Fuyang, Huangshan, Liu'an, Ma'anshan, Tongling, Xuancheng, Fuzhou, Jiangmen, Nanning, Qiandongnan Miao and Dong Autonomous Prefecture, Qiannan Prefecture, Tongren, Sanya, Hengshui, Jiamusi, Huanggang, Jingmen, Xiaogan, Yichang, Changde, Yongzhou, Changzhou, Huai'an, Lianyungang, Nantong, Suzhou, Suqian, Xuzhou, Yangzhou, Fuzhou, Ganzhou, Nanchang, Huai'an, Pingxiang, Shangrao, Yingtan, Wuhai, Shizuishan, Yinchuan, Zhongwei, Guangyuan, Leshan, Mianyang, Nanchong, Suining, Ya'an, Karamay, Jinhua, Urumqi, Luzhou, Neijiang, Zhoushan, Chengde, Dazhou

Licensing Agreement Adoption	Platform Regions
Single licensing agreement	Beijing, Guangdong, Fujian, Guizhou, Henan, Shandong, Tianjin, Zhejiang, Xiamen, Shenzhen, Harbin, Wuhan, Jinan, Qingdao, Chengdu, Hangzhou, Wuhu, Chaozhou, Guangzhou, Dongguan, Heyuan, Huizhou, Jieyang, Maoming, Meizhou, Qingyuan, Shantou, Shanwei, Shaoguan, Yangjiang, Yunfu, Zhanjiang, Zhaoqing, Zhongshan, Zhuhai, Guiyang, Liupanshui, Zunyi, Taizhou, Wuxi, Binzhou, Dezhou, Dongying, Heze, Jining, Liaocheng, Tai'an, Rizhao, Weihai, Weifang, Yantai, Zibo, Zaozhuang, Yibin, Huzhou, Lishui, Quzhou, Shaoxing, Taizhou, Wenzhou, Changsha, Linyi
Multiple licensing agreements	Sichuan Province, Shanghai

Thus, China urgently needs to formulate or adopt government data classification and hierarchical licensing agreements to maximize the release of government open data value by reasonably arranging open utilization methods for different types of data and providing action guidelines for data utilization subjects.

4 Prerequisites for Developing China's Government Data Classification and Hierarchical Licensing Agreements

Although organizations such as Creative Commons, Open Knowledge Foundation, and Open Source Initiative have provided numerous licensing agreements for open utilization of works worldwide, a review of foreign government data classification and hierarchical licensing agreements reveals that most countries have not simply copied them wholesale. For China, certain universal licensing agreements are also not applicable. For example, the Public Domain Dedication and Licence (ODC-PDDL) allows users to waive all rights to works, thereby

placing them in the public domain, but China's Copyright Law does not permit authors to waive their moral rights [42].

Therefore, China should, based on its specific realities and absorbing beneficial foreign experiences, formulate government data classification and hierarchical licensing agreements suitable for China.

4.1 Prerequisites for Developing China's Government Data Classification and Hierarchical Licensing Agreements

4.1.1 Clarify Specific Data Types Exempted from Opening Government data classification and hierarchical licensing agreements should first specify which government data are not within the licensing scope—that is, which government data shall not be opened to the public. Foreign governments have largely clarified this point in their data licensing agreements. However, China has not yet made unified provisions regarding specific data types that shall not be opened. From relevant policies and regulations, the "Regulations on Open Government Information" state that information involving state secrets, commercial secrets, personal privacy, and internal administrative affairs shall not be disclosed, but the relevant content is relatively vague and general, lacking detailed guidance. Additionally, the "Data Security Law (Draft)" also fails to clearly define specific data types that shall not be opened. Although some regions in China have issued relevant guidance documents, the situation is similar.

In this regard, based on the "Law on Guarding State Secrets," "Anti-Unfair Competition Law," "Several Provisions on Prohibiting Acts of Infringing upon Business Secrets," "Notice on Strengthening the Protection of State-owned Enterprise Business Secrets," "Several Opinions on Strengthening the Management of Technical Secrets in the Mobility of Scientific and Technical Personnel," "Information Security Technology - Personal Information Security Specification," and other laws and regulations as well as relevant scholars' viewpoints [43], we have formulated a Chinese Government Data Open Exemption List, as shown in Table 9 .

Table 9 Chinese Government Data Open Exemption List

Category	Specific Content
Data involving state secrets	Data concerning secret matters in major state decision-making; data concerning secret matters in national defense construction and armed forces activities; data concerning secret matters in diplomatic and military activities and secret matters undertaken for foreign confidentiality obligations; data concerning secret matters in national economic and social development; secret data in science and technology; secret data in safeguarding national security activities and investigating criminal offenses; secret data determined by state secrecy administrative departments; secret data of political parties that falls within the above scope
Data involving personal sensitive information	Personal identity information: ID cards, passports, social security cards, work permits, residence permits, etc. Personal property information: bank account numbers, authentication information, deposit information, property information, credit records, credit information, transaction and consumption records, flow records, etc., as well as virtual property information. Health and physiological information: medical records such as symptoms, hospitalization records, doctor's orders, test reports, surgical records, nursing records, medication records, drug and food allergy information, fertility information, medical history, etc., personal genes, fingerprints, voiceprints, palm prints, ear contours, irises, facial recognition features, etc. Other information: sexual orientation, marital history, religious beliefs, unrecorded criminal records, communication records and content, address books, friend lists, whereabouts trajectories, web browsing records, accommodation information, location information, etc. Personal information of children under 14 years old (including)

Category	Specific Content
Data involving business secrets	Manufacturing processes, product designs, product formulas, and other production data; research and development results data for specific problems; market operation data such as customer lists, questions designed for public opinion surveys, transaction prices with customers, marketing strategies, business concepts and methods, contract renewal dates, etc.; business management data such as financial and business strategic planning, management techniques and organizational structure design, employee information, supply source information, etc.; information sold as products 原则上 does not constitute business secrets, but computer programs sold as products and specific components of products that cannot be disassembled as stipulated in agreements may constitute business secrets
Other exempted data	Internal administrative affairs data that does not have direct or actual impact on the rights and obligations of administrative counterparts but affects administrative work when disclosed; data information still under discussion, research, or review; administrative law enforcement case file information, etc.

4.1.2 Clarify Open Methods for Different Data Types Since government data is a composite formed by multiple attributes of data, even after removing non-openable government data according to the data open exemption list, there remains much sensitive data among openable data. Allowing unrestricted free circulation of government data would bring immeasurable risks. Therefore, government data classification and hierarchical licensing agreements need to be formulated under the premise of clarifying data open methods.

Currently, China is still in the exploratory stage regarding government data classification and hierarchical management, with no unified regulations on data open methods. From existing local policies and regulations, data open methods are mostly divided into: non-open, conditionally open, and unconditionally open. For example, the "Shanghai Public Data Open Classification and Hierarchical Guidelines (Trial)," "Zhejiang Public Data Open and Security Management Interim Measures," and "Tianjin Public Data Resource Open Management Interim Measures." Among them, unconditionally open data refers to data that poses minimal risk after opening; conditionally open data refers to data that may pose certain risks after opening; and non-open data refers to data involv-

ing state secrets, commercial secrets, personal privacy, and other data not to be opened as stipulated by law. Such data is 原则上 not opened. If opening is indeed necessary, it must be classified and hierarchically managed according to law, with corresponding desensitization and declassification processing to meet open conditions and be listed as conditionally open data.

From current trends, the three-level government data open method is a common practice among local governments. Based on this, China's government data classification and hierarchical licensing agreements should currently be formulated based on the above three-level data open method.

4.1.3 Clarify Rights and Responsibilities of Data Open Utilization Subjects Government data classification and hierarchical licensing agreements can not only make reasonable arrangements for the open utilization of various types of government data but, more importantly, legally effective licensing agreements can also reconcile the rights and obligations between the government and users and regulate data opening and utilization behaviors. In this regard, based on the "Regulations on Open Government Information," "Data Security Law (Draft)," relevant policies and regulations of some regions, and the terms of service and platform statements of data open platforms, we have clarified the main rights and obligations that data open utilization subjects should involve in licensing agreements.

As the subject of data opening, the government must first determine data open methods according to law and regulations. If it is indeed necessary to open some non-openable data, it must classify and hierarchically manage such data, conduct corresponding desensitization and declassification processing, and list it as conditionally open data. Second, government departments should conduct security assessments and reviews of data to be opened and adopt security protection measures. Third, government departments should open data in a timely and accurate manner. For conditionally open data, they must sign data open utilization agreements with users and file them with the public data management department at the same level. Simultaneously, they should supervise users' data utilization behaviors. Finally, if users violate agreements or legal provisions, the government has the right to terminate agreements and hold users accountable.

As the subject of data utilization, users should reasonably use data according to agreements and legal provisions. For unconditionally open data, users can obtain and utilize it after real-name registration and login. For conditionally open data, users have the right to apply to the platform and can only sign data utilization agreements with government departments and use data according to agreement provisions after passing the application review.

4.2 Development Approach for China's Government Data Classification and Hierarchical Licensing Agreements

The opening and utilization of government data involve the licensing, transfer, and other property rights circulation issues of data copyright. However, due to the complexity of licensing objects, clarifying the licensing objects of data licensing agreements is key to determining the development approach for government data classification and hierarchical licensing agreements. Foreign governments also consider this issue when formulating or adopting data classification and hierarchical licensing agreements.

We investigated 130 provincial, sub-provincial, and prefecture-level government data open platforms in China and found that most platforms indicate the types of data provided in their terms of service or website statements, which can be summarized as data content (text, charts, graphics, pictures, videos, audio content, etc.), databases, and software source code. Although most platforms state that website content is protected by intellectual property laws such as copyright law, it is still necessary to analyze data ownership rights to determine what licensing approach to adopt.

Article 5 of China's Copyright Law stipulates that laws, regulations, resolutions, decisions, orders, and other documents of legislative, administrative, and judicial nature, and their official translations, are not subject to this law. This provision does not explicitly state whether government data outside this scope enjoys copyright. However, from the perspective of legislative rigor, government data outside this provision that meets the requirements of work composition should be protected by copyright [44]. Therefore, it can be considered that the vast majority of government data in China actually enjoys copyright. However, China's Copyright Law does not have specific provisions for database rights, and in reality, databases are mostly protected as compilation works. But since substantial manpower, material, and financial resources are consumed in the collection, organization, and arrangement of data, it can also be considered that government databases are protected by copyright [45]. Additionally, according to the Copyright Law and the "Regulations on the Protection of Computer Software," software source code also enjoys copyright.

Since the Chinese government owns copyright in the data it currently opens, and considering the differences in utilization methods among data content, databases, and software source code, to facilitate data users in clearly identifying data types and utilization methods, China can learn from France's experience and separately authorize the above three types of data, dividing unconditionally open data licensing agreements into: Data Open Licence, Database Open Licence, and Source Code Open Licence. Although international universal licensing agreements currently exist for the above data types, to make them conform to China's specific realities, China can localize and adapt international universal agreements. Additionally, compatibility with international universal licensing agreements should be maintained to promote broader open utilization

of government data.

Different from foreign countries, China also has conditionally open data. Since opening such data involves certain risks, users must sign data utilization agreements with government departments and use data according to agreement provisions when obtaining such data. We believe that a unified licensing agreement can be formulated for this type of data. As for data utilization methods and scope, government departments can discretionarily stipulate them when signing data utilization agreements with users.

5 Framework for China's Government Data Classification and Hierarchical Licensing Agreements

Based on the above analysis, we have constructed a framework applicable to China's government data classification and hierarchical licensing agreements based on China's realities and drawing on foreign government experiences: unconditionally open data licensing agreements (see Table 10) and conditionally open data licensing agreements (see Table 11), aiming to provide feasible strategies for further promoting the opening and utilization of China's government data. Of course, we merely propose conceptual content for China's government data classification and hierarchical licensing agreements from a scholarly perspective; the formulation and improvement of agreements still require further research and exploration by all stakeholders in government data opening.

Table 10 Chinese Government Unconditionally Open Data Licensing Agreement

Section	Content
License Name	Chinese Government Unconditionally Open Data Licensing Agreement 1.0
Scope	1. This agreement applies only to data marked with "Unconditionally Open" on dataset pages of the website. Using such data indicates your acceptance of the following terms. 2. This agreement includes licensing for three types of data. You can find corresponding content in the following terms according to data type. 3. The licensor grants you a global, royalty-free, free, permanent, commercial, and non-exclusive license, subject to the following terms.

Section	Content
Data Open Licence	**Licensed Rights:** 1. Reproduce, publish, transmit, disseminate, and distribute data. 2. Adapt, modify, extract, and transform data, including creating derivative data. **Licensed Obligations:** Attribute data source (e.g., data provider name) and provide link to this license.
Database Open Licence	**Licensed Rights:** 1. Extract and reuse all or substantial parts of database contents. 2. Create derivative databases. 3. Establish collective databases. 4. Create temporary or permanent copies in whole or in part (including any derivative database or as part of a collective database), and distribute, communicate, display, lend, provide, or demonstrate to the public. **Licensed Obligations:** Attribute database source (e.g., database provider name) in database or derivative database and related documentation, and provide link to this license.
Source Code Open Licence	**Licensed Rights:** 1. Reproduce, make, publicly display, publicly demonstrate, sublicense, and distribute the work or derivative works and their copies in “source” or “object” form. 2. Adapt, modify, and create derivative works. 3. Make, use, sell, import, or otherwise transfer the work. **Licensed Obligations:** 1. Attribute source code source (e.g., source code provider name) in work or derivative works and provide link to this license. 2. Attach notices of changes to any modified files.

Section	Content
General Terms	**Licensed Person's Obligations:** 1. When obtaining the above data, you must register and log in with real name on this website. Please ensure the accuracy and authenticity of personal information submitted during registration. 2. When obtaining and utilizing data provided by this website, please comply with this agreement and legal provisions. **Licensor's Rights:** If the licensed person violates agreement provisions or legal provisions, the licensor has the right to terminate the agreement and hold the licensed person accountable. **Licensor's Obligations:** 1. Determine data open methods according to law and regulations. If it is indeed necessary to open some non-openable data, it must be classified and hierarchically managed, with corresponding desensitization and declassification processing, and listed as conditionally open data. 2. Conduct security assessment and review of data to be opened and implement security protection measures. 3. Open data in a timely and accurate manner. **Exemptions:** Data involving state secrets, commercial secrets, personal privacy, and other data not to be opened as stipulated by law. See Annex 1 for Data Open Exemption List. **Jurisdiction:** This agreement is governed by the laws of the People's Republic of China. **Definitions:** "Licensed Person" and "You" refer to natural persons, legal persons, or legal entities obtaining data under this license; "Licensor" refers to the data provider under this license; "Data" refers to data provided under this license; "Database" refers to a collection of materials or content arranged in a systematic or methodical way; "Derivative Database" refers to a database based on a database, including translation, adaptation, arrangement, modification, or any other alteration of a substantial part of the database or catalog; "Collective Database" refers to a

Section	Content
Version Statement	Chinese Government Unconditionally Open Data Licensing Agreement 1.0 is a tool developed by the Chinese government to enable public sector data providers to use and reuse their data under a common open license. This is version 1.0 of the Chinese Government Unconditionally Open Data Licensing Agreement. The Chinese government may release new versions of the licensing agreement from time to time. If you have already used data under an old version of the licensing agreement, the terms of that licensing agreement will continue to apply.
Compatibility Statement	In this licensing agreement, the Data Open Licence and Database Open Licence are compatible with Creative Commons Attribution 4.0, which includes data copyright and database rights. This means that if you adapt and license data or databases under this license, you will automatically satisfy the conditions of the Data Open Licence and Database Open Licence in this agreement when complying with this license.

Table 11 Chinese Government Conditionally Open Data Licensing Agreement

Section	Content
License Name	Chinese Government Conditionally Open Data Licensing Agreement 1.0

Section	Content
Scope	1. This agreement applies only to data marked with “Application-Based Open” on dataset pages of the website. Using such data indicates your compliance with the following terms. 2. “Application-Based Open” data has certain open risks, so you may be subject to certain restrictions when using such data.
Licensed Person’s Rights	1. You can click the “Apply” button on the dataset page, enter basic information required for the application (personal information, data utilization purpose, data application scenario, data security protection measures, etc.), and click confirm to submit the application. 2. After the application is approved, you can use data according to agreement provisions after signing a data utilization agreement with the licensor.
Licensed Person’s Obligations	1. Ensure the accuracy and authenticity of basic information required for the application. 2. Comply with this agreement, legal provisions, and the data utilization agreement signed with government departments. 3. Attribute data source and provide link to this license when utilizing data.
Licensor’s Rights	1. Review the licensed person’s application and have the right to approve or reject it according to relevant regulations, but must provide explanations for rejected applications. 2. If the licensed person violates the agreement or legal provisions, the licensor has the right to terminate the agreement and hold the licensed person accountable.

Section	Content
Licensor's Obligations	1. Determine data open methods according to law and regulations. If it is indeed necessary to open some non-openable data, it must be classified and hierarchically managed, with corresponding desensitization and declassification processing, and listed as conditionally open data. 2. Conduct security assessment and review of data to be opened and implement security protection measures. 3. Sign data utilization agreements with licensed persons and file them with public data management departments. 4. Conduct follow-up tracking and services on data open utilization to understand whether licensed persons' data utilization behaviors comply with regulations.
Exemptions	Data involving state secrets, commercial secrets, personal privacy, and other data not to be opened as stipulated by law. See Annex 1 for Data Open Exemption List.
Definitions	"Licensed Person" or "You" refers to natural persons, legal persons, or legal entities obtaining data under this license; "Data" refers to data provided under this license (including but not limited to data content, databases, source code, etc.); "Licensor" refers to the data provider under this license.

Section	Content
Version Statement	Chinese Government Conditionally Open Data Licensing Agreement 1.0 is a tool developed by the Chinese government to enable public sector data providers to use and reuse their data under a common open license. This is version 1.0 of the Chinese Government Conditionally Open Data Licensing Agreement. The Chinese government may release new versions of the licensing agreement from time to time. If you have already used data under an old version of the licensing agreement, the terms of that licensing agreement will continue to apply.
Jurisdiction	This agreement is governed by the laws of the People's Republic of China.

Government data classification and hierarchical licensing agreements play a positive role in the open utilization of various types of government data and are of great significance for realizing the value of government data opening. We investigated the application of foreign government data classification and hierarchical licensing agreements and conducted in-depth comparisons from three aspects: applicable objects, licensing conditions, and compatibility. Simultaneously, we surveyed the current application status of China's government data classification and hierarchical licensing agreements. In comparison, foreign governments are more advanced in this regard, being able to provide flexible and diverse open utilization conditions for various types of government data under the premise of complying with their national legal systems, maximizing the satisfaction of open utilization needs for various types of government data. China's government data opening is still in its initial stage, and government data classification and hierarchical management has just begun. China needs to formulate government data classification and hierarchical licensing agreements suitable for its national conditions under the premise of clarifying exempted data, data open methods, and the rights and responsibilities of data open utilization subjects, based on specific types of open data and following China's legal system while absorbing beneficial foreign experiences. Based on this, we propose conceptual content for China's government data classification and hierarchical licensing agreements.

The limitations of this paper are: Since the Open Data Barometer does not include the application of data classification and hierarchical licensing agreements in its evaluation indicators, the foreign government data classification and hier-

archical licensing agreements we investigated are not necessarily the best practices. Moreover, the selected survey objects are few and mostly European and American countries, making it difficult to truly reflect universal practices across global regions and countries. Government data classification and hierarchical licensing agreements are inseparable from government data classification and hierarchical management, with the latter being a necessary prerequisite for the former. Due to article length constraints, we could not deeply study the specific practices of government data classification and hierarchical management in various countries. China's government data classification and hierarchical management is still in its infancy, and the scientificity and feasibility of the conceptual content for government data classification and hierarchical licensing agreements proposed in this paper still need to be verified in practice.

Therefore, future research should expand in the following aspects: Expand the survey scope and increase survey objects to truly reflect universal practices across global regions and countries; Explore the specific practices of government data classification and hierarchical management in various countries and study their relationship with government data classification and hierarchical licensing agreements; Combine China's specific realities, comprehensively consider the constituent elements of government data classification and hierarchical licensing agreements, and demonstrate the scientificity and feasibility of agreements in terms of types, conditions, and compatibility.

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Foreign Government Data Classification and Hierarchical Licensing Agreement and Suggestions for China

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Abstract: [Purpose/significance] This paper studies the formulation and application of government data classification and hierarchical licensing agreements, aiming to provide references for government data authorization methods and promote the security management and open utilization of government data. [Method/process] Using network survey methods, we investigated foreign government data open platforms, grasped the application of their government data classification and hierarchical licensing agreements, and conducted in-depth comparative analysis. Simultaneously, based on China's actual conditions and absorbing beneficial foreign experiences, we proposed recommendations and conceptual content for developing China's government data classification and hierarchical licensing agreements. [Result/conclusion] Most foreign governments have adopted various types of data licensing agreements, enabling appropriate open utilization arrangements for each data type. Based on its actual conditions, China should clarify licensing objects and their ownership rights under the premise of clearly defining exempted data types, data open methods, and the rights and responsibilities of data open utilization subjects, and formulate government data classification and hierarchical licensing agreements applicable to China.

Keywords: open government data; classification and hierarchical management; licensing agreement

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Announcement of Outstanding Editorial Board Members of *Library and Information Service* Magazine

Library and Information Service Magazine currently publishes two journals: *Library and Information Service* and *Knowledge Management Forum*.

To fully leverage and motivate the role of editorial board members, in October 2020, *Library and Information Service* Magazine conducted an evaluation of outstanding editorial board members based on their contributions in the past year, including: providing topic planning for the editorial department, organizing special manuscripts, writing manuscripts, giving presentations at academic conferences and training organized by the magazine, participating in manuscript review, and daily promotion of the journals. The editorial department selected 16 outstanding editorial board members and 12 outstanding young editorial

board members for *Library and Information Service*, and 8 outstanding editorial board members for *Knowledge Management Forum*.

The list of outstanding editorial board members selected in 2020 is as follows:

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