

Studies on the Sharing of Government Information Resources

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Abstract

This thesis studies how to achieve the sharing of government information resources.

Firstly, it elaborates the achievement of sharing of government information resources is an important means to strengthen government functions, analyzes a number of factors restricting the maximum sharing and utilization of government information resources, and then discusses about the premise to achieve the sharing of government information resources and the problems to be addressed. Secondly, in its study of the approaches to achieve the sharing of government information resources, with the construction of Beijing Macroeconomic and Social Development Underlying Database (hereinafter referred to as "Macro-Base") as an example, it elaborates the contributions made by Macro-Base construction to promote the sharing of government information resources. Finally, it concludes five effective approaches conducive to achieving the sharing of government information resources.

Keywords: Macro-Base, standardization, government information resources' administration coordination mechanism, integration of resources

I. The achievement of sharing of government information resources is an important means to strengthen government functions

The concept of "government information resources" in this study is based on the definition in the *Regulations on the Disclosure of Government Information of the People's Republic of China* promulgated in 2007. That is, the information produced or obtained by executive branches in the course of execution of duty that is recorded and preserved in certain forms. Or, government information refers to the information produced, obtained, utilized, disseminated, preserved and taken care of by executive branches to exercise their power and execute their duty.

According to statistics, accounting for 80% of total social information resources, government information resources have important strategic significance in the national political, economic, technological, military and cultural fields. The significance to share government information resources is: it is the objective request to transfer government functions, a powerful means for the government to efficiently handle official business, an effective approach to reduce administrative costs and a quality choice to improve administrative transparency and government's credibility; the sharing of government information resources is bound to promote the standardization and normalization of government resources and help promote government decision-making become scientific.

II. Factors restricting the sharing of domestic government information resources

With the development of electronic information and Internetworking technologies, China, especially Beijing, has made substantial progress in e-government and the sharing of government information resources, which, however, is still left far behind compared to the high-quality, efficient and credible standard for the government to handle official business, as well as society's expectation for sharing and the requirement to maximizing development and utilization of government information.

The main restriction factors and problems are as follows.

---- **Government departments' consciousness to share information resources needs to be improved.** At present, for government departments at all levels, their understanding of government information openness and sharing is not yet fully in place. Individualism, bureaucratism, the desire of control of information resources and other human factors have resulted in information communication barrier.

---- **Government information resources' administration coordination mechanism needs to be consummated and completed.** Government information resources' administration mechanism and legal safeguard system are still not perfect, the body responsible for information sharing is undefined, the ownership, right of acquisition, development and management, transfer and management principles of information resources are not clear, and information resources lack effective supervision and coordinated planning.

---- **The standardization system of government departments' information resources is not yet regulated and unified.** Because various government departments are relatively independent in business management and they are self-contained and vary in standards in work practice, information content and mode of resource administration; as a result, it is difficult to share information resources between departments and the "information island" is formed.

---- **Government departments' underlying data lacks of effective management; data is lost or disconnected.** The relatively weak data resources' protection awareness leads to a lack of overall protection measures for information resources, thus large amounts of data in some government departments are lost, disconnected or indecipherable, bringing great difficulties for afterwards utilizing of historical information resources.

---- **Government departments lack necessary attention to the excavation of underlying information.** Over the years, because of a lack of sufficient understanding of data resources' development and utilization, a large amount of data is deposited and put on the shelf after being collected up, causing tremendous waste of information resources.

---- **The information resources' sharing system construction of government departments lacks a long-acting mechanism.** Because of unclear construction purpose, frequently adjustment of data and great variation of caliber, a considerable number of information resource databases are faced with difficulty in maintenance and playing a lasting role, resulting in a serious diminishing of national investment returns,

By studying the sharing practice of information resources by domestic and foreign governments, we believe the essential preconditions for breaking restrictions to achieve the sharing of government information resources include the following. In order to share government information resources, strict laws and regulations will act as the institutional guarantee, reasonable institutional setting will act as the organizational guarantee, smooth coordinated and cooperative administration mechanism will acts as the solid basis, advanced network technology will act as an important means, scientific standardization system will act as the important prop, and necessary financial support will act as the powerful safeguard.

III. With Macro-Base construction as an opportunity, Beijing is sparing no effort to build a platform for the sharing of government information resources

Seeing that database is an important carrier to achieve the sharing of information resources, the Beijing Municipal Government officially launched the construction of Macro-Base in February 2009.

1. To build a database system for the full sharing of government statistical information resources

The overall goal of Macro-Base project construction is to integrate the city's macroeconomic and social statistical information resources and uses modern information technology to meet the "three-level" needs, namely, government administrative decision, department information sharing and social public service, with the overall construction framework of "1-2-3-2".

A set of indicator system to share resources shall be established, which strives to be extensive in coverage, comprehensive in content and authoritative in quality, with the scientific and effective integration of government statistical information resources as the design philosophy, with the statistical information resources grasped by existing government departments as the basis, and based on the target of meeting the needs of society.

Two resource sharing portal systems, namely, "the Special Network for Government Affairs" and "the Internet", shall be developed, which rely on Beijing e-government network and the Internet respectively to provide services to government department users and public users.

A three-resource-sharing core system involving the data acquisition system, the data query system and the data analysis system shall be built, of which, for the data acquisition system shall achieve statistical data provision to the Macro-Base by various departments in accordance with the time, content, format and standards previously agreed upon; the data query system shall acquire data information conveniently, flexibly and efficiently based on the scientific, standard and high-quality data resource system and the unified metadata system; the data analysis system shall show the results of analysis and model to meet the deep-seated needs for data analysis and utilization.

A supporting system sharing two resources, namely, information security system and operational maintenance system, shall be built to ensure timely and complete data acquisition, accurate and scientific data integration, as well as secure and continued healthy operation of Macro-Base.

2. Characteristics of Macro-Base in achieving the sharing of government information resources

1) Standardized and unified platform for sharing. In order to achieve the integration of the city's information resources, implement effective management and provide information service that is unified, standardized, authoritative and effective, the Macro-Base builds a platform for information exchange and sharing. As the producer of data, various government departments have the responsibility to follow certain rules to load data on time; on the other hand, as data users, the departments shall enjoy their due data service.

2) Plentiful and detailed data for sharing. The information resources in Macro-Base is plentiful and detailed, which is categorized to meet demands in temporal and spatial dimensions, including data related to economy, society, technology, resource and environment, residential life, urban construction, social security and other fields, and large-scale census data; as well as the analysis outcome of government departments, research results of experts and scholars.

3) Flexible and diversified service functions for sharing. The Macro-Base is rooted to provide flexible and diversified query service functions. Data table, time sequence, statistical chart, text, publications are available to highlight convenience and diversification. In connection with the different usage patterns, computer operating

levels and query thoughts of users, through keyword query, report query, indicator query, custom query, three-dimensional query and a variety of ways, it provides flexible data query service. By providing interpretation of indicators and data, it achieves the interpretation of data to assist users in accurate use of data, thus to avoid and reduce users' misunderstanding, misuse and questioning of statistical data.

3. Core issues and solutions of resource integration and sharing in the construction of Macro-Base

To achieve better standardized integration of information resources and enhance the degree of sharing information resources, in the process of Macro-Base construction, this study discusses in depth indicator selection, grouping determination, indicator standardization, data table management, data cleansing, loading and other difficult issues, and the solutions are explored.

1) Determination of indicators and grouping. Statistical indicators and grouping is the core content for sorting and loading the data resources of Macro-Base. Various departments basically determine the indicators and grouping of their resources by convention and subjective judgment, which has great randomness, lacking unified and standardized principles. To facilitate data sorting and loading, the design of Macro-Base indicator system incorporates the design of query function; in the definition of indicators and grouping, it bases itself on generality, places extra emphasis on speciality and takes into account query convenience.

2) Issue of indicators' normalization. Macro-Base construction involves 23 departments throughout the city, each of which varies in business management requirements and some of which have to implement the system issued by national ministries, so the standard of indicator setting is not consistent; indicators of the same meaning may have diversified names, thus inconveniencing users.

Indicators are important clues to query data; the standardization of indicators is also the primary premise for providing rapid and accurate query service. In Macro-Base construction, rooted in standardized and unified entering indicators as well as accurate data, all the entering indicators are sorted. By adopting "core indicators + industry grouping", "indicators + unit name" and other ways, it standardizes indicators of different situations to avoid vague and ambiguous usage of data.

3) Issue of indicators' standardization. To maintain the unicity and stability of indicators is an important guarantee to provide good query service. It is an objective reality that indicators' business implications, caliber range and computing methods change constantly as time goes on. How to minimize these changes' impact on users' usage of data and provide users with accurate data describing detailed the changes in detail is a key problem to be resolved by Macro-Base construction.

Approaches to standardize indicators: category 1 - to clarify the principle of indicator version unicity, and reflect the continuous change of indicators' business implications by describing over time intervals in indicator explanation; category 2 - to establish indicators' alias to deal with the situation that indicators' name changes but business implications do not change. Thus, it has basically realized using a relatively stable indicator to describe long-term historical data, thus maintaining the stability of indicator system and facilitating users to query, compare and analyze.

4) Issue of data integration

The data integrated by Macro-Base runs into the problems of multiple data sources, non-uniform data standard specification and multiple data versions.

A. To set up three "physical bases" to objectively reflect the economic and social development. The Macro-Base divides data resources into three "databases", that is,

the historical database, the annual database and the progress database. The historical database mainly stores the time series data of comparable macro-indicators, which is adjustable. The annual database stores the actual annual data of the year, which is nonadjustable and features more indicators, more subdivided groupings and greater amount of data. The progress database stores the monthly and quarterly data of indicators, which highlights timeliness, tracks and monitors the economic and social situation.

B. The data sorting . since Macro-Base features a number of departments involved, broad areas covered, great specialty, complex data status, a variety of caliber and long time span of historical data sorted, data sorting runs into the following problems: firstly, varying with time, data with the same literal expression may has different business implications; secondly, varying with work phases, the understanding of data is different, thus for the data in some data history series originally supposed to have the same business implications, the actual implications are inconsistent; thirdly, due to diverse data sources, coming from different materials, the same business implications may have different data; fourthly, data with similar business implications may confuse with each other. Directed against the above problems, the description and explanation of tables, data and data resources shall be strict, complete and standard, to ensure that no ambiguity arises in the understanding of business implications of data by different people at different times.

4. Macro-Base to become an important means to resolve the factors restricting the sharing of government information resources

The design and construction of Macro-Base is a process of extracting experience to solve problems continuously. Directed to the factors restricting the sharing of government information resources, effective explorations have been made through top-level design, establishing standardized system, adhering to the “customer-first” service awareness, building a mechanism of communication collaboration, and strengthening the efforts of resource integration. Practice has proved that Macro-Base is a powerful way to achieve the sharing of government information resources.

1) Promoting the formation of government information resources’ administration coordination mechanism, ensuring the smooth implementation of Macro-Base construction and effective operational maintenance. Led by the Executive Vice-Mayor, Macro-Base construction heads various functional organizations to work together, formulate unified objectives and implement the responsibility, clarify the purpose, principal, process, content, quality and time frame of all phases, and carry out financial support for construction and maintenance.

2) Promoting the efficient integration of government information resources to build a platform of sharing release for the public and various government departments. The standard of government data resources is achieved, achieving the acquisition and exchange of comprehensive economic and social data and effectively integrating the data resources of various departments and regions. To some extent, problems has been solved in duplicated data acquisition, caliber chaos, multiple data sources and poor level of sharing resulted from non-uniform management, undisciplined standards and unsound system. Therefore, it accomplishes the centralized storage of economic and social information, ensures the uniqueness and accuracy of data, and provides more extensive support of information sharing.

3) Promoting the formation of a scientific government information resource system to objectively and comprehensively reflect the economic and social development in the region. The construction of Macro-Base indicator system has laid a solid foundation for establishing an extensive and spatiotemporal macroeconomic and social development indicator system for Beijing. On this basis, it collects,

integrates and supervises the comprehensive underlying data resources of the government departments in an organized, planned and continuous manner.

4) Promoting various departments in basic system building and basic information resource accumulation. Some government departments carefully sort out underlying data, trace and save lost or disconnected data to maximize the time series-orientation of data resources; additionally, data management institution lay a foundation for standardized and long-term accumulation of underlying data.

5) Promoting developing and utilizing government information resources to provide decision-making departments with timely and high-level data for support. Relying on Macro-Base, the city-wide economic and social information can be effectively integrated to discover the laws and connections through analysis and enhance the level of analysis and forecasting, thus to provide powerful support in improving the government's capacity to determine, control and analyze economic and social development.

IV. Based on Macro-Base construction practice of Beijing to anticipate the sharing of government information resources

1. With Macro-Base construction as the node, to create an all-around, multi-level and three-dimensional database sharing system. It is required to make Macro-Base the basis to push resource sharing forward to various types of data acquisition systems and backward to various types of data application systems, thus to truly realize inter-department network interconnection, information exchange and business interaction.

2. With the plentiful data resources and convenient services of Macro-Base as the base, to achieve maximum sharing of government information resources. It is required to continue to enrich the data resource system of Macro-Base, maintain the practicality and feasibility of unified data management platform, thus to extensively activate the initiative of various units, reduce resistance, join forces and accomplish the sharing of government information.

3. With the standard business technology system of Macro-Base as the guarantee, to accomplish scientific and standardized management of government sharing resources. It is required to adhere to unified planning and implementation, and provide unified business technology standard in encoding rules, classification scheme, metadata standard and data format; based on scientific data management and data sorting specification, to effectively integrate the data resources of existing and future business application systems to eliminate the government information island.

4. With reliable quality of sharing resources and transparency in various policies of Macro-Base as the advantage, to attain a further enhancement of government administrative credibility. Through Macro-Base, publicly-accessible government information and data is publicized so that various government departments find the differences of data in cross-industry or cross-sectoral usage, and promptly discover and correct the problems arising from data generation and utilization process to comprehensively enhance government administrative credibility.

5. With the maximum intensivism of Macro-Base sharing resources and its rapid function display as the approach, to effectuate maximum reduction of government administrative costs. Scattered information of various departments is systematically integrated, developed and utilized to achieve the maximum intensivism of government resources, maintenance costs shall be reduced and data utilization efficiency shall be increased, thus to effectively improve government discretion, enhance decision's targetedness and policy measures' effectiveness, and then government administrative costs are reduced to the maximum.