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Government Data Resource Sharing Application System Based on Big Data Technology

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Abstract: *The government affairs system based on big data technology is an advanced stage in the development of e-government. In this stage, with the help of big data platforms in the information age, through the large-scale use of modern communication equipment and the Internet, a new government management mode and management thinking are created, and then through the above way to promote information sharing. The connotation of intelligent government is information sharing, reducing government departments' office threshold to achieve information transparency and openness. Based on the above background problems, this paper analyzes the current government information management problems and the lack of resources sharing, and the problems existing in the concept of government personnel. On this basis, the current government system is analyzed. The feasibility and demand analysis of the current government system is put forward from engineering thinking to pave the way for designing the next GDRSAS(government data resource sharing application system). Finally, the design and construction of the GDRSAS are carried out, and in-depth analysis is carried out. The system can make more reasonable sharing application of government resources information under significant data background.*

Keywords: *Big data; Government data; Resource Sharing Application System*

1. Introduction

With the progress of informatization and the rapid development of the national economy, China's comprehensive strength is also on the agenda.[1] In this process, the level of the government office has gradually become a prominent element. China's administrative departments have mastered the vast majority of social information so far that it lacks certain liquidity and transparency, so they need to be shared research to support this work with a new management model. The government affairs system based on big data technology is an advanced stage in the development of e-government. In this stage, with the help of big data platforms in the information age, through the large-scale use of modern communication equipment and the Internet, a new government management mode and thinking are created, and then through the above way to promote information sharing. The connotation of intelligent government is information sharing, reducing government departments' office threshold to achieve information transparency and openness.

2. Theoretical Basis of Government Data Resource Sharing

2.1 The Meaning and Characteristics of Big Data Government Affairs.

Big data government affairs is a brand-new government management method produced in the information age based on current information and management. This management method has the characteristics of personalized, dynamic, active management services and intelligence. [2] This government model integrates various technologies, such as information and communication technology, big data cloud computing, IoT blockchain, and unstructured data mining into government management from a technical perspective.

This type of government affairs has the following characteristics:

1) Perception: By perceiving changes in data sources, it is closely integrated with the internet of things to fully perceive the operation of the society in the whole community.

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2) Digitalization: The presentation and processing methods of information are highly digitized. These data are often illogical and large, so special processing is required.

3) Intelligence: Intelligence refers to data processing and how data is used. The data is processed through the Internet of Things integration to reflect social dynamics and act on specific areas accurately.

4) Servitization: government functional departments are changing towards service-oriented departments, [3]so more attention is paid to the changes in social affairs and the development direction of social events.

Its government business overlap diagram is shown in Figure 1:

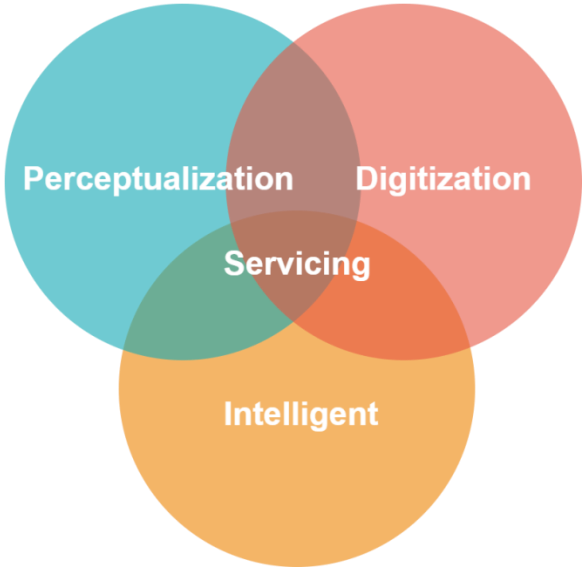

Figure 1 Diagram of Big Data Government Business Scope

2.2 Significance and Characteristics of Information Sharing

The primary function of information sharing is to promote the natural circulation of resources. This process mainly collects resources through the government and forms the sharing of government information resources so that natural resources can be circulated commonly under certain circumstances. [4]

Information sharing has the following characteristics :

1) Openness: the process of government's openness is the process of de-monopoly. Only by ensuring that the government's monopoly on social information is broken can the service mode of government resources in the whole society be changed.

2) Sharing: Enlarging civil rights by opening government information for understanding and application to the public.

2.3 Technical Basis of Big Data Theory

Big data theory mainly relies on cloud computing technology to determine the process of helpful information by distinguishing valuable information. Therefore, the traditional analysis tools are challenging to analyze in this field and need more intelligent devices.

2.4 Open Government and Knowledge Management Theory

Open government theory regards open and transparent government as its lowest goal and basic premise, so it is an ideal social governance model.

Knowledge management theory only is controlled through collective wisdom. The organization's innovativeness is improved through institutional exercise. The above ideas are used to build a new government system.

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3. Analysis of GDRSAS

3.1 Function Analysis of GDRSAS

3.1.1 System Position

The central positioning of the GDRSAS includes three data processing links: data collection and processing, data exchange, and data query and feedback. These three links ensure the information and data of each subsystem through specific standards. The Interface has a certain degree of compatibility, and its system operation mode is shown in Figure 2.

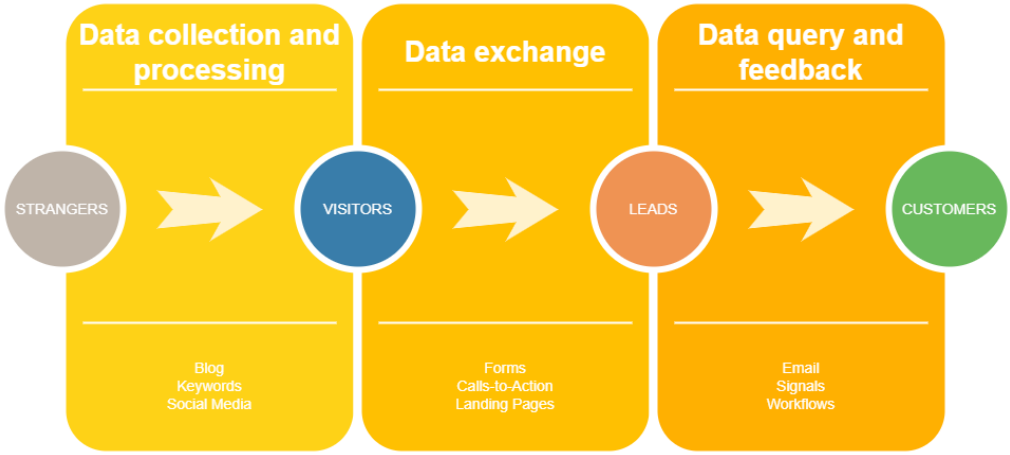

Figure 2 The Overall Architecture of the GDRSAS

3.1.2 Service Area.

The service objects of the GDRSAS include the governors and managers of the whole society, all the public in the administrative area, and various types of corporate departments and institutions.

3.1.3 Concrete Construction Plan.

To establish a complete set of efficient GDRSASs，relying on the relevant technology of big data through data mining, filtering low-quality information, increasing the overall information value, [5].

3.2 Feasibility analysis of the application system of government data resource sharing.

3.2.1 Economic Feasibility Analysis.

(1) Benefit analysis: Benefits mainly refer to the direct economic benefits that governments, enterprises, institutions, and citizens can obtain through information resource-sharing platforms. [6] Theoretically, the more advanced technology, the scope of services are broader, and the benefits are greater. The benefits will be proportional to the area of their services and the degree of technological advancement. Thus, the cost-benefit relationship can be obtained:

$$P = P1 + P2 \tag{1}$$

$$S = g(r,t) \tag{2}$$

P :The total cost of the intelligent government information resource sharing system;

P1:The fixed cost of the construction of an intelligent government information resource sharing system;

P2:At the end of construction, the maintenance cost of the operation of the intelligent government information resource sharing system, the S of its value can be assumed to be zero. The total revenue of constructing an intelligent government information resource sharing system;

r :The scope of services after the completion of the intelligent government information resource sharing system;

t :The level of technological advancement in constructing an intelligent government information

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resource sharing system.

(2)Reasonable return interval analysis: Select a suitable investment income interval to create the most significant social benefits through the above calculations.

3.2.2 Feasibility Analysis of Technical Route.

(1)Hardware storage capacity: There are many government information sources, so a large-capacity storage device is needed.

(2)Information processing efficiency: Large-scale parallel data processing has become the design specification of cloud servers, so it is necessary to expand the service of cloud servers.

(3)Network bandwidth service capability: The demand for network bandwidth is increasing. Therefore, it is essential to popularize optical fiber given current technical conditions. The technical route is shown in Figure 3.

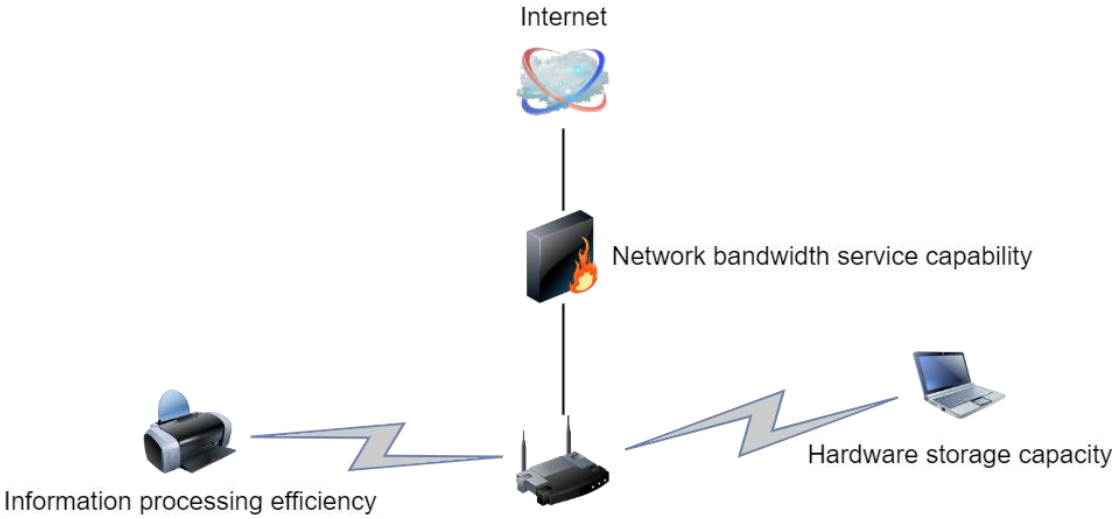

Figure 3 The Technical Route of the GDRSAS.

3.3 Demand Analysis of Government Affairs Data Resource Sharing Application System.

3.3.1 Front-end Demand Analysis.

(1)Demand content: The demand content of the GDRSAS is mainly to record and improve the storage function of a series of information about citizens, personal lives, and social activities.

(2)Demand behavior: The demand behavior of the GDRSAS is mainly information consultation, personalized service customization, and help services. [7]

3.3.2 Demand Analysis for Background Operation.

The government data resource-sharing application system usually needs to maintain and update hardware and software security protection when running in the background.

4. The Design of the Application System for Sharing Governmental Data Resources.

4.1 Technical Details of the Design of GDRSAS.

4.1.1 Model Building.

The implementation model of the GDRSAS is divided into a three-layer structure of resource layer, middle layer, and application layer. The principle is shown in Figure 4 below.

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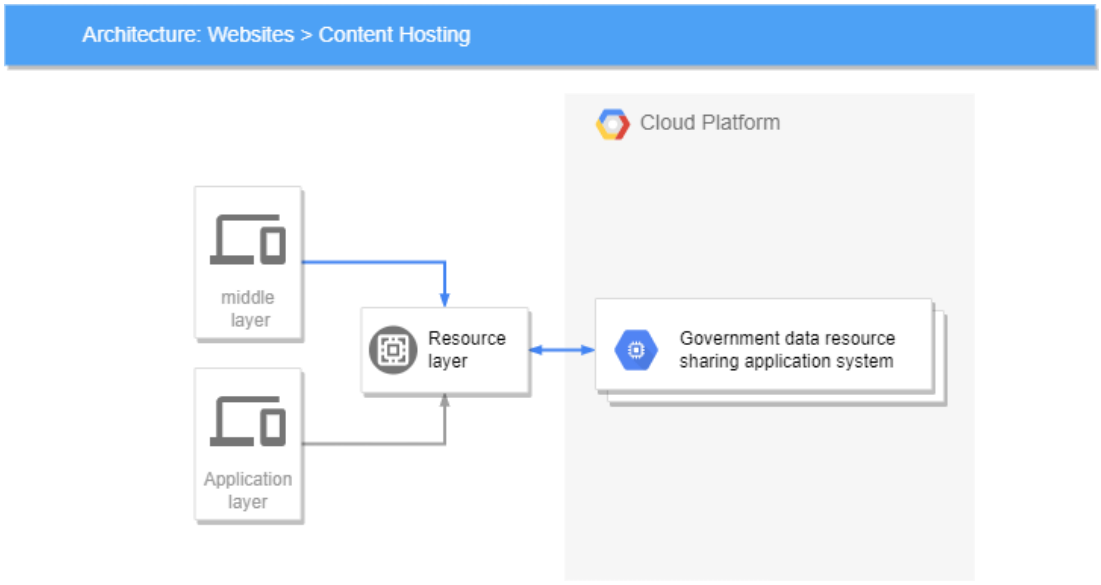

Figure 4 Implementation Model of the GDRSAS.

4.1.2 Information Resource Packaging.

To break the barriers to the sharing of government information resources, from the issue of technical information islands [8], through the establishment of technical standards and directional guidance to the market, the existing information resources are standardized and packaged.

4.1.3 Shared Application Database Establishment.

Under the premise of the current marketization of cloud computing, three-party data processing service providers with high service awareness are preferred in the general data processing.

4.1.4 Development With Interface

The current user interface development is mainly realized by relying on the data center under the cloud computing platform.

4.2 The business processing flow of GDRSAS.

4.2.1 External Obtaining Process.

The external acquisition process is mainly achieved through information search and information navigation.

4.2.2 Internal Management Process.

The system with high authority usually implements the internal management process.

5. Conclusion

This system can achieve a more fair sharing and application of government resource information under extensive data background. The research in this article analyzes some problems in current government information management and examines the current system from engineering thinking. It puts forward a feasibility analysis and demand analysis for the current government affairs system, paving the way for the design of the next government affairs data resource sharing application system, and has a specific guiding significance for future research in related fields.

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