

# Research on optimizing the path of digital government based on policy development

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**Abstract.** This paper addresses the key issues surrounding government construction in the context of evolving digital policies. Through a comprehensive review of the background and developmental trajectory of digital government, it assesses the current situation and highlights several challenges faced during implementation. These challenges span various dimensions, including policy coordination, technological innovation, and stakeholder involvement, significantly impacting the effectiveness of digital government functions and the enhancement of service quality. Considering these challenges, the paper further explores optimization strategies for digital government construction. It aims to delve into effective path optimization strategies and practical approaches to advancing digital governance in China within a policy-driven context. By doing so, this study seeks to provide valuable insights for improving the overall implementation of digital government initiatives.

**Keywords:** digital governance, digital government, policy development.

## 1. Introduction

Digital government encompasses the utilization of advanced information technologies to fundamentally reshape the architecture of government information management, operational workflows, and technical frameworks. By developing big data-driven mechanisms, alongside new platforms and communication channels, governments can optimize their internal organizational structures, refine operational processes, and enhance management services.

This comprehensive transformation enables governments to improve their effectiveness across a range of critical areas, including economic regulation, market supervision, social governance, public service delivery, and environmental management. As a result, a modern governance model emerges, characterized by data-informed dialogue, evidence-based decision-making, and innovative service provision. In this model, data plays a pivotal role in facilitating transparency and accountability, allowing for more responsive and adaptive governance. By leveraging data analytics, governments can better understand societal needs, anticipate challenges, and implement targeted interventions. Ultimately, this evolution toward digital governance not only enhances the efficiency of government operations but also fosters greater citizen engagement and trust in public institutions. At present, the integration of the digital economy and the real economy is deepening, and the role of digitization in promoting the green development of various industries is becoming more and more significant [1]. The report of the 20th National Congress of the Communist Party of China proposes to 'accelerate the development of the digital economy and promote the deep integration of the digital economy and the real economy' to promote green development and promote the harmonious coexistence of man and nature'. The Third Plenary Session of the 20th Central Committee of the Communist Party of China proposed to support enterprises to transform and upgrade traditional industries with digital intelligence technology and green technology [2]. Digitization and greening are the inherent requirements for cultivating new productivity and promoting high-quality development. Speeding up the synchronized advancement of digitalization and ecological sustainability will serve as a powerful impetus for Chinese-style modernization. This approach will also enhance the foundation for green development, promoting a harmonious relationship between humanity and nature [3].

The aim of this study is to thoroughly investigate the optimization pathways for digital government within the context of policy development. Through a systematic review of the background and history of digital government construction and a detailed analysis of its current development status, this study

hopes to clearly reveal the main difficulties and challenges faced by digital government in the construction process. On this basis, this study will further explore and propose effective path optimization strategies, aiming to provide valuable reference for policymakers and practitioners. Through this study, the author aims to advance the sustainable development of digital government initiatives and enhance both service efficiency and governance effectiveness. By achieving these objectives, the research aspires to contribute positively to the modernization of China's national governance system and strengthen its governance capacity.

## **2. Current situation of digital government construction**

### **2.1. The construction process of digital government**

#### **2.1.1. Period of government informationization**

The Chinese government has been proactively assessing the integration of information technology into its development efforts since the 1990s. The "Ninth Five-Year Plan for National Informatization" and the 2010 Vision (Outline)" are important documents to guide China's informatization construction. They clarify the goals and tasks of government informatization and provide the overall framework and development direction for government informatization construction. In 1993, the establishment of the National Joint Conference on Economic Informatization marked the beginning of a new stage of government informatization in China. Throughout this period, the national government placed significant emphasis on developing information technology. It promoted major initiatives such as the "Three Gold Projects" (Jinqiao, Jinguan, Jinka), which established a strong foundation for government information systems. At this stage, government information construction mainly focuses on office automation, department information, and government Internet access, and initially realizes the digitization and networking of government information.

#### **2.1.2. E-government period**

With the popularity of Internet technology in the 21st century, the development of 'Internet +' thinking has progressed, and e-government is now a significant step in government information construction. Various policy documents have been issued by the state since then, such as the "Administrative Licensing Law of the People's Republic of China" issued in 2004, which further enhanced the process of releasing government information and ensured legal protection for the advancement of e-government. Accelerate the development of e-government. E-governance plays an important role in many dimensions, including relying on basic human values, enhancing citizen trust, promoting government innovation, and relying on higher education [4]. Until 2010, with the significant improvement of information technology, the new generation of information and communication technology has fully penetrated all levels of government, enterprises, and society. The transformation from electronic to digital is of substantive significance, which will promote the supply mode of public services from the center of institutions to the center of citizens, and realize digital autonomy [5].

After continuous exploration from 2014 to 2017, 'big data' has gradually entered the public view as a key resource, and data sharing and government data opening has begun to emerge. In 2019, the Fourth Plenary Session of the Nineteenth Central Committee of the Communist Party of China emphasized the decision to "uphold and enhance the socialist system with Chinese characteristics to advance the modernization of the national governance system and its capabilities," thereby underscoring the significance of fostering digital government development. Various policy documents have been issued by the state since then, such as "White Paper on the Construction and Development of Digital Government (2024)," "Guiding Opinions on Accelerating the Promotion of 'Inter-provincial Office' of Government Services," which provide strong policy guarantee and guidance for the construction of digital government. In June 2022, the State Council issued the "Guiding Opinions on Strengthening the Construction of Digital Government" (hereinafter referred to as "Opinions"). The "Opinions" comprehensively planned and deployed the new situation of

digital government construction, and defined the development direction and implementation path of digital government from a broader perspective [6].

China's digital government policy has gone through a gradual evolution from government information to e-government and now to digital government. Information technology rapidly develops and government governance concepts innovate during each stage, and A strong guarantee and guidance for the construction of digital government can be achieved by introducing a series of relevant policy documents.

## **2.2. Current situation of digital government construction**

In the context of the ongoing big data revolution and the push for dual development, innovating urban governance mechanisms that leverage data resources has become essential for the government to enhance digital governance efficiency and modernize its governance capabilities. In practice, digital government emphasizes holistic societal management through what is termed "smart governance."

The following outlines the characteristics of digital government throughout its development process:

### **2.2.1. Local exploration of new development models**

A series of provinces and cities represented by Beijing, Shanghai, Guangdong, and Zhejiang, after years of unrelenting exploration and efforts, has been able to achieve remarkable achievements in the field of digital government construction., and each has formed a distinct development paradigm. Specifically, Beijing has built a common support system based on the framework of " seven links and one level, " and on this basis, it has successfully created three application scenarios of digital service, digital supervision and digital business. The establishment of this system provides Beijing with efficient, safe and intelligent common resources and services, and effectively promotes the overall coordination and integration process of Beijing 's digital development. Shanghai has vigorously promoted digital transformation in the three fields of ' economy, life and governance '. At the governance level, Shanghai has continuously deepened the construction and application of the two platforms of government service " one network " and urban operation " one network unified management, " and realized the comprehensive digital transformation of government service and urban management. Guangdong Province has entered a new stage of development of ' Digital Government 2.0 '. Focusing on the three core concepts of " one network, " " one network coordination " and " one network unified management, " the province has promoted digital reform in the three fields of government service, government operation and provincial governance, forming a distinctive Guangdong characteristic.

### **2.2.2. The use of advanced technology in the process of digital government construction**

Integrating technology within the governance sector and facilitating collaborative efforts among various stakeholders, including government entities, businesses, and social organizations, through technological empowerment is crucial for effective social governance[7].Advanced technologies such as the Internet of Things and artificial intelligence have been extensively employed in the development of digital government initiatives.The improvement of government digital governance capabilities requires technological updates. By introducing and promoting these technologies, digital government has promoted technological innovation and industrial upgrading of urban governance, and improved digital governance capabilities and governance effectiveness. In addition, digital government has realized the digital transformation and modern governance of the government by providing online offices, e-government, digital licenses and other government services, as well as basic data platforms such as e-government platform and data sharing platform. In the construction of smart city, these services have been further expanded and optimized. For example, intelligent medical system can realize remote diagnosis and treatment, health monitoring and other functions ; the intelligent education system can provide personalized learning resources and teaching services.

Public services' quality and efficiency are not only improved with the popularization and application of these services, but also meet the diverse needs of citizens.

### **2.2.3. Digital government promotes urban development**

The construction of digital government focuses on resource conservation and environmental friendliness, and promotes the development of smart cities in a green, low-carbon and sustainable direction. For example, through the data analysis and forecasting capabilities of digital government, more scientific and rational urban planning and management strategies can be developed ; through the introduction of intelligent energy management system and environmental monitoring system and other technical means, the efficient use of energy and real-time monitoring and protection of the environment can be realized. In this process, the government not only pays attention to the needs of social subjects, but also pays attention to the top-level design of technical support, prevents pure technology-oriented problems, promotes the deep integration of high-tech and government services, and effectively improves the overall efficiency of government digital transformation projects[8].

## **3. Difficulties and challenges**

### **3.1. Project homogenization caused by imperfect top-level design**

The absence of a scientific top-level design and cohesive guidance is creating difficulties for the government amid the current wave of domestic digital government initiatives. This has led to a widespread tendency to blindly follow trends in project promotion, resulting in an overabundance of digital government and e-government projects.

Firstly, regarding system planning, digital government represents a complex and extensive engineering undertaking, necessitating a robust focus on integrity and synergy in its top-level design. Currently, the development of digital government remains in the exploratory phase, with comprehensive planning and design still incomplete. There is a phenomenon of " information chimney " among various departments, resulting in repeated construction of resources and poor information sharing, which seriously restricts the overall effectiveness of digital government construction. From the perspective of connotation, some regions tend to regard digital government as an equivalent concept with ' e-government ' and ' smart city ', and believe that there is a phenomenon of cross and overlap between digital government and new smart city. At the extension level, these regions identify the key elements of digital government as encompassing the development of information infrastructure and the implementation of government service applications[9]. A joint force in designing digital government networks, data, applications, platforms, and other aspects is difficult due to the lack of intensive sharing principles in planning and design, which affects the coordinated promotion of digital government construction.

Secondly, in terms of strategic layout, the goal orientation of digital government construction is not clear, and some local governments lack clear direction and focus in promoting digital government construction, which leads to the lack of pertinence and effectiveness of resource allocation and project arrangement. In addition, there is a phenomenon of " mismatch " between the state and local governments in the leading departments of digital government construction, and it is difficult to promote collaboratively. At the same time, the responsibility and authority of the leading department are not high, and it is difficult to effectively coordinate and manage the construction needs of each line department, which further aggravates the difficulty of digital government construction in the strategic layout.

### **3.2. Inadequate institutional mechanisms make it difficult to implement the work**

The construction of digital government faces significant challenges due to the imperfect data sharing mechanism. Data sharing is a key element in constructing digital government, enabling cross-sectoral and cross-regional cooperation. However, due to the existence of problems such as data islands and data barriers, data sharing in the construction of digital government in China still faces

great difficulties. This situation impedes the enhancement of public service levels, affecting both the scientific rigor and accuracy of government decision-making. Additionally, a significant challenge in the current digital government development is the insufficient understanding of the characteristics of digitization in reforming institutional mechanisms. Digital development has brought new characteristics and requirements of social governance, but the existing institutional mechanisms have not fully adapted to these changes in the reform process. For example, the digital characteristics such as intelligence and flattening are not fully reflected in the reform of institutional mechanisms, which leads to a certain gap between the actual effect of digital government construction and the expected goal.

The lack of an effective working mechanism is a significant barrier to the development of digital government. In this context, a robust working mechanism is essential for ensuring the successful execution of various tasks. However, current deficiencies in coordination and consistency within this mechanism hinder the progress and effectiveness of digital government initiatives.

Consequently, strengthening the substantive working mechanism and enhancing the collaborative capabilities of government departments is crucial for advancing digital government construction.

### **3.3. Slow technological upgrading affects sustainable development capacity**

The establishment of a digital government poses technical challenges that directly impact its effectiveness and sustainability during the implementation phase. A key issue that arises is the compatibility of information systems, which is especially critical. Due to the technical barriers between systems developed by different departments and different manufacturers, data sharing and exchange have become extremely difficult, which not only affects the efficiency of government decision-making, but also hinders the full play of various functions of digital government departments and the organic cooperation between departments. Secondly, the complexity of data collection and processing is also a major problem. The degree of standardization of data is different and the format is diverse, which makes data integration and analysis cumbersome and error-prone, thus affecting the quality and credibility of data.

Additionally, as the process of digital government construction deepens, the demands for system stability are becoming increasingly high. Any system failure or data leakage may cause serious consequences, including service interruption, information leakage, etc., which poses a higher challenge to the system's security protection capability and emergency response mechanism. Therefore, how to overcome these challenges at the technical level, realize the seamless connection of information systems, construct a digital government, the key issues include ensuring the efficient collection and safe use of data, as well as stable operation of the system.

## **4. Optimize the path**

### **4.1. Adhere to the correct guidance to improve the top-level design**

The construction of digital government takes top-level design as the support, and carries out systematic planning and strategic layout from top to bottom, so that data resources can be shared among government departments, data utilization efficiency can be improved, and social resource allocation can be optimized. The continuous digital government construction process has been plagued by a series of complex information interaction problems for a long time, which are characterized by the discreteness of information sources between government departments, the incompatibility between information platforms, the fracture of information processing chain and the non-interoperability of information application level, which constitute significant information barriers and information circulation obstruction. In order to effectively deal with the above challenges, it is urgent to adopt scientific strategies to promote the deep integration and efficient sharing of information, ensure the smooth flow of information flow, and lay a solid foundation for the steady promotion and deepening development of digital government construction. In order to do a good job in the top-level design and scientific planning of smart city construction, it is necessary to conduct

in-depth practice, conduct comprehensive research, and systematically consider multiple dimensions to ensure the forward-looking and practical nature of the planning.

To start, prioritizing national strategic goals, the advancement of digital government is essential for fostering the digital economy. Additionally, it represents a crucial avenue for establishing a robust digital governance framework and enhancing the modernization of urban governance capabilities. Thus, it is essential to develop a comprehensive top-level design and strategic planning aligned with national priorities, ensuring that smart city initiatives integrate seamlessly with the country's overall development strategy. Secondly, top-level design and scientific planning need to fully integrate the concept of "people-oriented," and take improving the quality of life of urban residents and improving the well-being of people's livelihood as the core goal of smart city design. Simultaneously, it is important to enhance the policies and regulations governing the development of digital government, thereby providing a robust legal foundation for its implementation. Establishing a comprehensive and systematic regulatory framework will guide and oversee all facets of digital government construction. Make laws, regulations and policies to clarify the norms and requirements of data collection, storage, use, sharing and opening, and ensure the authenticity, accuracy, integrity and security of data. Furthermore, it is crucial to develop both overarching and specialized plans for digital government construction. This includes identifying key areas of focus, outlining implementation strategies, and establishing protective measures to ensure a systematic and cohesive approach to the development of digital government.

#### **4.2. Deepening the reform of institutional mechanisms**

To ensure the efficient functioning of digital government, it is essential to advance reforms in the system and mechanisms of digital governance. This involves establishing a comprehensive management system, defining standard processes and supervisory requirements for critical areas such as project management, financial oversight, and data governance, thereby facilitating organized development and effective execution of various initiatives. The central government has clearly defined the objectives and pathways for modernizing governance in the new era through strategic planning and a systematic approach. At its core, this approach aims to firmly establish the principle of a service-oriented government. By enhancing the efficiency of digital governance, it seeks to create a solid foundation and provide robust support for the growth and development of the digital economy and digital society[10]. Simultaneously, it is essential to enhance both the training and recruitment of skilled professionals. By developing an effective talent training and incentive system, we can attract and retain high-quality individuals for smart city management, thereby providing strong support for smart city development. Additionally, establishing a robust talent incentive mechanism is crucial to energize the creativity and motivation of technical personnel, ensuring a continuous influx of talent for the technological advancements in digital government. While optimizing the internal organizational structure of the government, promoting the transformation of government functions and process reengineering, and improving the efficiency and service level of the government, it is also necessary to promote the joint efforts of multiple parties to form a joint force of digital governance, and effectively stimulate the enthusiasm of all participants, thereby improving the overall efficiency. In this process, the government should take the lead in providing policy guidance and making capital investments while also allowing the market to play a crucial role in resource allocation. Specifically, an investment and financing mechanism with enterprises as the main body and extensive social capital participation should be constructed to encourage diversified and all-round participation of all sectors of society. The government needs to implement a comprehensive data security management and protection framework to safeguard the security and privacy of its data. Additionally, it is vital to strengthen the technical supervision system by enhancing oversight and compliance evaluations for new technology applications. This approach will ensure that technological developments adhere to applicable laws, regulations, and policies, thereby maintaining the security and stability of digital government initiatives. Moreover, it is important to enhance the standardized management of technology applications to ensure that the use of new technologies complies with

established standards and business norms. This will foster the standardization and sustainable development of digital government initiatives.

#### 4.3. Continue to promote technological upgrading

From the perspective of policy development, strengthening technology R & D and innovation support is the basis of digital government technology update. The government needs to substantially enhance its R&D investments in technologies pertinent to digital government construction, thereby facilitating breakthroughs and the innovative application of critical technologies. At the same time, we should promote the combination of production, education, research and application, encourage social forces such as enterprises, universities and research institutions to actively participate in the research and development and innovation of digital government technology, and form an innovation system closely integrated with production, education, research and application. Moreover, the proactive integration of advanced technologies like big data, cloud computing, artificial intelligence, and blockchain is crucial for steering the development of digital government towards greater intelligence and efficiency. This strategy not only bolsters the technical capabilities of digital governance but also enhances service delivery and decision-making processes, resulting in a more responsive and effective government. Secondly, improving the technology update and application mechanism is the key to digital government technology update. The government should establish a technology update mechanism, formulate a digital government technology update plan and schedule, and ensure that technology updates are synchronized with business development. At the same time, departments are encouraged to explore new technology applications in the fields of government services, urban management, and social governance to improve service efficiency and quality. It is important to establish a robust technical evaluation system that regularly assesses and provides feedback on the impacts of new technology applications. This system should facilitate timely adjustments to technology update strategies, ensuring both the effectiveness and sustainability of technological advancements. In addition, in terms of technical security, strengthening data security management, improving technical defense capabilities, and strengthening technical supervision and compliance review are important guarantees for digital government technology updates. Strengthening talent training, introducing high-end talents and establishing talent incentive mechanism are important support for digital government technology update. The government should enhance training programs for professionals involved in digital government construction to boost the digital literacy and skill levels of its staff. Concurrently, implementing favorable policies to attract and retain high-level technical experts is essential for providing the necessary intellectual support for advancing digital governance.

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