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Digital Government Governance: Evolution, Practical Cases, and Optimization Strategies

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Abstract: ***Digital government governance is a governance concept that conforms to and fits the current digital age. This paper summarizes the evolution of digital government governance, analyzes typical domestic and international cases of digital government governance practices, and proposes countermeasures and suggestions for its optimization. Facing the current dilemmas and challenges of digital transformation, countries need to achieve effective digital government governance by focusing on the following aspects: formulating sound top-level designs and improving the entire digital governance system; selecting digital governance models based on their actual conditions; implementing governance strategies through the collaboration of multiple governance entities; emphasizing digital security governance; and prioritizing digital equity issues.***

Keywords: Digital Government; Digital Government Governance; Evolution; Optimization Strategies.

1. INTRODUCTION

With the intensification of global competition and the iteration of digital technology, traditional administrative management is increasingly experiencing "failures" in practice, which is driving the transition from traditional "government management" to the paradigm of "digital government governance" [1]. Digital government governance serves as the core driving force in the modernization process of national governance. Governments around the world are constantly updating their governance concepts, actively building organizational structures and institutional systems to address the challenges brought about by global digital transformation. They have issued policy documents related to the construction of digital governments, drawing on digital technology tools to enhance the efficiency of public services and the scientific nature of public decision-making.

Although governments value and actively explore pathways and models for digital government governance, they still face problems of varying degrees concerning technological systems, institutional mechanisms, development, and application. Consequently, this paper outlines the changes in governance concepts and models during the transition from traditional "government management" to "digital government governance", analyzes practical cases of digital government governance in typical domestic and international cities, and proposes optimization strategies, aiming to assist local governments in enhancing the effectiveness of digital governance.

2. EVOLUTION OF "DIGITAL GOVERNMENT GOVERNANCE"

The transformation from traditional "government management" to "digital government governance" represents a process of continuous innovation in governance concepts and thinking. It also signifies the use of modern information technology to steer "government management" towards greater intelligence, convenience, precision, transparency, and efficiency. Overall, the evolution of "digital government governance" has undergone the following stages.

2.1 The "Government Management" Stage Based on Organization Theory

The administrative organization theory system proposed by Max Weber, the father of organization theory, also known as "bureaucracy" or "hierarchical system," has had a profound influence on traditional public administration. The hierarchical structure and administrative system guided by this theory aligned with the national context and social needs of the Industrial Revolution era. "Government management" during the Industrial Revolution primarily exercised power in a top-down manner, emphasizing comprehensive control over state, social, and economic affairs, and focusing on dominance in macro-level affairs management.

Although this management system accommodated and significantly propelled the industrialization process of modern capitalism, the development of science and technology, along with changes in human social psychology,

rendered the original administrative structure obsolete. "Government management" under bureaucratic hierarchy, characterized by clear hierarchical boundaries and explicit rules and regulations, neglected the role and importance of informal organizations, appearing rigid and dogmatic. It faced criticism and skepticism from both theoretical and practical circles. "Government management" practices gradually transformed under the guidance of new public management theories.

2.2 The "Government Governance" Stage Based on Governance Theory

Global development spurred the rapid rise of governance theory, which had a transformative impact on public administration [2]. "Governance" enabled governments to break through the limitations of past management processes, driving reforms in traditional political and public administrative systems, and establishing a new paradigm distinct from traditional public administration, characterized by decentralization, citizen participation, and polycentricity. With the development of technology and the economy, the advent of global integration, and the rise in citizens' democratic consciousness and desire for political participation, the governance environment became more complex and volatile. The theoretical sphere began advocating for "polycentric" public governance involving governments, citizens, enterprises, non-governmental organizations, and others.

"Polycentric governance" is one of the hallmarks of governance theory, centering on co-governance by multiple actors. Organizationally, it breaks free from the traditional top-down hierarchical structure. Under this governance model, the government's role shifts from control to comprehensive coordination. Domestic and international public institutions and actors can directly or indirectly participate in various governance activities, becoming subjects of social management and public service provision. Various governance entities complement each other based on collaboration, forming a pattern of mutual supplementation and co-governance.

2.3 The "Digital Government Governance" Stage Based on Digital Governance Theory

The development of digital information technology has had an all-encompassing impact globally, gradually altering the content of basic public services and the models by which governments provide them. During the transition from industrial society to information society, the model of governments providing public services to the public evolved from the "government informatization" stage to the "e-government" stage, and then to the "digital government" stage [3].

In the early stages, governments used modern information and communication technologies to provide public services in a "one-way static," "government-centric" mode. Citizens could only passively receive services, lacking active participation in government management or decision-making processes. In the early 21st century, British political scientist Patrick Dunleavy proposed the "Digital Era Governance Theory," pointing out three directions for future public governance transformation: reintegration, needs-based holism, and digital change. Since then, government governance has evolved from office automation and internal efficiency improvements to digital government governance focusing on citizen participation, government process reengineering, data governance, and collaboration [4]. With the proposal and development of "digital governance theory," governments began to improve and optimize existing processes and services, making previously cumbersome procedures and government services more intelligent and convenient, thereby enhancing administrative efficiency to some extent. Concurrently, the functions of government governance expanded, and the forms of public services provided diversified, gradually taking shapes like "information government," "smart government," "Internet + government services," and "digital government."

3. PRACTICAL CASES OF "DIGITAL GOVERNMENT GOVERNANCE"

3.1 Singapore: "Smart Nation" System

Singapore is a city-state. In building its digital government, the Singapore government has established a comprehensive digital government governance system. Firstly, concerning the institutional construction and governance mechanisms of the digital government. Singapore adheres to the goal of "Many Agencies, One Government," establishing three specific digital government governance agencies—the Government Chief Information Office (now Government Technology Agency), the Infocomm Media Development Authority (IMDA), and the Chief Information Officer (CIO) role [5]. Secondly, it specifically established a Government Chief Information Officer (GCIO) system, providing efficient and convenient public services through a combination of centralized guidance and decentralized execution. Furthermore, the Singapore government

continuously innovates governance mechanisms, plays a leading role, and established a dynamic digital supervision mechanism. Through digital means, it dynamically and real-time controls and monitors various potential social issues during the digital governance process, improving the efficacy of digital government governance, providing the public with more tailored public services that meet the real needs of stakeholders.

Digital government construction is a foundational and pioneering project for building the "Smart Nation" system. Based on the concept of "governing with big data," the Singapore government planned step by step, from "iN2015" (Intelligent Nation 2015) in 2006 to the "Smart Nation 2.0" plan for 2024, progressively refining the vision and goals of the "Smart Nation" system [6]. In proposing and promoting the "Digital Government Blueprint" plan [7], the Singapore government coordinated planning, guidance, and supervision, collaborated with stakeholders, and carried out the construction of the "Smart Nation" system in a top-down manner, achieving certain results and providing referenceable experience for digital government construction in other countries and regions.

3.2 UK: "Digital Government" Transformation

The UK is a pioneer in global digital government construction practice. To support the digital government transformation, besides improving "hardware facilities," the UK government also issued systematic strategic plans. In 2012, the UK government released the "Government Digital Strategy," initiating the path from "e-government" to "digital government." In 2014, the UK issued the "Digital Inclusion Strategy," followed by the "Government Transformation Strategy (2017-2020)," and updated the "Digital Service Standard" in 2019. In 2024, the UK government formulated the "Digital Strategy 2024-2030," proposing to achieve four interrelated development goals: digital transformation, digital inclusion, digital responsibility, and digital sustainability. It highlighted priorities such as digital public infrastructure construction, AI technology development, bridging the digital divide in lagging regions, and digital participation for vulnerable groups.

The UK's significant success in digital government transformation also benefits from forward-looking governance values guiding the transformation practice and the effective support of digital technology tools. While releasing strategic plans, the UK government creatively proposed governance concepts such as "user-centric," "data as value," and "government as a platform." The construction philosophy of the UK digital government also shifted from initial "service digitization" to "digital service delivery." Additionally, the UK government utilized digital technology tools not only to effectively break down digital barriers, bridge the digital divide, and reduce digital inequality among different regions and groups, but also to improve the efficiency of public services and ensure the security of digital governance through cross-boundary collaboration with multiple governance entities and the establishment of specific safeguard systems.

3.3 New York, USA: "Fair City" Construction

New York is the largest city in the USA, and has gained rich experience in exploring the path to building a "Fair City." In 2015, the New York City government released the "One New York: The Plan for a Strong and Just City" strategy, explicitly stating the need to properly leverage digital technological change by using new digital tools to improve services, thereby creating more equitable development opportunities for all New Yorkers. In September of the same year, the subsequent "Building a Smart + Fair City" strategy proposed, "For New York, achieving 'equity' to the greatest extent possible is the hallmark of a 'smart' city," linking smart cities with equity. In 2019, the New York City government released the "OneNYC 2050" plan, outlining the construction of a "fair and smart city" from eight aspects including education, transportation, and infrastructure, and forming a relatively comprehensive integrated solution for addressing urban crises.

Under the overall planning for urban digital transformation development and governance led by the US government, the New York City government promoted the city's digital transformation by building an organizational system based on top-level design; adhered to the "people-centered" concept, focusing on citizen needs and bridging the digital divide; and developed a digital governance model with New York City characteristics through governance means such as building digital platforms, collaborating with multiple entities, and opening data. This provides a template for local governments to build digital governments.

3.4 Shanghai, China: "One-stop Online Services" Reformation

As a "pioneer" and forerunner of China's reform and opening-up, Shanghai innovatively proposed the "One-stop Online Services" (Yi Wang Tong Ban) reform starting in 2018. The Shanghai Municipal Government began with

organizational system construction, establishing a special leading group, forming the Shanghai Big Data Center, and then issuing a work plan containing the content of digital government construction for the next three years. In 2019, the Shanghai Municipal Government formulated key points for the "One-stop Online Services" work, promoted business process reengineering, and launched the "One-stop Online Services" for government public services and the "Integrated City Management Platform" (Yi Wang Tong Guan) for city operations, further enhancing online government service capabilities. In the same year, the Shanghai Municipal Government issued the country's first municipal-level government regulation on "data openness"—the "Interim Measures of Shanghai Municipality on the Opening of Public Data"—and took this opportunity to officially launch the public data open platform. In 2020, the Shanghai Municipal Government continued to deepen the "One-stop Online Services" reform, striving to shift from "capable of handling" to "easy to handle," achieving a transformation emphasizing both "administrative power and public services."

The construction of Shanghai's digital government has achieved outstanding results [8]. The "One-stop Online Services" government service platform is a significant initiative in Shanghai's digital government construction process. It is a practice of digital government construction by the Shanghai Municipal Government, under the guidance and support of top-level design and the superior government, empowering government governance digitally, supported by digital information technology application innovation. From the initial organizational system construction to the execution and implementation of later plans, the series of measures by the Shanghai Municipal Government provides a model for other regions to promote digital government governance.

3.5 Guangdong, China: "Separation of Management and Operation" Model

"Separation of Management and Operation" (Guan Yun Fen Li) is an important implementation model for the Guangdong Provincial Government's digital reform. Compared to the "government-led, social participation" government-enterprise collaborative governance model adopted by Zhejiang Province, China, Guangdong's digital reform efforts are more substantial. Under the "Separation of Management and Operation" operational model, the Guangdong Provincial Government is no longer the main implementer of digital construction but plays the role of service user, evaluator, and supervisor [9].

"Yue Sheng Shi" (Guangdong Service) is the first product launched using this model during the Guangdong Provincial Government's digital government reform and construction. Throughout the process, the "Digital Government" Reform and Construction Leading Group acted as the direct guide, the Guangdong Provincial Information Center as the lead organizer, other provincial-level units and pilot cities in Guangdong as participants, while Digital Guangdong Network Construction Co., Ltd. served as the technical supporter. As the country's first integrated mini-program for people's livelihood services, it greatly improved the quality and efficiency of government services in Guangdong Province. The program interfaces with the Ministry of Public Security's Internet Trusted Identity Authentication Service Platform. Without needing to "start from scratch" by downloading a separate APP, users can register via WeChat and enjoy one-stop services after real-name login. By enabling "fingertip handling" of numerous high-frequency convenience service items, it significantly reduces the public's transaction costs.

The breakthrough achievements of the "Yue Sheng Shi" government service platform are inseparable from the unique "government-enterprise cooperation, separation of management and operation" model in Guangdong's digital government governance reform process. This government-enterprise cooperation model, leaning towards market-oriented operation, emphasizes the crucial role of government guidance and coordination while fully leveraging the technical advantages of internet organizations. It consolidates the dispersed construction capabilities of (municipal-level local government) departments to form synergy, enabling unified construction, operation, and scheduling. This "strong alliance" and "separation of management and operation" jointly carry out the construction of an ecological digital government, providing a replicable sample for other local governments to carry out digital government governance.

4. STRATEGIES FOR OPTIMIZING "DIGITAL GOVERNMENT GOVERNANCE"

4.1 Improve the Digital Governance System

Positive digital service concepts and sound top-level design (policy documents, implementation plans, etc.) can provide macro-level guidance for local governments to advance digital government construction and conduct digital government governance. Under the guidance of macro-policies, local governments should actively explore

practices and formulate implementable plans based on their own circumstances. Synthesizing typical domestic and international practical cases, the construction and improvement of a digital government governance system is systematic and comprehensive. It not only requires building a robust organizational system and establishing flexible implementation mechanisms but also necessitates constructing a well-developed framework in areas such as digital infrastructure, digital public services, digital technology support, digital security governance, and digital rule of law construction.

4.2 Conduct Digital Construction Based on Reality

The practice of digital government governance is not a "mechanical copying" of others' successful experiences, but rather "extracting the essence and discarding the dross," exploring suitable governance methods and models based on one's own strengths and weaknesses. For instance, Shanghai and Guangdong in China adopted different digital government governance models to advance their construction. The Shanghai Municipal Government, building on its accumulated experience and advantages from the "e-government" stage, relied on its "own strength" to drive digital government transformation directly through data. The Guangdong Provincial Government, benefiting from the full development of its local digital economy, utilized its geographical advantages to collaborate with local internet platform companies, drawing on market-oriented organizational methods of enterprises to promote digital government construction, achieving digital transformation by leveraging "external forces."

It is evident that achieving certain results in digital government governance relies on insight into and utilization of one's own situation and conditions. In digital government governance practice, digital transformation should be carried out based on the actual needs of the people, rather than pursuing "trendiness" or engaging in bandwagon-style digital construction. Some regions, in the process of digital government construction, focus excessively on "superficial efforts," engaging in "digitalization for the sake of digitalization," carrying out construction activities in a "formalistic" manner, leading to "lazy governance at the fingertips." This not only fails to improve public service efficiency but also increases the workload burden at the grassroots level [10]. For example, after developing and using numerous complicated Apps, official accounts, and WeChat groups, they fail to function effectively, lack effective supervision, cannot promptly respond to public social needs, rendering them mere decorations. This instead creates a negative impression of public services and lowers public trust in the government.

4.3 Realize Diversified Governance through Boundary-Spanning Activitie

In 2006, British political scientist Dunleavy proposed the concept of "Digital Era Governance," pointing out that "Digital governance is not just digitization within government agencies, but a movement of the entire society" [11]. The subjects of digital governance should be multiple collaborative actors, including government, market, social organizations, and individual citizens. In the digital governance process, the government often plays a leading role, guiding other actors (platform enterprises, social organizations, individual citizens, etc.) to participate in governance. To achieve a situation of multi-party collaborative governance, it is necessary to break down various horizontal and vertical boundaries within organizations during the digital government governance process and establish a "bottom-up" multi-faceted feedback mechanism.

4.4 Emphasize Digital Security Governance

In the process of informatization development, issues of digital security protection are inevitable. If key information technology infrastructure supporting digital governance is attacked, it could lead to extreme public incidents, even triggering livelihood or social problems. For instance, during the process of data use, circulation, and sharing, phenomena like "digital nudity" and personal "privacy leaks" may occur, potentially endangering citizens' rights to privacy and freedom of speech. In the cases, governments of the UK, USA, and Singapore all faced digital security governance issues (such as blurred boundaries between data sharing and privacy protection, the dilemma of balancing data privacy and public safety, etc.). Therefore, it is crucial to adhere to the "people-centered" concept, prioritize digital security governance, preemptively guard against risks brought by data security threats, and safeguard residents' sense of digital security.

4.5 Reduce the "Digital Divide"

Currently, digital government construction in developed countries and some developed regions within countries has achieved certain results, demonstrating good governance effectiveness. Residents in these areas can

conveniently and quickly handle most affairs via the internet. In contrast, residents in remote areas, or vulnerable groups (such as the elderly, low-income populations, etc.) living in regions with "developed digital construction", experience significantly reduced internet usage [12]. Large disparities exist between regions concerning internet access conditions, internet usage skills, and internet penetration. This not only prevents residents in remote areas and vulnerable groups from enjoying the dividends of the digital economy era but also adds layers of obstacles for governments to exert digital governance effectiveness and improve people's livelihoods, thereby affecting the progress of "digital government" construction [13]. Therefore, in the process of digital government governance, efforts should be "boundless and precisely administered," enabling different regions and groups to enjoy and utilize public digital resources. Fully meet the multi-level needs of different regions and groups, pay attention to digitally disadvantaged groups, and prevent or resolve potential issues like "digital discrimination", "digital divide", and "digital inequality."

5. CONCLUSION

"The stones from other mountains can be used to polish jade." (It shan zhi shi, ke yi gong yu). In the wave of digital transformation sweeping the globe, almost all countries are on the path of exploration. Comprehensively analyzing the situation and experiences of digital governance by domestic and international local governments, different countries and regions exhibit both commonalities and unique characteristics based on their different circumstances in the process of promoting digital government construction and digital governance. In summary, the process of digital government governance requires not only a sound digital governance system, collaborative multi-party governance actors, and suitable digital construction strategies but also attention to issues such as digital security governance and reducing the digital divide. Furthermore, while learning from each other's digital governance experiences, it also requires a spirit of pioneering innovation and the courage for reform, continuously deepening administrative system reforms, and exploring a national governance system that conforms to one's own national conditions and fully aligns with the contemporary digital era.

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