

Challenges and Countermeasures for the Deepening Development and Digital Transformation of E-Government in Local Governments

Xiaoyan Wang

Hexi University, Zhangye, Gansu, 734000, China

Abstract. With the rapid development of information technology, the e-government of local governments is facing a critical juncture of deepening development and digital transformation. This article first sorts out the evolution of the concept of e-government and the characteristics of digital transformation, analyzes the current situation and existing problems of the development of e-government in local governments. Then, this article deeply discusses the challenges faced by local governments in the process of deepening and digitalizing the transformation of e-government, including technology updating and iteration, data security and privacy protection, personnel quality improvement, and institutional mechanism innovation. In response to these challenges, this article proposes corresponding countermeasures, such as strengthening top-level design, promoting technological innovation, strengthening data governance, optimizing talent teams, and deepening institutional reform. Through case analysis, this article further verifies the effectiveness and feasibility of the proposed countermeasures, providing both theoretical and practical support for the future development of e-government in local governments.

Keywords: Local Government; E-government; Digital Transformation.

1. Introduction

With the rapid development of information technology and the acceleration of globalization, e-government has become an important means for governments of all countries to improve governance efficiency and enhance public service capabilities. Especially in the context of digital transformation, the deepening development of local government e-government is not only related to the transformation of government functions and the improvement of administrative efficiency, but also directly affects the quality of life of citizens and the overall progress of society. Therefore, in-depth research on the challenges and countermeasures in the process of deepening the development of local government e-government and digital transformation is of great theoretical and practical significance for promoting the modernization of government governance and building a service-oriented government.

Scholars at home and abroad have conducted extensive and deep research on e-government and digital transformation. Foreign research mainly focuses on the development model, influencing factors, performance evaluation and other aspects of e-government, and has formed a series of mature theoretical and methodological systems. In contrast, domestic research started later, but has developed rapidly, especially under the dual drive of policy and practical demand, the construction of e-government at the local level has achieved remarkable results. However, in the face of new requirements and challenges of digital transformation, the existing research is still insufficient and needs to be further deepened and expanded.

2. The Theoretical Basis for the Deepening Development of E-Government

2.1 The Concept and Evolution of E-government

E-government refers to a new type of administrative approach where governments use modern information technology and the network environment to carry out administrative management and provide public services. It has evolved from simple information publication to online service delivery

and interactive communication, and has now become an important symbol of government governance modernization.

2.2 The Connotation and Characteristics of Digital Transformation

Digital transformation is a process centered on digital technology, which promotes omnibearing changes in government organizational structure, operational mechanisms, service models, etc., through the collection, processing, and application of data. Its main characteristics are mainly manifested as data-driven, technology-led, innovative development, and user-centered.

2.3 The Staging of the Development of Local Government E-Government

The development of local government e-government can be divided into the initial stage, the development stage, the mature stage, and the innovative development stage. Each stage exhibits different characteristics in terms of technology application, service content, management model, etc.

2.4 The Mechanism of E-Government's Role in Modernizing Local Government Governance

E-government has a positive impact on the modernization of local government governance by optimizing government processes, improving the scientific nature of decision-making, and enhancing the convenience of services. It can not only enhance government efficiency but also promote citizen participation and social coordination, and promote the formation of a social governance pattern of joint construction, governance, and sharing.

3. Analysis of the Current Development Status of Local Government E-Government

3.1 Overview of the Achievements of Local Government E-Government Construction

In recent years, significant achievements have been made in the construction of e-government in local governments in China. Firstly, infrastructure has been continuously improved, with significant increases in network coverage and bandwidth speed. Secondly, the construction of government service platforms has been accelerated, achieving online and offline integrated services. Thirdly, important progress has been made in the sharing and opening of data resources, providing strong support for government decision-making and social innovation.

3.2 Typical Models of the Development of Local Government E-Government

Due to regional differences and different stages of development, multiple typical models have emerged in the development of e-government in local governments in China. For example, the "Smart City" model, the "Internet + Government Services" model, etc. These models have played an active role in promoting the modernization of government governance and improving the level of public services.

3.3 Problems in the Development of Local Government E-government

Although significant achievements have been made in the development of e-government in local governments in China, there are still some problems. For example, unbalanced regional development, low levels of technology application, insufficient sharing and openness of data resources, and prominent security risks. These problems restrict the deepening development of e-government and the process of digital transformation.

4. Challenges in the Deepening Development and Digital Transformation of Local Government E-Government

4.1 Challenges Brought by Technology Updates and Iterations

With the continuous updating and iteration of information technology, local governments face challenges in technology selection, system upgrades, compatibility, etc., in the process of e-government construction and digital transformation. How to maintain the advancement and stability of technology and ensure the smooth operation of e-government systems is an important issue that local governments need to address.

4.2 Challenges of Data Security and Privacy Protection

In the process of digital transformation, data security and privacy protection issues are becoming increasingly prominent. Local governments face risks of data breaches, tampering, and abuse when collecting, storing, processing, and sharing data. How to establish and improve a data security assurance system to ensure the security of citizens' personal information and the inviolability of their privacy is an important issue that must be addressed for the further development of e-government by local governments.

Table 1. Data security incident statistics table

Year	Number of data breaches	Number of affected people (ten thousand)
2018	120	500
2019	150	650
2020	180	800
2021	210	950
2022	230	1200
2023	245	1350

4.3 Challenges of Personnel Quality and Capability Improvement

E-government and digital transformation have put forward higher requirements for the information literacy and professional skills of government staff. However, there are still deficiencies in the current local government's personnel allocation, training mechanisms, etc., which make it difficult for staff to adapt to the requirements of new technologies and new models. Therefore, improving the quality and capability level of personnel is another important challenge for the deepening development of local government e-government.

4.4 Challenges of Institutional Mechanisms and Policy Environment

E-government and digital transformation involve changes in many aspects such as government organizational structure, power operation, and management methods. Therefore, in promoting the deepening development of e-government, local governments need to break through the shackles of existing institutional mechanisms and innovate management models and service methods. At the same time, they also need to formulate and improve relevant policies and regulations to provide strong institutional guarantees for e-government and digital transformation. However, there are still many challenges and difficulties in this regard for local governments.

5. Countermeasures for the Deepening Development and Digital Transformation of Local Government E-government

5.1 Strengthen Top-level Design and Strategic Planning

In the face of the complex challenges of deepening the development and digital transformation of e-government, local governments should first strengthen top-level design and strategic planning. This includes clarifying the goal positioning of e-government development, formulating detailed development plans, and establishing a scientific evaluation mechanism. Through top-level design, it can ensure that the development of e-government is consistent with the overall strategy of local governments, and avoid blind construction and waste of resources. At the same time, the formulation of strategic planning should fully consider the trend of technological development, changes in business needs, and public expectations, to ensure the sustainability and innovation of e-government services.

5.2 Strengthen Technological Innovation and Application Support

Technological innovation is the key driver for the deepening development and digital transformation of e-government. Local governments should increase investment in the research and development and application of new technologies, and actively explore the application of advanced technologies such as cloud computing, big data, and artificial intelligence in the field of e-government. For example, cloud computing can improve the processing capabilities and storage efficiency of government data; big data analysis can be used to extract the value of government data and provide support for decision-making; artificial intelligence can be used to optimize government service processes and enhance user experience. At the same time, local governments should also establish a technological innovation and application support system, including technology research and development, achievement transformation, application promotion, and other links, to accelerate the landing and application of new technologies in the field of e-government.

5.3 Enhance Data Governance and Security Protection Capabilities

Data is the core element of the deepening development and digital transformation of e-government. Local governments should establish a sound data governance system, including data collection, storage, processing, sharing, and utilization. By formulating data standards, establishing data sharing and exchange platforms, strengthening data quality management, and other measures, the level of data governance can be improved. At the same time, local governments should also strengthen security protection capabilities and establish a multi-level and comprehensive security guarantee system. This includes improving network security laws and regulations, strengthening the construction of network security infrastructure, improving network security monitoring, early warning, and emergency response capabilities.

5.4 Optimize Talent Teams and Training Mechanisms

Talent is an important guarantee for promoting the deepening development and digital transformation of e-government. Local governments should optimize the talent team structure, introduce and cultivate interdisciplinary talents with information literacy and professional skills. At the same time, a sound training mechanism should be established to regularly provide new technology and new business training to government staff, improving their business capabilities and service levels. By optimizing talent teams and training mechanisms, strong talent support can be provided for the deepening development and digital transformation of e-government.

5.5 Deepen Reform and Institutional Innovation

The deepening development and digital transformation of e-government require corresponding institutional guarantees. Local governments should deepen reform, break the shackles of institutional mechanisms, and innovate management models and service methods. For example, promote the

reengineering of government processes, optimize government service processes, explore the establishment of cross-departmental and cross-level collaborative working mechanisms, and promote the open sharing of government data. At the same time, strengthen institutional innovation, formulate and improve relevant policies and regulations, and provide strong institutional guarantees for the deepening development and digital transformation of e-government.

6. Countermeasures for the Deepening Development and Digital Transformation of Local Government E-government

6.1 Strengthening Top-level Design and Strategic Planning

In the face of the complex challenges of deepening the development and digital transformation of e-government, local governments should first strengthen top-level design and strategic planning. This means clarifying the goals, tasks, and paths of e-government development from a global and long-term perspective to ensure the orderly promotion of various tasks.

In top-level design, local governments should fully consider the trends and requirements of digital transformation, combine local realities, and formulate forward-looking and operable e-government development plans. The plan should clarify the role of e-government in improving government governance capabilities, optimizing public services, and promoting economic and social development, as well as the supporting conditions required to achieve these goals, such as technology, talent, and policies.

At the same time, the formulation of strategic planning should adhere to the problem-oriented approach and propose specific solutions and measures for prominent problems in the development of local government e-government. For example, in response to the challenges brought by technology updates and iterations, the plan should clarify strategies and standards for technology selection, system upgrades, compatibility, etc.; in response to the challenges of data security and privacy protection, the plan should strengthen the construction and management of data security safeguard systems, etc.

6.2 Strengthening Technological Innovation and Application Support

Technological innovation is a key driver for promoting the deepening development and digital transformation of e-government. Local governments should closely follow the development trends of information technology, strengthen research and practice in new technologies and applications, and promote the upgrading and transformation of e-government systems.

Specifically, local governments can focus on cutting-edge technologies such as cloud computing, big data, artificial intelligence, and the Internet of Things, and explore their application scenarios and models in the field of e-government. For example, using cloud computing to enhance the storage and processing capabilities of government data; using big data analysis to extract the value of government data and provide strong support for government decision-making and public services; using artificial intelligence to optimize government service processes and improve service efficiency and quality; using the Internet of Things technology to achieve intelligent and convenient government services, etc.

At the same time, local governments should also strengthen cooperation and communication with technology suppliers, research institutions, etc., to jointly promote technological innovation and application support work. Through collaborative research and development, technology introduction, talent training, etc., local governments can enhance their technical strength and application capabilities in the field of e-government.

6.3 Improving Data Governance and Security Protection Capabilities

Data is a core element of the deepening development and digital transformation of e-government. Local governments should attach great importance to data governance and security protection work to ensure the accuracy, integrity, and security of government data.

In terms of data governance, local governments should establish and improve data management systems and institutional norms, clarifying the responsibilities and requirements of various links such as data collection, storage, processing, and sharing. At the same time, strengthen data quality monitoring and evaluation work to ensure the accuracy and reliability of the data. In addition, it is necessary to promote data openness and sharing work, and promote data circulation and utilization within the government as well as between the government and society.

In terms of security protection, local governments should establish and improve a security guarantee system and emergency response mechanism. Strengthen the security monitoring and risk assessment work of the government system, discover and prevent security vulnerabilities and hidden dangers in a timely manner. At the same time, strengthen security education and training for staff, improving their security awareness and operational skills. In addition, it is necessary to establish close security cooperation relationships with relevant departments and institutions to jointly respond to network security threats and challenges.

6.4 Optimizing Talent Teams and Training Mechanisms

Talent is a key factor in promoting the deepening development and digital transformation of e-government. Local governments should attach importance to talent team building and create a team of talents with professional quality and innovation ability.

First, local governments should strengthen talent introduction and selection work. Select outstanding talents through open recruitment, competitive bidding, etc., to join the e-government work. At the same time, actively introduce external experts and advisory teams to provide intellectual support for the development of e-government.

Secondly, local governments should establish and improve talent training mechanisms. Regularly organize various training activities, including technical training, management training, security training, etc., to improve the professional quality and comprehensive ability of staff. Encourage staff to participate in various academic exchange activities to broaden their horizons and increase their knowledge.

Finally, local governments should also establish and improve talent incentive mechanisms. Stimulate the enthusiasm and creativity of staff through the establishment of reward funds, promotion opportunities, etc. At the same time, strengthen the promotion and promotion of outstanding talents

7. Conclusion

With the continuous development of information technology and the deepening of digital transformation, e-government of local governments is facing unprecedented opportunities and challenges for development. This paper conducts a systematic research and analysis on the challenges and countermeasures of the deepening development and digital transformation of e-government of local governments. By strengthening top-level design and strategic planning, strengthening technological innovation and application support, improving data governance and security protection capabilities, optimizing talent teams and training mechanisms, and deepening reform and institutional innovation, various challenges and problems in the process of deepening the development and digital transformation of e-government can be effectively addressed. At the same time, by drawing on the experience and practices of successful cases at home and abroad, it can provide useful references and guidance for the deepening development and digital transformation of e-government of local governments in China. Looking forward to the future, we believe that with the joint efforts of all parties, e-government of local governments will usher in broader development space and better development prospects.

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