

The Digital Transformation Strategy of Primary-level Governance in the TOE Framework: Analysis Based on the Practice of Guiyang City

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Abstract: Under the strategic planning of Digital China construction, the innovative governance mechanism of Guiyang City applies digital technology to social governance, which provides an example of the digital transformation of primary-level governance in China. Currently, digital innovation in primary-level governance effectively strengthens primary-level governance but faces many new challenges. Based on the TOE framework, this paper analyzes the problems in digital management in primary-level governance from three aspects: technology, organization, and environment. In addition, it puts forward the practical path of digital transformation.

1. Introduction

Primary-level governance is the focus of national governance, and it measures the modernization of the governance system and governance capacity. The report of the 20th National Congress of the Communist Party of China proposed to "improve the social governance system, smooth information support governance platform, and accelerate the construction of digital China." In recent years, modern digital information technology has been applied to primary-level governance and has achieved results. At the same time, it brings a lot of risks and challenges [1]. How digital transformation of governance at the primary level and effective enhancement of digital technologies can be achieved is a topic and common concern to academia and practical departments. Based on the above, the researchers use the TOE framework to discuss the current situation and governance strategies of digital transformation in social governance. In addition, we provide ideas about the successful transformation of primary-level governance digitization.

2. The Practical Exploration of the Digital Transformation of Social Governance in Guiyang City

Guiyang is the core area of China's first big data comprehensive experimental zone. Managers strive to innovate and explore data management and digital government construction. They stick to "try first, reform, and innovation." The construction of digital government is quite effective [2]. The local government attaches great importance to the digitization of social governance. With the advantages of the governance mechanism of "a center, a network, and ten households," the local government builds a municipal social governance center to promote reforming the quality, efficiency, and power of municipal social governance. In addition, the government has carried out work on people's livelihood services and applied digital technology to people's livelihood services, grassroots community governance, and social contradictions. The digitization of social governance has achieved remarkable results. The primary practices are as follows.

First, the government accelerates the improvement of 'one cloud, one network, one platform' and strives to build the core infrastructure of the leading digital government in China. It is necessary to speed up the construction of a 'big foundation, medium platform, and big system' in digital government, improve the service of the Cloud Guizhou system platform, promote the integration and coordination of cloud resources between provinces and cities, and enhance the public support of digital government.

Second, the government improves online service capabilities and strives to integrate the leading national government service. Accelerate the construction of an integrated online government service platform and promote cross-regional, cross-sectoral, cross-level data sharing and business collaboration. In addition, promote the mutual recognition and sharing of electronic licenses; integrate the national vertical system, provincial self-built business system, and government services into "a network" so that more government services can be connected to the network and handled in coordination.

Third, release the resource and value of government data and create a new environment for developing and utilizing public data in China. Accelerate the construction of pilot provinces for developing and utilizing national public data resources; integrate public data and social data to establish a safe and controllable utilization mechanism.

Combined with the practice of digital governance in Guiyang, the development advantages of digital technology application in primary-level governance can be concluded. The first is that managers strengthen governance decisions' targeting and scientific nature. The Guiyang government collected people's livelihood information through big data, improving intelligent society governance; with the traditional empirical decision-making to achieve transformation, avoid the incomplete and inaccurate data set, and achieve digital decision-making. The second is to improve the efficiency of social governance. Guiyang City has established a network of social governance data platforms, improved the level of data integration and multi-sectoral sharing, and reduced the repeated development of apps and data platforms to save the cost of social governance.

3. The Practical Problems of Digital Transformation of Primary-level Governance

3.1 Technical Failure of Primary-level Governance

3.1.1 Poor Collaboration of Data Collection, Usage and Evaluation Platforms

For data collection, digital technology at the grassroots has yet to mature. Streets and townships that advance in digital transformation generally integrate, summarize and classify the collected resident information. However, data labeling is generally done by manual annotation. It lacks efficient and flexible automatic labeling tools and theoretical support of services, resulting in poor coordination between platforms and low data collection efficiency [3].

For data use, digital transformation does not directly deal with institutional issues such as power distribution and power and responsibility set, which can easily cause internal friction. In the process of participating in the use of grassroots digital technology, multiple actors perform strategic game behaviors based on interests, roles, bounded rationality and their positioning. They have complex motives and uncertain behavior orientation, which quickly affect cohesion and action, and aggravate the fragmentation of primary-level governance.

For data evaluation, there is a lack of a follow-up evaluation mechanism, clear organizational governance mechanism, and operational control methods for the use of data. For those systems that are ready to be implemented or have begun to be applied, the specific identification of data is at the level of qualitative ambiguity, resulting in improper data evaluation results [4].

3.1.2 The Challenges of Technological Uncertainty to Grassroots Resilience Governance

After combining primary-level governance with big data, artificial intelligence, and other technologies, it is necessary to deal with the uncertainty of the algorithm black box. Due to the uncertainty of the algorithm and the data, hidden risks appear in the links of collection, analysis, sharing, and application. Technical algorithms are complex and have huge system logic. Technologies that rely on code and data samples show great uncertainty. Data distortion and misalignment often occur in data generation and the application. In addition, it is inevitably interfered with by humans, resulting in information security risks [5]. Realizing the effective utilization and transformation of data value and preventing adverse effects poses severe challenges to the data management capabilities of government functional departments, the supervision of third-party institutions, risk emergency handling, technical support, and data privacy protection.

3.2 The Failure of the Organization of Primary-level Governance

3.2.1 Digital Governance is Weakened as an Internal Supervision Tool of the Administrative System

China's grassroots governance mainly deals with risks by the top-down pressure-type system and the bottom-up governance mechanism of the grassroots party and government departments. However, in practice, digital governance and innovation will evolve into formal index assessment, which needs to align with the first-line risk governance situation, forming two parallel and incongruous systems with the original bottom-up governance. Digital governance has nearly become an internal supervision and strengthening tool for administrative governance, which brings the following problems.

First, digital-assisted internal supervision further limits the scope of autonomy of grassroots governance, and the enthusiasm and creativity of governance are impaired. The dogma and rigidity of governance reduce the vitality and effect of governance.

Second, due to the disconnection between the two systems, the digital system cannot be effectively embedded in the governance process, resulting in low accuracy of information collection, affecting the scientific nature of superior decision-making.

Third, the digital system of higher-level decision-making is disconnected from the original manual information collection and use, resulting in the inability to form a governance power. Grassroots governance is digitized, and the enthusiasm of workers is impaired.

3.2.2 Digital Technology Brings Challenges to the Governance Structure of Hierarchical Structural System

Many things could be improved in the use of digital governance. There are differences between the flattened, cloud-based structural system and the traditional hierarchical structural system. Moreover, the setting of internal government organizations and the definition of responsibilities between departments differ from the digital technology system. On the one hand, the application scope and space of digital technology are greatly limited. On the other hand, the government generates technology input costs and high coordination costs in digital governance, increasing administrative costs. Therefore, it is urgent to realize the docking and sharing of internal governance data.

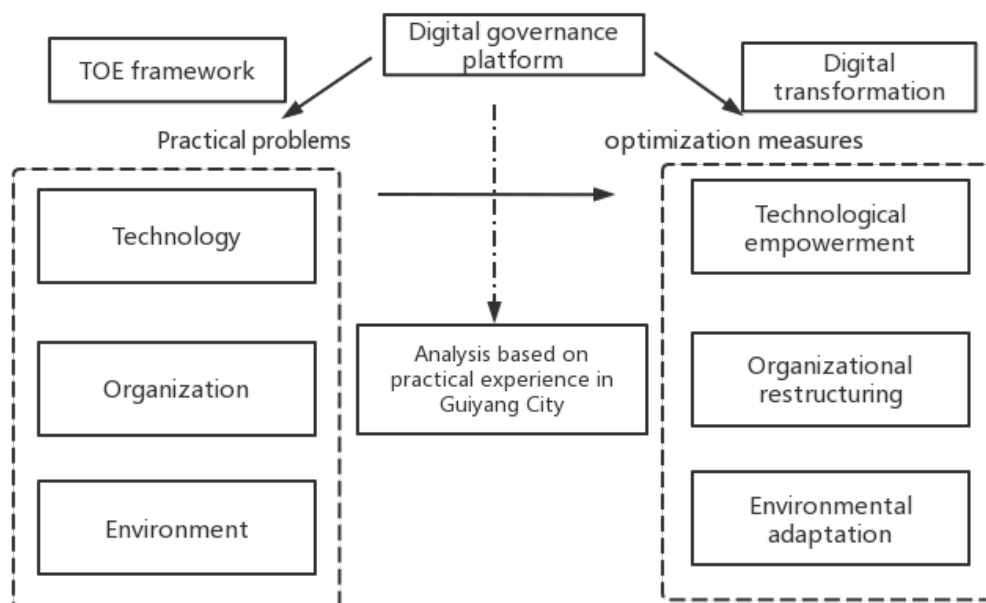


Figure 1 Digital transformation analysis framework of grassroots governance

3.3 Environment Failure of Primary-level Governance

3.3.1 Risk, Challenges, and the Financial Burden

Currently, the risks are caused by the income and distribution gap, the short board of people's

livelihood security, the social conflict, and the imbalance of rights allocation. The diversified and fragmented social mobility significantly impacts the field differential order pattern and spontaneous order at the grassroots level, and the new governance risks are derived. Therefore, people need to resolve the hidden dangers, solve them at the grassroots level, and continuously enhance the forward-looking and precision of risk governance at the grassroots. These are severely testing grassroots social governance. At the same time, digital technology requires huge material and financial resources. For example, some local governments have invested tens or even hundreds of billions in constructing digital governance infrastructure, causing financial burdens to primary-level governments.

3.3.2 The Intensification of the Digital Divide and the Lack of Humanistic Care

With the rapid development of digital governance, the digital divide is becoming much more prominent. Some groups with low information awareness and ability to use information are becoming 'marginal people'. They cannot enjoy the dividends of digital technology progress. Invisible social inequalities caused by the digital divide have emerged. At the same time, digital governance conceives and perspective the governance subject through data, restores people to data and makes people's needs subject to data. The human becomes an object that can be predicted and calculated and is no longer the subject of algorithmic power. Digital identity is abused, and human value, dignity, and personality are obliterated and suppressed.

4. Countermeasures and Suggestions

4.1 Technology Empowerment

4.1.1 Eliminate Barriers between Departments to Avoid Information Island

Department data sharing is the opening and expansion of the database, but it involves many aspects, such as public security and petition. It is challenging to realize information sharing between departments, reduce task overlap, and avoid the long process of handling affairs.

First, when improving the database, the ability of grassroots staff should be improved. In addition to operating computers and various information software, they must have data thinking, use data to demonstrate and explain, and realize data management and innovation. Second, the government should speed up the construction of an integrated construction platform to accelerate the promotion of cross-regional, cross-sectoral, and cross-level data sharing and business collaboration. For example, Guiyang City relies on "a cloud, a network, and a platform" to accelerate the integration of public and social data, providing a solid guarantee for the digital transformation of grassroots governance, which is worthy of reference. In addition, we should clarify the boundaries of powers and responsibilities of departments at the grassroots level, rationally allocate data collection and organizations, and build a unified data standard to facilitate collective sharing. Finally, strengthen the total factor precision intelligent control of data support. We use Internet thinking to reshape the grassroots social governance management process and open up business processes. By sorting out the list of items and unifying the standards, we will conduct the simplification, time compression, and efficiency improvement of the grassroots administrative approval service process, form a scene-driven data interaction system, and realize the precise control and intelligent management of the total elements.

4.1.2 Realize the Digital Systematic Empowerment of Grassroots Governance

The digital empowerment of grassroots resilience governance should be comprehensive and holistic. From the current practice, the function of digital means to strengthen internal supervision has been entirely played. In addition, digital transformation and grassroots empowerment should be reflected in the governance base and governance path. On the one hand, digital innovation provides a more accurate and comprehensive governance base for the grassroots. Governance data powered by digital innovation can promote open governance at the grassroots level, find a foundation for grassroots governance, and improve accuracy and scientific quality [6]. On the other hand, by big data and intelligent analysis, the causal relationship and mechanism of action between governance factors are clarified to help the grassroots find a breakthrough in governance, choose the appropriate

governance methods, and improve the pertinence and accuracy.

4.2 The Reconstruction of Organization

4.2.1 Exert the Dominant Position of Government Governance and Improve the Systematicness and Integrity of Grassroots Governance

As the dominant governance subject, the government should perfect the benefit-sharing mechanism of governance subjects. In building a collaborative governance system of government, enterprises, social organizations, and the public, the government should avoid the formation of an attachment relationship between digital technology and commercial capital or manipulating public power by capital. By upgrading and transforming information systems and technology platforms, we can solve the fragmentation of grassroots governance and then deepen the reform of "streamline administration and delegate powers, strengthen regulation and improve services,"; reduce cumbersome administrative approval procedures and realize the overall governance model of "entry-data exchange-resource sharing-cooperative governance-dynamic tracking."

4.2.2 Embed Digitization into Grassroots Governance Processes

Based on respecting the status of grassroots governance autonomy, the government gives the grassroots the founding right and initiative of digital innovation. According to local conditions, the grassroots level has developed a simple, efficient, and economical digital governance approach with local characteristics. For example, Guiyang has developed the municipal management of the One Network Office and Digital Guiyang. Digital work systems independently developed by grassroots management entities. Facts have shown that digital tools meet the needs of grassroots governance and can solve problems. Moreover, they better integrate into the grassroots governance process and play a reshaping role in grassroots governance. Finally, grassroots governance subjects, community practitioners, and residents have a sense of gain.

4.3 Environmental Coordination

4.3.1 The Institutional System of Digital Governance Risk Supervision

The grassroots-level government needs to establish and improve the interconnected safety supervision system in response to the changing internal and external environment. Give full play to the multi-level and multi-channel joint supervision role of government functional departments, judicial departments, and industry associations. Implement the whole-process supervision and audit of digital technology from design, research, and development to application and sharing. The government should fill in cross-domain and cross-regional monitoring and regulatory loopholes and clarify the legal boundaries of fair competition. In addition, the government can prevent data power alienation and power rent-seeking by creating a standardized digital technology platform. For example, with the help of digital technology, Guiyang City strives to build a cross-departmental collaborative governance platform such as Big Emergency, which provides a tool for the risk control of social security and the rapid start of emergency mechanism [7].

4.3.2 To Narrow the Digital Divide and Promote the Organic Integration of Digital Governance and Humanistic Care

First, the government needs to promote the deep integration of digital governance and public services, coordinate the urban and rural digital resources, increase investment in digital infrastructure in remote areas, and optimize the layout of rural infrastructure. Digital upgrading improves public services, meets people's livelihood needs, accurately matches social groups' needs, and broadens the application scenarios of digital public services. Using digital technology can extend high-quality public resources to relatively remote and poor areas. Then, managers should establish a technical support mechanism for vulnerable groups and introduce support policies such as technology, information, and taxation.

Second, promoting the integration of digital governance and humanistic care is necessary. The purpose of governance is to realize the management and service of people. Therefore, managers

should pay attention to people, respect their personality, dignity, and pursuit, and protect people's privacy. In addition, take the people-centered value concept into digital governance. For groups that do not know technology, the government provides complete protection. At the same time, the managers prevent people from over-relying on digital technology to produce new social injustice and social contradictions.

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