Research on Digital Governance of Local Governments and the Transformation of Government Governance Modes

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Abstract. The in-depth application of a new generation of information technologies has driven digital governance to become a core driving force for the modernization of national governance systems and capacities. Local governments, as the cornerstone of national governance, are experiencing a profound transformation in their governance modes from the traditional model to the digital one. This paper adopts the comparative analysis method to construct a multi-dimensional analytical framework for traditional bureaucratic governance and modern digital governance, defining their core characteristics in the dimensions of governance philosophy, subjects, structure, tools and value orientation. Then, several typical digital governance practices of Chinese local governments in the fields of government services, urban management and grassroots governance are selected, such as Beijing's "Responding to Complaints Immediately", Hangzhou's "City Brain" and Zhejiang's "Zhezhengding", and an in-depth comparison is made with their corresponding traditional governance processes. The study finds that digital governance, through data-driven, platform-enabled and network collaboration, has significantly reshaped the problems of hierarchical barriers, information silos, rigid processes and passive responses in traditional governance, and promoted the transformation of government governance towards integrity, refinement, collaboration and proactive service. However, the transformation process is also accompanied by new challenges such as the digital divide, data security, algorithmic ethics and the reshaping of organizational culture. Finally, this paper looks forward to the future development trend of local government governance and puts forward corresponding countermeasures and suggestions, aiming to provide theoretical reference and practical enlightenment for the in-depth development of digital governance practice of local governments.

Keywords: Digital Governance; Government Governance; Governance Mode Transformation; Comparative Analysis; Local Government

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1 Introduction

As the Digital China initiative progresses, digital governance has become a core strategy for local governments to enhance governance capacity, public services and modernization. It has shifted from national top-level design to a key local practice. Digital technology is no longer a supplementary tool, but a critical driver of systematic and revolutionary reforms in governance models.

Traditional hierarchical, standardized local governance worked in the industrial era but now suffers from departmental fragmentation, information silos, low efficiency, experience-based decisions and slow responses. As a data-driven paradigm, digital governance enables intelligent management, personalized services and multi-stakeholder cooperation through technology–institution integration[1].

Existing research focuses mostly on cases, models and theories, lacking systematic comparisons between traditional and digital governance. This paper uses a comparative, multi-dimensional framework to analyze digital-driven local governance transformation, outlines its features and advantages over traditional governance, examines its challenges, and offers references for practice and research.

2 Analytical Framework: Comparative Dimensions of Traditional and Digital Governance

To systematically compare local governments' shift from traditional to digital governance, this paper establishes a five-dimensional analytical framework that covers core governance areas and clearly reveals the essential differences between the two models.

2.1 Governance Philosophy: From "Management and Control" to "Service and Collaboration"

Traditional governance adopts a control-oriented philosophy, with the government as the sole authority maintaining order through rules and hierarchical management, while citizens and social organizations serve as passive recipients. Digital governance, by contrast, focuses on public service and cross-subject collaboration, centers on citizen-centricity, redefines the government as a service facilitator, and builds an open, inclusive multi-stakeholder governance ecosystem via digital technology.

2.2 Governance Subjects: From "Single Center" to "Multi-stakeholder Network"

Traditional governance is government-centered, with the administrative bureaucracy as the absolute core, while enterprises, NGOs and citizens only play passive and auxiliary roles in public governance. By contrast, digital governance forms a multi-stakeholder network; digital platforms lower participation thresholds, enabling diverse subjects to

engage in public affairs extensively, and their relationship transforms from hierarchy into an equal partnership supported by data sharing and collaboration[5].

2.3 Governance Structure and Process: From "Hierarchical Fragmentation" to "Flat Integration"

Traditional governance adopts a rigid hierarchical bureaucracy with serial processes, in which information is vertically transmitted and cross-departmental cooperation relies on complicated approval, resulting in low efficiency and severe information silos that fragment public services. By contrast, digital governance builds flatter, platform-based structures and streamlined processes; cloud and big data platforms break departmental barriers to achieve data sharing and cross-departmental collaboration, transforming the governmental organizational model and replacing serial procedures with data-driven parallel processing to support integrated governance such as One Network for All Services.

2.4 Governance Tools and Technology: From "Experience-driven" to "Data-driven"

Traditional governance relies on basic, experience-based tools such as subjective judgment, paper documents and simple statistics, lacking full real-time data support for scientific policy-making and evaluation, and responding slowly and inadequately to complex problems with obvious lags. By contrast, digital governance realizes a data-driven technological upgrade through the wide application of big data, AI, IoT and UAVs in decision-making, public services and risk early warning—examples include intelligent traffic control and precise pollution monitoring—thus shifting governance from experience-based to data-driven and greatly enhancing its scientificity, accuracy and foresight.

2.5 Governance Effects and Value Orientation: From "Efficiency Priority" to "Value Pluralism"

Traditional governance centers on efficiency and order, aiming to provide standardized public services widely with limited resources and maintain social stability. It stresses universality and fairness yet often neglects individual differences and service experience. By contrast, digital governance embraces pluralistic values, emphasizing not only efficiency but also effectiveness, responsiveness, transparency and public value. It pursues personalized and high-quality public services, opens government decision-making via data platforms to boost credibility, and delivers more inclusive, fair and sustainable services to realize broader social value.

3 Case Comparison: Systemic Transformation of Governance Modes by Digital Governance

To explain more specifically how digital governance transforms the traditional governance mode, this part will select three typical cases in different fields for in-depth comparative analysis.

3.1 Government Services: From "Multiple Visits and Repetitive Submissions" to Beijing's "One Network for All Services" and "Responding to Complaints Immediately"

Traditional Governance Mode: Before digital reform, cross-departmental matters such as restaurant licensing followed a rigid, fragmented hierarchical model. Applicants were required to visit multiple departments and submit repetitive paper materials. Independent and disconnected approval processes led to repeated submissions, low efficiency and poor user experience, revealing problems of departmental silos, rigid procedures and fragmented services[4].

Digital Governance Mode: Beijing's "One Network for All Services" and "Rapid Complaint Response" are typical digital governance practices.

"One Network for All Services" rebuilds processes via a unified online platform. Applicants submit materials only once, and the system supports parallel cross-departmental approval through data sharing. Digital certificates greatly reduce paperwork, shifting from hierarchical fragmentation to horizontal integration and prioritizing public service.

The "Rapid Complaint Response" mechanism standardizes public complaints into a unified database and automatically assigns tasks. It tracks progress and satisfaction in real time, changing passive response to proactive governance. Big data analysis helps identify problems and optimize policies, realizing the shift from experience-driven to data-driven governance.

3.2 Urban Management: From "Manpower Tactics" to Hangzhou's "City Brain"

Traditional Governance Mode: To solve traffic congestion—a typical urban problem—traditional governance relies mostly on manpower and hardware investment, including on-site police command, manual monitoring, road expansion and bus route optimization. Decisions are based on fragmented, lagging data and empirical judgment. In emergencies like traffic accidents, it features long information chains, inefficient cross-departmental coordination and slow responses, showing limitations of single-tool dependence and weak synergy in handling complex systemic issues.[6]

Digital Governance Mode: Hangzhou "City Brain": Hangzhou's "City Brain" is a typical AI-powered urban governance model, leading urban management into an intelligent era.[2]

Structure and Tools: It uses IoT sensors to collect real-time traffic data and build an urban digital twin. AI enables real-time road network analysis, 15-minute congestion forecasting and automatic traffic signal optimization, realizing global scheduling that manual work cannot achieve.

Subjects and Processes: For traffic accidents, it automatically detects and alerts, plans optimal rescue routes, dispatches ambulances and police, and adjusts traffic lights for a "green channel".[7] It breaks departmental silos, forms an efficient data-driven governance network, and realizes automated and intelligent governance.

3.3 Grassroots Governance: From "Grid Inspectors Wearing Themselves Out" to Zhejiang's "Zhezhengding" and Chongqing's "Three-level Governance Center"

Traditional Governance Mode: Traditional grassroots governance depends on inspectors' offline manual inspections and records of environmental, safety and neighborhood issues. Hierarchical reporting leads to low efficiency, information distortion, opaque processes and weak supervision, which reflects the dilemma of poor information transmission and coordination in traditional grassroots governance.

Digital Governance Mode: Practices including Zhejiang's "Zhezhengding" and Chongqing's "Three-level Governance Center" have transformed grassroots governance.

Transformation of Governance Tools: Platforms like "Zhezhengding" create an online collaborative workspace. Inspectors report problems in real time via photos, videos and one-click work orders that are automatically assigned. The whole process is traceable and transparent, realizing flattened and efficient governance.

Transformation of Governance Structure: Chongqing's Three-level Governance Center integrates cross-departmental resources as a unified command hub, breaking departmental fragmentation and shifting to networked collaboration. It achieves more refined, efficient and proactive grassroots governance.

4 Challenges and Future Prospects of Digital Governance Transformation

Although the digital governance of local governments has brought revolutionary changes, this transformation process is not plain sailing and still faces many deep-seated challenges.

4.1 Core Challenges of Digital Governance Transformation

1. The Digital Divide between Technology and Society: The digital divide exists not only in unequal digital access and skills across regions and groups (especially the elderly), but also in low digital literacy among some grassroots civil servants who cannot adapt to new working modes. It may cause unequal public services and intensify social exclusion.[3]

2. Dilemmas of Data Governance: Data security and privacy are vital to digital governance. Governments must balance data openness and value with protection against leakage and abuse. Meanwhile, low data quality and inconsistent standards weaken data-driven decision-making.

3. "Black Box" of Algorithms and Ethical Risks: The opacity of algorithms in public decision-making may bring unfairness and discrimination. Ensuring impartiality, interpretability and accountability of algorithmic decisions is essential for further digital governance.

4. Inertia of Organizational Culture: Digital governance reform challenges existing power structures and departmental interests. Departmentalism, overemphasis on approval rather than supervision, and resistance to change under traditional bureaucracy are major obstacles to deepening digital governance.

4.2 Future Prospects of Local Government Digital Governance

Looking forward to the future, the digital governance of local governments will show a more intelligent, humanized and collaborative development trend. Artificial intelligence will play a greater role in policy simulation, risk prediction, intelligent customer service and other fields; the user-centered design concept will push government services to upgrade from "available to handle" to "easy and pleasant to handle"; the data and capacity collaboration between the government, enterprises and society will become closer to jointly address global challenges such as climate change and public health.

5 Conclusion

This paper adopts a multi-dimensional comparative framework to analyze the reform of traditional governance through local digital governance, which constitutes a comprehensive paradigm shift in governance philosophy, actors, structure, tools and values rather than mere technical or procedural improvements. As a data-driven, platform-based and collaborative model, it addresses long-standing problems of traditional bureaucracy; based on cases including Beijing's "Responding to Complaints Immediately", Hangzhou's "City Brain" and Zhejiang's "Zhezhengding", three key shifts in local governance are identified, greatly improving efficiency and public services while advancing governance modernization. Nevertheless, digital governance still faces challenges such as the digital divide, data security, algorithm ethics and organizational cultural inertia, so future development requires the dual-wheel drive of technology and institutions, with improved laws, ethical standards and supporting reforms to ensure it serves public well-being and social equity.

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