

DRIVERS OF DIGITAL TRANSFORMATION IN LOCAL GOVERNMENT: A GROUNDED-THEORY ANALYSIS OF POLICY TEXTS

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Abstract: Digital transformation has become an important route through which local governments can improve administrative performance and public-service delivery. This study applies grounded theory to 55 digital-government policy documents issued by central and local authorities during 2020-2024. Coding was conducted through open, axial, and selective procedures. The coding summary identifies three core dimensions, six operational categories in the final framework, and 16 initial categories; the detailed coding account also records 25 open-code subcategories and seven higher-order categories before final integration. The resulting model organizes the drivers of transformation into action strategy, institutional structure, and safeguard factors. Action strategy combines digital-technology management with strategic planning to raise governance capacity and service quality. Institutional structure links formal digital safeguards to the governmental system that stabilizes and regulates implementation. Safeguard factors, represented by a digital mindset and the allocation of technology, finance, and talent, determine whether policy commitments can be carried into practice. On this basis, the paper proposes coordinated data infrastructure, stronger institutional arrangements, responsible data governance, staff capability development, and more efficient resource deployment as practical directions for governments at different levels.

Keywords: Digital transformation; Local government; Grounded theory; Digital governance; Policy text

1 INTRODUCTION

China's national agenda for digital development has evolved through several policy milestones. In 2015, General Secretary placed nationwide digital transformation on the policy agenda through the Internet Plus action plan. Two years later, Digital China was elevated into a strategic objective that connected cyber capacity, a digital society, and a smart economy. A national plan released in 2023 then offered more direct guidance for local authorities seeking to redesign governance processes and public services through digital means.

Against this background, the digital transformation of local government is more than the adoption of isolated technologies [1]. It concerns the way administrative organizations coordinate, make decisions, allocate resources, and respond to citizens. Identifying the factors that enable or obstruct this shift is therefore essential to improving governance effectiveness, refining service provision, and supporting high-quality development. This paper uses policy documents as the empirical material and grounded theory as the analytical method. Its purpose is to identify the principal variables that shape transformation, clarify how internal arrangements interact with external drivers, and construct a framework that local governments can use when strengthening governance capacity and service performance.

2 RESEARCH DESIGN AND CODING PROCEDURE

2.1 Policy Corpus and Analytical Method

The empirical corpus consists of 55 policy documents on digital government released by central and local authorities over the five-year period from 2020 to 2024. Rather than imposing a predetermined explanatory scheme, the procedure moved from detailed textual statements toward increasingly abstract categories, allowing the structure of the model to emerge from the policy material [2].

2.2 From Open Codes to Core Dimensions

Open coding established the descriptive base of the analysis. Statements connected with digital government were identified, organized, compared, and summarized, producing a detailed pool of 25 subcategories. The study summary also reports 16 initial categories after consolidation. Axial coding then examined the connections among the open codes and assembled them into seven higher-order categories. During selective coding, the categories were compared again and integrated around three core dimensions. The final presentation condenses the operational content into six main categories nested beneath those dimensions. This layered process supplies the conceptual basis for the theoretical model shown later in Figure 1 and Table 1.

Table 1 Core Dimensions and Corresponding Main Categories

No.	Core dimension	Main categories
1	Action strategy	Digital-technology management; digital strategic planning
2	Institutional structure	Digital institutional safeguards; digital government system
3	Safeguard factors	Digital-mindset drive; digital resource allocation

3 ANALYTICAL FRAMEWORK FOR LOCAL GOVERNMENT DIGITAL TRANSFORMATION

The final model brings together six conditions across three connected levels. At the level of action, local governments require both the management of digital technologies and a coherent strategic layout. At the institutional level, implementation depends on formal digital safeguards and a government system capable of coordinating them. At the safeguard level, a digital mode of thinking must be matched by the allocation of financial, technological, and human resources. The three dimensions are analytically distinct, but the model treats them as mutually reinforcing rather than as separate lists of conditions [3].

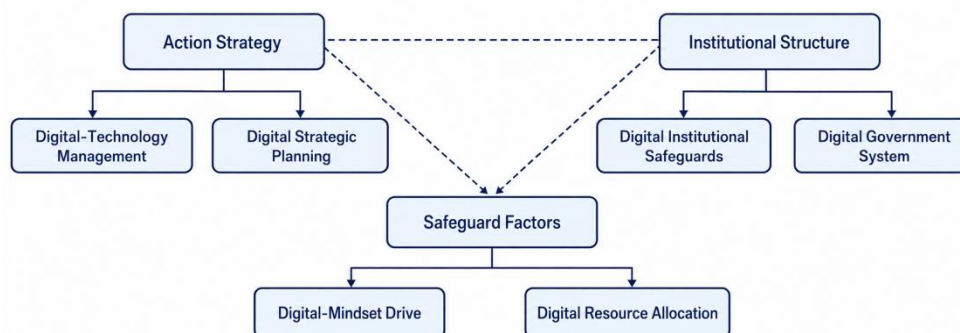


Figure 1 Theoretical Model of the Transformation Drivers

3.1 Action Strategy as an Operational Pathway

Within the model, action strategy denotes the concrete sequence of steps, instruments, and implementation arrangements through which a government pursues its digital objectives. It is the bridge between policy intention and administrative practice: without an actionable route, transformation remains confined to plans and formal statements. The dimension therefore contains two closely related components. Digital-technology management deals with the selection, integration, operation, and oversight of technological tools, whereas digital strategic planning aligns those tools with broader governance objectives and implementation priorities.

3.1.1 Lessons from municipal practice

Practical experience helps clarify how these two components work together. Hangzhou's City Brain combines big data, artificial intelligence, and cloud computing in urban management. By weakening information barriers across departments, the system has contributed to traffic regulation, congestion reduction, and faster emergency response. Shenzhen offers a second example through its unified data-sharing platform. Seamless exchange among departments has supported interagency coordination while improving the efficiency and transparency of public-service delivery. Both cases indicate that advanced technology produces governance value only when it is embedded in a deliberate strategic arrangement.

3.2 Institutional Structure as the Enabling Base

Institutional structure supplies the stable setting in which digital reform can proceed. It includes the organizational, regulatory, and resource arrangements that make implementation predictable, standardized, and orderly. In this framework, digital institutional safeguards establish rules and responsibilities, while the digital government system provides the administrative architecture through which those rules are coordinated and applied. Together they reduce uncertainty and prevent transformation from depending solely on temporary projects or individual initiatives.

3.2.1 Public-private and international cooperation

Public-private partnerships can expand a local government's access to specialist knowledge, capital, and advanced technology. In areas such as smart-city development, such arrangements may accelerate delivery, ease fiscal pressure, and introduce solutions that are difficult to develop entirely within the public sector. International cooperation serves a related learning function. Estonia's e-governance experience and Singapore's Smart Nation initiative offer models from which local authorities can draw, provided that practices are adapted to local institutional conditions. Used carefully, both forms of collaboration can support a more inclusive and sustainable transformation.

3.3 Safeguard Factors as Implementation Capacity

Safeguard factors are the motivational and material conditions that keep transformation moving. They convert institutional commitment into sustained administrative capability. A digital mindset encourages officials to recognize

where data and technology can help address complex governance problems. Resource allocation provides the funds, infrastructure, technical expertise, and personnel required to act on that recognition. If either element is absent, digital initiatives may be formally approved yet remain fragmented or underused.

3.3.1 Ethical limits on data use and surveillance

The same data-intensive tools that improve governance also create ethical risks. Data-driven decisions must be balanced against citizens' privacy. Rules governing the collection, storage, sharing, and processing of personal information should be transparent enough to support legal compliance and public trust. Surveillance technologies should be restricted to legitimate purposes of public safety and governance, with boundaries that prevent misuse. Independent oversight bodies and recurring ethical audits can strengthen accountability while protecting individual rights throughout the transformation process.

4 OPTIMIZATION PATHS FOR LOCAL GOVERNMENTS

4.1 Reducing Barriers to Policy Implementation

Implementation may be slowed by resistance within government. Some officials have limited knowledge of digital systems; others are concerned that new tools will disrupt familiar workflows. Government-led training, targeted workshops, and appropriate incentives can reduce this resistance. Because skill shortages also affect day-to-day execution, capability development should cover both practical digital skills and the strategic reasoning needed to connect technology with administrative objectives. These measures make policy implementation more stable and help digital services operate efficiently.

4.2 Building a Collaborative Digital-Innovation Ecosystem

Local authorities should dismantle information silos through cooperation across departments and industries. A shared data platform, supported by common standards, can integrate digital services and allow information to move more reliably between administrative units [4]. This integration must be accompanied by supervision of data security and privacy so that technical capacity is not achieved at the expense of lawful and responsible use. The objective of digital governance is not technology for its own sake, but the improvement of governance through technology; its most developed form is the close integration of the two, organized around smart governance [5].

Strategic planning should also extend beyond a single jurisdiction. Regional coordination, shared resources, and digital alliances can reduce duplication and broaden access to effective solutions. Local governments can cooperate with neighboring regions, learn from domestic and overseas experience, and participate in innovation networks that raise both the efficiency and the quality of transformation [6].

4.3 Reinforcing Institutional Safeguards and System Design

Organizational redesign and management reform are necessary if digital transformation is to improve the speed and quality of public decision-making [7]. A standardized management regime and a well-defined institutional structure give transformation an orderly basis. Local governments should therefore strengthen the legal and regulatory rules that cover data security, privacy, and digital governance. Clearer safeguards can reduce risks such as data leakage and provide the legal support needed for continued reform. Because technology changes rapidly, these policies must remain both adaptable and forward-looking.

Institutional development also requires cooperation across organizational and geographic boundaries. Cross-sector and cross-regional arrangements can pool resources and coordinate the contributions of government agencies, enterprises, and social organizations. Such collaboration is particularly important for digital innovation and data sharing, and it can improve the efficiency, continuity, and sustainability of the transformation process [8].

4.4 Advancing Digital Mindsets and Resource Allocation Together

Digital thinking should be developed across the public workforce rather than confined to technical departments. Officials need a systemic perspective from which to examine governance problems and assess whether complex issues can be addressed through digital means [9]. At the same time, local governments must allocate fiscal resources, technology, and talent efficiently. Budgets for digital projects should be optimized; stable infrastructure can be supported through cooperation with leading technology companies; and investment in staff training should be paired with the recruitment of strategic and innovative personnel. Coordinating these resources helps initiatives progress smoothly and contributes to broader local economic and social development [10].

5 CONCLUSION

Drawing on policy texts from 2020 to 2024, this study develops a three-part explanation of local government digital transformation: action strategy, institutional structure, and safeguard factors. First, the combination of digital-technology management and strategic planning determines how policy objectives are translated into operational measures. Second, digital institutional safeguards and the digital government system provide the rules and

administrative structure needed for implementation. Third, data-oriented thinking and the allocation of finance, technology, and talent support the transition toward data-centered governance and help ensure that resources are used effectively.

The framework indicates that technological investment alone cannot complete the transformation. Progress depends on the alignment of strategy, institutions, ethics, organizational capability, and resources. Future work may examine region-specific constraints, the ethical problems associated with data governance, and the longer-term social effects of digital reform. Comparative analysis of international experience, including Estonia and Singapore, may also help develop frameworks that are more inclusive and better adapted to different administrative contexts.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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