Analysis on Process Pathways for Digital Transformation in Grassroots Governance: Study on the Efficiency Transformation Path Based on Reconstruction of Process Mechanism

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Abstract: As the modernization of national governance continues to deepen, the grassroots governance has become a key focus area for digital reform. However, in practice, digital construction often remains at the structural level, and the governance process and institutional mechanisms have not been effectively followed up, which restricts the effectiveness of the reform. This paper takes “Process Optimization” as the core perspective. Based on clarification of transformation dilemma, it proposes the process reconstruction logic, coordination mechanism path and technical approach of digitalization in grassroots governance, and further gives policy recommendations for institutional and capacity support. The study believes that digitalization is not only a tool, but also a key variable for reconstructing the logic of operation in grassroots governance. It is necessary to form a system coupling mechanism from the four aspects of process, coordination, capacity and system to promote the transformation from structural leap to efficiency improvement.

1. Introduction

With the deepening of the modernization of the national governance system and governance capacity, the grassroots governance is undergoing a profound structural change. In this context, digitalization has been widely endowed with strategic significance for promoting governance transformation and improving governance efficiency. Especially in recent years, the widespread application of technical means such as government data, intelligent platforms, and digital terminals has injected new impetus into the grassroots governance system and brought unprecedented reconstruction possibilities. However, from a practical perspective, the digital transformation in grassroots governance is not a smooth progress curve. In some regions, although the governance structure has achieved a "Digital Leap", the governance process still faces many obstacles. Structural problems such as "Highly Fragmented and Segmentary System", “Misalignment of Power and Responsibility”, and "Misallocation of Resources" have not been eliminated by technological intervention, but have been aggravated by institutional lags and mechanism failures. In some places, there have been phenomena such as "While platforms proliferate, data remain siloed", "Systems go live, but mechanisms fall behind", and “Indicator-driven assessment outpaces citizen-centric experience”, reflecting the obvious process obstacles and path deviations in the transformation process. It can be seen that digitalization is not only the update of technical devices, but also the reconstruction of governance process. In reality, whether digital tools are truly embedded in the governance process, whether the participating subjects can achieve collaborative interaction, and whether governance activities form a closed-loop feedback directly determines the quality and effectiveness of the transformation. Therefore, the core of the digital transformation in grassroots governance is not only the adjustment of structure, but also the optimization of process and the reconstruction of action mode.

Foreign studies have paid due attention to the relationship between digital technology and government governance at an early stage, and proposed theoretical frameworks such as "E-Government" and "Digital Governance", emphasizing the potential of information technology in improving government efficiency, public service quality and democratic participation. For example,

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Dunleavy et al. proposed the “Digital Era Governance" paradigm, emphasizing decentralization, reintegration and digital empowerment[1]. In the dimension of governance process, Heeks (2006) pointed out that the "Design - Reality" gap is the key to the failure of e-government, and advocated "Gradual Digital Transformation"[2]. Domestic academic research on the digital transformation in grassroots governance focused on three aspects: First, macro-analysis of the transformation path and stages, focusing on the construction of the overall blueprint of digital government and smart society[3][4][5]; second, focusing on the evaluation of specific technical tools or platforms, such as "One-stop Online Government Services", "City Brain", "12345 Platform”[6][7][8]; third, focusing on the impact of digitalization on organizational behavior and governance structure, such as power decentralization and process reconstruction[9][10][11].

These studies reveal the positive role of digitalization, but existing researches focus on the macro-architecture of digital governance or the functional description of governance technology, and rarely go deep into the micro-mechanism construction and practice logic analysis of the "Process Level" of digital transformation, lacking systematic research on the "Process Barriers" and "Coordination Logic" in the transformation. Whereas, this paper is based on the tension between "Structural Reform" and "Process Transformation", focusing on the actual role of digitalization in optimizing grassroots governance processes, building collaborative mechanisms, and coupling technology and systems, aiming to explore how to achieve dual improvements in grassroots governance systems and governance capabilities through process reconstruction under the background of structural adjustment.

2. Structural Dilemmas and Process Obstacles in the Digital Transformation of Grassroots Governance

Although the digitalization in grassroots governance has been accelerating in recent years and has achieved certain results in government services, social governance, public security and other fields, it still faces many structural and process challenges in the process of transformation.

2.1 Analysis on structural drawbacks of administrative system

The digitalization in grassroots governance is firstly affected by the deep constraints of the original institutional structure. In reality, the following structural problems are particularly prominent:

First, “Highly Fragmented and Segmentary System” and “Misalignment of Power and Responsibility”. For a long time, there has been functional overlap and overlapping of responsibilities between vertical management (strips) and territorial management (blocks) in grassroots governance system in China. A business often requires the coordination of multiple departments, but the lack of clear boundaries of power and responsibility easily leads to a situation of "Multiple Management and Lack of Coordination", which leads to difficulties in coordination between digital systems, fragmentation of data interfaces, and inability to connect processes.

Second, imbalance in resource allocation and unequal capabilities. The construction of digital governance platforms often relies on the unified deployment and resource investment of superior departments, but the grassroots acceptance capacity and operation and maintenance guarantee mechanism are relatively weak. Some regions are in the dilemma of "When systems are built from the top yet capabilities lack at the base", and digital platforms have become "Visible but Intangible" virtual tools that are difficult to integrate into daily work.

Third, the fragmentation and formalism trend of technical tools. Most digital governance methods are still at the shallow application stage of "Passive Input - Data Upload - Indicator Display", lacking the ability to respond to actual governance needs. Some platforms were hastily launched due to the promotion of performance appraisal, resulting in "Building platforms brings political credit; maintaining them becomes a deadweight", reflecting a typical problem of technical formalism.

Fourth, the disconnection between data-driven governance and people-oriented governance. At present, some digital applications unilaterally emphasize "Data Management" and ignore the participation and feedback mechanism of "People", forming a governance dislocation that replaces facts with indicators and replaces judgments with models, weakening the temperature and flexibility of governance.

2.2 Manifestations and causes of process barriers

Compared with structural barriers, the bottlenecks of the governance "Process" are more hidden and complex. Even with institutional supply and platform support, if the governance process is not opened up, the coordination mechanism is not established, and the feedback chain is not closed, the transformation cannot be truly implemented. Process obstacles are mainly manifested in the following aspects:

First, the unsmooth process and blocked task operation. In actual work, there are multiple breakpoints in the task handling process, and the information transmission is transmitted layer by layer and the response is delayed. Some governance matters feature the "Multiple Inputs" and "Repeated Feedback" between different departments and platforms, which not only increases the burden on the grassroots, but also weakens the governance efficiency; second, the coordination is broken and the system is separated. Generally, “Siloed" construction problems occur to the digital platform. Different departments act independently and platform data are not interconnected, resulting in high coordination costs and long response chains. In some governance scenarios, the “Disconnection” between technical platform and actual work occurs, and the governance behavior cannot be technically integrated; third, governance is weak and responsibility is virtualized. Digital platforms shall realize the precise compaction of governance responsibilities and closed-loop management of tasks. However, in some areas, the platform is regarded as a means of "Leaving Traces of Work", the division of responsibilities is formalistic, and the assessment mechanism is rigid, which instead gives rise to new governance fatigue and "Digital Inertia" problems; fourth, structural reforms have not synchronously activated process mechanisms. Digital reforms often emphasize top-level design and technological deployment, but ignore institutional support and behavioral transformation in the governance process, resulting in a disconnection between structural adjustments and governance behaviors. After the technical system is launched, grassroots cadres still use the old processes and operating habits, and the process mechanism is not activated synchronously with the structural changes.

The above problems show that the current digital transformation has fallen into the governance paradox of "Structural Promotion - Process Dysfunction". The essence of digital governance does not lie in the construction of the platform and the accumulation of data, but in whether a truly efficient, collaborative, and feedback-based governance mechanism can be formed through institutional embedding and process reconstruction. To solve this paradox, it is necessary to systematically reconstruct the operating logic of grassroots governance activities from the perspective of "Process Optimization".

3. Process Optimization Logic and Mechanism Reconstruction of Digitalization in Grassroots Governance

The core of digitalization in grassroots governance lies not only in platform construction and data application, but also in whether the optimization of the governance process and the reconstruction of institutional mechanisms can be achieved through technology embedding. The key to promoting digitalization from technical upgrading to institutional reconstruction lies in establishing scientific and reasonable process logic, collaborative mechanisms and institutional matching.

3.1 The empowerment path of digitalization to the governance process

The value of digital technology lies not only in the efficiency of its "Instrumental Rationality", but also in the governance logic changes brought about by process re-engineering, data integration and information transparency.

Through process re-engineering, we can clear the "Bottlenecks" in task flow. Digitalization can promote the grassroots governance process from "Manual Breakpoint Process" to "Platform Closed-loop Management" through standardization, template and automation technology. Through automatic reminders of task nodes, visualization of cross-departmental flow, time-limited response and other means, the timeliness and standardization of transaction processing can be achieved.

Through data integration, information islands and system closures can be broken. Based on big data, information communication and resource sharing between different platforms, departments and levels can be achieved, which will help the governance process to "Dispatch by Numbers" and "Promote the Reform by Numbers", promote the transformation from "Information Distribution Governance" to "Data-driven Governance", and provide dynamic support for decision-making.

Through information transparency, the process is made public and the responsibility is consolidated. The task disclosure, progress disclosure and responsibility traceability mechanism based on the digital platform can facilitate achieving the supervision and accountability of the governance process, thereby building a good operation system in grassroots governance featuring "Availability of Procedures, Responses and Loops".

3.2 Construction of coordination mechanism and feedback mechanism in the governance process

Digital governance is not only the optimization of processes, but also the reshaping of the collaborative logic of multi-subjects. The key lies in the formation of a flexible, efficient and dynamically adjustable governance mechanism.

Multi-subject coordination mechanism. In the face of the comprehensiveness and cross-border nature of grassroots affairs, it is necessary to promote the collaborative participation of various government departments, village (community) organizations, platform enterprises and the masses. By establishing a "Task Community" and a "Process Synergy Body", the specific roles and interaction boundaries of various subjects in information co-construction, co-governance of matters, and resource sharing can be clarified in the system.

Dynamic governance feedback mechanism. The effectiveness of the governance process depends not only on whether the "Front-end Governance" is accurate, but also on whether the "Back-end Feedback" is timely. The digital platform shall be embedded with a dynamic evaluation mechanism to achieve real-time perception and dynamic adjustment of governance results through data monitoring, intelligent analysis and public feedback, forming a circular chain of "Problem Discovery - Response Disposal - Performance Evaluation - Process Re-optimization".

Task chain compaction and fault-tolerant incentive mechanism. While improving the clarity of the governance responsibility chain, we shall also pay due attention to leaving "Institutional Flexibility" for grassroots governance, establish a flexible adjustment mechanism and positive incentive mechanism, avoid short-sighted governance of "Single-Test Determinism", and promote grassroots cadres to "Be willing to do, dare to do, and be capable to do".

3.3 Process matching mechanism of digital governance and institutional supply

Digital governance is not a replacement for the system, but an extension and reshaping of the system. The optimization of the governance process must form a supportive embedded mechanism at the institutional level to build an organic unity of "People - Machine - System".

Institutional embedding and technology adaptation mechanism. Platform construction shall be based on institutional norms to prevent "Technological advancement runs ahead of institutional adaptation". Institutional design shall be used to ensure the unification of data standards, information exchange, and process sharing, forming an integrated operation model of "Technology - Procedure - Management" to avoid the governance dilemma of "Formal Unity and Substantive Separation".

Three-dimensional collaborative path of "People - Machine - System". Digital governance transformation is not only a transformation of technical logic, but also a process of reshaping organizational behavior and personnel capabilities. It is necessary to coordinate the promotion of platform construction, cadre training and institutional innovation, so as to realize that people use machines in the system and machines serve people under the system, and form a self-consistent interactive system among the three.

Flexible adaptation and elastic governance mechanism. In the face of the complexity of the grassroots governance environment and the uncertainty of tasks, the governance mechanism must have a certain degree of flexibility. Through the platform design of "Adjustable Processes, Modifiable Rules, and Traceable Nodes", the governance process can be flexibly operated under institutional constraints, and the adaptability and resilience of the governance system can be improved.

4. Process Optimization Technology Pathways for Digital Transformation in Grassroots Governance

On the basis of mechanism reconstruction, digital governance needs to be truly implemented and effective, and it also needs to be supported by technology, through task process reshaping, departmental collaborative optimization, precise service supply, assessment mechanism innovation and empowerment mechanism improvement, to promote the systematic optimization of the governance process. An operational technical pathway will be proposed below from five aspects to form a practical model of "Mechanism - Process - Tool" integrated collaboration.

4.1 Optimization of task handling process

In the current grassroots governance practice, the task handling process generally has problems such as "Task Fragmentation", "Matters Shirking" and "Information Redundancy". To solve the above problems, technical empowerment shall focus on building a “Full-cycle Task Management" system and promote the systematic reshaping of the process through the integration of system and platform.

First, a unified task flow platform shall be constructed to integrate the links of matter acceptance, task assignment, handling progress and result feedback into the same system, so as to achieve comprehensive visualization and dynamic control of the task process, and break the previous drawbacks of decentralized operation of multiple systems and data fragmentation. Second, by setting up automatic reminders and timeout warning mechanisms, time management functions are embedded in process nodes to achieve real-time monitoring of task progress status and improve response speed and execution rigidity. In addition, clarifying the responsible subject, content and processing standards at each node of the process, and embedding the "Responsibility Chain" and "Feedback Mechanism" can effectively prevent the transfer of responsibilities and idle procedures in the process of task handling, thereby forming a standardized, closed-loop and efficient task management system.

4.2 Cross-level and cross-departmental collaborative optimization

There are common problems of complicated administrative levels and fragmented departmental division of labor in the grassroots governance system. This "Fragmented Governance" organizational structure makes governance collaboration more dependent on temporary promotion and interpersonal coordination, lacking a mechanism-based and sustainable operating logic. In face of this realistic dilemma, the promotion of digital governance shall focus on the structural reshaping of "Organizational Collaboration" and build a cross-level and cross-departmental governance collaboration system through platform-based means.

Building a multi-level linkage platform mechanism is the basic path to enhance collaborative capabilities. By connecting the information systems at the county, town and village levels to achieve a unified entrance and interconnection, it not only helps avoid information delays of "Uploading and Waiting at Each Level", but also forms a rapid response chain between governance affairs at multiple levels. On this basis, we will further promote the reconstruction of the mechanism of coordination of matters, take "One Matter, Multiple Responsible Subjects" as the logic, incorporate relevant functional departments into the same task collaboration framework, promote the transformation from one-way assignment to synchronous collaboration, and effectively avoid buck-passing and duplication of work caused by unclear division of responsibilities.

Meanwhile, the deepening of coordination also depends on the unified support of data. By promoting the integration and sharing of core governance data such as population, resources, risks, and needs, and building a fully functional data middle platform, we can provide intelligent support for cross-level decision-making and cross-departmental response. This not only improves the scientificity and agility of the governance process, but also provides a solid foundation for the coordination and response of complex governance tasks at the grassroots level.

4.3 Precision service and response optimization

In the traditional model, services often present problems such as single supply, delayed response, and low matching, which makes it difficult to effectively meet the increasingly diversified and personalized needs of the masses. The introduction of digital technology provides a realistic possibility for promoting the transformation of public services from "Passive Response" to "Active Supply". To achieve this transformation, we firstly need to build a data-driven resident portrait system. Through systematic analysis of population attributes, behavioral preferences and service usage records, we can form the foundation of "Portrait-based Governance" so that grassroots governance subjects can more accurately identify the potential needs of individuals and groups, thereby achieving stronger matching in policy push and resource allocation. With this mechanism, service supply can shift from the previous "Waiting for the masses to come to the door" to "Portrait-oriented Sinking", and achieve "Imperceptible" active response.

Meanwhile, the service response mechanism also needs to be systematically reconstructed. By integrating multi-channel complaint and feedback systems such as the 12345 hotline, WeChat groups, and mini-programs, and introducing artificial intelligence means to conduct real-time monitoring and intelligent early warning of problem clues, it will facilitate forming a service closed loop of "Problem Discovery - Quick Handling - Return Visit for Results". The key to this mechanism is to compress the service response chain, improve the handling efficiency, and strengthen the public's sense of participation and satisfaction evaluation in the feedback mechanism.

In addition, while digital services are constantly expanding, we must face up to the realistic challenges of the "Digital Divide". In order to avoid the situation where vulnerable groups are "Seen But Not Accessible" in governance, a "Digital Service Workstation" integrating consultation, co-organization and guidance shall be set up in the community. Through the integrated model of "Online Service + Offline Contact", the inclusiveness and universality of digital governance can be enhanced, and the transformation of technology to people-oriented can be truly realized.

4.4 Pressure transmission and assessment optimization

For a long time, the assessment system in grassroots governance has generally shown a tendency of "Focus on Results and Negligence of Processes", often focusing on post-event accountability and ignoring process incentives, which easily leads to problems such as formalism and passive coping. The embedding of digital means provides new possibilities for the advancement, refinement and intelligence of the assessment mechanism.

With the support of technical conditions, the assessment mechanism can shift from traditional periodic and post-event evaluation to a more dynamic and visible "Process Management" orientation. By building a "Real-time Performance Dashboard", the key behaviors, response speed and task completion quality of cadres in the execution process are dynamically presented in the form of data, so that they can perceive their own performance in time in their daily work and stimulate endogenous governance motivation. At the same time, with the help of the "Daily Data Reporting" system, the performance data can be made transparent and public, promoting horizontal comparison and healthy competition.

More importantly, a pressure transmission mechanism with both positive incentives and negative feedback functions shall be established to avoid the examination and evaluation that only emphasizes negative lists or "Problem Orientation". The digital platform can push differentiated feedback content based on the performance of cadres, pointing out shortcomings and giving timely praise, thereby achieving flexibility and personalization of governance incentives and preventing the extensive management tendency such as“Instrumentalization of Performance Governance” and “One-size-fits-all Approach”.

The reconstruction of the assessment system also needs to break through the shackles of "Result Orientation" and establish a multi-dimensional evaluation indicator system covering "Process Performance, Problem Closure and Mass Evaluation". By incorporating the key nodes of the governance process, the response to mass demands and the subjective satisfaction of the service recipients into the performance evaluation framework, the assessment system can more comprehensively reflect the effectiveness of governance and achieve a three-dimensional measurement of governance capabilities.

4.5 Grassroots empowerment and flexible disposal support

From the perspective of governance concepts, truly effective digital transformation shall be accompanied by the process of "Power Reconstruction". Specifically, the system design shall give grassroots units the power to independently edit some process flows, allowing them to flexibly adjust task templates, operation sequences and service content based on governance needs, problem types and resource conditions, so as to build a more adaptable "Flexible Governance Module". This mechanism breaks through the single logic of "Collecting Instructions and Sinking Tasks" of traditional platforms, enabling grassroots organizations to achieve bounded autonomous operations within the rules.

At the governance operation level, the key to empowerment is to ensure that grassroots organizations have a certain degree of discretion and disposal space. In the face of specific affairs, especially cross-domain and sudden problems, if the platform system lacks flexibility, it is easy to cause process rigidity, delayed response, and even secondary governance risks. Therefore, the "Standard Template" tendency in platform configuration shall be avoided, and reasonable decision-making flexibility shall be reserved for grassroots cadres so that they can make quick and reasonable judgments based on the actual situation.

The release of governance capabilities also depends on the support of knowledge and tools. The construction of a "Problem Case Library" covering typical cases, response strategies and regulatory guidance, as well as an "Intelligent Assistant" system with automatic recommendation and situation recognition capabilities, can not only alleviate the knowledge pressure of grassroots cadres when facing complex affairs, but also achieve "Experience Transfer" and "Expert Assistance" to a certain extent, and enhance the comprehensive response capabilities of grassroots frontline cadres.

5. Conclusion

The digital transformation in grassroots governance is a deep change that affects the overall modernization of the governance system and governance capabilities. The key lies not only in the introduction of technology, but also in the reshaping of governance processes, the construction of collaborative mechanisms, and the collaborative evolution of institutional capabilities. Starting from the core perspective of "Process Optimization", this paper analyzes the prominent problem of "Structural Leap and Process Failure" in the current transformation practice, and proposes that digital transformation shall be promoted from formal promotion to substantive empowerment through process re-engineering, collaborative mechanism embedding, and system and technology integration. On this basis, in future, the mechanism linkage between top-level design and grass-roots execution shall be further strengthened, a process rule system that takes into account both flexibility and standardization shall be built, and platform construction and institutional support shall be promoted simultaneously. Meanwhile, it is necessary to strengthen the design of grassroots-oriented incentive mechanisms, improve the transparency and feedbackability of the governance process, and stimulate the enthusiasm and creativity of grassroots subjects. More importantly, digital capability building and organizational adaptation mechanisms shall be used as core supports for transformation to promote the transformation of digital platforms from being "Available" to "Easy to Use" and "Commonly Used". Only by realizing the deep coupling of structural reform, process rationalization and capability reconstruction can we truly unleash the institutional potential of digital reform and promote the continuous improvement of effectiveness in grassroots governance.

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References

[1] Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. Digital Era Governance: IT Corporations, the State, and E-Government. Oxford: Oxford University Press,2006.

[2] Heeks, R. Implementing and Managing eGovernment: An International Text. London: SAGE Publications, 2006.

[3] Chen Xiaohua, Pan Yuhang. Digital Government: Evolutionary Stages, Holistic Models, and Governance Implications. Observation and Reflection, (01), pp: 97-106, 2021.

[4] Chen, Y., & Li, N. The logic and path of collaborative governance in smart cities under complex society. Guizhou Social Sciences, (5), pp:119-126,2024.

[5] Quan, Y., & Wu, J. Key elements and practical pathways for building high-performance digital government. Journal of Xi'an Jiaotong University (Social Sciences Edition), 44(4), pp:97-108,2024.

[6] Yang, Z., & Sang, M. Research on collaborative optimization path of government information archiving under the "One-Network Service" initiative. Archives Management, (3), pp:62-65, 2023.

[7] Liang, Z. City Brain: Operational mechanisms, governance efficacy, and optimization pathways. People's Tribune·Academic Frontiers, (9), pp:58-65,2021.

[8] Zhang, H., & Yang, Z. Dilemmas and optimization pathways of grassroots supervision from the perspective of functional decentralization: A case study of Nanjing Government Service Hotline 12345. Modern Management Science, (1), pp:83-91,2024.

[9] Fan, F., & Deng, W. Civil servants' digital literacy, organizational resources, and digital government construction behavior: An exploratory study based on survey data. Modern Management Science, (5), pp:92-102,2024.

[10] Yao, Q., & Yu, J. Embedding and restructuring: The logic of digital technology reshaping government governance systems and its grassroots dilemmas. Journal of Gansu Administration Institute, (5), pp:41-52+126,2021.

[11] Zhang, Y., Jin, W., & Tan, Y. (2024). Research on the improvement path of local government digital governance capability: A configuration analysis based on the TOE framework. Research on Economics and Management, 45(4), pp:93-111.