Digital Governance: Effective Paths and Strategies to Enhance Government Credibility

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Manuscript received December 5, 2024; accepted April 4, 2025; published May 22, 2025.

***Abstract*—Against the backdrop of the booming development of digital technology and its deep penetration into all areas of society, the mode of government governance is undergoing profound changes. Government credibility, as a key link in maintaining the relationship between the government and the public, has become an important issue in the modernization of national governance. This study focuses on the effectiveness of digital governance in improving government credibility, and systematically analyzes the intrinsic connection and mechanism between the two. The study finds that digital governance enhances government credibility through four core paths: data empowerment, intelligent decision-making, service innovation and collaborative governance. In terms of data empowerment, the government utilizes the open data platform to publicize government data, and blockchain technology guarantees the authenticity and security of the data and enhances the effectiveness of public supervision. Intelligent decision-making relies on big data and algorithms to optimize the decision-making process and enhance the scientific nature of policies. Service innovation takes the integrated government affairs platform and artificial intelligence customer service as the carrier, transforming the service mode and improving public satisfaction. Collaborative governance breaks down departmental barriers and shows the government's responsibility in emergency management and other scenarios. However, in practice, government decision-making faces problems such as digital divide, data security risks, insufficient adaptability of technology application and formalization of public participation. There are significant differences in digital infrastructure and skills among different regions and groups, such as frequent data leakage incidents, poor integration of systems and business processes, and imperfect public feedback mechanisms. To address these problems, the article proposes a series of optimization strategies, including bridging the digital divide, strengthening data security regulation, deepening technology-business integration, and improving public participation mechanisms. This study provides theoretical references for understanding the laws of government governance in the digital era, and the proposed optimization strategies are of practical guidance. This paper is also of great value in promoting the synergistic development of digital governance and government credibility, and realizing the goal of modernization of national governance.**

***Keywords*—digital governance, government credibility, data empowerment, public participation, governance effectiveness**

I. Introduction

At a time when digital technology is deeply integrated into social life, the government governance model is undergoing unprecedented changes. From cloud computing, which breaks down the barriers of data storage and computation, to artificial intelligence, which realizes intelligent upgrading of decision-making, to blockchain technology, which builds up a credible data-sharing environment, digital technology is reshaping the interactive relationship between the government and the public. Government credibility, as a key element in the interactive relationship between the government and the public, directly affects the effectiveness of policy implementation, the stability of social order, and the modernization process of national governance (Akshi and Arunima, 2021). Digital governance, with its data-driven, intelligent decision-making, collaborative sharing and other characteristics, opens up a new path for government credibility enhancement. Studying the effectiveness of digital governance in improving government credibility not only helps to deepen the understanding of the laws of government governance in the digital era, but also provides an important direction for solving real governance problems and enhancing government legitimacy.

II. Core Elements of Digital Governance

A. Core Elements of Digital Governance

Digital governance is a new model of governance of public affairs supported by digital technology and centered on data resources. It covers the whole chain process from data collection, analysis to application. It emphasizes breaking down the information barriers between departments through technical means such as big data, artificial intelligence, and blockchain to achieve collaborative governance across levels and departments (Kang and Wang, 2022). From the perspective of theoretical traceability, digital governance is born out of the new public management theory and governance theory, and under the wave of digital technology, a governance paradigm with distinctive characteristics of the times has been formed. Its essence is to utilize technological empowerment to promote a shift in the concept of governance from the traditional hierarchical system to a more open, collaborative and intelligent model, thereby enhancing governance effectiveness and responsiveness.

In practical application, digital governance runs through all aspects of government governance. In the field of urban management, real-time collection of urban environment, traffic, energy and other data through IoT sensors, combined with artificial intelligence algorithms for analysis, to achieve the fine management of urban operation. In the field of public services, relying on the government cloud platform to integrate various types of service resources, providing the public with one-stop, personalized service experience (Ren *et al.*, 2020). Take Xiongan New Area as an example, this "city of the future" has built a digital twin city system at the early stage of construction. The city's operational data is collected through a full-area sensing device, which simulates the state of the city in virtual space in real time. It can also assist in

urban planning and management decisions, which demonstrates the forward-looking application of digital governance in urban construction.

B. Meaning and Composition of Government Credibility

Government credibility is the ability of a government to gain public trust through its own behavior in the course of performing its functions. It encompasses a number of dimensions: in policy formulation, policies are required to be scientific, forward-looking and fair. In policy implementation, it emphasizes efficiency, transparency and fairness. In service provision, convenience, quality and universality are emphasized. From the perspective of social psychology, the formation of government credibility is the public's attitude of trust based on the cognition, emotion and evaluation of government behavior. The accumulation of such attitudes directly affects the interactive relationship between the Government and the public (Virgilio *et al.*, 2023).

The constituent elements of government credibility include the government's legitimacy, integrity, accountability, service capacity, and the public's sense of identity and satisfaction with the government. The level of government credibility is directly related to social stability and development. A government with high credibility can better build social consensus, stimulate public participation in social governance, and reduce the cost of policy implementation. On the contrary, it may trigger public skepticism towards the government, leading to obstruction of policy implementation and even affecting social order. In some countries, the government's lack of science in economic policy making has led to economic crises. The sharp decline in public trust in government and the intensification of social conflicts have fully emphasized the importance of government credibility.

III. Role of Digital Governance in Enhancing Government Credibility Paths

A. Data Enablement to Enhance Government Transparency

The full openness and sharing of data is the key to digital governance to enhance government transparency. Through the construction of a data openness platform, the Government has categorized and organized government data and made it available to the public, covering a wide range of areas such as financial revenues and expenditures, administrative approvals, and public resource transactions (Li, 2020). The public can directly query the relevant data through the network, understand the dynamics of government work and resource allocation, and realize the all-round supervision of government behavior. From the technical realization level, the non-tampering characteristics of blockchain technology provide a guarantee for data authenticity. The distributed storage mode ensures data security and reliability, further enhancing the credibility of data openness.

The Data.gov platform, launched by the United States Government, integrates more than 200,000 data sets. It covers a wide range of fields, such as agriculture, education and the environment, and allows citizens to access data free of charge and to monitor government decision-making and the use of resources. This transparency initiative effectively reduces information asymmetry between the government and the public and enhances public trust in the government. In China, Shenzhen has established an open platform for government data that opens up basic data such as transportation, meteorology, and education. Through technologies such as data sandboxing, and under the premise of safeguarding data security, the government supports enterprises and scientific research organizations to make innovative applications of data. This promotes the mining of data value and also allows the public to gain a deeper understanding of government data management and application, enhancing government transparency.

B. Intelligent Decision-making Enhances the Government's Scientific Governance Capacity

Artificial intelligence and big data analytics provide powerful support for government decision-making. The government collects massive amounts of social data and analyzes it using machine learning algorithms. This can accurately predict social trends, public needs and potential risks, so as to formulate more scientific and rational policies. During the epidemic prevention and control period, governments in many countries used big data to analyze the trajectory of people's movement and the epidemic spreading model, and adjusted the prevention and control strategy to control the spread of the epidemic in a timely manner (Milakovich, 2019). This demonstrates the important role of digital technology in scientific decision-making. From the perspective of decision-making process optimization, digital governance has constructed a closed-loop decision-making system of "data collection-analysis and modeling-simulation and deduction-decision-making-effect evaluation", which makes decision-making more accurate and efficient.

In addition, digital governance supports governments in policy simulation and evaluation. Through the construction of virtual simulation models, the possible effects of different policy options are simulated and deduced. This can identify policy loopholes and potential problems in advance, optimize policy design, improve the precision and effectiveness of decision-making, and give the public a real sense of the scientific and reliable nature of government decision-making. The Dutch government, in the development of urban water resources management policy, the use of digital twin technology to build a model of the urban water system, simulating different rainfall scenarios such as urban drainage, flood control, etc., to assess the effectiveness of the implementation of the policy (Antonio, 2020). Eventually, they formulated more targeted water resource management policies, which enhanced the credibility of the government in urban governance.

C. Service Innovation to Optimize Public Experience

Digital governance promotes the transformation of the government service model from "government-centered" to "public-centered". Through the construction of an integrated government service platform, various types of service matters have been integrated to realize "one network to do" and "palm to do". The public can conduct business anytime and anywhere, greatly improving efficiency. At the same time, artificial intelligence technology is utilized to provide intelligent customer service, online consultation and other services, answering public questions in a timely manner and improving the convenience and satisfaction of services.

Starting from the theory of service design, digital governance introduces the concept of user experience design to optimize the service process and interface and enhance the ease of use and friendliness of the service, oriented by the public's needs (Siyue and Chunyu, 2021).

For example, China's "Guangdong Provincial Affairs" app integrates more than 1,600 service items from various departments, including public security, human resources and social security, and civil affairs, so that users can complete social security payments, document applications and other businesses through their cell phones. The platform has a cumulative total of more than 180 million registered users, truly realizing "more data running, less running by the public". This innovative service model allows the public to effectively feel the efficiency and convenience of government services, and enhances their goodwill and trust in the government. In the field of intelligent elderly services, some local governments have made use of IoT and big data technologies to provide personalized services such as health monitoring, emergency call and life care for the elderly. Health data such as the heart rate and blood pressure of the elderly are collected in real time through smart bracelets, and the system automatically notifies family members and medical institutions in the event of abnormalities. This kind of precise service enhances the satisfaction of the elderly and their families with the Government's elderly care services, which in turn strengthens the Government's credibility.

D. Collaborative Governance Strengthens Government Accountability

Digital governance breaks down the compartmentalization of government departments and promotes cross-departmental and cross-regional collaboration. Through the establishment of a collaborative governance platform, it integrates the data resources and business processes of various departments, realizes information sharing and business synergy, and improves the Government's ability to respond to complex issues. From the perspective of organizational theory, digital governance promotes the transformation of the organizational structure of the Government from a hierarchical system to a networked one, enhancing organizational flexibility and synergy.

In emergency management, public security, firefighting, medical care, transportation and other departments are able to respond quickly to emergencies through data sharing and collaborative linkages. This also allows for efficient rescue work and fully demonstrates the government's responsibility. In the process of flood relief, the government utilizes digital technology to integrate data from water conservancy, meteorology, civil affairs and other departments to grasp the dynamics of the disaster in real time (Xinming *et al.*, 2021). It can also rationalize the deployment of rescue resources, transfer the affected people in time, and safeguard people's lives and properties. This model of collaborative governance allows the public to see the government's efficient actions and positive behavior at critical moments, and enhances the government's credibility. In transnational epidemic prevention and control cooperation, governments share epidemic data, prevention and control experience and medical resources through digital platforms to jointly respond to global public health crises. This demonstrates the government's responsibility in international affairs and enhances the credibility of its own government in the international community and in the eyes of the domestic public.

IV. Practical Case Studies on Digital Governance to Enhance Government Credibility

A. Zhejiang, China's "One Run at Most" Reform

Zhejiang's "run at most once" reform is a typical case of digital governance enhancing government credibility. Through the construction of an integrated government service platform, approval and service matters dispersed among various departments were integrated to realize online and offline integration. During the reform process, big data technology was used to optimize the process, streamline the approval process, and compress the processing time. In terms of the reform mechanism, the "run at most once" reform is based on standardization, with unified specifications for the names of matters, application materials, and processing procedures, ensuring consistency and standardization of services (Choongsik *et al.*, 2021).

Up to now, 98.8% of the livelihood matters and 99.6% of the enterprise matters in Zhejiang province have realized "running at most once". The satisfaction rate of the public and enterprises has reached 96.5%. The "one visit at most" reform has not only improved the efficiency of government services, but also strengthened the public's recognition of the government's ability to reform and innovate. Zhejiang has also extended the experience of the "run at most" reform to the grassroots level by establishing citizen service centers in townships (streets), integrating grassroots service resources, and using digital technology to realize the sinking of services. The measure allows people to conduct business at their doorsteps, further bringing the government closer to the public.

B. Singapore Smart Nation Program

Singapore's Smart Nation Program is committed to building a digital government that provides convenient services to the public by building a national digital platform and integrating data resources from various government departments. In the transportation sector, intelligent transportation systems are used to monitor traffic flow in real time, optimize traffic signal control and ease traffic congestion (Manoharan *et al.*, 2022). In the medical field, an electronic health record system is implemented to share medical information and improve the quality of medical services. At the national strategic level, Singapore's Smart Nation Program is data-driven at its core, and has formulated a development plan that covers a wide range of aspects, including digital infrastructure, data governance, and technological innovation. This ensures a systematic and continuous approach to digital governance.

The implementation of the Smart Nation Program has enabled the Singapore Government to present an efficient and intelligent image in urban management and public services. This has enhanced public trust in and support for the Government, and has become an international example of digital governance enhancing government credibility (Li, 2020). Singapore also actively promotes the application of digital technology in the field of education, and through the

construction of a smart education platform, integrates high-quality education resources and provides students with personalized learning solutions to meet the learning needs of different students. This measure has significantly improved the quality of education and further consolidated the Government's credibility in the field of education.

C. Denmark's Digital Government Ecology

Denmark is at the forefront of the world in the construction of digital government, and has enhanced the credibility of the Government through the construction of a sound digital government ecosystem. The Danish Government has introduced a "digital identity card" system, which allows citizens to conduct all kinds of government business online with their digital identity cards, realizing the convenience and security of identity authentication (Pablo and Ian, 2021). At the same time, Denmark has established a unified government data sharing platform to break the data silos between departments and promote the circulation and sharing of data. In the process of policy formulation, the Danish government utilizes big data to analyze public opinions and social needs, and improve the scientific and targeted nature of policies. In the formulation of energy policy, by analyzing energy consumption data and public attitudes towards clean energy, it has formulated an energy transition policy in line with Denmark's national conditions, which has gained wide public support and enhanced the government's credibility in energy governance. Denmark's digital government eco-construction focuses on public participation, encouraging the public to participate in government decision-making and responding to public concerns in a timely manner through online forums, social media and other channels, which enhances the interaction and trust between the Government and the public.

V. Problems in the Process of Digital Governance to Enhance Government Credibility

A. Digital Divide Exacerbates Equity Challenges

Despite the rapid development of digital technology, the digital divide between different regions and groups still exists. Groups such as the elderly and residents of remote areas have difficulty in fully enjoying the convenient services brought about by digital governance due to a lack of digital equipment or digital skills. Analyzed from the socio-economic level, the digital divide is closely related to the level of regional economic development and the distribution of educational resources. Economically developed regions with well-developed digital infrastructures and residents with higher digital literacy are better able to integrate into digital governance, while less economically developed regions face problems such as insufficient equipment, poor network coverage and a shortage of human resources.

This may lead to an imbalance in the provision of public services, exacerbating the problem of social fairness and affecting the credibility of the Government. For example, in some remote mountainous areas, due to weak network signals, residents are unable to conduct their government business online and have to travel to the county seat to do so, increasing the cost and difficulty of doing business. This service gap easily triggers the public to question the fairness of the government. In addition, older people's ability to accept and use digital technology is limited, and during the epidemic, online booking for medical appointments and ticketing in some places left older people feeling overwhelmed. This raises social concerns about the ageing of digital services, which, if not properly addressed, will affect the Government's credibility among the older population.

B. Data Security and Privacy Protection Pitfalls

In the process of digital governance, a large amount of personal data is collected and used, and data security and privacy protection face serious challenges. From the technical level, with the explosive growth of data volume and the continuous expansion of data application scenarios, incidents of data leakage and misuse occur from time to time. This not only jeopardizes public interests, but also raises public concerns about the government's ability to manage data. Hacker attacks, internal personnel irregularities, and data storage vulnerabilities may all lead to data leakage (Doris *et al.*, 2023).

If the databases of government departments are hacked, a large amount of citizens' personal information is leaked, including identity card numbers, contact information and home addresses. This poses a great security risk to citizens and makes the public question the government's ability to manage data security. In addition, some enterprises may have over-collected and illegally used personal data in the course of cooperation with the government. If government regulation is not in place, it will further exacerbate public concerns about data security and privacy protection, and weaken public trust in government digital governance.

C. Inadequate Adaptation of Digital Technology Applications

In the process of applying digital technology, some government departments have the problems of emphasizing hardware construction but not software application, and emphasizing formal innovation but not substantive effectiveness. From the perspective of organizational culture, the organizational inertia of the traditional hierarchical system makes some departments lack initiative and innovation in the application of digital technology, making it difficult to adapt to the requirements of digital governance. The integration of digital technology with government business processes is not deep enough, resulting in complex system operations and low functional utility. This has affected the efficiency of government services and the public experience, and constrained the effectiveness of digital governance in enhancing government credibility.

If the government has invested a large amount of money in building an advanced government service system, the system is left idle due to a disconnect between the system design and the actual business needs, and the complexity of the operation interface, which makes it difficult for both staff and the public to use. The phenomenon results in a waste of resources and also reduces public satisfaction with government digital services. In addition, the lack of unified standards and norms in the application of digital technology in some government departments has prevented the interoperability of data between different systems, creating new "information silos" and affecting the synergy and wholeness of digital governance.

D. Depth of Public Participation to Be Enhanced

Although digital technology has provided more channels for public participation, there are problems of formalized participation and insufficient depth of participation in actual participation. Analyzing from the perspective of public participation motivation and mechanism, on the one hand, the initiative and enthusiasm of public participation are affected by factors such as participation cost and expectation of participation effect; on the other hand, the interaction between the government and the public mostly stays at the level of information dissemination and opinion collection, and there is a lack of effective feedback and processing mechanism for the suggestions and demands put forward by the public. Under such circumstances, it is difficult to truly mobilize the public to participate, which affects the enhancement of the Government's credibility (Xanthopoulou and Antoniadis, 2020).

Some government websites have set up columns for collecting public opinions, but the opinions submitted by the public are not organized and replied to in a timely manner. Alternatively, the replies are generalized and lack specificity, making the public feel that participation is just going through the motions, and this will reduce the enthusiasm of public participation. In addition, although public participation activities have been carried out in the process of formulating some major policies, due to insufficient disclosure of information, it is difficult for the public to fully understand the background and content of the policies, and they are unable to put forward valuable opinions. This has led to public participation being reduced to a mere formality, and has prevented it from truly bringing into play the role of public participation in enhancing the credibility of the Government.

VI. Strategies for Optimizing Digital Governance to Enhance Government Credibility

A. Bridging the Digital Divide and Promoting Equity in Services

The Government should increase investment in areas with weak digital infrastructure and improve the scope and quality of network coverage. Digital infrastructure conditions have been improved through the implementation of projects such as the rural broadband penetration project and the construction of communications base stations in remote areas. Digital skills training activities should be carried out, and personalized digital skills training services should be provided for groups such as the elderly and residents of remote areas, to help them master the use of digital equipment and the skills of doing things on the Internet. It is proposed that in rural areas, vocational colleges, training institutions and other organizations should jointly carry out "digital skills to the countryside" activities. Through on-site teaching and video tutorials, farmers are taught to use smartphones to handle social security payments, sales of agricultural products and other businesses.

At the same time, the needs of different groups are fully taken into account in the design of government services, and the necessary offline service channels are retained to ensure that the fruits of digital governance benefit the entire population. For special groups, such as the elderly, offline help-and-help services are provided, and specialized service windows are set up in government service halls to arrange for staff to assist with business. In addition, it has promoted the ageing-adapted transformation of digital services and optimized the interface design of government service platforms. It has simplified the operation process, added voice prompts, large font displays and other functions to facilitate the use of older persons (Wang *et al.*, 2023).

B. Strengthening Data Security and Privacy Protection

Improve laws and regulations on data security and privacy protection, and clarify the security responsibilities and regulatory requirements for data collection, storage, use and sharing. Drawing on advanced international experience, it has formulated data protection laws that are in line with China's national conditions, established a data classification and grading protection system, and implemented strict protection measures for sensitive data. Strengthen the research and development and application of data security technology, and adopt data encryption, access control, privacy computing and other technical means to safeguard data security. For example, federal learning technology is being used to realize cross-agency collaborative data analysis without disclosing the original data, which protects data privacy while giving full play to the value of the data.

A data security monitoring mechanism has been established to carry out regular data security inspections and risk assessments, and to identify and resolve data security problems in a timely manner. A specialized data security regulatory body has been set up to strengthen the supervision of data management practices of government departments and enterprises, and severe penalties have been imposed for violations. At the same time, it has strengthened data security publicity and education, raised the public's awareness of data security and privacy protection, guided the public in the proper use and protection of personal data, and strengthened the public's trust in government data management.

C. Deepening the Convergence of Digital Technology and Business

To build a "demand-technology-application" trinity integration system, government departments need to regularly carry out business process sorting, and make clear the application scenarios and pain point needs of digital technology. For example, for the invoice auditing business of the tax department, the image recognition technology of artificial intelligence can be utilized to automatically transform the paper invoice information into electronic data and complete the auditing, which significantly improves the auditing efficiency (Alex *et al.*, 2020). Establish a cross-departmental digital technology application coordination group to break down departmental barriers, promote data sharing and business synergies, and avoid duplication of construction and the "information island" phenomenon. For example, in urban traffic management, integrating data from multiple departments, such as transportation, public security and municipal affairs, optimizing traffic signal timing and planning bus routes through big data analysis to improve urban traffic management.

Agile development and iterative optimization mechanisms are introduced to quickly adjust the functions of the digital

system according to business changes and user feedback. The government can cooperate with professional technical teams and use modular development to split the government affairs system into multiple functional modules, so as to realize rapid updating and upgrading of local functions. At the same time, the standardization of digital technology applications should be strengthened, and uniform data interface standards, business process standards and security norms should be formulated. This ensures compatibility and interoperability between different systems and lays the foundation for the deep integration of digital technology and business.

D. Improving Public Participation Mechanisms

Creating a full-cycle, multi-dimensional public participation platform. Before policy formulation, use big data to analyze the public's hotspots of concern and demand tendencies, and widely solicit opinions through social media, online questionnaires, etc.; in the process of policy formulation, invite public representatives to participate in argumentative hearings and seminars, and utilize virtual simulation technology to demonstrate the simulated effects of the policy, so as to enhance the public's understanding of the policy; and after the implementation of the policy, set up real-time feedback channels, such as an online evaluation system, a platform for complaints and suggestions, etc., to After the implementation of the policy, real-time feedback channels are established, such as online evaluation systems and complaint and suggestion platforms, to collect timely public evaluation of the policy effect and suggestions for improvement. For example, in the urban renovation project for old districts, residents are allowed to participate in the design of the renovation plan by means of online voting and discussion in community forums, so as to fully respect the wishes of the residents (Luo *et al.*, 2020).

Establishment of an incentive and guarantee mechanism for public participation. Provide material rewards or honorary recognition to members of the public who actively participate in government governance and make effective suggestions, such as awarding the "Outstanding Citizen's Suggestion Award" and providing coupons for public services. At the same time, improve the legal protection system for public participation and clarify the rights and obligations of public participation. Standardize the government's handling process and feedback mechanism for public opinions to ensure that public opinions are effectively valued and handled, and to increase the enthusiasm and initiative of public participation.

E. Strengthening Digital Governance Talent Development and Team Building

Building a tiered and categorized system for training talents in digital governance. For leading government cadres, training in strategic thinking and decision-making ability in digital governance will be carried out, requiring them to master the new concepts and methods of government governance in the digital era. For grassroots staff, training in digital technology operation skills and business integration ability is conducted to enhance their digital application level in actual work. Regularly organize training courses on digital governance for government personnel, inviting experts, scholars and industry elites to give lectures and share cutting-edge theories and practical experience.

Establishing a mechanism for collaborative education among the government, industry, academia and research institutes. The Government has cooperated with universities, scientific research institutions and enterprises to build a training base and practice platform for digital governance talents. Colleges and universities open digital governance-related majors and courses, focusing on the combination of theory and practice. Scientific research institutions provide technical research and development and intellectual support. Enterprises participate in curriculum design and practical teaching, and provide internship and employment opportunities for students. In addition, the incentive mechanism for digital governance talents is improved, and tilts are given in terms of remuneration and treatment, title evaluation, and career development. Attract and retain outstanding talents to create a high-quality, professional digital governance talent team.

VII. Conclusions and Outlook

A. Summary of Findings

This study systematically explores the utility of digital governance in enhancing government credibility, and argues that the in-depth application of digital technology has become a key path to optimize government governance and enhance public trust. At the level of mechanism, open data sharing makes government finance and decision-making information more transparent, and blockchain technology guarantees the authenticity and credibility of data, which significantly improves the effectiveness of public supervision. Intelligent decision-making system relies on big data and algorithmic models to realize accurate policy formulation. For example, in the prevention and control of epidemics, countries optimize control strategies through data analysis, enhancing public recognition of the government's scientific governance capabilities. Service innovation has reshaped the public-centered service model with the help of an integrated government platform and artificial intelligence customer service, and practices such as the "Guangdong Provincial Affairs" applet have dramatically improved efficiency and satisfaction. Collaborative governance breaks down departmental barriers, demonstrates the government's efficient response capability in emergency management and cross-border cooperation, and strengthens the image of responsibility.

However, digital governance practices still face multiple challenges. The digital divide has led to an imbalance in access to public services between different regions and groups, and older people and those living in remote areas find it difficult to integrate into digital governance due to a lack of digital skills. Data security risks are frequent, with incidents of hacking and data misuse eroding public trust. The application of technology is characterized by the phenomenon of "emphasizing hardware over software", and the low degree of adaptation between systems and business processes affects the service experience. Public participation is often a mere formality, and the feedback mechanism is not sound, failing to give full play to public wisdom. To address these issues, it is necessary to come up with a series of optimization strategies, including strengthening the construction of digital infrastructure, perfecting data security supervision, deepening the integration of technology and business, and improving the public participation mechanism. The study provides an actionable program to promote the

synergistic development of digital governance and government credibility.

B. Future Research Directions and Trends

In the future, research on digital governance and government credibility will continue to expand in the directions of technological innovation, public demand response, and international cooperation. In the field of technological innovation, generative artificial intelligence, quantum computing, and Internet of Things (IoT) sensing technologies have been upgraded iteratively. How to utilize these technologies to further enhance the real-time and precision of government decision-making and create a smarter digital governance ecology deserves in-depth study. The exploration of the application of new privacy protection technologies such as zero-knowledge proof and homomorphic encryption in government data sharing will provide new ideas for cracking the contradiction between data security and openness.

In terms of public demand response, the diversified development of society has led to increasing public demand for personalized and customized government services. Studying how to use digital technology to realize accurate service delivery and meet the differentiated demands of different groups will become an important issue in enhancing the credibility of the government. In addition, how to use digital platforms to build a more in-depth and dynamic mode of public participation, and to stimulate the endogenous motivation of the public to participate in social governance will also be the focus of future research.

At the level of international cooperation, competition in global digital governance rule-making has intensified. It is important to study how to participate in and dominate international digital governance standards to enhance the country's voice in global digital governance. Dissecting cases of transnational digital cooperation to provide practical references for enhancing the government's international credibility will become a new research hotspot. The comparative study of different countries' digital governance models will also provide valuable experience for China to optimize the path of digital governance and enhance the credibility of the government.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Lingzhao Deng wrote the paper and conducted the research; Feng Wu combed the literature; Kun Ni and Xiaowei Chen revised the manuscript; all authors had approved the final version.

Funding

This work was supported by [Guangdong Philosophy and Social Science Planning Group Office] under Grant [GD23XYJ92] and [GD24YYJ19].

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