PAST, PRESENT, AND FUTURE OF DIGITAL GOVERNMENT: INSIGHTS FROM CHINESE PRACTICES

Yuanyuan Guo[1], Teng Zhang[2*], Yi Deng[3]

[1,2] School of Public Policy and Management, Tsinghua University;
No.30 Shuangqing Road, Haidian District, Beijing, China.
[3] School of Government, Beijing Normal University;
No.19 Xinjiekou Outer Street, Haidian District, Beijing, China;
[1] guoasuna@gmail.com; ORCID: 0000-0002-3042-8417
[2*] *Corresponding author:* ztdabao@163.com; ORCID: 0009-0007-4048-941X
[3] bnu_dy@163.com; ORCID: 0009-0003-4287-3686

Abstract. In the digital age, the progression of digital government models presents a nuanced problem that this study meticulously investigates. Contextually, the inception of digital government in China has transpired through three distinct phases, each marked by a characteristic emphasis: technology-oriented, mutual transparency-oriented, and people-oriented. The analysis underscores a critical shift in emphasis across these stages, from an initial concentration on technological deployment to a present focus on mutual transparency and citizen engagement. Despite the evident progress, an issue emerges around capturing and articulating these stages with precision and objectivity. In response to this problem, this study undertakes an in-depth examination of case studies pertinent to each phase, which unravels insights into their defining characteristics. The findings indicate a potential trajectory towards a digital government model that further accentuates public participation. The aim of this study is to deepen the comprehension of the evolution of digital government in China and to shed light on its potential future trajectory, thereby contributing significantly to the dialogue around policy formulation and the future development of digital governance.

Keywords: technology-oriented, mutual transparency-oriented, people-oriented, public participation.

Introduction

In the transformative wake of the fourth industrial revolution, the digital sphere's growing influence is profoundly impacting global socio-economic infrastructures. Technologies such as the Internet of Things, cloud computing, big data, mobile internet, and artificial intelligence, are driving this transformation, dismantling traditional boundaries and establishing a new order of interconnectedness and efficiency. At the epicenter of this digital metamorphosis lies the concept of digital government, an entity charged with integrating these advanced technologies into governance mechanisms. It manages the expectations of an increasingly digitally literate citizenry, whose daily lives are closely intertwined with the digital ecosystem. The digital government's role is thus emerging as not merely administrative but pivotal, signaling a paradigm shift in governance strategies. It calls for an approach that leverages technological advancements to streamline processes and enhance service delivery and emphasizes user-centricity and inclusivity. This novel framework encapsulates an understanding of the citizens' needs, seeks their active participation, ensures transparency, and promotes a sense of shared ownership and accountability. Thus, digital government is moving beyond a technocratic tool to an enabler of citizen empowerment, marking a new era in public administration and governance.

In China, a nation marked by its rapid pace of digitalization, this transformation is particularly palpable (Meng, 2012). With the acceleration of "Digital China", construction and the increasing emphasis on modernizing governance capacities, the call for digital transformation of the government is clear and urgent. Progress towards a digital government in China is sprawling, manifesting in varied models that reflect distinct economic standing, industrial foundations, and development goals across different regions and stages of implementation. Each model embodies unique strategies and mechanisms, underscoring the non-static nature of digital government. It is an evolving entity, adaptable and responsive to the changing socio-economic contexts.

The academic discourse on the models of building a digital government can be divided into four main streams. The first stream is the theoretical school (Liu and Zhu, 2019; Kontogeorgis and Varotsis, 2021), which delves into the conceptual framework of digital government. The second stream is the institutional design school (Chen et al., 2020; Jiang, 2021), which focuses on the systemic structures that facilitate digital governance. The third stream is the technological transformation school (Wang, 2022; Zhang, 2022; Guo et al., 2023), which investigates how advancements in technology can spur the evolution of digital government. Lastly, the service model school (Zhang et al., 2021) studies the methods and practices of delivering digital public services. However, these research perspectives, though insightful, have certain limitations. The theoretical school, establishing the foundational understanding, may overlook practical considerations. The institutional design school, which focuses on systemic structure, may underestimate the role of human factors and cultural aspects. The technological transformation school, with its emphasis on technical aspects, might sideline organizational and policy issues. Lastly, the service model school, while being essential, could disregard the interplay between different elements of digital government, such as technology,

policy, and human factors. This paper fills these gaps by offering a comprehensive, holistic approach. It considers digital government not only as an amalgamation of separate elements but also as an integrated system in which policy, technologies, and service delivery interact and evolve together. The paper strives to offer an extensive perspective on digital government's development, especially within the Chinese context, considering its rapid pace of digitalization. In light of these observations, this study aims to address these gaps by examining the evolution of China's digital government. The central research question is: "Does the archetype of China's digital government remain static, or is it subject to evolution?" Guided by this query, the study seeks to delineate the unique characteristics of digital government across different stages of its development, comprehend the drivers behind these evolutionary transitions, and speculate on possible future directions. The study contributes to a more nuanced understanding of digital government, tracing its growth and potential future trajectories, thus enriching the existing body of knowledge.

Literature Review

Digital advancements are reshaping global socio-economic paradigms. Digital government models in China, centered on digital infrastructure and state-driven digitization, are of paramount importance. Much of the current literature on X pays particular attention to four key paradigms in understanding these models: theoretical, institutional design, technological innovation, and service model.

The theoretical perspective

In a globally acknowledged study exploring the accelerating momentum of governmental digital transformation, Liu and Zhu (2019) introduced 'Digital Government' as a new operational paradigm. This approach, deeply rooted in the principle of business dataization and data operationalization, has significantly changed the governmental realm. By carefully examining the theoretical and practical elements of digital government, Liu and Zhu (2019) provided insights into the progressive trajectory of digital government evaluation models. The research brings forward the contributions of key entities such as Gartner, Accenture, and Waseda University, that established digital government maturity models and laid the groundwork for future advancements. Liu and Zhu (2019) built upon these existing models, presenting a data-driven digital government architectural system to accelerate the digital transformation of governmental operations. Through their detailed analysis, two leading digital government evaluation models came to the fore: the five-level digital government maturity model proposed by Gartner and the digital government evaluation model by Accenture. In addition to this commendable advancements, Liu and Zhu (2019) have also highlighted some potential obstacles on the road to the digital transformation of public administration. They emphasize a striking lack of a strategic approach to digital transformation, an evident deficit in digital service innovation and challenges in the expansion of digital services. Most importantly, they underline the need for more effective integration of data management policies and technologies.

The institutional design perspective

Chen et al. (2020) conducted a comprehensive comparison of local digital governance models and identified several common features. Guided by a comprehensive top-level design, these modes typically commence with institutional reform fostering an environment conducive to meticulous planning and effective resource management. The long-term goal is to create a service-oriented government with a citizen-centered philosophy. These principles are exemplified in the digital government models of Guangdong, Zhejiang and Guizhou provinces. Guizhou, for example, has put a big data strategic plan into action. This initiative centers on the development of a comprehensive national big data trial zone (Guizhou), implementing one cloud, one network, and one platform strategy data resources.

Concerted efforts have significantly enhanced data aggregation, from 10 TB in 2015 to a remarkable 1,387 TB in 2020 (CAICT, 2021). This strategic plan facilitates systematic experimentation in seven crucial areas, including data resource management, sharing openness, data center integration, data resource application, data element circulation, big data industry agglomeration, big data international cooperation, and big data system innovation. These orchestrated initiatives pave the way for the exploration and advancement of new technologies, products, applications, models and regulations, thereby making a significant contribution to critical sectors such as inclusive finance, cultural tourism, transportation, and employment.

Jiang (2021) underscores that the development of a digital government plays an integral role in executing the Digital China strategy and paves the way for the modernization of the national governance system and enhancing governance capabilities. A comparison of the digital government building strategies in Guangdong, Zhejiang and Guizhou provinces reveals common characteristics. These encompass a strong emphasis on strategic planning and top-level institutional structure design, an intense focus on restructuring organizational mechanisms, and a prioritization of building an integrated government service cloud and big data platforms within the technological framework. Despite these similarities, there are also significant differences in areas such as the perceived opportunities and set objectives for building digital government, the implementation modes and intensity of advancement within digital government, and the measured outcomes and focal points of the digital government building process. Looking to the future, building a digital government requires a comprehensive strategy that takes into account the key facets of values, organization, regulatory systems and technology.

The technological innovation perspective

Building on the research on the connotations, models and iteration paths of digital government, Wang (2022) puts forward three distinct models of digital government: data-driven, computational power-driven and algorithm-driven. Zhang (2019) presents a compelling chronicle of the evolution of digital government in China, marking the transition from version 1.0 to 2.0. More intriguingly, this transformation is rooted in distinct digital government models that align with different temporal frameworks, specifically the Information Age, the Data Age and the Intelligent Age. These epochs represent unique stages of digitalization facilitating a smooth shift from traditional to modern, data-driven and intelligent gov-

ernance systems. According to Zhang (2019), the digital transformation of government marks a significant progression in the building of digital government The transformation is presented in a three-stage model that not only illustrates the progression but also forecasts future trends in digital government. Digital Government 1.0 is the first stage, which symbolizes the Information Age. This stage is characterized by data gathering, sharing and presentation of data through digitization. The subsequent stages are encapsulated in Digital Government 2.0, which represents the Data Age and the Intelligent Age, respectively.

In these later periods, intelligence becomes the driving force behind government reform and innovation. This shift propels a transformation in traditional governance approaches, promotes alterations in business processes, and fosters the creation of new governance models.

Guo et al. (2023) claim that from the perspective of information technology development, global government has traversed three epochs: the Weberian model, the New Public Management model, and the Integrated Government model. Based on the developmental stages of governance in China and empirical explorations of building digital government in Qionghai, Guizhou, Shandong, and Guangdong provinces, they summarized four contemporary models of digital government. These include the "Small Government" model, the "Multi-level Coordination" model, the "Process Reengineering" model, and the "EPC General Contracting" model. The era of digital government is characterized by the concentration of computational power, data centralization, business centralization, and consolidated services. In the context of digital transformation, the overarching approach to building digital government in China involves the establishment of a four-tier architecture. This architecture features the distributed deployment of computational power, the effective integration of government and enterprise data, the authorized operation, application of public data, and ubiquitous around-the-clock government services. This strategy aims to expedite the transition from an "Integrated Government" to an "Intelligent Entity Government."

The service model perspective

Zheng et al. (2021) conducted a study focusing on building digital government in ten representative provinces and cities. The backbone of their analysis was resource dependency theory and platform governance theory, providing a lens to categorize the digital government initiatives into three distinct models. These include the Platform Monopoly Model, the Service Delivery Model, and the Internal Management Model. This classification occurred against the backdrop of a national policy that encourages pioneering efforts in building digital government by local governments, thus granting them considerable autonomy to explore different approaches. The dynamics between local governments and their external environment, in particular the degree of their resource dependency, emerged as a decisive factor in selecting the model for building digital government . This interdependence shaped the power relationships among the various stakeholders involved in building digital government, leading to notable differences. Such differences were especially evident in the distribution of decision-making power, formal and informal regulatory power, and ownership rights. As a result, more adaptable models for

building the digital government, reflecting the unique resource dependencies and power structures, emerged in these representative provinces and cities.

The current body of scholarship on digital government models has gravitated predominantly around four main domains. Firstly, scholars have delved into the theoretical dimension, mapping out the frameworks and principles that underpin the concept and operation of digital government. Secondly, an emphasis has been placed on institutional design, including the planning, setup, and management of digital government systems. The third area of focus lies in the realm of technological transformation, scrutinizing how various technologies foster the transition of governmental operations to the digital realm. Lastly, research has extensively addressed the service delivery model, and how digital government can enhance public service delivery and citizen engagement. However, far too little attention has been paid to the dynamic nature of digital government evolution. Most studies have adopted a static approach, focusing on digital government models within a particular time frame or at a specific stage of development. This approach does not adequately capture the continuous evolution and transformation of digital government models over time. Moreover, the changing needs, expectations, and behaviors of citizens – as key stakeholders in digital government – have not been comprehensively explored in existing studies.

Addressing these gaps, this paper embarks on a journey through the changing landscapes of digital government models. It proposes a unique three-stage model of digital government evolution in China (Figure 1): the Technology-oriented Digital Government stage (1996–2006), the Mutual Transparency-oriented Digital Government stage (2007–2015), and the People-oriented Digital Government stage (2016-present). Each stage captures a distinct phase of digital government development, reflecting the changing priorities and focuses over time. By examining the dynamic progression of digital government from a temporal perspective, this study offers a comprehensive understanding of the transformative trajectory of digital government. Furthermore, by foregrounding the people-oriented stage of analysis, the study emphasizes the critical role of citizens in shaping the direction and pace of digital government evolution. Through this approach, the study seeks to illuminate the intricacies of the digital government evolution process and elucidate the strategies for the further development of the digital government in China and potentially beyond.
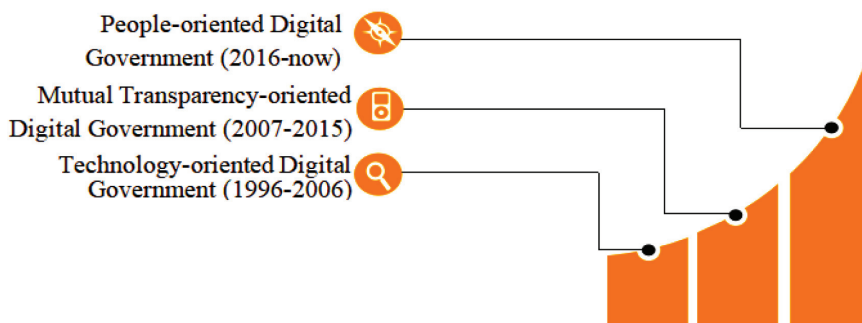

Figure 1: **The evolution of Chinese digital government**

Content analysis was employed in this study as the primary research method. This approach, utilizing content analysis, delves deeper into specific textual and media data to identify patterns, themes, or biases, focusing on the frequency and relationships of specific terms or concepts. Traditional narrative analysis of digital government case studies, on the other hand, emphasizes the sequence and structure of stories or accounts.

While both methods are qualitative in nature, content analysis offers a systematic technique to condense vast amounts of information into discernible categories or themes. In contrast, narrative analysis is centered around understanding the overarching narrative structures, their inherent meanings, and their roles in the digital government context. When observing the single evolutionary model for digitalization since 1996, content analysis can provide a detailed exploration of its progression, spotlighting shifts and trends that may not be immediately apparent in broader narrative accounts.

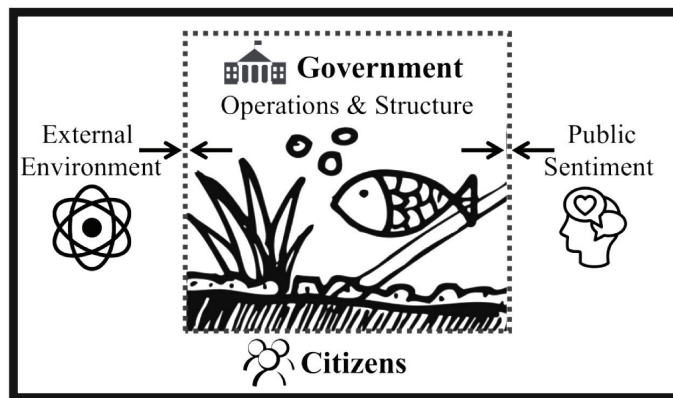## Technology-oriented Digital Government (1996–2006)

Digital government that adheres to a technology-oriented approach, focusing on national efficiency and productivity, predominantly assigns decision-making roles based on technical expertise (Myeung, 2020; Myeung, 2023). This focus marked the advent of China's commitment to government digitalization, signaled by the launch of the "Three Golden Projects". These initiatives encompassed infrastructure, business systems, and information networks and coincided with China's inaugural access to the Internet in 1994 (Yun, 2018).

The period leading up to 2006 marks the inception of China's digital government, characterized by four distinct yet nascent traits. Primarily, the emphasis rested on technical aspects related to network infrastructure. With the dawn of the digital era, the government started to probe into the potential of technology to enhance administrative efficiency. Nevertheless, the coverage and integration of digital technologies remained at a rudimentary stage, with a predominant focus on building the necessary infrastructure. Secondly, the government embarked on efforts to actively disseminate and utilize information. Digital platforms began to function as conduits for government departments to communicate and share information with the public. However, at this stage, the emphasis was predominantly on one-way transparency, illustrating the initial attempts of the government to disclose information to the public. The strategies and systems to ensure comprehensive information transparency were still in their formative stages, pending maturity. Thirdly, this period witnessed the initiation of an expansive and broad-based construction of the digital government. As digital government initiatives began to seep into diverse governmental departments and functions, the ground was being prepared for a more comprehensive implementation in the future. Lastly, security considerations were prioritized during this incipient phase. The introduction of digital technologies in government functions brought potential security concerns to the fore, triggering the formulation of preliminary measures to safeguard the operations of the budding digital government.

Mutual Transparency-oriented Digital Government (2007–2015)

Concept and characteristics

The evolution of the Chinese digital government saw a pivotal shift around 2007. Between 2007 and 2015, the Chinese digital government transitioned gradually from a technology-driven, one-way transparency model to a model of mutual transparency. This change was not just about the government's openness and transparent services towards the public but also encompassed the public's transparency towards the government. This involves a continuous exchange of information between the government and its citizens, with a firm emphasis on openness and transparency in its operations. One way to visualize this relationship is through the analogy of a fish tank (Figure 2), where the government is inside, and citizens are outside. Citizens can view the inner workings of the government, understanding its operations and structure. Simultaneously, the government is aware of the external environment and the public sentiment (Myeung, 2020; Myeung, 2023).

Figure 2: **Mutual transparency-oriented digital government**

Mutual Transparency-oriented Digital Government embodies distinct characteristics that shape its functioning and interaction with citizens. Firstly, information flows bidirectionally, unlike traditional one-way communication. The government transparently shares operations, policies, and services, fostering an ongoing conversation with citizens who provide their feedback and suggestions (Zhai, 2018). Secondly, openness and accountability are central, encouraging transparent actions and decisions and fostering trust and understanding (Lourenco, 2023; Shenkoya, 2022; Fullin Saldanha et al., 2022). Thirdly, citizen engagement is vital, actively involving them in policy-making and oversight to instill a sense of ownership (Cox, 2014; Chen and Chang, 2020). Fourthly, privacy protection is a priority, striking a balance between transparency and privacy to avoid "super-transparency" risks (Cox, 2014; Chen and Chang, 2020). Lastly, quantifiable transparency is emphasized, allowing for objective assessment and continuous improvement of government performance to avoid unnecessary costs while maintaining effective governance.

Theoretical foundation

Information asymmetry, elucidated by the economists Akerlof, Spence, and Stiglitz (1970), describes disparities in market information, leading to challenges like fraud and unfair competition. While its roots are in economics, its relevance spans sectors, including government management. In building a digital government, this asymmetry manifests itself as a gap between the government's comprehensive knowledge of policies and the public's limited awareness. Addressing this, digital government platforms and transparency measures have been developed to bridge the information divide, augment government transparency, and foster public understanding. The two-way transparency model further advances this effort. Differing from traditional one-sided governmental transparency, this model emphasizes both the outward and inward information flows, engendering an informed citizenry capable of both accessing and contributing to governmental data. Leveraging digital platforms, this approach offers citizens engagement avenues, enriching both governmental and public perspectives. Advanced tools in digital government refine this model by using data analytics to ensure effective information dissemination.

Practical case studies and summary of experiences

By the end of 2008, every department of the central government, along with provincial and municipal governments, had established portal websites. At the same time, websites had been set up by 99% of city-level and 92% of county-level governments. Even many streets, townships, and village committees created their own websites or web pages. A significant shift occurred on May 1, 2008 with the implementation of the "Regulations on the Disclosure of Government Information". This sparked a broad wave of applications, as citizens eagerly sought to gain access to public information.

The Capital Window, a pivotal part of the Beijing municipal government portal website, acts as a comprehensive information hub and digital platform for the city's residents. It continually strives to augment government transparency and foster greater interaction with the public. This digital platform, deeply rooted in the principles of mutual transparency, serves as a two-way communication conduit between the government and its citizens.

In terms of outward transparency, the Capital Window takes the initiative to disseminate vital information about the government's operations, policies, services and even the intricacies of its decision-making processes. This open access to information offers citizens a rare insight into the workings of their government and makes governance more understandable and accountable.

At the same time, the Capital Window encourages inward transparency by promoting active citizen participation in policy-making. The platform offers various communication channels for the public to express their views and suggestions on different facets of governance, thereby giving the citizens a sense of power and involvement in the development of their city. As part of its transparency initiative, the Capital Window employs advanced data analysis tools to process user interactions and feedback, which help pinpoint gaps in information delivery and consequently enhance the quality of disseminated information.

Through these efforts, the Capital Window ensures that citizens receive timely and relevant information. This unique approach to mutual transparency has brought tangible benefits by reducing information asymmetry and enabling the public to better understand government operations. At the same time, the feedback collected through this interactive platform has played a key role in refining the government policies and services.

In summarizing the distinctive features of the Capital Window in promoting mutual transparency, three points are particularly notable. First, the Capital Window systematically publishes a wide array of government data, shedding light on how decisions are made and services are delivered. Second, it actively encourages citizens to voice their opinions and ideas on governance, thus promoting the democratic participation of the public. Lastly, it employs advanced data analysis to enhance the quality and efficiency of information dissemination, ensuring the relevance and timeliness of the information being conveyed. The Capital Window, therefore, stands as an exemplary model of a digital government platform that effectively embodies the principles of mutual transparency.

People-oriented Digital Government (2016-Now)

Concept and characteristics

In the span from 2016 to now, China's digital government progressed towards a model of people-oriented digital governance. This phase specifically emphasized the needs and interests of the citizenry, with a focus on improving governmental efficiency and productivity while delivering comprehensive services to the public. The concept of a people-oriented digital government situates citizens at the core of its operations, maintaining a focus on efficiency and productivity. This approach scrutinizes the quantity and speed of services provided to the public, indicating a strong commitment to the people. Additionally, this model pays significant attention to public opinion, signifying a deep understanding of its work's intended recipients. Public opinion reflects the desires, judgments, attitudes, and interests of citizens toward public affairs and societal behaviors (Myeung, 2020; Myeung, 2023).

Embarking on a new era of governance, China has been moving towards a people-oriented digital government model since 2016. Distinguished by its profound dedication to serving the citizenry's needs and interests, this approach reshaped the digital government landscape by prioritizing efficiency, productivity, and comprehensive public services (Zhang, 2019). As a logical evolution of the Mutual Transparency-oriented Digital Government model, the People-oriented approach centers on the citizenry, positioning them at the heart of its functions. This approach marks a clear shift from simply using technology to actively using it as a catalyst for social improvement, ensuring the harmonious integration of management and technology.

The people-oriented digital government is characterized by prioritizing active public participation, enabled by digital platforms for citizens to voice thoughts and engage in decision-making. This model sets a new efficiency standard, streamlining processes and leveraging technology for faster service delivery, fostering

both satisfaction and trust. Interaction becomes a cornerstone, promoting a two-way dialogue for mutual feedback and adaptability in response to real-time public sentiment. Acknowledging diversity, the model strives for equal access to digital government services, bridging the digital divide and fostering an inclusive digital society. Commitment to high transparency and accountability reinforces trust by openly sharing information about government operations, ensuring citizens that their government acts in their best interests. This shift marks a transformative phase in China's digital governance, where technology truly serves the people.

In 2016, China's approach to building digital government changed significantly. The focus turned towards information disclosure, enhancing government-citizen interaction, and improving government services, all with the goal to establish a citizen-centric digital government. In the same year, the "Guiding Opinions of the State Council on Accelerating the Advancement of 'Internet + Government Services'" were introduced. This development spurred governments at all levels to pioneer a set of innovative reforms. These included the "run at most once" policy, "approval without meeting", "one network for all tasks", and "one task, one time". The practical impact of these reforms became evident as services began to shift online and to mobile platforms through government websites and new public affairs media. This marked a significant improvement in administrative efficiency and reduction of systematic transaction costs, fueling ongoing progress in the "delegating powers, improving regulation, and upgrading services" reform.

Building on these improvements, the "Detailed Rules for the Opinions on Fully Promoting Government Openness" were also introduced in 2016. This initiative put forward proposals to use the internet to build a unified system of government services. This initiative gained further momentum in 2018 when the General Office of the State Council issued the "Guiding Opinions on Accelerating the Construction of the National Integrated Online Government Service Platform". The publication of these guidelines highlighted the need to focus on top-level design, encourage overall linkage, enhance normative management and accelerate the construction of a national integrated online platform for government services.

This sustained progress culminated in a significant decision on November 17, 2021. The State Council Executive approved a strategic plan to advance the informatization of the national government for the "14th Five-Year Plan". This plan seeks to enrich the functionality of the national platform for integrated government services and provide more user-friendly public services. These milestones mark the ongoing commitment to reducing information asymmetries and building a more responsive, citizen-centric digital government.

Theoretical foundation

New Public Management (NPM) and the Innovation Diffusion Theory (IDT) critically underpin the evolution of modern governance towards citizen-centric digital government. NPM, a late 20th-century emergence, counters traditional public sector inefficiencies by advocating private sector practices, emphasizing performance, cost-efficiency, and citizen-centric service delivery. As governments transition to digital domains, these principles demand streamlined processes, transparency, and enhanced citizen engagement. Conversely, IDT offers in-

sight into the adoption rate and rationale for new technological implementations in governance. It helps understand stakeholder behavior and the factors driving the assimilation of digital tools, particularly their perceived utility. As highlighted by Meng (2012), governments are leveraging e-Government platforms, data analytics, and user experience design, resonating with NPM's core tenets. Meanwhile, IDT-guided strategies focus on promoting technological acceptance, encompassing digital literacy initiatives and addressing technological gaps. Collectively, NPM and IDT provide a comprehensive blueprint for the ongoing transformation of citizen-centric digital governance, emphasizing streamlined performance, innovation diffusion, and holistic citizen engagement.

Practical case studies and summary of experiences

Since 2016, China has accelerated the development of its digital government, issuing a multitude of policy directives from both the central and local levels. Central government policy documents, include major policies such as the "Thirteenth Five-Year Plan for National Informatization," "Guiding Opinions on Accelerating the Advancement of 'Internet + Government Services'," "Construction Guide for 'The Internet + Government Services' Technology System," "Outline for the Promotion of Big Data Development," "Guiding Opinions on Accelerating the Construction of the National Integrated Online Government Service Platform," "Rural Digital Development of Work Points by 2022," and the "Digital China Construction Overall Layout Plan" serve as guidance, and illustrate the government's unwavering commitment to promote digitalization in governance. These policies aim to harness the transformative power of digital technologies to enhance the efficiency and effectiveness of public services. At the same time local policy documents, spanning across various provinces and cities, complement these central guidelines, underlining the government's holistic approach in fostering a digitally-empowered state. These local strategies tailor the overarching national policy directives to the local contexts, ensuring a well-rounded and comprehensive implementation of digital governance across China.

Since the 18th National Congress of the Communist Party of China, the journey towards a modern socialist society has shifted into high gear, with the "14th Five-Year Plan for National Economic and Social Development and the Outline of the Long-term Goals until 2035" acting as the primary driving force. This crucial plan emphasizes the "Accelerating Digital Development and Constructing Digital China", signifying China's resolve to become a digitally empowered nation. This commitment was further cemented in the 20th National Congress report, underlining the strategic goals of creating a high-quality, networked, and digitized nation. In this metamorphosis, the Central Committee of the Communist Party and the State Council have been diligently crafting strategic plans aimed at modernizing the national governance system and enhancing governance capabilities, with digital construction as the core principle. This strategy achieved a notable breakthrough on June 23, 2022, when the State Council issued the "Guiding Opinions on Strengthening Digital Government Construction". This blueprint laid out a comprehensive approach to building a digital government in China. To accelerate this digital governance strategy

in March 2023, the State Council introduced a reform plan leading to the inauguration of the National Data Bureau.

Managed by the National Development and Reform Commission, this newly minted bureau was envisioned to provide a sturdy institutional foundation to expedite the progress of Digital China, the digital economy, and the digital society. According to the "Explanations on the Reform Plan of the State Council", the Bureau is tasked with building a data infrastructure system and guiding the evolution of Digital China, the digital economy, and the digital society, while ensuring stringent data security and industry data supervision. This strategic initiative draws upon invaluable lessons gleaned from the establishment of big data management institutions at the local government level since the 18th National Congress of the Communist Party of China. These experiences provide crucial insights, contributing significantly to the formation and effective operation of the National Data Bureau. This institutional innovation marks a significant milestone in China's journey towards a comprehensive digital transformation of governance.

Marking a significant milestone in the evolution of digital government, the "National Integrated Government Service Platform" was officially launched on May 31, 2019. The initiation of this platform reflects the importance that the CPC Central Committee and the State Council attribute to a people-centered digital government. This is a crucial step in the path towards creating a more citizen-centric governance structure. As a technology enabler, this platform aids various localities and departments in expediting the standardization of government services. This acceleration ensures a more efficient sharing and recognition of government service information, thereby fostering a more robust digital government ecosystem. One of the hallmarks of the platform is its potential as an exploratory pathway for streamlining processes. It reinforces the idea of "one network", "one window", and "one visit", by effectively addressing and resolving administrative issues such as redundant certifications, procedural complexities, and circular certificates.

Moreover, a fundamental shift occurs through the platform – a transition of government services from offline processing to online booking and acceptance, eventually reaching comprehensive online network management. These improvements do not merely represent a technological upgrade; they significantly enhance the accessibility and convenience of government services for the public and administrative counterparts, thereby augmenting their sense of achievement. By May 8, 2020, the platform had already demonstrated its value and reach. The number of registered users had surged past 100 million, hosting over 800 million visitors and accruing a cumulative user base exceeded 4.5 billion. Furthermore, the "National Government Service Platform" WeChat mini-program emerged as the first national government mini-program with over 50 million real-name registered users. This platform does not just boast impressive numbers; it has also brought about a significant operational change. It plays a vital role in achieving nationwide "one network operation", maximizing data utility, and reducing errands for citizens. People can now search, discover, and access government services across departments, regions, levels, and platforms. The effects of this transformation are tangible. The platform has significantly bolstered administrative

efficiency, facilitated the equitable distribution of public services, expanded the scope of services, and enhanced the extensibility of services.

The people-oriented digital government focuses on the "National Integrated Government Service Platform" as a model for citizen-oriented digital government. The selection of this platform is propelled by several compelling factors, most notably , the rapid evolution of digital government services in China. This evolution caused a surge in the number of government websites and applications, creating a considerable financial burden for the Chinese government due to their development and maintenance costs. CNNIC's 2021 report revealed that, the total number of e-government websites in China had increased exponentially by June 2021. This proliferation led to management complications and left users puzzled about the most suitable platform, resulting in only a few sites securing high user loyalty and law overall user engagement.

The Chinese government has displayed a proactive approach to digitalization and the development of digital government since the 18th National Congress of the Communist Party of China. This commitment aligns with global trends and provides a strong institutional foundation for digital government growth through organizational leadership, national strategy, and top-level design. As a result, digital government now extensively supports various governmental departments in their roles. It meets the demands of diverse tasks and objectives in public services, social governance, market supervision, macro-control, and ecological protection. This contribution promotes administrative system reform and the establishment of a service-oriented government, playing a vital role. Interconnectivity now exists between central and local governments as well as departments. This interconnectivity facilitates the centralized provision of government services on the national digital government service platform, providing one-stop government services. This development plays a critical role in addressing the challenges faced by enterprises, such as difficulties, delays, and complexity, and has achieved notable results. The "National Integrated Government Service Platform", which was launched in 2019, serves as an example in this stage.

In this context, the "National Integrated Government Service Platform" plays a critical role in addressing these issues, providing a crucial tool for enhancing data sharing, improving service delivery, integrating online and offline services, and increasing the transparency of government information. The platform's continuous evolution and enhancement will significantly contribute to resolving these persistent challenges in China's digital government.

Findings and Discussion

Digital governance in China has undoubtedly evolved over time, showing a notable shift from mutual transparency to a people-oriented focus and potentially moving towards a model that places even greater emphasis on public participation.

Originally, the digital model of government based on mutual transparency pioneered a shift in the relationship between the government and its citizens. It pushed beyond the traditional one-way flow of information from government to citizens, introducing the novel concept of mutual transparency.

While this model made an important contribution to the promotion of open government, it still positioned the public rights as secondary. Transparency was at the forefront, with public participation lagging behind. Following this era, the people-oriented digital government model emerged, taking strides to correct this imbalance.

This evolution brought citizens at the center of their activities and focused on the efficiency of services and the active engagement of the public in governmental processes. This model marked significant progress in integrating citizen participation, but there is still room for more robust citizen involvement (Mossey et al., 2019; Vaerst et al., 2015). Envisaging the future of digital governance, the emphasis on the public's right to participate in governance appears to be the next logical step (Park and Suyoung, 2021; Perez-Morote et al., 2020; Reuter et al., 2020).

It is hypothesized that the next iteration of digital government will move beyond the people-oriented approach prioritizing not just efficient delivery of services, but also the facilitation of extensive public involvement (Espinoza, 2022; Yong and Kim, 2007).

The future model aspires to combine the strong points of previous models (Figure 3): the mutual transparency of the model and the people-oriented model's emphasis on public centrality, while positioning public participation as a core operational principle. In this proposed model, technology functions as a critical tool, enabling transparency and public participation by enhancing access to information and providing citizens with interactive platforms. Nonetheless, despite the vast potential of technology, future digital governments should be aware of possible challenges such as privacy infringement, the digital divide, and the risk of becoming overly dependent on technology. The primary objective is to tap into technology's benefits while protecting the rights and interests of citizens. Therefore, the progressive shift from mutual transparency to people-oriented digital governance, and possibly towards a model accentuating public participation, exemplifies the dynamic nature of digital governance. Each stage contributes unique learnings, focus points, and contributions to the evolution of digital government, outlining a path that progressively includes and prioritizes public participation. In essence, the future of digital government appears to be gearing towards an approach that equitably blends transparency, citizen-centric services, and sturdy public participation. Such an approach would cultivate a more inclusive and participatory form of governance. A public participation-oriented digital government possesses the following characteristics:

Firstly, the orientation of public participation has a strong driving effect, emphasizing diversified participation, co-governance and sharing with public participation as the core. Under the conditions of digital government, public institutions are gradually becoming more and more open, and the governance entities are showing a diversified development trend in the process of public participation. The public participation-oriented digital government is a typical form of collaborative governance. This truly changes the manager role of government. The public, enterprises and other social organizations collaborate together. The improvement of the public participation will bring about the improvement of the market and social organizations.

Secondly, mutual transparent interactive channels remain important. The operational orientation of digital government is shifting, and public participation is becoming the core content. The government provides sufficient resources and support for public participation. Deepening the development of a mutual transparent participation and interaction model, the digital government can better play the role of service providers and promote the public to become a protagonist of governance. In addition, at this stage, the government pays more attention to the universality of interaction and communication with the public, facilitating the government to listen and integrate public opinions, thereby understanding people's livelihoods, resolving potential social conflicts, improving the interaction between the government and the public, and enhancing the government's credibility.

Finally, the government empowers the public through innovative electronic consultation, electronic decision-making, and other participatory methods. Public participation is closely related to the protection of rights. It is necessary to safeguard the public's right to information, participation, expression, and supervision, as well as the subject rights and control rights formed by new resources such as data and information. In the process of realizing relevant political rights, personal rights and property rights, the public decision-making process becomes more transparent and effective with public participation.
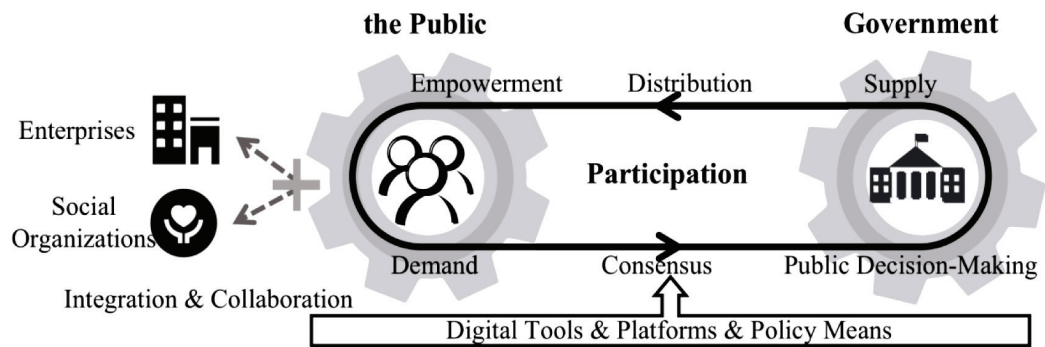

Figure 3: **Public participation-oriented digital government.**

Public-oriented digital government is an advanced model and a form of government development in the digital era, which pays more attention to digital inclusivity, autonomy and selectivity, and achievement sharing. It encourages the public to realize their rights and demands through substantial participation in the decision-making process, supported by new technologies, two-way transparency, and people-centered approach.

To achieve a public participation-oriented digital government the following measures should be taken. Firstly, at this stage of development, the government should expand participation channels, innovate public-oriented operational models, and actively explore various forms of participation. The Government should also develop a governance model of co-construction and sharing, and a digital government that is inclusive. Secondly, the government should strive to continu-

ously improve mutual transparent communication channels, including channels for providing information to the public and channels for obtaining information from the public. A mutual transparent information exchange and communication channel are necessary conditions for fostering public participation, promoting the fair distribution of public resources from dimensions such as the degree and breadth of public participation. Thirdly, addressing the dilemma of information asymmetry and political passivity from the supply side, by providing convenient and legitimate procedures for the public to access public services, participate in public decision-making, and conduct public supervision. Finally, the concept of participation in digital government, guided by public participation, has been expanded, especially in terms of the content and scope of participation, allowing the public to participate in important processes such as public decision-making, policy implementation, and performance evaluation. Wider participation of the public, third-party enterprises, and organizations in the design and evaluation of public goods and services can improve the service experience and supply levels of public goods, and better meet the public needs.

Conclusion

To encapsulate the key insights drawn from this study, it is evident that digital government, as it traverses distinct historical periods, presents unique characteristics, highlighting a dynamic evolution rather than a static state. The central premise of this discourse is the segmentation of the progression of China's digital government into three distinct stages. This chronological demarcation not only gives an organized structure for understanding the evolving nature of the digital government but also provides a framework to analyze the characteristics inherent in each stage, thus enriching the discourse on digital government evolution. The paramount contribution and innovative facet of this research lie in the proposition and exploration of these three developmental stages of China's digital government. The first stage, the Technology-oriented phase (1996–2006), was hallmarked by a preoccupation with technological advancements, although it grappled with some inherent challenges, such as a deficiency in rational planning, a lack of apparent performance, and prominent island effects. This stage primarily focused on the integration of information technology into government operations, rather than on public interaction and engagement. Transitioning into the second stage, the Mutual Transparency-oriented Digital Government phase (2007–2015), the Chinese digital government transformed a technology-centric, one-way transparency model to a mutual transparency model. This model was driven by a more inclusive bidirectional exchange of information between the government and citizens, furthering the vision of a transparent, open government. Lastly, the study delves into the People-oriented Digital Government phase (2016-present), where the government model pivoted towards a citizen-centric approach, accentuating service efficiency, public participation, and enhanced government-citizen interaction. These stages not only mark the transition in terms of operational focus but also signify the growing recognition of citizen participation and civil rights in the functioning of the

digital government. Such innovative classification of the stages of digital government, complemented by case analyses, lends a comprehensive lens to understand the nuanced evolution of China's digital government. It provides a solid foundation for identifying and analyzing the unique characteristics, challenges, and successes inherent to each stage. Consequently, it contributes significantly to the body of knowledge on digital government development, setting a valuable precedent for further studies in this field.

However, the study is not devoid of limitations. The demarcation of the stages in the development of digital government, along with the traits attributed to each stage, inevitably involves an element of subjectivity. While efforts have been made to mitigate this subjectivity through extensive expert consultations, it is impractical to eliminate it completely. Future research could employ diverse quantitative methods, such as structural equation modeling and multiple regression analysis, to delve into the aspects of citizen participation and civil rights, and to probe their influence ratio in the impending digital government. Qualitative studies, using methodologies as historical investigations, can also provide a deeper understanding of these factors. Such endeavors would be instrumental in offering more refined recommendations for the future trajectory of the digital government.

REFERENCES

1. Chen, Y. C. and Chang, T. W. (2020) 'Explaining government's online transparency on collaborative policy platforms: Risk management and configurational conditions', *Public Performance and Management Review*, 43(3), pp. 560–586.

2. Guo, M., Chen, D. and Wang, J. et al. (2023) 'The construction model and practice exploration of digital government under the background of digital transformation – Based on the research thinking of Hainan, Guizhou, Shandong and Guangdong', *E-Government*, pp. 2–11.

3. Hu, C. and Zhang, W. (2011) 'A bibliometric analysis of research on Chinese government websites based on CSSCI', *Modern Information*, 31(12), pp. 159–165.

4. Jiang, M. (2021) 'Comparison of local digital government construction models – Taking Guangdong, Zhejiang, and Guizhou Provinces as examples', *Administrative Reform,* pp. 51–60.

5. Kontogeorgis, G. and Varotsis, N. (2021) 'Reinstating Greek e-governance: A framework for e-government benchmarking, improvement and government policies', *Public Administration Issues*, 6, pp. 103–127.

6.   Liu, M. and Zhu, R. (2019) 'The evolution of digital government and its driving mode analysis', *Administration and Law*, (10), pp. 22–28.

7.   Meng, Q. (2012) 'Government 2.0: The trend of innovation in e-government services'. *E-Government*, 119(11), pp. 2–7.

8.   Mossey, S., Bromberg, D. and Manoharan, A. P. (2019) 'Harnessing the power of mobile technology to bridge the digital divide: a look at U.S. cities' mobile government capability', *Journal of Information Technology and Politics*, 16(1), pp. 52–65.

9.   Myeung, S. (2020) *The Theory of Electronic Government*. Seoul: Yulgok Publications.

10. Park, J. and Suyoung, K. (2021) 'Citizen Participation in Digital Public Administration', *Journal of Korean Social Welfare Administration*, 23(1), pp. 175–205.

11. Perez-Morote, R., Pontones Rosa, C. and Alfaro Cortes, E. (2020) 'Exploring the relation between the digital divide and government's effort to develop e-participation: A global longitudinal analysis', *International Journal of Electronic Government Research*, 16(3), pp. 26–44.

12. Reuter, A., Scharf, T. and Smeddinck, J. (2020) 'Content creation in later life: reconsidering older adults' digital participation and inclusion', *Proceedings of the ACM on Human-Computer Interaction*, 4(CSCW3), pp. 257–279.

13. Rho, S. Y. and Kim C. (2007) 'User satisfaction on digital citizen participation and its effects on trust in government: With special reference to the "Contact the Mayor" in Guro district', *Korean Public Management Review*, 21(3), pp. 24–58.

14. Vaerst, T., Steffens, T. and Lokaiczyk, R. (2015) 'Concerns management, e-government and e-participation', *International Journal of E-Planning Research*, 4(4), pp. 36–49.

15. Wang, Q. (2022) 'The connotation, models, and path iteration of digital government', *Journal of Hubei Administration Institute*, pp. 47–53.

16. Wu, J. (1999) 'The past, present and future of Chinese government informatization', *China Information Herald*, pp. 7–9.

17. Yang, X. (1999) '1999, When the government informatization came to a new climax – from the year of government online', *Market and Computer*, pp. 3–5.

18. Zhang, J. (2019) *Digital Government 2.0*. CITIC Press.

19. Zheng, Y., Yang, X., Gan, Q. et al. (2022) 'Understanding the modes of digital government construction in China from the perspective of public–private-partnership: A comparative analysis based on representative provinces and cities', *Governance Studies*, 38(4), pp. 38–50.