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Article

Exploring a Collaborative Model Using Grounded Theory: A Case Study of a Digital Healthcare Service Platform

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Abstract: "Government as a Platform" (GaaP) has been widely accepted. However, a government alone cannot ensure the establishment and smooth operation of digital service platforms. Therefore, this study aims to explore the role of different stakeholders and their collaboration mechanisms concerning the establishment and operation of a digital service platform. Using the "Zhenghaoban" digital service platform on healthcare in Zhengzhou, China, as a case, this study finds four factors that facilitate the collaboration among the government, enterprises, social organizations and health sectors. The four factors are the strong planning and collaborative capability of the government; good integration capability of policy, technology and services of health sectors; strong capability in technology integration, innovation and security protection of enterprises; good facilitating and coordinating capabilities of social organizations. This grounded theory study contributes to the literature on government digital service platforms by proposing a collaborative multi-stakeholder model, offering practical insights for local e-governments seeking to enhance their governance capacity through diverse digital platforms.

Keywords: Digital service platforms; healthcare; collaboration mechanism; factors; multi-stakeholders; grounded theory

Introduction

With the rapid development of information technology, the establishment of various platforms is increasingly important for the development of national governance. At present, government platforms will continue to expand for the realization of smart management and service in broader areas, thus offering support for government decision and service delivery (Yao, 2024). In the early stages, web portals demonstrated the application of technologies on electrical governance of the government, but now the web portals are being replaced by various digital government platforms, with the function of mediating information flow, facilitating data flows between various actors (cities, service providers, and end users) on multiple sides of a platform as well as the interconnection of goods and services (Ruutu et al., 2017; Gil et al., 2019). Government 5.0 embodies a whole-of-government approach that ensures seamless, citizen-centric services through unified interface and cross-departmental collaboration (Kowalkiewicz & Dootson, 2019). Building on this foundation, the core function of digital government platforms lies in their service capabilities, which enable efficient, responsive, and adaptive governance by integrating multi-source data, automating service delivery, and enhancing real-time citizen engagement through intelligent, interconnected systems.

Digital government service platforms enhance service value by integrating the skills, knowledge, and resources of diverse stakeholders. Their success relies on promoting interaction, co-creation, and innovation. Platforms not only increase the government's flexibility and responsiveness to users but also provide an excellent user experience, build trust and loyalty, and drive collaborative innovation (Narvaiza et al., 2023). Digital service platforms not only promote the rational allocation of medical resources but also enhance the accessibility and intelligence level of medical services. In recent years, factors that impact the collaboration of various stakeholders such as the government, enterprises and social organizations in the construction of digital platforms on healthcare have caught the attention of many scholars. Meanwhile, it has been proved that strategies to achieve effective collaboration among these stakeholders have become critical parts in digital healthcare governance.

As one of the leading cities in China's digital government platform construction, Zhengzhou, relying on the "Zhenghaoban" digital service platform, has integrated functions such as electronic health records, intelligent diagnosis and treatment, online consultations, and telemedicine to provide convenient medical services to its citizens. Although this platform has played an important role in improving healthcare accessibility, there are still many challenges in the collaborative efforts between the government, health sectors, enterprises, and social organizations during the platform's construction and operation, such as data sharing barriers, imperfect mechanisms, and service gaps on the platform. To contribute to the broader international scholarship on digital governance and platform-based service delivery, this study examines "Zhenghaoban" digital service platform on healthcare as a case study. By employing grounded theory method, this study explores the interactions among the government, health sectors, enterprises, and social organizations in the construction and operation of the platform. Findings derived from this study not only deepen understanding of China's platform governance in the health sector but also offer valuable reference for other countries seeking to enhance multi-stakeholder collaboration in digital healthcare development. Two questions are addressed in this study: (1) What are the key factors that facilitate the collaboration of multi-stakeholders? (2) How do multi-stakeholders collaborate during the process to enhance good service delivery of digital healthcare platforms?

Literature Review

Recently, with the rapid development of information technology, the function of government is transforming to the platform mode in a phased way, which is often interpreted into "Government as a platform, GaaP). O'Reilly (2011) first proposed the GaaP concept, emphasizing that the government shall improve the quality and efficiency of government service by building an open and sharing service platform with the help of digital technology. Margetts & Naumann (2017) pointed out that the platform-based government can optimize its governance by data sharing and robust digital infrastructures. Janssen & Estevez (2013) further highlighted that the platform-based government requires good cross-departmental collaboration and the target of lean government can be achieved by the optimized public resource allocation via data and digital technology integration. However, the above studies emphasized more on the design and the integration of technologies, but less on how the collaboration among different stakeholders impacts the digital governance of the government. Kim et al (2022) pointed out that the core of digital government platforms lies in cross-departmental collaboration, intelligent services, and decision optimization based on big data. Additionally, Al-Ani (2017) believes that government platformization involves not only technological transformation but also the need for supporting policies, laws, and mechanisms for citizen participation to ensure data security and public trust.

Multi-stakeholder collaboration plays crucial role on service delivery of digital government platforms. McIntosh et al (2023) suggested that the deep participation of the government, enterprises, social organizations and citizens determines the decision making of the government via various data. Brunetti et al (2020) emphasized that under the context of diverse challenges during government digital transformation, the interaction among the government, enterprises and social organizations is crucial for the success of digital reform. Meanwhile, Viglia et al (2018) believed that the governance model of platforms as well as the collaboration mechanism of different stakeholders directly impact the engagement and contribution of

different actors on digital government construction. Davide (2021) and Borghys et al (2020), based on multi-agent digital collaboration in the context of smart cities, proposed that digital social innovation requires cross-industry collaborative mechanisms to optimize the supply of social services and enhance public management efficiency. At the same time, the effective cooperation among the government, enterprises, academic institutions, and citizens enhances the innovation capacity of urban platforms and promote sustainable development. Although the importance of collaboration has been highlighted in these studies, systematic studies on the collaboration barrier, trust building and interest coordination among different stakeholders remain scarce.

The construction of digital platforms on healthcare involves multiple stakeholders, including the government, health sectors, enterprises, and social organizations. The government is responsible for policy formulation, platform regulation, and data integration; medical institutions provide professional healthcare services; enterprises offer technical support and platform operation; and social organizations address issues such as digital literacy gap and the digital divide. Clarke (2020) suggested that during the digital transformation process, the government should enhance the application of digital technologies to improve the accessibility and responsiveness of public services. Although digital platforms have shown positive effects in improving the efficiency of healthcare governance, there are still challenges concerning multi-actor collaboration, data sharing, and the improvement of governance mechanisms. In the process of promoting the construction of digital healthcare service platforms, governance methods and technical management capabilities directly affect the operational efficiency of the platforms. Wang (2022) reviewed the development of China's health code system and found that the government-led healthcare platform model has advantages in quickly responding to public health crises, but it also faces issues such as insufficient governance transparency and inadequate user privacy protection mechanisms. Through the process analysis of digital healthcare platforms, Fürstenau et al (2019) presented that the success of the platform not only depends on technical capabilities but also on the degree of collaboration between the government, enterprises, healthcare institutions, and patients. They also emphasized that an open platform model can facilitate the flow of medical information and improve the efficiency of inter-agency collaboration. However, in practice, the interoperability of medical data is low, leading to an imperfect information-sharing mechanism, which hinders the continuity of medical services and collaborative governance. Furthermore, Hautamäki & Oksanen (2018) stated that the government, in promoting the construction of digital healthcare platforms, should strengthen data governance, encourage cooperation between the public and private sectors, and build a more open and shared healthcare system.

Despite some previous studies have discussed technical frameworks, governance structures, policies concerning the government and digital healthcare service platforms, however, less attention is given to the collaborative mechanisms among multiple stakeholders during the platform's construction and operation. In addition, there is still a lack of systematic exploration of the interaction patterns, coordination challenges, and governance optimization strategies among different stakeholders. Therefore, by applying grounded theory, this study aims to fill this gap by systematically analysing the factors that impact multiple stakeholders' collaboration during the construction of digital healthcare service platforms and propose a collaboration framework to promote the sustainable development and efficient operation of digital healthcare service platforms. As emphasized by Oluwashina and Olalekan (2024), digital service platforms must be strategically designed to generate measurable governance outcomes, ensuring public sector digitalization translates into real societal impact.

Methodology

1. Research Design

This study adopts Grounded Theory as the primary research method to explore the mechanisms and dynamics of multi-stakeholder collaboration in the construction and operation of digital healthcare platforms, focusing on the case of the "Zhenghaoban" digital service platform in Zhengzhou, China. The research aims to construct

a collaborative governance model by identifying stakeholder roles, interaction patterns, and coordination challenges in the digital healthcare ecosystem.

2. Participants

Zhengzhou city leads the way in China's digital healthcare platform development, boasting a concentration of high-quality medical resources and demonstrating strengths in the smart healthcare industry chain, technological innovation, and regional infrastructure. In terms of policy, the 14th Five-Year Plan explicitly supports the development of smart hospitals, advancing a "three-in-one" framework of electronic medical records, smart services, and smart management. Zhengzhou has also made significant progress in healthcare digitalization, with its "Zhenghaoban" digital service platform on healthcare, enabling one-click access to four levels of health services, while also achieving results in telemedicine and online hospitals. Figure 1 displays the interface of "Zhenghaoban" digital service platform on healthcare.

Against this backdrop, the present study focuses on the "Zhenghaoban" platform as a representative case and the select participants are the one who play critical roles in the platform's development, management, and operation. There are ten participants in total falling on four major stakeholder groups: three government officials who involved in strategic planning and policy formulation; two representatives from the technology enterprise that are responsible for platform development, technical support, and ongoing maintenance; two healthcare sector personnel that are directly engaged in using the platform for service delivery and data interaction; and two community or social organization staff who serve as intermediaries between citizens and institutions.

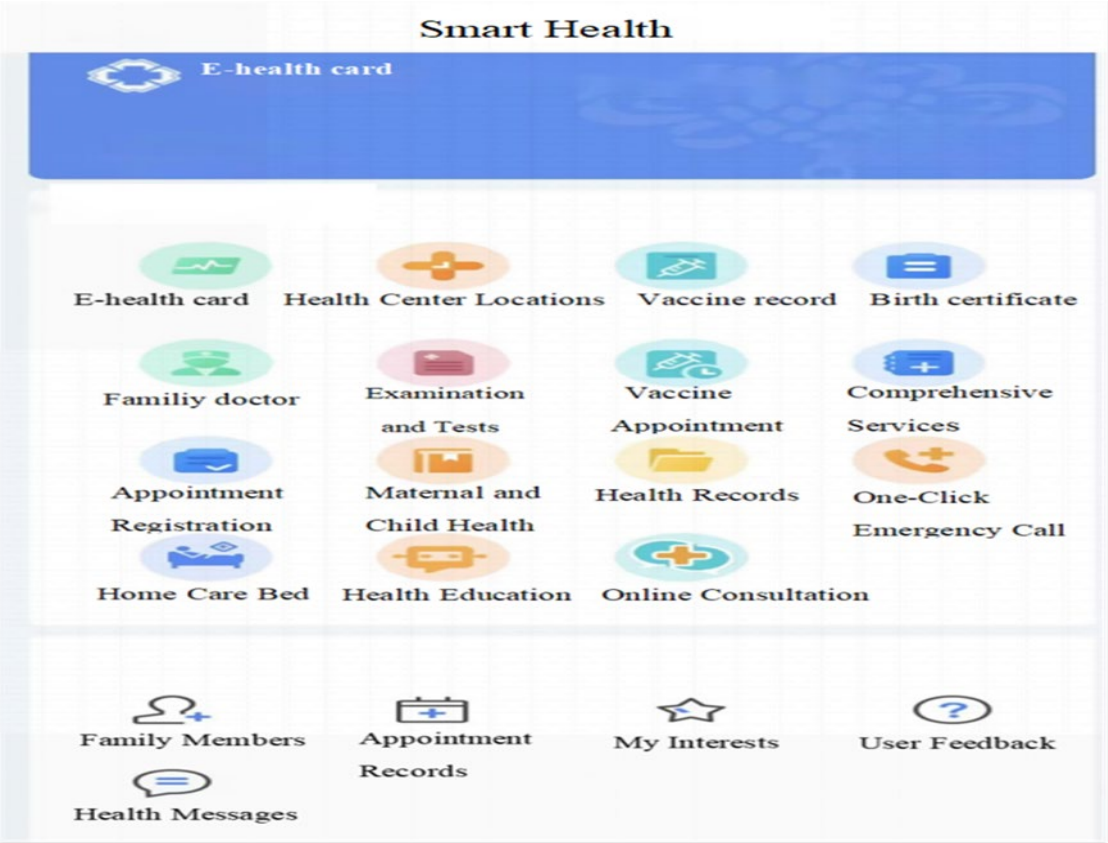

Figure 1. "Zhenghaoban" Digital Healthcare Platform Interface
Source: Authors' Illustration (2025)

3. Data Collection Process

Grounded Theory is a comprehensive research method designed to develop a new theory for explaining and examining specific behavioral patterns, rather than confirming existing theories. Unlike hypothesis-testing

approaches, it enables the inductive development of theory grounded in empirical data. In the context of this study, where the mechanisms and dynamics of multi-stakeholder collaboration in digital healthcare platforms remain poorly understood and lack a unified analytical model, grounded theory is methodologically appropriate to generate a context-specific, empirically grounded explanation of stakeholder interactions, coordination challenges, and governance mechanisms. The following Fig 2 is the flow chart of grounded theory.

By applying the grounded theory, this study, for one aspect, uncovers the collaboration mechanism and interaction among the government, health sectors, technical enterprises and social organizations. For the other aspect, it builds a collaborative governance model, with its purpose of illustrating how these actors interact in the construction and operation of digital healthcare platforms, rather than prescribing normative strategies or evaluating performance outcomes. It is expected to fill the current theoretical gap by offering a systematic representation of real-world collaboration processes and identifying critical factors affecting multi-actor collaboration.

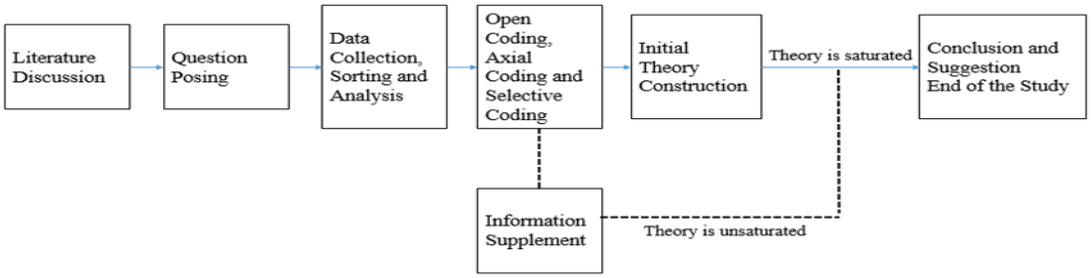

Figure 2. Flow Chart of Grounded Theory
Source: Adapted from Pandit (1996)

This study selects “Zhenghaoban” digital service platform on healthcare as the research subject, using grounded theory for exploratory analysis to formulate collaboration mechanisms applied during the construction and operation of the digital service platform on healthcare. To collect data for this study, semi-structured interviews were conducted with various stakeholders. In order to systematically analyze multi-stakeholder collaboration during the process of digital healthcare service platform construction and operation, purposive sampling is chosen in this study, where representative stakeholders that perform crucial roles on platform development, management and operation are selected on purpose. The main interviewees encompass government staffs, technology company staffs, health sector staffs and community staffs. First, three in-depth interviews, each lasting about 1.5 hours, were held with the government staff who are responsible for platform-related work, focusing on tasks at different stages of platform preparation, construction, and operation. Next, interviews were conducted with two key individuals from the technology company working on the project, each lasting about one hour, to gain insight into the negotiation and collaboration processes with government departments, ongoing platform maintenance, and later improvements. Then, interviews with health sector personnel were conducted to explore topics such as platform use, data sharing between hospitals and other government departments, cooperation with the enterprise that offers technical support, impacts on service delivery, and challenges faced in collaborative efforts. Finally, interviews were conducted with two community staff to understand the role of social organizations in healthcare service, their collaboration with the government, the type of policy support provided, and their intermediary role between government, healthcare providers, and citizens, including outcomes achieved and challenges encountered.

Secondly, original data were compiled from the interview recordings and transcripts. Two-thirds of this content was randomly selected for analysis, while the remaining third was reserved for testing theoretical saturation. Using the qualitative analysis software NVivo12, the data underwent open coding, axial coding, and selective coding. Finally, initial concepts, categories, and core categories derived from the three coding stages were analyzed to explore the relationships among categories, develop a narrative, and construct a collaborative model for the digital healthcare service platform. In addition, this study strictly follows the theoretical saturation principle, which means that during the coding process, continuous comparison and

refinement of events and concepts have conducted. When no new concepts and categories are emerged from additional data, indicating that the collected interviews provided sufficient diversity and depth to support theory construction. Despite a modest number of interviews, the sample is sufficient and well-aligned with the study's objective of developing a grounded collaboration model. Fig 2. Flow Chart of Grounded Theory (Adapted from Pandit, 1996).

1. Open Coding

Open coding is designed to identify concepts or key ideas within data that may relate to the phenomenon being studied (Bhattacherjee, 2012). During this process, concepts and categories are generated progressively (Glaser, 1992). Following this principle, the collected raw data was coded and conceptualized line by line. Initial concepts were further analysed, compared, grouped, and categorized, resulting in 49 initial concepts and 18 corresponding categories.

2. Axial Coding

Axial coding was used to cluster the category of open coding and find the internal relations between different categories. The 18 categories were subsequently organized, grouped by overarching concepts, and refined into twelve sub-categories. Building on the sub-categories, further comparisons and synthesis of logical relationships were conducted, leading to the gradual emergence and identification of four main categories encompassing the open coding. The four main categories are: Strong Planning and Collaborative Capability of Government, Good Integration Capability of Policy, Technology and Services of Health Sectors, Strong Capability in Technology Integration, Innovation and Security Protection of Enterprises and Good Facilitating and Coordinating Capabilities of Social Organizations.

3. Selective Coding

In the end, 18 initial categories, 12 main categories and four main categories were further analyzed and the core category "Collaboration Model on the Construction and Operation of Digital Platform on Healthcare" was extracted.

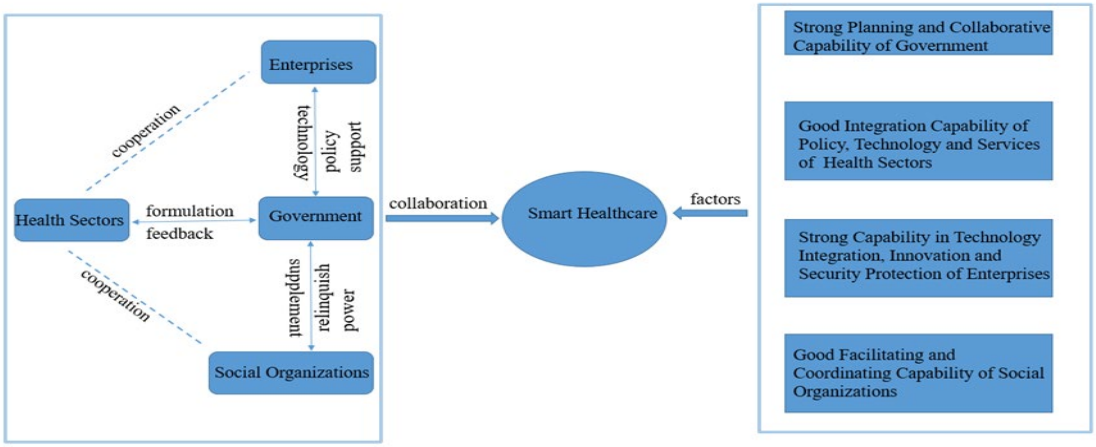

Figure 3. Collaboration Framework Model for Digital Service Platform on Healthcare
Source: Authors' Illustration

4. Data Analysis

According to the previous data and the above model, it is found that in the process of "Zhenghaoban" digital service platform on healthcare construction and operation, the government, enterprises, social organizations, and healthcare sectors are the four stakeholders. The government serves as the central coordinator. It guides the development of digital healthcare service platform through policy formulation and legal frameworks. It also offers resource support and facilitates cross-departmental collaboration to ensure the efficient delivery of healthcare services. In formulating relevant policies, the government focuses on top-level design to ensure the

systematization and sustainability of healthcare service platform, integrating resources from all parties, promoting data sharing and information exchange in the healthcare sector, and establishing effective regulatory mechanisms to address the challenges posed by the rapid development of healthcare technologies and service models. Enterprises are the technology and service suppliers. It is often believed that the governance purchase service from technological enterprises and the enterprises provide services for the public.

However, when it comes to the digital healthcare platform, it is rather complicated. As mentioned before, the government is not only the buyer, but rather acts as a coordinator that manage the collaboration among different stakeholders. It is not just a buyer and seller relationship, since the government shall offer enough support to enterprises on policy and regulation scale. Additionally, while offering services to healthcare sectors, enterprises must continuously monitor their practical needs and operational feedback. Moreover, enterprises are also required to help the health sectors to guarantee data securities and privacy protection of patients. Social organizations, as communicators between government and citizens as well as supplement for the government, are responsible for conveying citizens' needs and feedback to the government and health sectors, while also organizing health education activities to enhance public awareness and participation in healthcare service platform improvement. These organizations, while ensuring public involvement, also mobilize social resources and build health networks to promote the widespread adoption of digital platform services on healthcare and increase the public's health consciousness and acceptance of smart healthcare services.

Healthcare sectors are the ones who offer digital healthcare services directly to the public and also one of the major actor that experience the benefits brought by digital healthcare service platform. Under the guidance of the government, they are the major bodies that engage in the establishment of digital healthcare service platforms, since they are the owner of big data and healthcare service suppliers for public. They get policy and financial support from the government and then represent the government to deliver services to the public. As for the technique suppliers, they get technique support from the enterprises but also give feedback to them concerning the function and efficiency of the platform. Through close cooperation between the government, enterprises, social organizations, and healthcare sectors, digital service platform on healthcare gradually achieves information sharing, resource integration, and service innovation, forming a highly adaptive and resilient healthcare system.

The Findings and Discussion

Traditional healthcare services can no longer meet the growing demands, and the implementation of digital service platform on healthcare requires the collaborative efforts of the government, enterprises, social organizations, and healthcare sectors. The close cooperation among these stakeholders facilitates information sharing, resource integration, and service innovation, creating a more efficient and sustainable smart healthcare system.

1. Strong Planning and Collaborative Capability of Government

In the past, the government was traditionally perceived as the only actor that determines the service delivery. However, in the construction and operation of the "Zhenghaoban" digital healthcare service platform, the government acts as the central coordinator, ensuring efficient collaboration and high-quality implementation.

Firstly, unclear responsibilities and duplicated works always hinder the efficiency of local digital governance. As for the construction and operation of digital service platforms, the situation is quite similar. Therefore, the government, at first, shall clearly decide responsibilities for itself, healthcare sectors, enterprises and social organizations. Additionally, the government shall build a unified data governance framework and appropriate regulations to improve information sharing and data integration. It also needs to promote the implementation of data interoperability and security standards, thus protecting the rights of different stakeholders while offering good digital healthcare services.

> *As informant 1 mentioned, "During the initial planning stage of the platform, the Zhengzhou municipal government organized a coordination meeting that included representatives from the Municipal Health Commission, major hospitals in Zhengzhou, technology experts, relevant government departments, and*

> *members of social organizations. The main agenda of the meeting was to determine the overall framework and functional requirements of the smart healthcare platform. At the meeting, the healthcare representatives emphasized the need for the platform to enable real-time information sharing between hospitals in the city. Technology experts focused on the platform's technical architecture, highlighting the importance of data security and system stability. Social organizations raised concerns about citizens' willingness to use the platform and worries. In order to guarantee smooth operation of the platform, several rounds of meetings were organized later."*
>
> (Informant 1, Male, 41 years old)

In addition, the healthcare service platform construction requires cross-departmental and cross-industry collaboration. Within this context, the government has to enhance close cooperation between the healthcare sectors, technique suppliers, and administrative sectors by establishing cross-departmental committees, joint task forces, and shared funding initiatives, thereby achieving widespread coverage and enhancing the effectiveness of digital platform healthcare services.

2. Good Integration Capability of Policy, Technology and Services of Health Sectors

Healthcare sectors serve as the primary providers of health services to the public. Therefore, they need to follow government policies, better combine technology and healthcare services, ensuring that innovative technologies truly benefit patients. The responsibilities of healthcare sectors include clarifying the division of roles with the platform, coordinating resource allocation, and resolving conflicts to improve overall service efficiency.

Firstly, healthcare sectors need to closely cooperate with the digital healthcare service platform, establish channels for information sharing, and foster cross-departmental collaboration of different health sectors, treating standardized technologies and system interoperability as essential foundations for cooperation.

> *Informant 6 mentioned that "When we were using the platform at the beginning, we encountered barriers to data integration. Some of the function were there, but they were useless since the data was not integrated yet. And then, when the government put forward unified standards and policies, the technique suppliers soon got all data integrated, thus offering much convenience for the delivery of our services."*
>
> (Informant 6, Male, 38 years old)

Furthermore, healthcare sectors are continuously exploring and improving collaboration mechanisms with other stakeholders.

> *Informant 6 said that "Before using the platform, our diagnostic services were seen as less effective since we could not share data in real time. However, through the integration of resources with the platform, we can now share information in real time, which makes the long distance treatment and collaborative diagnosis possible."*
>
> (Informant 6, Male, 38 years old)

There are multiple dimensions that are often considered when evaluating the performance of a platform. In terms of the digital service platform on healthcare, the accuracy, breadth and sustainability are the major aspects. In that case, the collaboration between healthcare sectors and the platform is rather crucial since it not only enhances the breadth and accuracy of services but also ensures the sustainability of healthcare service. In addition, government policies are also of great significance since they serve as institutional guarantee, which means all stakeholders have suitable regulations to follow.

3. Strong Capability in Technology Integration, Innovation and Security Protection of Enterprises

Enterprises are seen as providers of technology and services for the government. While obtaining the access to huge data resources from the government as well as health sectors, they shall guarantee data security since it is foundation of the trust among them. It is believed that digital governance innovation on public services is

closely related to enterprises, which means under the robust technical support of enterprises, the digital healthcare platforms will constantly update, thus providing more efficient and higher quality digital healthcare services.

Firstly, with the development and application of advanced technologies, such as artificial intelligence, big data analytics, and cloud computing, enterprises help the government and health sectors to allocate healthcare resources in a rather reasonable scale.

> *Informant 4 pointed out, "Our company has developed a very intelligent resource allocation system, with this system hospitals have dramatically improved the efficiency of bed and medical equipment utilization. I was told by the person in charge from hospitals that this system has reduced the waste of healthcare resources and they don't need to worry about sending more people to looking for available healthcare resources.*
>
> (Informant 3, Female, 35 years old)

Secondly, data security and privacy protection are often regarded as a prior concern both for the government and health sectors. Therefore, enterprises shall bear significant responsibility for that. It is suggested that technology suppliers shall use updated security protocols and encryption measures to ensure the privacy and safety of patient data.

> *Informant 5 explained, "Ensure data security is the core rule of our team. We all know it is the fundamental prerequisite for our cooperation with the government and health sector. Therefore, we have built the strongest protection of data storage and formulate strict rules on the access of data so as to maximize data security."*
>
> (Informant 5, Male, 33 years old)

Furthermore, considering the improvement of service quality of digital healthcare platform, health sectors shall keep close collaboration and communication with technique suppliers. With the help of enterprises, the platform can break down information silos and create seamless integration between systems, thereby enhancing the continuity and efficiency of digital healthcare services.

4. Good Facilitating and Coordinating Capabilities of Social Organizations

As facilitators and resource integrators, social organizations shall perform their function well as the supplement for the government by bringing feedback of citizens for both the government and health sectors and enhancing public engagement to promote the adoption and improvement of digital healthcare platform services.

Firstly, social organizations actively promote the use of smart healthcare platforms and raise public awareness through health education initiatives that increase familiarity with smart healthcare technologies and services. As Nor et al. (2015) argued, inclusive e-government services must actively address digital literacy barriers faced by senior citizens and other marginalized groups.

> *Informant 9 noted, "We regularly organize educational sessions on smart healthcare to help residents better understand and use telemedicine platforms, enhancing their involvement in daily health management."*
>
> (Informant 9, Male, 37 years old)

During the process, social organizations often collect citizens' feedback and instantly send them to policymakers and platform developers. This will provide valuable data and reference for further optimization of the digital healthcare platform.

> *Informant 10 shared, "We collect residents' experiences through feedback channels and share this information with the platform development team to ensure the platform aligns more closely with actual user needs." This feedback mechanism enhances the quality of smart healthcare services and the user experience, connecting technology with real-world needs.*
>
> (Informant 10, Female, 34 years old)

Moreover, social organizations also contribute to resource integration and provide additional backing for digital healthcare platform. Evidences suggest that social organizations significantly promote the adoption and effectiveness of digital platform service on healthcare, by advancing public participation, facilitating communication, and integrating resources, making a positive contribution toward the goal of nationwide health management.

Table 1. Roles and Responsibilities of Four Stakeholders

Stakeholder	Main Role	Core Responsibilities
Government	Central coordinator	Develop strategic plans and policies; Coordinate stakeholders; Establish data governance and regulatory framework
Healthcare Sectors	Service provider	Deliver healthcare services; Integrate digital tools into workflows Provide medical data and feedback
Enterprises	Technical supplier and enabler	Develop and maintain platform infrastructure; Provide innovative tech solutions; Ensure data security and privacy
Social Organizations	Public facilitator	Promote public use of the platform; Collect and communicate user feedback Support digital literacy and engagement

Source: Authors' Illustration

Conclusion

This study undertakes an empirical analysis of the factors influencing the collaboration of different stakeholders during the construction and operation of "Zhenghaoban" digital service platform, suggesting that it is necessary to clarify the role of different stakeholders, identify the collaboration model and address challenges during the collaboration process to ensure an efficient, high-quality and sustainable digital healthcare service platform. Unlike previous studies, this study proposes a grounded and localized collaboration model that provides a more structured and role-specific understanding of how government, enterprises, healthcare providers, and social organizations interact.

Through the analysis of the construction of "Zhenghaoban" digital service platform on healthcare, it can be concluded that the main stakeholders are the government, health sectors, enterprises and social organizations. In the process, the government, as the core coordinator, leads for the project design and facilitate participation of different actors. The health sectors, as health service provider, apply technology to ensure the benefit of patients act. The enterprises, the providers of technology of services, drive the development and integration of the platform by supplying with technologies. Social organizations can be viewed as bridges, which promote public engagement and improve digital healthcare services by bringing together diverse resources. These four stakeholders work collaboratively, each fulfilling its role, effectively advancing the construction of Zhengzhou's digital service platform healthcare. This collaboration model is not only reflective of the Zhengzhou context but also has the potential to be adapted to other urban digital healthcare initiatives, especially in cities facing similar coordination challenges across public and private sectors. Its structured stakeholder division and emphasis on collaborative governance provide a replicable framework for cities at different levels of digital governance.

However, this study acknowledges certain limitations. While healthcare service platforms are an essential part of government digital platforms, digital healthcare service also encompasses smart hospitals, regional health systems building, family doctors services, etc. Focusing solely on healthcare platform construction does not capture the full scope of digital healthcare service. Additionally, this study primarily adopts qualitative research methods and does not incorporate quantitative analysis tools to assess actual outcomes. Future studies incorporating quantitative analysis would provide a more comprehensive understanding of the effectiveness and optimization of digital healthcare service initiatives-such as stakeholder engagement levels, service delivery efficiency, or user satisfaction-to validate its applicability across different healthcare systems and urban contexts.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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