Yunfei Zhou

# "Platform as a Government": Digital Public Services on Third-Party Platforms in China

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| Supervisor: | Prof. Dr. Tobias Brandt |
| Tutor: | Niklas Korte, M.Sc. |
| | |
| Presented by: | Yunfei Zhou |
| | Schlossplatz 2 |
| | 48149 Münster |
| | +49 251 8338100 |
| | yzhou2@uni-muenster.de |

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# Abbreviations

| | |
|---|---|
| 2B | To business |
| BPMN | Business Process Modeling Notation |
| CAC | Cyberspace Administration of China |
| CITC | Corrected Item-Total Correlation |
| CSI | Continual service improvement |
| GaaP | Government as a Platform |
| LLM | Large language model |
| MAU | Monthly active users |
| MIIT | Ministry of Industry and Information Technology, China |
| NDRC | National Development and Reform Commission, China |
| NPM | New public management |
| PaaG | Platform as a Government |
| PDF | Portable document format |
| PEG | Platform-enabled Government |
| PfG | Platform for Government |
| PPP | Public–private partnership |
| QR code | Quick response code |
| SASAC | State-owned Assets Supervision and Administration Commission |
| SOC | State-owned company |

# 1 Introduction

Under the megatrends of Government 2.0, "Government as a Platform" (GaaP) has been a heated approach to achieving higher quality, flexibility, accessibility, and collaboration in public services since its appearance in 2010s (O'Reilly, 2011; Sayogo & Pardo, 2013; Sieber & Johnson, 2015; McBride, Aavik, Toots, Kalvet & Krimmer, 2019). However, when it comes to practice, current research mostly lays focus on the cases of government platforms in Europe and America, while limited research has studied the cases in developing countries.

Among the developing countries, China is especially an interesting case for the following reasons: (1) there is a large Internet user base and established network infrastructure. According to *the 54th Statistical Report on the Development of Internet in China*, by June 2024, the number of Chinese Internet users has grown to nearly 1.1 billion, and the Internet penetration rate has reached 78.0%, while the proportion of netizens who have mastered at least one basic digital skill is 86.6%. The new netizens are mainly young people aged 10-19 (49.0%) and the elderly aged more than 60 (20.8%), showing a trend of balanced development (Xinhua Press, August 2024). (2) The Chinese government has invested a lot of attention and resources in the construction of digital public service. According to the State Council (2022)'s *Guiding Opinions on Strengthening the Construction of Digital Government*, it is required to widely apply digital technologies to public services, to promote the optimization of government governance processes, and to comprehensively improve digital and intelligent public services. (3) There are long existing public–private partnerships (PPPs) between government and third-party platforms to promote digital service delivery in China. This novel situation seemingly does not apply to other countries, probably because Alipay and Tencent are internet giants that have almost monopolized China's mobile payment and social media sectors (Ma, Christensen & Zheng, 2023). (4) There is a distinctive phenomenon in China's digital public service delivery: various kinds of public services are directly delivered on third-party platforms like WeChat and Alipay (seen in Table 1.1).

This phenomenon begins since Chinese government departments opened accounts on such social media as WeChat and Weibo in 2011, called "government new media" at that time (Ting, 2015). Later, other third-party platforms like Alipay also joined and the types of public services provided have also switched from mainly information release and consultation to a more diverse and flexible landscape (Yueping, 2016). Currently, WeChat and Alipay has been providing various digital public services across all provinces of China.

However, currently there is no academic definition of such a special phenomenon. Thus, this paper names this specific phenomenon in China as "Platform as a Government" (PaaG), defined as:

*Public services are delivered on third-party private platforms in a digitalized, integrated, and cooperative way where the platforms function like a branch of the government.*

**Table 1.1**     Various digital public services delivered on third-party platforms in China

| Platform | Categories of public services |
|---|---|
| WeChat | **Information-focused**: weather forecast, tax affairs query, garbage classification query, etc.<br><br>**Transaction-focused**: public transport card, electronic social security card, water and electricity bills, hospital appointment, ID card application, etc.<br><br>**Participation-focused**: government complaints and inspections, etc. |
| Alipay | **Information-focused**: job searching, weather forecast, corporate credit inquiry, electronic business license, exam results query, etc.<br><br>**Transaction-focused**: public transport card, plane and train tickets, electronic social security card, electronic ID card, water and electricity bills, etc. |
| Douyin | only for **information release** |
| Weibo | only for **information release** |
| REDnote | only for **information release** |

The naming of PaaG is inspired by GaaP. Although the two approaches have similar goals towards more efficient public service delivery under the megatrends of Government 2.0, they hold completely opposite positions on the relationship between the government and the platforms. In GaaP, government should be the provider, or at least the controller of the platform, while in PaaG, platforms are relatively independent of the government, and they do not serve public good as the primary and original purpose.

In this paper, the "third-party platforms" refers to software-based platforms owned by private companies and independent of the government and citizens, while "digital

public service" referring to the services for public value mediated through the use of information technology and delivered by government itself or other government-like organizations like state-owned companies (SOCs). In the following study, SOCs will be simply classified as "government" because they are not significantly different in terms of providing public services, which is also common phenomenon around the world (OECD, 2024).

In addition, the "digital public services" discussed in this study are limited to services for individual citizens due to research length and resource constraints. However, digital public services for business entities also follow a similar logic, and an extended discussion will be made in the "Discussion" chapter at the end of the study.

Although current studies have shown the great potential, supporting elements and possible drawbacks in this model (Yueping & Haixian, 2019; Yueping, 2016) and various influencing factors of the public satisfaction with this model (Xin, 2019), it remains unclear how this model runs in practice, including formation, operation process, stakeholder relationship and so on. Furthermore, current studies focus on information-focused services on specific platforms, in contrast with the various digital services on different platforms shown in the Table 1.1, so the general picture of all kinds of digital public services on third-party platforms remains vague.

Therefore, this paper aims to dig into the general delivery model of digital public services on third-party platforms in China (MQ), namely the called "PaaG" phenomenon, from the perspective of platform theory and public service delivery, covering what is special in service delivery in PaaG compared with previous concepts like GaaP, Platform for Government (PfG), Platform-enabled Government (PEG) (Q1), how stakeholders across public and private sectors are functioning, interacting and cooperating (Q2), why and how such a special model emerged in China (Q3), and what problems this model is solving and what problems it is generating (Q4). Although some practical suggestions will be provided in the Discussion chapter, the paper itself is a descriptive and analytic paper focusing on the current delivery model of PaaG.

The theoretical significance of this paper lies in that (1) to picture a special phenomenon of digital public services delivered on third-party platforms in China, which lacks theoretical research, (2) to complement other possible approaches than GaaP under the Government 2.0 trend in an under-researched country, (3) to discuss the possible roles and potential of third-party platforms in digital public services, (4) to discuss the explanatory power of platform and public service theories in this particular phenomenon.

The practical significance of this paper lies in that (1) to sort out the practices and types of public services provided by third-party platforms in China, which will help with further academic research in the future, (2) to clarify the roles of various stakeholders in this model to provide a basis for better cooperation and platform governance to deliver public services, (3) to evaluate the advantages and disadvantages of the model through interviews and surveys with various stakeholders to provide feasible suggestions for its future development.

To sum up, the research question of this paper is: how are digital public services delivered on third-party platforms in China? (MQ)

Q1: What are the main features of service delivery of digital public services delivered on third-party platforms, especially compared with those on government platforms?

Q2: What are the roles of and the relationships between citizens (users), government, and platform operators in this model to achieve platform governance and service delivery?

Q3: What are the reasons and processes for the formation of this phenomenon from the perspective of platform theory?

Q4: What are the advantages and disadvantages of implementing the model, from perspectives of all stakeholders?

The paper follows the IMRaD format, namely consisting of general parts of introduction, methodology, results and discussion:

The introduction part deals with the research background of this paper, especially the existing research results of the GaaP trends in the last decade. Based on that, it is reflected whether GaaP is the only approach to realizing Government 2.0, which leads to the importance of research on the different model applied in China to deliver digital public service, namely the PaaG model. It is a phenomenon rarely noticed by previous research. This part also gives a scientific definition of the concepts involved and a general picture of the policy background of the research topic, as the base of the following in-depth research.

The methodology part deals with the four methods used in this paper, namely taxonomy, case studies, interviews and surveys. It is elaborated how these methods will be applied and why they can be used to answer the research questions.

In the result part, main findings are summarized from the taxonomy, case study, interviews and surveys, structured in the six kinds of services according to taxonomy (Table 2.1).

The discussion part gives the answer to the research question on the general characteristics, the formation process, the relationships among stakeholders, and the advantages and disadvantages of this model, a different perspective can be gained about the role of governments, platforms and citizens in the era of Government 2.0. There will also be comparison between GaaP and PaaG under the megatrends of Government 2.0 on a theoretical level. Practical suggestions will also be provided to improve this model to deliver more quality services.

# 2 Methodology

In this paper, four methods will be applied to answer the research questions, namely taxonomy, case studies, interviews and surveys.

## 2.1 Taxonomy

The taxonomy method is used to describe the overall picture of the situation of the PaaG model by classifying different kinds of digital public services delivered on third-party platforms. As shown in the Table 2.1, the services are divided into six categories based on two dimensions, namely whether the service is exclusively operated on the platform ("exclusivity" dimension) and what kind of government-citizen interaction the services mainly demonstrate (G-C interaction dimension).

Here, "exclusivity" means that the service is operated independently on one platform, and even though similar services may also exist on other platforms, they are operated in a non-interfering way. And G-C interaction dimension is focused on the main objects that the government and citizens deal with during the service processes. For the information-focused, citizens mainly receive and provide personal information from and to the government, e.g. receiving news, making appointment, etc. For the transaction-focused, citizens mainly deal with financial issues with the government, e.g. paying water and electricity bills, paying social insurance, etc. For the participation-focused, citizens give their opinions and receive feedback on public issues, e.g. making complaints, voting, etc. These two dimensions together form the classification of digital public services, which has no cohesive typology in the literature.

Exclusivity dimension may determine the different business logics and processes in the service backend, while G-C interaction dimension may decide the way citizens view and engage with the services. Therefore, generally speaking, exclusivity dimension emphasizes business side, while G-C interaction dimension pays attention to citizen (user) side. However, these two dimensions do not exist independently, but may influence each other, for example, the different ways in which each platform operates public services independently may also influence how citizens participate in and use the services.

Based on the description of how each category of services operates in practice, the overall situation of PaaG can be summarized.

**Table 2.1**     Classification of different categories of digital public services in PaaG

| | | Exclusivity Dimension *(business side)* | |
|---|---|---|---|
| | | **Services exclusively delivered on one platform** | **Services nonexclusively delivered on different platforms** |
| **G-C Interaction Dimension** *(user side)* | **Information-focused services** | A<br><br>e.g. registration services | B<br><br>e.g. official document application |
| | **Transaction-focused services** | C<br><br>e.g. energy, water, transportation services provided by SOCs | D<br><br>e.g. social insurance |
| | **Participation-focused services** | E<br><br>e.g. voting | F<br><br>e.g. complaint making |

## 2.2     Case Study

Based on taxonomy, the six case studies on digital public services on WeChat and Alipay casts a more microscopic perspective on the PaaG model, showing how the model run in the real world. WeChat and Alipay are selected because they are both mature private platforms run in China, respectively founded in 2011 and 2004, serving 1.36 billion and 890 million monthly active users (MAU), ranking 1st and 3rd in the Internet market in China (QuestMobile, 2024). Furthermore, they are the first third-party platforms to start delivering digital public services and have achieved various types of public services across the country through a variety of functions. In this paper, six typical services (see Table 2.2) are selected to show how each category of services operates in practice. Business Process Modeling Notation (BPMN) and citizen journey will be used to depict the process of delivering specific services from business perspective and citizen perspective respectively. It should be noticed that this paper uses citizen journey proposed by Scholta et al., (2020) instead of user journey to emphasize the unique position of citizens in determining the ultimate value of digital public services.

**Table 2.2**    Case selection of different categories of digital public services delivered on third-party platforms

| Exclusivity / G-C Interaction | Services exclusively delivered on WeChat or Alipay | Services nonexclusively delivered on WeChat and Alipay |
|---|---|---|
| **Information-focused services** | Appointment registration of Shanghai Foreign Affairs Service Centre on WeChat | Application for Certificate of No Criminal Records (operated unitedly by Shanghai Big Data Centre) |
| **Transaction-focused services** | Public transportation cards on Alipay | Medical Insurance Card (operated unitedly by National Medical Insurance Administration) |
| **Participation-focused services** | Cultural event voting on WeChat (e.g. online selection of cultural and tourism routes and spots in Shanghai) | Citizen complaints on the 12345 hotline (operated unitedly by Shanghai Petition Office) |

## 2.3    Interview

Additionally, altogether 15 semi-structured interviews are conducted with all stakeholders, including 9 citizens, 3 government officials, 2 platform operators and 1 academic expert. This selection ensures that all stakeholders of PaaG are represented, and the most important service recipients and evaluators, citizens, are represented to the greatest extent. The interviews last an average of more than 35 minutes, revealing a lot of valuable information. Citizens of different ages and occupations are carefully selected for interviews, who will be asked about their general experiences and feelings with the digital public services on third-party platforms. Government officials interviewed include frontline staff working in different provinces of Shanghai, Beijing and Shaanxi. They provide information about the role of government in this model and their relationships with citizens and platforms. As Shanghai ranks among the top cities in China in terms of digitalization in both public and private sectors, interviews with government officials in Shanghai can provide a more intuitive understanding of the latest developments and future dynamics, while interviews with those from other provinces can provide a more comprehensive understanding of the overall nationwide situation of this model. The two platform operators are respectively from the company running WeChat and Alipay, giving the perspective of how they satisfy the needs of citizens and government using technical methods and whether it is beneficial for the

platform development. The interviewed academic expert is from Fudan University in Shanghai, studying digitalization of the government. He has provided a more general and theoretical picture of this model. From these interviews, deeper insights can be gained in how different stakeholders work in and think about this model.

**Table 2.3**      Interview guide used in this study

| Subject | Example questions | Purposes |
|---|---|---|
| *Self-introduction* | • Could you please introduce your personal background including your age, gender, profession, education level, etc.?<br><br>• How many years have you been using WeChat or Alipay?<br><br>• How many apps do you have on your phone? | To dive a bit into the interviewee's personal background and his/her digital literacy and using habits of digital platforms, which may be relevant to their experience and attitudes towards digital public services on third-party platforms |
| *Knowledge about digital public services on third-party platforms* | • Could you please list some of the functions you are using on the digital platforms you have on your phone? | To know the extent to which the interviewee is familiar with the research topics by not presetting "digital public services" in the question. |
| *Personal experiences with the services* | • Could you please describe your most recent experience with using xx service? What is your aim and expectation? How long it takes you to complete the whole process?<br><br>• How satisfied are you with the service? Please rate it on a scale of 1-10.<br><br>• When was the first time you used this service? Has the service changed since then? | To understand the operation processes and citizen journey of this model from the micro and specific examples.<br><br>To understand interviewee's personal attitudes towards the model.<br><br>To understand how this model was formed and accepted by people. |

| | | |
|---|---|---|
| *Comparison with other models* | ● What are the advantages and disadvantages of third-party platforms compared with offline government windows and online government platforms? | To answer the last sub research question. Fine with difference perspectives from different stakeholders. |
| *Formation of the model* | ● Why and when did your department choose to deliver public service on third-party platforms? | To understand the reasons and processes for the formation of this model. |
| *Relationship with other stakeholders in the model* | ● How and who would you communicate with if you have difficulty using a service? (for citizens)<br><br>● If a third-party platform is suspected of leaking personal data of citizens who use its services, which department will take what measures? (for government)<br><br>● How would you learn about citizens' needs before developing and implementing a service? (for government and platform)<br><br>● Who has the biggest say in designing a digital public service? (for government and platform) | To know about the relationship and interaction patterns in the model between citizens, governments and platforms. |
| *Data security, privacy protection and others* | ● What measures have been taken to ensure the security of data flow and storage between third-party platforms and the government? | To understand the internal operation processes and the potential (dis)advantages of the model. |
| *Wrap-up* | ● Is there anything to add about the topic? | |

## 2.4    Online survey

Finally, an online survey with citizens, or the platform users, are conducted to show the general opinions of the platform users because the value of public services is ultimately determined by the users. A total of 352 valid questionnaires has been collected. The questionnaire has covered the frequency, experience, interactions, satisfaction and

dissatisfaction of using digital public services on the third-party platforms. Please refer to Appendix A for the detailed contents of the online survey.

The four methodologies work together to depict the general delivery model of PaaG (see Figure 2.1). In Step 1, taxonomy and case study together depict the general delivery model of PaaG and its main feature in delivering public digital services by studying deep into each of the six categories of digital public services. Step 1 is more about finding out what PaaG is like superficially, while Step 2 is meant to find out the deeper operational logic of the model, including the stakeholder roles and relationships (horizontal/spatial) and the formation process and reasons (vertical/temporal). In Step 2, the interview and survey together provide important details undiscovered in the case study in a mutually verified way: findings from both the interview and survey are verified in one another. Finally, advantages and disadvantages of this model are pointed out based on the superficial findings of main features of PaaG gained from the taxonomy and case study, and the deeper findings of stakeholder and formation in PaaG from the interview and survey.

**Figure 2.1** Visual representation of the research design process
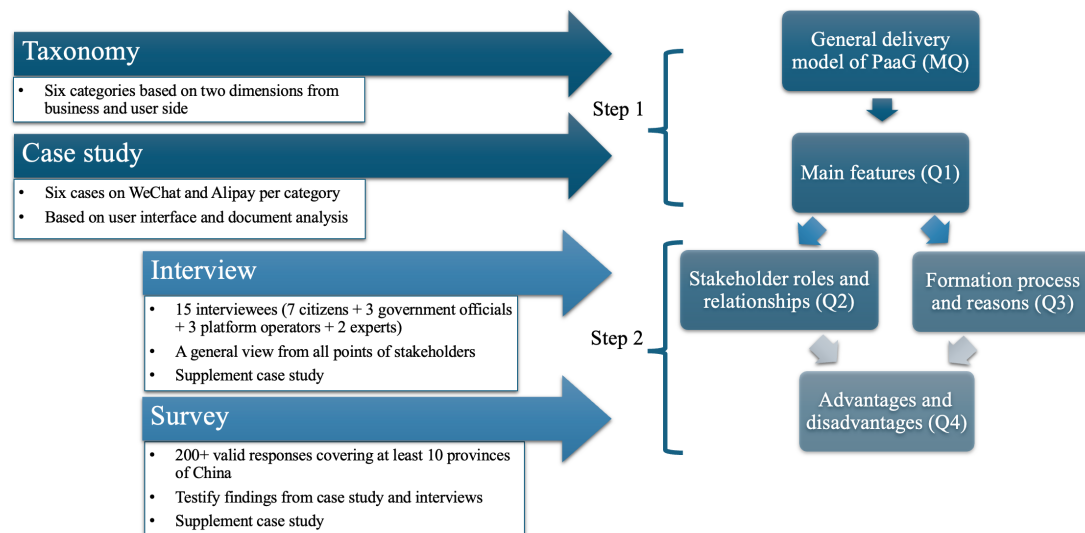
# 3    Literature Review

## 3.1    Platforms in public sector

### 3.1.1    Definition and characteristics of platform

As one of the three iconic events of the "digital revolution", the emergence of platform has transformed how people work and live, as well as the way of human thinking (Brynjolfsson & Smith, 2000). Traditionally, platforms are those facilitate interactions between at least two distinct groups that want to interact with and need each other (Evans & Schmalensee, 2007). For the software-based platform this paper focuses on, it is defined as platform where outside parties can build complementary products or services that contribute to the functionality and capabilities of the platform. Here, the platform owner is the lead firm primarily responsible for the platform. Together with the complementary apps, interfaces between the platform and apps, and architecture of conceptual blueprint and design rules, it works as software platform ecosystem like Google and iOS, which has been an indispensable component of today's internet economy (Tiwana, 2013). This "ecosystem" serves as a coordinator of multilateral interdependencies, which are quite different from traditional hierarchical vertical integration or bilateral contracting and thus minimize the costs of cooperation (Adner, 2017; Jacobides, Cennamo & Gawer, 2018).

One of the greatest advantage of platforms come from network effect, which describes how each additional user of a platform or application increases its value for all existing users also referred to as network externalities or Metcalfe's law (Katz & Shapiro, 1994; Saloner & Shepard, 1992). Thus, platform scaling highlights the importance of offering more diverse services and engaging a wide range of partners within the platform (Henfridsson & Bygstad, 2013; Staykova & Damsgaard, 2015).

There are three dimensions in information systems platform literature: organizational form "platform-ecosystem as collectively visualized organizational form", market dynamic "platform-ecosystem as complex dynamic of commoditization and shifting incentives for participation", and architectural structure "platform-ecosystem of modular interlinking processes, enabled by shared infrastructure" (Brown, Fishenden, Thompson & Venters, 2017).

This paper will explore whether the above platform theories have explanatory power in China's PaaG model, namely whether they can explain why and how such a special model emerged in this country.

### 3.1.2    Platform governance

Platform governance is an important issue for a platform's sustainable success. It is collaboratively shaped by the platform itself, its participants, and the government, focusing on three core issues: "who establishes the rules", "how rights and responsibilities are allocated", and "how disputes are resolved". Approaches in research includes the self-organization of platform participants, involvement in governance, government-led regulation, and oversight by consumers (Xue, Tian & Zhao, 2020). And current research and practice is finding ways to balance among the evolving models of "self-governance", "external governance" and "co-governance" to exploit strengths and avoid weaknesses (Gorwa, 2019). Considering the rapid growth and evolution of the platform ecosystem, along with the dynamic operations of platform companies, it is suggested a more normative and functional "principles-based regulation" is required rather than the highly specific "rules-based regulation" typical of static markets (Nooren, van Gorp, van Eijk, & Fathaigh, 2018).

The main challenge for the platform owner is to maintain enough control to uphold the integrity provision. At the same time, they must allow enough autonomy to foster innovation among the platform's module developers. Thus, a framework of platform governance is proposed mainly from three perspectives: a) partitioning of decision-making power, b) control, and c) proprietary versus shared ownership (Yu, Wen, Jin & Zhang, 2019).

### 3.1.3    Platforms in public sector

Applied in public sector, the platform has shown up as a way to share data between different systems, on which citizens can have ready access to information and government services (Ojo, Curry & Janowski, 2014). It can also optimize resource allocation with digitally integrated service infrastructure on a large scale to transform population challenges into resource advantages (Yu et al., 2019). It is also a key component in the implementation of open innovation practices in the public sector (Androutsopoulou, Karacapilidis, Loukis & Charalabidis, 2017; Cao, West, Ramesh, Mohan & Sarkar, 2023).

As a result, "platform-based governance" has gradually become a new paradigm of citizen-administration relationships after the emergence of bureaucratic, consumerist, and participatory paradigm. It features the administration enabling citizens to generate public value autonomously by leveraging socio-technical systems that integrate data, services, technologies, and community engagement (Janowski, Estevez & Baguma, 2018), following four major logics: multifunction integration logic, whole system

architecture logic, comprehensive technology-driven logic and overall process reengineering logic (Shuisheng, 2021).

However, it is also stated that public platforms cannot be developed by simply applying private-sector models to the public sector, as the market dynamics of public services differ significantly from those of open markets (Hautamäki & Oksanen, 2018). But similar to the competition of private platforms, it is also a big challenge for the public platforms to be appealing enough to attract and retain users, requiring both the government and the public derive tangible benefits from their use (Janssen & Estevez, 2013). It is worth studying whether and how the PaaG model meets with this challenge by combining the strengths of public sector and private platforms.

It is also proved that service dominant platform (SDP) is a sustainable strategy to integrate and improve efficient public service in metropolitan areas. It is an interactive service and governance interface instead of a mere channel of information release. There are three types of value including value proposition, value in exchange and value in use, in the four main domains of resources, openness, service innovation and governance (Yu et al., 2019). The PaaG model studied in this paper has intersection with the concept of SDP, especially for WeChat and Alipay integrating various public services in an interactive way. However, current research on SDP is based on the macroscopic perspective of value creation rather than service delivery.

### 3.1.4    Relationship between Chinese government and third-party platforms

Given the potential in platforms delivering efficient public service, research has confirmed that there are long existing public–private partnerships (PPPs) between government and third-party platforms to promote digital service delivery in China. It is also admitted that since Alipay and Tencent are internet giants that have almost monopolized China's mobile payment and social media sectors, this novel situation seemingly does not apply to other countries (Ma, Christensen & Zheng, 2023). Especially in the era of big data, the huge amount of data, the diverse forms of data collection, storage and use, the ever-changing technology, the growing demand for data use, and the huge investment in the infrastructure and organization have made the construction of third-party platforms an inevitable trend in China. The exponential age has proved that technologies are progressing much faster than the institutions (Azhar, 2021), so the government is unlikely to spend loads of money building the latest information technology platforms.

Therefore, a new type of resource-dependent alliance has been formed between the internet giants with powerful technical, social and economic resources and the

government with administrative and organizational resources. This relationship solidifies the resource advantages of these internet giants, and thus leads to the problem how to maintain the government's dominant position in public service provision, how to ensure the government standards and regulations are implemented, and how the interests of the public group as the recipient of public services are protected (Lin & Xueying, 2020). Thus, it is suggested by Zhiyong (2018) that only under effective supervision can enterprises engage in public services, for that legal documents protect the government and citizens' rights and interests by stipulating that enterprises cannot collect and abuse data indiscriminately, and they also protect the enterprises' basic rights. However, due to the complexity of the stakeholders involved, the governance of third-party platforms is much more difficult than that of ordinary platforms, which very few studies have specifically investigated.

## 3.2 Delivery of digital public services

### 3.2.1 Definition and characteristics of digital public services

There are several similar terms to *digital public services*, such as *public e-service* (Holgersson & Karlsson, 2014), *e-government service* (Jansen, de Vries & van Schaik, 2010) and so on. This paper is not aimed to clarify the theoretical differences among these terms but will accept the definition from Lindgren and Jansson (2013) as being (1) a service, (2) electronic, and (3) public. A service can be understood as "a process in which someone is being served and value for the user must be created", for which service quality or value must be assessed based on consumers' experience. Accordingly, e-service is a service "mediated through the use of information technology". And "public" means (1) public ethos of a collective commitment to promoting social justice and the common good, (2) lack of exit situation restricting users' exit-option in such a quasi-market, and (3) role of users as citizens, rather than consumers calling for responsiveness and equal treatment. In the PaaG model, since digital public services are delivered on private platforms, some of the above characteristics may not be applicable, which will be studied further in this paper.

Universality and contextualization should and can be achieved through continuous innovation in digital public services (Bertot, Estevez & Janowski, 2016). To implement the continuous innovation process in practice, Digital Public Service Innovation Framework by United Nations (2014) draws an incremental and stepwise four-stage digital public service maturity model, including emergent stage, enhanced stage, transactional stage, and connected stage. This paper will try to assess which stage the

current PaaG model in China is at and whether PaaG in China has the space and potential for further continuous innovation.

### 3.2.2 Digital public services influence by and on the public

The delivery of digital public services is both influencing and influenced by the public. On one hand, user participation is introduced into the development of digital public services in three forms: user-centered design, participatory design and user innovation. However, it has been found that show that although citizens are generally willing to participate, their capacity to engage is limited. The extent of their willingness to participate is influenced by several factors: 1) their use of public e-services, 2) satisfaction with these services, 3) personal incentives, 4) available time, 5) level of social commitment, and 6) prior experience with system development, while understanding of public authorities, knowledge of IT, and familiarity with systems development are influencing citizens' ability to participate (Holgersson & Karlsson, 2014).

On the other hand, digital public services transform public interactions by altering the timing, location, and manner of engagements, the roles of each participant, and the skills they need to possess. Although these new technologies have the potential to advance digital service delivery and support the democratic aims of digital governance, they can also be used by authorities to restrict, monitor, and control citizens (Lindgren, Madsen, Hofmann & Melin, 2019).

Therefore, it is an interesting topic to talk about how the special PaaG model influences the way the public interact with digital public services, including their willingness and capacity to participate, their channels to reflect and complain and so on.

### 3.2.3 Digital public services in China

For the digital public services in China, great challenges and opportunities come hand in hand given the big population and huge digital gap. On one hand, digital public service delivery in China is challenged by its large population and limited access to services for the vulnerable. On the other hand, this large population generates valuable data that enables suppliers to make more informed decisions, leading to improved service delivery (Yu et al., 2019). Hence, the challenges are more rooted in social and organizational factors than in technical ones. They are closely linked to various stakeholders, significant interdependence, conflicting values, and social and political complexities (Nam & Pardo, 2011). To sum up, it is worth studying how China can

handle the relationship among stakeholders in such huge population under the special PaaG model to jointly achieve high-quality service delivery.

## 3.3    Digital public services on the platforms

### 3.3.1    Concept of GaaP

Since 2010s, "Government 2.0" has become a heated concept and movement aroused by the trend called Web 2.0 featuring user-generated content, interactivity, user experience and Application Programming Interfaces (APIs). It is defined as "the use of technology—especially the collaborative technologies at the heart of Web 2.0—to better solve collective problems at a city, state, national, and international level" (O'Reilly, 2011). In the same paper, O'Reilly proposed government as "manager of a marketplace" to provide platforms and relevant infrastructure to support civic action. He also give 7 lessons for government to learn from the success of computer platforms, namely (1) open standards spark innovation and growth; (2) build a simple system and let it evolve; (3) design for participation; (4) learn from your "hackers"; (5) data mining allows you to harness implicit participation; (6) lower the barriers to experimentation; (7) lead by example. And it is the first origin of the concept of "Government as a Platform" (GaaP).

However, the implication of GaaP has evolved over the past decade. At the beginning, it is perceived as "social media-based digital government" featuring information source model, service demand model, policy making and negotiation model and shared governance (Chun, Shulman, Sandoval & Hovy, 2010). In this perception, only information-focused and participation-focused services are covered and the platforms where the services are provided are limited to social media. Later in 2017, Brown et al. states that GaaP should be not only viewed as technology and the building of technical components, but also the new economic and organisational model. In 2019, Pope proposed a working definition of GaaP by compiling a selection of how people have applied the term as "reorganizing the work of government around a network of shared APIs and components, open-standards and canonical datasets, so that civil servants, businesses and others can deliver radically better services to the public, more safely, efficiently and accountably".

There are so many disputes around the exact definition of GaaP that researchers tend to define it using features. For example, features like cross-government architecture, modularity and citizen-centred design are used to analyze GaaP (Gil-Garcia, Henman & Maravilla, 2019). Cross-government architecture enables to enhance services across

governmental organizations by utilizing shared infrastructure, rather than creating isolated, localized systems (Brown et al., 2017). Modularity as a strategy to deal with complexity can divide intricate issues into manageable components and facilitate platform decentralization by enabling these components to be reused by other platform participants (Helmond, 2015). Citizen-centred design is key to public value creation in the delivery of public services by understanding the citizen needs and learn from user behaviour (Luna-Reyes, Picazo-Vela, Luna & Gil-Garcia, 2016; Janssen & Estevez, 2013). This study will discuss whether these features are still applicable in the PaaG model and what changes may occur in practice.

### 3.3.2 GaaP in practice

Along with the discussion about the definition of GaaP, growing interest has emerged in how it can significantly reshape the processes of public service delivery and enhances the value these services provide to citizens. And it is found that the major factor driving numerous GaaP transformation projects is the efficiency improvements provided by the platform model because of (1) delivery of more value with fewer investments with the help of co-production with the external actors, (2) flexibility in developing third-party applications based on stable core services to satisfy evolving public needs, (3) easy accessibility and simple modification to the platforms themselves, and (4) enhanced collaboration among public organisations and developers with the availability of open data, open standards, and open software (Sayogo & Pardo, 2013; Sieber & Johnson, 2015; McBride et al., 2019). However, efficiency itself does not guarantee public value. Thus, subsequent research also focuses on the relationship between GaaP and the creation of public value, believing that platform configuration can drive stakeholders to jointly create public value and improve the quality, efficiency and value of public services (Cordella & Paletti, 2019; McBride et al., 2019).

In order to bring GaaP into practice, previous research suggest four involved factors: infrastructure as the technical component, structure as the conceptual and inherent attribute, values as the ideological intention, and outcomes referring to everything produced by GaaP (Seo & Myeong, 2020). In the successful cases of GaaP in UK, Italy, and Estonia, commonalities are found like centralized core functionalities, robust digital agencies led by strong leadership, usage of both incentives and deterrents, openness and co-creation within and beyond the public sector (Kuhn, 2023).

However, it is still hard to practice GaaP successfully. Criticism has come along, for example, gov.uk is criticized about its lack of open public consultation and participation because of the UK Government's adoption of an internally driven, centralist top-down

model (Brown et al., 2017); Federal Target Programme "Digital Economy" of Russia is blamed about its technocratic approach restricting the political potential of new technologies and unintentionally fostering digital authoritarianism (Smorgunov, 2021); principles of inclusivity and deliberation is also hard to meet when platforms fail to involve citizens widely in online dialogues (van der Does & Bos, 2021).

This study will attempt to explore the factors in the PaaG model formation process in practice and whether it has met with the same or similar practical challenges as GaaP.

### 3.3.3   Other government platform concepts

Previous research has shown that there are different understandings of the platform concept in the public sector context. GaaP is only one of the mostly frequently mentioned among them. Platform for Government (PfG) and Platform-enabled Government (PEG) are two other concepts developed under the megatrends of Government 2.0. Compared with GaaP, which sees the government itself as a platform, PfG emphasizes the dominance of government over platform technology, with the government using the platform to collect and process public data. In other words, the platform is just a tool for government governance. Without changing its organizational system and form, government departments use platform technology to provide society with services similar to "vending machines" (Brown et al., 2017), thereby improving government administrative efficiency. However, as GaaP is not implemented in the real world as expected (Brown et al., 2017) and PfG lacks the joint creation of the government and society (Mu & Wang, 2022), the concept of PEG appears in response to the embarrassing situation. In this theory, the platform is operated in a decentralized manner, the functional collaboration is strengthened inside and outside the government by integrating information flows, and government departments are enabled to jointly provide public services without publicly sharing proprietary data (Zeng, Zhang, Zhao & Huang, 2023). PEG relies on the "middle platform" system to effectively integrate the functions of multiple departmental subsystems into one workflow, effectively balance departmental interests and departmental cooperation, adjust and change factors such as power and responsibilities and resource relationship issues (Hu, 2020), and realize the holistic government construction based on data processes (Huang, 2020; Sun, 2022). The PaaG studied in this paper is different from both PfG and PEG. It emphasizes the subjective initiative and potential functions of the platform compared to PfG and focuses more on the relationship and cooperation between the government and external stakeholders compared to PEG. More will be talked about in the following results and discussion.

### 3.3.4    Relevant studies on country level

However the concept of the government platform is defined and elaborated, it is always under the assumption that government is itself a platform or at least government owns and operates the platform. Although it is admitted that governments may occur in different roles in the platform context, most literature focus on government as platform provider, since it is usually the case in Europe and U.S. Typical government platforms in real life that have been studied are concentrated in Europe and U.S., including eesti.ee in Estonia (Margetts & Naumann, 2017), gov.uk in UK, usa.gov in the U.S. (Pope, 2019b), Suomi.fi in Finland (Yli-Huumo, Päivärinta, Rinne & Smolander, 2018), Agenzia per l'Italia Digitale (AgID) in Italy (Cordella & Paletti, 2019), etc. However, there is limited research on government platforms in China.

There is a completely different phenomenon in China's digital public service delivery: various kinds of public services are directly delivered on third-party platforms like WeChat and Alipay (seen Table 1.1). This phenomenon contradicts the previous definition and description of government platforms: these third-party platforms are not designed to serve the public good, but for private purposes such as social media and financing, and they have also been existing before the government plans to deliver public services in digital forms. Also apparently, they are not completely controlled or represented by the government.

However, the current academic definition is either too broad or too narrow for this phenomenon. For the broad ones, Chinese researchers draw on Kushchu and Kuscu's definition of mobile government (2003) and develop it to "the government using emerging mobile wireless communication technologies to improve its operational efficiency and effectiveness and reduce government operating costs" (Shuhua, Hua, Qianli, Mingge, 2011). This term includes government operations provided on all government platforms and third-party platforms. For the narrow ones, definitions exist only for public services on specific platforms. For example, "government Weibo" refers to the situation where WeChat are used as a medium by which party and government agencies and officials at all levels use the Internet to perform their public administrative management and service functions for the society and the public (Yao, 2015); "government WeChat" refers to WeChat public accounts opened by government departments at all levels in China to provide information, interaction and other services to the public on the WeChat platform (Menglin, 2018). However, most research on these specific platforms only focus on information-focused services delivered on third-party platforms like WeChat (Zede, 2014), Douyin (Zhen & Ziyi, 2019; Qiang, Xingxing, Shuang & Junyan, 2019; Xia & Liang, 2019) and Bilibili (Qiang, Yang, Z.

Xiaoyue & Runxi, 2020) from the perspective of media and communications, which contrasts with the various digital services shown in the Table 1.1.

Therefore, this special phenomenon does not have a unified definition. Thus, this paper names this specific phenomenon in China as "Platform as a Government" (PaaG), defined as:

*Public services are delivered on third-party private platforms in a digitalized, integrated, and cooperative way where the platforms function as the branch of the government.*

Although this phenomenon of public services on third-party platforms has not been theoretically defined, some studies have noted that Internet companies like Alibaba and Tencent have been constantly innovating and developing rapidly in recent years and have gradually become an "ecosystem" covering multiple fields and have also become a convenient channel for the supply of government services. Research data has shown that the public's understanding, use and evaluation of public services on "third-party platforms" are better than those on government platforms because of their certain advantages in service convenience and channel stability. Also, the strong technical capabilities of these private Internet companies provide good technical support for the reconstruction of service processes, building a safe, efficient and standardized channel for improving data sharing between departments, and bring opportunities for the development of individualized and citizen-centric digital public services. It is also suggested that government departments should further optimize cooperation with Internet companies in order to improve the quality of public service (Lei, Dong, Yue & Wenzeng, 2014; Yueping & Haixian, 2019). However, possible drawbacks also exist in third-party platforms like service fragmentation, inconvenience in complex service acquisition, lack of cross-department services and gaps between different regions (Yueping, 2016). Nevertheless, few studies have followed up on this phenomenon in the past five years, so it is unknown whether these flaws still exist.

The public satisfaction of digital public service on third-party platforms is influenced by various factors: platform advantages, platform trust, system quality, service quality, and network externality perception of the third-party platforms all positively affect user (citizen) experience, among which service quality and system quality have the greatest impact on user experience; platform advantages, user experience, and network externality perception has a positive impact on satisfaction, among which platform advantages and user experience are the key influencing factors; information quality has no significant impact on user experience (Xin, 2019).

Since public services can be delivered on both government platforms and third-party platforms, the decision of a new digitalized service channel is dependent on the absolute and relative benefits compared to other possible channels, including satisfaction of personalized demands of digitalized services and perceived functional benefits of the channel when service transactions are involved, according to research conducted in selected cities in China (Wang, Chen & Xie, 2021).

To sum up, although current studies have shown the great potential, supporting elements and possible drawbacks in this model (Yueping & Haixian, 2019; Yueping, 2016) and various influencing factors of the public satisfaction with this model (Xin, 2019), it remains unclear how this model runs in practice, including formation, operation process, stakeholder relationship and so on. Therefore, this paper aims to dig into the general delivery model of digital public service on third-party platforms in China, namely the called PaaG model, from the perspective of platform theory and public service delivery.

## 3.4    Relevant policy background in China regarding "Platform as a Government"

China has been prompting e-government since 2010s and here relevant policies and regulations in the past five years are collected in the Table 3.1, mostly on the national level, covering aspects like data usage, prioritized domain, channel promotion, actor cooperation and so on. There are several trends as follows:

(1) Chinese government is promoting nationwide integration and standardization of digital public services, which includes both integrating various public services into provincial government platform portals and integrating provincial government platform services into the national government service platform. But it is still encouraged that both national and provincial government platform should be accessible by various approach including third-party platforms like WeChat and Alipay.
(2) Chinese government is granting greater autonomy to third-party platforms in the digital public service delivery by encouraging enterprises, institutions and social organizations including third-party platforms like WeChat and Alipay to use public data free of charge to develop public services, and by encouraging government services be shared in social service channels in an orderly manner in key areas like education, medical care, and transportation.

These two findings also reveal the practical significance of this study in the near future.

**Table 3.1**     Policies, laws and regulations relevant to PaaG

| Name | Time | Type/ Level | Aspect | Content |
|---|---|---|---|---|
| Opinions on Accelerating the Development and Utilization of Public Data Resources | October, 2024 | Policy/ National | Utilization of public data | Promote the opening of public data in an orderly manner, encourage the exploration of authorized operation of public data, encourage and support enterprises, institutions and social organizations to use public data free of charge to develop public welfare products and provide convenient and beneficial services to the people. Support the development, training and application of large-scale models of artificial intelligence government services and improve the level of intelligence in public services and social governance. |
| Provisions on the Security Management of Internet Government Applications | May, 2024 | Policy/ National | Security management | When government agencies provide public services through the Internet, they shall not be bound to a single Internet platform, and shall not require users to download, install, register and use a specific Internet platform as a prerequisite for obtaining services.<br><br>Government agencies shall conduct security testing and assessment of the network and data security of Internet government applications at least once a year by themselves or by entrusting a third-party network security service agency with corresponding qualifications.<br><br>Data centers, cloud computing service platforms, etc. that provide services for Internet government applications shall be located within the country.<br><br>Internet government applications shall authenticate the real identity information of registered users.<br><br>The Office of the Central Cyberspace Security and Informatization Committee is responsible for coordinating the security management of Internet government applications. |
| Shanghai's Action Plan for Optimizing Government Services, Improving Administrative Efficiency, and Deepening the "One- | February, 2024 | Policy/ Provincial | Provincial government service integration | Promote win-win cooperation between the "Sui Shen Ban" (Shanghai government platform, author noted) brand service and socialized public services. Focus on key areas such as education, medical care, social security, and transportation, and promote the orderly sharing of government services and socialized service channels according to standards and norms. Guide scientific research institutions, |

| Name | Time | Type/Level | Aspect | Content |
|---|---|---|---|---|
| stop Service" Reform (2024-2026) | | | | business entities, etc. to participate in the development and utilization of public services and promote the deep integration and innovation of government services and social production and life. |
| Overall Layout Plan for the Construction of Digital China | February, 2023 | Policy/National | Overall plan on nationwide digitalization | Develop efficient and coordinated digital government. Accelerate the innovation of systems and rules and improve the rules and regulations that are compatible with the construction of digital government. Strengthen the construction of digital capabilities, promote the interconnection of information system networks, data sharing on demand, and efficient business collaboration. Strengthen and standardize the management of government mobile Internet applications. Build an inclusive and convenient digital society, promote the inclusiveness of digital public services, and popularize the intelligence of digital life. |
| Guiding Opinions on Strengthening the Construction of Digital Government | June, 2022 | Policy/National | General direction of digital government | Promote the integration of digital technology and traditional public services and promote the inclusive application of digital service. Give full play to the role of the national integrated government service platform, and promote the continuous improvement of the standardization, regularization and convenience of government services. Promote the unification of online and offline standards, comprehensive integration and homogeneity of services for government services. Improve the ability to provide proactive, precise, collaborative and smart services. |
| Guiding Opinions on Accelerating the Construction of a National Integrated Online Government Services Platform | July, 2018 | Policy/National | Information synchronization, channel promotion, identity authentication cooperation | Promote the publication of government service item lists, service guides, handling status and other related information on government service platforms, mobile terminals, physical halls, government websites and third-party Internet portals. Actively use third-party platforms to continuously expand government service channels and improve the convenience level of government services. Build a national unified identity authentication system and actively and steadily carry out online authentication cooperation with third-party institutions. |

| Name | Time | Type/ Level | Aspect | Content |
|---|---|---|---|---|
| Guidelines for the Construction of the "Internet + Government Services" Technology System | December, 2016 | Policy/ National | Technical details of digital public services on all platforms | Make full use of Internet technology to realize multi-channel services, including mobile APP, self-service integrated machine, hotline, etc. The Internet government service portal provides a unified service interface for various channels to call and realize data homogeneity.

The "third-party payment platform" involved when users pay fees on the Internet government service portal must be a non-bank payment institution that has obtained the "Payment Business License" in accordance with the law.

Make full use of existing mature third-party logistics services to realize the delivery and handover of application materials and handling results, and provide convenient services.

Relying on the Internet government service portal to establish a unified Internet user system, provide online registration functions for natural persons and legal persons. At the same time, provide two external user registration services, page and interface, to realize unified registration of Internet users.

A third-party cloud platform that meets security requirements can be fully relied on to carry out government cloud construction to avoid duplication.

The demand side of government service information is classified into 1. User access 2. Information 3. Information retrieval 4. Service guidance 5. Consultation Q&A 6. Supervision and evaluation 7. Personalized push |
| Guiding Opinions on Accelerating the Promotion of "Internet + Government Services" | September, 2016 | Policy/ National | Promotion of digital public services | Introduce social forces and actively use third-party platforms to carry out services such as appointment inquiry, certificate delivery, and online payment; open online government service resources and data in an orderly manner in accordance with the law, encourage the public, enterprises and social organizations to develop and utilize them, and provide diversified and innovative convenience services. |

| Name | Time | Type/Level | Aspect | Content |
|---|---|---|---|---|
| Guangdong Provincial Government Service Digitalization Regulations | November, 2023 | Regulation/Provincial | Provincial government service integration | Government service agencies should provide applicants with government service progress inquiry services through multiple channels such as the Guangdong Government Service Network, mobile government service platform and government service self-service terminals. Except for cases where laws and regulations provide otherwise or where state secrets are involved, all government service matters should be included in the province's integrated government service platform. |
| Provisions of the State Council on Online Government Services | April, 2019 | Regulation/National | National government service integration | Accelerate the construction of a national integrated online government service platform, promote the standardization, standardization, and intensive construction and interconnection of government service platforms in various regions and departments, promote the realization of national standardization and full-process online handling of government service matters, promote cross-regional, cross-departmental, and cross-level data sharing and business collaboration of government services, and promote the deep integration of online and offline government services based on the integrated online platform. |

# 4 Result

## 4.1 Case study

### 4.1.1 Involved functions on WeChat and Alipay

**WeChat**

(1) **Mini Program**: a new open function that allows developers to quickly develop a program that can be easily accessed and distributed within WeChat, while providing an excellent user experience. Its registration is open to individuals, enterprises, governments, media and so on. It can be designed and accessed by the developers themselves, or it can be designed by third-party developers with pre-made templates. The release of Mini program usually includes following steps:

    (a) Register: Register the mini program and complete the information on the WeChat public platform, including name, avatar, introduction and service scope, etc. Development can proceed simultaneously.

    (b) Develop the mini program. After completing the mini program developer binding and development information configuration, developers can download developer tools and refer to development documents to develop and debug the mini program.

    (c) Submit for review and release. After completing the mini program development, submit the code to the WeChat team for review. After the review is passed, it can be released (WeChat public platform, 2024).

The mini programs providing digital public services are generally designed and operated by the government agencies like Shanghai Big Data Center, Guangdong Government Services and Data Administration and so on. Therefore, when citizens use mini programs to access digital public services, they are usually required to register their personal information, including names, national ID numbers, mobile phone numbers, etc. For the first-time registry, besides providing necessary information listed above, citizens should also pass face verification to prove it is self-operation. For the registered users, they can choose to log in with their WeChat account password or mobile phone verification code depending on different design of mini programs. But still, face verification is needed. By doing this, the WeChat Mini Program can have access to the national ID number and phone number associated with their WeChat Account. For some mini programs, there is also a 30-day login-free option, but the option is marked as "please choose carefully" because of information leakage in case it is not the register's own mobile device, or the

device is lost afterwards. The detailed process of registration and log-in on WeChat mini programs is depicted in the following figure.

**Figure 4.1** Description of registration and log-in process on WeChat Mini Programs with BPMN (drawn by author)
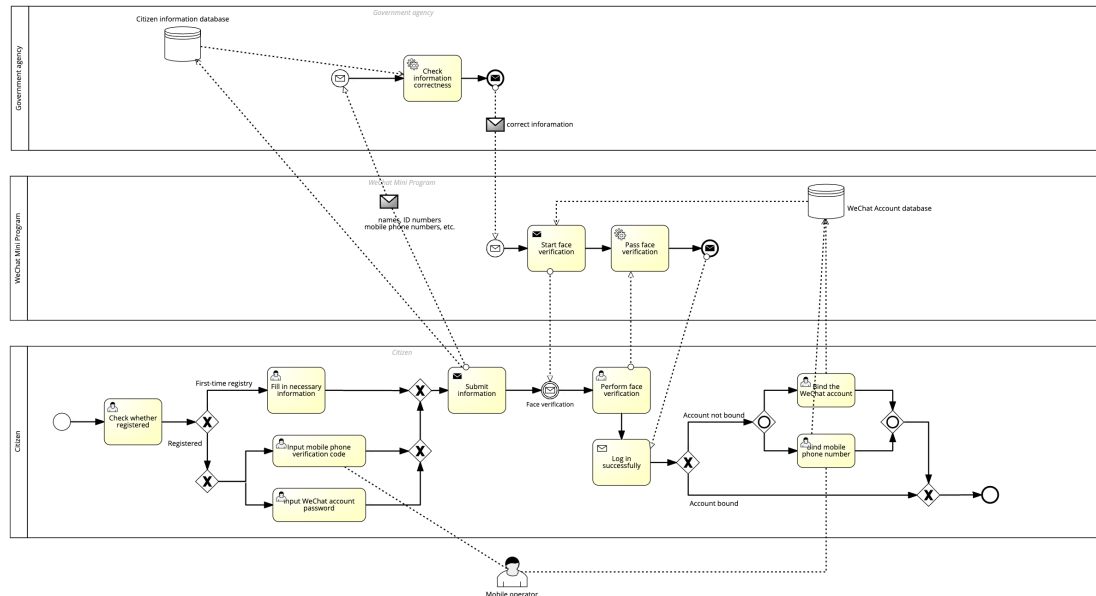


(2) **Official Account**, including Subscription Account and Service Account: the two have different functions, notification pushing, mass messaging frequency, payment support, customizable function menu, but have the same design of message receiving interface (see Table 4.1). Usually, there is no need for citizens to log in to get access to digital public services provided on them.

An important thing to note is that through the function menu of official accounts, the users can be directed to mini programs by just one click.

**Table 4.1** Differences between subscription account and service account (adapted from Tencent customer service, 2020)

|  | Service Account | Subscription Account |
|---|---|---|
| **Function** | Service interaction | Information dissemination |
| **Suitable Scenes** | Enterprises or organizations to provide services | Media or individuals to publish information |
| **Notification Pushing** | Messages directly displayed in the user's message list with an instant reminder | Messages collected in the folder without an instant reminder, so the user needs to actively check |
| **Mass Messaging Frequency** | Up to 4 times per month | Up to 1 time per day |
| **Wechat Payment** | Supportive | Partially supportive, authentication |

| | | needed |
|---|---|---|
| **Customizable Function Menu** | Supportive | Partially supportive, authentication needed |
| **Message Receiving Interface** | Same | |

**(3) City service.** WeChat city services was first realized in Guangzhou Province in December 2014. Now it is accessible to all provinces in China. WeChat users can access 16 public services for people's livelihood under "city services", including medical care, transportation, public security, household registration, entry and exit, payment, education, provident fund, etc. By clicking on icons, users can be directed to the exact official account or mini program that provide specific services.

**Figure 4.2**   User interface of "WeChat City Service"



29
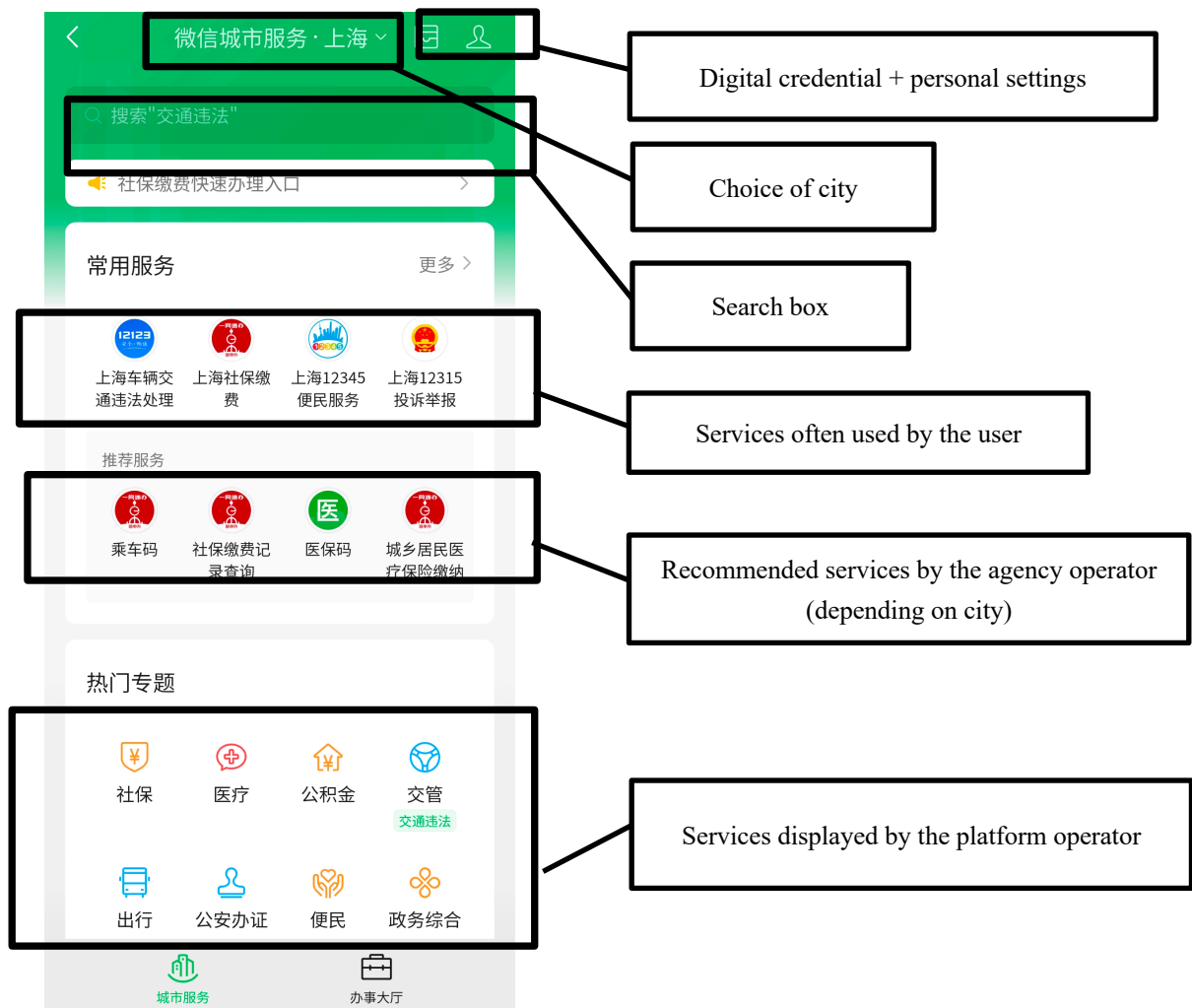
**Alipay**

(1) **Life account.** It is a function realizing Alipay merchants' content marketing by integrating content creation, homepage decoration, service marketing, domain inter-linkage. It features (1) quick creation of a site by customizing the creation of mobile sites, supporting mini-programs and other forms of access services, (2) fast match with user demands by tagging the services embedded in the life account and matching users through embedded search, picture- and text- push and other channels, (3) multiple channels to reach users such as payment completion page, search, and friend page messages and so on (Alipay life account platform, 2024). When publishing content, operators can associate it with various marketing tools such as services, coupons, etc., to make content conversion more efficient.

The plug-in process of a new life account includes following steps:

(a) Register an Alipay account: apply for a corporate account and complete real-name authentication.

(b) Create a life account: upload business license or qualification information.

(c) Configure and publish a life account: complete the life account information and publish.

When it comes to digital public services, it is similar to the WeChat Mini Program in that it needs "hard eID" including face verification. The process of registration is also similar.

(2) **Citizen center:** This function has started since the 2020 Alipay Partner Conference in order to realize the self-operation of local government platforms on Alipay (Alipay document center, 2023). All kinds of services provided by the government and SOCs are integrated in this center, as is shown in the following figure. By clicking on icons, users can be directed to the exact life account that provide specific services.

**Figure 4.3**  User interface of "Alipay citizen center"



Choice of province + search box

Services displayed by the platform operator

Services often used by the users

Services exclusively provided by the government

Function menu including personal settings, service list, and city news
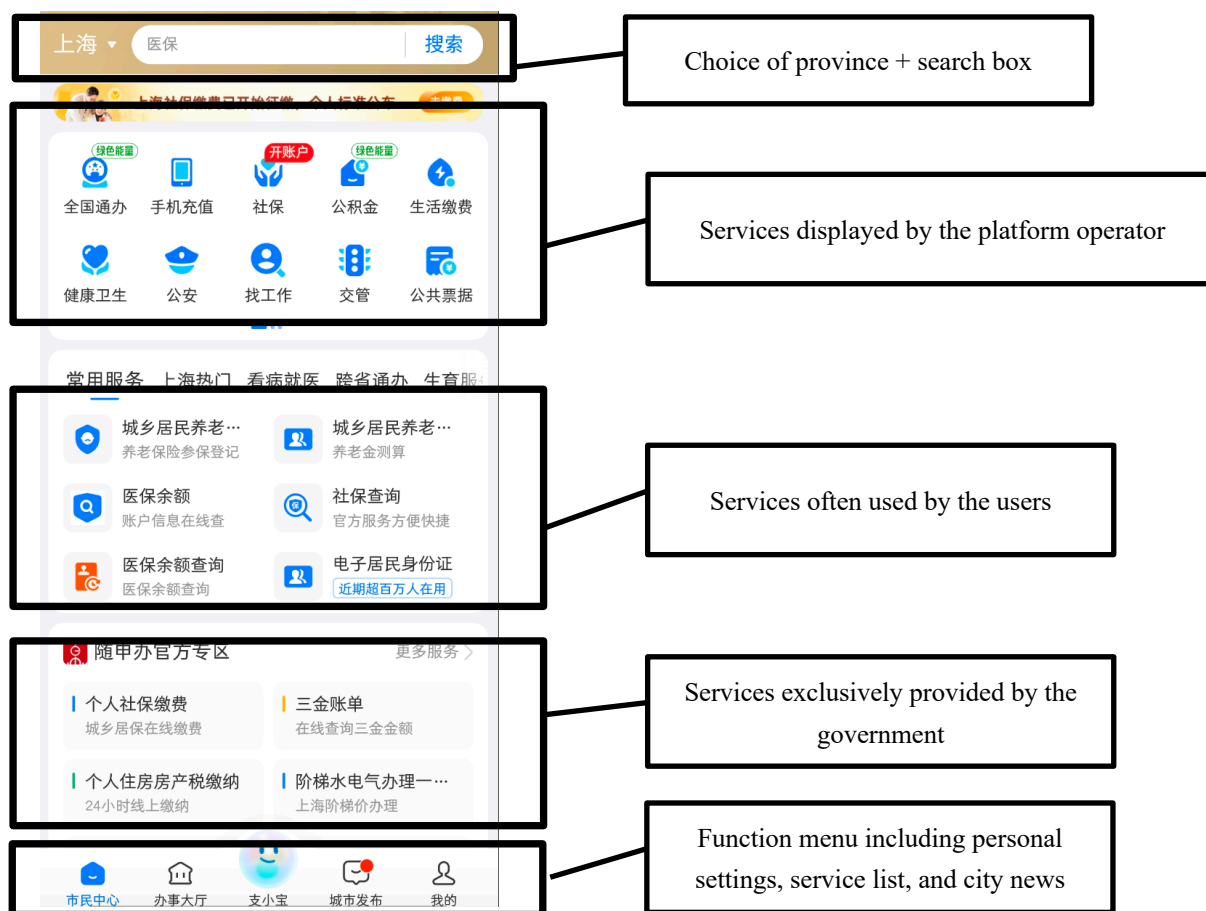
### 4.1.2 Case A - Appointment registration of Shanghai Foreign Affairs Service Centre on WeChat

**Introduction**

The Shanghai Foreign Affairs Service Center is a service unit under the Foreign Affair Office of Shanghai People's Government. Its main business includes consular authentication, reception of visiting groups, one-stop service for official visits, translation of overseas birth certificates, marriage certificates, academic qualifications, etc. For the service of consular authentication, it is only proceeded after online appointment service by the applicants. This appointment registration service is exclusively provided through Subscription Account of Shanghai Foreign Affairs Service Center.

**Business side analysis**

This online appointment registration service is strongly connected with its offline service, namely consular authentication service, and vice-versa, applicants can only

come to the offline service at the appointed time and place. This appointment process is digitalized with the help of QR code, as is shown in the Figure 4.5. This service has only steps as below:

(1) **Online application**. Fill in information in the "online registration" function in the Subscription Account like issue options (can only choose "consular authentication"), offline place for authentication (two places to choose from), date and time (accurate to half an hour, and only available time slots will be displayed), applicant name and contact information. After filling in all the information, applicants should submit the form. And messages showing successful registration will be sent to the mobile number filled in the contact information.

(2) **Deal with consular authentication with appointment code**. After online application, the appointment record will be shown in the same "online registration" function with a Quick Response Code (QR code). With that code, applicants can prove that they have registered online and comes at the right time and place. For staff working at the Center, they scan the QR code, and it will be marked as "used" at the back office.

**Figure 4.4**    User interface of Appointment QR code of appointment registration service of Shanghai Foreign Affairs Service Center

**Figure 4.5**    Description of appointment registration of Shanghai Foreign Affairs Service Centre on WeChat with BPMN (drawn by author)
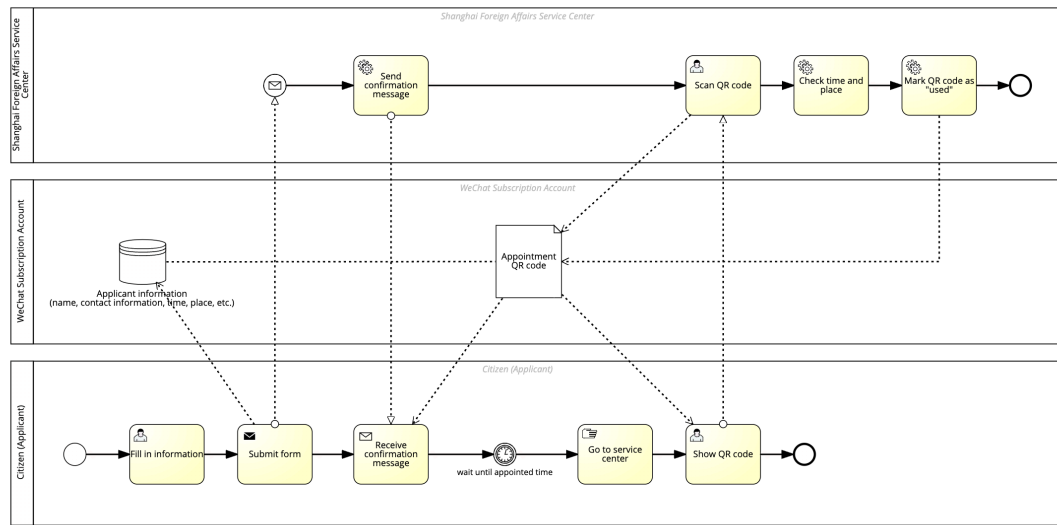


**Advantages:**

(1) Time saving for both sides. For citizens or applicants, they can save time by knowing which time is available to deal with their issues at which offline offices. And for staff, they can distribute their workload reasonably throughout the day so that efficiency can be improved.

**Pains:**

(1) Lack of flexible change. Once applicants successfully submit the online form in this service, they cannot change their information anymore, including time and place. Although there is no real punishment if one does not come to offline office after registration, it can cause some resource and time waste in that case.

**User side analysis**

From user side, citizens go through the following steps to make appointment registration of Shanghai Foreign Affairs Service Centre on WeChat (see Figure 4.6).

**Figure 4.6**     Description of appointment registration of Shanghai Foreign Affairs Service Centre on WeChat with citizen journey (drawn by author)
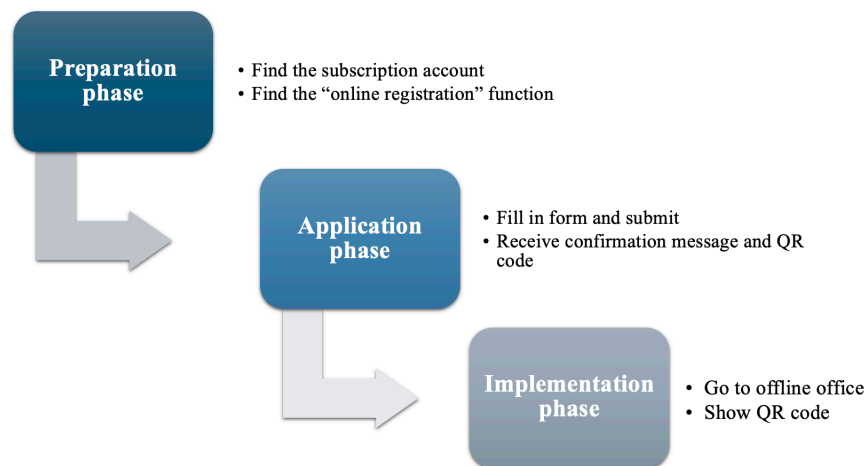


(1) **Preparation phase**: In this phase, citizens should first find out the subscription account of Shanghai Foreign Affairs Service Centre, either by directly searching in the WeChat or through QR code listed on the official website of the Centre. After finding the subscription account, they can find the "online registration" function under the list of "self-services".

(2) **Application phase**. Applicants then fill in the online form as is elaborated in the business side analysis. After the applicants finish filling in the form, they submit and will receive a confirmation message including time and place of the appointment. The appointment information including the appointment QR code can also be checked in "my appointment" in the same function.

(3) **Implementation phase**. Applicants go to the right offline office of the Center at the registered time, they shall show the QR code or give their name and contact information to confirm that they are the right person to come. After all is confirmed, the applicants will be allowed to deal with their issue at the counter.

**Advantages:**

(1) Easy-to-understand technology. Throughout the whole process, all the technologies used, including online form, QR code and message sending, are all very simple technologies that are easy for everyone to understand. This makes this service approachable to more people.

**Pains:**

(1) Lack of guidance. Although online appointment registration is necessary for consular authentication, applicants cannot know how to make an appointment

unless they visit the official website or subscription account before they go offline. In that case, many applicants directly go offline and are told by the staff that they should make an appointment in advance. If they are lucky enough that the counter is not so busy, then they can also deal with the application. However, if not, there will be a waste of time.

### 4.1.3    Case B - Application for Certificate of No Criminal Records

**<u>Introduction</u>**

This digital public service is provided only to Chinese citizens, including residents of the mainland, Hong Kong, Macao and Taiwan. For the following three special cases, online digital service is not available: (1) for foreigners who have resided in China for more than 180 days, they should go offline to the public security exit and entry management department; (2) if an organization applies for an inquiry, it should go offline to the public security police station at the place of residence to handle it; (3) if an individual applies for more than 3 times (not inclusive) in a natural year, he/she should apply offline and submit relevant materials that the certificate is issued for reasonable purposes such as employment, studying abroad, and immigration.

The criminal record applied for inquiry refers to the objective record of the criminal by China's specialized agencies.

**<u>Business side analysis</u>**

Taking as example "application for certificate of no criminal records" service in Shanghai on WeChat Mini Program called Suishenban, which is operated by Shanghai Big Data Centre, the following five steps show how this service is run from business side, as is also shown in the Figure 4.8. The same services are also provided in other provinces in similar procedures both on WeChat mini programs and Alipay life account.

(1) **Registration**. Citizens should first register and log into Suishenban using their national ID card number and passing face verification or WeChat account password as is stated in the function description of WeChat Mini Program.
(2) **Online application**. This process includes filling in information and submitting materials.
Firstly, for information fill-in, citizens should fill in the online table with information like application reasons (for employment, for overseas study, for emigration and others), certification period, the police station at your registered place of residence (for residents of Shanghai) or the police station at your place of

residence (for non-residents of Shanghai).

Secondly, for submission of materials, applicants with local household registration in Shanghai shall submit their resident ID card. For applicants without ID card, they may submit their resident household registration booklet and apply to the police station at their place of household registration. While applicants who are not local household registration in Shanghai, in addition to submitting their ID card or household registration booklet, they shall also submit their valid residence permit or residence registration certificate and apply to the police station at their place of residence.

(3) **Online acceptance**. The application information from the citizens is checked in terms of authenticity and validity and if it is valid then will be delivered to corresponding police station.

(4) **Review and Decision**. The application is processed and reviewed in the police station by the back-office checking the applicant's criminal record in the police system. If the relevant material information meets the requirements, then the police station decides the certificate can be issued to the applicant.

(5) **Issue of Certificate**. The applicant will be notified of the application result and link through the "Service Notification" function of WeChat (see Figure 4.7). The electronic version of the certificate can be downloaded directly to the mobile phone through the link.

**Figure 4.7**      User interface of service notification of application for certificate of no criminal records on WeChat Mini Program
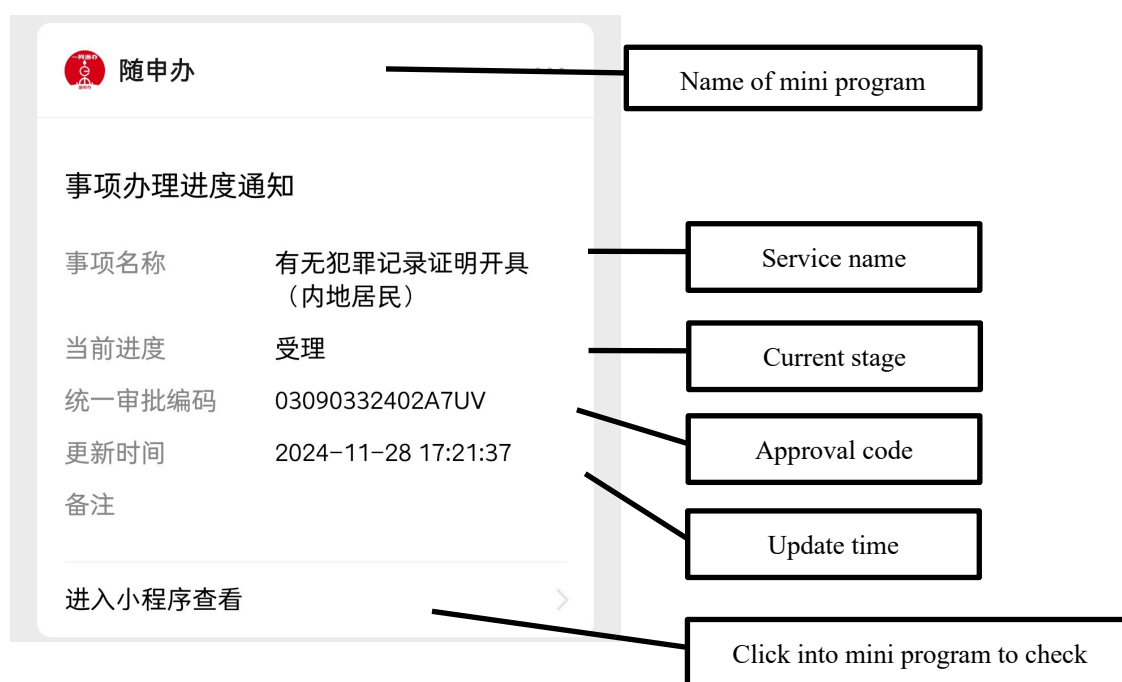
**Figure 4.8**    Description of application for certificate of no criminal records on WeChat Mini Program with BPMN (drawn by author)
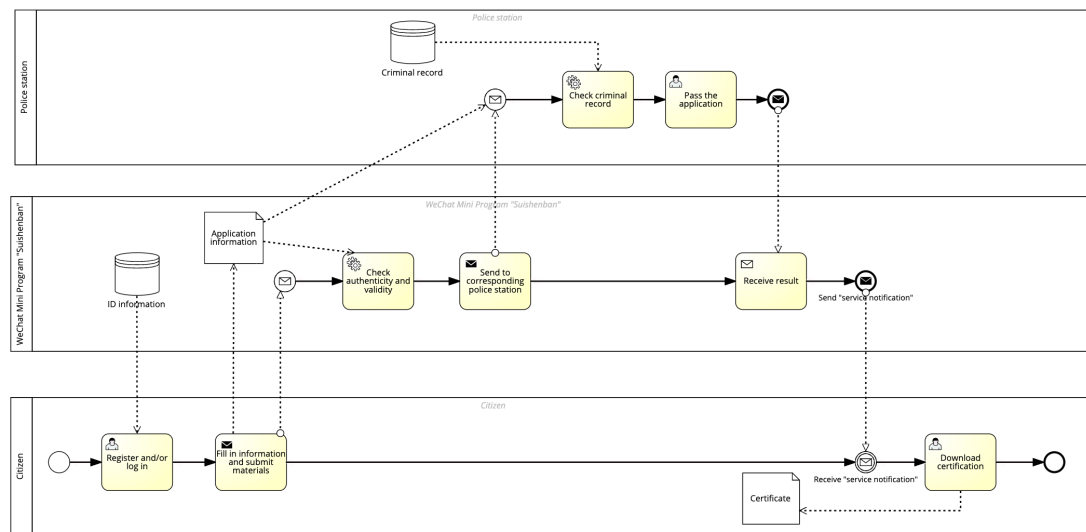


**Advantages**:

(1) Reasonable digitalization. From the BPMN shown above, the whole process of application for certificate of no criminal records is basically digitalized except checking the criminal record and passing the application, which must be dealt with by the back-end police station office client to ensure the accuracy and authority of information. It also ensures that when problems arise, there are appropriate staff to take responsibility.

(2) Data security ensured. The whole process involves two databases, namely the citizen ID database and the criminal database, saved on WeChat platform and police station system respectively. This ensures that the database of police station is relatively independent of that of third-party platforms like WeChat and Alipay so that information security is guaranteed.

**Pains:**

(1) More stakeholders involved. Digitalization of the service of application for certificate of no criminal records involves the participation of third-party platforms like WeChat and Alipay, and government agencies like Shanghai Big Data Center, Guangdong Government Services and Data Administration and so on to mediate the ID information checking, information and material submission, etc. For the offline service, however, only citizens and police stations are involved. More stakeholders involved means more complexity in the whole process and more possibility of mistakes, although the digitalization decreases the time and energy for citizens to go offline.

**User side analysis**

From user side, citizens go through the following steps to obtain the certificate of no criminal records (see Figure 4.9).

**Figure 4.9**     Description of application for certificate of no criminal records on WeChat Mini Program with citizen journey (drawn by author)
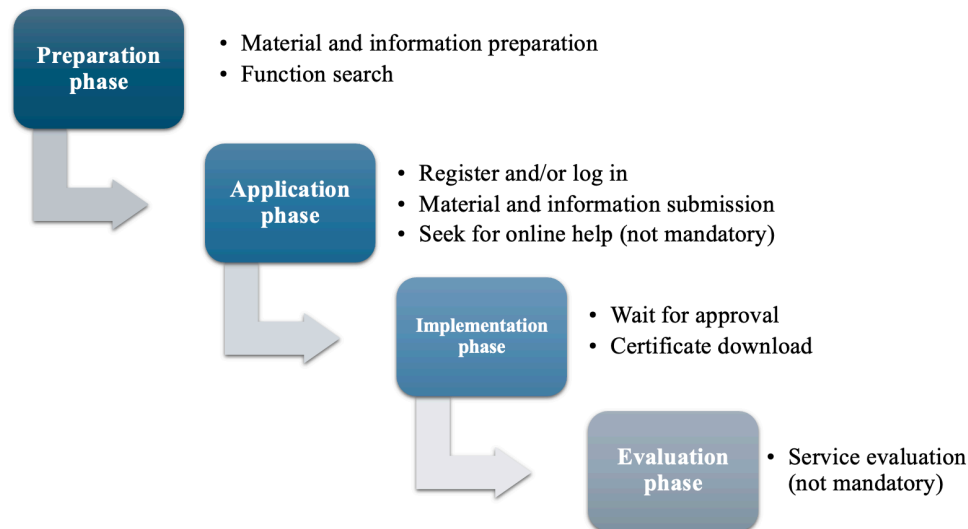


**(1) Preparation phase**
   (a) Material and information preparation. Citizens should collect information like national ID number, police station in charge, photos of their national ID card or resident household registration booklet. When applicants who are not local household registration in Shanghai, in addition to submitting their ID card or household registration booklet, they shall also submit their valid residence permit or residence registration certificate. Fortunately, the photos are not necessary to collect in advance thanks to the availability of electronic certificate in the mini program (explained in application phase).
   (b) Function search. Generally, when citizens have the need for employment, overseas study, or emigration, they need to provide the certificate of no criminal records to prove they have not committed any crime. They can choose to apply through both WeChat mini program and Alipay life account. However, they should first know the mini program or life account of the city they are in because they cannot find the entrance if they just search "certificate of no criminal records" in WeChat or Alipay. After they find the exact mini program or life account, they can search in the search box and be directed to the service.

**(2) Application phase**
   (a) Register and/or log in. This action is the same as depicted from business side.

(b) Material and information submission. Citizens should fill in the information asked in the table, including the name, ID number, police station in charge, etc. For the photos of ID card or household registration booklet, they can choose to use electronic certificate archived in the government systems. By this way, they can save the time and energy spent preparing the photos and avoid the risk of low-quality photos being rejected.

(c) Seek for online help (not mandatory). On the right side of the service interface, there is a button for "online help". By click on that, citizens can ask questions regarding the service like eligibility scope and time of the certificate, application process and time, etc. Citizens can also type and ask personalized questions in the chatbot. Manual customer service will answer questions during the day (9:00-16:30), and in other time range, artificial intelligence customer service will answer the questions. Cute and interactive memes can also be used in the dialogue.

**(3) Implementation phase**

(a) Wait for approval. Citizens should wait for the review result until they get notified by the Service Notification (seen Figure 4.7). The service notification is similar to the function of "service account", which has been elaborated in the involved functions above. After clicking into mini program, more detailed information of the processing service is shown (Figure 4.10); in this way, citizens can easily keep the track of the stage and result. Usually, the waiting time for this service only takes one working day but can also be three working days at most in special cases.

(b) Certificate download. After citizens are notified of the approval of the application for certificate of no criminal records, they can again enter the mini program to download the electronic version of certificate in portable document format (PDF) (see again Figure 4.10).

**(4) Evaluation phase**

(a) Service evaluation (not mandatory). Citizens are invited to participate in the evaluation of the service on four dimensions, namely standardization, convenience, efficiency, and system user friendliness on the scale of 5 stars. Citizens can also choose to write a letter and submit photos as proof if they are not satisfied with any aspect of the service. Citizens are also asked whether they have submitted the materials offline during this service and whether they want to make public the evaluation answer.

**Figure 4.10**  User interface of processing stage of application for certificate of no criminal records on WeChat Mini Program



**Advantages:**

(1) Option of using archived electronic certificate in the application phase can save a lot of time and energy spent preparing the photos and avoid the risk of low-quality photos being rejected.

(2) Provision of online help can assist citizens in better using the service in an interactive and accompanied way. Whenever they have difficulties in the process of using the service, the "online help" button is always here to help in an undisturbing way.

**Pains:**

(1) Hard to search quickly for the service. As is stated above, citizens cannot find the entrance if they just search "certificate of no criminal records" in WeChat or Alipay. In that aspect, Alipay is better than WeChat to some extent for that citizens can

search for "certificate of no criminal records" in the Alipay "citizen center" and be directed to the exact life account for that. However, citizens cannot do that in WeChat "city service". After all, if citizens want to approach the service most efficiently, they had better bear in mind the mini program or life account of the city they are in. Since application for certificate of no criminal records is not a frequently used service, it is quite demanding for all people to know where to find it, especially for those who are not familiar with digital public services.

### 4.1.4　Case C - Public transportation cards on Alipay

**Introduction**

Public transport cards can be used to pay for transportation fees on buses and subways operated by SOEs which are usually controlled by the local State-owned Assets Supervision and Administration Commission (SASAC). Public transport cards on Alipay are operated by one of the subsidiaries of Alibaba, also the parent company of Alipay. This function is run according to different cities, but all integrated in the same function called "transportation".

**Business side analysis**

There are three entities in all involved in the process of usage of public transport cards. As is shown in the Figure 4.12, payment of transportation fee can be divided in the following steps:

(1) **Receive transportation card.** Although this card is a digital one, it still needs a simple reception process. Citizens first should choose which city they want to take public transport, and then click on button called "receive the card". After clicking "yes" on "Transportation QR Code Service Agreement", "Alipay Public Transport Payment Service Agreement" and "User Authorization Agreement", this function will allow the public transportation SOEs have access to your information on Alipay including names, contact information, national ID card and number for real-name authentication.

**Figure 4.11** Public transportation QR code user interface of Beijing on Alipay
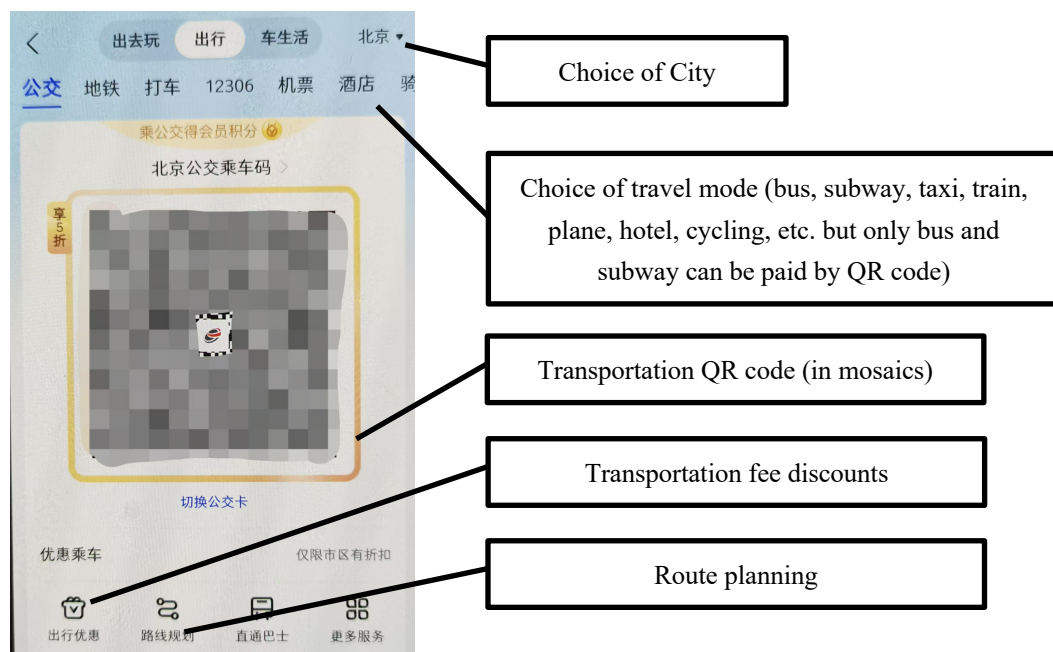


(2) **Scan Transportation QR code**. When citizens get onto buses or step into subway station, they can find card machine which you can put physical cards on it and also of course digital cards can be used by scanning the shown QR code. For buses, the price is always fixed at 1 or 2 CNY, while for subways, the price depends on the actual distance the citizens take, usually ranging from 3 to 20 CNY. Hence, when taking subway, citizens should scan the QR code again when leave subway station to show their destinations.

(3) **Payment**. After citizens scan their transportation QR code on bus or on subway destination card machine, an automatic request will be made to pay the fees with Alipay according to "Alipay Public Transport Payment Service Agreement". The actual payment channel will follow the preset payment order by the citizens, or the payment order based on payment habits or recommendation. All available payment channels include Huabei (a consumer credit product launched by Ant Financial, parent company of Alipay), Yu'ebao (Ant Group's balance value-added services and current fund management service products), and savings cards or credit cards linked to your Alipay account. Since the public transportation payment service is a small amount, quick, and password-free scenario, citizens should not share their mobile phone and QR code with others to avoid financial loss.

(4) **Reward**. In order to encourage citizens to use public transportation, especially through Alipay, users can collect "green energy" in "Ant Forest" after paying for public transport usage. Ant Forest is a public welfare project that aims to encourage the public to reduce carbon emissions. Users' low-carbon behavior can be counted as "green energy", which can be used to plant a real tree in an area where the

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ecology is in urgent need of restoration or claim protection rights in an area where biodiversity is in urgent need of protection after the energy accumulates to a certain level. Users can even compete with their friends how much "green energy" they collect.

**Figure 4.12**   Description of payment with public transportation card on Alipay with BPMN (drawn by author)
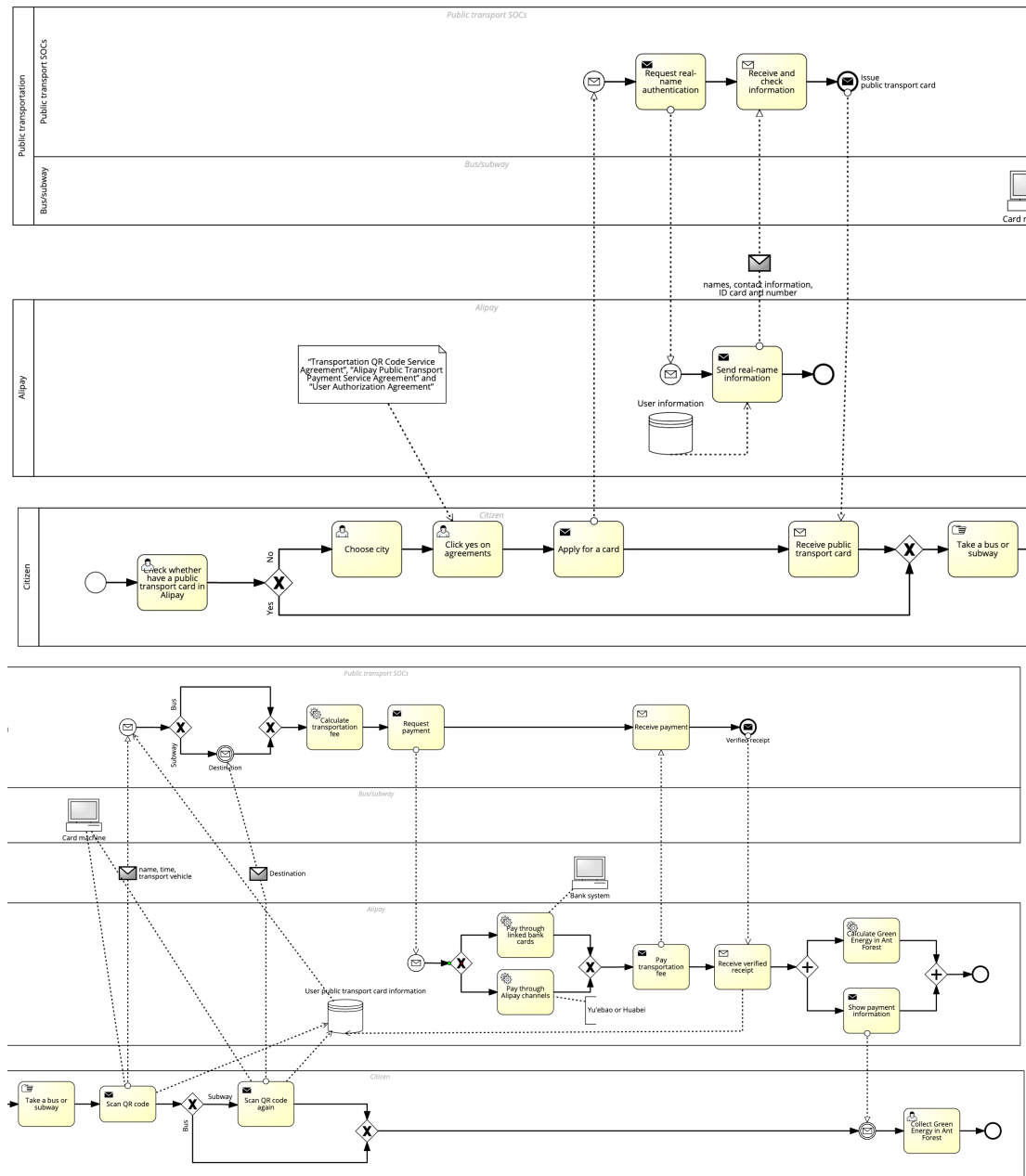


**Advantages:**

(1) Linkage of business and SDG goals. The design of Green Energy in Ant Forest encourages citizens to take public transportation more often with Alipay, which not

only increases the business deal of Alipay but also cultivate low-carbon lifestyle of citizens. Real tree planting and protection rights claims also make customers feel engaged in achieving SDG goals of Alipay, increasing the good fame of the company.

(2) Decrease usage of physical public transportation cards. Physical card usage is decreased as the digital public transportation card is more and more popular. For SOEs, this saves their costs and time to issue physical cards and maintain after-sales services. Now, physical cards act more like a souvenir, featuring individualized and localized patterns on the cards. For citizens, this saves them the deposit costs for purchasing a physical transportation card and the risk of forgetting to bring the physical card. Usage of digital card also benefit the environment by saving energy and materials.

(3) Keep track of citizens' transportation data. Since the digital public transportation card is authenticated by the citizens, the transport department of government actually can keep track of who take which public transportation. This kind of data can be used when emergencies happen.

**Pains:**

(1) Security. Since there is no need for password, in theory anyone who can open your mobile phone can use your transportation card, which of course may challenge the account security of the users. Neither Alipay or SOEs can identify whether it is really the users themselves that are using the card.

**User side analysis**

From user side, citizens go through the following steps to pay with public transportation card on Alipay, as the figure 4.13 shows.

**(1) Preparation phase**
   (a) Find "transportation" function. This function is located at the first page of Alipay once citizens open the application, so it is easy to find.
   (b) Card application. Citizens apply for a digital public transportation card on Alipay as is described in business side analysis. Since their real-name information like name, contact information and national ID number is already stored in Alipay account, it only takes several clicks to apply for such a card.

**(2) Implementation phase**
   (a) Route planning. Before taking public transportation, citizens may take advantage of "route planning" function (seen Figure 4.11) on the same page of QR code to figure out the shortest route to their destinations.

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(b) QR code scanning. After deciding their route, citizens can get into the buses or arrive at the subway stations, where they will find a card machine to scan on. As is described in business side analysis, there are different scanning rule for the bus and subway.

(3) **Feedback phase**. This is different from "evaluation" phase that it does not include real "evaluation" process, namely, citizens cannot comment on the quality of the services they receive, but rather, they just get follow-up information.

(a) Payment information reception. Since the payment need nothing from citizens like names, passwords, etc., they just receive payment information after it is successfully processed by Alipay and public transportation SOEs together. Citizens can also check their previous transportation and payment information any time in Alipay afterwards.

(b) Green energy collection. It is an optional but encouraged action, for that citizens can benefit from their low-carbon lifestyle of taking public transportation.

**Figure 4.13** Description of payment with public transportation card on Alipay with citizen journey (drawn by author)
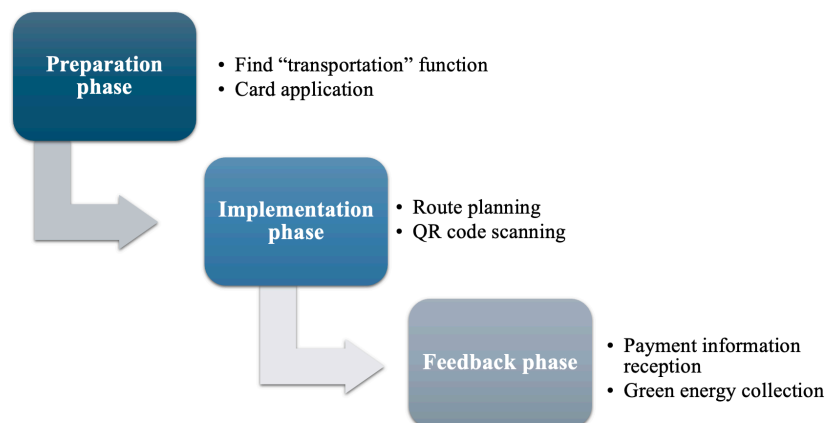


**Advantages:**

(1) Easy usage. Throughout the whole process of payment with public transportation card on Alipay, there is no need to fill in any form, type in any password or name. Hence, it is quite easy to take the phones out and pay the fees in seconds.

(2) Applicability in various scenarios. The public transportation card is applicable in various vehicles like buses, subways, ferries and so on. And thanks to its dual offline technology, even if users do not have connection to Internet, the card can still be used with the payment information showing up later when connected to Internet.

(3) Access to discounts. In order to attract more citizens to use Alipay to pay for their public transportation, Alipay always offer some discounts like 10% off on the

transportation fees (as seen Figure 4.11). This will benefit users by giving them a better price.

**Pains:**

(1) Still need to open the Alipay application. Sometimes just opening the Alipay application takes some time. And if the screen brightness is not enough, the QR code cannot be scanned successfully. After all, it requires users' mobile phones always running, unlike physical cards used without charging.

### 4.1.5    Case D - Medical Insurance Card

**<u>Introduction</u>**

The electronic medical insurance card is issued by the China's National Medical Insurance Administration based on the National Medical Insurance Basic Information Database. It is a medical insurance identity certificate generated for insured persons and is the only identification for insured persons to handle medical insurance business online and enjoy medical insurance benefits. The electronic medical insurance card is displayed in the form of a dynamic QR code, with one person per code, and is universally used throughout the country.

With this QR code, patients can complete medical registration, medical treatment, payment, reimbursement, and real-time query for information such as account balance, payment record, and consumption details. Some areas have even expanded to drugstore purchases, health examinations, vaccination payments and other scenarios, truly realizing one code for multiple uses and protecting health in all aspects.

**<u>Business side analysis</u>**

There are three entities in all, i.e. National Medical Insurance Administration, hospitals/pharmacies, citizens and platforms like WeChat and Alipay, involved in the operation process of medical insurance card. As is shown in the Figure 4.16, the service process can be divided in the following steps:

(1) **Registration.** Citizens should first register on the platform either by manually or automatically filling in information like names, national ID card number, contact information, etc. After completing face authentication, citizens can successfully get the electronic medical insurance card. The card is also included in the "card holder" so that citizens can find them quickly next time they use it (as is in Figure 4.14 on Alipay for example).

**Figure 4.14** Electronic medical insurance card included in the "card holder" on Alipay



Medical insurance card

National ID card

(2) **Scan and pay.** When entering a hospital or pharmacy, citizens open the electronic medical insurance card code instead of bringing a real card. The client will scan the code, it will show how much of the costs can be paid through medical insurance and will directly deduct from the medical insurance balance. If the medical insurance does not fully cover the cost, payment will be made via WeChat/Alipay. This transaction can also be viewed in the usage record function as is shown in the Figure.

**Figure 4.15** Medical insurance card code user interface on WeChat and Alipay



Medical insurance QR code/ bar code
(both are the same)

Usage record/Medical insurance balance/Medical insurance services/Account management
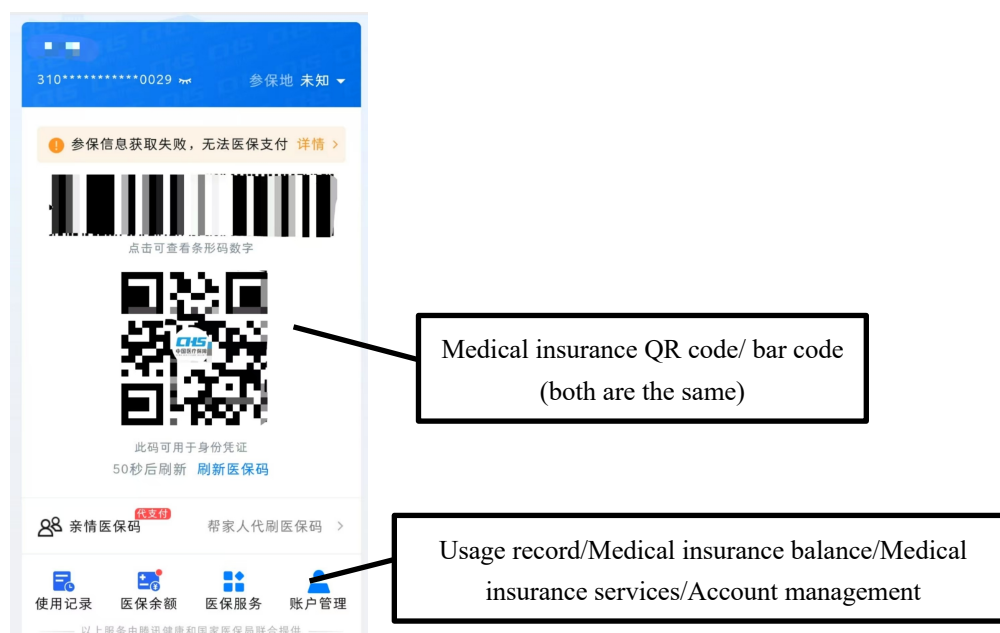
**Figure 4.16**    Description of payment with medical insurance card on WeChat or Alipay with BPMN (drawn by author)
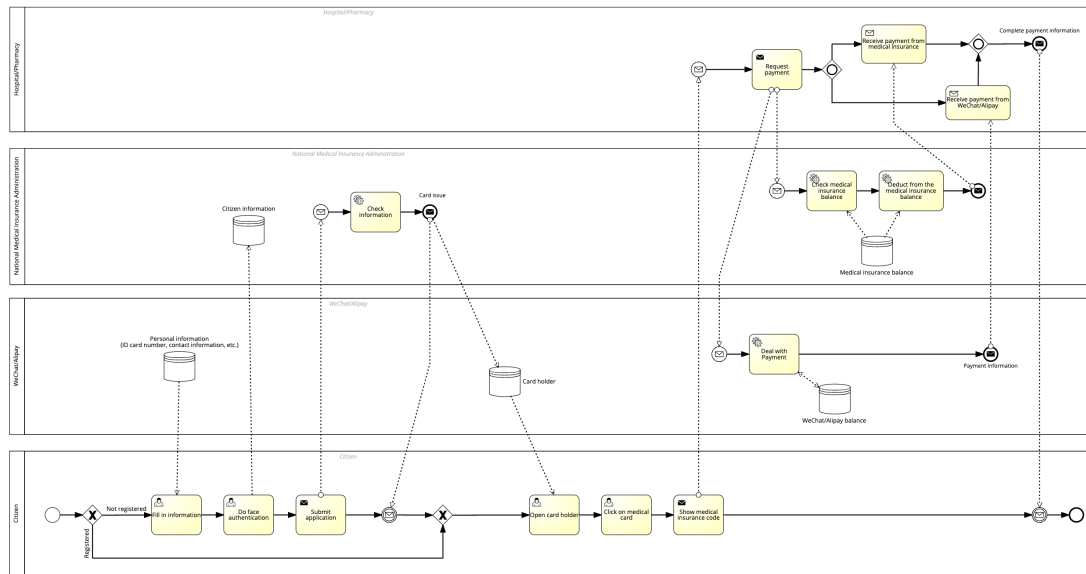


**Advantages:**

(1) Security. Relying on real-name authentication, face recognition, encrypted transmission and other technologies, the electronic medical insurance card has built a solid defense line to eliminate the risk of fraud and fraud, ensuring that every use is safe and reliable.

(2) Promotion of commercial medical insurance. For platforms, especially Alipay, placing the entrance and advertisement of the company's commercial medical insurance on the same interface as the medical insurance card QR code is obviously conducive to the purchase and use of these products.

**Pains:**

(1) Extra equipment purchase. In addition to the traditional physical card reader, hospitals and pharmacies also need additional equipment to scan the QR code of the electronic medical insurance card. This also increases the workload of counter clerks.

**<u>User side analysis</u>**

From user side, citizens go through the following steps to pay with medical insurance card on WeChat or Alipay.

(1) **Registration**. Citizens should first search "medical insurance card" in the search box of WeChat and Alipay and find the program. And then they should complete registration process as is described in the business side analysis.

(2) **Scan and pay**. After registration, citizens can pay by showing the QR code of the electronic medical insurance card. They can also directly pay the rest of the costs beyond the coverage of the insurance with their WeChat/Alipay balance. They can also pay for their relatives after connecting their account, which can also be processed completely online.

**Advantages:**

(1) Convenient to track every transaction. For physical cards, citizens cannot check their medical insurance account balances and payment records at any time, but electronic medical insurance cards on the WeChat and Alipay platforms can check this information at any time.

(2) No need to bring physical card everywhere. When you encounter an emergency and need to be hospitalized but do not have time to go home to get your medical insurance card, the electronic medical insurance card function saves you the trouble and allows you to pay with your medical insurance card at any time in the hospital or pharmacy.

(3) No need for a second payment. When using the electronic medical insurance card on the WeChat or Alipay platform, if the medical insurance cannot cover the medical costs, the rest can be paid directly with the money in the WeChat/Alipay wallet. Otherwise, citizens need to take out a second card after using the medical insurance card to pay the remaining costs.

### 4.1.6    Case E - Cultural event voting on WeChat

**Introduction**

Cultural event voting on WeChat official account is an activity which is held by the local government and participated in by the citizens. The example here is "2023 Shanghai Best Film and Television Shooting Location" Selection Event. After collection and preliminary evaluation, a list of 30 candidate film and television shooting locations has been selected. Subsequently, based on expert review and public voting, the top ten best film and television shooting locations in Shanghai in 2023 will be finally selected. And this public voting is included in the post issued on the official account of Shanghai Government called "Shanghai Release"[1].

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[1] The link of the post: https://mp.weixin.qq.com/s/uBof8LW_B_pVBRezcN2BjQ

## Business side analysis

There are three entities in all, i.e. government department, citizens and WeChat platform, involved in the process of cultural event voting on WeChat. As is shown in the Figure 4.17, the service process can be divided in the following steps:

(1) **Preparation phase**. First, government should decide on the theme, content, rule and process of the public voting. After everything is collected and decided, government staff will design and make a post on the WeChat official account platform, including a voting chart. Designers should decide on the voting's theme, choices, timeline, number of votes per person, anti-ticket swiping function, etc.

(2) **Release and voting phase**. Once the government staff releases the post on the official account, citizens can take part in the public voting as long as they have a WeChat account. And there is no need for identity authentication.

(3) **Result phase**. After the pre-decided deadline for voting, government will announce the final result of the event also on the official account. Sometimes, expert opinions will also be taken into account besides the voting result.

**Figure 4.17** Description of cultural event voting on WeChat with BPMN (drawn by author)
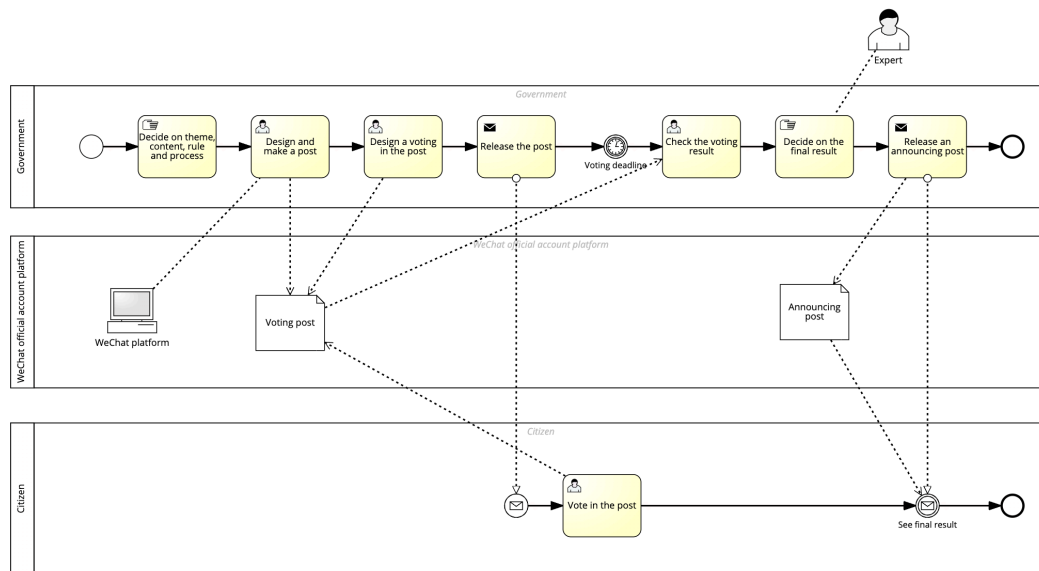


**Advantages:**

(1) Transparency. The results of the vote are visible during and after the voting as long as the original post is not deleted, so the citizens who voted can check the real-time voting results at any time as a guarantee of process transparency.

**Pains:**

(1) Possible unfairness. Since voting does not require identity verification, this means that vote manipulation exists and is difficult to eliminate. In fact, paid WeChat vote manipulation services can be found on many shopping platforms. This has a certain impact on the fairness of the voting results, which is also why such voting generally does not involve major political and social decisions.

**User side analysis**

It is quite simple for citizens to take part in the cultural event voting on WeChat. As is described in the business side analysis, what they need is only a WeChat account, and there is no need for any "hard eID" authentication. They can view the pictures and words shown in the post and then take part in the voting and even comment to the post. But they do not have any idea if or when the result of voting comes out.

**Advantages:**

(1) Attractive and easy-to-do. The posts are usually illustrated with pictures and interesting description, so citizens can fully understand the cultural and entertainment life of the city they live in while voting. In addition, there is no need to verify your identity during the voting process, making the operation very simple and easy to understand.

(2) Interactive. WeChat official accounts have comment and like-clicking functions. Voters can not only vote in the given options but also give their own opinions in the comment area. Some votes will even specifically take into account the comments with the highest votes (such as the top three) in the comment area. For example, in the comment area of "2023 Shanghai Best Film and Television Shooting Location" Selection Event, citizens give other choices of film and television shooting location in Shanghai or show their support for the listed locations in the vote.

**Pains:**

(1) Difficult to know the result. Since the result notification post will not be notified to each voter individually, they may not know the result in time if they do not pay attention to new posts from time to time.

**4.1.7    Case F – Citizen complaints on the 12345 hotline on WeChat and Alipay**

**Introduction**

The 12345 public service hotline (abbreviated as 12345 hotline) refers to a nation-wide public service platform established by local municipal people's governments in China to specifically handle hotline matters, which is composed of telephone 12345, mayor's mailbox, mobile phone text messages, mobile client, Weibo, WeChat, etc., to provide around-the-clock manual service. It is responsible for accepting all kinds of non-emergency requests from enterprises and the public, such as consultations, requests for help, complaints, reports and suggestions in the fields of economic mediation, market supervision, water, electricity, gas and heating public services, medical treatment, etc. Taking 12345 hotline in Shanghai as an example, this service in provided on WeChat and Alipay unitedly by Shanghai Petition Office, which means the business process, user journey and interface are basically the same on both platforms.

**Business side analysis**

There are three entities in all, i.e. 12345 hotline platform, citizens and the responsible department, involved in the process of citizen complaints on 12345 hotline platform. As is shown in Figure 4.18, the service process can be divided in the following steps:

(1) **Register and/or log in.** Citizens should first register with their names, phone numbers, local address, national ID number (not mandatory), professions (not mandatory), email address (not mandatory). It is also required to name a username and provide a password by the citizens themselves. After registration, citizens can log in by filling in password and phone number or username.

(2) **Filling out complaint**. There are two ways of filling out complaints. For the first one, citizens should first classify the issue into one of the eight categories on the platform, namely traffic management, environmental protection, consumer rights protection, public utilities, express delivery complaints, reporting on wage arrears, reducing the burden on grassroots units, and other demands. And then, citizens should write down the complaint content including issue type, the involved district and detailed address, and incident description (time, location, procedure, main demands) less than 500 words. No more than three pictures can be uploaded to prove the situation. For the second way, citizens can enter a function "Suishenpai" (meaning taking photos in Shanghai) and take photos of the complained issues. The location of the issue and information of complainer will be filled out automatically. This way works as a more convenient way of filling out complaints. Furthermore, it is not allowed to send the same content repeatedly (even through different

channels) in order to ensure the efficiency of processing opinions and suggestions, otherwise 12345 hotline reserves the right not to process it.

(3) **Submit complaint**. Citizens should choose whether they are anonymous and whether they need replies. If they choose "being not anonymous" and "need reply", of course their contact information will be sent to the processing departments by 12345 platform so that they can contact complainers and respond. If complainers choose to be anonymous and do not want their contact information to be shared, then they should select "no need to reply". After agreeing the terms of service, the complaints can be submitted by the citizen.

(4) **Transfer to the responsible department for processing**. The complained issues are transferred to responsible department for processing according to the classification of the complaint content (first way of filling out complaints) and the platform judgment of the specific department corresponding to the problem reflected in the photos (second way of filling out complaints). Each department decides how to handle the complaints, but they are required at least to reply to the complainers.

(5) **Send processing results**. The processing result of the complaints are sent to the citizens on 12345 platforms. Messages or phone calls will also be made to the phone number provided by the citizens. Once the processing result is sent, the complaint is labeled as "completed".

(6) **Collect satisfaction evaluation**. Citizens should provide a satisfaction evaluation within 15 days from the date of completion by the responsible department. No evaluation will be possible after the deadline. After citizens give their evaluation, 12345 platform will give the feedback to the responsible department to help them reflect on whether the handling method is appropriate.

**Figure 4.18** Description of citizen complaints on 12345 hotline platform on WeChat and Alipay with BPMN (drawn by author)
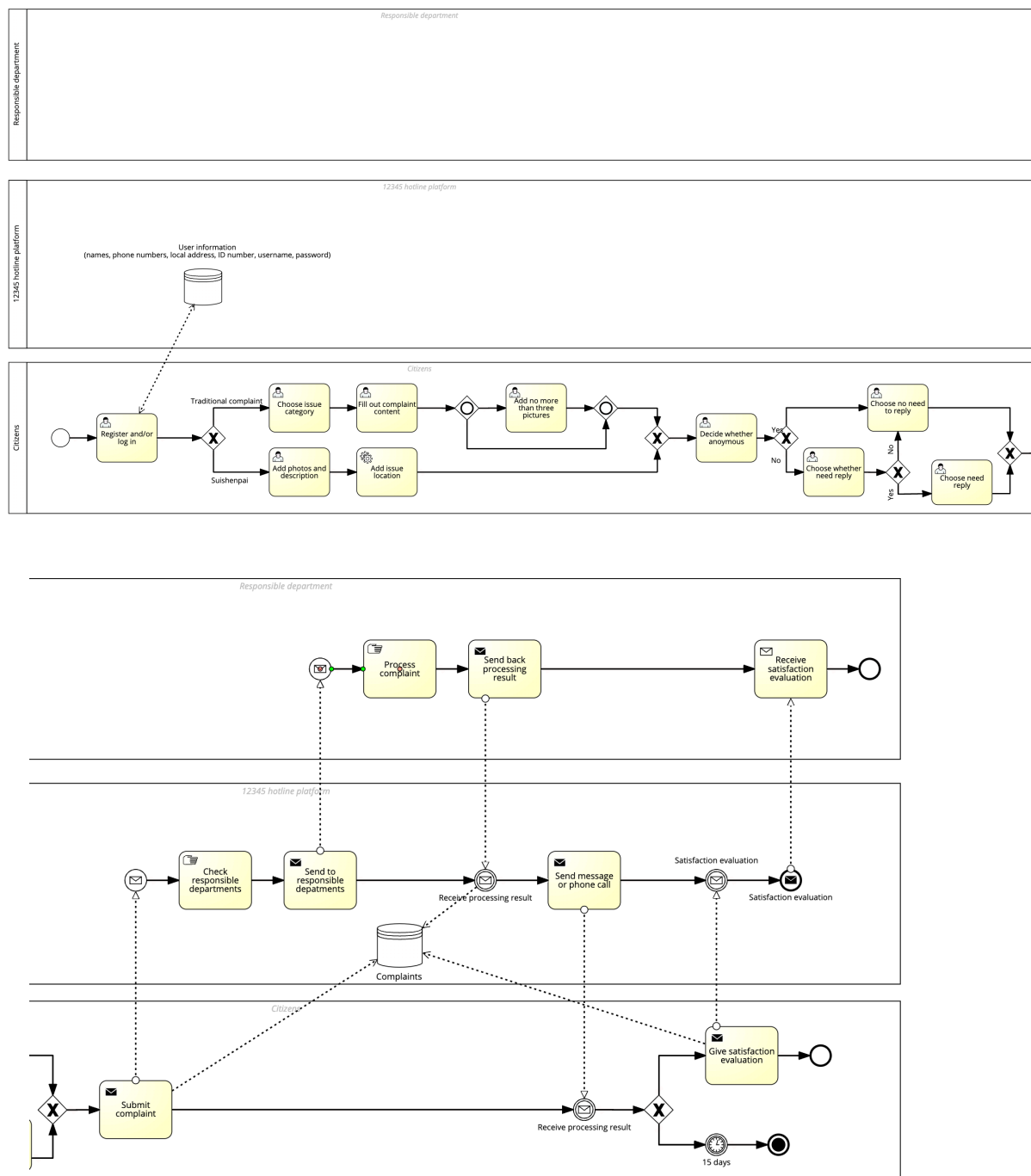


**Advantages:**

(1) A unified process of government bodies to deal with citizen complaints. On this platform, all complaints should be answered except that it is repeated. This can standardize the operational process of government bodies to deal with citizen complaints and upper government official can learn about what is the most concern

of the citizens by checking the records on the platform.

**Pains:**

(1) Process still long and requires waiting. Since this platform is a mere digitization of offline citizen complaint, it still requires much time and effort to submit a good enough complaint and to wait for the final results of processing.

(2) No iterative process. There is no possibility to add replies to the processing results (only satisfaction evaluation), and that makes the whole process a unidirectional and one-off communication. If citizens still have some questions, they should submit another new complaint, which is a waste of time and energy.

## User side analysis

From user side, citizens go through the following steps to complain on 12345 hotline platform on WeChat and Alipay (see Figure 4.19).

**Figure 4.19**    Description of citizen complaints on 12345 hotline platform on WeChat and Alipay with citizen journey (drawn by author)
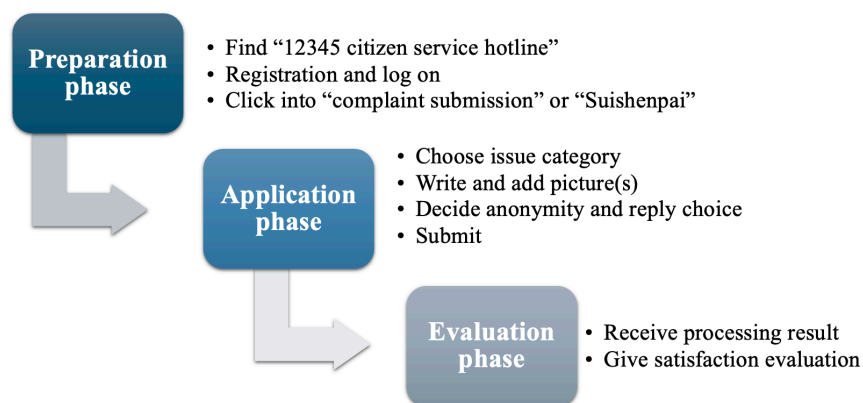


(1) **Preparation phase**. Firstly, citizens should find the WeChat mini program or Alipay life account called "12345 citizen service hotline" by directly searching or finding it through "city service" of WeChat. It is interesting that although the user interface and business process is quite similar on both platforms, that on WeChat has more functions to be used. Then, citizens register and log on as is described in the business side analysis. Finally, citizens click into the function of "complaint submission" or "Suishenpai".

(2) **Application phase**. Citizens choose the issue category and write and add pictures in the functions as is described in the business side analysis. After all is done, citizens choose whether they are anonymous and whether they need replies. Finally,

citizens can submit the complaint.

(3) **Evaluation phase**. Citizens wait until they receive messages from the responsible departments and/or 12345 platform. They can view their complaint issues and processing result in the same place they submit it. Within 15 days after they receive results, they can give satisfaction result to the result on the 12345 platform.

**Advantages:**

(1) A unified platform for dealing with citizen complaints. For citizens who are not familiar with departments and internal operation of local government, they can take advantage of this platform to deal with their complaint however subtle it is. They can save the time for checking all the complicated information of government operation.

## 4.2    Interview

From all the 15 interviews, 9 of them are citizens (or user side of PaaG) and 6 of them are from government, platform and academics (or business side of PaaG). This selection ensures that all stakeholders of PaaG are represented, and the most important service recipients and evaluators, citizens, are represented to the greatest extent. At the same time, due to the possible differences between different provinces, the citizens interviewed are chosen from a variety of different provinces such as super-large coastal provinces and inland underdeveloped provinces. The interviews last an average of more than 35 minutes, revealing a lot of valuable information.

**Table 4.2**      Detailed information on the interviewees

| INTERVIEWEE | INTERVIEW TIME | AGE | PROVINCE | NOTE |
|---|---|---|---|---|
| C1 | January 2025 | 35 | Guangdong | |
| C2 | January 2025 | 27 | Beijing, Shanghai | Working in Didi |
| C3 | February 2025 | 30 | Qinghai, Shanghai | |
| C4 | February 2025 | 58 | Qinghai | Public servant |
| C5 | February 2025 | 28 | Beijing, Shandong | |

| | | | | |
|---|---|---|---|---|
| **C6** | February 2025 | 40 | Shanghai | |
| **C7** | February 2025 | 36 | Guangdong, Shanghai | |
| **C8** | February 2025 | 26 | Sichuan | |
| **C9** | February 2025 | 29 | Xinjiang, Beijing | |
| **G1** | February 2025 | 28 | Shanghai | |
| **G2** | March 2025 | 35 | Beijing | |
| **G3** | March 2025 | 30 | Shaanxi | |
| **P1** | January 2025 | 27 | Hangzhou | Working in Alibaba |
| **P2** | March 2025 | 26 | Shenzhen | Working in Tencent |
| **E1** | January 2025 | 35 | Shanghai, Zhejiang | Expert in open government data, has working experience in Baidu |

Interviews with citizens (user side) focused on their own experiences and feelings about using PaaG services (seen Table 4.3). It is found that the interviewees are most impressed by or used the most information-focused and transaction-focused services, while none of the interviewees mention participation-focused services.

When choosing between PaaG and GaaP, interviewees tend to prefer the former. Of course, this also depends on the specific usage scenario. For example, C7 mentioned that if the service is limited to a single function (such as only handling payment or processing documents, etc.), WeChat/Alipay will be given priority; but if the service involves integrated functions and needs to handle different businesses at the same time, the government platforms will be given priority, without having to look for service entrances in a scattered manner.

Regarding whom should be responsible for the operation of the PaaG model, the platform or the government, interviewees do not have a unified answer, and three of them believed that they should be jointly responsible. As C1 stated,

*"I think both sides should take responsibility. On one hand, it may be that the government does not develop this service well and does not consider how to embed it*

*onto different platforms. On the other hand, the platforms shall have made corresponding adjustments in terms of compatibility, etc., which may lead to some problems with the service."*

Most interviewees start using PaaG after COVID-19 in 2020 and believe that the model has improved a lot since then.

Most interviewees mention different city experiences, naming that some super-large cities perform better. In addition to the differences in economic and technological development, there are also differences in language and culture between cities. For example, in cities where ethnic minorities live, the local government is required to provide bilingual services (Mandarin + ethnic minority language) according to national laws. However, according to C4, the implementation of this kind of services is not satisfactory.

In terms of citizen participation, most interviewees consider it necessary, but not everyone is willing to participate. Moreover, according to C5, who works in an Internet technology company, most ordinary citizens do not have the ability to participate in the public service design process, and this task should be handed over to a professional design team.

Overall, most interviewees are satisfied with the current situation of PaaG, especially in terms of convenience, integration of functions, and user-friendliness. However, there are still many disadvantages in this model. Unfriendliness to the elderly is the most mentioned. As C7 stated,

*"The path to specific services is long, and there is a lack of simple guidance and publicity, which will also bring inconvenience to middle-aged and elderly people in using services. I will first search on RedNote (a social media app) for how to use the service, but if the elderly are not used to it, they may not know how to use even when they open Alipay."*

**Table 4.3**    Summary of answers from interviews with citizens (the numbers in brackets represent how much of the nine interviewees who mentioned this specific point)

| QUESTIONS | USER SIDE (CITIZENS) |
|---|---|
| **Usage of WeChat and Alipay** | Everyday (9) |
| **Whether have used PaaG** | Yes (9) |

| | |
|---|---|
| **When begin to use** | 2018 (2), 2020 (7) |
| **Recent usage of PaaG** | (5) Information-focused services (hospital registration; vehicle information registration; immigration record certificate; enquiry about public housing; passport reissue; court filing application; residence card application)<br><br>(5) Transaction-focused service (government vouchers for shopping; payment for water, gas and electricity; digital medical insurance card)<br><br>(0) Participation-focused services |
| **Preference of PaaG (WeChat/Alipay) or GaaP (government-developed apps)** | (7) PaaG reasons: integration of service, especially payment; reduce phone's memory usage; better UI design; easier to find the wanted services<br><br>(2) GaaP reasons: some compulsory apps like "individual income tax"; closer to local life |
| **Platform or government responsible for PaaG** | Both (3), Platform (4), Government (2) |
| **Is PaaG improving?** | Yes (6): clearer and simpler interface and process, wider coverage of issues, wider acceptance, but still lag behind quality of private services<br><br>Not really (2) |
| **Different city experiences** | Feel different (6), Shanghai (3), Beijing (1), Shenzhen (1), Zhejiang (1) are better, for high efficiency, more integration, clear interface, complete functions, multi-language options, etc.<br><br>Cross-province platforms can help to bridge the difference (3), and the gap is now narrowing (3), but only under the condition that the government pay attention to this issue |
| **Citizen participation** | Feedback channels exist (2), Not responsive or not influential (4)<br><br>Feel necessary to participate (8)<br><br>Willing to participate (5), not willing to participate (3) |
| **Overall satisfaction** | Satisfied (6), Not so satisfied (2) |
| **Advantage of PaaG** | Convenience (8), Integration of functions (3), Informative (1), Easy to accept (3), Better technology (1), Money saving (1) |
| **Disadvantage** | Rely largely on government (1), Not unified (1), Unfriendly to elderly (4), Lack of face-to-face communication with government (2), Data security (1), Unsmooth operation because of too much information (1), Not professional enough (1) |

From business side, the interviews mainly focus on the roles and interaction modes of various stakeholders, the development history and reasons for the formation of the PaaG model, and its future development trends, etc., as the following table shows:

**Table 4.4**    Summary of answers from interviews with government staff, platform operators, and experts

| | Business side opinions | Example (including government staff, platform operators, and experts) |
|---|---|---|
| **Development history** | From fragmentation to unification, COVID-19 in 2020 as an important milestone | E1: *There is a process from fragmentation to unification of digital public services to third-party platforms. At the beginning, city services on Alipay and WeChat were separate application scenarios, and each of them required separate discussions between the government and the platform. Later, overall city public service mini programs appeared, such as Suishenban. But there are exceptions, such as Guangdong's Yueshengshi platform, which was designed from the beginning to use WeChat as a carrier to provide complete city service functions.*<br><br>G2: *Beijing's digital public services are now mainly concentrated on the Jingtong mini program on WeChat and Alipay, which was launched during the COVID-19. At the beginning, it was used as a public service for the pandemic, such as counting health codes and displaying the current scope and situation of the pandemic. After the pandemic ended, more functions related to citizen services were launched on the mini program.*<br><br>P2: *WeChat Mini Programs have gone through three stages in providing public services. From 2017 to 2019, they focused on information query, such as bus arrival reminders; From 2020 to 2022, driven by the epidemic, functions such as "health code" and "medical insurance electronic certificate" were urgently launched in various places, and the number of users increased dramatically; From about 2023 to now, they began to provide in-depth services with more complete functions.* |
| **Development reason** | Government wants more digitalized services to increase citizen satisfaction and to increase governance performance. | E1: *The government's motivation is to provide better digital public services, including the "promotion tournament", the "innovation diffusion" model (such as the Jiangsu, Zhejiang and Shanghai regions), the requirements of superiors, economic development, etc.* |

| | | |
|---|---|---|
| | Platforms want to expand influence, increase user activity, and promote their own products with less cost. | P2: *First, the social value of the enterprise is enhanced. The local government even sent a letter of thanks to Tencent. The increase in active users will also release business potential. Recommending commercial insurance on the medical insurance payment page has a conversion rate three times higher than traditional advertising.* |
| **Stakeholder role & relationship** | Government to Platform:<br><br>● Dependent on specific scenario and specific department and government level.<br>● Even conflicts in government itself with some focus on development and some on supervision (as platform supervisor).<br>● In most cases, multiple departments will work together to promote the operation of PaaG (as service designer).<br>● Government study platforms in terms of management | E1: *At the macro level, there are the Cyberspace Administration of China (CAC), the Ministry of Industry and Information Technology (MIIT), the National Development and Reform Commission (NDRC), etc. There is a huge conflict between CAC and MIIT because CAC is mainly responsible for supervision, and MIIT is mainly responsible for development. When it comes to specific products, there will be different specific departments. For example, the payment scenario involves the central bank.*<br>G1: *The Zhejiang government's digital public service platform has a close relationship with Alibaba (Alipay's parent company) because its headquarters is in Zhejiang.*<br>G2: *We conduct internal negotiations between government agencies. They will provide us with data function interfaces. After obtaining them, we will tell the technical team about them, and they will be responsible for writing a code to implement interface integration. There may even be three-party cooperation in this process.*<br>G3: *The role of the government is first and foremost that of a service designer. We will lead the planning of service content and process optimization, such as developing standards for file transfer. Secondly, as a government, we will also act as a regulator to ensure the security of personal information, such as integrating the electronic certificate database through the social security card "all-in-one" platform.* |

methods.

| | |
|---|---|
| Platform to Government:<br><br>● Get close to the government system to gain greater policy resources, especially local government.<br>● Provide design modules to help with online service development.<br>● Demand analysis & product design. | E1: *The Chinese government and enterprises have completely different discourse systems and work styles. To jointly provide public services, they need to learn from each other, understand each other, and get closer to each other. Of course, enterprises are more likely to get closer to the government. It is a process for enterprises to transform their discourse system into the government's discourse system.*<br>G2: *WeChat and Alipay provide some inherent functional modules, such as login function and redirect function. If you want to modify this module, it involves the WeChat official team to optimize the underlying logic of the To B side operations, so the function iteration is not so fast.*<br>P2: *Specifically, we need to do the following things. The first is demand analysis. For example, if we find that citizens complain that "inter-provincial social security transfers require going to three departments", we will push for the launch of "social security cross-provincial handling"; the next is product design, such as designing a "large-font mode" for the elderly, compressing the form that originally required 10 fields to be filled in to 3 required items, etc.* |
| Government to Citizen:<br><br>● Rarely communicate directly through third-party platforms. | G1: *We use WeChat at work, but mostly for internal communication and less for communication with citizens.*<br>G2: *As a commercial platform, WeChat is not compliant with confidentiality requirements for transmitting work information. Currently, WeChat will not be used to communicate with citizens unless the grassroots need to comply with the wishes of the citizens themselves and communicate with them directly in the scenario.* |
| Citizen to Government:<br><br>● Interaction only available after service through rating | E1: *Every suggestion on the 12345 platform must be responded to, entered into the system, followed up, and scored, which is a complete process……The online process gives these government officials more supervision and constraints, forcing them to take citizens' suggestions seriously.*<br>G2: *The customer service feedback portal in the mini program collects citizens' feedback and new features they hope to launch* |

| | | |
|---|---|---|
| | or complaint suggestions.<br><br>● PaaG itself has no impact on citizen participation but can make existing participation more standardized. | *every month. We will evaluate the rationality of these requirement and determine whether to include it in the development plan in the feature.* |
| **Future trends** | Government:<br><br>● PaaG will continue and be normalized especially in terms of security.<br><br>● Government is also developing their own unified platforms which should achieve the same service effect as third-party platforms. | G2: *In the future, we plan to release the Jingtong mini program into a separate government app. Citizens can use both the app and the mini program to receive these services……At present, most provincial governments have basically included unified digital public services in their work plans for the next few years, called the "Digital Government Construction Plan". This plan will specify the development plan of government service apps for citizens……Not all users are willing to download government apps, so try to keep the functions that can be achieved on the third-party mini program and the government app consistent.*<br>G3: *In recent years, policies have encouraged both innovation and regulation: central government has been promoting "Internet + Government Services", and at the same time, many regulatory measures have also been introduced, such as the "Internet Government Application Security Management Regulations", to strengthen risk control such as cross-border data and algorithmic discrimination.* |
| | Platform:<br><br>● Continue investment and improve unification.<br><br>● Try platform-compatible AI agent, blockchain and other | P2: *We will continue to increase our investment and develop in several directions: First, technology upgrades. We plan to use blockchain to store service records in 2025. We have already piloted "unalterable electronic certificates" in 10 cities; Second, business ecosystem expansion: introducing law firms and notary offices, so that mini programs can not only handle services but also litigate (such as online notarization of divorce agreements); Finally, we will also launch experience innovations, such as testing voice interaction and AI interaction. Recently, many government mini programs has some collaboration with Deepseek.* |

| | new technologies. | |
|---|---|---|
| | | |
| | Give citizens more choices | E1: *WeChat is not an omnipotent application, so in many cases you still need diversified service entrances such as government apps and Alipay. The government provides public services through different platforms, which can actually form a certain degree of competitiveness among these different platforms and also guarantee the citizens' right to choose……As Internet platforms, WeChat focuses more on social networking and Alipay more on payment.* |
| **Advantages of PaaG** | Promotion of the learning process of government platforms | E1: *For example, Suishenban in Shanghai has created a sharing page by learning the social function of WeChat.* |
| | Integration of functions | G3: *Our services can integrate social, payment, navigation and other functions, such as the "Human Resources and Social Security Map" that combines navigation and issue inquiry.* |
| | Standardization of government service | G1: *For government departments, it is easier to archive than offline services……To achieve consistent service effects on all platforms, standardization is a must.* |
| | A larger user base, especially convenient in cross-region scenarios | G2: *Relying on these two highly popular platforms to promote government public services, the initial promotion will be very easy.* |

| | | |
|---|---|---|
| **Disadvantages of PaaG** | Citizens are reduced to users, the government is weakened, and the "public nature" of public services disappears | E1: *In theory, citizens have the right to accountability, but when there are problems with services or data leaks, accountability is not transparent because this is not a triangular relationship between the government, businesses and citizens, but a "two-person show" between the government and businesses.*<br>G2: *In this process, citizens merely act as users rather than citizens and lose their public identity. They may be digitized in the process and turned into user data……The user may only feel the convenience of the third-party platform, but he will not pay attention to the identity of the service launcher, which weakens the role played by the government.* |
| | Over-reliance on advanced technology will ignore institutional improvement | E1: *For example, if we rely too much on facial recognition technology, it may lead to ethical, and user experience issues.* |
| | Impossible to take into account the usage characteristics of each place, as the regional differences in China are huge | E1: *WeChat and Alipay are national platforms. It is impossible to develop them specifically for each region.* |

| | | |
|---|---|---|
| Data security: really unsafe or conceived unsafe? | G1: *I feel that the privacy protection and security of (third-party platforms) are not as good as the official platforms*<br><br>E1: *Regardless of which platform the data is stored on, it has no direct correlation with its security. In theory, companies are more motivated to guarantee data security. In addition, many third-party platform services are completed by API, and data is mostly not stored in the company's servers or data centres.*<br><br>G2: *For example, the facial recognition unified login authentication calls the camera interface of the WeChat applet and transmits this data to the national ID card database, which is the public security database. In this process, WeChat is only a data transmitter, it is neither a sender nor a receiver, so WeChat only does front-end display, and does not have the data as an interface……In fact, the initial agreement signed with WeChat clearly stated (privacy and security requirements)*<br><br>G3: *Data in government databases will be encrypted using national secret algorithms, such as the finance-grade security standards of the social security card.*<br><br>P2: *Last year, a mini program in a certain city was attacked by hackers. Although the data was not leaked, the emergency response alone cost more than 2 million yuan.* | |
| Inconvenience of designing and updating | G2: *It is more convenient to update, maintain and release new features of government apps than mini programs……The usage and functions of mini programs on third-party platforms are relatively limited, and there will be certain restrictions if you want to develop more functions on them.* | |
| Clumsy because of too many data and functions | G2: *Government apps are superior in terms of user experience and optimization, such as the smoothness of opening web pages, scanning codes, and integrating some functions……WeChat mini programs rely on the memory usage of WeChat itself. In addition, if you open a link in WeChat Mini Programs, you may need to jump many times……When WeChat memory usage reaches hundreds of GB, government apps are only tens of Mb, which is certainly much smoother.* | |

## 4.3    Survey

### 4.3.1    Reliability test

The purpose of this reliability test is to assess the consistency of the survey. The survey consists of 8 Likert-scale questions covering aspects such as platform usage frequency, preferred platform per service and so on. Cronbach's Alpha ($\alpha$) is used to measure the internal consistency of survey items, as follows. Since overall Cronbach's Alpha is above 0.7, the consistency of this scale is acceptable.

**Table 4.5**    Reliability test of the survey based on Cronbach's Alpha

| Topic | Item | Corrected Item-Total Correlation (CITC)* | Cronbach's Alpha if Item Deleted** | Cronbach's Alpha ($\alpha$)*** |
|---|---|---|---|---|
| **Platform usage frequency** | WeChat | 0.650 | - | 0.783 |
| | Alipay | 0.650 | - | |
| **Preferred platform per service** | Registration service | 0.562 | 0.733 | 0.775 |
| | Document Application service | 0.440 | 0.758 | |
| | Water, gas, electricity payment service | 0.525 | 0.743 | |
| | Public transportation payment service | 0.428 | 0.760 | |
| | Medical and social insurance service | 0.523 | 0.741 | |
| | Consumer complaint service | 0.459 | 0.755 | |
| | Research and opinion solicitation service | 0.550 | 0.736 | |
| **21 items in total** | | - | - | 0.756 |

\* CITC should larger than 0.4, or this item can be deleted

\*\* After deleting the analysis item, the $\alpha$ of the remaining analysis item; if the value is significantly higher than $\alpha$, consider deleting the item.

\*\*\*If $\alpha > 0.7$, the consistency of the scale is acceptable; if $\alpha < 0.6$, the consistency of the scale is not acceptable (the SPSSAU project, 2025).

## 4.3.2    Descriptive analysis

Statistical analysis shows that there are 352 respondents in the valid samples, including 150 females, accounting for about 44% of the total; 197 males, accounting for about 56% of the total. Male respondents are slightly more than female respondents.

In terms of age distribution, the largest number of respondents are aged 25-34, with 158 people, accounting for about 45% of the total; followed by 19-24 years old, accounting for about 42%; 35-49 years old, accounting for about 8%; and those aged 18 or less and 50 or more account for about 5% of the total. In general, young and middle-aged people participated in the survey the most, and they are also the group with the greatest demand for using public services and digital products.

In terms of educational background, respondents with a college degree or above accounted for 93% of the total number of respondents, indicating that the overall educational background of the respondents was relatively high.

**Table 4.6**    Descriptive analysis of the respondents in the survey based on gender, age and educational background

| Item | Option | Frequency | Percent (%) | Accumulated percent (%) |
|---|---|---|---|---|
| **Gender** | Not told | 5 | 1.42 | 1.42 |
| | Female | 150 | 42.61 | 44.03 |
| | Male | 197 | 55.97 | 100.00 |
| **Age** | ≤ 18 | 12 | 3.41 | 3.41 |
| | 19-24 (incl.) | 148 | 42.05 | 45.45 |
| | 25-34 (incl.) | 158 | 44.89 | 90.34 |
| | 35-49 (incl.) | 30 | 8.52 | 98.86 |
| | ≥50 | 4 | 1.14 | 100.00 |
| **Educational background** | High school and below | 25 | 7.10 | 7.10 |
| | College | 117 | 33.24 | 40.34 |

| Item | Option | Frequency | Percent (%) | Accumulated percent (%) |
|---|---|---|---|---|
| | Undergraduate | 186 | 52.84 | 93.18 |
| | Master and above | 24 | 6.82 | 100.00 |
| **Total** | | 352 | 100.0 | 100.0 |

Since the situation in each province may be different, the survey covers all provinces in mainland China, Hong Kong and Macau (as shown in the Figure 4.20), and is distributed as evenly as possible. But in general, there are more respondents from northern and coastal provinces. The indicator used in this survey is "permanent residence in the past five years", so it is possible that the same respondent has multiple permanent residences (such as studying, working and living in different provinces).

**Figure 4.20** Geographical distribution diagram of the respondents' permanent residence in the past five years (person-times)
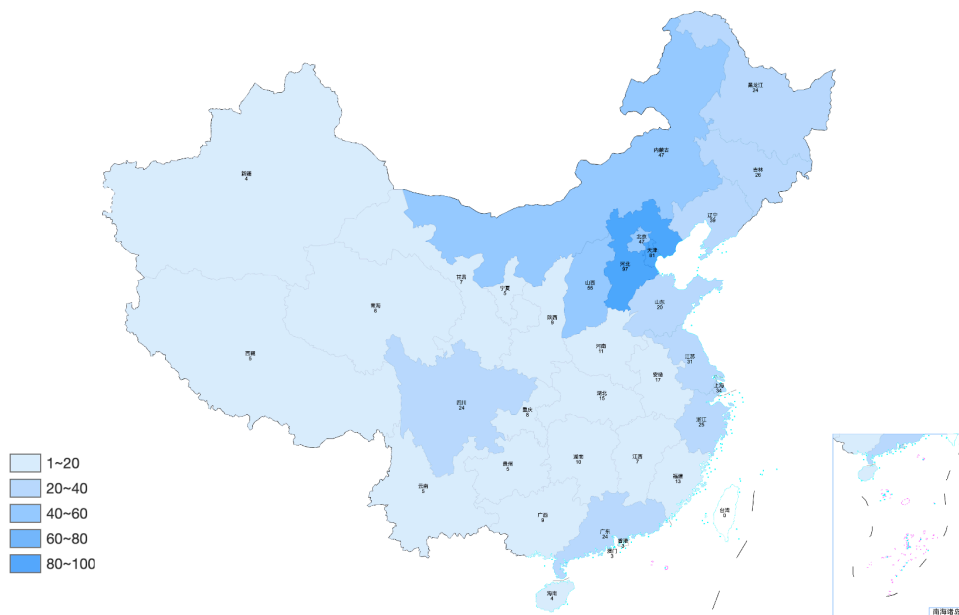


Platform usage frequency shows that WeChat and Alipay are truly popular in China. More than one-third of the respondents use WeChat daily, and more than half of the respondents use Alipay at least once a week. Also, the user base of these two platforms largely overlaps. About three-fourths of the respondents are users of both platforms, i.e., they use both platforms at least once a month.

**Figure 4.21**    Platform usage frequency of WeChat and Alipay according to the survey (drawn by author)
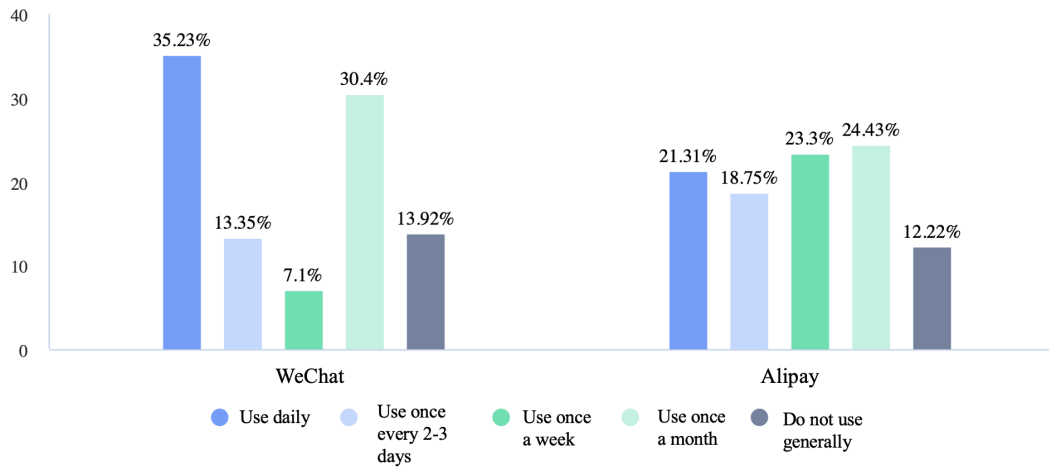


The survey also asks the respondents who choose that they use WeChat and/or Alipay about the functional modules they frequently use. Among them, mini programs, Moments, and public accounts are the most commonly used on WeChat; mini programs, life accounts, and financial management are the most commonly used on Alipay. Obviously, the functions related to PaaG (like mini programs, life accounts, official accounts) are also the functions often used on WeChat and Alipay.

**Figure 4.22**    Function usage frequency ranking on WeChat according to the survey (drawn by author)
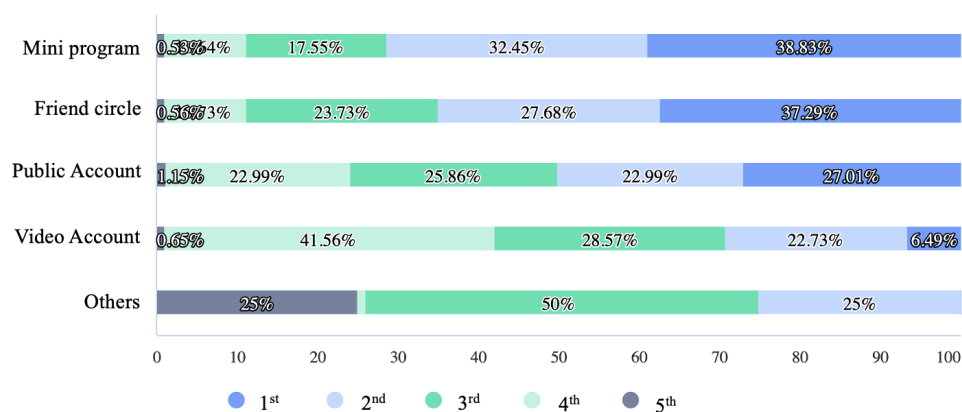
**Figure 4.23**    Function usage frequency ranking on Alipay according to the survey (drawn by author)
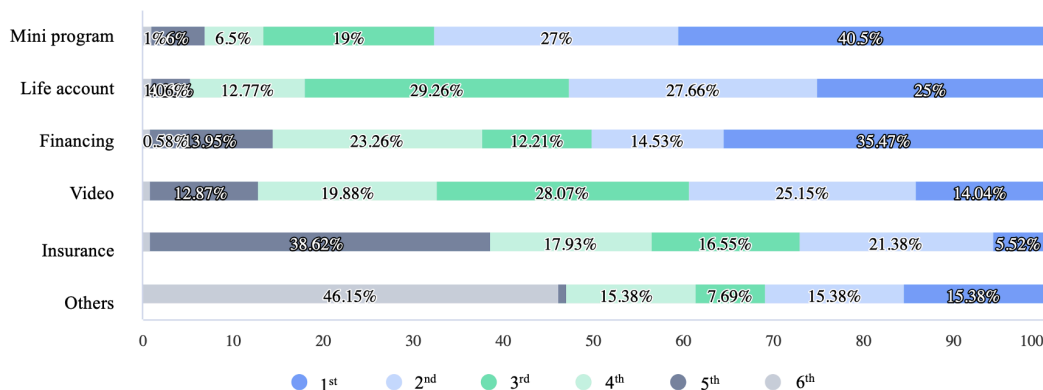


For the same service, there are many different channels to obtain it, including online and offline, government platforms and third-party platforms. The channel survey shows that for all seven services listed, the usage rate of third-party platforms exceeds that of government platforms and even exceeds twice for some services. This also echoes the fact that most interviewees in the interviews choose to use PaaG rather than GaaP.

Meanwhile, for all seven services, the usage rate of online platform services (including government and third-party) exceeded that of offline government window services. Of course, there are still differences in usage between services. "Public transportation services", "Water, gas, electricity payment services", and "Document application services" rank highest in the usage rate of third-party platforms.

**Figure 4.24**   The channels used by each service according to the survey (drawn by author)
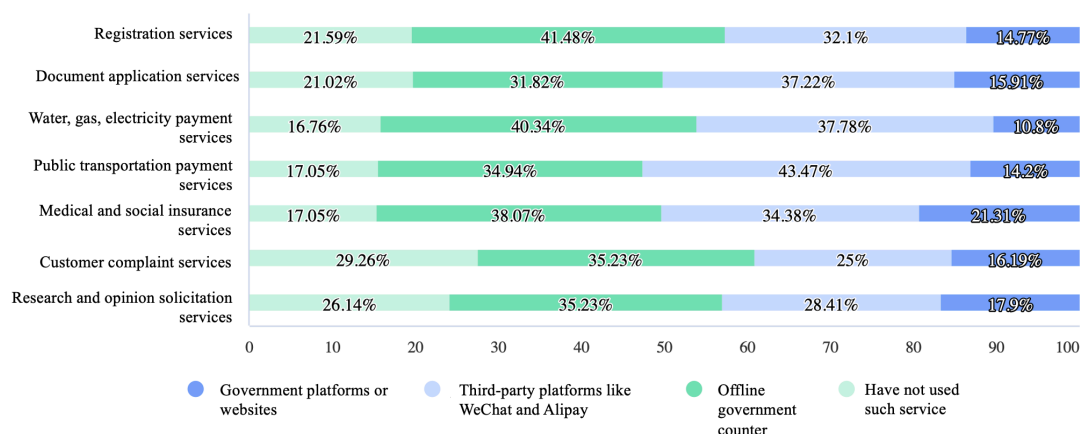


In order to explore the impact of regional differences, the questionnaires are selected based on the cities with more developed PaaG models summarized in the citizen interviews (i.e. the respondents had lived in at least one of the four provinces of Beijing, Shanghai, Guangdong, and Zhejiang). As shown in the Figure 4.24 and 4.25, the overall

distribution ratio is not much different, but the proportion of citizens choosing to use third-party platforms for each service is higher than that in the overall situation.

**Figure 4.25** The channels used by each service in Beijing, Shanghai, Zhejiang and Guangdong according to the survey (drawn by author)
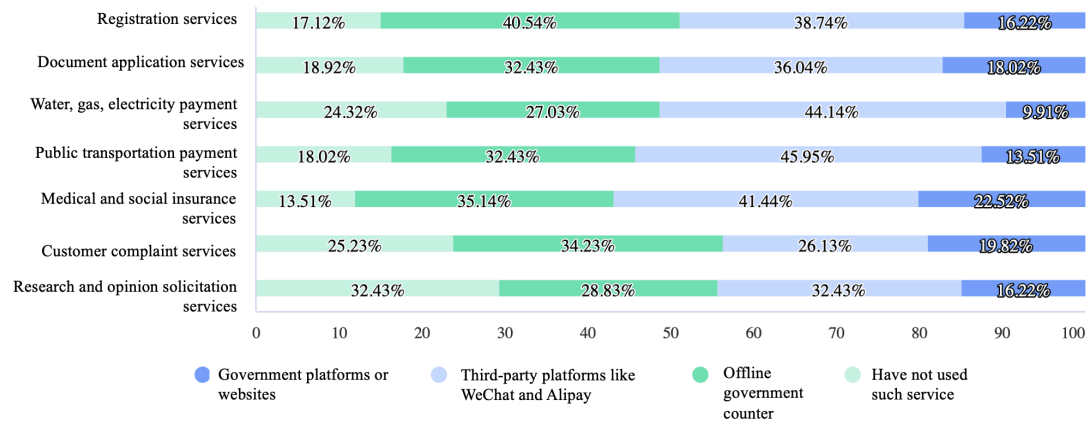


In terms of the reasons for using PaaG and its advantages, the survey asks the respondents to rank the ten possible reasons, and all answers are calculated to a comprehensive score. The higher the comprehensive score, the more people think that the reason is more important. The calculation method is:

***Comprehensive score of an option** =*

*(Σ frequency × weight\*) / number of people who fill in this question*

*\*Weight is determined by the ranking position of the option*

Then ten reasons are then sequenced according to the comprehensive score in the following table. Obviously, respondents gave slightly different answers to two questions, probably because the reason why citizens currently use PaaG is more dependent on its current situation, while the advantages of PaaG are considered not only based on its current situation but also its future development potential. From the table, convenience and interoperability are undoubtedly the two most important reasons in both questions. Robustness, as an important reason for citizens to choose PaaG, is not its biggest advantage, probably because government platforms can also achieve the same level of robustness with the development of technology. The same applies to sociality. Government platforms are encouraging more citizens to use them, which makes sociality no longer exclusive to third-party platforms. Other reasons have little difference in comprehensive scores and/or rankings between the two.

**Table 4.7**      Ranking table of ten possible reasons for using PaaG and its advantages according to the survey (comprehensive score/rank number)

| Reasons | Reasons for using PaaG | Advantages of PaaG |
|---|---|---|
| **Convenience** *(no need to download other apps)* | 4.89 /1 | 4.46 / 1 |
| **Interoperability** *(multiple types of issues can be resolved simultaneously on the same platform)* | 4.64 / 2 | 4.25 / 2 |
| **Robustness** *(smooth app operation)* | 4.54 /3 | 3.7 / 7 |
| **Sociality** *(people around are using this platform)* | 4.28 /4 | 3.53 / 9 |
| **Uniqueness** *(only know similar functions on such platforms)* | 4.2 / 5 | 4 / 3 |
| **Security** *(binding platform account and personal information)* | 4.19 / 6 | 3.94 / 4 |
| **Cost effectiveness** *(third-party platforms offer more payment discounts)* | 4 / 7 | 3.75 / 6 |
| **Interactivity** *(able to communicate with the backend in a timely manner)* | 3.81 / 8 | 3.85 / 5 |
| **Aesthetics** *(clear interface, smooth guidance)* | 3.7 / 9 | 3.49 / 10 |
| **Personalization** *(big data recommends suitable services)* | 3.56 / 10 | 3.62 / 8 |

Respondents who chose to use PaaG are further asked about their satisfaction with the service, which was divided into five levels from "very dissatisfied" to "very satisfied", corresponding to scores of 1-5. By calculating the average value (as shown in the following table), the relative satisfaction of respondents with each type of PaaG service can be obtained. "Water, gas, electricity payment services", "Document application services" and "Public transportation payment services" are the most satisfied services provided on the third-party platforms, which are exactly the same three as the most used service on third-party platforms. This indicates that there is a certain causal relationship between "more use of a service" and "greater satisfaction with a service". For example, more citizens using the service will make the government and the platform spend more efforts improving the service and thus increase satisfaction, and in turn, better services

will also attract more citizens to use the service. The satisfaction scores of the other four services were not much different.

**Table 4.8**    Average satisfaction rate of each service provided on third-party platforms according to the survey

| Service item | Average satisfaction rate |
|---|---|
| **Registration services** | 3.84 |
| **Document application services** | 4.09 |
| **Water, gas, electricity payment services** | 4.13 |
| **Public transportation payment services** | 3.9 |
| **Medical and social insurance services** | 3.77 |
| **Customer complaint services** | 3.8 |
| **Research and opinion solicitation services** | 3.83 |

Respondents have also selected areas where they believe PaaG needs improvements. More data security is undoubtedly the most mentioned point, reflecting the public's concerns about sensitive information involving public safety and personal privacy. In addition, increasing government-citizen interaction and increasing service feedback ranked second and third, both of which reflect the citizens' desire to have more interaction with the government and the third-party platform in the PaaG model. This also echoes the top five ranking of "interactivity" in advantages of PaaG.

**Figure 4.26**    Improvement needed in PaaG model by citizens according to the survey (drawn by author)
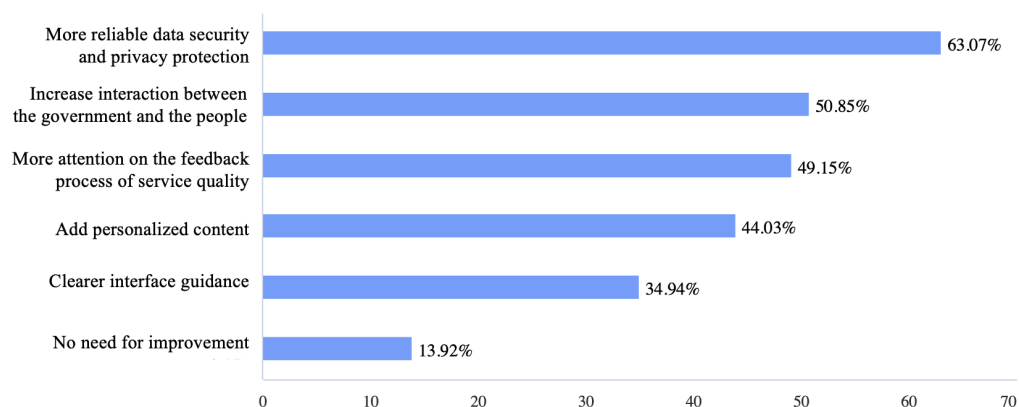
The last three questions are designed to explore citizens' participation and willingness in the entire service process, namely, participating in the design before service, solving problems during service, and giving feedback after service. As shown in the Figure 4.27, respondents' willingness to participate in design and feedback before and after the service is similar, and about two-thirds of respondents express their willingness to participate, which is a relatively high number.

**Figure 4.27**    Citizens' willingness to participate in service design and feedback according to the survey (drawn by author)
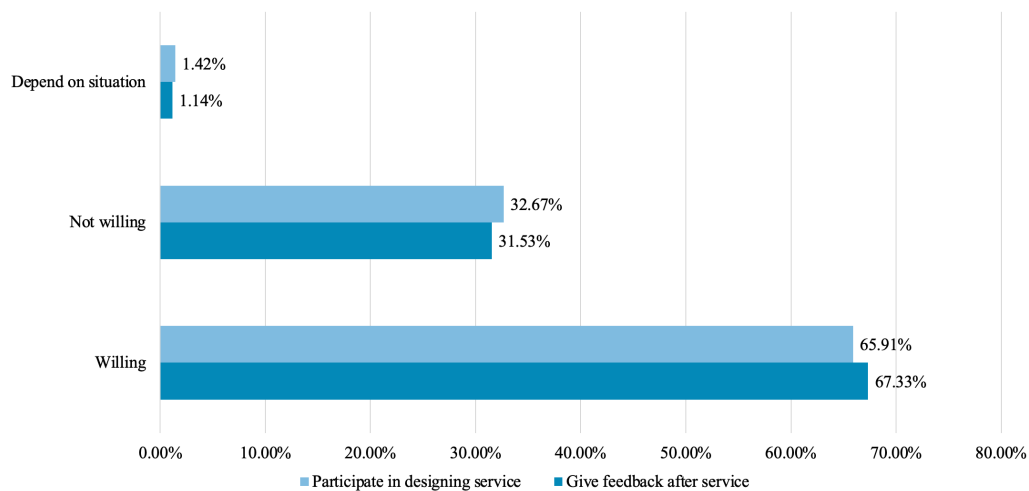


In terms of solving problems during service (Table 4.9), respondents show a preference for online channels (channel 1 and 2), but at the same time still trust information directly from government channels (channel 1) more than from third-party channels (channel 2).

**Table 4.9**    Solution channels chosen by citizens when encounter difficulties when using public services on third-party platforms according to the survey (drawn by author)

| Number | Solution channels | Percent |
|--------|-------------------|---------|
| 1 | Use the telephone, email and other methods provided by the government to solve the issue | 72.16% |
| 2 | Utilize the built-in communication channels of third-party platforms to communicate with backend staff | 68.18% |
| 3 | Go to the offline government counter to communicate and solve the issue | 44.89% |

# 5      Discussion

## 5.1      Formation of PaaG

### 5.1.1      Timeline of development of PaaG

Mainly from the findings of interviews, it is indicated that there are three phases in the development of PaaG since it first emerges in 2010s.

(1) **Incubation phase (2010-2015)**: Merely news publishing service on Weibo and WeChat

In this phase, digitalization of public services is still a novel idea in China, so it is no surprise that the first service to be digitized is public news publishing since it requires no complicated or costly technologies. This service is concentrated on social media applications like Weibo and WeChat. And after Douyin and RedNote became popular around 2015, digital news also shows up on both platforms, featuring short videos with concentrated information. Whatever platforms publish digital public news, a common feature is that there is little "interaction" between government and citizens. Of course, citizens can comment on the news on all the platforms, but just as users, so there is no channel to convey citizens' opinions to the government. Therefore, it is also questionable whether this phase can be regarded as a true "digital public service". As mentioned by interviewee E1, this kind of public service that lacks real interactivity is not widely recognized by the academia.

(2) **Promotion phase (2015-2019)**: WeChat and Alipay introduce various "City Service" in more and more cities

WeChat and Alipay's city service functions become available in a few major cities. The first batch of Alipay "City Services" was launched in April 2015 in 12 cities including Shanghai, Guangzhou, Shenzhen, Hangzhou, Ningbo, Nanchang, Qingdao and Taiyuan. WeChat City Services was first introduced in Guangzhou, Foshan, Wuhan, Shanghai and Shenzhen in December 2014. In July 2015, WeChat City Services was officially introduced in Beijing.

Central government's emphasis on "Internet + Government Services" strategy also has promoted the rapid development of this model, for example "Guiding Opinions on Accelerating the Promotion of 'Internet + Government Services'" (2016) and "Guidelines for the Construction of the 'Internet + Government Services' Technology System" (2016). Third-party platforms are encouraged by the national strategy to contribute to the

digitalization of all kinds of public services. However, in that phase, digital public services on third-party platforms are quite fragmented because of lack of unified planning since each digital public service provided by a third-party platform is separately negotiated between the platform and different government departments, as is mentioned by interviewee P1 and E1.

In this phase, each city has a different path to promote the digitalization of public services, and their attitudes towards third-party platforms are also different. In Guangzhou, where Tencent is headquartered, the government planned from the beginning to use WeChat as a platform to build a complete digital public service ecosystem. In comparison, other cities do not attach so much importance to the development of public services on third-party platforms but instead focus on the construction of government websites.

(3) **Integration phase (2019-now)**: "City Service" are gradually integrated and standardized

"Provisions of the State Council on Online Government Services" (2019) marked the beginning of the construction of a national integrated online government service platform and the standardization and interconnection of digital public services between different regions and departments. "Guiding Opinions on Strengthening the Construction of Digital Government" (2022) and "Overall Layout Plan for the Construction of Digital China" (2023) also mentioned the same strategy. Thanks to this unification and standardization strategy, the previously fragmented digital public services on WeChat and Alipay are mostly integrated into a unified program (WeChat Mini program or Alipay Life Account), which is often jointly developed and operated by provincial or even national governments. The third-party platforms only retain the API entrances and necessary user login information (such as name, mobile phone number, and national ID number). This is how all the "nonexclusive services" in this study emerge. Of course, there are still many services that are not unified, i.e., the "exclusive services" defined in this study. The level of unification is also different between different provinces (according to interviewee G2).

The nationwide emergency COVID-19 pandemic since the beginning of 2020 has further accelerated the unified construction of public services on WeChat and Alipay. Due to time constraints in program development and promotion to citizens, the Chinese government, in this crisis, decisively cooperated with third-party platforms. Identity recognition and health screening services represented by "health code" and "travel code" are required to be used by all citizens in a mandatory manner to some extent. After the pandemic, these codes have been transformed. For example, Shanghai's "Suishen Code" can carry out services like identity recognition, transportation, medical treatment and drug purchase and so on. In this way, the habit of citizens using public service QR codes on

third-party platforms, which has been cultivated in the emergency of COVID-19, is fully utilized.

### 5.1.2    Explanation of the emergence of PaaG model in China

Using platform theory, it is quite easy to understand why PaaG model emerges and prevails in and only in China. One of the greatest advantage of platforms come from network effect (Katz & Shapiro, 1994; Saloner & Shepard, 1992), and hence the key to the continued success of the platform is a sufficiently large and diverse user base. In China, platforms like WeChat and Alipay have already gained extremely **large user base** even back to the last decade, i.e., before the emergence of digital public services. It is an important point because it is even extremely difficult for the government to develop a platform as successful as WeChat and Alipay due to China's huge population base and regional differences. In addition, the WeChat and Alipay parent companies (Tencent and Alibaba) have mastered **advanced information technology** and have a solid foundation in software and hardware facilities. Therefore, using the WeChat and Alipay platforms as carriers to provide digital public services is an understandable option.

Findings suggest that the large user base of WeChat and Alipay is the fundamental reason why PaaG can be realized, but it is not the only reason, as is illustrated in the following figure.

**Figure 5.1**    Illustrative diagram of the logics among the reasons for the formation of PaaG model
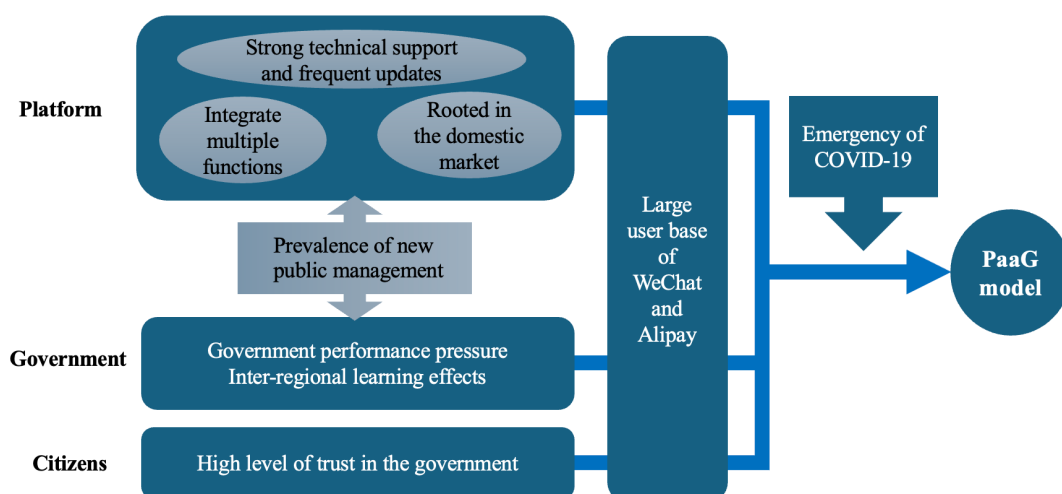


Three special features of the two third-party platforms, namely WeChat and Alipay also promote the emergence of the PaaG model. Firstly, thanks to their **strong technical support and frequent updates**, WeChat and Alipay are easier to use and well maintained

so citizens even prefer to use them even when there are government-developed applications with the same functions, which is mentioned by most of the citizen interviewees.

Secondly, unlike their western counterparts, WeChat and Alipay do not focus on single functions, but **integrate multiple functions** and become so-called "mega-apps" (Peter & Fan, 2023). WeChat was originally an instant messaging social software, but now it has integrated many functions such as payment, code scanning, file transfer, card wallet, etc. Similarly, Alipay was originally an application for payment, but now you can also add friends, chat and even read articles and videos on it. This kind of functional integration is very important for digital public services, because they often require multiple functional support. For example, facial recognition requires camera permissions, identity login requires scanning codes, document application requires card wallets or file transfer functions, and payment requires payment functions. Being able to complete the entire service process on the same platform is very convenient and, hence, attractive for the government and citizens. It is quite important for citizens to use an application integrating virtually all services so that they can avoid downloading loads of apps especially when they are travelling across provinces.

Thirdly, although the parent companies of WeChat and Alipay (Tencent and Alibaba) are internationally renowned private companies, they are both developed in China from the beginning and the two platforms are also **rooted in the domestic market** (the huge market of China is also worthy of their focus). And they even have close connection with the central and provincial governments. For example, the Chinese government has acquired a "golden share" in a Tencent subsidiary, granting it access to online data and oversight of the company's business operations (Josh, 2023). This close connection also means that the Chinese government has almost absolute **regulatory power** over the operation of WeChat and Alipay in China. In fact, the two platforms are sometimes fined by the government for some improper behavior. For example, in July 2023, Alipay was fined more than 3 billion CNY for violating payment account management regulations and the information protection management regulations (Sohu, 2023). Because of this absolute regulatory power, the government can operate public services on these platforms without worrying about backlash from the platforms. In addition, the platform's roots in the domestic market also mean that the platform has a deep understanding of the usage habits of Chinese users, which is very important for developing digital public services that citizens love to use.

Moreover, the fact that there are at least two suitable platforms, namely WeChat and Alipay is also important in successful PaaG model. That means there are some

competition and functional differences – WeChat emphasizing social media and instant messaging while Alipay focusing on financing and payment. Therefore, neither of them can completely replace the other for the time being. Also, as leading platforms, they are competing to attract more users, thus still having the motivation to improve their functions. On the contrary, if there are too many platforms for citizens to choose from, it will also cause certain chaos and waste of resources since some poorly managed platforms are bound to be eliminated after a period of market competition (Tiwana, 2013).

Of course, for platform owners and operators, they also have sufficient reasons to invest resources and time in developing digital public services. delivering public service on their platforms can help to increase usage frequency and can earn trust from users to their platform with government endorsement. They may also be able to promote the usage of their own services. For example, placing hotel booking service (private service) beside train ticket sales (public service) may make users more likely to book the hotel on their platforms.

Another reason is that the Chinese citizens have a relatively **high level of trust in the government**. According to Statista (2024), level of trust in government in China from 2017 to 2023 ranges from 80% to 90%. Because of this high level of trust, citizens are willing to participate in the new government-led public service model without hesitation, even if this model is not so perfect.

The **prevalence of the new public management (NPM)** trend has shortened the distance between the government and technology companies. Since the late 1970s, NPM has greatly influenced China's government system reform (Yang, 2004). The market-oriented thinking emphasized by NPM is essentially manifested as the public sector learning from and approaching the private sector. As a result, Chinese government began to learn the business management models of the enterprises. At the same time, enterprises are also trying to understand the government for the profit purposes like gaining policy resources, which makes the government and third-party platforms, the two entities with very different discourse systems, start to move closer.

**Government performance pressure and inter-regional learning effects** has also led to the PaaG model evolving from a scattered practice in only few areas to a nationwide phenomenon. This effect is particularly evident after the central government proposed the concepts like "Internet + Government Services", "Online Government Services", "Digital Government", and "Digital China" in succession since 2016. That means digitalization of public services has become one of the performance evaluation criteria of local governments. However, not all provinces have integral government institutional systems, sufficient technical personnel and financial support to realize digital public services on

self-developed platforms (according to interviewee G2). At that time, pioneer provinces and cities like Beijing, Shanghai, and Guangzhou have already taken the lead in launching the initial model of PaaG, especially digital public services developed in cooperation with WeChat and Alipay platforms. And this model turns out to be quite effective for provinces that are relatively backward in technology and government systems, because of relatively small risk of trial and error (pioneer cities have set an example), relatively small investment (the platforms and technologies are all provided by third-party platforms), and publicity effects (citizens have a stronger willingness to try and use). This ultimately led to a situation in China where PaaG was led by a few developed provinces and followed and learned by most developing provinces. In fact, it is still the case today and there is an evident gap between developed and developing provinces (according to most citizen interviewees). Digital public services in developed provinces have achieved a high degree of unification and standardization, and the entire process of services can be totally online. However, developing provinces are still facing the situation where digital public services are fragmented and ununiform, and need to be used in combination with online and offline.

**Emergency of COVID-19** accelerated the speed of application of PaaG model. Since offline human contact will increase the speed and scope of disease transmission, and the screening of sick people needs to be supported by a large amount of grassroots data, online public services have changed from an optional option to a must. Due to time constraints in program development and promotion to citizens, the Chinese government, in this emergency, decisively cooperated with third-party platforms. The effect of the emergency in promoting disruptive change in providing public services is obvious. For some provinces, the epidemic is even an opportunity for the government to try to use the PaaG model to provide public services for the first time. This is also the reason why most interviewees in this study mentioned that they started using third-party platform public services around 2020. According to Tencent's official statistics, in 2020, the total number of government mini programs nationwide exceeded 60,000, with an increase of 52% over the same period in 2019, and the number of people served reached 192 billion, an increase of about 20 times (Tencent Research Institute, 2021).

## 5.2    Main features of PaaG in China

As is defined in the introduction part of this paper, PaaG is the phenomenon that *public services are delivered on third-party private platforms in a digitalized, integrated, and cooperative way where the platforms function like a branch of the government*. Findings indicate that features of PaaG in China are concluded as follows,

**"Digitalized"**: The emergence of PaaG is naturally in the digital scenario and for the demand for digitalization, whether it is the requirement of digital government advocated

by nation-level policies, or the growing demand for better public services of citizens in the digital age. This internal logic is consistent with that of GaaP, but the existence of the digital platform is different. For GaaP, government platforms are developed merely for digital public services and emerge only after the government decides to initiate digitalization. While for PaaG, private platforms like WeChat and Alipay have been running before government wants to deliver digital public service on them. And platforms themselves are not designed to serve the public good, but for private one, like social media, financing, etc.

**"Integrated"**: Thanks to the "mega-app" platforms like WeChat and Alipay, different steps of the service can be completed on the same platform, such as voting, payment, code scanning, file transfer, card wallet, etc. This is different from many GaaP practices, where different government departments often develop separate apps with single function.

**"Cooperative"**: PaaG is obviously the product of collaboration and negotiation between the government and third-party platforms. So, one feature is that third-party platforms hold part of the rights to decide what kinds of services can be delivered on them. Sometimes the criteria are about technical or legal issues, but most of the time it is about whether a certain public service can attract more usage and better word-of-mouth for the platform (according to E1 interviewee). However, this cooperation process usually does not include the users of the service, namely citizens. They can hardly intervene how digital public services can be delivered, while theoretically they are able to do that in the case of GaaP.

**"Platforms function like a branch of the government"**: From the perspective of citizens, the government and third-party platforms in the PaaG model have formed somewhat an "alliance" -- they cannot even tell who designs the service, who is responsible for the service quality, who stores the data, etc. The third-party platforms have further enhanced its credibility and expanded its audience through the PaaG model, while the government has improved citizens' satisfaction with the government through PaaG services running on third-party platforms. In this process, the boundary between public and private has gradually become blurred. This is also the characteristic that differentiates PaaG with other digital public service models under the megatrends of Government 2.0 (as seen in Table 5.1). PaaG emphasizes the existence of third-party platforms compared to GaaP, the subjective initiative and potential functions of the platforms compared to PfG and the relationship and cooperation between the government and external stakeholders compared to PEG. The relationship and roles of government and platform are also discussed further in the following section.

**Table 5.1** Different concepts under the megatrends of Government 2.0 (summarized based on Section 3.3.3 "Other government platform concepts")

| Concepts | Relationship between government and platform |
|---|---|
| **Government as a Platform (GaaP)** | The government itself as a platform, while no third-party platforms existing |
| **Platform for Government (PfG)** | Dominance of government over platform technology; platform work as "vending machine" |
| **Platform-enabled Government (PEG)** | Middle platform system constructed inside of the government to integrate government workflows across departments |
| **Platform as a government (PaaG)** | Government uses but doesn't provide or control the platform, and interact actively and bilaterally with third-party platforms |

Moreover, findings indicate that PaaG is also diverse inside, as is shown in the following table. These diversifications are often determined by the nature of different services, that is, the PaaG model can provide a variety of combinations and customizations according to the needs of different services.

**Table 5.2** Some differences among different categories of digital public services according to the case study

| Category | | ID authentication | Completely online? | Available platform(s) |
|---|---|---|---|---|
| **Information-focused services** | **Exclusive** | Hard/soft eID | No | WeChat |
| | **Nonexclusive** | Hard eID | Yes, usually | WeChat/Alipay |
| **Transaction-focused services** | **Exclusive** | Soft eID | No | WeChat/Alipay |
| | **Nonexclusive** | Hard eID | No | WeChat/Alipay |
| **Participation-focused services** | **Exclusive** | Soft eID | Yes | WeChat |
| | **Nonexclusive** | Hard eID | Yes | WeChat/Alipay |

## 5.3      Roles and relationships among stakeholders

Although the formation of PaaG can be explained by platform theory, i.e., the large user base allows third-party platforms such as WeChat and Alipay to smoothly develop public services; findings show that the internal structure of PaaG, or the stakeholder relationship, is slightly different from the platform theory. That is, the government is also playing a role similar to that of a "platform", serving both citizens and third-party platforms. Therefore, as shown in the Figure 5.2, the relationship between stakeholders in the PaaG model is more similar to a platform ecosystem with two "platforms" together serving citizens at the same time.

**Figure 5.2**      Illustrative diagram of the roles and relationships among the stakeholders in PaaG model (drawn by author)
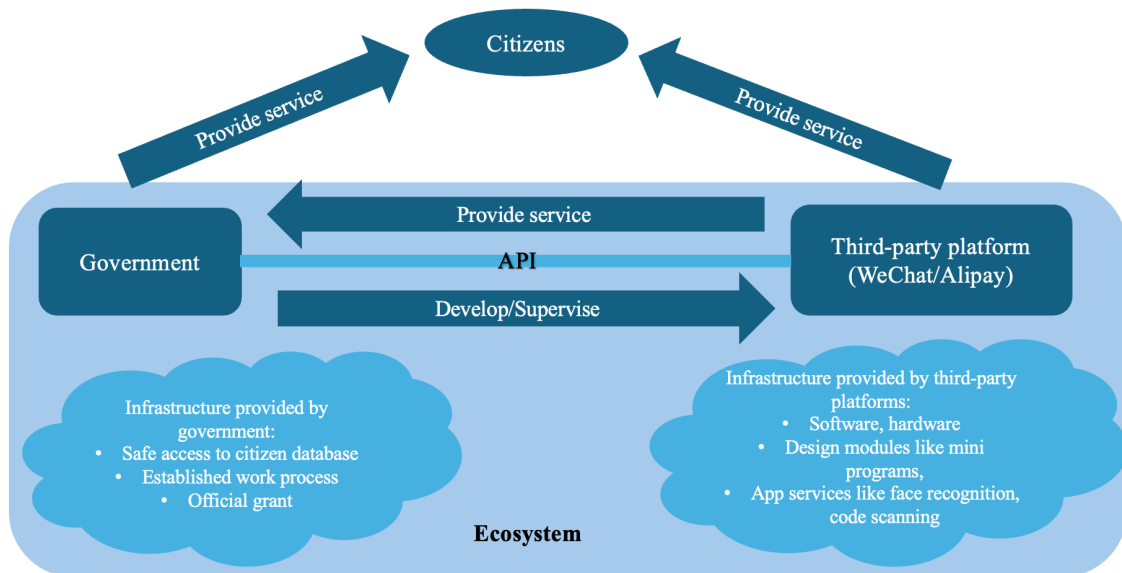


Both "platforms" meet the definition of "platforms" in platform theory, namely (1) those facilitate interactions between at least two distinct groups (in this case, the other two stakeholders in the model) that want to interact with and need each other (Evans & Schmalensee, 2007) and also (2) those where outside parties can build complementary products or services that contribute to the functionality and capabilities of the platform (Tiwana, 2013).

From the side of third-party platforms, they allow the government to build its own online services (*"complementary products"*) on their platforms, which promotes interaction between the government and citizens (*"two distinct groups"*), improves the efficiency and quality of public services, and even increases citizens' satisfaction with the government. For the government "platform", the public services provided on the third-party platforms have become an important part of the public services it can provide to

citizens (*"complementary products"*). And although it is not its original intention, it has promoted the interaction and trust between citizens and third-party platforms (*"two distinct groups"*) through various forms such as policy support to encourage development, legal supervision and inspection, etc. (depending on the specific scenario and specific government department), further increasing the latter's user base and commercial profits.

These two "platforms" are connected to each other through APIs. For example, third-party platforms (WeChat and Alipay) obtain and display citizens' information in government databases through APIs; and the government also obtains information entered by citizens on third-party platforms through APIs.

Both platforms also contribute to the shared infrastructure of the PaaG ecosystem. Third-party platforms provide the latest technical support of software and hardware. And they also utilize their own platform operation experience to provide mature design modules such as mini programs and life accounts to facilitate the government to quickly design their own online services. Moreover, they also provide app services such as face recognition and code scanning. The above "infrastructure" is provided by third-party platforms for all businesses and of course including the digital public service scenario. On the other side, the government provides safe access to the citizen database, established work process of public services, and official grant to make citizens trust the services, all of which are essential conditions for the successful operation of this model. Through that unprecedentedly large ecosystem, cooperation among multilateral interdependencies becomes possible and thus making it possible to provide nationwide digital public services in a country as large in population and territory as China. This also echoes with previous literature on platform ecosystem (Adner, 2017; Jacobides, et al., 2018).

**Figure 5.3**     Illustrative diagram of the roles of all stakeholders in PaaG model in five stages of ITIL service lifecycle (drawn by author, with reference to Vivantio, 2024)
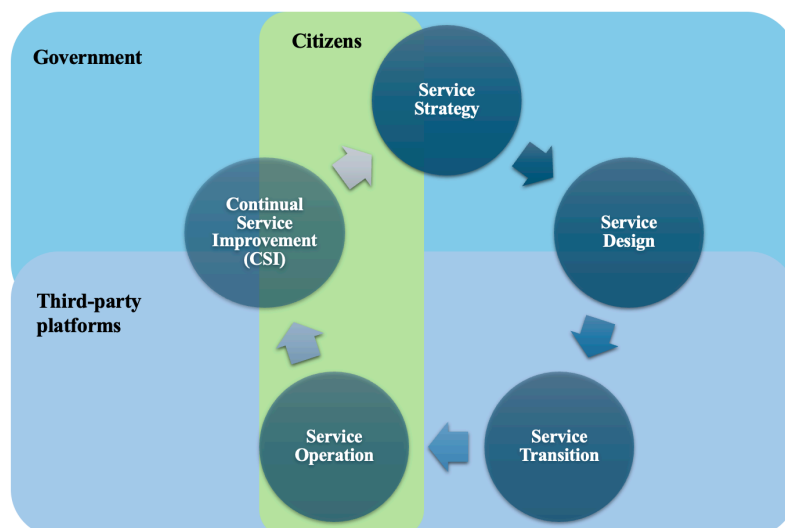
Findings also indicate that the roles of the three stakeholders are mutually defined in this special relationship, and they participate in different stages of the service lifecycle to varying degrees, as Figure 5.3 shows. For clarity, the diagram references the ITIL (Information Technology Infrastructure Library) service lifecycle, which is a structured framework designed to manage IT services effectively.

**(a) Government: the decision maker and supervisor**

In general, the role of the government in PaaG is to determine which public services can be digitized, how to digitize them, and check whether digitization improves service efficiency and quality. In other words, the government is involved in the "service strategy", "service design" and "continual service improvement (CSI)" stages in the ITIL service lifecycle.

Of course, that does not mean that the government alone can make decisions in these stages. In the "service design" stage, the government needs to negotiate with a third-party platform to determine the best way to deliver a service. In the "service strategy" stage, the government needs to listen to citizens' suggestions to decide whether to digitize certain public services. In the CSI stage, the government needs to refer to the feedback from third-party platform technicians and the post-service evaluation from citizens to promote the improvement of service quality.

But in general, the government has a relatively large say in the "service strategy" strategy in the PaaG model and has an absolute advantage in public service-related information and experience. Therefore, it can be said that it firmly holds the right to speak in the upstream of the service lifecycle. That is, if the government is unwilling to promote a certain service, then this service will not be realized. In addition, through supervision and inspection, the government has the final say on the final results of the service and the legal and political issues involved in the service process.

**(b) Third-party platforms: the function designer and operator**

In contrast to the government's "control" over the upstream of the service lifecycle, third-party platforms "control" the downstream of the service lifecycle. That is the implementation and operation of the service, including the software and hardware support of the service, and the customer support during the service operation.

Similarly, third-party platforms do not have absolute decision-making power in service design. However, with their more than ten years of experience in developing and operating Internet products, their ideas often play a big role in whether the service can ultimately achieve satisfactory results.

**(c) Citizen: service user**

As the recipient of services from both the government "platform" and third-party platforms, citizens should theoretically play a very important role (from the perspective of platform theory, service recipients are the ones who are qualified to evaluate the value of services). However, in PaaG's reality, due to the ecosystem created by the government and third-party platforms, citizens are isolated from the "black box". In the eyes of citizens, almost all PaaG issues are decided by the game between the government and third-party platforms, but the decision-making process and who is responsible for the decision are quite unclear.

Of course, citizens can still participate in some stages of the service lifecycle, especially the "service operation" stage. If citizens do not utilize the service, then everything is meaningless. In addition, citizens can also participate in the "service strategy" stage by giving opinions to the government. But still they are not sufficiently involved in service design since two-thirds of them are willing to participated in design before and after using specific services, according to the survey. This lack of citizen participation may lead to technobureaucracy similar to the situation in GaaP, that is, due to the top-down implementation of reforms without absorbing the ideas of the grassroots citizens towards this model, principles of inclusivity and deliberation are hard to meet (Brown et al., 2017; Smorgunov, 2021; van der Does & Bos, 2021).

## 5.4    Advantages and pains of PaaG

### 5.4.1    Flexibility but limited

Findings highlights the flexibility of PaaG, which is reflected in (1) which platform provides which public services can be negotiated between the government and the platform; (2) the integrated functions like "mini programs", "public accounts" and "city services" of the "mega-app" platforms allows all kinds of public services to be well implemented.

However, this flexibility is limited. WeChat and Alipay have virtually monopolized the "market" of PaaG in China, as they are the only two platforms that require users to conduct real-name authentication and integrate the two most important public service functions of information transmission and payment. The huge user base is also difficult to replicate. The two platforms are serving 1.36 billion and 890 million monthly active users (MAU), ranking 1st and 3rd in the Internet market in China (QuestMobile, 2024). Therefore, to some extent, if the government wants to implement PaaG, it must consider

WeChat and Alipay. The only difference is whether to provide services on one or both platforms.

In addition, the usage of functions on third-party platforms is not that flexible. As G2 said in the interview, when the government designs "mini programs" and "public accounts", it often relies on the design modules and services provided by the platform. However, as part of "2B" (to business) business, WeChat and Alipay do not have the energy and motivation to update these design modules timely. Some content on the government's own website is also difficult to be directly compatible with third-party platforms, resulting in the need to use external links, QR codes, and APIs to achieve service diversification.

Moreover, the operation of WeChat and Alipay as "mega app" platforms also has certain problems: due to the excessive content and functions included, the app operation is not so smooth; users also need to spend more time and energy to filter out what they want from the complex information flow.

### 5.4.2    User-friendly but not citizen-centric

As third-party platforms, WeChat and Alipay have relied on technical reliability and product availability to gain a large user base from the beginning. Therefore, for citizens, the user-friendliness of these platforms has been verified from the very beginning. In addition, many citizens often use WeChat and Alipay in everyday life (survey data), and they are accustomed to using services on such platforms.

However, findings suggest that user-friendliness is not equal to citizen-friendliness. The former is in the private domain with market logic and treats citizens as users. The latter is in the public domain with political logic and citizens naturally enjoy some public power. For example, citizens should have equal access to public services regardless of their native language. Many of ethnic minorities in China have their own languages, and in places where they live, the local government is required by law to provide bilingual public services in Chinese and the minority language. However, this is difficult to achieve on third-party platforms, because minority languages are difficult to display in a compatible manner, and this kind of demands is relatively small. Therefore, in current practice, WeChat and Alipay rarely provide options for minority languages (according to C4 interviewee). This phenomenon is the result of treating citizens as users because although the legitimate rights of citizens should be guaranteed, not all user needs must be met. The same situation also occurs with the elderly, who often cannot use PaaG services independently due to their lack of independent information collection capabilities.

Unclear boundaries between public and private domains have also brought some consequences. For example, when third-party platforms provide public services, they will attract attention to their own commercial services. In case D, the government medical insurance and Alipay's own commercial medical insurance will be placed on adjacent interfaces on Alipay, which will make some citizens mistakenly believe that the two insurances are similar. In that case, once problems arise with Alipay's commercial insurance, citizens may lose trust not only in Alipay but also in the government. Similar issues also arise when citizens are asked whether the government or the platform should be responsible for PaaG. Among the 9 citizen interviewees, only 2 strongly believe that the government should be responsible for PaaG. But in fact, according to interviews with government staff and platform operators, it is clear that the design and quality of services are mostly the responsibility of the government. In other words, the government spends much manpower and money to provide services, but citizens are convinced that the convenient services are inherent in third-party platforms, which is not good for citizens' satisfaction with the government (according to G2 interviewee).

Citizen participation has also become a big issue in PaaG. There seems to be more interaction between government and tech companies, but not between government and citizens. Although some PaaG services provide channels for citizens to give service feedback to the government, these channels are limited in number, and feedback is not responsive and influential enough (according to interviews). Some interviewees also noticed that this model reduces offline face-to-face communication between the government and the public. Although government officials occasionally communicate directly with citizens on third-party platforms, this kind of case is very rare.

### 5.4.3 Security but perceived not

Security issues are particularly important in the public domain, especially when it comes to major social issues, personal privacy information, etc. It is found in the interviews that the platforms and the governments try to ensure information security in the PaaG model through various means such as capital investment, technical encryption, API channel protection, cooperation agreements, and regular inspections.

However, in the survey among citizens, "more data security and privacy protection" ranked first among the areas that need improvement in the PaaG model (about 63% of respondents selected this option). This contradiction may be because citizens do not know who is responsible for PaaG (this question has mixed answers in interviews with citizens). In fact, when problems really occur, the determination of responsibility for government departments or platforms will not be made public but will only be handled internally.

Therefore, even some government clients themselves do not trust information security in PaaG.

### 5.4.4    Advanced technology utilization or over-reliance on technology

The latest technical support from Internet technology companies, including software and hardware, has promoted the improvement of digital government services and government office. For example, WeChat mini programs, supported by the massive computing power and advanced algorithms of the backend large platform, have effectively realized collaborative office work in government in various regions, departments, and levels. Also, Tencent Cloud has helped build a national government service platform. Mini programs have been connected to the online service windows of provincial governments such as Zhejiang, Jiangsu, and Guangdong, enabling easy switching of government services across the country and in various departments. Another example is that in China's seventh census, an electronic method was used for the first time to conduct a national census. The electronic collection method shortened the registration time to less than 20 minutes, greatly reducing the difficulty of subsequent data entry and processing (Tencent Research Institute, 2021).

It is a good thing that the advanced information technologies from Internet companies can be utilized in public settings, but it can also cause problems if we rely too much on technologies. Interviewee G1 mentioned that over-reliance on facial recognition technology may lead to ethical and user experience issues. For example, to receive a pension, the elderly need to perform certain actions when using facial recognition, which is somewhat insulting.

### 5.4.5    Solutions to pains

From all above mentioned, just like GaaP, PaaG is also a digital public service model with both advantages and pains. In China's practice, the government and third-party platforms are trying to make the best use of their strengths and avoid their weaknesses in PaaG. Some practices have achieved initial results, while others are still in the small-scale pilot or written planning stage. However, they all have certain reference value for other countries that want to imitate the PaaG model.

### (1)   GaaP supplemented by PaaG

As the description of the relevant policy background in the literature review shows, the central government of China is committed to the unification and standardization of digital government services. That means integrating the previously chaotic digital public

services under the PaaG model with a unified government platform. In interviews with government employees, it is also found that almost all places have plans and even results in developing specialized digital government apps for their provinces or even cities. But surprisingly, such government apps (GaaP) do not aim to completely replace third-party platform public services (PaaG) but are intended to make up for the shortcomings of the latter, such as slow operation, lack of officiality, and inflexible development. This solution – developing GaaP supplemented by PaaG -- represents the trend for a long time to come, at least in China. It allows the two seemingly contradictory phenomena of GaaP and PaaG to coexist and even complement each other. It is not so surprising given that the government and third-party platforms both play as a "platform" role in the model, as is stated in the "roles and relationships among stakeholders" part.

Also, the successful implementation of this approach means that other countries that are implementing GaaP also have the potential to develop PaaG to complement GaaP under the condition that both government and third-party platforms can play as a "platform" role.

**(2)  AI-assisted instant conversation system**

With the rapid development of large language models (LLMs) such as ChatGPT and DeepSeek, governments and third-party platforms in China are also exploring the introduction of LLMs into digital public services to help citizens solve problems more quickly. For example, Shenzhen's Futian District employed 70 "AI digital employees" developed based on DeepSeek at one time, shortening the time for document review by 90%, and generating the first draft of law enforcement documents in seconds; Zhenjiang, Jiangsu announced that it had completed the local deployment of DeepSeek and put it into operation, and the amount of data processed in a single day is equivalent to the total workload of civil servants in the city for 10 years (Bangongting, 2025).

This approach can partially solve the problem of insufficient citizen interaction under the PaaG model, but it also creates new problems: currently, no one can guarantee the accuracy and reliability of the content generated by LLMs.

# 6    Conclusion

This paper how digital public services are delivered on third-party platforms in China, or the name "platform as a government" (PaaG) model, which is defined and characterized as *public services are delivered on third-party private platforms in a digitalized, integrated, and cooperative way where the platforms function like a branch of the government*. Compared with those on government platforms or the GaaP model, it is more diverse and flexible in many ways such as platforms that provide service, ID authentication, functions integrated, etc.

This special model has emerged in China back in 2010s, and has gone through three phases, namely incubation phase (2010-2015), promotion phase (2015-2019) and integration phase (2019-now). Beginning initially from only digital public news publishing on few apps like Weibo and WeChat, various city services across the whole country have been introduced onto third-party platforms especially WeChat and Alipay since 2015. Then after COVID-19 in early 2020, integration and standardization of these digital public services have begun and lasted to today.

This emergence of PaaG can be basically explained by platform theory – the extremely large user base of platforms like WeChat and Alipay greatly enhances the acceptance of this model by the public and the government. Other reasons also partially explain the formation of this model, most of which have so far been (almost) only established in China. For example, there are almost no platforms beyond China that can exemplify "mega-apps" more than WeChat and Alipay, integrating multiple functions assisting entire service process on one platform; the inter-regional learning effects caused by China's unique central-local government relationship can accelerate the rapid spread of the effective new model across the country; the world-leading level of trust in the government ensures that most citizens choose to trust this new model even if they are not fully involved in design and decision-making process.

Although the formation can be explained by platform theory exactly as it is, some changes are needed to explain the stakeholder role and relationship. As the Figure 5.2 shows, "government" and "third-party platforms" together forms a double-platform ecosystem, with shared infrastructure provided by both "platforms" and both platforms serving and connecting another two parties. This unprecedentedly large ecosystem brings together various information, technology, and human resources across the country, making it possible to provide nationwide digital public services in a country as large in population and territory as China. However, one of the most obvious consequences of this model is that almost all PaaG-related issues are decided and executed by the government (mainly as the upstream decision maker) and third-party platforms (mainly as the downstream

function designer and operator) through internal negotiation. Citizens (who, as the service recipients, is the most important stakeholder) have almost no way of understanding what is happening inside the black box of this "double-platform ecosystem".

Through implementation of this model, there are intertwined advantages and disadvantages. (1) Flexibility of PaaG enabled by mega-apps like WeChat and Alipay, particularly in the negotiability of service provision and the integration of diverse public service functions, can however be constrained by the monopolistic dominance of these platforms, and their design limitations and usability issues arising from their complex and overloaded interfaces and applications. (2) High user-friendliness offered by WeChat and Alipay due to their widespread adoption and technical reliability does not equate to true citizen-friendliness. As these platforms operate within a market logic that often neglects the diverse and equitable needs of citizens, blurs boundaries between public and private domains. That leads to citizen misperceptions about service responsibility, undermines government credibility, and limits meaningful citizen participation. (3) Despite efforts by both the government and platforms to safeguard information security in the PaaG model through technical and institutional measures, citizen surveys reveal persistent concerns over data privacy and security. This is likely to stem from the lack of transparency and unclear accountability, which undermines extensive public trust for the model even among government stakeholders. (4) Application of advanced technologies from high-tech internet companies has significantly enhanced the efficiency and interoperability of digital public services. However, excessive reliance on such technologies as facial recognition, may introduce ethical concerns and negatively impact citizen experience, particularly for vulnerable groups like the elderly.

On one hand, as pointed out in the research question, this thesis aims to give a scientific definition and explanation for PaaG, a phenomenon that has rarely been studied and discussed, so as to show the different possibilities of Government 2.0 or digital public service. On the other hand, just like GaaP, PaaG is a very broad concept that has evolved in different branches in practice, so this thesis cannot cover every detail of the concept - nor is it the purpose of this thesis.

However, there is no doubt that this paper has laid a solid foundation for the subsequent research on this phenomenon, which can be further studied in the following directions:

(1) Details of the interaction between stakeholders (government, third-party platforms and citizens), especially the interaction between the government and third-party platforms is a typical public-private cooperation case worth studying. Limited by available resources and time, the study's interviews with relevant personnel in the government and

third-party platforms need to be more in-depth. And the survey among citizens needs to have a larger base and a more even geographical distribution.

(2) Comparison between PaaG and other digital public service models based on typical national cases. Although this paper involves some comparison between PaaG and GaaP, it is not the main research issue of this paper, so the comparison is only conducted based on a very vague concept and lacks factual support and in-depth study. Future research inspired by this paper is also suggested to include, in particular, non-Western countries such as China into digital government case studies, since these countries may have some different development paths and models from the "mainstream" Western digital government. And what this paper implies is that no matter what kind of digital public service model, there will be certain strengths and weaknesses, and there is no model applicable to all countries. For example, the PaaG model discussed in this paper is too harsh in formation and development conditions to be directly replicated in other countries, especially in terms of suitable platforms with large user base. However, in other words, this also means that countries that want to digitize their public services can look at a variety of models and explore their own approaches from the best of them.

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# Appendix

**A. Survey questionnaire**

**Survey on the Use of Digital Public Services on Third Party Platforms in China**

**1. Your gender [Single choice question]**

➢ Female
➢ Male
➢ Unwilling to disclose

**2. Your age range [Single choice question]**

➢ 18 and below
➢ 19-24
➢ 25-34
➢ 35-49
➢ 50 and above

**3. Your educational background (including those you are studying) [Single choice question]**

➢ High school or vocational school or below
➢ Junior college
➢ Undergraduate
➢ Master's degree or above

**4. Your permanent residence (provincial administrative region) in the past five years [Single choice question]**

➢ Beijing
➢ Tianjin
➢ Hebei
➢ Shanxi
➢ Inner Mongolia
➢ Liaoning
➢ Jilin
➢ Heilongjiang
➢ Shanghai
➢ Jiangsu

➤ Zhejiang
➤ Anhui
➤ Fujian
➤ Jiangxi
➤ Shandong
➤ Henan
➤ Hubei
➤ Hunan
➤ Guangdong
➤ Guangxi
➤ Hainan
➤ Chongqing
➤ Sichuan
➤ Guizhou
➤ Yunnan
➤ Xizang
➤ Shaanxi
➤ Gansu
➤ Qinghai
➤ Ningxia
➤ Xinjiang
➤ Hong Kong Special Administrative Region
➤ Macau Special Administrative Region

**5. How often do you use WeChat, Alipay and other platforms? [Matrix Single choice question]**

|  | Daily use | Once every 2-3 days | Once a week | Once a month | Rarely used |
|---|---|---|---|---|---|
| WeChat |  |  |  |  |  |
| Alipay |  |  |  |  |  |

**6. Which of the following WeChat platform functions do you use frequently from high to low? [Sorting questions, please fill in the numbers in brackets]**

[] WeChat official account (including subscription account and service account)

[] WeChat Mini Program

[] WeChat Moments

[] WeChat Video Account

[] Other

Dependent on choices 1,2,3 in the header of line 1 of question 5

**7. In the following Alipay platform functions, the frequency of your use from high to low is [Sorting questions, please fill in the numbers in brackets]**

[] Financial Management

[] Mini Program

[] Life Account

[] Video

[] Insurance

[] Other

Dependent on choices 1,2,3 in the header of line 2 of question 6

**8. Which of the following services do you prefer to use? [Multiple Choice Matrix]**

*Access to the official government platform through WeChat or Alipay is still considered as a third-party platform

|  | Official government platforms, such as Suishenban and Zheliban | Third-party platforms, such as wechat and Alipay | Offline government counter | Have not used such services |
|---|---|---|---|---|
| Registration and registration services |  |  |  |  |
| Official document application services |  |  |  |  |

| (such as no criminal certificate, etc.) | | | | |
| Water, electricity, and gas payment services | | | | |
| Public transportation payment service | | | | |
| Medical insurance and social security inquiry service | | | | |
| Consumer complaint service | | | | |
| Official research, draft opinion exchange and other services | | | | |

**9. The reason why you choose to use digital public services on third-party platforms (WeChat, Alipay) is [Please fill in the numbers in brackets for sorting questions]**

[] Convenience (no need to download other apps)

[] Interactivity (able to communicate with the backend in a timely manner)

[] Interoperability (multiple types of issues can be resolved simultaneously on the same platform)

[] Aesthetics (clear interface, smooth guidance)

[] Cost effectiveness (third-party platforms offer more payment discounts)

[] Personalization (big data recommends suitable services)

[] Robustness (smooth app operation)

[] Uniqueness (can only/only know that similar functions exist on such apps)

[] Sociality (people around are using this platform)

[] Security (binding platform account and personal information)

[] Other

**10. In your opinion, the advantage of third-party platforms (WeChat, Alipay) in providing digital public services lies in [Please fill in the numbers in brackets for sorting questions]**

[] Convenience (no need to download other apps)

[] Interactivity (able to communicate with the backend in a timely manner)

[] Interoperability (multiple types of issues can be resolved simultaneously on the same platform)

[] Aesthetics (clear interface, smooth guidance)

[] Cost effectiveness (third-party platforms offer more payment discounts)

[] Personalization (big data recommends suitable services)

[] Robustness (smooth app operation)

[] Uniqueness (can only/only know that similar functions exist on such apps)

[] Sociality (people around are using this platform)

[] Security (binding platform account and personal information)

[] Other

**11. What do you think the digital public services provided by third-party platforms (WeChat, Alipay) need to be improved? [Multiple Choice Question]**

- Clearer interface guidance
- Increase interaction between the government and the people
- More reliable data security and privacy protection
- Add personalized content

- ➢ More attention on the feedback process of service quality
- ➢ No need for improvement
- ➢ Other_____*

## 12. Your attitude towards the registration services of the third-party service platform is [Single choice question]

- ➢ 1 (Very dissatisfied)
- ➢ 2
- ➢ 3
- ➢ 4
- ➢ 5 (Very satisfied)

Dependent on the second option in the title of the first line of question 8

## 13. Your attitude towards the official document application service of the third-party service platform is [Single choice question]

- ➢ 1 (Very dissatisfied)
- ➢ 2
- ➢ 3
- ➢ 4
- ➢ 5 (Very satisfied)

Dependent on the second option in the title of the second line of question 8

## 14. Your attitude towards the third-party service platform's water, electricity and gas payment service is [Single choice question]

- ➢ 1 (Very dissatisfied)
- ➢ 2
- ➢ 3
- ➢ 4
- ➢ 5 (Very satisfied)

Dependent on the second option in the title of the third line of question 8

## 15. Your attitude towards the public transport payment service of the third-party service platform is [Single choice question]

- ➢ 1 (Very dissatisfied)
- ➢ 2

- ➤ 3
- ➤ 4
- ➤ 5 (Very satisfied)

Dependent on the second option in the title of the fourth line of question 8

**16. Your attitude towards the third-party service platform's medical insurance and social insurance inquiry service is [Single choice question]**

- ➤ 1 (Very dissatisfied)
- ➤ 2
- ➤ 3
- ➤ 4
- ➤ 5 (Very satisfied)

Dependent on the second option in the title of the fifth line of question 8

**17. Your attitude towards consumer complaint services on the third-party service platform is [Single choice question]**

- ➤ 1 (Very dissatisfied)
- ➤ 2
- ➤ 3
- ➤ 4
- ➤ 5 (Very satisfied)

Dependent on the second option in the title of the sixth line of question 8

**18. Your attitude towards official research and draft opinion exchange services of the third-party service platform is [Single choice question]**

- ➤ 1 (Very dissatisfied)
- ➤ 2
- ➤ 3
- ➤ 4
- ➤ 5 (Very satisfied)

Dependent on the second option in the title of the seventh line of question 8

**19. When you encounter difficulties (such as technical issues, service content issues, etc.) when using public services on third-party platforms, what solutions would you seek? [Multiple choice]**

➢ Utilize the built-in communication channels of third-party platforms to communicate and resolve issues with backend staff

➢ Use the telephone, email and other methods provided by the government to communicate and resolve the issue

➢ Go to the offline government counter to communicate and resolve the issue

➢ Other_____*

**20. Are you willing to provide feedback and evaluation after using public services on third-party platforms? [Single Choice Question]**

➢ Willing

➢ Unwilling

➢ Depending on the situation _____*

**21. If possible, would you be willing to participate in the design process of third-party platform public services? (e.g. function trial, interview, etc.) [Single choice question]**

➢ Willing

➢ Unwilling

➢ Depending on the situation _____*

**22. Are you willing to participate in the interview of this study (about 30 minutes) [Single choice question]**

➢ Yes _____Please fill in your WeChat/phone number

➢ No

**The next page shows an example of the presentation of this online questionnaire on a mobile phone：**

## 国内第三方平台数字政务使用…
www.wjx.cn

# 国内第三方平台数字政务
# 使用情况调查

您好，此问卷采用匿名形式作答，信息仅用于荷语鲁汶大学数字政务专业硕士论文研究所用，不会进行公开发表。

**\* 1. 您的性别**

- ○ 女
- ○ 男
- ○ 不愿透露

**\* 2. 您的年龄区间**

- ○ 18及以下
- ○ 19-24
- ○ 25-34
- ○ 35-49
- ○ 50及以上

**\* 3. 您的学历（含在读）**

- ○ 高中或中专及以下
- ○ 大专
- ○ 本科
- ○ 硕士及以上

**\* 4. 您近五年常住地包括【多选题】**

- ☐ 北京市
- ☐ 天津市
- ☐ 河北省
- ☐ 山西省
- ☐ 内蒙古自治区
- ☐ 辽宁省
- ☐ 吉林省
- ☐ 黑龙江省
- ☐ 上海市
- ☐ 江苏省
- ☐ 浙江省
- ☐ 安徽省
- ☐ 福建省
- ☐ 江西省
- ☐ 山东省
- ☐ 河南省
- ☐ 湖北省
- ☐ 湖南省
- ☐ 广东省
- ☐ 广西壮族自治区
- ☐ 海南省
- ☐ 重庆市
- ☐ 四川省
- ☐ 贵州省
- ☐ 云南省
- ☐ 西藏自治区
- ☐ 陕西省
- ☐ 甘肃省
- ☐ 青海省
- ☐ 宁夏回族自治区
- ☐ 新疆维吾尔自治区
- ☐ 香港特别行政区
- ☐ 澳门特别行政区

【下一页】

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## 国内第三方平台数字政务使用…
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**\* 5. 您使用微信与支付宝等平台的频率？**

| | 每天使用 | 每2-3天一次 | 每周一次 | 每月一次 | 基本不使用 |
|---|---|---|---|---|---|
| 微信 | ○ | ○ | ○ | ○ | ○ |
| 支付宝 | ○ | ○ | ○ | ○ | ○ |

**\* 6. 根据您的过往经历，对于以下服务，您的使用途径是【多选题】**

通过微信支付宝访问政府官方服务的，仍算作第三方平台使用途径

| 政府官方app，如随申办等 | 第三方平台，如微信、支付宝等 | 线下政府窗口 | 未使用过此类服务 |
|---|---|---|---|
| 注册挂号类服务 | | | |
| ☐ | ☐ | ☐ | ☐ |
| 官方文件申请类服务（如无犯罪证明等） | | | |
| ☐ | ☐ | ☐ | ☐ |
| 水电燃气缴费服务 | | | |
| ☐ | ☐ | ☐ | ☐ |
| 公共交通缴费服务 | | | |
| ☐ | ☐ | ☐ | ☐ |
| 医保社保查询服务 | | | |
| ☐ | ☐ | ☐ | ☐ |
| 消费者投诉服务 | | | |
| ☐ | ☐ | ☐ | ☐ |
| 官方调研、草案意见交流等服务 | | | |
| ☐ | ☐ | ☐ | ☐ |

**\* 7. 您认为第三方平台（微信、支付宝）提供的数字公共服务需改进之处有哪些？【多选题】**

- ☐ 更清晰的界面引导
- ☐ 增加政民互动
- ☐ 更可靠的数据安全、隐私保护
- ☐ 增加个性化内容
- ☐ 重视服务质量反馈环节
- ☐ 无需改进
- ☐ 其他

**\* 8. 当您在第三方平台使用公共服务时遇到困难（技术问题、服务内容问题等）会寻求何种解决渠道【多选题】**

- ☐ 利用第三方平台的自带沟通渠道与后台工作人员沟通解决
- ☐ 利用政府提供的电话、邮件等方式沟通解决
- ☐ 前往线下政府窗口沟通解决
- ☐ 其他

**\* 9. 您是否愿意在第三方平台使用公共服务后给予评价反馈？**

- ○ 愿意
- ○ 不愿意
- ○ 看情况

**\* 10. 如可能，您是否愿意参与第三方平台公共服务的设计环节？（如功能试用、参加访谈等）**

- ○ 愿意
- ○ 不愿意
- ○ 看情况

**\* 11. 您是否愿意参与本研究的访谈环节（30分钟左右）**

- ○ 是
  请填写您的微信号/手机号
- ○ 否

【提交】

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## B. Interview transcription

### G1

Q: Your age (approximate range is fine), education, occupation, and the city you have mainly lived in for the past three years

A: 25, bachelor's degree, civil servant, Shanghai

Q: How many times a week do you use WeChat and Alipay?

A: Multiple times a day

Q: Have you used public services (including various public services provided by the government, institutions, and state-owned enterprises) on WeChat or Alipay?

A: Yes

Q: What was your most recent or most impressive experience? (Please clearly state the service items, service channels, service results, satisfaction, and reasons)

A: Hospital registration, successfully get a number in the hospital WeChat public account, clear and convenient, and easier to plan time.

Q: When you have both WeChat/Alipay and government platform apps (such as Suishenban app) on your phone, which one will you choose first? Will the choice be different in different scenarios? Explain the reason as much as possible.

A: It depends on the specific matters needed, WeChat first, followed by Suishenban.

Q: When you have problems using public services on WeChat or Alipay mini programs, do you intuitively think it is a problem with the third-party platform or the government?

A: Third-party platforms.

Q: In which year do you remember that you started using public services on third-party platforms? Have these services changed so far? Do you think they are getting better or worse?

A: About 20 years, it has gradually become more complete and convenient. Because the Suishen code has been used during the epidemic lockdown. So many wonderful uses of Suishenban have been explored, which has indeed increased acceptance

Q: If you have lived in different cities, have you felt the difference in digital public services between different cities? If there is a difference, is the third-party platform expanding or narrowing this difference?

A: No. But Hangzhou feels more closely connected with Alipay.

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation of public services (rather than just being a passive "user")? If necessary, are you personally willing to take the initiative to participate?

A: Generally.

Q: What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: User habits have been formed, and compliance with third-party platforms is higher, and there is no need for additional burden when obtaining public services.

I feel that the privacy protection and security are not as good as the official platform.

**G2**

Q: Please introduce the situation of digital public services in Beijing

A: Beijing is now mainly the "Jingtong" applet, which was launched during the epidemic in 2020. At the beginning, it was used as a public service for the epidemic, such as counting health codes and displaying the current scope and situation of the epidemic. It was first launched on the WeChat applet, and now the same applet is also available on Alipay. After the epidemic is over, more functions related to citizen services have been launched on the applet. After the epidemic-related data has been properly deleted, some relatively basic and popular functions have been launched, such as provident fund services, social security and medical insurance payments, application for residence permits, Beijing entry permits, health registration, and scanning codes to log in to some educational examination webpages in Beijing. For example, the registration service was initially on the Beijing 114 registration applet, and these functions will be gradually concentrated on the "Jingtong" applet, so that more resident services can be concentrated on one applet. This year and later, it is planned to release this "Jingtong" applet as a separate app, so that an open entrance to citizens can be realized on mobile terminals. Citizens can use apps or mini-programs to complete these tasks.

Q: What differences may there be in the functions and usability of apps developed by the government in the future?

A: When developing WeChat and Alipay's mini-programs, WeChat and Alipay are more considered as third-party platform entrances. But if it is Jingtong's app, its copyright, including software copyright, issuing agency, digital certificate and other issuing agencies all belong to the Beijing Municipal Government, which is a more official channel. The launch and optimization of functions on WeChat and Alipay's mini programs must be bound to WeChat and Alipay, and the trust of citizens may not be so high. Moreover, if the official app is logged in, data security can also be improved, and all data can be controlled by the government itself. If such an app is promoted, the trust of citizens can be improved. Moreover, it will be more convenient to update, maintain and release new functions of the app than the mini-program side.

Q: At this stage, if you update the WeChat and Alipay mini programs, do you need to go through some docking processes with the platform?

A: Some more important functions will be docked. But ordinary function designs can be added to it by yourself, but it is also relatively limited. For example, when you open a web page or log in to a web page, the browser inside is the browser of WeChat or Alipay, and some of its display effects are not very comprehensive. After all, as a mini program, its usage and functions are relatively limited. If you want to develop more functions on it, there will be certain restrictions. If it is software, it will be more free.

Q: If you develop your own app later, have you ever thought about developing any functions that are exclusive to the app?

A: Not yet, because one of the more important reasons is that it is impossible to take all the functions on the mini program offline later, because not all users may be willing to download this software, so try to keep the functions that can be achieved on the mini program side and the app side consistent. However, there will definitely be differences in the use experience and optimization, such as the fluency of opening web pages, scanning codes, and the fluency of some integrated functions. Because WeChat mini programs rely on the memory usage of WeChat itself, but if it is software development, it will be much better to optimize it. There is also the problem of browser adaptation display just mentioned. For example, if you open a link in the WeChat mini program, you may need to jump many times. If it is in the software, we can integrate this entrance directly into the software. However, in a mini program, the entrance may need to jump to a new link, and then the new link needs to be opened again, which may cause some inconvenience.

Then the app can shorten the operation steps that users need to perform when using it, thereby improving their user experience.

Q: Have you thought about how to promote this app, because now everyone may be more accustomed to using WeChat and Alipay.

A: The simplest way is to put some advertisements on the carousel picture on the homepage of the mini program, telling them that we have launched such an app, which has some quick function entrances. You don't need to open WeChat first, then open the mini program, and then click around. You can use the software to directly open some quick entrances with one click. Because some people's WeChat startup is actually very slow. For example, when WeChat memory occupies hundreds of G, when he opens the mini program at startup, and then scans the code with the mini program, it may not be so convenient, but the software integration is only tens of Mb, and it will be smoother when it is opened or used. The running flow of the mini program is sometimes related to the optimization of WeChat itself, because it also occupies WeChat memory. For example, there is a Tao Piao Piao entrance in Taobao to buy movie tickets, but if you have a Tao Piao Piao software, it may be much more comfortable than the Taobao entrance. If you have a high-frequency demand for buying movie tickets, you may download the software to realize the ticket purchase demand. Similarly, for those who need to use Beijing Tong frequently, such as changing the Beijing entry permit once a week or having a high-frequency use demand for medical insurance registration, it may be troublesome if you need to open WeChat every time and then look for this applet. For this demand, it will be much more convenient to enter through the software entrance. Then if we optimize the performance of the software, it will also be very good for the user experience.

Another is offline promotion, such as promotion on the window, scanning the code to download the app, and handling is faster. It is similar to an offline promotion that goes deep into the grassroots. For example, when you go to apply for the driver's license, everyone knows that you need to download the traffic control 12123 app. Because when you take the test and learn to drive, everyone will tell you to download this app and operate it on it. So when promoting, download the app when necessary, then most users will follow your publicity and guidance.

Q: In the process of determining service items and designing service content, how will you, as the government, negotiate with third-party platforms?

A: From the perspective of technical development, more than 90% of the content of the development of this mini program is actually designed and developed by ourselves, because the mini program is more like a functional entrance built on WeChat, and WeChat

itself does not have particularly strict control over the mini program. However, if you want to use some of WeChat's own functions such as payment and identity authentication, which are relatively basic and have a greater relationship with personal privacy, then you need to coordinate with the platform at this time. For example, if you want to use WeChat to do face recognition, WeChat needs to obtain your face information, and you need to authorize WeChat to obtain citizens' personal information in the national database through this entrance. This requires some communication with WeChat. But generally speaking, as a government, the difficulty of coordination in this regard is very low. You only need to tell WeChat that there is a need to obtain this entrance. In this case, it is actually more like we authorize WeChat, and Tencent has obtained this right, so it can obtain its own data in the national information database through users using WeChat. It can also be understood as the government purchasing a service from WeChat. WeChat is like renting a house, and as for what to sell in the room, we decide it ourselves.

Q: So when using these services that involve privacy and sensitive information, will the government have some special requirements for third-party platforms?

A: For example, the unified login authentication for facial recognition calls the camera interface of the WeChat applet and transmits this data to the national ID card data information database, which is the public security database. In this process, WeChat is only a transmitter, it is neither a sender nor a receiver, so the WeChat interface is to ensure privacy and security. In this regard, the government obviously has the right to speak, and WeChat itself must also comply with protecting user data privacy. This interface must be an interface that calls the national database. WeChat only does front-end display. The user's face data is compared with the face in the database. WeChat actually cannot access this data. This data is directly received from the public security information's own data interface.

Q: Just now you mentioned that the government will have relatively high requirements for privacy and security. So will you conduct some assessments and inspections in this regard in practice?

A: Yes. This was actually clearly stated in the agreement signed with WeChat at the beginning. For example, when you use facial recognition and authorize your identity information, you actually have an agreement with Tencent. When registering for mini programs, such as "Jingtong", you must pass real-name authentication, and the data of this real-name authentication is also stored in the national public security database. So when you check your medical insurance payment and social security payment information on "Jingtong", you must first log in and pass the real-name authentication. As a citizen, you have confirmed your identity when you log in to this system. This

identity is directly exchanged and compared with the public security information database. Then ordinary citizens should have enough trust in this mini program. Because it is displayed as an official program and entrance. In addition, the information you query on it belongs to the internal organization of the government, and WeChat itself is not involved. I will not worry about whether Alipay will obtain my social security information and leak it out. This will not happen. They just display it and have no contact with it. They provide the functions of the basic platform architecture. It is similar to buying a piece of land to build a house on it. The safe in the house is definitely not authorized by the property or developer. Only you have the key.

Q: I would like to ask about the technical development process of the "Jingtong" applet?

A: We outsourced it to a third-party Internet technology company (except Tencent and Alibaba) to develop and write code, because this program requires a large team of dozens or hundreds of people, and government staff do not have the energy and may not have such strong technical strength to implement such a program. So it is necessary to hand it over to a professional development team to do this. Of course, when working with this team, a very strict confidentiality agreement must be signed. They cannot touch the data in these databases. They only develop functional codes, such as some functional logic when clicking buttons, and how to design functional entrances. Finally, we are responsible for the docking of WeChat and Alipay, but there are relatively few matters involved in docking, such as applying for the registration of the applet as a legal person. The third-party technical development team only uses the functions of the applet and solves customer service. The customer service that citizens find when they encounter problems when using it is actually responsible for these technical support teams. The government endorses the officiality and security of this applet. We come up with design ideas, etc., and the third-party development team is mainly responsible for code implementation. For example, if we want to design a jump logic, what functions are involved, what entrances are there, the technical team is responsible for translating these into code, and then developing it, which is equivalent to us being Party A.

Q: Will government staff use third-party platforms to communicate in their daily work? Will they communicate directly with citizens on third-party platforms?

A: Due to confidentiality requirements, provinces and cities across the country tend to use their own collaborative office platforms to transmit messages and work files, because WeChat and Feishu, as commercial platforms, are not very compliant in terms of confidentiality requirements for transmitting work messages. At present, unless the grassroots level needs to comply with the wishes of the citizens themselves, when the

scene needs to communicate directly with them, then WeChat will indeed be used to communicate.

Q: At present, the national policy level is more supportive of the public service model of third-party platforms as a whole, or will it gradually decrease in the future?

A: In the past two years, various places have been launching some official government apps, and there is indeed a trend of gradually turning to official government apps, such as official websites and official apps. Of course, not everyone has a computer for the official website, so Beijing's current tendency is to vigorously promote the app end of Jingtong. This is because the mini program is not representative and authoritative enough as an official one; in addition, there are many restrictions on the performance optimization of the third-party platform itself when using the mini program. But in general, it will not be required to delete the channels on WeChat and Alipay, but to keep the services of various official and third-party channels unified and consistent.

Q: I hope to describe the impact of the performance of the third-party platform on the mini program in detail. Will you take the initiative to ask WeChat and Alipay for support or improvement in performance functions during the development process?

A: This situation seems to have not been encountered yet. The development of mini programs is actually a relatively passive process. WeChat and Alipay will provide some inherent functional modules, such as login function and jump entry function. These are equivalent to a framework. If you want to modify this module, it involves the optimization of the underlying logic of the To B side by the WeChat official team, but they want to optimize it. If they don't want to optimize, it may be difficult to let them add the mini program function through feedback. Because the To B side is a function for developers, it is not so fast to iterate, and it tends to be more stable. Unlike the functions for the general public, it will be iterated, optimized and upgraded very quickly. If we make the app ourselves, then we can easily make some adjustments in terms of performance and functional modules.

Q: Regarding citizen participation, when designing these digital public services, what ways do citizens have to participate in trying out or making suggestions?

A: One is through feedback on the 12345 work order. In addition, during the development and maintenance process, we will also collect citizen feedback and new features that we hope to launch on a regular basis every month through offline surveys and the customer service portal in the mini program. Some government units may also make new requests to us and propose to integrate their service portals into this Jingtong mini program, such

as social security payment, medical insurance payment, and park guide services. We will review the requirements of citizens and the requirements of different cooperative units. If we think this requirement is reasonable, we will join the development plan of the next version. This is one of the main sources of our version updates. We conduct internal negotiations between government units. They will give us the interface of the data function. After we obtain it, we will tell the technical team about it, and they will be responsible for writing a code to implement the interface integration. There may even be a three-party cooperation in this process, such as the public security department, us, and the technical team directly migrating the entire handling system of the public security bureau. Of course, sometimes we will encounter some unreasonable, too special, and lack of commonality requirements. Then we will evaluate the rationality of this requirement and determine whether to add the development of functions.

Q: I want to know the differences between different cities in digital public services. For example, business logic, design ideas, and the degree of government attention.

A: Unified digital public services have actually only been launched in the past five years or even in the past three years. The ones that impressed me the most are Suishenban, Jingjinban, Yueshengshi, and Zhejiangliban. However, there are not many provinces with relatively complete services, probably only about five. In most cases, they are still relatively scattered. For example, medical insurance needs to be on Alipay, and the application for certificates is on the system of the Public Security Bureau. However, most provincial governments have basically listed unified digital public services in the work plan for the next few years in the past few years, called the "Digital Government Construction Plan". This plan will specify the development plan of the app for government services on the citizen side. In this plan, most provinces say basically the same thing. They all say that by integrating the services commonly used by citizens in an app, citizens can do things online and run less offline errands. What can be concentrated online will be concentrated online. From the policy level, it should be similar. However, there may still be some differences in the actual completion degree. Beijing, Shanghai, Zhejiang, and Guangdong have done better and can achieve the feeling of "one-stop service".

Q: In your opinion, what factors will affect the progress of different provinces in building unified digital public services?

A: First of all, it has something to do with the time when their responsible units were established. For example, the big data bureaus of some provinces and cities were established in the past two years, and gradually transferred the construction tasks of digital government from the Industrial Information Bureau or the Economic Information

Bureau to the big data bureaus of various places. There was no special department to do this before. Some provinces in the backward areas of the central and western regions are relatively slow in the construction process. One reason is that they are slow to set up personnel in charge of the department, and the professionalism of the personnel may not be enough. For example, the Zhejiang government can cooperate with Alibaba and contact a relatively strong technical team, and the implementation process will be very fast. However, there is no local team in the central and western regions that can provide technical cooperation and design and development, so their development progress will obviously be slowed down. Because they must communicate with the design team online in different places about the development details and requirements. Therefore, it is generally easier to communicate with local technical teams when providing technical support. It also depends on the amount of money that the local government can invest in this area.

Q: In your opinion, what are the biggest advantages and disadvantages of the model of third-party platforms providing public services?

A: The biggest advantage may be that third-party platforms are more acceptable to the public in terms of frequency and convenience at the beginning, because the popularity of WeChat and Alipay is very high. Relying on these two highly popular public platforms to promote government public services, the initial promotion difficulty is very small. If you develop a software from the beginning and let citizens download it, they may not be willing to do so. But if you can enter through a software you use daily, the entry difficulty is very low. Because some people are unwilling to download software, or some people don't know how to download, and some low-end mobile phones may not be easy to download, so this is a more important advantage.

The disadvantage is also a limitation on the third-party platform, that is, it is difficult for us to make some major upgrades on the third-party platform. Some functions with high performance requirements, or the role of the government in it needs to be further promoted in the future. Users may only feel its convenience, but they will not pay attention to the identity of the launcher. Citizens are just users in this process, not citizens, and lose their public identity. They may be digitized in this process and become cold user data. For example, Zhejiang Liban is very convenient to use, and citizens may naturally think that this is an advantage brought by WeChat itself. In comparison, the software built by the government is obviously designed and developed by the government for your use, so the officiality and credibility are improved. Mini programs may weaken the role of the government in it. When the government app is easy to use, it will also significantly improve the satisfaction of citizens with the government. However, it is still difficult to

launch a more user-friendly app. If the mini program is difficult to use, he may doubt whether it is my WeChat problem, but if it is an app, the government can only take responsibility for it. There are also certain challenges in technical implementation. You must have a certain technical background to make this app well and run smoothly, including hardware and software facilities, computer rooms, and cloud storage resources, which are all things that the government must have.

**G3**

Q: Where do you work in which government department?

A: I am currently working in the Shaanxi Provincial Department of Human Resources and Social Security, mainly responsible for the digitalization of government services and public platform management.

Q: What public services are provided on WeChat and Alipay in your work? What role does the government play in these services?

A: The public services we provide through third-party platforms mainly include:

File transfer and inquiry: The inter-provincial/intra-provincial transfer service of personnel files of mobile personnel can be handled through the National Human Resources and Social Security Government Service Platform or the "Qinwuyuan" APP;

Professional title certificate management: The electronic certificate query and printing are realized through the "Shaanxi Professional and Technical Personnel Professional Title Qualification Certificate Management System";

Social security and employment services: High-frequency services such as social security card application, unemployment benefit application, and medical insurance electronic certificate are connected to WeChat applet and Alipay port;

Government service navigation: Through the "Human Resources and Social Security Map" function of the "Qinwuyuan" APP, service outlets are located, matters guide and navigation services are provided.

The role of the government is first of all the role of service designer. We will lead the service content planning and process optimization, such as formulating file transfer standards. Secondly, as a government, we will also act as a data regulator to ensure the security of personal information, such as integrating the electronic certificate database through the social security card "One Card" platform. We will collaborate with the

platform and work with third parties to develop interfaces, such as opening up identity authentication and payment channels with Alipay and WeChat.

Q: What are the advantages and disadvantages of third-party platform public services compared to offline and government platforms?

A: In terms of advantages, the first is convenience. Citizens can handle business anytime and anywhere by scanning codes and mini programs, reducing running errands (such as online file transfer); secondly, user stickiness is high. Relying on the high penetration rate of WeChat and Alipay (WeChat has more than 1 billion monthly active users), it covers more groups, especially middle-aged and elderly users. There is also functional integration. Our services can integrate social, payment, navigation and other functions, such as the "Human Resources and Social Security Map" combined with navigation and matter query.

In terms of disadvantages, one is privacy risk. The platform is deeply bound to social functions, and the risk of personal information leakage is high (for example, WeChat payment relies on social accounts. If social accounts are stolen, personal information may be at risk). In addition, services are fragmented, and some functions need to jump to multiple platforms, such as social security card services scattered in different mini-programs. There are also challenges in supervision, such as the complexity of the ownership of data management rights on third-party platforms, and the government needs to strengthen compliance review (such as regular security testing).

Q: Do you use third-party platforms to communicate with citizens in your daily work?

A: Yes. There are mainly several ways. One is policy release, pushing policy interpretations through the "Shaanxi Human Resources and Social Security" WeChat official account, such as civil servant recruitment announcements. In addition, set up intelligent customer service on the "Qinwuyuan" APP and WeChat to handle citizen inquiries. During the epidemic, we will also release instant information such as social security deferral and online service guides through WeChat groups.

Q: How does the government negotiate service design and project determination with third-party platforms?

A: In the early stage, it is mainly demand docking, and the government leads the function design. For example, if Alipay is required to access the "electronic retirement certificate" data interface, then the technical staff of WeChat Alipay will cooperate in the entrance design, including data interoperability through API docking, such as identity verification between the social security system and WeChat payment. We will also conduct

compliance reviews, such as requiring the platform to comply with the "Internet Government Affairs Application Security Management Regulations", such as data storage must be within the country.

Q: Privacy and security requirements and supervision measures for third-party platforms?

A: Our core requirement is data classification protection, focusing on the control of sensitive information such as social security and archives. Of course, in general, these data are stored in the government database and cannot be accessed by third-party platforms. Then, for the data in the government database, the national secret algorithm will be used for encryption, such as the financial-level security standard of the social security card "One Card".

In order to ensure privacy and security, we will conduct annual security testing, such as entrusting a third-party agency to conduct penetration testing on the platform; we will also conduct dynamic monitoring at ordinary times, such as real-time monitoring of abnormal data access through the government cloud.

Q: What is the overall policy orientation for public services on third-party platforms?

A: In recent years, policies have shown the characteristics of "encouraging innovation and standardization: in recent years, the country has been promoting "Internet + government services", such as the State Council's requirement that more than 50% of matters be handled through "one network"; but at the same time, many regulatory measures have also been introduced, such as the "Internet Government Application Security Management Regulations", to strengthen risk control such as cross-border data and algorithm discrimination. Shaanxi Province has also incorporated third-party platforms into the unified regulatory framework of digital government through the construction of "Smart Human Resources and Social Security".

Q: How is the citizen evaluation and participation mechanism implemented?

A: We collect service feedback from third-party platforms through the "Good and Bad Reviews" system, which directly affects department performance; in the service design process, we will conduct online surveys (such as the "Duoduoping" platform) and optimize the interface for the elderly; for major policies (such as social security adjustments), we will also solicit opinions through the WeChat public account. In 2024, we received a total of 12,000 suggestions.

**C1**

Q: Your age (approximate range is fine), education, occupation, and the city you have mainly lived in for the past three years

A: Age 26, Master's degree student, currently still a student. Mainly live in Shanghai and Dongguan, Guangdong Province.

Q: How many times a week do you use WeChat and Alipay?

A: I use WeChat and Alipay every day

Q: Have you used public services on WeChat or Alipay (including various public services provided by the government, institutions, and state-owned enterprises)?

A: Yes

Q: What was your most recent or most impressive experience? (Please clearly state the service items, service channels, service results, satisfaction and reasons)

A: The most recent time I used government services was through the official government applet on the WeChat platform, participating in a lottery for a voucher provided by the government to promote consumption. The process of participating is very convenient, and I can get the prize in the end, and it is also very smooth to use afterwards. The lottery page also states that the voucher is used for specific available geographic and store ranges

Q When you have both WeChat/Alipay and government platform apps (such as the Suishenban app) on your phone, which one would you choose first? Will the choice be different in different scenarios? Explain the reasons as much as possible.

A: Under the same circumstances, it may be preferred to consider using the official government mini-programs on WeChat or Alipay, because if it involves authorization, the government's third-party APP may not necessarily be able to provide all service types well, and it will require additional authorization, otherwise it cannot be used directly. For example, Alipay can directly use the corresponding program, and it is more convenient overall, especially for payment-related services.

Q: Can you give some specific examples of the authorization behavior here? In addition to payment

A: Authorization behavior is simple identity recognition. The final login method for many government platform services actually still needs to be verified by Alipay, because it only has this channel for identity authentication. In situations like this, more operations are required, which will feel very troublesome and cumbersome.

Q: When you have problems using public services on WeChat or Alipay mini-programs, do you intuitively think it is a problem with the third-party platform or the government?

A: I think both sides have problems. On the one hand, it may be that the government did not develop this service well and did not consider how to deliver it on different platforms. On the other hand, the platform itself may also make corresponding adjustments in terms of compatibility, resulting in some problems with the service.

Q: In which year do you remember that you started using public services on third-party platforms? Have these services changed so far? Do you think they are getting better or worse?

A: I have been using relevant government online services frequently since 2019-2020. Overall, I feel that the quality of the service is actually getting better, and there are also some corresponding adjustments in terms of streamlining.

Q: Can you give some examples of "streamlining" here? And you seem to assume that "streamlining" is a better performance of service quality, right? From your experience, why is "streamlining" better?

A: For example, in the past, ABC services may require ABC three different mini-programs or apps at the same time, but now they can be put into a mini-program or app, and the corresponding entrances can be found. It reduces the burden on your mobile phone, and you don't need to remember his operating procedures. It also avoids duplication, so there is no need to perform the same operation at many entrances at the same time. As long as you enter the same program, service A goes to entrance A, and service B goes to entrance B.

Q: I would like to ask, if all services are now unified in a small program (such as Suishenban and Yueshengshi), will you feel that the content is too complicated and it is difficult to find the services you need immediately?

A: In fact, whether it is in a small program or a third-party platform, if all services are assumed to be in the same place. In fact, you can also use the search function to find it, of course, the premise is that I know what kind of service I need. If I don't know what service I want or what problem I want to solve, then I don't think "streamlining" will help much.

Q: If you have lived in different cities, do you feel the difference between digital public services in different cities? If there is a difference, is the third-party platform expanding or narrowing this difference?

A: I can only feel that in different cities, the government's investment and attention to some welfare policies and public welfare may not be exactly the same, but in terms of the overall quality of public services. Since the overall service quality of the city where I live is relatively good, I have not felt a very intuitive gap or other differences, and it is difficult for third-party platforms to assert what role they have played in it. Because the government itself also attaches great importance to or promotes the development of small programs on related platforms. If in this case, third-party platforms may help this digital public service to play a better role.

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation of public services (rather than just being passive "users"? If necessary, are you personally willing to take the initiative to participate?

A: I think that if necessary, citizens can at least have channels to make suggestions and feedback on how the government can improve and enhance the quality of public services on third-party platforms. At present, at least in the place where I live, such channels at least exist. But in other places, I am not sure whether there are relevant channels.

Q: Can you explain what the "channels for suggestion feedback" are?

A: The channels for regular suggestion feedback are basically APP or mini-programs, and public accounts have the function of providing service suggestions. But this is just an entry for feedback suggestions. As for whether the suggestions themselves can be heard or even adopted, I have no idea.

Q What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: The advantages are mainly convenience and integration. Since the third-party platform integrates a lot of different small programs, there is no need to download multiple duplicate apps, and some cumbersome payment verification procedures can be reduced, so you can use related services.

Its disadvantages may also be that it requires professionalism and relevant support from the government. If it lacks relevant support development, or there is no follow-up development, then the convenience of use may be greatly reduced.

**C2**

Q: Your age (approximate range is fine), education, occupation, and the city you have lived in for the past three years

A: 25 years old, master's degree, Internet industry, Beijing/Los Angeles

Q: How many times a week do you use WeChat and Alipay?

A: The frequency of use is very high, probably at least 10 times per day for each app, and it is not easy to estimate the weekly frequency

Q: Have you used public services on WeChat or Alipay (including various public services provided by the government, institutions, and state-owned enterprises)?

A: Yes

Q: What was your most recent or most memorable experience? (Please clearly state the service items, service channels, service results, satisfaction and reasons)

A: Service items + channels: Alipay-Jingtong mini program to handle registration and cancellation services

Service results: Basically, relatively well-known hospitals can be searched according to the department, and registration and cancellation are handled smoothly according to regulations

Satisfied and reasons: Satisfied

Reason 1: If I am not familiar with which departments of major hospitals in Beijing are more reliable, I can use the mini program to understand the ranking of each department and make a decision on which hospital to go to for treatment

Reason 2: The registration and cancellation process is simple and has no card points

Reason 3: Although it is troublesome to grab a number in advance, it is still much easier than queuing on site.

Q: When you have WeChat, Alipay and government platform apps (such as Suishenban app) on your mobile phone at the same time, which one will you choose first? Will the choice be different in different scenarios? Explain the reason as much as possible.

A: First of all, I don't choose government apps such as Suishenban or Jingtong because the UI design is extremely poor and basically does not support fuzzy search matching of

embedded functions. If you don't know clearly which module you want to use, it is difficult to find the entrance directly on the government app.

WeChat and Alipay are used randomly, and Alipay may be used more because Alipay has transaction attributes and WeChat has social attributes.

Q: When you have problems using public services on WeChat or Alipay mini-programs, do you intuitively think it is a problem with the third-party platform or the government?

A: It is a government problem. The third party does not provide technical (functional) support and capability (public service) support, but only provides an external jump interface

Q: In which year do you remember starting to use public services on third-party platforms? Have these services changed so far? Do you think they are getting better or worse?

A: Public services were used during the epidemic; at least now there is no need for itinerary codes; in general, more public services have begun to support online/third-party platform processing, but the overall performance is generally inferior to the network information services of private enterprises.

Q: If you have lived in different cities, have you felt the differences in digital public services between different cities? If there are differences, are third-party platforms expanding or narrowing these differences?

A: In the two years I have lived in Los Angeles, I have basically not experienced digital public services: water, electricity and gas require telephone + offline processing; other services require web-based processing + telephone confirmation, and there is no public affairs app. Domestic public services are far ahead in the online practice of mobile phones.

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation of public services (rather than just being a passive "user")? If necessary, are you willing to take the initiative to participate?

A: In terms of user experience, third-party platforms should not have considered user ideas and experiences at all; citizens need to participate in the design of public services, but most citizens do not have this ability, and there are no hospitals that take the initiative to participate; it is recommended that third-party platforms use more Internet UI design and research and development teams to make some products that meet the current market average level

Q: What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: Advantages: Convenience: Most affairs can be handled by submitting documents on mobile phones

Integrated: Affairs that were originally managed by multiple departments according to the organizational structure can be handled uniformly on the same platform

Disadvantages:

The platform is not user-friendly enough

Lack of a dedicated customer service team to handle cases/problems in use

**C3**

Q: Your age (approximate range is fine), education, occupation, and the city you have lived in for the past three years

A: 25 Master's degree student Shanghai Xining

Q: How many times a week do you use WeChat and Alipay?

A: Every day

Q: Have you used public services on WeChat or Alipay (including various public services provided by the government, institutions, and state-owned enterprises)?

A: Have you used the hospital registration

Q: What is your most recent or most impressive experience? (Please clearly state the service items, service channels, service results, satisfaction and reasons)

A: Register before going to the hospital Search the hospital's official account or mini program on WeChat Find the process that should be registered

Not very satisfied, each hospital always has different server problems, such as returning to the homepage after one exit, or users cannot register, etc. You need to call the hospital customer service to solve it, or go to offline registration

Q: When you have WeChat/Alipay and government platform apps (such as Suishenban app) on your phone at the same time, which one will you choose first? Will the choice be different in different scenarios? Explain the reason as much as possible.

A: WeChat scan/app is preferred because it is convenient. If you don't need the government platform app, you won't download one separately. Generally, you use what you need in the scene. For example, everyone used Suishenban because it was used as a nucleic acid certificate during the epidemic. After the epidemic, I never used Suishenban again; I personally use WeChat most often, but in the hospital, when you need an electronic medical insurance card, you usually need to use Alipay

Q: When you have problems using public services on WeChat or Alipay app, do you intuitively think it is a problem with the third-party platform or the government?

A: Problems with third-party platforms. Did this unit design it carefully?

Q: In which year do you remember that you started using public services on third-party platforms? Have these services changed so far? Do you think they are getting better or worse?

A: After the epidemic started. Let's not talk about the epidemic-related ones. I generally think that hospital applets are not very advanced. Everyone must have basic services, but there is no unified standard for each company, and the ease of operation is also different. However, the "Credit Qinghai" developed by Qinghai during the epidemic has not developed new functions after the epidemic, so it is useless. There is no impression of a relatively unified public service platform across platforms, so it is hard to say whether it is getting better or worse, but it should be getting better.

Q: If you have lived in different cities, have you felt the difference in digital public services between different cities? If there is a difference, are third-party platforms expanding or narrowing this difference?

A: The difference is that the public service platforms in big cities such as Beijing, Shanghai and Guangzhou may be more refined, while Qinghai is rougher. I think the difference may be expanding, because it feels that the platforms in Beijing and Shanghai may be increasingly improved, because users will have feedback, and the design will be improved; but Qinghai's will basically not change after maintaining basic operations, and may be standing still. Qinghai's public services are scattered in various public accounts. Although online services can be basically realized, it is very inconvenient.

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation process of public services (rather than just being a passive "user")? If necessary, are you personally willing to take the initiative to participate?

A: Not fully respected and satisfied. It is very necessary to participate in the design and evaluation process of public services. For example, last year I helped my mother register at West China Hospital, but her identity information could not be registered at all. I searched on Xiaohongshu and found that this problem is a common problem. Many people have encountered it. Everyone has to communicate on Xiaohongshu to find a solution (you have to call a certain number and submit a photo of your ID card, etc.). It is conceivable that if it is an elderly person or someone who does not often use Xiaohongshu, it is very likely that they do not know this solution, and ordinary people cannot register, let alone feedback. I am willing to take the initiative to participate

Q: What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: Advantages: convenient and fast. For example, you used to have to queue for a long time offline, but now you can make an appointment online in advance, which saves a lot of time and energy, and is more certain

Disadvantages: inconvenient operation, especially for the elderly, who are not good at operation. In the case of incomplete explanations, they are likely to be stuck with problems and unable to advance the tasks that need to be completed.

**C4**

Q: Your age (approximate range is fine), education, occupation, and the city you have mainly lived in for the past three years

A: 50-60 Master's degree student Civil servant Xining

Q: How many times a week do you use WeChat and Alipay?

A: Every day

Q: Have you used public services on WeChat or Alipay (including various public services provided by the government, institutions, and state-owned enterprises)?

A: WeChat payment for water, electricity, and gas, hospital registration

Q: What is your most recent or most impressive experience? (Please clearly state the service items, service channels, service results, satisfaction, and reasons)

A: WeChat payment for water, electricity, and gas Satisfied Convenient

Q: When you have WeChat/Alipay and government platform apps (such as Suishenban app) on your phone at the same time, which one will you choose first? Will the choice be different in different scenarios? Explain the reason as much as possible.

A: WeChat, occasionally use Alipay. Learning apps include: Power of Faith/Legal Propaganda Online/Study Strong Country

Q: When you have problems using public services on WeChat or Alipay mini-programs, do you intuitively think it is a problem with the third-party platform or the government?

A: Third-party platform

Q: In which year do you remember starting to use public services on third-party platforms? Have these services changed since then? Do you think they are getting better or worse?

A: Around 2018, the content is richer and getting better

Q: If you have lived in different cities, have you felt the differences in digital public services between cities? If there are differences, are third-party platforms expanding or narrowing these differences?

A: When I arrived in Beijing, I felt that it was more convenient; it is more convenient to see a doctor and register in hospitals in various cities, and the differences are narrowing

Q: I want to know whether Qinghai Province, as a minority Tibetan-inhabited area, provides Tibetan language options for your digital public services?

A: There must be Tibetan/Mongolian in pastoral areas, but I haven't used them, so I can't give an example, so I really don't know if there are any. For example, the registration service systems of several large hospitals in Xining, the provincial capital, are all in Chinese. I can only say that there will definitely not be many options for minority languages.

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation of public services (rather than just being a passive "user")? If necessary, are you willing to take the initiative to participate?

A: Respected and satisfied; necessary to participate; personally unwilling to participate

Q: What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: Advantages: Convenient, no need to leave home, full information

Disadvantages: Now there is no need to go to the window to handle it, and there is less communication between people

**C5**

Q: Your age (approximate range is fine), education, occupation, and the city you have lived in for the past three years

A: 24 years old, master's degree, student, Beijing, Shandong

Q: How many times a week do you use WeChat and Alipay?

A: Every day

Q: Have you used public services on WeChat or Alipay (including various public services provided by the government, institutions, and state-owned enterprises)?

A: Yes

Q: What was your most recent or most impressive experience? (Please clearly state the service items, service channels, service results, satisfaction and reasons)

A: The most recent time was to use the Traffic Management 12123 WeChat applet to check personal motor vehicle driver's license information. It was easy to use, but there were multiple cases of facial recognition authentication failure during the account login process, but the authentication was finally successful. Overall, the user experience is satisfactory because online information query greatly facilitates daily use.

Another time, I used the Immigration Bureau's 12367 to download the entry and exit record certificate. I used the WeChat applet. The service result was that I got the required certificate (which could be downloaded immediately). I was satisfied because it was smooth and convenient to use.

Q: When you have both WeChat/Alipay and the government platform app (such as the Suishenban app) on your phone, which one would you choose first? Will the choice be different in different scenarios? Please explain the reason as much as possible.

A: The choice will be different in different scenarios. If I am handling routine government service matters, I will choose the WeChat applet and will not download the government platform app specifically, because these routine matters can be handled in the applet. Downloading the app will take up mobile phone storage space, and there are generally

few business handling needs. Even if the app is downloaded, the number of uses is limited and it will still take up mobile phone content, so there is no need to download it. The reason for using the WeChat applet instead of the Alipay applet is that I use WeChat more frequently than Alipay. But when handling specific matters, such as personal tax refunds, I will download a dedicated app, such as the personal income tax app. Tax refund matters are generally handled once a year at a specific time. I don't know if there are other more convenient forms of operation besides the app, so I will download the app to handle it.

Q: When you have problems using public services on WeChat or Alipay mini-programs, do you think it is a problem with the third-party platform or the government?

A: I think it is a problem with the development team. Because the mini-program itself has a complete business model and operating code, the third-party platform also has sufficient technical and operational strength to prevent and fix errors in the first time, but the development team of the mini-program may have errors due to code or operation. (I don't say here that it is a problem of the "government" because, taking Beijing as an example, the Beijing Office mini-program/app (government office platform) is under the management of the Beijing Big Data Center, but the Beijing Big Data Center belongs to Party A, and the specific code is outsourced to JD.com)

Q: In which year do you remember starting to use public services on third-party platforms? Have these services changed since then? Do you think they are getting better or worse?

A: Before 2018, my parents paid water and electricity bills on Alipay, and I started using it around 2018. I think there are changes, that is, the scope of coverage is wider and more, and it is getting better.

Q: If you have lived in different cities, do you feel the difference between digital public services in different cities? If there is a difference, are third-party platforms expanding or narrowing this difference?

A: I think there is a difference. For example, Shanghai is better than Beijing, but it is difficult to say which is better, Beijing or Shandong. Beijing: Jingtong Mini Program The page menu is more concise, the search box is more obvious, and it is at the top of the page, and voice input can be used; the button under the menu has a special business option; there is an obvious English version mark

Shandong: AiShandong Mini Program The page classification is more, the readability is strong, there is no special enterprise page, but there is a special government interaction page (Beijing also has it, but it needs to be searched, not a direct separate page; another: Beijing's government interaction has a government service hotline for immediate

handling of complaints); the search box is not so conspicuous, it is on the home page; there is no obvious English version mark

I think the use of third-party platforms is more convenient. If practical and easy-to-use third-party platforms can be developed, and people can know and understand that public services can be provided on these platforms, this difference can be narrowed.

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation process of public services (rather than just being passive "users")? If necessary, are you personally willing to take the initiative to participate?

A: I can meet the requirements, but I have not used all the functions.

It is necessary to participate, and I am willing to participate actively.

Q: What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: Biggest advantage: convenient and fast

Biggest disadvantage: The elderly may face difficulties, are not proficient in using, and their opinions may be excluded (I didn't think much about the disadvantages of "digital public services provided by third-party platforms")

**C6**

Q: Your age (approximate range), education, occupation, and the city you have lived in for the past three years

A: 26, master's degree, civil servant, Shanghai

Q: How many times a week do you use WeChat and Alipay?

A: 7-20 times (1-3 times a day)

Q: Have you used public services (including various public services provided by the government, institutions, and state-owned enterprises) on WeChat or Alipay?

A: Yes

Q: What was your most recent or most impressive experience? (Please clearly state the service items, service channels, service results, satisfaction and reasons)

A: The most recent one was paying for water, electricity, and gas; through Alipay; successfully paid; satisfied, because it is very convenient and can solve problems online without leaving home.

Q: When you have both WeChat/Alipay and government platform apps (such as Suishenban app) on your phone, which one would you choose first? Will the choice be different in different scenarios? Explain the reasons as much as possible.

A: Alipay: 1. Use electronic medical insurance cards when going to the hospital, bind and use family members' electronic medical insurance cards, medical insurance mutual aid, pay water, electricity and gas bills, and occasionally use travel QR codes, because the public services on Alipay are relatively good and very convenient, and the units in the corresponding scenarios are also recommending it (mainly because hospitals are pushing electronic medical insurance cards more vigorously, and it is indeed very convenient, without the trouble of carrying physical cards).

Suishenban: Check the amount of paid five insurances and one housing fund, check public rental housing and guaranteed rental housing, because only Suishenban can check it, and at the same time, the rental of public rental housing and guaranteed rental housing must be applied for on Suishenban.

Personal income tax APP: Check the amount of personal income tax paid (annual personal income tax settlement), because only the personal income tax APP can check it.

Q: When you have problems using public services on WeChat or Alipay mini-programs, do you intuitively think it is a problem with the third-party platform or the government?

A: It is generally believed to be a problem with the third-party platform. It feels that the probability of problems with system use is relatively high, rather than problems with the service.

Q: In which year do you remember that you started using public services on third-party platforms? Have these services changed since then? Do you think it is getting better or worse?

A: I remember that after 2020, I could start using Alipay to open my electronic medical insurance card. Now the number has been continuously optimized, and I can bind my relatives' and friends' medical insurance cards to register on my behalf.

Q: If you have lived in different cities, have you felt the difference between digital public services in different cities? If there is a difference, are third-party platforms expanding or narrowing this difference?

A: I have no experience of living in other cities.

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation of public services (rather than just being a passive "user")? If necessary, are you personally willing to take the initiative to participate?

A: I don't have too many ideas, so I feel that the experience is okay.

It is necessary to participate, after all, residents are the final users, and many problems in the use process are beyond the imagination of designers.

I don't really want to take the initiative to participate, because I rarely use public services at present.

Q: What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: Compared with the Suishenban APP, the advantages of third-party platforms are that they are well-known and widely used and accepted by citizens. Second, the information technology of third-party platforms is better, the system is more complete, and there are less strange system bugs (referring to the type of medical insurance that can be used by directly developing platforms on Alipay, rather than jumping from WeChat to Suishenban). Third, it can save mobile phone space.

Disadvantages: First, third-party platforms directly provide public services (medical insurance can be used by directly developing platforms on Alipay), and residents cannot communicate directly with government officials. There is an extra link in the middle of using third-party platforms, and many feedback information is difficult to convey to the government. Second, many functions are only available in Suishenban/Individual Tax APP.

**C7**

Q: Your age (approximate range is fine), education, occupation, and the city you have lived in for the past three years

A: 25 years old, master's degree, consultant, Shanghai & Shenzhen & London

Q: How many times a week do you use WeChat and Alipay?

A: WeChat 30+ times a week, Alipay 5+ times a week

Q: Have you used public services on WeChat or Alipay (including various public services provided by the government, institutions, and state-owned enterprises)?

A: Yes

Q: What was your most recent or most memorable experience? (Please clearly state the service items, service channels, service results, satisfaction and reasons)

A: Shanghai: Entry and exit documents processing, reissue of passport, special entry and exit documents processing applet on Alipay, successful online passport processing in 5 working days, satisfied (very convenient, mailed to home saves time for offline queuing, and efficient)

Shenzhen: Peking University Shenzhen Hospital registration, Peking University Shenzhen Hospital applet, successful registration, satisfied (doctor's visit information is very clear, registration is convenient)

Q: When you have WeChat, Alipay and government platform apps (such as Suishenban app) on your mobile phone at the same time, which one will you choose first? Will the choice be different in different scenarios? Please explain the reason as much as possible.

A: Only use a single function (such as only handling payment or processing documents, etc.): WeChat/Alipay is preferred, because there is no need to install additional apps separately, WeChat applet and Alipay have a smooth and well-developed user experience, and are more convenient for high-frequency use apps. Use integrated functions (can handle different services at the same time): Prioritize government platform APP, no need to find service entrances scattered, can be handled in one stop; for example, iShenzhen APP concentrates on social security, provident fund, cultural and sports venues reservation, housing business, registration and other services, which is very convenient to use

Q: How did you know the existence of iShenzhen app?

A: At that time, I wanted to make an appointment for the badminton court, and the front desk of the venue recommended it to me, and my friends recommended it

Q: When you have problems using public services on WeChat or Alipay mini-programs, do you intuitively think it is a problem with the third-party platform or the government?

A: Government problem, because WeChat mini-programs and Alipay themselves are well developed, it should be the design of the government service platform that needs to be improved

Q: In which year do you remember that you started using public services on third-party platforms? Have these services changed so far? Do you think they are getting better or worse?

A: Since the outbreak of the epidemic in 2020, with the popularization of Suishenban, the frequency of use of public services has increased significantly. In recent years, it has been improving, the functions are increasing, and the handling process is being simplified

Q: If you have lived in different cities, do you feel the difference between digital public services in different cities? If there is a difference, is the third-party platform expanding or narrowing this difference?

A: The overall level of digital public services in Shenzhen and Shanghai is relatively high. Shenzhen's service efficiency is higher and the integrated service APP is more complete. Shanghai's services are relatively scattered (Shanghai has different services with different entrances, such as entry and exit is a public account, registration is a public account, and provident fund is a public account), and appointment resources seem to be relatively tighter (for example, you want to make an appointment at the window, but all appointments are full recently); third-party platforms should be narrowing the gap and making public services in different cities more standardized

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation process of public services (rather than just as passive "users")? If necessary, are you personally willing to take the initiative to participate?

A: The experience is fully respected and satisfied, and the ideas are relatively limited; it can provide ways for citizens to feedback on their experience and suggestions, and the necessity of participating in the design may be limited. Feedback suggestions are valued and improved accordingly. The design ideas of a small number of citizens cannot generally reflect the needs of the public

Q: What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: Biggest advantage: convenience, high public recognition, easy to promote; Biggest disadvantage: long path to specific services, lack of simple guidance and publicity, which will also bring inconvenience to middle-aged and elderly people in using services. I will first search on Xiaohongshu for how to apply, but if the elderly are not used to it, they may not know how to apply when they open Alipay or do not know that Alipay can be used.

**C8**

Q: Your age (approximate range is fine), education, occupation, and the cities you have lived in for the past three years

A: Age: 25, Master's degree student, Chengdu, Sichuan, Liangshan, Sichuan

Q: How many times a week do you use WeChat and Alipay?

A: Every day

Q: Have you used public services (including various public services provided by the government, institutions, and state-owned enterprises) on WeChat or Alipay?

A: Yes

Q: What was your most recent or most impressive experience? (Please clearly state the service items, service channels, service results, satisfaction and reasons)

A: Use WeChat applet: People's Court Online Service-Sichuan Branch Platform, and apply for two provincial trial filing applications and cross-provincial filing applications respectively. The complaint was automatically generated online, and the local court staff's case filing review response and case closing mediation notice were quickly received. The satisfaction level is high. The parties' materials are submitted online throughout the process, which saves time and cost. Cross-provincial filing is more convenient, but the review speed depends on the local court's ability to handle it.

Q: When you have WeChat, Alipay and government platform apps (such as Suishenban app) on your phone at the same time, which one would you choose first? Will the choice be different in different scenarios? Explain the reasons as much as possible.

A: WeChat and Alipay are preferred, but the mini-programs do not have all the functions in the APP. For example, some special services involve more personal biometric information recognition, such as face recognition, so choose the APP

Q: In fact, WeChat and Alipay can also do face recognition, at least the mini-programs in Beijing, Shanghai and Guangzhou support it. Is it that the mini-programs in Sichuan do not support it yet?

A: It is indeed supported in Sichuan, but I usually use app face recognition more. Generally, when I go to the government hall, people there will recommend downloading their app

Q: When you have problems using public services on WeChat or Alipay mini-programs, do you intuitively think it is a problem with the third-party platform or the government?

A: Both,

Third-party platforms: There are too many platform mini-programs, the naming of provinces is not unified, it is easy to enter the wrong platform, and the jamming problem cannot be optimized

Government: The efficiency of online processing depends on the governance capacity of local governments, some user interfaces are not designed reasonably, and irregular maintenance leads to a decline in experience

Q: In which year do you remember that you started using public services on third-party platforms? Have these services changed so far? Do you think they are getting better or worse?

A: In 2020, there have been great changes. Online public services have a wider range and are more convenient for the people. They are gradually getting better for the younger generation who are familiar with and accustomed to using electronic products, but they are not friendly or even worse for the middle-aged and elderly groups. Online services are not conducive to their access to public services. They need to spend more time and energy to adapt to and study online services.

Q:: If you have lived in different cities, have you felt the differences in digital public services between different cities? If there are differences, are third-party platforms expanding or narrowing these differences?

A: There are differences. The differences in user interface design and service acquisition procedures between cities are magnifying, but third-party platforms have generally narrowed the differences, because national and provincial platforms include online public services in developed and backward areas, allowing residents in underdeveloped areas to receive online services equally.

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation of public services (rather than just being passive "users")? If necessary, are you personally willing to take the initiative to participate?

A: I am respected but the satisfaction is limited, because I received a service evaluation call back, but the relevant platform does not care about my personal opinions. I think it is necessary for citizens to participate in the design and evaluation, but the limitation is that the improvement is limited in openness and transparency. If necessary, I am willing to take the initiative to participate.

Q: What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: Advantages: saving residents' time and money

Disadvantages: poor inclusiveness, middle-aged and elderly groups, and a few vulnerable groups are not or less considered in the platform design.

**C9**

Q: Your age (approximate range), education, occupation, and the city you have mainly lived in in the past three years

A: 29, Master, Beijing

Q: How many times a week do you use WeChat and Alipay?

A: I open WeChat almost every day, but I have deleted Alipay. I only use it when I need it in China, such as Taobao payment

Q: Have you used public services on WeChat or Alipay (including various public services provided by the government, institutions, and state-owned enterprises)?

A: Yes

Q: What is your most recent or most impressive experience? (Please clearly state the service items, service channels, service results, satisfaction and reasons)

A: It should be when I applied for a Beijing residence permit on a government service account on WeChat in 2022. It was quite fast. It took almost three days from submitting the application to getting the electronic residence permit, including submitting materials and review, etc.

Q: When you have WeChat, Alipay and government platform apps (such as Suishenban app) on your phone at the same time, which one will you choose first? Will the choice be different in different scenarios? Explain the reason as much as possible.

A: WeChat. Mainly because it is convenient. I am used to it every day. It is familiar. If authentication is required, it is also very fast and convenient.

Q: When you have problems using public services on WeChat or Alipay mini-programs, do you intuitively think it is a problem with the third-party platform or the government?

A: Both, depending on which link it occurs in

Q: In which year do you think you started using public services on third-party platforms? Have these services changed so far? Do you think they are getting better or worse?

A: I forgot. It seems that it started in 2020 when I started working and paid my own water and electricity bills and checked my provident fund. There is no change in my impression.

Q: If you have lived in different cities, do you feel the difference between digital public services in different cities? If there is a difference, is the third-party platform expanding or narrowing this difference?

A: Currently, I have lived in Tianjin and Beijing for a long time. I can hardly feel any big difference.

Q: In the process of public services on third-party platforms, do you think your ideas and experiences are fully respected and satisfied? Do you think it is necessary for citizens to participate in the design and evaluation process of public services (rather than just being a passive "user")? If necessary, are you personally willing to take the initiative to participate?

A: I don't feel fully satisfied. I can only say that there is room for improvement. But if most of the services used are basic services such as paying water and electricity bills, checking provident fund insurance, and issuing some tax-related certificates, then it is still okay. If necessary, I am willing to take the initiative to participate and give some suggestions.

Q: What do you think is the biggest advantage of public services provided by third-party platforms? What is the biggest disadvantage?

A: Convenience, huge user base, habit, people are more accustomed to using third-party platforms such as WeChat and Alipay every day.

The disadvantage may be in terms of data and privacy protection. There is too much information on one platform. Sometimes there may be freezes during peak usage. If there is a problem with the account or it is stolen, it is more dangerous.

**E1**

Q: Please introduce your experience and research in digital government or digital public services, including which provinces and cities have in-depth knowledge of digital public services

A: I have been doing research on digital governance, mainly including government data sharing and openness, government data governance, and mobile public services. The research involves more than 30 provinces, municipalities and autonomous regions across the country. The research and evaluation scope of government data openness also includes the mini-programs of Alipay and WeChat. The most popular ones used by individuals are Shanghai and Zhejiang's Suishenban and Zhejiangliban.

Q: When did this phenomenon begin? Why did it rise and develop to this day (interests of all parties)? What was the initial view of the government, platform, and citizens on this model? For example, does the government encourage it? Are third-party platforms more active or passive in it, and have they also gained certain benefits?

This involves the definition of concepts. If it is through platforms such as WeChat and Alipay, it actually started in the last four or five years. The initial Weibo government information release service you mentioned actually lacks interactivity and is mainly a one-sided release, which has also been questioned by Western academic circles. In the past few years, there were "online government questions" on Weibo, but at present, they are more "in name only".

A: At first, the government started to provide digital public services from the government portal website, and then from the government's own mobile app. Later, they wanted to increase the user's choice. Considering the influence of third-party platforms such as Alipay and WeChat, they began to pay attention to these two things. So it is not that the government actively wants to use these platforms to provide digital public services. A few years ago, I worked in an Internet company (Baidu). What I observed was that both sides actually had this demand. For example, the third-party platform wanted to use the government to increase its authority, and the government also wanted to use the influence of these platforms. In this process, it is a mutual exchange of resources between the two sides, which can be said to be a mutually beneficial model. In this process, the platform

is mainly driven. Compared with the government, the platform will be more proactive, and the government will ask the platform to help it with some public welfare functions.

There is a process from fragmentation to unification of digital public services to third-party platforms. At the beginning, city services on Alipay and WeChat were separate application scenarios, and each scenario required the government and the platform to discuss separately. Later, the overall city public service mini-program appeared, such as Suishenban. But there are exceptions, such as Guangdong's Guangdong Provincial Affairs Platform, which was designed from the beginning to use WeChat as a carrier to provide complete urban service functions.

In this process, the motivations of both parties are different. The government certainly hopes to put as many public welfare functions as possible on the platform, and enterprises certainly hope that one is to spend less money, because some of these functions are not paid for by the government or paid very little. The second is to expand their influence, increase user activity, and even promote their own products. For example, if you pay on Alipay, then naturally you will use Alipay to save and manage money, which is equivalent to further strengthening its "moat". Therefore, the service application scenarios that both parties hope to put on the platform are definitely different. The government hopes to put these, and the enterprise hopes to put those, so the two sides will discuss how to exchange resources.

Q: Have the attitudes of the government, platform, and citizens changed so far?

A: Judging from the current spirit of the national documents, he did not say that it was required to be transferred to the government's own platform. The use of third-party platforms is still a very obvious and continuing trend. In essence, third-party applications on mobile terminals have certain natural monopoly characteristics. Platforms like Alipay and WeChat already have a large user base and a certain depth of "moat", so the government has no reason to require that they must be transferred to their own platforms in the future. Now, our advocacy direction in recent years is to ensure that the functions and services provided by the government platform and the Alipay and WeChat platforms are basically the same standard, and ultimately guarantee the user's right to choose between platforms.

Q: What is the interactive relationship between the government, the platform, and the citizens? How can the government use the platform services and supervise their good operation? How does the platform understand the needs of the government and the citizens? Does the platform promote or hinder the communication between the citizens and the government?

A: There is a very important premise here, that is, the Chinese government is not a monolithic entity and does not have the concept of "holistic government". So the treatment of the issue of third-party platforms depends on the specific scenario. There are special departments responsible for the supervision of these platforms. At the macro level, they include the Cyberspace Administration of China (CAC), the Ministry of Industry and Information Technology (MIIT), the National Development and Reform Commission (NDRC), etc. When it comes to specific products, there will be different specific departments, such as the payment scenario involving the central bank. In addition, for example, the National Health Commission (NHC) wants to make an appointment registration function on Alipay. Originally, the NHC itself has no regulatory function for Alipay. So when it wants to add an appointment registration function, it has a regulatory function to some extent. So it was originally a process of mutual cooperation and mutual benefit. I give what you give and we exchange. But in this process, because the government has administrative functions, it also has a regulatory nature.

In this process, the macro-advisory departments and the regulatory departments on specific matters are not consistent, and there are even many differences. In particular, there is a big conflict between the CAC and the MIIT at the central level, because the CAC is mainly responsible for supervision, and the MIIT is mainly responsible for development, so the contradiction between them is very prominent. There are already many theoretical concepts in this regard, such as collusion, flexibility, and selective execution, and the same is true for the provision of digital public services. The government may be using the platform while supervising it. These two aspects can be carried out simultaneously, and can even be transformed into each other.

There are conflicts between parallel departments, and between upper and lower departments. The central government and local governments, because local governments are responsible for the specific implementation of regulatory functions, each Internet company must accept local government supervision based on its place of registration. However, the motivations of local government departments and central departments are different, and they focus on different things. Local governments pay more attention to economic development, so they are more easily lobbied to some extent. In short, these Internet platforms will lobby between the central and local governments and between different parallel departments, and use the differences in their positions and motivations to achieve the situation they expect.

Regarding the role of citizens, the big difference from a Western theory is that there is basically no citizen power in China, so citizens have no channels to participate. 99% of things are decided by mutual consultation between the government and the platform. Only

in the very narrow space within public services can citizens point out what the government is not doing well through ratings or complaints and suggestions. However, it is impossible to achieve an equal triangle relationship between the government, the platform, and the citizens. The provision of digital services on third-party platforms has basically no impact on the participation of citizens. Personally, offline counter services may still be more participatory. Although I have not conducted a nationwide survey on counter services, judging from the situation in Zhejiang and Shanghai, the government service halls in these two places at least have some channels for accepting suggestions and evaluations for the opinions of citizens on the surface. From my experience as a user, I will definitely feel that there is a person in front of me, and I will feel more involved when I tell him my suggestions.

But from another perspective, the promotion of digital public services can promote the standardization and modeling of services. For example, online suggestions like 12345 must be replied to, entered into the system, visited, and scored, etc. There is a complete procedure. Every word you say on 12345 will be recorded, analyzed, and included in the entire administrative process. In offline government service halls, your suggestions may not be included in the administrative process more often, and may be manually screened out. So to some extent, offline participation is more likely to provide an emotional value, while online procedures are set and cannot be skipped. For the government, online procedures give these government officials more supervision and constraints, forcing them to take the suggestions of citizens seriously, but also give more room for digital formalism. In essence, they all have ways to deal with it, and they can turn it into a result that is beneficial to them on the premise of complying with the procedures.

Q: Compared with the model where the government develops its own platform to provide public services, what characteristics does the participation or even dominance of third-party platforms bring? And what is the biggest advantage of this model?

A: The number of users of third-party platforms is larger. It will be more convenient for users, especially when it comes to cross-regional scenarios, then you don't have to download many apps, you can complete it on Alipay and WeChat. It is more convenient for users.

The integration of functions is good, which is also a feature of the Chinese government. It just likes to unify, mainly because it is really too big, and many things are too fragmented if they are not unified.

The participation of third-party platforms has actually promoted the learning process of government platforms. For example, the Suishenban has also made a sharing page by learning the social functions of WeChat.

In this process, the government and enterprises can learn from each other. I happened to have worked in both the government and enterprises, and I felt that the two sides are completely two different discourse systems, and the work styles are also very different. So in the matter of jointly providing public services, there will be a big gap, so in order to do this well, they need to learn from each other, understand each other, and get closer to each other. Of course, generally speaking, enterprises are more likely to move closer to the government. It is a process in which enterprises need to transform their discourse system into the government's discourse system. For example, the Hangzhou Municipal Government cooperates with Alipay to supervise the accounts of gym merchants to prevent them from "running away" and embezzling consumers' prepaid payments. Because when consumers go to the gym to consume, they use platforms such as Alipay, which is equivalent to consumers first paying money on Alipay when applying for a gym membership, and then Alipay pays the merchant according to a certain process. So when the government did not know how to supervise these prepaid card institutions, it thought of learning from third-party platforms, and then the Zhejiang Provincial Government also wrote the prepaid card supervision method into the law. In this process, the business model created by Alipay and the social sharing model created by Suishenban, which it learned from WeChat, are all the government learning from enterprises and using what enterprises are good at.

The motivation for the government to learn from enterprises can be understood as the motivation for the government to provide better digital public services, including the "promotion tournament", the "innovation diffusion" model (such as the Jiangsu, Zhejiang and Shanghai regions), the requirements of superiors, economic development, etc. In recent years, the State Council has required the transformation from "can be done on mobile phones" to "easy to do on mobile phones", and to create services that are easy for the people to use and love, with the sense of gain of the masses as the standard. If we continue to dig deeper into the innovation diffusion model, there are many reasons, including personnel exchanges, information circulation, competitive pressure and cooperation, third-party evaluation, etc. Third-party evaluation is mainly for the assessment of the overall government's governing ability by research institutions such as Tsinghua University and Fudan University, and mobile public services are one of the very important aspects. The driving force of economic development is that GDP is a very important assessment indicator of local governments. To promote economic development,

we must build a better business environment. If we do things well, we can also improve the business environment.

Q: Does this model have certain risks or disadvantages? (Information leakage, unclear boundaries between the public and private sectors?) Have there been any malicious incidents?

A: There was a major data leakage incident in the Suishenban, which was a leak from the government database. So in fact, no matter which platform the data is stored on, it is actually not directly related to its security. It does not mean that it is safe if it is stored on the government's own server or data center. Even in theory, companies are more motivated to do a good job in data security. In addition, many third-party platform services are actually completed in the form of calling API interfaces, and its data is mostly not stored in the company's server or data center. The third-party platform is just a hand, and does not retain data.

From a theoretical point of view, the disadvantages of this model, linked to the theory of new public management, are that citizens are "dwarfed" to users, the "public nature" of public services disappears, and the rights of citizens and users are very different. This is a big problem, including the issue of citizen participation mentioned earlier, as well as the issues of accountability and transparency. When a public service of Alipay has a problem, who do you ask for accountability? In theory, citizens have the right to accountability, but in fact, when there is a problem with the service or a data leak, the accountability here is not transparent, because this is not a triangular relationship between the government, enterprises and citizens, but a "two-person turn" between the government and enterprises.

Another is the problem of "technology dependence". When you rely too much on advanced technology, you will ignore institutional progress. Because the technology of enterprises is the most advanced, the government is also happy to use or purchase these technologies of enterprises, and in this process, the problem of technology dependence will arise. If the government does it itself, it may be a good thing. Because the government itself does not have very advanced technology, it may just stop there. For example, if it relies too much on facial recognition technology, it may cause ethical and user experience problems. For example, there was a case several years ago where an old man needed to use facial recognition to do some actions to collect his pension, which was somewhat insulting.

In addition, as national platforms, WeChat and Alipay cannot take into account the usage characteristics of various places, and there are huge regional differences in China. For

example, according to Chinese legal requirements, if the government of an ethnic minority autonomous region provides services, all texts must be written in bilingual, which is difficult to achieve on WeChat and Alipay. Because it is a national platform, it is impossible to do special development according to each place. Because the style of the enterprise is that it only provides tools and platforms, and it does not provide personalized customization. In small programs developed by the government such as Zhejiang Liban and Suishenban, WeChat and Alipay are actually difficult to achieve personalized recommendations, because the data of third-party platforms and government data are barriers and cannot be fully interoperable, but this is actually a good thing in terms of security, but for the platform, it does not play the advantage of the amount of data it has.

Q: Are "super platforms" like WeChat and Alipay good or bad for the provision of digital public services?

A: In general, competition is better than no competition. Although these services are essentially provided by the government, because they can provide different experiences, they bring more choices. For example, Guangdong Province was initially developed only on WeChat, but later it also developed its own app and functions on Alipay. Because WeChat is not an omnipotent application, you still need government apps and Alipay in many cases, and there must be a variety of different and diversified entrances. The government provides public services through different platforms, which can actually form a certain degree of competitiveness between these different platforms and also protect the right of citizens to choose.

As Internet platforms, WeChat and Alipay still have some obvious functional differences. WeChat focuses on social networking and Alipay focuses on payment. Although WeChat also has payment functions and Alipay also has social functions, they are not very good. For example, Baidu is a platform that focuses on information search engines and information entrances, but now each platform is trying to close the information within its own platform. Baidu's function as a unified search entrance is weakened, so the space for public services it can actually provide is very limited.

**P1**

Q: What kind of work are you doing in Alipay now?

A: Mainly working on the circular economy, it also involves some government services, including handling complaints, such as game recharges for minors and high-priced health products for the elderly. Although it does not involve the responsibility of merchants and platforms, refunds/compensations will also be made.

Q: These complaint handling is still biased towards commercial application scenarios. Is this refund and compensation required by the government?

A: No, it is done by the platform itself for user experience and social responsibility, and it can also enhance its social reputation and gain user trust.

Q: You have interned at WeChat before. Do you know which department of WeChat is responsible for WeChat City Services?

A: There is no special department, because this function may be involved in each business line. So a cross-business line team will be set up to work together.

Q: Can it be understood that a team is temporarily formed when a new function is to be developed?

A: It will be adjusted. But I understand that there is actually no so-called department dedicated to city services. It may fall to specific products, such as WeChat Pay or WeChat Official Account. They may involve different things, so they do not need different business lines.

**P2**

Q: What platform and department do you work for?

A: I work in Tencent WeChat Business Group, and I am mainly responsible for connecting with the digital needs of government departments and turning citizens' high-frequency service needs (such as social security, provident fund, and household registration) into functions in mini programs. Simply put, it is to help the government move offline services online so that people can run less errands.

Q: Does your work involve online public services for citizens? What specific links are you responsible for?

A: The core of my work is to enable citizens to "get things done with just a few clicks." For example, last year we cooperated with a city's Human Resources and Social Security Bureau to launch the "electronic retirement certificate" function. The elderly no longer need to go to the Social Security Bureau, and can check and print on their mobile phones. Specifically, we need to do the following things: one is demand analysis. For example, if we find that citizens complain that "social security transfers in other places require running to three departments", we will promote the launch of "social security cross-provincial handling"; the next is product design, such as designing a "large font mode" for the elderly, compressing the form that originally required 10 fields to be filled in to 3

required items, etc. Finally, we need to confirm with the government which data must be encrypted (such as social security number) and require the development team to process it with national encryption algorithms.

Q: When did your platform start providing online public services? Have the types of services and operating modes changed?

A: WeChat mini programs have gone through three stages in providing public services. From 2017 to 2019, the main focus was on information query, such as bus arrival reminders, which was more like an "electronic bulletin board" at this time; 2020-2022: Driven by the epidemic, functions such as "health code" and "medical insurance electronic certificate" were urgently launched in various places, and the number of users skyrocketed; From about 2023 to now, in-depth services have begun to be provided, such as Chengdu's "Happiness Box" mini program, which has moved community canteens, veterans' teahouses, and blind date activities online, which is more closely related to citizens' lives and has more complete functions.

Q: What are the differences in design between online public services involving the government and platform-owned services? (Such as business logic, data security, online process, responsible departments, etc.)

Providing services to the government and doing e-commerce mini programs are completely different things. For example, the process is more stringent. For example, household registration business must be connected to the Ministry of Public Security system, and even the button position must be in accordance with government regulations; the data touched is more sensitive, and the government will require that the data must be stored in the government cloud. The security test alone has 3 more rounds than ordinary mini programs; the online cycle is relatively longer. Last year, a "veteran subsidy application" function was developed. The Bureau of Justice, the Bureau of Finance, and the Bureau of Veterans Affairs took turns to review it, and it took half a year to go online.

Q: How do the platform and the government negotiate and decide on what public services to launch? What aspects will be considered in the decision-making process?

A: The cooperation process depends on both the degree of demand matching and the technical feasibility:

For example, the government will propose 100 requirements, and we will give priority to those that cover a wide range of people (such as social security) and can be launched quickly;

In addition, we will also do technical verification. For example, the government wants to add "face recognition to receive pensions" to the mini program, but the elderly's mobile phone camera has low pixels, and finally changed to "relatives' authentication + manual review";

Q: Is the launch and operation of online public services good or bad for the platform (or both)? Please explain as much as possible.

A: The benefits are obvious, but there are also many challenges.

First, the social value of the enterprise is enhanced. For example, the Chengdu "Happiness Box" applet has driven a 40% increase in the number of daily active users of government affairs, and the local government took the initiative to send a letter of thanks to Tencent;

The increase in active users will also release business potential. Recommending commercial insurance on the medical insurance payment page has a conversion rate three times higher than traditional advertising.

But on the other hand, it also requires a lot of investment in security and privacy issues. Last year, a city's applet was hacked. Although the data was not leaked, the emergency response alone cost more than 2 million.

Q: What is the platform's attitude towards continuing to launch and operate online public services in the future? Maintain the status quo, reduce investment or increase investment?

A: We will continue to increase investment and develop in several directions:

First, technology upgrade. We plan to use blockchain to store service records in 2025. We have already piloted "unalterable electronic certificates" in 10 cities.
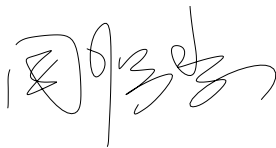
Second, business ecosystem expansion: introduce law firms and notary offices, so that mini programs can not only handle services but also handle lawsuits (such as online notarization of divorce agreements);

Finally, we will also launch experience innovations, such as testing voice interaction and AI interaction. When grandpa and grandma shout "I want to apply for retirement" to their mobile phones, they can automatically jump to the page. Recently, many Deepseek has also gradually entered government mini programs.

## C. Declaration of Authorship

I hereby declare that, to the best of my knowledge and belief, this Master Thesis titled "'Platform as a Government': Digital Public Services on Third-Party Platforms in China" is my own work. I confirm that each significant contribution to and quotation in this thesis that originates from the work or works of others is indicated by proper use of citation and references.

Münster, 01 June 2025

Yunfei Zhou

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**Given Name:** Yunfei

**Student number:** r0962809

**Course of Study:** Public Sector Innovation and eGovernance

**Address:** Schlossplatz 2, 48149 Münster

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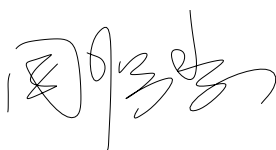
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