

# Digital Governance Practices in the Prevention and Control of the Novel Coronavirus Pneumonia Epidemic

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## Abstract

**In the prevention and control of the novel coronavirus pneumonia epidemic, information and technology empowered the digital governance of serious epidemics. The crisis is a turning point, and digital governance has further advanced the development process of the modernization of the national governance system and governance capabilities. This article introduces the practical experience of digital governance in the prevention and control of the novel coronavirus pneumonia epidemic, expounds the active role of digital governance in epidemic monitoring, joint prevention and control, resumption of work and production, and social governance, and analyzed some of the problems exposed when digital governance was applied to serious epidemic prevention and control with great success. Finally looked forward to the future development of digital governance.**

## Keywords

**COVID-19, Epidemic prevention and control, Digital governance.**

## 1. Introduction

At the end of 2019, a sudden outbreak of novel coronavirus pneumonia ravaged the land of China. The epidemic broke out instantly and spread rapidly. The harm to people's lives and health and the destructive effect on the economy and society were huge. The tasks of psychological reconstruction, economic reconstruction, and social reconstruction after the epidemic are also extremely arduous, which also brings greater challenges to the already difficult and complex social governance. In the face of serious public health incidents, the Chinese government-led and widely-participated digital governance model has achieved great success in the battle against the novel coronavirus pneumonia epidemic, which has further promoted the modernization of the national governance system and governance capabilities, and also provided the international community good experience that can be used for reference in fighting the novel coronavirus pneumonia epidemic.

## 2. The Concept of Digital Governance

Digital governance is a combination of digital and governance. The former is a technical term, and the latter generally refers to the democratic, collaborative, autonomous, precise and efficient management process of social public affairs under the leadership of the government and the participation of multiple social subjects. Digital governance is not a simple superposition of "digital" and "governance", but an organic combination of the two. "Digital" provides technical support for "governance"; "governance" with the goal of improving the effectiveness of public management and creating public value provides direction for "digital".

It is not difficult to see from the above that digital governance contains three key factors: First, the overall digital transformation of the social governance system led by the government, that

is, the electronic, informatized, and digitalized public governance activities. The second is to achieve democratic, collaborative, autonomous, precise and efficient public services and demand response through digital technology, that is, public services are accurately and efficiently provided to the public and respond to specific public governance needs in a timely and accurate manner. Third, digital governance is not only a means and tool to realize the ideal of grand political and administrative values, but also has value attributes in itself. Therefore, "digital governance" refers to the diverse social entities led by the government through the extensive use of digital technology to promote effective coordination among multiple governance entities to achieve democratic, collaborative, autonomous, precise and efficient public governance.

### **3. The Practice of Digital Governance in the Prevention and Control of the COVID-19**

Epidemic monitoring during the outbreak of the novel coronavirus pneumonia, joint prevention and control after the spread, resumption of work and production after control, and social governance throughout the process are the first-time digital technologies have been applied to the monitoring and prevention of serious epidemics in China. The government service platform builds by government, the application of multiple technologies with social participation, and the grid-based management model of precise services have better transformed technical and institutional advantages into governance advantages, and played a great role in the prevention and control of the epidemic.

#### **3.1. Government Service Platform Led by the Government**

China's e-government construction has made rapid progress after the official release of the "Internet + Government Service" Technical System Construction Guide in 2017. Through the use of the Internet, big data, cloud computing and other technical means, the national basic data and business systems are interconnected based on intercommunication and information sharing, build a highly integrated government service platform, covering online government service platforms, offline government service halls, mobile clients, self-service terminals and third-party platforms, The goal of providing the public with one-stop and integrated government service is gradually being realized. In extraordinary times, in the case of real space isolation, the government service platform has opened up cyberspace for the public to understand the development trend of the epidemic, clarify online rumors, apply for health codes, submit applications for resumption of work and production, and registration.

During the epidemic, the government services launched by the national government service platform in response to the new crown epidemic were mainly divided into two topics: epidemic prevention and control and resumption of work and production. The services provided by the topic of epidemic prevention and control mainly include: epidemic prevention and health information code application, all parts of the country epidemic risk level query, Internet information consultation on COVID-19 for overseas Chinese, confirmed patients of COVID-19 and the same trip staff query, close contact personnel self-examination service, national accounting and testing institutions, national medical protective article manufacturers, epidemic prevention patent information sharing, etc.; In addition, the national government service platform also informs the society of the epidemic prevention and control situation authoritatively released daily by the State Council's joint prevention and control mechanism in video and text in real time, which enhances the authority and timeliness of epidemic prevention and control information; In the topic, the museum's online exhibition platform has also been opened, so that the people in the state of isolation at home can visit famous museums across the country without leaving their homes, enriching their spiritual and cultural life.

The main services provided by the national government service platform on the resumption of work and production include: point-to-point docking services for migrant workers returning to work, online employment services, online business registration, online taxation services, online approval of investment projects, online social insurance processing, Internet release of policy information for small and medium-sized enterprises, inquiries on measures to support enterprise development in various regions, etc.

### **3.2. Multi-technical Application of Social Participation**

During the epidemic, social entities such as enterprises, social organizations, and public welfare organizations other than the government also actively participated in the battle against the epidemic. When some traditional public service systems such as medical care, transportation, and distribution of living materials are forced to shut down or supply reduction due to the needs of epidemic prevention and control, various mobile Internet platforms give full play to their technological and business model advantages, autonomously allocate social resources, and coordinated with government departments, using online service platforms to ensure that residents start a new lifestyle of "no gathering and less contact". For example, Five major Internet medical service platforms includes Tencent United Medical Union, Penguin Almond, WeDoctor, Good Doctor Online and Dingxiang Doctor provide online free consultation, disease monitoring, intelligent hardware indicator collection and testing, out-of-hospital electronic prescription and medication guidance, drug delivery, etc. Provided medical services "without leaving home" for the general public and patients with mild illnesses for home isolation observation.

Didi Taxi, a Chinese taxi hailing APP, has strengthened driver protection and safety, and has established medical support fleets and community support fleets in many cities across the country to alleviate transportation needs during the epidemic. Ele.me, a Chinese food ordering APP, has established hundreds of fresh food convenience service stations in Wuhan. After placing an order online, consumers can pick up food at home according to their own time and provide residents with fresh food self-pickup services. (Wang Bin, Liu Leixin,2020). NetEase Youdao, Inc. and the Higher Education Press developed MOOC.com and the Chaoxing Erya general education platform developed by Chaoxing Group to provide online teaching platforms and resources for students in universities, middle and primary schools across the country. Alibaba's office application DingTalk and Tencent's office application Tencent Conference launched a new online office model to facilitate the resumption of work and production and economic reconstruction.

The outbreak of epidemic coincided with the Spring Festival. In the vast rural areas, the customs of migrant workers returning to their hometowns and visiting relatives and friends were followed, coupled with the weak medical service foundation and other factors, posing challenges to rural epidemic prevention and control. Tencent's "Tencent for the Village" was quickly launched some sections such as emergency message notifications and "we are in action" to deliver authoritative epidemic information to villagers, guiding villagers to pay attention to the epidemic, pay attention to protection, and giving positive guidance to village road closures, intimidation and other excessive behaviors. In addition, "Tencent for the village" has also upgraded its auxiliary functions to a new level. Huidong County in Sichuan Province used "Tencent for the village" to provide convenience services to 59,373 registered villagers. The county's human resources and social security, medical insurance, civil affairs and other 13 government departments timely Settled in the online government service hall to provide real-time online services such as employment and legal consultation. At the same time, taking advantage of the "mall for the village" to provide online services such as phone bill recharge, water and electricity payment, and agricultural product sales to facilitate villagers.(Zuo Weina,2020).

### 3.3. Precise Service by Grid Management Model

Community grid management is a new type of community governance model based on grid units, which regarding the digital technology as the core, refined management as the goal, and social autonomy as the means. Grid management is essentially the informatization and digitization of community governance. It mainly uses modern Internet technology and databases to implement dynamic, refined and comprehensive management of each grid to efficiently meet the needs of community governance and residents. (Xiang Chunling,2020). As the epidemic situation improves, all parts of the country have resumed work and production gradually, Students begin to back to school, migrant workers begin to back to the city, citizens begin to back to work, full-scale reconstruction is under way, and epidemic prevention work has become normalized. In the new epidemic battle, communities have become Frontier positions of epidemic prevention and control. However, with &quot; thousands of lines above and a needle below&quot;, the work force at the grassroots level has been stretched, and it has been difficult for many areas to deal with the emergency and dangerous epidemic prevention and control. In response to the above problems, the grid management model based on digital technology has been fully rolled out in the grassroots communities in most areas of the country. Through institutional innovation, it has not only strengthened epidemic prevention and control, but also achieved precise services.

Take Hangzhou as an example. In the early stage of the outbreak, under the leadership of the local party committee and government, about 24,800 urban and rural community workers in 1185 communities and 2011 villages in the city, formulated prevention and control work plans for residential areas, buildings, households, and residents, through the establishment of a "street-community-grid-residential area-corridor" five-level epidemic prevention Network, accurately roll out relevant personnel, strictly implement specific control measures, and transform the grid management advantages of "horizontal to edge and vertical to the end" into Advantages of epidemic prevention and control.(Wu Jiebing,2020).

President Xi Jinping pointed out: "All regions must consolidate the responsibilities of local party committees and governments, strengthen community prevention and control grid management, and adopt more thorough, precise and effective measures to prevent the spread of the epidemic." The modernized grid management model based on digital technology has played a prominent role in this battle against the COVID-19, and has transformed the political, institutional and technological advantages into governance advantages. "Big data + grid" is an important experience of grassroots governance. It has achieved good results in epidemic prevention and control, and represents the future development direction of scientific, refined, and intelligent urban governance.

## 4. Problems Exposed by Digital Governance in the Prevention and Control of the COVID-19

### 4.1. The Pace of Digital Transformation of Social Governance Needs to be Accelerated

Although the national information construction has developed greatly in recent years, the data interconnection and sharing mechanism has not been fully built because of the regional gap, urban-rural gap, border and hinterland gap of the information construction level. The phenomenon of "digital divide "," information island "," application fragmentation" and "data obstruction" still exists, which is exposed in the prevention and control of the epidemic. According to incomplete statistics, there are more than 2000 counties in the country without digital government. Some local government departments still lack the awareness of big data, in many places, public officers still use manual recording, checking, screening, statistics and other

traditional practices, taking the Hubei Province Red Cross Association as an example, Material distribution still uses manual form statistics, which can not meet the rapid deployment of large quantities of materials. Different departments, industries and places have different data collection templates and channels, many data resources failed to achieve timely and effective open sharing, which resulted in grass-root staffs falling into "Anti-epidemic By Form"(Wang Bin, Liu Leixin,2020). After the Spring Festival holiday, a large number of migrant workers need to return to the posts across provinces and cities, but the information between the labor export area and the input area is not shared, resulting in the migrant workers cannot go out of home and back to work. Industrial recovery in some areas, have to achieve the examination and approval by multi-level and multi-departmental governments. These approved paper forms, which are covered with red seals and signed opinions, not only record the difficult process of the enterprises to complete the administrative examination and approval, but also torture and question the digital governance abilities of government.

#### **4.2. The Number of Online Users has Surged to Break through the Boundaries of Technology**

The epidemic has triggered a rapid increase in demand for medical supplies such as masks and disinfectant. Xiamen, Dongguan, Guangzhou and other places have quickly developed a mask reservation system to solve the shortage of masks. Large-scale user visits have led to the collapse of government systems in many places. Similar problems not only appear in the field of mask appointments, but also in the field of education. For example, in the past, most education departments used online platforms as a simple tool to assist teachers in class. The slogan "Suspension of classes without suspension of study" has led many schools to use online teaching methods to spread knowledge to students, but online tools that usually only assist teaching cannot carry it. The impact of concurrent visits with large traffic has caused the online system overload and crash in some places. How to balance the sudden demand during the epidemic with the long-term development after the epidemic, and rationally deploy the carrying capacity of the digital government back-end, so that the back-end digital government can not only respond to the sudden surge in visits, but also maintain reasonable long-term operating costs, is a question worth thinking about.

#### **4.3. Comprehensive Collection and Monitoring of Citizen Information Leads to Ethical Dilemmas**

Data information collection is the foundation of big data governance. The collection, processing, and analysis of personal information in the digital age makes the prevention and control of epidemics more efficient and accurate. However, personal information has also been abused and leaked. The collection and use of personal information brought great challenges to the safety of personal privacy, life and property. Some scholars pointed out that big data governance may lead to the formation of a transparent society, resulting in ethical dilemmas such as privacy threats, property losses, difficulty for people who have made mistakes to return to normal social life, comprehensive monitoring without freedom, and being restricted by design and limited choices.(Chen Shiwei,2020). However, in addition to the attributes of personality and economic benefits, personal information also has attributes of public interest. When personal information is related to public interest, the law will tend to protect the public interest and promote a certain degree of personal information disclosure. In the prevention and control of the epidemic, the public interest attributes of personal information reflect the greatest value. According to the law, individuals do not have the right to refuse information collection for the benefit of public health in the prevention and control of the epidemic. On the contrary, all units and individuals have the obligation to accept investigations in public health incidents and provide relevant information truthfully. However, the personality attributes of personal information also determine that everyone is worried about personal information

leakage or other risks, and even adopts methods such as concealing travel history and contact history to avoid epidemic-related investigations and information collection, which is even more detrimental to epidemic prevention and control. Therefore, the law should strengthen the strict protection of personal information during the collection and all subsequent links, and balance the conflict between public interests and personal interests to ensure personal dignity and safety. (Li Yajuan,2020). Government digital governance should also find a balance between data collection and protection of citizens' privacy.

## **5. Enlightenment on Future Digital Governance based on the Prevention and Control of the COVID-19**

Digital governance is an advanced governance model that combines advanced information technology and governance theory, and it is also an ideal way to achieve good government governance. The battle against COVID-19 can be described as a touchstone for testing the effectiveness of government digital governance construction. While demonstrating the advantages of digital governance, it also exposes the shortcomings and deficiencies of digital governance, which provides inspiration and points out the direction for the future development of digital governance.

### **5.1. Government Management and Social Governance in the Context of the Internet cannot Achieve Success without "Internet Thinking"**

Many areas fell into inertial thinking at the beginning of the epidemic prevention and control, blindly adopting manual operations and human tactics. The performance disparity of various regions and departments in the epidemic prevention is mainly reflected in whether they have "Internet thinking" and adaptability. Strengthening the "Internet thinking" and capabilities of government departments and leading cadres is one of the key enlightenments to digital governance. ( Ma Liang,2020).

### **5.2. Problems Such as "Digital Divide", "Information Islands" and "Data Obstruction" Need to be Resolved Urgently**

In the prevention and control of the epidemic, the performance gaps in the use of information technology to participate in social governance and epidemic prevention and control in the eastern, central and western regions, urban and rural areas, hinterland and border areas are obvious; data sharing and business collaboration among different regions, levels, and departments within the government also encountered numerous obstacles. The top-level design of informatization and digital government construction should be further strengthened, the overall level should be improved, and the planning and construction of digital governance should be coordinated at the municipal and even provincial levels to realize the unified planning and construction of digital governance across the province even the whole country.

### **5.3. The Idea of "Combination of Peace and War" Runs through the Entire Process of Digital Governance Planning and Construction**

The COVID-19 outbreak is a surprise inspection or stress test of digital governance. The reason why the outbreak has broken through the technical capabilities and carrying boundaries of some prevention and control methods is that digital governance has not combined peacetime and wartime. In the future, the emergency management function modules of digital governance projects should be strengthened so as to meet the needs of rapidly increased traffic.

#### **5.4. Vigorously Support and Correctly Guide the Diverse Subjects of Society to Participate in Digital Governance**

Internet companies have released their super capabilities in the prevention and control of the epidemic, and both large and medium-sized enterprises play an important role in digital governance innovation. The information infrastructure built by Internet giants such as Tencent and Alibaba provides a platform for small and medium-sized enterprises to rapidly develop and widely promote their technological innovation, so that they can quickly complete the development, testing and promotion of related products and services. As platform-based company, they can have selfishness, but they should also pay attention to public interest. Only in this way can it promote a healthy digital governance ecosystem.

#### **5.5. While Accelerating Innovation in Digital Governance, We Must Pay Attention to the Full Protection of Citizens' Privacy**

From the prevention and control of the epidemic, it can be seen that the big data held by government departments and various enterprises can realize accurate identification and real-time tracking of every company, every person and every place. This not only reflects the unlimited potential that digital governance can unleash, but also reveals the other side of a coin, that is, data leaks can cause great harm to citizens' privacy, human dignity, life and property. While promoting digital governance innovation, we must hold the bottom line of digital security, and strengthen the legislative protection and technical defense of citizen information.

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