

Research on the Construction of Digital Government in Heilongjiang Province based on SMARTGOV Maturity Model

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Abstract. Digital government aims to provide intelligent and agile personalized public services for government stakeholders. Based on the SMARTGOV maturity model, this paper constructs a digital government maturity model from four dimensions : basic information service, interactive service, integrated service and intelligent service. It is used to evaluate the current level of digital government construction in 12 prefecture-level cities in Heilongjiang Province and the Greater Khingan Mountains and draw conclusions.

1 introduction

Digital government refers to the use of subversive technologies such as artificial intelligence, blockchain, cloud computing, and the Internet of Things by public organizations to provide the public with intelligent, integrated, personalized, and interactive government services. It aims to introduce innovative technologies to transform the supply of public services and improve decision-making procedures, thereby enhancing public service satisfaction. With the rapid development of a new generation of science and technology, the construction of digital government has not only become an important support for promoting the modernization of national governance system and governance capacity^[1], but also an important support for innovating government governance model. The State Council 's guidance on ' strengthening the construction of digital government ' also emphasizes the introduction of digital technology into government governance, using the empowerment of technology to improve the efficiency of public services and the satisfaction of the masses, so that the achievements of digital government construction can benefit all the people more and more fairly. Since the party 's 19 th fourth middle school in 2019 first proposed the development of ' digital government construction ', it has achieved fruitful results. However, due to geographical location and economic development, the level of digital government construction in Heilongjiang Province has been lagging behind^[2]. Based on the smart government maturity model, this paper evaluates the digital government of Heilongjiang Province and draws conclusions.

2 Model introduction

The model consists of five dimensions, namely, basic information service, interactive service, transactional service, participatory service and intelligent service^[3]. Based on the actual situation of Heilongjiang Province, this paper selects three of the five dimensions, namely, basic information service, interactive service and intelligent service dimension, and adds an integrated service dimension on this basis. Combined with the existing literature, 20 indicators are selected to evaluate the construction of each dimension of digital government in Heilongjiang Province, and a maturity model for evaluating the situation of digital government in Heilongjiang Province is constructed^[4].

2.1 Basic information services

The first dimension of the digital government maturity model is basic information services. The evaluation criteria of this dimension are mainly to measure the ability to provide contact information ; allow the public to obtain information about laws, regulations, public policies and related documents ; and whether it is possible to obtain relevant information through the search engine 5 indicators^[5].

2.2 Interactive service

The second dimension of the digital government maturity model is interactive service, which is the stage of interaction between the government and the public^[6]. For example, whether the public opinion collection

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channel provides email address, and whether the interaction between the government and the public can be carried out online. Four indicators such as cadre supervision and reporting.

2.3 Integrated services

The third dimension of the digital government maturity model is integrated services, that is, the construction of the integrated platform of government services in Heilongjiang Province, including whether the online handling rate reaches 100 %, and the online government service zero running rate, online handling matters That is, the handling rate of five indicators.

2.4 intelligent services

The fourth dimension of the digital government maturity model is intelligent service. This dimension mainly measures the use of intelligent technology in government websites, including whether the government website is on-line data open service, whether it is on-line barrier-

free service, whether it can change the size and color of the font, and whether it has intelligent robot / intelligent question answering function.

3 Research methods

Based on the digital government maturity model, this paper visits the government websites of 12 prefecture-level cities in Heilongjiang Province and the Greater Khingan Mountains region. If the target service or function is provided through the federal website, the corresponding indicator is given a ' value 1 '. If not, it is given a ' value 0 '. The digital government maturity value of a government website is the sum of 20 indicators for evaluating the government website. The 20 indicators representing the four dimensions of the standard are evaluated. The 13 prefecture-level city government websites meet each evaluation indicator, that is, the proportion of each indicator in the 13 government websites is shown in the Table 1 :

Table 1. Criteria used to evaluate the digital government of Heilongjiang Province.

Dimensional	Evaluating indicator	Proportion
Basic Information Services	1)Whether the home page of the government website can obtain content through the search engine	100%
	2)Does the home page have specific information on public policy	92%
	3)Does the government website provide links to other local institutions	85%
	4)Whether the government website homepage provides the website mailbox address	46%
	5)Are government websites available in languages other than Chinese	15%
interactive service	6) Whether to provide e-mail address to collect public opinion	92%
	7) Whether the interaction between the government and the people can query the letter information through the online petition	92%
	8) Whether to allow cadres to supervise and report online through government-citizen interaction	23%
	9) Is it possible to file an online personal lawsuit against the public service process through government-citizen interaction	31%
integrated service	10) Does the online service of the government website have a 100 % online service rate %	100%
	11) Whether the online handling of government websites has reached a zero running rate of 90 %	46%
	12) Does the online handling rate of the government website reach 85 %	23%
	13) Whether the compression ratio of online service commitment time limit of government website reaches 95 %	54%
	14) Whether the good and bad evaluation system of government service integration is zero or not	62%
intelligent services	15) Is the government website accessible via mobile devices	100%
	16) Does government website provide open data	15%
	17) Are government websites accessible and able to change font size and color	31%
	18) Does the government website have intelligent robot / intelligent question answering function	23%
	19) Is there a mobile version of the assessed government website	15%
	20) Is the government website on-line aging design / care design	23%

4 Research process

This study evaluates 13 prefecture-level municipal government websites in Heilongjiang Province based on 20 indicators representing four dimensions. The result is shown in the Figure 1. From the graph, it can be found that the Heilongjiang provincial government website has the best performance in the latitude of basic information service, and almost all prefecture-level municipal government websites have reached 50 % ~ 100 % of the relevant indicators in this dimension. That is to say, among the 13 government websites, 12 (92 %) prefecture-level city government websites meet the 50 % -100 % basic information service dimension indicators. In the interactive service dimension, nearly half (46 %) of the 13 government websites meet the 50 % ~ 100 % interactive service dimension index. In the integrated service and intelligent service dimension, the performance is the worst, and few prefecture-level municipal government websites reach 50 % ~ 100 % of the relevant indicators in these two dimensions. That is, among the 13 government websites, only 5 (38 %) and 3 (23 %) websites meet 50 % -100 % of the integrated service and intelligent service dimension indicators.

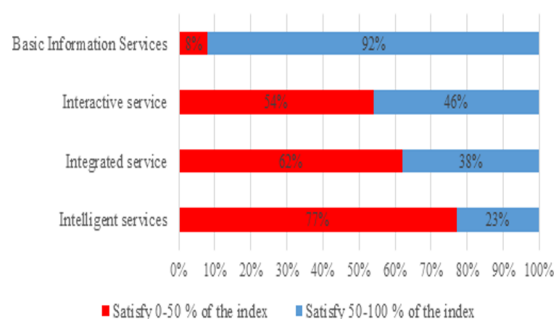


Figure 1 The specific proportion of each dimension of government website

5 Research results

We assign each government website to one of the four digital government maturity levels (i.e., high, medium, medium and low, low) based on its calculated value related to 20 indicators. Government websites with a high level of digital government maturity are at least 15 of the 20 indicators. Government websites that are considered to have a medium level of digital government maturity reach 10 to 15 indicators. The middle and lower groups reached 5 ~ 10 indicators. The government website of the low digital government maturity group has achieved less than 5 indicators.

Table 2 gives the final ranking of government websites based on the total number of indicators they scored in each criterion. The results show that the digital government of all prefecture-level cities in Heilongjiang Province is at a medium and low level as a whole. Among them, there are 6 digital government maturity levels and 7 digital government maturity levels. The top three are Yichun, Jixi and Harbin.

Table 2. Rankings of Government Websites

Government Website	Rank	Score	Level
Yichun,Jixi	1	13	medium
Harbin,Mudanjiang,Daxing'anling	2	12	medium
Hegang	3	11	medium
Daqing,Shuangyashan	4	10	medium and low
Jiamusi	5	9	medium and low
Qiqihar,Heihe,Suihua	6	8	medium and low
Qitaihe	7	7	medium and low

6 Conclusions

6.1 Basic information services

The government websites of 13 prefecture-level cities in Heilongjiang Province have the best performance in the basic information dimension of the digital government Maturity Model, and 92% of the government websites meet the relevant indicators of 50% to 100%. As shown in Table 1, almost all of the 13 prefecture-level city government websites provide contact information and can quickly obtain relevant content through search engines. In addition, 85%(11) prefecture-level city government websites provide links to other local websites on the home page, which facilitates users to jump to the page and improves the efficiency of public services. However, only 15%(2) of prefecture-level city government websites provide services in languages other than Chinese, indicating that there are serious shortcomings in the globalization of municipal government websites. In the digital age, the integration of governance sinicization and governance globalization Digital governance, as a kind of governance discourse, is the knowledge creation of national governance issues in the digital age^[7].

6.2 Interactive service

As shown in Table 1, the construction of digital government in Heilongjiang Province performs well in the dimension of interactive services. Almost all of the 13 prefecture-level city government websites provide email addresses in the public opinion solicitation channels to facilitate the public to speak freely, and people's wishes can be understood through online means. The statistics and analysis of the collected public opinions can provide the maximum value reference for the formulation of policies, so that the formulation of government policies can create greater public value. However, the performance of prefecture-level city government websites in online cadres supervision and reporting and online filing of personal lawsuits is poor. Only 23%(3) prefecture-level city government websites allow citizens to online cadres supervision and reporting

through the interaction between the government and the people, and only 31%(4) prefecture-level city government websites can online filing of personal lawsuits on public service processes through the interaction between the government and the people. This indicates that although the websites of various prefecture-level cities in Heilongjiang Province provide some convenient conditions for the masses in the interactive service dimension, there is still a lot of room for progress.

6.3 Integrated services

Heilongjiang Province proposed the construction of an integrated online government service platform for the first time in 2019, and the online handling of entry matters and entry departments in various prefecture-level cities has increased year by year, and the online operation rate of 13 prefecture-level city government websites has reached 100%, which has greatly improved the working efficiency and enhanced the satisfaction of the people. However, among the various prefecture-level city government websites, only half (46%) of the prefecture-level city government websites have reached 90% zero running rate, and only 23%(3) of the prefecture-level city government websites have reached 85% online handling rate, which indicates that although the online service of the government website has reached 100%, However, there are still great deficiencies in the aspect of "immediate application and action". In terms of the good and bad evaluation of the integrated government service system, only 38%(5) prefecture-level city government websites achieved zero error evaluation, which indicates that there is still a lot of room for improvement of the integrated government service system of various prefecture-level city governments.

6.4 intelligent services

Service is the ultimate goal of digital government governance, and digital government is committed to providing personalized services, precise services and intelligent services to enhance the public's service satisfaction and sense of access^[8]. As for the intelligent service dimension, the evaluation results show that the performance of prefecture-level city government websites in Heilongjiang Province is generally inferior to other dimensions. This point has been pointed out in the previous 13 government websites, only 23%(3) government websites meet the relevant indicators of intelligent service dimension 50% to 100%. As shown in Table 1, almost all government websites can be accessed through mobile devices, but only 15%(2) have launched the corresponding mobile version of government websites, and most of them have only developed corresponding mobile device apps. On the home page of government websites, only 23%(3) websites have intelligent robot/intelligent question and answer function, and only 31%(4) government websites have barrier-free function, and can change the font size and color and

provide voice broadcasting service through this function, which indicates that the construction of digital government in Heilongjiang Province still needs to be strengthened in terms of integration and collaboration. The government of Heilongjiang Province focuses on special groups, and the government service network officially launched the "Service Zone for the Elderly" in 2022. However, in addition to the provincial government websites, only 23%(3) of the prefecture-level city government websites in Heilongjiang Province have age-appropriate design/care design.

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