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Research on Evaluation of Local Digital Government Capability Based on Matter-Element Extension

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Abstract

In the era of Internet + and big data, the in-depth development of e-government, the establishment of "one center, one database, one network, multi-terminal, multi-professional system" as the support of the infrastructure has become the primary premise for the government to promote digital transformation and the modernization of governance capacity. As an important channel to connect the information of internal and external government networks and share data and information, the local government portal website is a hot element of "new infrastructure". Evaluating the local government website scientifically and effectively is a necessity to the success of government digitalization. This paper introduces a matter-element extension model that incorporates basic principles of the analytic hierarchy evaluation method with key local development needs and characteristics. By applying in Leshan city government portal website, analysing the evaluation results to verify the feasibility of matter-element extension model, and addressing potential problems faced in digitization transformation, we demonstrate that the method provides a new approach for further promoting digital capability of local government.

Keywords

Evaluation of Local Digital Government Capability, Matter-Element Extension.

1. Introduction

The concept of "digital government" is based on the "electronic government" to further expand and sublimation. Having a tradition of emphasizing on e-government in China, government administrative management information and evolution to digital government is more inclined to the modernization of national governance capability and system, a way of "data governance" to "governance" for data transformation of thinking. According to the UN E-government Survey Report 2020, the global e-government has deepened its development and generally promoted the transformation of digital government. The impact of the new champions 2020 outbreak also brings us with "digital, networking, and intelligent" new revelation, such as online sales, online approval service, online diagnosis and treatment, grid, and combined with the social governance of the new network model, etc., in the digital management of new breakthroughs, under the background of network security risk bigger. The digital government transformation is the inevitable trend.

In the process of digital government construction, infrastructure construction is an important support, the wave of the "new infrastructure," mainly in the three components of cloud platform, e-government large data centers, and e-government extranet, according to Zhang Shoumei, director of e-government service reform research association in Huaian, Jiangsu province. Zhang pointed out that difference digital construction of the government, should with "one center, more than one library, one network, multiterminal, professional system to support and

join these infrastructure elements is the government information portal, depending on the specific carrier can get through government affairs information transfer between internal and external network, data sharing and service to build links". Therefore, this paper will focus on the government portal website evaluation, from the overall construction and channel communication evaluation of local digital government ability.

In the method of evaluating government portal websites, such as the authoritative Digital Government General Report, which provides common indicators at all levels, adopts simple scoring weight to summarize scores, and individual extreme evaluation factors will produce deviation to the overall results. For example, the fuzzy comprehensive evaluation method is used to decompose indicators, but it is most suitable for a kind of evaluation problems with "clear connotation and unclear extension", which is prone to information loss, unclear evaluation results due to improper qualitative division, and subtle differences and boundaries among indicators. In this paper, applying the matter-element extension to evaluation portal, however, is a combination of qualitative and quantitative, systematic and hierarchical analysis method. Based on the extension set, it can be for evaluation of index decomposition, which not only can quantitatively depict the state of the evaluation object itself but also the transition as a state changes to another state, effectively reflecting the portal in the same assessment level under different degree of bias. In short, matter-element analysis based on extenics can evaluate websites more accurately and scientifically.

Therefore, this article with the aid of analytic hierarchy process (ahp) first determines good website evaluation index system and factors of framework, then analyses the matter-element extension. The method evaluates problem of hierarchical and ordinary, transcribes a comprehensive evaluation results, and analyzes the relationship between factors and the subordinate relations and the key parameters that influence the effect of portal evaluation point. Based on the website evaluation results, the method further identifies the existing problems and proposes suggestions to improve.

2. The theoretical basis of extenics

Extenics is a new discipline founded by Chinese scholar Cai Wen in 1983. It studies problems from qualitative and quantitative perspectives. Its theoretical pillar is matter-element theory and extension theory, and its logical cell is matter-element. A matterelement is an ordered triplet R= (N,C,V) if the object N has N characteristics{ C_1, C_2,..., C_n}, and its corresponding magnitude{ V_1, V_2,...., V_n }, then n-dimensional matter element is expressed as: R_1

$$R= = \begin{bmatrix} R_1 \\ R_2 \\ \vdots \\ R_n \end{bmatrix} \begin{bmatrix} & C_1 & V_1 \\ N & C_2 & V_2 \\ & \vdots & \vdots \\ & C_n & V_n \end{bmatrix} \tag{1}$$

R is called an n-dimensional matter element, where R_i= (N, C_i, V_i) is called the component element of R, i = (1,2..., n);C_i is the i evaluation index, V_i is a numerical values about N which corresponds to Ci. Therefore, the matter-element model regards transactions, features and values as a unity, and the three elements change with the change of the internal structure of things.

2.1. Analytic hierarchy process to establish the evaluation model

Before the extension analysis of matter-element, it is necessary to define the features contained in matter-element, that is, to determine {C_i }, i= (1,2..., n), the following are the steps of AHP model construction.

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1. Establish an indicator system.According to certain standards, the index elements and levels were established, the index system was established to meet the requirements, and several paired comparison matrices were constructed.

$$B=\begin{bmatrix} b_{11} & b_{12} & \dots & b_{1n} \\ b_{21} & b_{22} & \dots & b_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ b_{n1} & b_{n2} & \dots & b_{nn} \end{bmatrix} \tag{2}$$

2. Calculate index weights.In the same pair comparison matrix, the weight between factors is usually calculated by product method and root method. The root method is the most convenient method for Excel data calculation. Here, the square root method is taken as an example: the first step is to multiply each row of B elements, and the second step is to calculate $M_i\overline{W_i}$. And then the third step is to normalize the root vector to W_i.

3. Calculate the maximum eigenroot. $\boldsymbol{\lambda_{max}}$

$$\text{So let's figure out } B\cdot W = \begin{bmatrix} b_{11} & b_{12} & \dots & b_{1n} \\ b_{21} & b_{22} & \dots & b_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ b_{n1} & b_{n2} & \dots & b_{nn} \end{bmatrix} \cdot \begin{bmatrix} W_1 \\ W_2 \\ W_3 \\ W_4 \end{bmatrix} \begin{bmatrix} B\cdot W_1 \\ B\cdot W_2 \\ B\cdot W_3 \\ B\cdot W_4 \end{bmatrix} \tag{3}$$

Thus, we can get$(B\cdot W)_1, (B\cdot W)_2$,..., $(B\cdot W)_n$, and then the maximum eigenroot of matrix B can be obtained as follows:

$$\lambda_{max}=\sum_1^n \frac{(B\cdot W)_i}{nW_i} \tag{4}$$

4. Consistency check.

$C_I = \frac{\lambda_{max}-n}{n-1}$, query the average random consistency index of R_I , then we can get $C_R = \frac{C_I}{R_I}$, if $C_R<0.1$, it is said to have passed the consistency test of matrix B, and the factor weight W=$(W_1, W_2, W_3, W_4)$is an effective index weight.

2.2. Extenics method for evaluation

After the index system and weight are well established, an n-dimensional matter-tuple is obtained.The next step is to perfect the evaluation of matter-element (category), namely N { N_1, N_2, ..., N_m }, the quantitative value of the object to be evaluated under each matterelement category is subject to category membership (or grade evaluation), and the overall category (or grade) evaluation of the evaluation object is finally realized.

1. Establish a classical domain.

$$R_0=\begin{bmatrix} N & N_1 & N_2 & \dots & N_m \\ c_1 & [a_{11}, b_{11}] & [a_{12}, b_{12}] & \cdots & [a_{1m}, b_{1m}] \\ c_2 & [a_{21}, b_{21}] & [a_{22}, b_{1122}] & \cdots & [a_{2m}, b_{2m}] \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ c_n & [a_{n1}, b_{n1}] & [a_{n2}, b_{n2}] & \cdots & [a_{nm}, b_{nm}] \end{bmatrix} \tag{5}$$

(5) Where: R_0 is the classical domain matter-element;

N_j-- the jth evaluation matter-element (evaluation category);

C_i-- the ith evaluation index;

V_i= $[a_{ij}, b_{ij}]$--About C_iThe defined range of quantitative values is the classical domain.

Where i = (1,2..., n), j= (1,2..., m).

2. Determine the node domain.

$$R_P = (P, C, V_P) = \begin{bmatrix} & c_1 & [a_{1p}, b_{1p}] \\ P & c_2 & [a_{2p}, b_{2p}] \\ & \vdots & \vdots \\ & c_n & [a_{np}, b_{np}] \end{bmatrix} \quad (6)$$

(6) Where: R_P is the nodal domain matter-element;

P -- the totality of the evaluation category;

$[a_{ip}, b_{ip}]$ -- P c_iThe range of values taken is called the node domain.

3. Determine the matter element to be evaluated.

N to evaluate thingsi(I = 1, 2,..., n). Determine the eigenvalue results according to the given classical domain standard, and express its magnitude value by matter-element as:

$$R_d = \begin{bmatrix} & c_1 & v_1 \\ P & c_2 & v_2 \\ & \vdots & \vdots \\ & c_n & v_n \end{bmatrix} \quad (7)$$

(7)Where : v_i(i=1,2, ..., n) is the matter-element R_d About the ith evaluation indicator C_iThe value of the.

4. Calculation of correlation degree.

For the correlation degree of the ith evaluation index to a classical domain interval, the distance ($\rho_j(v_i)$) should be calculated first, and then the correlation function ($K_j(v_i)$) should be calculated, and then calculate the correlation degree ($K_j(p)$).

$$\rho(v_i, v_{ij}) = |v_i - \frac{1}{2}(a_{ij} + b_{ij})| - \frac{1}{2}(b_{ij} - a_{ij}) \quad (8.1)$$

$$\rho(v_i, v_{ip}) = |v_i - \frac{1}{2}(a_{ip} + b_{ip})| - \frac{1}{2}(b_{ip} - a_{ip}) \quad (8.2)$$

Where: $\rho(v_i, v_{ij})$-- the distance between a point (v_i) and an interval (v_{ij});

$\rho(v_i, v_{ip})$-- the distance between a point (v_i) and an interval (v_{ip});

$$K_j(v_i) = \begin{cases} \frac{\rho(v_i, v_{ij})}{\rho(v_i, v_{ip}) - \rho(v_i, v_{ij})} & v_i \notin v_{ij} \\ \frac{-\rho(v_i, v_{ij})}{|v_{ij}|} & v_i \in v_{ij} \end{cases} \quad (9)$$

In formula (9) : Kj(vi) -- correlation function, index c of the object to be evaluatediAbout the degree of affiliation of category J.

$|v_{ij}|$ is the length of the interval $[a_{ij}, b_{ij}]$, which is equivalent to $|b_{ij} - a_{ij}|$.

$$K_j(p) = \sum_{i=1}^{n} W_i K_j(v_i) \quad (10)$$

In formula (10) : $K_j(p)$ -- Under the consideration of the weight of each index, each index of the object to be evaluated ciThe combined value of the correlation degree of class j.

5. Determine the rating level.

If K_{ji}=max [$K_j(B_i)$], (j=1,2, ..., m), then the ith index of the object N to be evaluated belongs to the evaluation level j;

If K_j=max[$K_j(N)$], (j=1,2, ..., m), then the object N to be evaluated belongs to the evaluation level J.

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3. The establishment of local digital government capacity system based on AHP

3.1. Selection of evaluation indexes

This article selects leshan government website as the local government portal website of evaluation object, the digital government always report for reference (2019 edition) in the index system of local government portal site due to the measurement standard is general to local governments, and therefore difficult to specifically reflects the local e-government development stage and different stages of appeal, the standards need to experience a specific process of correction in the original report on the index system with local characteristics, both scientific and practical evaluation work, add, add and modify some of the index name and structure system, has formed six first-level indicators, 18 secondary indicators,The indicators and their codes are shown in Table 1.

Table 1 Comprehensive index system of local government portal website evaluation

The target layer	Level indicators	The secondary indicators	Effective measurement
Government portal website evaluation	Information dissemination (B_1)	Basic Information Disclosure (B_{11})	Open letter to agency information, documentation, columns and timeliness
		Information Disclosure in Priority Areas (B_{12})	Disclosure of financial information, suggestions and proposals, and other disclosure matters according to law
		Center Work Implementation Publicity (B_{13})	Work deployment reality and publicity level
		Data openness (B_{14})	Data opening catalog, data quality, development and utilization
		Public Protection (B_{15})	Validity of directory retrieval and disclosure upon request
	Interpreting response (B_2)	Policy Interpretation (B_{21})	The content of interpretation, policy correlation, diversified forms and so on
		Response to Concerns (B_{22})	Responses to major emergencies and hot issues
	Eps Services (B_3)	Service Content (B_{31})	Directory, guide, and form download channel
		Service function (B_{32})	Register login and service rating Settings
		Integrated Package Service (B_{33})	Integrated sections and services for the department's key work topics
	Interactive Communication (B_4)	Enquiry Complaint (B_{41})	Complaint channel construction, message open and statistics
		Solicitation Survey (B_{42})	The channels of the solicitation, the number of the solicitation activities and the responses

	Management Assurance (B_5)	Design Specification (B_{51})	Website name and logo specifications
		Institutional Protection (B_{52})	Intensification of organizational structure, standardization of system and disclosure of annual statements
		Operation and maintenance support (B_{53})	Daily operation and website security protection
	Function promotion (B_6)	Application Function (B_{61})	Intelligent question-and-answer and intelligent search functions
		IPv6 access (B_{62})	The page supports IPv6 access
		User space (B_{63})	Government Portal

3.2. The determination of evaluation principles

In order to facilitate the model calculation and eliminate the influence of dimension on the measurement results, the index is fuzzed in this paper, and the fuzzy membership degree represents the membership degree of an indicator in the evaluation set. This membership degree is assigned by direct reference to the authoritative General Report of Digital Government, as shown in Table 2.In determining the value of the matter-element, by expert grading method, five different industry experts, such as college teachers, e-government websites technical operations staff, as well as the system of local government is engaged in the digital section head, etc., to make it according to this kind of fuzzy membership degree of single grade evaluation, finally eliminate outliers and the evaluation result will be no one to take the average, to form the specific evaluation data of the city government portal website.

Table 2 The scoring principle of the evaluation grade

Assessment level	High Excellence	Distinction	good	Developing Stage	Initial Stage
Scores range	[95100]	[85)	[75) 30	[60,75)	[0, 60)
Level of meaning	The website is very well built	Website construction has the bright spot	Site construction pros and cons are half	Website Construction Deviation	Website construction is not up to standard

3.3. The determination of index weight

At the same time of rating and assigning according to the indicators, we should also focus on the examination, in-depth analysis and consideration of those factors that play a decisive role in the construction of digital government, such as "handling affairs service", which is directly related to the self-interest of the object served.Therefore, this paper applied the analytic hierarchy process (AHP), combined with the weight tendency of the five experts invited, to establish the weight system of the evaluation website. Since the core of this paper is extension analysis, the steps of AHP are skipped, and the results are shown in Table 3.

Table 3 Evaluation index weights of local government portal websites

The target layer	Level indicators	First level index weight	The secondary indicators	Second-level index weight	The comprehensive weights

Government portal website evaluation	Information dissemination (B_1)	0.3006, CI = 0.00495, CR = 0.0044	Basic Information Disclosure (B_{11})	0.1636	0.0492
			Information Disclosure in Priority Areas (B_{12})	0.3574	0.1074
			Center Work Implementation Publicity (B_{13})	0.1636	0.0492
			Data openness (B_{14})	0.1636	0.0492
			Public Protection (B_{15})	0.1517	0.0456
	Interpreting response (B_2)	0.0776 CI = 0, CR = 0	Policy Interpretation (B_{21})	0.6667	0.0517
			Response to Concerns (B_{22})	0.3333	0.0259
	Eps Services (B_3)	0.0988, CI = 0, CR = 0	Service Content (B_{31})	0.4000	0.0395
			Service function (B_{32})	0.2000	0.0198
			Integrated Package Service (B_{33})	0.4000	0.0395
	Interactive Communication (B_4)	0.2512 CI = 0, CR = 0	Enquiry Complaint (B_{41})	0.5000	0.1256
			Solicitation Survey (B_{42})	0.5000	0.1256
	Management Assurance (B_5)	0.1237, CI = 0.0268, CR = 0.0516	Design Specification (B_{51})	0.2599	0.0321
			Institutional Protection (B_{52})	0.4126	0.0510
			Operation and maintenance support (B_{53})	0.3275	0.0405
	Function promotion (B_6)	0.1482, CI = 0, CR = 0	Application Function (B_{61})	0.6667	0.0988
			IPv6 access (B_{62})	0.1667	0.0247
			User space (B_{63})	0.1667	

4. Application of matter-element extension theory in local digital government capability evaluation

4.1. Data source background

This the object of this test is leshan local government portal website, invites experts from five industries or person involved in the fuzzy membership grade, and their scores of each index hierarchy evaluation which constitutes the 6 d of the matter-element model, the grade of every level index excluding the extreme values, after the simple average of the extension model for evaluation of the matter-element quantity, specific data are shown in table 4.

Table 4 Raw data of Leshan municipal government portal website evaluation

Level indicators	The secondary indicators	Expert 1	Experts 2	Experts 3	Experts 4	Experts 5	average
The information release	Disclosure of Basic Information	88.0	85.0	85.0	95.0	80.0	86.6
	Information disclosure in key areas	86.3	88.3	85.0	91.7	85.0	87.3
	Center work implementation publicity	86.0	80.0	80.0	80.0	70.0	79.2
	Open data	92.7	81.7	85.0	86.7	83.3	85.9
	Public security	75.0	90.0	95.0	85.0	95.0	88.0
Interpretation of the response	Policy interpretation	89.0	80.0	75.0	70.0	60.0	74.8
	In response to concerns	94.0	90.0	90.0	85.0	80.0	87.8
Business services	The service content	85.7	95.0	93.3	93.3	90.0	91.5
	The service function	77.0	87.5	87.5	87.5	70.0	81.9
	Integrated Package Service	89.0	90.0	80.0	90.0	60.0	81.8
interactive	Consulting the complaint	87.0	87.5	85.0	85.0	90.0	86.9
	For investigation	77.5	85.0	70.0	82.5	70.0	77.0
Management of security	The design specification	96.0	95.0	87.5	100.0	95.0	94.7
	Institutional guarantee	76.7	86.7	83.3	66.7	73.3	77.3
	Operational security	85.5	77.5	85.0	82.5	77.5	81.6
Function to promote	Application functions	80.5	72.5	70.0	85.0	65.0	74.6
	IPv6 access	60.0	60.0	85.0	60.0	99.0	72.8
	The user space	70.0	60.0	80.0	60.0	60.0	66.0

4.2. Multi-level extension evaluation and MATLAB implementation

From the theoretical formula of extension evaluation, it can be seen that judging each quantity value and each level of C_i and N_j for each evaluation category correlation, the amount of calculation is very large, and involves many repetitive work, manual or computer calculation efficiency is very low, so this article with the help of MATLAB data analysis and scientific computing power, but also facilitate the original data input and output, calling Excel interactive positioning technology based on MATLAB, by its existing code and procedures for extension analysis calculation.

1. Level I evaluation.

First of all, it is necessary to carry out the extension analysis at the level of second-level indicators. According to the weight of each second-level indicator to the first-level indicator it

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belongs to, the correlation degree of each first-level indicator in each evaluation grade is calculated, namely:

$$K(B_i) = \begin{bmatrix} K(B_1) \\ K(B_2) \\ \vdots \\ K(B_i) \end{bmatrix}$$

For $K(B_1)$, its secondary indicators contains 5 numbers（B_{11}, B_{12}, B_{13}, B_{14}, B_{15}）.In the extension evaluation model of B_1 , the five second-level indicators are Ci, (i = 1,2..., 5). Thus, the classical domain (see Table 5), data to be evaluated (see Table 6) and weight vector (see Table 7) of the model can be sorted out.

Table 5 is about B1The classical domain of the extension model

	Level 1		Level 2		Level 3		Level 4		Level 5	
	The lower limit a	Cap of b	The lower limit a	Cap of b	The lower limit a	Cap of b	The lower limit a	Cap of b	The lower limit a	Cap of b
Index 1	100	95	95	85	85	75	75	60	60	0
Indicator 2	100	95	95	85	85	75	75	60	60	0
Measure 3	100	95	95	85	85	75	75	60	60	0
Indicators of 4	100	95	95	85	85	75	75	60	60	0
Measure 5	100	95	95	85	85	75	75	60	60	0

Table 6 is about B1The matter-metadata to be evaluated in the extension model

	Object 1
Index 1	86.60
Indicator 2	87.27
Measure 3	79.20
Indicators of 4	85.87
Measure 5	88.00

Table 7 is about B1The weight of each index of the extension model

	Index 1	Indicator 2	Measure 3	Indicators of 4	Measure 5
The weight W	0.1636	0.3574	0.1636	0.1636	0.1517

Enter the code in the Editor and save it as “. M “ file. Run the “. M “ file in the MATLAB command window. Drag the mouse and select the contents in the above table (Tab. 5～ 7) into the classical field, the data to be evaluated and the weight vector area, then the relevant B_1 can be obtained. The results of grade correlation were as follows: kp =（-0.5000 -0.3888 -0.4369 -0.6429 -0.8571）. A partial code diagram of the running process is shown in Figure 1.

```
clear
clc
%R0存放经典域的上下限的所有数据
disp('请在弹出的Excel表格中指定经典域');
R0=xlsread('data_wuyuan.xls',-1);
%x存放一个待评对象n个特征的数据，读入一个评价单元的一组数据，
disp('请在弹出的Excel表格中指定待评价物元的数据');
x=xlsread('data_wuyuan.xls',-1);
%w存放权重向量，权重用其他方法获得后直接载入。读入权重，权重
disp('请在弹出的Excel表格中指定各指标的权重');
w=xlsread('data_wuyuan.xls',-1);
%n表示特征个数，即评价指标的个数
%m代表评价等级或者类型的个数
%a代表经典域下限矩阵
%b代表经典域上限矩阵
%ap代表节域下限向量
%bp代表节域上限向量
%kp指在考虑指标重要性程度的基础上，待评事物 （对象、方案等）
%jstar指级别变量特征值
```

(a)

```
for g=1:fal
for i=1:n
    for j=1:m
    %判断经典域中某区间上下限是否相同
    if a(i,j)==b(i,j)
        %指标值与区间上下限相同时，距为0
        if x(i,g)==a(i,j)
            k(i,j)=0;
        else
            pp=abs(x(i,g)-0.5*(ap(i)+bp(i)))-0.5*(bp(i)-ap(i))
            k(i,j)=abs(x(i,g)-a(i,j))/(pp-(abs(x(i,g)-a(i,j))));
        end
    else
        %指标值落在区间内（含区间端点）时的算法
        if (x(i,g)>=a(i,j)&&x(i,g)<=b(i,j))
            %计算距（点与经典域区间的距）
            p=abs(x(i,g)-0.5*(a(i,j)+b(i,j)))-0.5*(b(i,j)-a(i,j));
            %计算关联函数（x值在考察区间内）
            k(i,j)=-p/abs(b(i,j)-a(i,j));
        else
            %指标值落在区间外时的算法
            %计算距（点与经典域区间的距）
```

(b)

```
            p=abs(x(i,g)-0.5*(a(i,j)+b(i,j)))-0.5*(b(i,j)-a(i,j));
            %点与节域区间的距离
            pp=abs(x(i,g)-0.5*(ap(i)+bp(i)))-0.5*(bp(i)-ap(i));
            %计算关联函数（x值不在考察区间内）
            k(i,j)=p/(pp-p);
        end
    end
end
end
kp=w*k
%计算最大的kp值以及对应的类别号
[kpmax,j0(g)]=max(kp)

if kpmax<0
    warning('所有的kp值小于0');
end
```

(c)

Figure 1 Expansion evaluation and MATLAB implementation of part of the code diagram

Similarly, the above method can be used to obtain the membership degree of all first-level indicators on each evaluation matter-element. The results are shown in Table 8.

Table 8 Extension evaluation results of first-level indicators

project		correlation					evaluation level
		High Excellence	Distinction	Good	Developing Stage	Initial Stage	
Level 1 indicators	B_1	0.5000	0.3888	0.4369	0.6429	0.8571	Distinction
	B_2	0.5000	0.4203	0.3627	0.4783	0.7913	good
	B_3	0.5000	0.4179	0.2784	0.5365	0.8146	good
	B_4	0.5000	0.4045	0.3764	0.5688	0.8275	good
	B_5	0.5000	0.4078	0.3360	0.5666	0.8267	good
	B_6	0.5000	0.4238	0.2751	0.5034	0.8014	good

2. Secondary evaluation.

K (N) =

$$[0.3006 \quad 0.0776 \quad 0.0988 \quad 0.2512 \quad 0.1237 \quad 0.1482] \cdot \begin{bmatrix} -0.5000 & -0.3888 & -0.4369 & -0.6429 & -0.8571 \\ -0.5000 & -0.4203 & -0.3627 & -0.4783 & -0.7913 \\ -0.5000 & -0.4179 & -0.2784 & -0.5365 & -0.8146 \\ -0.5000 & -0.4045 & -0.3764 & -0.5688 & -0.8275 \\ -0.5000 & -0.4078 & -0.3360 & -0.5666 & -0.8267 \\ -0.5000 & -0.4238 & -0.2751 & -0.5034 & -0.8014 \end{bmatrix}$$

$$=[-0.50005 \quad -0.4056395 \quad -0.36386828 \quad -0.57095288 \quad -0.82842989]$$

Therefore, kpmax =-0.36386828, the corresponding evaluation level is "Good".

Through the above data, it can be seen that the level of the Leshan municipal government portal website is "good". According to the principle of maximum membership degree, the government portal website is generally "Good", followed by " Distinction ".

And in the primary indicators: information release, reading response, business services, interactive communication, security management, promotion of these a few respects function, information release for " Distinction " evaluation results, the rest are "good", suggesting that the local government in the aspect of information release is superior to other aspects of digitization construction, reflecting the area experience worthy of learning in the information release, also alert the balanced development of the local government at the same time, pay attention to the construction of the remaining five levels, " Fill short board, strengthen the advantage " to achieve the overall digital government construction.

To this, the local government should take the portal website and hosting service functions, and communities in supporting digital governance as the main carrier, the national strategy of comprehensive planning combined with the characteristics of local development layout, plan as a whole to carry out the "difference" stage of the digitalization construction of the government, expand the data of the whole, open, sharing, attaches great importance to the network security and network civilization single governance, for the construction of service government through channels.

5. Conclusion

In conclusion, this article with the help of matter-element model of extension theory makes assessment of a government site; The final result is of "Good stage" but towards "Distinction". Note that this result is slightly different for an earlier "Distinction", result, in which the author applied a fuzzy hierarchy evaluation method. We can see from the difference that the extension analysis is more accurate compared to the fuzzy evaluation and can effectively response the same site at the same level (or similar level) of different bias degree, which provides methodological guidance for the big data refinement need in digital government construction.

Therefore, the extension comprehensive evaluation is practical and feasible in the website evaluation, and it is feasible with many evaluation objects involving obvious grades. Its intuitive, convenient and simple operation process makes the quantitative evaluation more scientific, the combination of qualitative and quantitative makes the logic more complete, and this method is conducive to computer realization, which greatly improves the efficiency and accuracy of the evaluation. In the future study and research, the matter-element extension model will have more diverse application spaces and unique advantages.

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