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The Comparative Study of the E-government Application in Promoting Local Tourism in China

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Abstract

The internet revolution and advances in information and communication technology (ICT) have dramatically changed how citizens and business interact with their government. Almost all the government website supply the local tourism information since the tourism is becoming increasingly important for local economic development. This paper is an attempt to compare the current development of the e-government in terms of improving the local tourism industry between the eastern and western medium-sized cities in China.

Keywords: *E-government, Local tourism industry, Comparative, China*

1. Introduction

E-government refers to the use of information and communication technology by governments to provide digital services to citizens, government employees, business and other agencies online through the internet, at local, national or international level. There are many benefits to transforming traditional public services into e-government services, including cost-effective delivery of service, integration of service, reduction in administrative costs, a single integrated view of citizens across all government service, and faster adaptation to citizens' needs [1, 2].The advantages of e-government in timeliness, responsiveness, and cost containment are substantial. For example, e-government allows for interactions with government without the limitations of time and space imposed by office hours and municipal buildings, resulting in reductions in operation inefficiencies, redundant spending, and excessive paperwork. E-government initiatives are deployed not only to enhance citizen services and cost savings in government administration but also to improve transparency and accountability in government functions.

The benchmarking and assessing e-government is necessary to monitor performance and progress by individual countries and identify areas to improve. The evaluation of e-government has been proven to be complex and important in both theory and practice [3-7]. The complexity is mostly due to the multiple perspectives involved, the difficulties in quantifying benefits, and the social and technical context of use.

This study is focused on comparing the application of e-government in promoting local tourism in western and eastern medium-sized cities in China. The remainder of this study is organized as follows. Section 2 introduces the related literature about e-government. Following is a brief introduction about the fuzzy TOPSIS (Theory of Order Preference by Similarity to the Ideal Solution) which is employed in this research. Section 4 describes an empirical study of e-government application evaluation and comparison in promoting local tourism in western and eastern cities in China. Finally, major issues and challenges for local governments in promoting local tourism are examined and discussed.

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2. Literature Review

The e-government literature has focused predominantly on implementation [8-15] security and authentication [16-19], technology acceptance [20-23], interoperability and connectivity [24-26], project planning and design [27-30], and procurement and purchasing [31,32].

Huang [33] summarize the differences between traditional government and electronic government, as shown in Table 1:

Table 1. Differences between Traditional and Electronic Government

Traditional government	**E-government**
Bureaucratic controls, clear authority hierarchy	Client service and community empowerment, leveled/blurred hierarchy
Process centricity	Customer centricity
Isolated administrative functions and data collection	Integrated resource service and knowledge focus
Functional specialization of units or geographic bias	Breakdown of unit barrier, government integration
Decision based on uniform rules and awkward reporting approvals	Decision based on negotiation and implicit controls and approvals
Isolated administrative functions	Integrated resource services
Time-consuming process	Rapid streamlined responses
Disjointed information technologies	Integrated network solutions

There are many researches focused on the relationship between the tourism and general economic growth. Promoting local tourism through e-government application is an effective way to improve the competitiveness of the local tourism industry [34]. The study of Patelis [35] focused on the efficient implementation of e-government in a tourism sector, as a powerful e-decision support system for tourism demand analysis and forecasting. The related researches show that there is an emerging need for improvement in promoting local tourism through e-government application. Tavana [6] propose a hybrid fuzzy model, based on the group Analytic Network Process (ANP) and TOPSIS, to assess a community's overall e-government readiness from a Citizen Relationship Management (CIRM) perspective. Hsieh [7] adopt a computational approach suggested in the literature to measure the effectiveness of Taiwan's established, city- and county-level (25 cities and counties, and 1411 governmental units) governments' websites, and their research reveals that the well-developed web services provided by Taiwan's government are apparent in two geographically dispersed cities (north and south) and one county in the northern region of Taiwan. Alawneh [36] identify the key factors that determine Jordanians' e-Satisfaction with Jordan's e-government services portal. Five hypotheses are formulated and five factors are identified (*i.e.*, security and privacy, trust, accessibility, awareness of public services, and quality of public services) that may affect the Jordanians' level of satisfaction towards using the Jordan e-government portal. They also provide insights for both practitioners and governmental policy-makers to enhance e-government portals via accounting diverse factors of technical, behavioral, managerial, and motivational aspects.

3. Methodology

To describe the evaluation method clearly, let us present the procedure of fuzzy TOPSIS. We first formulate a Fuzzy Multiple Criteria Decision Making (FMCDM) problem about the

comparative evaluation of value creation strategy performance. The FMCDM problem involves *m* alternatives, which are evaluated on *n* criteria.

The problem can be modeled: $R = \left[R_{ij} \right]_{m \times n}$

In the evaluating process, according to Herrera [37] the weights expressed with the linguistic terms, represent the important degrees of criteria from experts via surveys on subjective assessments. These linguistic terms are categorized into very low (VL), low (L), medium (M), high (H) and very high (VH). Assume that all linguistic terms can be transferred into triangular fuzzy numbers, and these fuzzy numbers are limited in [0, 1]. The values of these representative indices are set into performance ratings and the setting method is expressed as follows. Let $b_{ij}(e)$ indicate the value of representative index *j* of alternative *i* on the period *e*, where $i = 1,2,\ldots,m$; $j = 1,2,\ldots,n$; $e = 1,2,\ldots,t$. Define

$$R_{ij} = (r_{ij}^{l}, r_{ij}^{m}, r_{ij}^{r})$$

Where $r_{ij}^{l} = \min\{b_{ij}(e) \mid e = 1,2,...,t\}$,

$$r_{ij}^{m} = \frac{1}{t}\sum_{e=1}^{t} b_{ij}(e), \; r_{ij}^{r} = \max\{b_{ij}(e) \mid e = 1,2,...,t\}$$

After constructing the fuzzy decision matrix, it is normalized.

As $b_{ij}(e)$ is benefit item

$$g_{ij}^{l} = \frac{b_{ij}^{l} - \min_i b_{ij}^{l}}{\max_i b_{ij}^{r} - \min_i b_{ij}^{l}}, \; g_{ij}^{m} = \frac{b_{ij}^{m} - \min_i b_{ij}^{l}}{\max_i b_{ij}^{r} - \min_i b_{ij}^{l}}, \; g_{ij}^{r} = \frac{b_{ij}^{r} - \min_i b_{ij}^{l}}{\max_i b_{ij}^{r} - \min_i b_{ij}^{l}}$$

As $b_{ij}(e)$ is cost item, then

$$g_{ij}^{l} = \frac{\max_i b_{ij}^{r} - b_{ij}^{l}}{\max_i b_{ij}^{r} - \min_i b_{ij}^{l}}, \; g_{ij}^{m} = \frac{\max_i b_{ij}^{r} - b_{ij}^{m}}{\max_i b_{ij}^{r} - \min_i b_{ij}^{l}}, \; g_{ij}^{r} = \frac{\max_i b_{ij}^{r} - b_{ij}^{r}}{\max_i b_{ij}^{r} - \min_i b_{ij}^{l}}$$

By Up and Lo, anti-ideal and ideal solutions of alternatives are found. Let

$A^{-} = \left[G_1^{-}, G_2^{-}, ..., G_n^{-} \right]$ and $A^{+} = \left[G_1^{+}, G_2^{+}, ..., G_n^{+} \right]$ be the anti-ideal and ideal solutions respectively , where $G_j^{-} = Lo\{G_{ij} \mid i = 1,2,...,m\} = (g_j^{l-}, g_j^{m-}, g_j^{r-})$ and

$$G_j^{+} = Up\{G_{ij} \mid i = 1,2,...,m\} = (g_j^{l+}, g_j^{m+}, g_j^{r+})$$

for j=1,2,…,*n*

Assume that d_{ij}^{-} and d_{ij}^{+} indicate the distance from G_{ij} to G_j^{-} and G_j^{+}, respectively, where

$$d_{ij}^{-} = d(G_{ij}, G_j^{-}) = \sqrt{\frac{1}{3}[(g_{ij}^{l} - g_j^{l-})^2 + (g_{ij}^{m} - g_j^{m-})^2 + (g_{ij}^{r} - g_j^{r-})^2]}$$

and

$$d_{ij}^{+} = d(G_{ij}, G_j^{+}) = \sqrt{\frac{1}{3}[(g_{ij}^{l} - g_j^{l+})^2 + (g_{ij}^{m} - g_j^{m+})^2 + (g_{ij}^{r} - g_j^{r+})^2]}$$

for $i = 1,2\ldots,m$; $j = 1,2\ldots,n$

Let $W_{jk} = (w_{jk}^{l}, w_{jk}^{m}, w_{jk}^{r})$ be a triangular fuzzy number among which the weight of criterion C_j is expressed with linguistic term by expert E_k, and then set into the fuzzy number, where $j = 1,2,\ldots,n$; $k = 1,2,\ldots,p$. Assume W_j to be the average weight of criterion C_j, so

$$W_j = (w_j^{l}, w_j^{m}, w_j^{r}) = (1/p) \otimes (W_{j1} \oplus W_{j2} \oplus \ldots \oplus W_{jp}), j=1,2,\ldots,m$$

Where $w_j^{l} = \sum_{k=1}^{p} w_{jk}^{l} / p$, $w_j^{m} = \sum_{k=1}^{p} w_{jk}^{m} / p$, $w_j^{r} = \sum_{k=1}^{p} w_{jk}^{r} / p$

Let D_i^- and D_i^+ indicate the weighted distance from alternative A_i to anti-ideal solution A^- and ideal solution A^+ respectively. Define

$D_i^- = \sum_{j=1}^{n} W_j \otimes d_{ij}^-$ and $D_i^+ = \sum_{j=1}^{n} W_j \otimes d_{ij}^+$,

$i=1,2,\ldots,m$

Let $ND^- = Lo\{D_i^- \mid i = 1,2,\ldots,m\}$, $ND^+ = Up\{D_i^- \mid i = 1,2,\ldots,m\}$, $PD^- = Lo\{D_i^+ \mid i = 1,2,\ldots,m\}$ and $PD^+ = Up\{D_i^+ \mid i = 1,2,\ldots,m\}$

Thus we assume that anti-ideal and ideal solutions of $[D_i^-, D_i^+]$ are $[ND^-, PD^+]$ and $[ND^+, PD^-]$. Let A_i^- and A_i^+ denote the distance summaries from $[D_i^-, D_i^+]$ to $[ND^-, PD^+]$ and $[ND^+, PD^-]$, respectively, so $A_i^- = d(D_i^-, ND^-) + d(D_i^-, PD^+)$

and $A_i^+ = d(D_i^+, ND^+) + d(D_i^+, PD^-)$

Finally, the closeness coefficient A^* of alternative A_i is defined as $A^* = \frac{A_i^-}{A_i^- + A_i^+}$, $i=1,2,\ldots,m$

The ranking order of alternatives can be derived by their closeness coefficients.

4. Data Collection and Results Analysis

This research is focus on the e-government application in western and eastern medium-sized cities in China, so ten western cities and ten eastern cities with the population between 300 thousand and 500 thousand are selected.

A pre-designed observation sheet is used to collect all necessary data from the observation. There are five sections in the observation sheet: (1) the demographic information of the city, (2) visual effect of the website, (3) technology features, (4) popularity of the website, and (5) available tourism information on the website. Three raters are participated to make an appropriate rating and each of them needs to evaluate all 10 websites. Based on a pre-test with selected criteria for consistency consideration, the selected items from all websites are rated with the commonly used Little Scale, *i.e.*, from a scale of 1 (being the worst possible scenario) to 5 (meaning excellent) accordingly. The results are summarized as follows:

Table 2. Summary of Visual Effect of Website

2. Visual effect of the website		Eastern cities		Western cities	
category	ranking	number	%	number	%
2.1 Color assortment	Need improvement (< 2.5)	1	10	2	20
	Satisfied (≥2.5)	9	90	8	80
Total		10	100	10	100
2.2 Website structures	Need improvement (< 2.5)	2	20	3	30
	Satisfied (≥2.5)	8	80	7	70
Total		10	100	10	100
2.3 Visual attraction	Need improvement (< 2.5)	2	20	2	20
	Satisfied (≥2.5)	8	80	8	80
Total		10	100	10	100
2.4 Multimedia	Need improvement (=3)	7	70	8	80
	Satisfied (=5)	3	30	2	20
Total		10	100	10	100
2.4.1 Video	Exist in website (1)	8	80	8	80
	No Exist in website (0)	2	20	2	20
2.4.2 Photo	Exist in website (1)	10	100	10	100
	No Exist in website (0)	0	0	0	0
2.4.3 Text	Exist in website (1)	10	100	10	100
	No Exist in website (0)	0	0	0	0

As shown in Table 2, there is not obvious gap between the western cities and eastern cities in terms of visual effect of the e-government websites. However, more than 70% of the selected cities need to improve the multimedia applications.

Table 3. Summary of Technology Features of Website

3. Website performance		Eastern cities		Western cities	
category	ranking	number	%	number	%
3.1 Average opening time of main page	Time-consuming (< 5.5s)	7	70	6	60
	Time-consuming (≥5.5s)	3	30	4	40
Total		10	100	10	100
3.2 Average opening time of main tab on the main page	Time-consuming (< 3.0s)	4	40	3	30
	Time-consuming (≥3.0s)	6	60	7	70
Total		10	100	10	100
3.4 Problems with opening the main page	No Broken Links (1)	2	20	3	30
	Exist Broken Links (0)	8	80	7	70
Total		10	100	10	100

Since the leadtime for opening a webpage has been ranked very important by internet users, the average opening leadtime of main pages and main tab on the main page are used to evaluate the major technology feature of all observed websites. As shown in Table 3, the average leadtime of opening main page is quite slow, and more than 70% cities have the problems with opening the main pages.

Table 4. Summary of Popularity of Websites

4. popularity of the website		Eastern cities		Western cities	
category	ranking	number	%	number	%
4.1 Pageviews	Amount (＜500000)	0	0	3	30
	Amount (≥500000)	10	100	7	70
Total		10	100	10	100
4.2 Percentage of visiting the main page	Only visit the homepage (＜5%)	7	70	7	70
	Others (≥5%)	3	30	3	30
Total		10	100	10	100
4.3 Average visit time of each webpage	Time on site (＜2.0s)	4	40	6	60
	Time on site (≥2.0s)	6	60	4	40
Total		10	100	10	100
4.4 WIF	WIF(＜3)	5	50	7	70
	WIF(≥3)	5	50	3	30
Total		10	100	10	100

In this research, based on the related available literature, four measures are employed to assess the popularity of the selected websites: (a) online traffic rank, (b) the percentage of visitor only visiting main page, (c) average visit time, and most importantly, (d) Web Impact Factor (WIF). Currently, WIFhas been used as a quantitative tool for ranking, evaluating, categorizing, and comparing web sites, web pages, web domains and sub-domains in the IT industry. The WIF of a website is determined by the total number of other websites linked to this specific website divided by the total available websites online. A clear indication here is that half of observed websites have a WIF less than 3, implying that there are very limited websites outside have a link to those local government websites.

Table 5. Summary of Available Tourism Information of Website

5. tourism content of the website		Eastern cities		Western cities	
category	ranking	number	%	number	%
5.1 is “tourism” included in the main tab on the main page?	Exist (1)	8	80	9	90
	Non exist (0)	2	20	1	10
Total		10	100	10	100
5.2 Office phone	Exist (1)	8	80	4	40
	Non exist (0)	2	20	6	60
Total		10	100	10	100
5.3 E-mail	Exist (1)	1	10	0	0
	Non exist (0)	9	90	10	100
Total		10	100	10	100
5.4 Online help	Exist (1)	7	70	10	100
	Non exist (0)	3	30	0	0
Total		10	100	10	100
5.5 Message board	Exist (1)	9	90	7	70
	Non exist (0)	1	10	3	30
Total		10	100	10	100
5.7 Website update frequency	Need improvement (＜2.5)	2	20	5	50
	Satisfied (≥2.5)	8	80	5	50
Total		10	100	10	100
5.8 Introduction of tourist	Need improvement (＜2.5)	4	40	2	20

	Satisfied (≥2.5)	6	60	8	80
Total		10	100	10	100
5.9 Attraction routes	Need improvement (＜2.5)	6	60	3	30
	Satisfied (≥2.5)	4	40	7	70
Total		10	100	10	100
5.10 Hotels	Need improvement (＜2.5)	9	90	10	100
	Satisfied (≥2.5)	1	10	0	0
Total		10	100	10	100
5.11 Shopping	Need improvement (＜2.5)	9	90	3	30
	Satisfied (≥2.5)	1	10	7	70
Total		10	100	10	100
5.14 Local weather forecast	Only day Weather (3)	3	30	4	40
	Future weather (5)	7	70	6	60
Total		10	100	10	100
5.15 Multi-languages	Only Chinese (0)	9	90	9	90
	Multi-languages (1)	1	10	1	10
Total		10	100	10	100

The most important and related data collected in this research, perhaps, is the current available tourism information on the websites, in terms of promoting local tourism through e-government application, which are summarized in Table 5. It is can be seen from this Table that comparing with the eastern cities, the development of the e-government application is more slowly. For example, only two of the selected eastern cities don't supply the office phone, while more than half of the selected western cities don't supply the office phone.

To further identify the relative importance of the four major measurements discussed in the earlier section for their effects on the promoting local tourism through e-government application, the fuzzy TOPSIS, as a quantitative tool, is employed in this research. The decision problem consists of three levels: the objective of the problem is the highest level, while in the second level, the aspects are listed including visual effect of the e-government websites, technology performance of the website, popularity of the website and the tourism information online. The sub-criteria are listed in the third level including nineteen criteria as shown in Table 6.

Table 6. Criteria for Measuring E-government Application in Promoting Local Tourism

Goal	Aspects	Criteria
E-government in promoting local tourism	Visual effect of the website	C_1 Color assortment C_2 Website structures C_3 Visual attraction C_4 Multi-media
	Technology performance of the website	C_5 Average leadtime of main page C_6Average leadtime of main tab on the main page C_7 Problems with opening the main page

	Popularity of the website	C_8 Traffic ranking C_9 Percentage of visiting only one page C_{10} Average visit time of each webpage. C_{11} WIF
	Information of the tourism	C_{12} Contact information C_{13} Website update frequency C_{14} Introduction of tourist C_{15} Tourist routes C_{16} Hotels and restaurants C_{17} Shopping C_{18} Local weather forecast C_{19} Multi-languages

The weights of the representative criteria are given with linguistic terms, *i.e.*, VL, L, M, H, and VH, employed by four experts E_1, E_2, E_3 and E_4, as shown in Table 7.

Table 7. The Linguistic Weights Given by Five Experts

Sub- Criteria	E1	E2	E3	E4
SC_1	H	M	H	VH
SC_2	H	H	VH	H
SC_3	M	H	VH	M
SC_4	L	VL	M	M
SC_5	M	L	VL	L
SC_6	L	VL	VL	L
SC_7	L	M	L	L
SC_8	VH	H	M	H
SC_9	M	H	M	H
SC_{10}	H	M	H	H
SC_{11}	VH	H	VH	VH
SC_{12}	VL	VL	VL	L
SC_{13}	H	M	H	H
SC_{14}	M	H	H	H
SC_{15}	M	L	M	M
SC_{16}	M	L	M	L
SC_{17}	L	L	VL	L
SC_{18}	M	H	L	M
SC_{19}	H	M	M	L

In the next step, the raters are asked to evaluate the twenty cities (ten eastern cities and ten western cities), and considering the limit of the page, only part of the results are shown in Table 8:

Table 8. Part of the Evaluation Results using Fuzzy Linguistic Variables

City	No.	SC_1	SC_2	SC_3	SC_4	SC_5	SC_6	SC_7	SC_8
Eastern cities	1	M	H	M	M	H	H	VH	L
	2	H	M	L	VH	M	H	VL	H
	3	L	H	M	M	L	H	VH	M
	4	H	M	M	VH	L	H	VL	L
	5	H	H	VH	VH	M	M	VL	H
	6	L	H	VL	M	H	M	VL	VL

	7	M	M	M	M	L	M	VL	M
	8	M	M	L	M	L	L	VL	VH
	9	M	M	M	M	M	H	VL	M
	10	M	L	M	M	M	H	VL	VH
Western cities	11	M	M	M	M	H	H	VL	M
	12	H	M	H	VH	M	H	VL	VH
	13	M	M	M	M	M	H	VL	VH
	14	M	M	M	M	M	H	VL	H
	15	M	M	M	M	M	M	VH	VL
	16	M	M	M	M	M	H	VL	H
	17	L	M	M	M	M	H	VL	L
	18	L	M	M	M	L	L	VL	VL
	19	M	L	M	VH	VL	L	VH	VL
	20	L	L	L	M	VL	L	VH	L

Then the normalized decision matrix is then derived from the original data as follows:

The larger, the better type [38]:

$$r_{ij} = \frac{\left[x_{ij} - \min\left\{ x_{ij} \right\} \right]}{\left[\max\left\{ x_{ij} \right\} - \min\left\{ x_{ij} \right\} \right]}$$

The smaller, the better type:

$$r_{ij} = \frac{\left[\max\left\{ x_{ij} \right\} - x_{ij} \right]}{\left[\max\left\{ x_{ij} \right\} - \min\left\{ x_{ij} \right\} \right]}$$

The Fuzzy linguistic variable is then transformed into a Fuzzy triangular membership function as shown in Table 9, and then the resulting Fuzzy weighted decision matrix can be derived based on Table 9 and the weights identified before. As discussed in 3.3, the positive ideal and negative ideal solutions can be defined as $\tilde{v}_j^+ = (1,1,1)$ and $\tilde{v}_j^- = (0,0,0),\ j = 1,2,\cdots,n$. The distance of each alternative from A^+ and A^-, as well as the similarities to an ideal solution, is obtained in Table 10

Table 9. Part of the Fuzzy Decision Matrix

City	No.	SC_1	SC_2	SC_3	SC_4	SC_5
Eastern cities	1	(0.35,0.50,0.65)	(0.55,0.70,0.85)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.55,0.70,0.85)
	2	(0.55,0.70,0.85)	(0.35,0.50,0.65)	(0.15,0.30,0.45)	(0.75,0.90,1.00)	(0.35,0.50,0.65)
	3	(0.15,0.30,0.45)	(0.55,0.70,0.85)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.15,0.30,0.45)
	4	(0.55,0.70,0.85)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.75,0.90,1.00)	(0.15,0.30,0.45)
	5	(0.55,0.70,0.85)	(0.55,0.70,0.85)	(0.75,0.90,1.00)	(0.75,0.90,1.00)	(0.35,0.50,0.65)
	6	(0.15,0.30,0.45)	(0.55,0.70,0.85)	(0.00,0.10,0.25)	(0.35,0.50,0.65)	(0.55,0.70,0.85)
	7	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.15,0.30,0.45)
	8	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.15,0.30,0.45)	(0.35,0.50,0.65)	(0.15,0.30,0.45)
	9	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)
	10	(0.35,0.50,0.65)	(0.15,0.30,0.45)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)
	11	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.55,0.70,0.85)
	12	(0.55,0.70,0.85)	(0.35,0.50,0.65)	(0.55,0.70,0.85)	(0.75,0.90,1.00)	(0.35,0.50,0.65)
	13	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)

Western cities	14	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)
	15	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)
	16	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)
	17	(0.15,0.30,0.45)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)
	18	(0.15,0.30,0.45)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.35,0.50,0.65)	(0.15,0.30,0.45)
	19	(0.35,0.50,0.65)	(0.15,0.30,0.45)	(0.35,0.50,0.65)	(0.75,0.90,1.00)	(0.00,0.10,0.25)
	20	(0.15,0.30,0.45)	(0.15,0.30,0.45)	(0.15,0.30,0.45)	(0.35,0.50,0.65)	(0.00,0.10,0.25)

Table 10. The Distance of each Alternative from A^+ and A^-

No.	d_i^+	d_i^-	CC_i
1	0.151	0.184	0.550
2	0.177	0.159	0.473
3	0.200	0.135	0.402
4	0.223	0.112	0.334
5	0.104	0.231	0.689
6	0.183	0.153	0.455
7	0.202	0.133	0.397
8	0.130	0.205	0.613
9	0.169	0.167	0.497
10	0.194	0.141	0.422
11	0.156	0.180	0.536
12	0.160	0.175	0.522
13	0.132	0.204	0.607
14	0.171	0.164	0.490
15	0.170	0.165	0.493
16	0.165	0.170	0.507
17	0.185	0.151	0.450
18	0.204	0.132	0.393
19	0.266	0.069	0.206
20	0.200	0.136	0.404

5. Conclusions

This research is an attempt to compare and investigate the current issues and development of the application of e-government in promoting local tourism industry for western and eastern medium-sized cities in China. The objectives for this research are threefold: (1) to examine and evaluate the online tourism promotion already implemented; (2) to identify major issues and challenges for their e-government application of those local governments in promoting local tourism; and (3) to compare the e-government service between the western cities and eastern cities.

The primary data for this research are collected through a comprehensive website evaluation. Fuzzy TOPSIS is employed to evaluate the current online tourism promotion implemented by those selected non-capital city local governments. The data collected from this study show that There is obvious gap between the eastern and western cities, and the e-government application of western cities is relatively slowly than the eastern cities, imply that there is an emerging need for improvement in promoting local tourism through e-government application.

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