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The China eGovernment Development Index Report 2013:

Experiences in Hangzhou Municipality, Zhejiang Province

二零一三中国电子政府发展指数报告——浙江省杭州市的经验

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Executive Summary

执行摘要

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I. Introduction

Information and communication technology ("ICT"), ranging from databases and fax machines to mobile devices and cloud computing, has dramatically influenced the ways in which governments, businesses, and citizens interact. Incorporating ICT into governments helps strengthen the efficiency, accessibility, and integrity of public services; and may bring about groundbreaking changes in public administration.

The central government of the People's Republic of China ("China") has recognized the importance of utilizing ICT to achieve better governance. So have many local governments in China, including the government of Hangzhou Municipality, which has developed a vision for supporting an ICT-related project to help improve "democracy and livelihood". Good Governance International Corp. ("GGI"), a non-profit organization dedicated to promoting good governance around the world, was approached by the government of Hangzhou to help assess the municipality's e-government and offer recommendations for improvement. The resulting project was the China eGovernment Development Index ("CEDI").

The CEDI project has three objectives: (1) to help the local authorities improve the state of e-government in Hangzhou by conducting objective, quantitative assessments of the online information and services provided by local governments; (2) to use this assessment as a basis for making recommendations for improving e-government in Hangzhou; and (3) to educate local officials on best practices for using e-government to increase government transparency and encourage public participation.

To this end, GGI has: developed a protocol based on methods adapted from the United Nations E-Government Development Index ("UNEGDI");[*] collected data on localities' telecommunications infrastructure and human capital, both of which are essential components of the CEDI; and shared the findings and preliminary analyses with international and Chinese experts, as well as Chinese officials. GGI is now releasing the results of this effort in a report entitled *The China eGovernment Development Index Report 2013: Experiences in Hangzhou Municipality, Zhejiang Province* ("CEDI Report"), which will be used as training material for officials in China. Preliminary findings and recommendations were presented at the "International Conference on the Chinese Rule of Law: E-Government and the Rule of Law" held in December 2012 in Hangzhou.

II. The CEDI Methodology

The CEDI methodology is adapted from the UNEGDI, one of the most respected and comprehensive surveys of global e-government. While the UNEGDI has been useful in helping to develop global standards for e-government, it provides limited insight into how these countries have implemented e-government locally and how they can best develop e-government practices that suit their own unique needs. The CEDI fills this gap by providing a standardized model for

[*] GGI is grateful to Kim Andreasson, Frank Bannister, Gregory G. Curtin, Morten Goodwin, Jeremy Millard, and Mikael Snaprud for offering their advice. All of these experts have advised the United Nations on the development of the United Nations E-Government Development Index.

assessing the relative performance of local e-government in delivering services. The result is that local governments can more easily learn from each other's failures and successes and streamline the development of e-government policies and best practices.

The CEDI is comprised of three components, each of which accounts for a third of the CEDI's total value: the Telecommunication Infrastructure Index ("TII"), the Human Capital Index ("HCI"), and the Online Service Index ("OSI"). The TII and HCI measure an assessed area's telecommunication infrastructure (e.g., the number of personal computers per 100 inhabitants) and human capital (e.g., the adult literacy rate) respectively.

The OSI evaluates the e-government services provided by the government website of each assessed area. The assessment is conducted by using a set of survey questions designed in accordance with guidelines found in the Web Content Accessibility Guidelines of the World Wide Web Consortium and with advice from Chinese experts, as well as international e-government experts who have advised on the design of the UNEGDI. Like the UNEGDI, the CEDI's OSI survey questions cover the four different stages of e-government development: Stage I (emerging information services), Stage II (enhanced information services), Stage III (transactional services), and Stage IV (connected services).

The assessed areas are ranked according to their CEDI scores. The CEDI scores are relative, not absolute. This method of ranking is intended to foster healthy competition among local areas and to avoid subjective judgments—which are open to dispute—of what is an "appropriate" level of development.

III. The CEDI Scores and Ranks

The CEDI analyzes e-government development in the 13 districts (*qū* 区), counties (*xiàn* 县), and county-level cities (*shì* 市) in Hangzhou Municipality, Hangzhou Municipality as a whole, and Zhejiang Province, of which Hangzhou Municipality is the capital city. The index produces two separate ranking systems, with the first one covering Hangzhou's 13 localities only and the second one covering all of the 15 assessed areas.

The CEDI Scores and Ranks of the 13 Hangzhou Localities

	TII (13)	Rank	HCI (13)	Rank	OSI (13)	Rank	CEDI (13)	CEDI (13) Rank
01 Binjiang District	0.8194	6	0.7533	5	0.7089	6	0.7605	3
02 Chun'an County	0.0029	13	0.1277	13	0.8354	4	0.3220	13
03 Fuyang City	0.2346	10	0.5421	8	0.6456	7	0.4741	10
04 Gongshu District	0.8788	1	0.8353	4	0.8987	3	0.8709	1
05 Jiande City	0.1293	12	0.4767	10	1.0000	1	0.5353	9
06 Jianggan District	0.8605	3	0.7282	7	0.7215	5	0.7701	2
07 Lin'an City	0.2686	9	0.4022	12	0.3544	10	0.3418	12
08 Shangcheng District	0.8497	4	0.8529	3	0.1519	12	0.6182	6
09 Tonglu County	0.2080	11	0.4643	11	0.6456	7	0.4393	11
10 Xiacheng District	0.8653	2	0.8788	2	0.0000	13	0.5814	7
11 Xiaoshan District	0.2734	8	0.4869	9	0.9620	2	0.5741	8
12 Xihu District	0.8368	5	0.8809	1	0.3291	11	0.6822	4
13 Yuhang District	0.6670	7	0.7289	6	0.6076	9	0.6678	5
green rows: suburban and rural localities								

The above table shows the CEDI scores and ranks of Hangzhou's 13 localities. The highest and lowest ranked localities are Gongshu District and Chun'an County respectively. All of the seven suburban and rural localities in Hangzhou except Yuhang District are ranked No. 8 to No. 13. With a CEDI score of 0.6678, Yuhang District is ranked No. 5.

The CEDI Scores and Ranks of Zhejiang Province, Hangzhou Municipality, and the 13 Hangzhou Localities

	TII (15)	Rank	HCI (15)	Rank	OSI (15)	Rank	CEDI (15)	CEDI (15) Rank
01 Binjiang District	0.8194	6	0.7533	5	0.5657	8	0.7128	4
02 Chun'an County	0.0029	15	0.2944	14	0.6667	6	0.3213	14
03 Fuyang City	0.2346	12	0.5421	9	0.5152	9	0.4306	12
04 Gongshu District	0.8788	1	0.8353	4	0.7172	5	0.8104	1
05 Jiande City	0.1293	14	0.4767	11	0.7980	3	0.4680	10
06 Jianggan District	0.8605	3	0.7282	7	0.5758	7	0.7215	2
07 Lin'an City	0.2686	11	0.4022	13	0.2828	12	0.3179	15
08 Shangcheng District	0.8497	4	0.8529	3	0.1212	14	0.6080	7
09 Tonglu County	0.2080	13	0.4643	12	0.5152	9	0.3958	13
10 Xiacheng District	0.8653	2	0.8788	2	0.0000	15	0.5814	8
11 Xiaoshan District	0.2734	10	0.4869	10	0.7677	4	0.5093	9
12 Xihu District	0.8368	5	0.8809	1	0.2626	13	0.6601	5
13 Yuhang District	0.6670	7	0.7289	6	0.4848	11	0.6269	6
Hangzhou Municipality	0.5006	8	0.6419	8	1.0000	1	0.7142	3
Zhejiang Province	0.3153	9	0.2320	15	0.8384	2	0.4619	11
green rows: suburban and rural localities								

The above table shows the CEDI scores and ranks of Zhejiang Province, Hangzhou Municipality, and the 13 Hangzhou localities. The highest and lowest ranked areas are Gongshu District and Lin'an City respectively. The seven suburban and rural localities in Hangzhou are ranked No. 6 (Yuhang District), 9, 10, and 12–15.

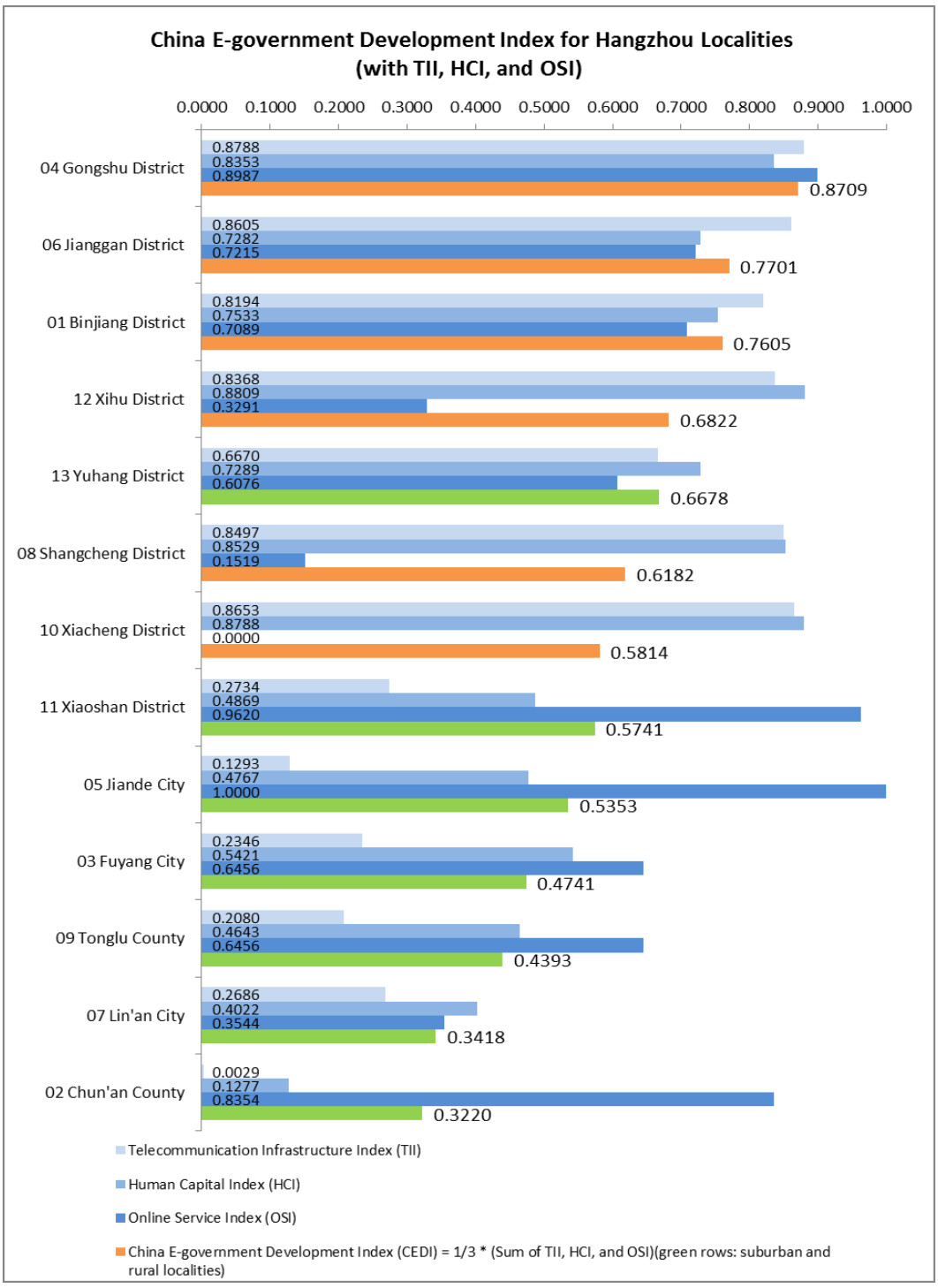
Hangzhou Municipality and Zhejiang Province are ranked No. 1 and No. 2 respectively in the OSI. But their performance in the TII and the HCI is average or even below average, reflecting how these values are affected by the less developed areas in Hangzhou Municipality and Zhejiang Province.

IV. Major Observations

A. There is a "digital divide" between urban and rural/suburban areas

As can be seen from the green "CEDI" rows of the following chart, the six Hangzhou localities with the lowest CEDI scores are all suburban or rural. Yuhang District is the only non-urban locality that scores higher than Hangzhou's urban area.

The TII and HCI scores are highly correlated with an assessed area's economic development level and are the largest determinants of the area's overall CEDI ranking. High OSI scores, however, are not necessarily indicative of a high level of e-government development.



Five of the six CEDI lowest-scoring localities have quite high OSI scores. While their websites are often well-designed, these localities are not effective in providing e-government information and services which are actually used because many inhabitants either do not have

Internet access (as reflected in a low TII score) or lack the necessary level of education to use the existing e-government services effectively (as indicated by a low HCI score).

This disconnect between high quality websites and low overall e-government development is easy to understand. The development of good telecommunication infrastructure and quality education requires extensive resources that less developed localities often cannot afford. On the contrary, because of the relatively low cost of developing websites and making data publicly available, the quality of a government website depends less on an assessed area's overall level of economic development than on the government's willingness to keep the public informed of government information and services.

B. Yuhang District overcomes the "digital divide" because of its better telecommunication infrastructure and human capital

Yuhang District: Scores and Ranks in the CEDI and Each Determinant Index

Yuhang District	Score	Rank among 13 Localities in Hangzhou	Rank among 7 Suburban and Rural Localities in Hangzhou
CEDI	0.6678	5	1
TII	0.6670	7	1
HCI	0.7289	6	1
OSI	0.6076	9	6

Although Yuhang District has a relatively low OSI score, it is ranked No. 1 in the CEDI among Hangzhou's suburban and rural localities. It is ranked No. 1 in the TII among suburban and rural localities because its telecommunication infrastructure construction started early and has received ample government attention. In addition, the district's per capita GDP is high and its inhabitants have a higher disposable income and demand for telecommunication infrastructure. In the HCI, Yuhang District outperforms the other suburban and rural localities in Hangzhou because the government of Yuhang District has put forward and gradually accomplished concrete development goals set for different types of education. Given that Yuhang's telecommunication infrastructure and human capital are already quite impressive, the district will be able to make significant progress in its overall e-government performance if it places more emphasis on developing a more informative and user-friendly website.

C. Localities tend to score higher on OSI Stage III than OSI Stage II

The OSI Scores and Ranks of Zhejiang Province, Hangzhou Municipality, and the 13 Hangzhou Localities[1]

	Stage I: Emerging Information Services	Rank	Stage II: Enhanced Information Services	Rank	Stage III: Transactional Services	Rank	Stage IV: Connected Services	Rank	Total	OSI (15)	OSI (15) Rank
01 Binjiang District	40.00%	13	33.51%	7	74.59%	6	26.92%	13	54.39%	0.5657	8
02 Chun'an County	75.00%	1	31.91%	9	74.18%	7	53.85%	4	56.49%	0.6667	6
03 Fuyang City	50.00%	7	37.23%	4	66.80%	10	46.15%	7	53.35%	0.5152	9
04 Gongshu District	55.00%	3	34.04%	6	75.00%	4	65.38%	1	57.53%	0.7172	5
05 Jiande City	55.00%	3	33.51%	7	81.15%	1	42.31%	8	59.21%	0.7980	3
06 Jianggan District	50.00%	7	31.38%	11	75.82%	3	26.92%	13	54.60%	0.5758	7
07 Lin'an City	55.00%	3	31.91%	9	62.30%	14	34.62%	10	48.54%	0.2828	12
08 Shangcheng District	50.00%	7	24.47%	14	62.70%	13	26.92%	13	45.19%	0.1212	14
09 Tonglu County	55.00%	3	25.53%	13	75.00%	4	50.00%	6	53.35%	0.5152	9
10 Xiacheng District	40.00%	13	23.40%	15	59.02%	15	30.77%	11	42.68%	0.0000	15
11 Xiaoshan District	50.00%	7	42.55%	2	71.31%	9	61.54%	2	58.58%	0.7677	4
12 Xihu District	35.00%	15	30.32%	12	64.75%	11	30.77%	11	48.12%	0.2626	13
13 Yuhang District	45.00%	11	37.23%	4	64.75%	11	57.69%	3	52.72%	0.4848	11
Hangzhou Municipality	60.00%	2	53.19%	1	73.77%	8	42.31%	8	63.39%	1.0000	1
Zhejiang Province	45.00%	11	40.96%	3	76.64%	2	53.85%	4	60.04%	0.8384	2
green rows: suburban and rural localities											

When the CEDI project was planned, GGI expected to see website performance decrease gradually from OSI Stage I to OSI Stage IV because performance in later stages is premised on additional technical skills and more advanced social development.

However, the study shows that the assessed websites score better in Stage III than Stage II. In the context of China, this is understandable. Stage II primarily assesses whether a government website provides basic information and data to its users. Stage III primarily assesses whether a government website has technical features that allow users to fill out or submit forms online. In China, where local government officials are still reluctant to make even the most basic information open to the public, Stage II requirements for making information more accessible present a greater challenge than do the technical requirements of Stage III.

D. Assessed websites have a high level of technical sophistication in several service areas

The OSI Stage II and III questions are designed to assess how useful websites are in providing information and technical support, respectively, for eight different service areas: Business, Education, Environment, Government Affairs, Health, Housing, Labor, and Social Services.

[1] The percentages presented in the table are the actual scores, compared with the total score possible for each stage. Figures below 50% are in red.

The OSI Stage III Scores and Ranks of Zhejiang Province, Hangzhou Municipality, and the 13 Hangzhou Localities

	A. Business	Rank	B. Education	Rank	C. Environment	Rank	D. Government Affairs	Rank	E. Health	Rank	F. Housing	Rank	G. Labor	Rank	H. Social Services	Rank	Stage III	Stage III (15) Rank
01 Binjiang District	79.31%	4	75.56%	2	72.22%	8	77.27%	6	44.44%	14	81.82%	8	74.42%	3	82.76%	3	74.59%	6
02 Chun'an County	75.86%	5	75.56%	2	72.22%	8	81.82%	1	44.44%	14	86.36%	5	72.09%	4	79.31%	6	74.18%	7
03 Fuyang City	72.41%	8	71.11%	4	75.00%	2	63.64%	9	66.67%	10	86.36%	5	32.56%	15	82.76%	3	66.80%	10
04 Gongshu District	58.62%	12	77.78%	1	75.00%	2	81.82%	1	88.89%	1	68.18%	14	72.09%	4	82.76%	3	75.00%	4
05 Jiande City	89.66%	1	68.89%	6	75.00%	2	81.82%	1	88.89%	1	90.91%	1	76.74%	2	93.10%	1	81.15%	1
06 Jianggan District	75.86%	5	71.11%	4	75.00%	2	63.64%	9	88.89%	1	86.36%	5	69.77%	7	86.21%	2	75.82%	3
07 Lin'an City	72.41%	8	62.22%	7	66.67%	12	63.64%	9	66.67%	10	77.27%	10	48.84%	13	51.72%	14	62.30%	14
08 Shangcheng District	48.28%	15	55.56%	15	61.11%	13	63.64%	9	88.89%	1	63.64%	15	79.07%	1	48.28%	15	62.70%	13
09 Tonglu County	82.76%	3	62.22%	7	72.22%	8	81.82%	1	88.89%	1	90.91%	1	65.12%	9	79.31%	6	75.00%	4
10 Xiacheng District	58.62%	12	62.22%	7	52.78%	15	63.64%	9	66.67%	10	77.27%	10	48.84%	13	55.17%	12	59.02%	15
11 Xiaoshan District	72.41%	8	62.22%	7	75.00%	2	63.64%	9	88.89%	1	90.91%	1	65.12%	9	68.97%	10	71.31%	9
12 Xihu District	68.97%	11	62.22%	7	58.33%	14	59.09%	15	88.89%	1	81.82%	8	51.16%	12	68.97%	10	64.75%	11
13 Yuhang District	58.62%	12	57.78%	14	72.22%	8	72.73%	7	66.67%	10	77.27%	10	65.12%	9	55.17%	12	64.75%	11
Hangzhou Municipality	75.86%	5	62.22%	7	75.00%	2	81.82%	1	88.89%	1	77.27%	10	69.77%	7	75.86%	9	73.77%	8
Zhejiang Province	86.21%	2	62.22%	7	77.78%	1	72.73%	7	88.89%	1	90.91%	1	72.09%	4	79.31%	6	76.64%	2
green rows: suburban and rural localities																		

All of the 15 assessed websites except Xiacheng District score 60% to 80% of the points available in Stage III; Xiacheng District's website scores 59.02%. Health and Housing are service areas where most websites perform so well that the scores can be near or over 90%.

The OSI Stage II Scores and Ranks of Zhejiang Province, Hangzhou Municipality, and the 13 Hangzhou Localities

	A. Business	Rank	B. Education	Rank	C. Environment	Rank	D. Government Affairs	Rank	E. Health	Rank	F. Housing	Rank	G. Labor	Rank	H. Social Services	Rank	Stage II	Stage II (15) Rank
01 Binjiang District	47.62%	4	29.27%	6	20.83%	11	38.89%	3	31.25%	11	33.33%	6	37.93%	5	33.33%	9	33.51%	7
02 Chun'an County	38.10%	11	21.95%	12	33.33%	3	33.33%	6	37.50%	5	33.33%	6	37.93%	5	28.57%	14	31.91%	9
03 Fuyang City	47.62%	4	31.71%	3	33.33%	3	33.33%	6	37.50%	5	33.33%	6	44.83%	3	38.10%	4	37.23%	4
04 Gongshu District	47.62%	4	31.71%	3	29.17%	6	33.33%	6	37.50%	5	27.78%	10	31.03%	10	38.10%	4	34.04%	6
05 Jiande City	42.86%	10	29.27%	6	20.83%	11	33.33%	6	37.50%	5	38.89%	5	34.48%	9	38.10%	4	33.51%	7
06 Jianggan District	33.33%	13	26.83%	8	20.83%	11	33.33%	6	37.50%	5	27.78%	10	37.93%	5	38.10%	4	31.38%	11
07 Lin'an City	47.62%	4	31.71%	3	25.00%	7	33.33%	6	25.00%	13	27.78%	10	31.03%	10	33.33%	9	31.91%	9
08 Shangcheng District	28.57%	15	24.39%	11	25.00%	7	33.33%	6	25.00%	13	11.11%	15	17.24%	14	33.33%	9	24.47%	14
09 Tonglu County	47.62%	4	9.76%	14	16.67%	15	27.78%	15	25.00%	13	33.33%	6	27.59%	13	33.33%	9	25.53%	13
10 Xiacheng District	33.33%	13	9.76%	14	25.00%	7	33.33%	6	31.25%	11	16.67%	14	17.24%	14	38.10%	4	23.40%	15
11 Xiaoshan District	57.14%	2	34.15%	1	20.83%	11	44.44%	2	50.00%	2	44.44%	3	51.72%	2	47.62%	3	42.55%	2
12 Xihu District	38.10%	11	26.83%	8	25.00%	7	33.33%	6	37.50%	5	22.22%	13	31.03%	10	33.33%	9	30.32%	12
13 Yuhang District	47.62%	4	26.83%	8	33.33%	3	38.89%	3	43.75%	3	55.56%	2	37.93%	5	28.57%	14	37.23%	4
Hangzhou Municipality	66.67%	1	34.15%	1	45.83%	2	55.56%	1	62.50%	1	61.11%	1	62.07%	1	57.14%	1	53.19%	1
Zhejiang Province	57.14%	2	19.51%	13	50.00%	1	38.89%	3	43.75%	3	44.44%	3	41.38%	4	52.38%	2	40.96%	3
green rows: suburban and rural localities																		

However, Hangzhou Municipality's website is the only website that scores more than 50% of the points available in Stage II of the OSI. The Hangzhou website is ranked No. 1 in its performance in all service areas except Environment (ranked No. 2). But Hangzhou Municipality's overall Stage II score is only 53.19%, indicating that there is room for improvement, especially in Education (34.15%) and Environment (45.83%).

V. Recommendations

Based on the above analysis, GGI offers the following recommendations:

- Hangzhou's suburban and rural localities should invest more resources to develop their telecommunication infrastructure and human capital. These localities do not have the basic telecommunication infrastructure and human capital to make sure that their inhabitants can fully use their advanced websites.
- The government of Hangzhou should encourage Yuhang District to share with other suburban and rural localities its experience in developing telecommunication infrastructure and human capital. While different localities have different levels of economic development and strengths, Yuhang District's experience in setting the priorities amid various demands may help other suburban and rural localities identify suitable strategies to improve their e-government development.
- Officials of Hangzhou's localities should receive training to learn about the strengths and weakness of their websites and adopt good practices applied in other websites. Good design used in some websites could be easily replicated in all websites if measures to coordinate efforts among these localities are in place. Those localities that have better telecommunication infrastructure and human capital (e.g., Yuhang District) could make significant progress in their overall e-government development if their online service is improved.
- The legislatures and/or governments of Hangzhou Municipality and Zhejiang Province should prepare clearer guidelines on the disclosure of government information so that local officials can better understand what they can and cannot do via their websites.
- The government of Hangzhou should set up a systematic consulting service to allow officials of the 13 Hangzhou localities to consult the Hangzhou municipal government when there are uncertainties about what information they should release.
- Localities should be encouraged to pursue balanced development of their telecommunication infrastructure, human capital, and online services.