Digital Governance in Municipalities Worldwide (2013-14)

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Sixth Global E-Governance Survey: A Longitudinal Assessment of Municipal Websites Throughout the World

Marc Holzer | Yueping Zheng | Aroon Manoharan | Alan Shark

RUTGERS
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The E-Governance Institute
National Center for Public Performance
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Rutgers, the State University of New Jersey-Campus at Newark

Co-Sponsored by

KENT STATE UNIVERSITY

Department of Political Science
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pti **Public Technology Institute**

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EXECUTIVE SUMMARY

The Digital Governance in Municipalities Worldwide Survey assessed the practice of digital governance in large municipalities worldwide in 2013-14. This continuing research, replicating our surveys in 2003, 2005, 2007, 2009 and 2011-12, evaluated the websites of municipalities in terms of digital governance and ranked them on a global scale. Simply stated, digital governance is comprised of both digital government (delivery of public services) and digital democracy (citizen participation in governance). Specifically, we analyzed privacy/security, usability, and content of websites, the type of online services currently being offered, and citizen response and participation through websites established by municipal governments (Holzer & Kim, 2009).

The methodology of the 2013-14 survey of municipal websites throughout the world mirrors our previous research in 2003, 2005, 2007, 2009 and 2011-12. This research focused on global cities based on their population size and the total number of individuals using the Internet in each nation. The top 100 most wired nations were identified using data from the International Telecommunication Union (ITU), an organization affiliated with the United Nations (UN). The largest city by population in each of these 100 nations was then selected for the study and used as a surrogate for all cities in each respective country.

To examine how local populations perceive their governments online, the study evaluated the official websites of

each of these largest cities in their native languages. Of the 100 cities selected, all were found to have official municipal websites, and these were evaluated between August and December of 2013. For the 2005 survey, 81 of the 100 cities had official websites, which increased to 86 for the 2007 survey, 87 for the 2009 survey, 92 for the 2011-12 survey, and 100 for the 2013-14 survey. This represents a significant increase in the adoption of e-governance among municipalities across the world.

Our instrument for evaluating city and municipal websites consisted of five components: 1. Privacy and Security; 2. Usability; 3. Content; 4. Services; and 5. Citizen and Social Engagement. For each of these five components, our research applied 18 to 26 measures, and each measure was coded on a scale of four points (0, 1, 2, 3) or a dichotomy of two points (0, 3 or 0, 1). Additionally, in developing an overall score for each municipality, we have equally weighted each of the five categories to avoid skewing the research in favor of a particular category (regardless of the number of questions in each category). This reflects the same methods utilized in the previous studies. To ensure reliability, each municipal website was assessed in the native language by two evaluators, and in cases where significant variation (+ or – 10%) existed on the adjusted score between evaluators, websites were analyzed a third time.

Based on the 2013-14 evaluation of 100 cities, Seoul, New York, Hong Kong, Singapore, and Yerevan have the highest evaluation scores. There were noticeable changes in the top five cities when compared to the 2011-12 study. Seoul remained the highest-ranked city, and the gap between first and second cities had increased. In some cases, the scores may have slightly declined from the previous study. Table 1 lists the top 20 municipalities in digital governance from 2009 through 2013-14, and Table 2 lists the 20 municipalities from the 2013-14 study, along with their scores in individual categories. Tables 3 to 7 show the top-ranking municipalities in each of the five categories.

[Table 1] Top Cities in Digital Governance 2009 – 2013-14

	2009		2011-12		2013-14	
Rank	**City**	**Score**	**City**	**Score**	**City**	**Score**
1	Seoul	84.74	Seoul	82.23	Seoul	85.80
2	Prague	72.84	Toronto	64.31	New York	66.15
3	Hong Kong	62.83	Madrid	63.63	Hong Kong	60.32
4	New York	61.10	Prague	61.72	Singapore	59.82
5	Singapore	58.81	Hong Kong	60.81	Yerevan	59.61
6	Shanghai	57.41	New York	60.49	Bratislava	58.31
7	Madrid	55.59	Stockholm	60.26	Toronto	58.05
8	Vienna	55.48	Bratislava	56.74	Shanghai	56.02
9	Auckland	55.28	London	56.19	Dubai	55.89
10	Toronto	52.87	Shanghai	55.49	Prague	54.88
11	Paris	52.65	Vilnius	55.35	Vilnius	53.82
12	Bratislava	52.51	Vienna	54.79	Vienna	53.40
13	London	51.96	Helsinki	54.22	Oslo	52.52
14	Jerusalem	50.64	Auckland	53.19	Stockholm	52.25
15	Tokyo	50.59	Dubai	53.18	London	51.90
16	Zagreb	50.16	Singapore	52.21	Helsinki	51.27
17	Ljubljana	49.39	Moscow	51.77	Macao	48.69
18	Lisbon	48.82	Copenhagen	50.06	Mexico City	47.01
19	Brussels	48.01	Yerevan	49.97	Kuala Lumpur	46.16
20	Johannesburg	47.68	Paris	48.65	Zurich	45.36

[Table 2] Top 20 Cities in Digital Governance (2013-14)

Rank	City	Overall	Privacy	Usability	Content	Services	CS Engagement
1	Seoul	85.80	16.30	16.57	17.46	16.72	18.75
2	New York	66.15	13.34	14.38	14.45	15.25	8.75
3	Hong Kong	60.32	13.33	14.07	12.22	12.79	7.92
4	Singapore	59.82	7.41	15.00	13.65	12.30	11.46
5	Yerevan	59.61	3.70	17.82	14.92	12.13	11.04
6	Bratislava	58.31	11.11	16.88	11.43	9.51	9.38
7	Toronto	58.05	8.52	16.57	16.19	11.15	5.63
8	Shanghai	56.02	4.44	15.32	11.27	15.41	9.58
9	Dubai	55.89	13.71	15.47	7.94	13.77	5.00
10	Prague	54.88	14.07	15.63	9.84	9.51	5.83
11	Vilnius	53.82	15.56	11.57	12.23	7.38	7.09
12	Vienna	53.40	8.89	15.94	10.16	8.20	10.21
13	Oslo	52.52	14.07	15.00	13.97	6.56	2.92
14	Stockholm	52.25	8.15	11.88	16.19	13.11	2.92
15	London	51.90	11.48	15.00	11.91	7.05	6.46
16	Helsinki	51.27	13.70	12.19	8.26	9.84	7.29
17	Macao	48.69	11.11	14.69	11.43	7.71	3.75
18	Mexico City	47.01	4.44	15.01	13.18	9.18	5.21
19	Kuala Lumpur	46.16	9.63	13.13	7.94	12.13	3.33
20	Zurich	45.36	7.41	16.57	11.11	5.90	4.38

[Table 3] Top 10 Cities in Privacy and Security (2013-14)

Rank	City	Country	Privacy
1	Seoul	Korea (Rep.)	16.30
2	Vilnius	Lithuania	15.56
3	Prague	Czech Republic	14.07
3	Oslo	Norway	14.07
5	Dubai	United Arab Emirates	13.71
6	Helsinki	Finland	13.70
7	New York	United States	13.34
8	Hong Kong	Hong Kong, China	13.33
8	Schaan	Liechtenstein	13.33
10	Buenos Aires	Argentina	12.59

[Table 4] Top 10 Cities in Usability (2013-14)

Rank	City	Country	Usability
1	Yerevan	Armenia	17.82
2	Bratislava	Slovak Republic	16.88
3	Seoul	Korea (Rep.)	16.57
3	Toronto	Canada	16.57
3	Zurich	Switzerland	16.57
6	Lima	Peru	16.25
6	Santiago	Chile	16.25
8	Vienna	Austria	15.94
8	Luxembourg	Luxembourg	15.94
10	Prague	Czech Republic	15.63

[Table 5] Top 10 Cities in Content (2013-14)

Rank	City	Country	Content
1	Seoul	Korea (Rep.)	17.46
2	Toronto	Canada	16.19
2	Stockholm	Sweden	16.19
4	Yerevan	Armenia	14.92
5	New York	United States	14.45
6	Auckland	New Zealand	14.29
7	Oslo	Norway	13.97
8	Singapore	Singapore	13.65
9	Brussels	Belgium	13.33
10	Mexico City	Mexico	13.18

[Table 6] Top 10 Cities in Service Delivery (2013-14)

Rank	City	Country	Services
1	Seoul	Korea (Rep.)	16.72
2	Shanghai	China	15.41
3	New York	United States	15.25
4	Dubai	United Arab Emirates	13.77
5	Stockholm	Sweden	13.11
6	Hong Kong	Hong Kong, China	12.79
7	Singapore	Singapore	12.30
8	Yerevan	Armenia	12.13
8	Kuala Lumpur	Malaysia	12.13
10	Toronto	Canada	11.15

[Table 7] Top 10 Cities in Citizen and Social Engagement (2013-14)

Rank	City	Country	CS Engagement
1	Seoul	Korea (Rep.)	18.75
2	Singapore	Singapore	11.46
3	Yerevan	Armenia	11.04
4	Vienna	Austria	10.21
5	Shanghai	China	9.58
6	Bratislava	Slovak Republic	9.38
7	New York	United States	8.75
8	Almaty	Kazakhstan	8.54
9	Minsk	Belarus	8.13
10	Hong Kong	Hong Kong, China	7.92

The average score for digital governance in municipalities throughout the world is 33.37, a decrease from 33.76 in 2011-12, but an increase from 33.11 in 2005 and 28.49 in 2003. The average score for municipalities in OECD countries is 43.24, while the average score in non-OECD countries is 28.51. Because it is important to evaluate digital governance in large municipalities throughout the world, the continued study of municipalities worldwide, with the next Worldwide Survey planned in 2015, will further provide insights into the direction and performance of e-governance throughout regions of the world.

1

INTRODUCTION

This research replicates surveys completed in 2003, 2005, 2007, 2009 and 2011-12, and evaluates the practice of digital governance in large municipalities worldwide in 2013-14. The following chapters represent the overall findings of the research.

Chapter 2 outlines the methodology utilized in determining the websites evaluated, as well as the instrument used in the evaluations. Our survey instrument uses 104 measures and we follow a rigorous approach for conducting the evaluations.

Chapter 3 presents the overall findings for the 2013-14 evaluation. The overall results are also broken down into results by continents, and by OECD and non-OECD member countries.

Chapter 4 provides a longitudinal assessment of the 2011-12 and 2013-14 evaluations, with comparisons among continents, e-governance categories and OECD and non-OECD member countries.

Chapters 5 through 9 take a closer look at the results for each of the five e-governance categories. Chapter 5 focuses on the results of Privacy and Security with regard to municipal websites. Chapter 6 looks at the Usability of municipal websites throughout the world. Chapter 7 presents the findings for Content, while Chapter 8 addresses Services. Chapter 9 concludes the focus of specific e-governance categories by presenting the findings of Citizen and Social Engagement online.

Chapter 10 takes a closer look at best practices, and the

report concludes with Chapter 11, providing recommendations and discussion of significant findings.

2

METHODOLOGY

The methodological steps taken by the 2013-14 survey of municipal websites throughout the world mirror our previous research in 2011-12, 2009, 2007, 2005, and 2003. The following review of our methodology borrows from our Digital Governance (2011-12) report based on the 2011-12 data. This research focused on cities throughout the world based on their population size and the total number of individuals using the Internet in each nation. These cities were identified using data from the International Telecommunication Union (ITU), an organization affiliated with the United Nations (UN). The top 100 most wired nations were identified using information on the total number of online users as obtained from the ITU-UN. The largest city by population in each of these 100 countries was then selected for the study as a surrogate for all cities in a particular country.

The rationale for selecting the largest municipalities stems from the e-governance literature, which suggests a positive relationship between population and e-governance capacity at the local level (Moon, 2002; Moon & deLeon, 2001; Musso, et. al., 2000; Weare, et. al. 1999). The study evaluated the official websites of each of these largest cities in their native languages. Of the 100 cities selected, all of them were found to have official websites, and these were evaluated from July of 2013 to December of 2013. For the 2013-14 survey, all the 100 cities had official websites, which increased from 92 in the 2011-12 survey and 87 in the 2009 survey. This represents a significant increase in the adoption of e-governance among municipalities across the world. Table 2-1 is a list of the 100 cities selected.

[Table 2-1] 100 Cities Selected by Continent (2013-14)

Africa (7)	
Accra (Ghana)	Lagos (Nigeria)
Cairo (Egypt)	Nairobi (Kenya)
Casablanca (Morocco)	Tunis (Tunisia)
Johannesburg (South Africa)	
Asia (30)	
Almaty (Kazakhstan)	Kuwait City (Kuwait)
Amman (Jordan)	Macao (Macao, China)
Baghdad (Iraq)	Manama (Bahrain)
Bandar Seri Begawan (Brunei Darussalam)	Mumbai (India)
Bangkok (Thailand)	Muscat (Oman)
Colombo (Sri Lanka)	Quezon City (Philippines)
Dhaka (Bangladesh)	Riyadh (Saudi Arabia)
Dubai (United Arab Emirates)	Seoul (Republic of Korea)
Ho Chi Minh City (Vietnam)	Shanghai (China)
Hong Kong (Hong Kong, China)	Singapore (Singapore)
Jakarta (Indonesia)	Tashkent (Uzbekistan)
Jerusalem (Israel)	Tbilisi (Georgia)
Karachi (Pakistan)	Tehran (Iran)
Kathmandu (Nepal)	Tokyo (Japan)
Kuala Lumpur (Malaysia)	Yerevan (Armenia)
Europe (40)	
Amsterdam (Netherlands)	Moscow (Russian)
Athens (Greece)	Nicosia (Cyprus)
Belgrade (Serbia and Montenegro)	Oslo (Norway)
Berlin (Germany)	Paris (France)
Bratislava (Slovak Republic)	Prague (Czech Republic)
Brussels (Belgium)	Riga (Latvia)
Bucharest (Romania)	Rome (Italy)
Budapest (Hungary)	San Marino (San Marino)
Chisinau (Moldova)	Sarajevo (Bosnia and Herzegovina)
Copenhagen (Denmark)	Schaan (Liechtenstein)
Dublin (Ireland)	Sofia (Bulgaria)
Helsinki (Finland)	Stockholm (Sweden)
Istanbul (Turkey)	Tallinn (Estonia)
Kiev (Ukraine)	Tirane (Albania)
Lisbon (Portugal)	Valletta (Malta)
Ljubljana (Slovenia)	Vienna (Austria)
London (United Kingdom)	Vilnius (Lithuania)
Luxembourg (Luxembourg)	Warsaw (Poland)
Madrid (Spain)	Zagreb (Croatia)
Minsk (Belarus)	Zurich (Switzerland)

[Table 2-1] 100 Cities Selected by Continent (Cont. 2013-14)

North America (11)	
Castries (St. Lucia)	Saint Joseph (Costa Rica)
Guatemala City (Guatemala)	San Juan (Puerto Rico)
Hamilton (Bermuda)	San Salvador (El Salvador)
Mexico City (Mexico)	Santo Domingo (Dominican Republic)
New York (United States)	Toronto (Canada)
Panama City (Panama)	
South America (10)	
Asuncion (Paraguay)	Lima (Peru)
Bogota (Colombia)	Montevideo (Uruguay)
Buenos Aires (Argentina)	Santa Cruz de la Sierra (Bolivia)
Caracas (Venezuela)	Santiago (Chile)
Guayaquil (Ecuador)	Sao Paulo (Brazil)
Oceania (2)	
Auckland (New Zealand)	Sydney (Australia)

WEBSITE SURVEY

The focus of this research is the main city homepage, which is defined as the official website where information about city administration and online services are provided by the city. Municipalities in the United States and globally are increasingly developing websites to provide information and services online; however, e-government is more than simply establishing a website. The emphasis should be on using information technologies to effectively provide government services. According to Pardo (2000), some of the initiatives in this direction are: 1) providing 24/7 access to government information and public meetings 2) providing mechanisms to enable citizens to comply with state and federal rules regarding drivers licenses, business licenses, etc. 3) providing access to special benefits like welfare funds and pensions 4) providing a network across various government agencies to enable collaborative approaches to serving citizens, and 5) providing various channels for digital democracy and citizen participation initiatives.

An official municipal website includes information on the city council, mayor and executive branch. If there are separate

homepages for agencies, departments, or the city council, evaluators examined whether these sites were linked to the menu on the main city homepage. If the website was not linked, it was excluded from the evaluation.

E-GOVERNANCE SURVEY INSTRUMENT

The Rutgers E-Governance Survey Instrument is the most comprehensive index in practice for e-governance research today, with 104 measures and five distinct categorical areas of e-governance research. These five components are: 1. Privacy and Security 2. Usability 3. Content 4. Services and 5. Citizen and Social Engagement. Table 2-2 summarizes the 2013-14 survey instrument, and Appendix A presents an overview of the criteria.

[Table 2-2] E-Governance Performance Measures

E-governance Category	Key Concepts	Raw Score	Weighted Score	Keywords
Privacy/ Security	19	27	20	Privacy policies, authentication, encryption, data management, cookies
Usability	20	32	20	User-friendly design, branding, length of homepage, targeted audience links or channels, and site search capabilities
Content	26	63	20	Access to current accurate information, public documents, reports, publications, and multimedia materials
Services	21	61	20	Transactional services - purchase or register, interaction between citizens, businesses and government
Citizen and Social Engagement	18	48	20	Online civic engagement/ policy deliberation, social media applications, citizen based performance measurement
Total	104	231	100	

The following section highlights the specific design of our survey instrument, which consists of 104 measures, of which 44 are dichotomous. For each of the five e-governance components, our research applies 18 to 26 measures, and for the non-dichotomous questions, each measure was coded on a four-point scale (0, 1, 2, 3; see Table 2-3 below). Furthermore, to avoid skewing the research in favor of a particular category while developing an overall score for each municipality, we have equally weighted each of the five categories, regardless of the number of questions in each category. The dichotomous measures in the "service" and "citizen participation" categories correspond with values on a four-point scale of "0" or "3"; dichotomous measures in "privacy" or "usability" correspond to ratings of "0" or "1" on the scale.

[Table 2-3] E-Governance Scale

Scale	Description
0	Information about a given topic does not exist on the website
1	Information about a given topic exists on the website (including links to other information and e-mail addresses)
2	Downloadable items are available on the website (forms, audio, video, and other one-way transactions, popup boxes)
3	Services, transactions, or interactions can take place completely online (credit card transactions, applications for permits, searchable databases, use of cookies, digital signatures, restricted access)

Our instrument placed a higher value on some dichotomous measures, due to the relative value of the different e-government services being evaluated. For example, evaluators using our instrument in the "service" category were given the option of scoring websites as either a "0" or "3" when assessing whether a site allowed users to access private information online (e.g., educational records, medical records, point total of driving violations, lost property). "No access" equated to a rating of "0". Allowing residents or employees to access private information online was a higher-order task that required more technical competence and was

clearly an online service, or "3," as defined in Table 2-3.

However, when assessing a site as to whether or not it had a privacy statement or policy, evaluators were given the choice of scoring the site as "0" or "1". The presence or absence of a privacy policy was clearly a content issue that emphasized placing information online and corresponded with a value of "1" on the scale outlined in Table 2-3. The differential values assigned to dichotomous categories were useful in comparing the different components of municipal websites with one another.

To ensure reliability, each municipal website was assessed by two evaluators, and in cases where significant variation (+ or – 10%) existed on the weighted score between evaluators, websites were analyzed a third time. Furthermore, an example for each measure indicated how to score the variable. Evaluators were also given comprehensive written instructions for assessing websites.

E-GOVERNANCE CATEGORIES

This section details the five e-governance categories and discusses specific measures that were used to evaluate websites. The discussion of Privacy/Security examines privacy policies and issues related to authentication. Discussion of the Usability category involves traditional web pages, forms, and search tools. The Content category is addressed in terms of access to contact information, access to public documents, and disability access, as well as access to multimedia and time-sensitive information. The section on Services examines interactive services, services that allow users to purchase or pay for services, and the ability of users to apply or register for municipal events or services online. Finally, the measures for Citizen & Social Engagement involve examining how local governments are engaging citizens and providing mechanisms for citizens to participate in government online.

SECURITY/PRIVACY

Our analysis began with the examination of the security and privacy of municipal websites in two key areas, privacy policies and authentication of users. With regard to municipal privacy policies,

we determined the presence of such a policy on every page that accepted data, as well as the usage of the word "privacy" in the link to such a statement. Then, we checked for privacy policies on every page that required or accepted data. We also examined whether privacy policies identified the agencies collecting the information and what data was being collected on the site.

Our analysis determined if the intended use of the data was explicitly stated on the website — specifically, if the privacy policy addressed the use or sale of data collected on the website by outside or third party organizations. Our research also determined whether there was an option to decline the disclosure of personal information to third parties, which includes other municipal agencies, other state and local government offices, or businesses in the private sector. Furthermore, we examined privacy policies to check if third-party agencies or organizations were governed by the same privacy policies as the municipal website. We also determined whether users had the ability to review personal data records and contest inaccurate or incomplete information.

In examining factors affecting the security and privacy of local government websites, we addressed managerial measures that limit access of data and ensure that it is not used for unauthorized purposes. We also looked for the use of encryption in the transmission of data, as well as the storage of personal information on secure servers. In assessing how or whether municipalities used their websites to authenticate users, we checked if public or private information was accessible through a restricted area that required a password and/or registration.

A growing e-governance trend at the local level is for municipalities to offer their website users access to public, and in some cases private, information online. We underscore our own concerns about the impact of the digital divide if public records are available only through the Internet or if municipalities insist on charging a fee for access to public records. Our analysis specifically addressed online access to public databases by determining if public information such as property tax assessments is available to users of municipal websites. In addition, there were concerns that public

agencies will use their websites to monitor citizens or create profiles based on the information they access online. For example, although many websites use "cookies" or "web beacons"[1] to customize their websites for users, that technology can also be used to monitor Internet habits and profile visitors to websites. So our analysis examined municipal privacy policies to determine whether they addressed the use of cookies or web beacons.

USABILITY

The second component of our evaluation examined the usability of municipal websites. Simply stated, we wanted to know if sites were "user-friendly." To address usability concerns, we adopted several best practices and measures from other public and private sector research (Giga, 2000). Our analysis of usability examined three types of website features: traditional web pages, forms, and search tools.

To evaluate traditional web pages written using hypertext markup language (html), we examined issues such as branding and structure (e.g., consistent color, font, graphics, page length, etc.). For example, we looked to see if all pages used consistent color, formatting, "default colors" (e.g., blue links and purple visited links), and underlined text to indicate links. Other items examined included whether system hardware and software requirements were clearly stated on the website.

In addition, our research examined each municipality's

[1] The New York City privacy policy (www.nyc.gov/privacy) gives the following definitions of cookies and web bugs or beacons: "Persistent cookies are cookie files that remain upon a user's hard drive until affirmatively removed, or until expired as provided for by a pre-set expiration date. Temporary or "Session Cookies" are cookie files that last or are valid only during an active communications connection, measured from beginning to end, between computer or applications (or some combination thereof) over a network. A web bug (or beacon) is a clear, camouflaged or otherwise invisible graphics image format ("GIF") file placed upon a web page or in hypertext markup language ("HTML") e-mail and used to monitor who is reading a web page or the relevant email. Web bugs can also be used for other monitoring purposes such as profiling of the affected party."

homepage to determine if it was too long (two or more screen lengths) or if alternative versions of long documents, such as .pdf or .doc files, were available. The use of targeted audience links or "channels" to customize the website for specific groups such as citizens, businesses, or other public agencies was also examined. We looked for the consistent use of navigation bars and links to the homepage on every page. The availability of a "sitemap" or hyperlinked outline of the entire website was examined. Our assessment also examined whether duplicated link names connect to the same content.

Our research examined online forms to determine their usability in submitting data or conducting searches of municipal websites. We looked at issues such as whether field labels aligned appropriately with each field, whether fields were accessible by keystrokes (e.g., tabs), or whether the cursor was automatically placed in the first field. We also examined whether required fields were noted explicitly and whether the tab order of fields was logical. For example, after a user filled out his or her first name and pressed the "tab" key, did the cursor automatically go to the surname field? Or, did the page skip to another field such as zip code, only to return to the surname later?

We also checked to see if form pages provided additional information about how to fix errors if they were submitted. For example, did users have to reenter information if errors were submitted, or did the site flag incomplete or erroneous forms before accepting them? Also, did the site give a confirmation page after a form was submitted, or did it return users to the homepage?

Our analysis also addressed the use of search tools on municipal websites. We examined sites to determine if help was available for searching a municipality's website or if the scope of searches could be limited to specific areas of the site. Were users able to search only in "public works" or "the mayor's office," for example, or did the search tool always search the entire site? We also looked for advanced search features such as exact phrase searching, the ability to match all/any words, and Boolean searching capabilities (e.g., the ability to use AND/OR/NOT operators). Our

analysis also addressed a site's ability to sort search results by relevance or other criteria.

CONTENT

The third component of our evaluation pertains to content, which is a critical component of any website. If the content of a website is not current, if it is difficult to navigate, or if the information provided is not correct, then it is not fulfilling its purpose, no matter how technologically advanced a website's features. We examined website content in five key areas: access to contact information, public documents, disability access, multimedia materials, and time-sensitive information. When addressing contact information, we looked for information about each agency represented on the website.

In addition, we looked for the availability of office hours or a schedule of when agency offices are open. As we assessed the availability of public documents, we also checked for the availability of the municipal code or charter online. We also looked for content items, such as agency mission statements, minutes of public meetings, and access to budget information and publications. Our assessment also examined whether websites provided access to disabled users through either "bobby compliance" (disability access for the blind, http://www.cast.org/bobby) or disability access for deaf users via a TDD phone service. We also checked to see if sites offered content in more than one language.

Time-sensitive information that was examined included the use of a municipal website for emergency management and the use of a website as an alert mechanism (e.g., terrorism alert or severe weather alert). We also checked for time-sensitive information such as the posting of job vacancies or a calendar of community events. In addressing the use of multimedia, we examined each site to determine whether audio or video files of public events, speeches or meetings were available.

SERVICES

An important aspect of e-governance is the provision of

public services online. Our analysis examined two different types of services: 1. those that enable citizens to interact with the municipality and 2. those that allow users to register for events or services online. Municipalities are increasingly developing the capacity to accept payment online for municipal services and taxes. The first type of service examined, which emphasizes interactivity, includes forms that enable users to request information or file complaints. Local governments across the world use advanced interactive services to allow users to report crimes or violations, customize municipal homepages based on their needs (e.g., portal customization), and access private information online, such as court records, education records, or medical records. Our analysis also determined the presence of such interactive services.

The second type of service examined looked for municipal capacity to allow citizens to register for services online. For example, many cities now allow citizens to apply for permits and licenses online. Online permitting can be used for services that vary from building permits to dog licenses. In addition, we examined the use of e-procurement features among cities that allow potential contractors to access requests for proposals or even bid for municipal contracts online. In other cases, local governments are chronicling the procurement process by listing the total number of bidders for a contract online and, in some cases, listing contact information for bidders.

Our research also examined municipal websites to determine if they developed the capacity to allow users to purchase or pay for municipal services and fees online. Some of these transactional services include the payment of public utility bills and parking tickets online. In many cases, municipalities allow online users to file or pay local taxes, pay fines such as traffic tickets, and register or purchase tickets to events in city halls or arenas online.

CITIZEN AND SOCIAL ENGAGEMENT

The fifth component of our instrument pertains to online citizen participation in government, a recent area of e-governance

study. As noted in the previous surveys, the Internet is a convenient mechanism for citizen-users to engage their governments and to decentralize decision-making. We have strengthened our survey instrument in the area of Citizen and Social Engagement and once again found that the potential for online participation is still in its early stages of development. Very few public agencies offer online opportunities for online civic engagement. Our analysis looked at several ways public agencies at the local level were involving citizens. For example, do municipal websites allow users to provide online comments or feedback to individual agencies or elected officials?

Our analysis examined whether local governments offer current information about municipal governance online or through an online newsletter or e-mail listserv. Our analysis also examined the use of Internet-based polls about specific local issues. In addition, we examined whether communities allow users to participate and view the results of citizen satisfaction surveys online. For example, some municipalities used their websites to measure performance and published the results of performance measurement activities online.

Still other municipalities used online bulletin boards or other chat capabilities for gathering input on public issues. Online bulletin boards offer citizens the opportunity to post ideas, comments, or opinions without specific discussion topics. In some cases, agencies attempt to structure online discussions around policy issues or specific agencies. Our research looked for municipal use of the Internet to foster civic engagement and citizen participation in government. In terms of social networks and social media, we attempted to capture important elements of e-governance that facilitate innovative methods of communication not previously assessed in our earlier surveys on digital governance. To capture society's increased use of social networks along with the public sector's burgeoning interest to facilitate effective G2C communication, our survey assessed the current manner in which government websites are designed.

3

OVERALL RESULTS

The following chapter presents the results for all the evaluated municipal websites during 2013-14. Table 1 provides the rankings for the 100 municipal websites and their overall scores. The overall scores reflect the combined scores of each municipality's score in the five e-governance component categories. The highest possible score for any one city website is 100. Seoul received a score of 85.80, making it the highest-ranked city website for 2013-14. Seoul's website was also the highest-ranked in 2011-12, 2009, 2007, 2005, and 2003, with scores of 82.23, 84.74, 87.74, 81.70, and 73.48. New York had the second-highest-ranked municipal website, with a score of 66.15, moving up significantly from its sixth place ranking in 2011-12. Hong Kong ranked third with a score of 60.32 in 2013-14, and Singapore and Yerevan complete the top five ranked municipal websites, with scores of 59.82 and 59.61, respectively. The results of the overall rankings are separated by continent in Tables 3-2 through 3-7. The top-ranked cities for each continent are Johannesburg (Africa), Seoul (Asia), Bratislava (Europe), New York (North America), Auckland (Oceania), and Sao Paolo (South America). Bratislava replaced Madrid as the highest-ranked city for European municipalities, and New York switched place with Toronto as the highest-ranked city in North America.

[Table 1] Overall E-Governance Rankings (2013-14)

Rank	City	Country	Score
1	Seoul	Korea (Rep.)	85.80
2	New York	United States	66.15
3	Hong Kong	Hong Kong, China	60.32
4	Singapore	Singapore	59.82
5	Yerevan	Armenia	59.61
6	Bratislava	Slovak Republic	58.31
7	Toronto	Canada	58.05
8	Shanghai	China	56.02
9	Dubai	United Arab Emirates	55.89
10	Prague	Czech Republic	54.88
11	Vilnius	Lithuania	53.82
12	Vienna	Austria	53.40
13	Oslo	Norway	52.52
14	Stockholm	Sweden	52.25
15	London	United Kingdom	51.90
16	Helsinki	Finland	51.27
17	Macao	Macao, China	48.69
18	Mexico City	Mexico	47.01
19	Kuala Lumpur	Malaysia	46.16
20	Zurich	Switzerland	45.36
21	Sao Paulo	Brazil	44.64
22	Auckland	New Zealand	44.42
23	Brussels	Belgium	44.05
24	Copenhagen	Denmark	43.14
25	Tokyo	Japan	43.11
26	Buenos Aires	Argentina	42.89
27	Jerusalem	Israel	41.76
28	Schaan	Liechtenstein	40.85
29	Madrid	Spain	40.62
30	Guayaquil	Ecuador	40.45
31	Dublin	Ireland	39.39
32	Luxembourg	Luxembourg	38.97
33	Berlin	Germany	38.65
34	Tallinn	Estonia	38.36

[Table 1] Overall E-Governance Rankings (Cont. 2013-14)

35	Sydney	Australia	37.75
36	Montevideo	Uruguay	36.97
37	Bogota	Colombia	36.78
38	Lisbon	Portugal	36.28
39	Muscat	Oman	36.14
40	Almaty	Kazakhstan	35.81
41	Riyadh	Saudi Arabia	35.59
42	Johannesburg	South Africa	34.97
43	Belgrade	Serbia	34.79
44	Lima	Peru	34.64
45	Paris	France	33.20
46	Minsk	Belarus	33.14
47	Mumbai	India	32.34
48	Warsaw	Poland	31.57
48	San Marino	San Marino	31.57
50	Riga	Latvia	31.40
51	Zagreb	Croatia	31.09
52	Guatemala City	Guatemala	30.81
53	Bucharest	Romania	30.52
54	Chisinau	Moldova	30.48
55	Istanbul	Turkey	30.10
56	Rome	Italy	29.89
57	Saint Joseph	Costa Rica	29.68
58	Athens	Greece	29.05
59	Amsterdam	Netherlands	28.99
60	Ljubljana	Slovenia	28.93
61	Santiago	Chile	28.55
62	Tbilisi	Georgia	28.36
63	Cairo	Egypt	27.85
64	Jakarta	Indonesia	27.54
65	Hamilton	Bermuda	26.97
66	Panama City	Panama	25.95
67	Sofia	Bulgaria	25.92
68	Santo Domingo	Dominican Rep.	25.48
69	Moscow	Russia	25.04

[Table 1] Overall E-Governance Rankings (Cont. 2013-14)

70	El Salvador	San Salvador	24.40
71	Iran (I.R.)	Tehran	24.20
72	Bosnia and Herzegovina	Sarajevo	23.42
73	Hungary	Budapest	23.37
74	Cyprus	Nicosia	22.96
75	Ukraine	Kiev	22.70
76	Viet Nam	Ho Chi Minh	22.08
77	Jordan	Amman	21.91
78	Nigeria	Lagos	21.84
79	Thailand	Bangkok	20.72
80	Venezuela	Caracas	20.27
81	Tunisia	Tunis	19.56
82	Philippines	Quezon City	19.34
83	Albania	Tirane	19.32
84	Morocco	Casablanca	18.84
85	Iraq	Baghdad	17.42
86	Pakistan	Karachi	16.74
87	Nepal	Kathmandu	16.64
88	Malta	Valletta	16.61
89	Sri Lanka	Colombo	16.56
90	Paraguay	Asuncion	16.24
91	Kenya	Nairobi	15.39
92	Kuwait	Kuwait City	14.21
93	Bangladesh	Dhaka	13.77
94	Bahrain	Manama	12.92
95	Bolivia	Santa Cruz de la Sierra	12.29
96	Puerto Rico	San Juan	12.07
96	Uzbekistan	Tashkent	12.07
98	Brunei Darussalam	Bandar Seri Begawan	11.66
99	Ghana	Accra	9.82
100	St. Lucia	Castries	5.03

[Table 3-2] Results of Evaluation in African Cities (2013-14)

Rank	City	Score	Privacy	Usability	Content	Services	CS Engagement
1	Johannesburg	34.97	6.67	12.51	8.26	5.25	2.29
2	Cairo	27.85	4.82	13.75	3.97	3.44	1.88
3	Lagos	21.84	1.11	9.07	7.46	2.95	1.25
4	Tunis	19.56	0.00	15.01	3.65	0.49	0.42
5	Casablanca	18.84	0.00	13.13	3.81	0.66	1.25
6	Nairobi	15.39	0.00	10.32	1.43	3.44	0.21
7	Accra	9.82	2.22	5.32	1.59	0.49	0.21

[Table 3-3] Results of Evaluation in Asian Cities (2013-14)

Rank	City	Score	Privacy	Usability	Content	Services	CS Engagement
1	Seoul	85.80	16.30	16.57	17.46	16.72	18.75
2	Hong Kong	60.32	13.33	14.07	12.22	12.79	7.92
3	Singapore	59.82	7.41	15.00	13.65	12.30	11.46
4	Yerevan	59.61	3.70	17.82	14.92	12.13	11.04
5	Shanghai	56.02	4.44	15.32	11.27	15.41	9.58
6	Dubai	55.89	13.71	15.47	7.94	13.77	5.00
7	Macao	48.69	11.11	14.69	11.43	7.71	3.75
8	Kuala Lumpur	46.16	9.63	13.13	7.94	12.13	3.33
9	Tokyo	43.11	7.41	12.82	13.02	5.90	3.96
10	Jerusalem	41.76	10.00	13.13	7.46	7.22	3.96
11	Muscat	36.14	7.04	12.82	6.99	4.92	4.38
12	Almaty	35.81	1.11	12.82	7.94	5.41	8.54
13	Riyadh	35.59	9.45	14.38	6.35	2.71	2.71
14	Mumbai	32.34	10.00	13.44	3.81	5.09	0.00
15	Tbilisi	28.36	2.22	7.50	8.57	5.90	4.17
16	Jakarta	27.54	0.00	11.88	10.48	3.93	1.25
17	Tehran	24.20	9.63	9.38	4.45	0.33	0.42
18	Ho Chi Minh	22.08	1.11	11.26	4.13	2.46	3.13
19	Amman	21.91	1.11	9.69	4.76	1.97	4.38

20	Bangkok	20.72	1.11	11.26	3.33	3.77	1.25
21	Quezon City	19.34	0.00	10.32	5.08	3.12	0.84
22	Baghdad	17.42	0.00	9.69	3.34	1.48	2.92
23	Karachi	16.74	1.11	10.00	3.81	0.99	0.84
24	Kathmandu	16.64	0.74	8.13	4.60	2.13	1.04
25	Colombo	16.56	0.74	8.44	3.34	2.79	1.25
26	Kuwait City	14.21	0.00	8.44	2.54	1.15	2.09
27	Dhaka	13.77	0.00	7.82	3.81	1.31	0.84
28	Manama	12.92	0.00	8.44	2.54	1.32	0.63
29	Tashkent	12.07	0.00	10.32	1.43	0.33	0.00
30	Bandar Seri Begawan	11.66	0.37	6.25	2.86	1.97	0.21

[Table 3-4] Results of Evaluation in European Cities (2013-14)

Rank	City	Score	Privacy	Usability	Content	Services	CS Engagement
1	Bratislava	58.31	11.11	16.88	11.43	9.51	9.38
2	Prague	54.88	14.07	15.63	9.84	9.51	5.83
3	Vilnius	53.82	15.56	11.57	12.23	7.38	7.09
4	Vienna	53.40	8.89	15.94	10.16	8.20	10.21
5	Oslo	52.52	14.07	15.00	13.97	6.56	2.92
6	Stockholm	52.25	8.15	11.88	16.19	13.11	2.92
7	London	51.90	11.48	15.00	11.91	7.05	6.46
8	Helsinki	51.27	13.70	12.19	8.26	9.84	7.29
9	Zurich	45.36	7.41	16.57	11.11	5.90	4.38
10	Brussels	44.05	7.41	11.88	13.33	8.52	2.92
11	Copenhagen	43.14	5.93	15.00	9.52	8.52	4.17
12	Schaan	40.85	13.33	14.07	8.42	2.95	2.09
13	Madrid	40.62	8.89	15.01	7.94	7.54	1.25
14	Dublin	39.39	8.89	10.32	9.84	9.51	0.83
15	Luxembourg	38.97	1.11	15.94	8.89	5.74	7.29
16	Berlin	38.65	11.11	10.32	8.57	5.74	2.92
17	Tallinn	38.36	1.48	13.13	12.07	8.36	3.33

18	Lisbon	36.28	6.67	11.88	7.94	7.71	2.09
19	Belgrade	34.79	0.00	15.63	9.84	5.57	3.75
20	Paris	33.20	0.00	8.44	10.79	6.89	7.08
21	Minsk	33.14	1.11	12.50	7.30	4.10	8.13
22	Warsaw	31.57	4.44	13.44	5.56	4.59	3.55
22	San Marino	31.57	0.74	10.94	10.00	6.56	3.34
24	Riga	31.40	0.74	11.88	6.35	9.51	2.92
25	Zagreb	31.09	5.93	9.38	7.94	4.92	2.92
26	Bucharest	30.52	2.22	14.38	6.98	3.61	3.33
27	Chisinau	30.48	1.48	14.38	8.57	2.30	3.75
28	Istanbul	30.10	8.89	5.00	5.71	8.20	2.30
29	Rome	29.89	0.00	11.88	7.62	6.23	4.17
30	Athens	29.05	6.67	11.88	4.29	4.76	1.46
31	Amsterdam	28.99	8.89	10.94	4.92	3.61	0.63
32	Ljubljana	28.93	5.93	9.38	10.16	2.62	0.84
33	Sofia	25.92	1.85	11.25	6.67	3.45	2.71
34	Moscow	25.04	0.37	12.50	5.24	4.43	2.50
35	Sarajevo	23.42	0.00	11.25	8.89	3.28	0.00
36	Budapest	23.37	0.37	12.82	6.19	2.95	1.04
37	Nicosia	22.96	0.00	10.63	5.71	5.57	1.05
38	Kiev	22.70	0.00	12.82	4.45	3.77	1.67
39	Tirane	19.32	0.00	8.13	5.56	4.59	1.05
40	Valletta	16.61	7.78	7.50	0.79	0.33	0.21

[Table 3-5] Results of Evaluation in North American Cities (2013-14)

Rank	City	Score	Privacy	Usability	Content	Services	CS Engagement
1	New York	66.15	13.34	14.38	14.45	15.25	8.75
2	Toronto	58.05	8.52	16.57	16.19	11.15	5.63
3	Mexico City	47.01	4.44	15.01	13.18	9.18	5.21
4	Guatemala City	30.81	2.22	14.07	5.40	7.05	2.09
5	Saint Joseph	29.68	5.93	11.88	6.04	4.59	1.25
6	Hamilton	26.97	8.15	10.94	5.08	1.97	0.84

7	Panama City	25.95	0.00	14.07	6.03	3.77	2.08
8	Santo Domingo	25.48	4.08	10.94	5.72	2.46	2.29
9	San Salvador	24.40	2.22	11.88	6.35	3.12	0.84
10	San Juan	12.07	0.00	8.13	2.54	0.98	0.42
11	Castries	5.03	0.00	4.38	0.16	0.50	0.00

[Table 3-6] Overall Results of Evaluation in Oceanic Cities (2013-14)

Rank	City	Score	Privacy	Usability	Content	Services	CS Engagement
1	Auckland	44.42	6.67	11.57	14.29	9.18	2.71
2	Sydney	37.75	8.52	12.19	9.37	4.75	2.92

[Table 3-7] Results of Evaluation in South American Cities (2013-14)

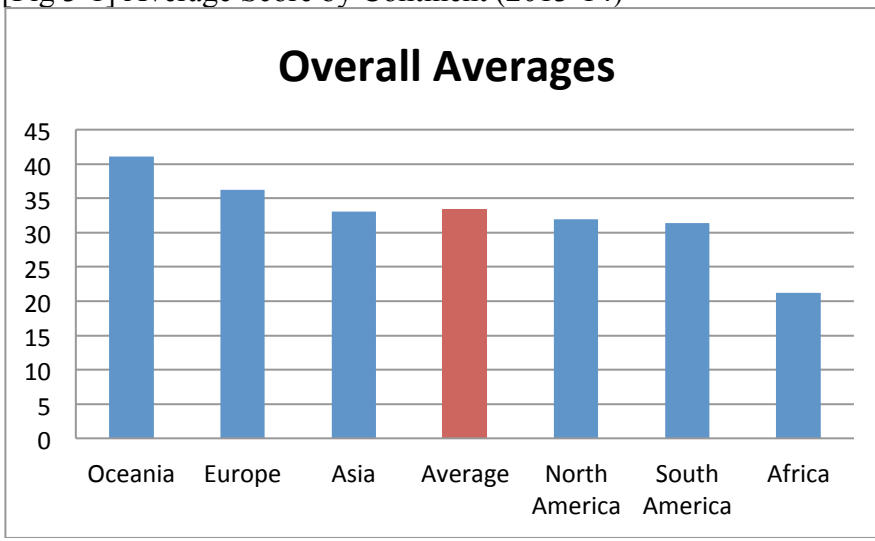
Rank	City	Score	Privacy	Usability	Content	Services	CS Engagement
1	Sao Paulo	44.64	10.74	15.63	9.05	6.72	2.50
2	Buenos Aires	42.89	12.59	12.50	8.10	5.74	3.96
3	Guayaquil	40.45	7.78	14.38	9.69	3.61	5.00
4	Montevideo	36.97	0.00	13.75	13.18	5.25	4.79
5	Bogota	36.78	4.45	13.13	8.57	6.89	3.75
6	Lima	34.64	0.00	16.25	6.67	6.72	5.00
7	Santiago	28.55	0.74	16.25	5.08	3.77	2.71
8	Caracas	20.27	0.00	8.44	6.51	3.45	1.88
9	Asuncion	16.24	1.11	8.13	4.13	2.46	0.42
10	Santa Cruz de la Sierra	12.29	2.22	5.01	3.33	1.31	0.42

The average scores for each continent are presented in Figure 3-1. Oceania was once again the highest-ranked continent, with an average score of 41.08, and Europe, with a score of 36.20, retained the second-highest rank, followed closely by Asia and North America. The overall average score for all municipalities was 33.37, a decrease from 33.76 in 2011-12, and 35.93 in 2009.

[Table 3-8] Average Score by Continent (2013-14)

	Oceania	Europe	Asia	Average	North America	South America	Africa
Overall Averages	41.08	36.20	33.10	**33.37**	31.96	31.37	21.18

[Fig 3-1] Average Score by Continent (2013-14)



OECD MEMBER DATA

Seoul was the highest-ranked OECD municipality, and Hong Kong was the highest-ranked non-OECD in 2013-14. Tables 3-9 and 3-10 present the overall score for each municipality, grouped into OECD member countries and non-OECD member countries.

[Table 3-9] Results for OECD Member Countries (2013-14)

Rank	City	Country	Score
1	Korea (Rep.)	Seoul	85.80
2	United States	New York	66.15
3	Slovak Republic	Bratislava	58.31
4	Canada	Toronto	58.05

5	Czech Republic	Prague	54.88
6	Austria	Vienna	53.40
7	Norway	Oslo	52.52
8	Sweden	Stockholm	52.25
9	United Kingdom	London	51.90
10	Finland	Helsinki	51.27
11	Mexico	Mexico City	47.01
12	Switzerland	Zurich	45.36
13	New Zealand	Auckland	44.42
14	Belgium	Brussels	44.05
15	Denmark	Copenhagen	43.14
16	Japan	Tokyo	43.11
17	Israel	Jerusalem	41.76
18	Spain	Madrid	40.62
19	Ireland	Dublin	39.39
20	Luxembourg	Luxembourg	38.97
21	Germany	Berlin	38.65
22	Estonia	Tallinn	38.36
23	Australia	Sydney	37.75
24	Portugal	Lisbon	36.28
25	France	Paris	33.20
26	Poland	Warsaw	31.57
27	Turkey	Istanbul	30.10
28	Italy	Rome	29.89
29	Greece	Athens	29.05
30	Netherlands	Amsterdam	28.99
31	Slovenia	Ljubljana	28.93
32	Chile	Santiago	28.55
33	Hungary	Budapest	23.37

[Table 3-10] Results for OECD Non-Member Countries (2013-14)

Rank	City	Country	Score
1	Hong Kong	Hong Kong, China	60.32
2	Singapore	Singapore	59.82
3	Armenia	Yerevan	59.61
4	China	Shanghai	56.02
5	United Arab Emirates	Dubai	55.89
6	Lithuania	Vilnius	53.82
7	Macao, China	Macao	48.69
8	Malaysia	Kuala Lumpur	46.16
9	Brazil	Sao Paulo	44.64
10	Argentina	Buenos Aires	42.89
11	Liechtenstein	Schaan	40.85
12	Ecuador	Guayaquil	40.45
13	Uruguay	Montevideo	36.97
14	Colombia	Bogota	36.78
15	Oman	Muscat	36.14
16	Kazakhstan	Almaty	35.81
17	Saudi Arabia	Riyadh	35.59
18	South Africa	Johannesburg	34.97
19	Serbia	Belgrade	34.79
20	Peru	Lima	34.64
21	Belarus	Minsk	33.14
22	India	Mumbai	32.34
23	San Marino	San Marino	31.57
24	Latvia	Riga	31.40
25	Croatia	Zagreb	31.09
26	Guatemala	Guatemala City	30.81
27	Romania	Bucharest	30.52
28	Moldova	Chisinau	30.48
29	Costa Rica	Saint Joseph	29.68

[Table 3-10] Results for OECD Non-Member Countries (Cont. 2013-14)

30	Georgia	Tbilisi	28.36
31	Egypt	Cairo	27.85
32	Indonesia	Jakarta	27.54
33	Bermuda	Hamilton	26.97
34	Panama	Panama City	25.95
35	Bulgaria	Sofia	25.92
36	Dominican Rep.	Santo Domingo	25.48
37	Russia	Moscow	25.04
38	El Salvador	San Salvador	24.40
39	Iran (I.R.)	Tehran	24.20
40	Bosnia and Herzegovina	Sarajevo	23.42
41	Cyprus	Nicosia	22.96
42	Ukraine	Kiev	22.70
43	Viet Nam	Ho Chi Minh	22.08
44	Jordan	Amman	21.91
45	Nigeria	Lagos	21.84
46	Thailand	Bangkok	20.72
47	Venezuela	Caracas	20.27
48	Tunisia	Tunis	19.56
49	Philippines	Quezon City	19.34
50	Albania	Tirane	19.32
51	Morocco	Casablanca	18.84
52	Iraq	Baghdad	17.42
53	Pakistan	Karachi	16.74
54	Nepal	Kathmandu	16.64
55	Malta	Valletta	16.61
56	Sri Lanka	Colombo	16.56
57	Paraguay	Asuncion	16.24
58	Kenya	Nairobi	15.39
59	Kuwait	Kuwait City	14.21
60	Bangladesh	Dhaka	13.77

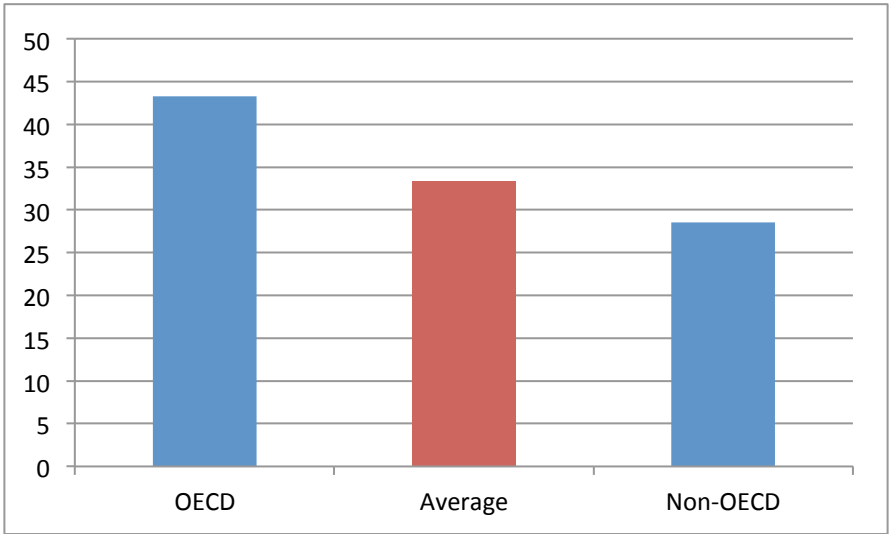
61	Bahrain	Manama	12.92
62	Bolivia	Santa Cruz de la Sierra	12.29
63	Puerto Rico	San Juan	12.07
63	Uzbekistan	Tashkent	12.07
65	Brunei Darussalam	Bandar Seri Begawan	11.66
66	Ghana	Accra	9.82
67	St. Lucia	Castries	5.03

The results above are further analyzed (below) through grouped averages. Figure 3-2 highlights how the OECD member countries have a combined average of 43.24, well above the overall average for all municipalities (33.37). Non-OECD member countries have an overall average of 28.51. To further highlight the results between OECD and non-OECD member countries, the results presented below distinguish results by the five e-governance categories. Table 3-11 presents the scores for OECD member countries, non-OECD member countries, and overall average scores for each of the e-governance categories. As would be expected, the average score for OECD member countries in each e-governance category is higher than the overall average score for each category. For non-OECD member countries, the average scores in each category are lower than the overall averages for each category. The results of the evaluation are discussed in further detail in the following chapters.

[Table 3-11] Average Score of E-governance Categories in OECD Member and Non-Member Countries (2013-14)

	Privacy/ Security	Usability	Content	Service	Citizen and Social Engagement
OECD	**7.62**	**13.17**	**10.20**	**7.70**	**4.54**
Overall Average	**4.88**	**12.04**	**7.62**	**5.49**	**3.34**
Non-OECD	**3.53**	**11.48**	**6.34**	**4.40**	**2.75**

[Figure 3-2] Average Score of Cities in OECD Member and Non-Member Countries (2013-14)

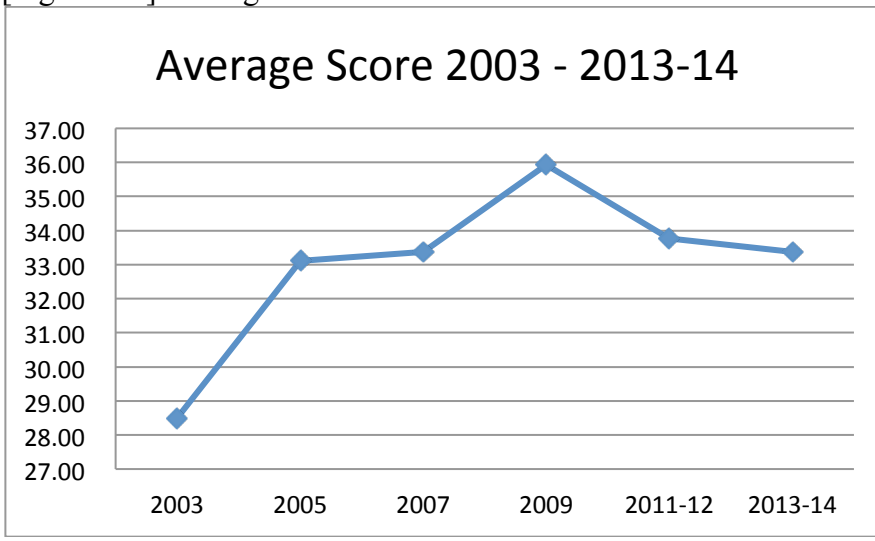


4

LONGITUDINAL ASSESSMENT

This chapter outlines the comparison between the findings from the 2003, 2005, 2007, 2009, and 2011-12 evaluations and the findings of the 2013-14 evaluation. The overall average score for municipalities surveyed was 33.37, a decrease from 33.76 in 2011-12 and 35.93 in 2009, but equal to 33.37 in 2007, and higher than 33.11 in 2005, and 28.49 in 2003 (Figure 4-1). Compared to 2011-12, Content in 2013-14 slightly increased. However, Privacy/Security, Usability, Services, and Citizen and Social Engagement all dropped down. So, the average score in 2013-14 was lower than 2011-12. Table 4-1 and Figure 4-2 highlight the differences and changes by continent.

[Figure 4-1] Average E-Governance Score 2003 – 2013-14



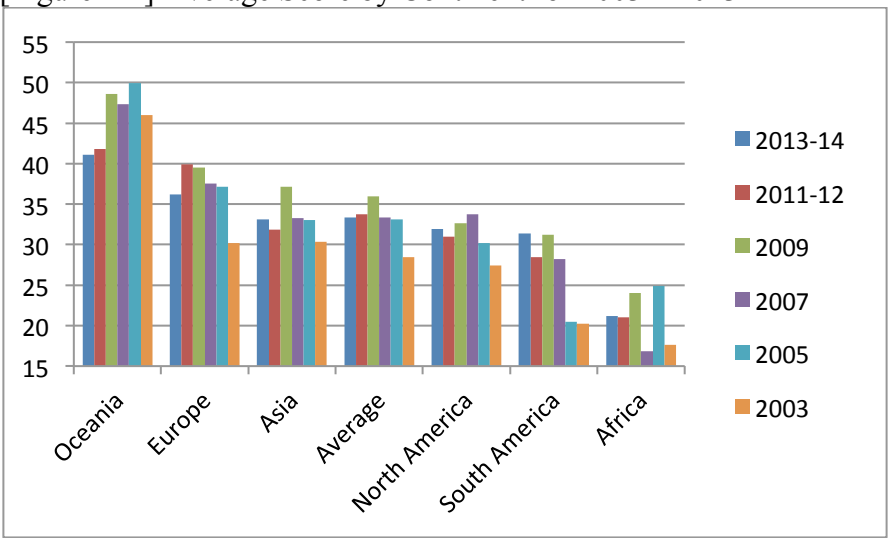
[Table 4-1] Average Score by Continent 2003 – 2013-14

	Oceania	Europe	Asia	Average	North America	South America	Africa
2013-14 Overall Averages	41.08	36.20	33.10	**33.37**	31.96	31.37	21.18
2011-12 Overall Averages	41.85	39.95	31.85	**33.76**	30.99	28.44	21.06
2009 Overall Averages	48.59	39.54	37.13	**35.93**	32.65	31.23	24.06
2007 Overall Averages	47.37	37.55	33.26	**33.37**	33.77	28.2	16.87

2005 Overall Averages	49.94	37.17	33.05	**33.11**	30.21	20.45	24.87
2003 Overall Averages	46.01	30.23	30.38	**28.49**	27.42	20.25	17.66

Oceania was the highest ranked continent, with an average score of 41.08, decreasing from a score of 41.85 in 2011-12. Europe, with a score of 36.20, retained the second highest rank, followed by Asia and North America, with scores of 33.10 and 31.96 respectively.

[Figure 4-2] Average Score by Continent for 2003 – 2013-14



Our survey results indicate that the number of cities with official websites has increased to 100%, compared to 92% in 2011-12. The changes in scores from 2003 to 2013-14, represented by both OECD and non-OECD member countries, are shown below.

[Table 4-2] Average Scores by OECD Member and Non-Member Countries 2003 – 2013-14

	OECD	**Average**	**Non-OECD**

2013-14 Overall Averages	43.24	**33.37**	**2**8.51
2011-12 Overall Averages	45.45	**33.76**	27.52
2009 Overall Averages	46.69	**35.93**	30.83
2007 Overall Averages	45.0	**33.37**	27.46
2005 Overall Averages	44.35	**33.11**	26.50
2003 Overall Averages	36.34	**28.49**	24.36

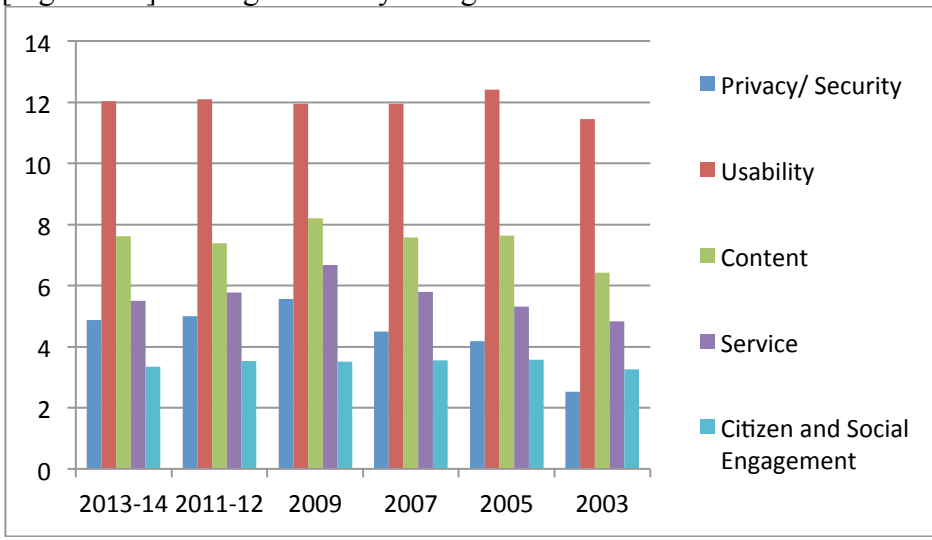
Municipalities surveyed from OECD member countries decreased in average score from 45.45 to 43.24. Municipalities surveyed from non-OECD member countries increased in average score from 27.52 to 28.51. Among the five categories, Content has improved since its performance in 2011-12, while the average scores decreased in Privacy/Security, Usability, Services, and Citizen and Social Engagement. The category of Usability also recorded the highest average score, while Citizen and Social Engagement continues as the category with the lowest average score. Cities are yet to recognize the importance of involving and supporting citizen participation online. Specific increases in the five e-governance categories are discussed in the following chapters. Table 4-3 and Figure 4-4 highlight these findings.

[Table 4-3] Average Score by E-Governance Categories 2003 – 201 3-14

	Privacy/ Security	**Usability**	**Content**	**Service**	**Citizen and Social Engagement**
2013-14 Average Score	**4.88**	**12.04**	**7.62**	**5.49**	**3.34**

2011-12 Average Scores	4.99	12.09	7.38	5.78	3.53
2009 Average Scores	5.57	11.96	8.21	6.68	3.50
2007 Average Scores	4.49	11.95	7.58	5.8	3.55
2005 Average Scores	4.17	12.42	7.63	5.32	3.57
2003 Average Scores	2.53	11.45	6.43	4.82	3.26

[Figure 4-4] Average Score by Categories 2003 – 2013-14



5

PRIVACY AND SECURITY

Privacy and security results indicate that the top-ranked cities are Seoul, Vilnius, Prague, Oslo, and Dubai. Seoul, which ranked third in 2011-12, achieved the highest score in 2013-14. Vilnius changed its position from 15th to 2nd. Oslo was ranked 39th in 2011-12, but has significantly improved to the 3rd position in overall ranking, with a score of 14.07 in 2013-14, out of a maximum score of 20. Prague shared the third position with Oslo, and Dubai moved from 6th in 2011-12 to 5th in 2013-14. Table 5-1 summarizes the results for all municipalities evaluated in this category.

The average score in this category was 4.88, a decrease from a score of 4.99 in 2011-12. Twenty three cities evaluated earned 0 points in this category, which is more than in the 2011-12 and 2009 surveys, but a decrease from the total number of municipalities that earned 0 points in 2007 (26), 2005 (31), and 2003 (36).

[Table 5-1] Results in Privacy and Security (2013-14)

Rank	City	Country	Privacy
1	Seoul	Korea (Rep.)	16.30
2	Vilnius	Lithuania	15.56
3	Prague	Czech Republic	14.07
3	Oslo	Norway	14.07
5	Dubai	United Arab Emirates	13.71
6	Helsinki	Finland	13.70
7	New York	United States	13.34
8	Hong Kong	Hong Kong, China	13.33
8	Schaan	Liechtenstein	13.33
10	Buenos Aires	Argentina	12.59
11	London	United Kingdom	11.48
12	Bratislava	Slovak Republic	11.11
12	Macao	Macao, China	11.11
12	Berlin	Germany	11.11
15	Sao Paulo	Brazil	10.74
16	Jerusalem	Israel	10.00
16	Mumbai	India	10.00
18	Kuala Lumpur	Malaysia	9.63
18	Tehran	Iran (I.R.)	9.63
20	Riyadh	Saudi Arabia	9.45
21	Vienna	Austria	8.89
21	Madrid	Spain	8.89
21	Dublin	Ireland	8.89
21	Istanbul	Turkey	8.89
21	Amsterdam	Netherlands	8.89
26	Toronto	Canada	8.52
26	Sydney	Australia	8.52
28	Stockholm	Sweden	8.15
28	Hamilton	Bermuda	8.15
30	Guayaquil	Ecuador	7.78

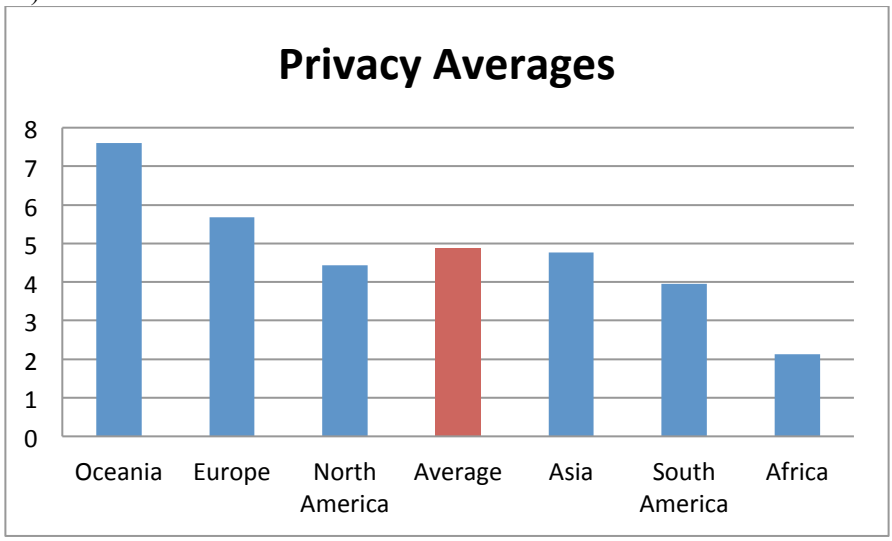
30	Valletta	Malta	7.78
32	Singapore	Singapore	7.41
32	Zurich	Switzerland	7.41
32	Brussels	Belgium	7.41
32	Tokyo	Japan	7.41
36	Muscat	Oman	7.04
37	Auckland	New Zealand	6.67
37	Lisbon	Portugal	6.67
37	Johannesburg	South Africa	6.67
37	Athens	Greece	6.67
41	Copenhagen	Denmark	5.93
41	Zagreb	Croatia	5.93
41	Saint Joseph	Costa Rica	5.93
41	Ljubljana	Slovenia	5.93
45	Cairo	Egypt	4.82
46	Bogota	Colombia	4.45
47	Shanghai	China	4.44
47	Mexico City	Mexico	4.44
47	Warsaw	Poland	4.44
50	Santo Domingo	Dominican Rep.	4.08
51	Yerevan	Armenia	3.70
52	Guatemala City	Guatemala	2.22
52	Bucharest	Romania	2.22
52	Tbilisi	Georgia	2.22
52	San Salvador	El Salvador	2.22
52	Santa Cruz de la Sierra	Bolivia	2.22
52	Accra	Ghana	2.22
58	Sofia	Bulgaria	1.85
59	Tallinn	Estonia	1.48
59	Chisinau	Moldova	1.48
61	Luxembourg	Luxembourg	1.11
61	Almaty	Kazakhstan	1.11

61	Minsk	Belarus	1.11
61	Ho Chi Minh	Viet Nam	1.11
61	Amman	Jordan	1.11
61	Lagos	Nigeria	1.11
61	Bangkok	Thailand	1.11
61	Karachi	Pakistan	1.11
61	Asuncion	Paraguay	1.11
70	San Marino	San Marino	0.74
70	Riga	Latvia	0.74
70	Santiago	Chile	0.74
70	Kathmandu	Nepal	0.74
70	Colombo	Sri Lanka	0.74
75	Moscow	Russia	0.37
75	Budapest	Hungary	0.37
75	Bandar Seri Begawan	Brunei Darussalam	0.37
78	Montevideo	Uruguay	0.00
78	Belgrade	Serbia	0.00
78	Lima	Peru	0.00
78	Paris	France	0.00
78	Rome	Italy	0.00
78	Jakarta	Indonesia	0.00
78	Panama City	Panama	0.00
78	Sarajevo	Bosnia and Herzegovina	0.00
78	Nicosia	Cyprus	0.00
78	Kiev	Ukraine	0.00
78	Caracas	Venezuela	0.00
78	Tunis	Tunisia	0.00
78	Quezon City	Philippines	0.00
78	Tirane	Albania	0.00
78	Casablanca	Morocco	0.00
78	Baghdad	Iraq	0.00
78	Nairobi	Kenya	0.00

78	Kuwait City	Kuwait	0.00
78	Dhaka	Bangladesh	0.00
78	Manama	Bahrain	0.00
78	San Juan	Puerto Rico	0.00
78	Tashkent	Uzbekistan	0.00
78	Castries	St. Lucia	0.00

Table 5-2 represents the average scores of nations in Privacy and Security by continent. Oceania remained as the continent with the highest average scores, with 7.60 points, followed by Europe, with 5.67 points. Africa was still the continent with the lowest average score. As shown in Figure 5-2, cities in OECD countries scored an average of 7.62, while cities in non-member countries scored only 3.53 in this category. These results indicate that cities in economically advanced countries continue to have more emphasis on privacy and security policy than do cities in less developed countries. Figures 5-1illustrates the data presented in Table 5-2.

[Figure 5-1] Average Score in Privacy and Security by Continent (2013-14)



[Table 5-2] Average Score in Privacy/Security by Continent (2013-14)

	Oceania	Europe	North America	Average	Asia	South America	Africa
Privacy Averages	7.60	5.67	4.44	**4.88**	4.76	3.96	2.12

[Figure 5-2] Average Score in Privacy and Security by OECD Member and Non-Member Countries (2013-14)

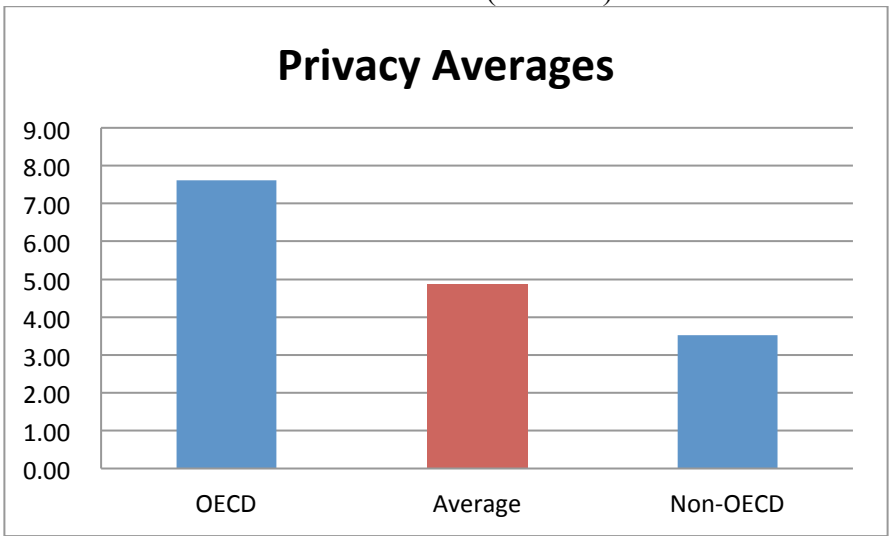


Table 5-3 lists the results of the evaluation of key aspects in the category of Privacy and Security by continent. All cities evaluated all the cities in Oceania, 61% of cities in Europe, 42% of cities in Asia, 40% of cities in South America, and 45% of cities in North America have developed a privacy or security statement/policy. However, only 21% of cities in Africa had developed a privacy policy for their websites. The overall percentage for cities that have a privacy or security policy online is 50%.

With regard to the use of encryption in the transmission of

data, 22% of all cities globally have addressed this issue, with Oceania leading at 50%. This is followed by 32% of the cities in North America, 24% of the cities in Europe, and 22% of the cities in Asia that have a policy addressing the use of encryption on their websites. The overall percentage for cities that provide the option of digital signatures is 5%, compared to 25% of all cities that address the use of "cookies" or "web beacons" to track users. All cities evaluated in Oceania, 36% of cities in Europe, 18% of cities in North America, and 17% of cities in Asia have a policy addressing the use of "cookies" or "web beacons". There were no cities worldwide in the 2003 evaluation that had a privacy policy addressing the use of digital signatures to authenticate users.

[Table 5-3] Results for Privacy and Security by Continent (2013-14)

	Oceania	Europe	Asia	Average	North America	South America	Africa
Privacy or Security Policy	100%	61%	42%	**50%**	45%	40%	21%
Use of Encryption	50%	24%	22%	**22%**	32%	15%	7%
Use of Cookies	100%	36%	17%	**25%**	18%	15%	0%
Digital Signature	0%	8%	3%	**5%**	0%	10%	0%

Table 5-4 lists the results of the evaluation of key aspects in the category of Privacy and Security by OECD and non-OECD member countries. Overall, cities in OECD countries continue to pay more attention to privacy and security matters on their websites than cities in non-OECD countries. About 79% of cities evaluated in OECD countries have developed a privacy or security statement/ policy, while about 35% of cities in non-OECD countries have a privacy statement on their websites. With regard to the use of encryption in the transmission of data, about 30% of cities evaluated in OECD countries have a privacy policy addressing the use of encryption, compared to 18% of cities in non-OECD countries. In addition, 52% of cities evaluated in OECD countries have a privacy

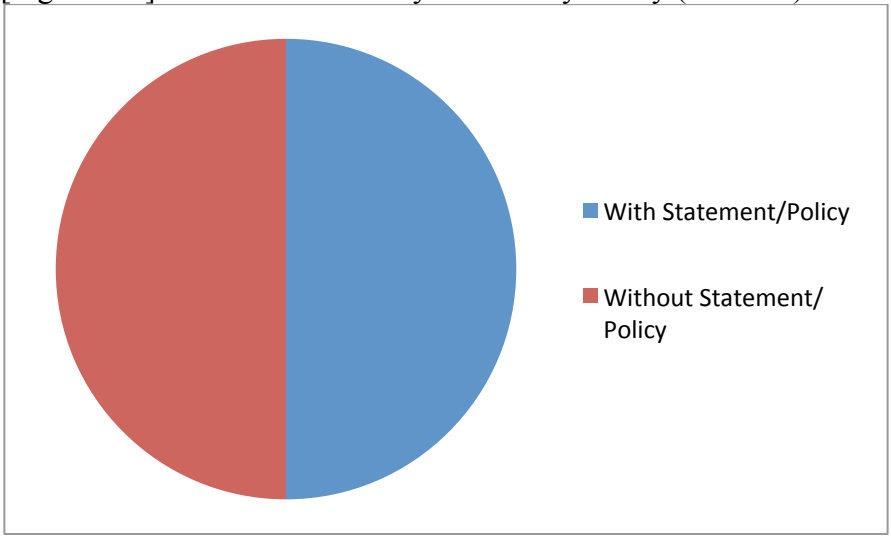
policy addressing the use of "cookies" or "web beacons" to track users, while only 12% of cities in non-OECD countries have statements as to the use of "cookies." Overall, cities in OECD countries score above average throughout the world.

[Table 5 4] Results for Privacy and Security by OECD Member and Non-Member Countries (2013-14)

	OECD	Average	Non-OECD
Privacy or Security Policy	79%	**50%**	35%
Use of encryption	30%	**22%**	18%
Use of cookies	52%	**25%**	12%
Digital Signature	32%	**5%**	7%

In terms of queries and whether the site has a privacy or security statement/policy, about 50% of cities had privacy and security policies (Figure 5-3). Seoul, Vilnius, Prague, Oslo, and Dubai have clear privacy or security statements/policies, as reflected by their rankings in that category.

[Figure 5-3] Existence of Privacy or Security Policy (2013-14)



6

USABILITY

The following chapter highlights the results for the category of Usability. Results indicate that Yerevan, Bratislava, Seoul, Toronto, and Zurich are the top-ranked cities in the category of usability. Except for Seoul and Toronto, the other cities are new to the top-five rankings. Yerevan ranks first, with a score of 17.82 out of a maximum score of 20, followed by Bratislava, with a score of 16.88. The third position is shared by Seoul, Toronto and Zurich, with scores of 16.57. Table 6-1 summarizes the results for all the municipalities evaluated in this category.

The average score in this category is 12.04, a decrease from a score of 12.09 in 2011-12. Overall, cities in Europe scored the highest average of 12.38, followed by cities in South America, with an average score of 12.35 in the category of Usability.

[Table 6-1] Results in Usability (2013-14)

Rank	City	Country	Usability
1	Yerevan	Armenia	17.82
2	Bratislava	Slovak Republic	16.88
3	Seoul	Korea (Rep.)	16.57
3	Toronto	Canada	16.57
3	Zurich	Switzerland	16.57
6	Santiago	Chile	16.25
6	Lima	Peru	16.25
8	Vienna	Austria	15.94
8	Luxembourg	Luxembourg	15.94
10	Prague	Czech Republic	15.63
10	Sao Paulo	Brazil	15.63
10	Belgrade	Serbia	15.63
13	Dubai	United Arab Emirates	15.47
14	Shanghai	China	15.32
15	Madrid	Spain	15.01
15	Mexico City	Mexico	15.01
15	Tunis	Tunisia	15.01
18	Oslo	Norway	15.00
18	London	United Kingdom	15.00
18	Singapore	Singapore	15.00
18	Copenhagen	Denmark	15.00
22	Macao	Macao, China	14.69
23	Riyadh	Saudi Arabia	14.38
23	Bucharest	Romania	14.38
23	Chisinau	Moldova	14.38
23	New York	United States	14.38
23	Guayaquil	Ecuador	14.38
28	Hong Kong	Hong Kong, China	14.07
28	Schaan	Liechtenstein	14.07
28	Guatemala City	Guatemala	14.07

28	Panama City	Panama	14.07
32	Cairo	Egypt	13.75
32	Montevideo	Uruguay	13.75
34	Mumbai	India	13.44
34	Warsaw	Poland	13.44
36	Kuala Lumpur	Malaysia	13.13
36	Jerusalem	Israel	13.13
36	Bogota	Colombia	13.13
36	Tallinn	Estonia	13.13
36	Casablanca	Morocco	13.13
41	Tokyo	Japan	12.82
41	Muscat	Oman	12.82
41	Almaty	Kazakhstan	12.82
41	Budapest	Hungary	12.82
41	Kiev	Ukraine	12.82
46	Johannesburg	South Africa	12.51
47	Buenos Aires	Argentina	12.50
47	Minsk	Belarus	12.50
47	Moscow	Russia	12.50
50	Helsinki	Finland	12.19
50	Sydney	Australia	12.19
52	Stockholm	Sweden	11.88
52	Lisbon	Portugal	11.88
52	Athens	Greece	11.88
52	Riga	Latvia	11.88
52	Jakarta	Indonesia	11.88
52	Brussels	Belgium	11.88
52	Saint Joseph	Costa Rica	11.88
52	San Salvador	El Salvador	11.88
52	Rome	Italy	11.88
61	Vilnius	Lithuania	11.57
61	Auckland	New Zealand	11.57

63	Ho Chi Minh	Viet Nam	11.26
63	Bangkok	Thailand	11.26
65	Sofia	Bulgaria	11.25
65	Sarajevo	Bosnia and Herzegovina	11.25
67	Amsterdam	Netherlands	10.94
67	Hamilton	Bermuda	10.94
67	Santo Domingo	Dominican Rep.	10.94
67	San Marino	San Marino	10.94
71	Nicosia	Cyprus	10.63
72	Berlin	Germany	10.32
72	Dublin	Ireland	10.32
72	Quezon City	Philippines	10.32
72	Nairobi	Kenya	10.32
72	Tashkent	Uzbekistan	10.32
77	Karachi	Pakistan	10.00
78	Amman	Jordan	9.69
78	Baghdad	Iraq	9.69
80	Zagreb	Croatia	9.38
80	Ljubljana	Slovenia	9.38
80	Tehran	Iran (I.R.)	9.38
83	Lagos	Nigeria	9.07
84	Colombo	Sri Lanka	8.44
84	Paris	France	8.44
84	Caracas	Venezuela	8.44
84	Kuwait City	Kuwait	8.44
84	Manama	Bahrain	8.44
89	Kathmandu	Nepal	8.13
89	Tirane	Albania	8.13
89	San Juan	Puerto Rico	8.13
89	Asuncion	Paraguay	8.13
93	Dhaka	Bangladesh	7.82
94	Valletta	Malta	7.50

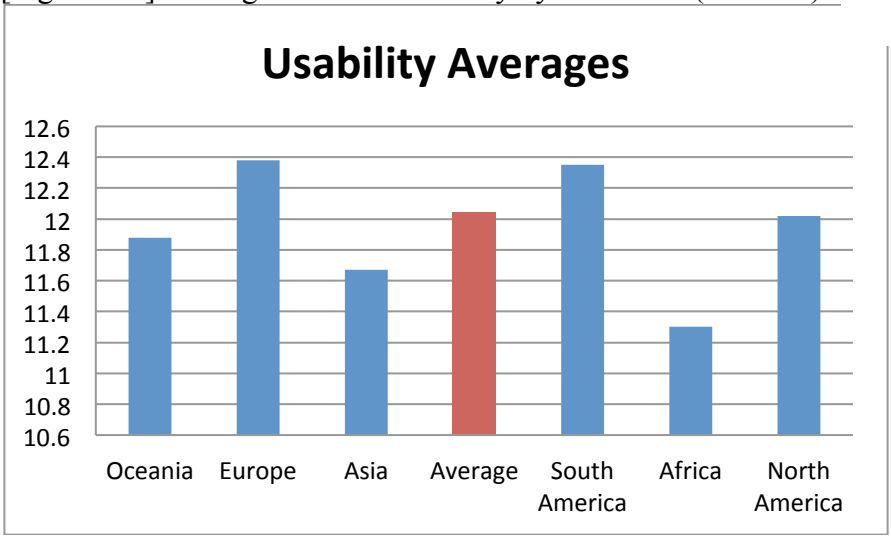
94	Tbilisi	Georgia	7.50
96	Bandar Seri Begawan	Brunei Darussalam	6.25
97	Accra	Ghana	5.32
98	Santa Cruz de la Sierra	Bolivia	5.01
99	Istanbul	Turkey	5.00
100	Castries	St. Lucia	4.38

Table 6-2 represents the average scores in Usability. Overall, cities in Europe scored the highest average of 12.38, while cities in Africa scored the lowest average of 11.30 in this category. As shown in Figure 6-2, cities in OECD countries scored an average of 13.17, while cities in non-member countries scored only 11.48 in this category. This result indicates that cities in economically advanced countries continue to have more emphasis on usability than do cities in less developed countries; however, the gap seems to be closing compared to the previous surveys. Figure 6-1 illustrates the data presented in Table 6-2.

[Table 6-2] Average Score in Usability by Continent (2013-14)

	Oceania	**Europe**	**Asia**	**Average**	**South America**	**Africa**	**North America**
Usability Averages	11.88	12.38	11.67	**12.04**	12.35	11.30	12.02

[Figure 6-1] Average Score in Usability by Continent (2013-14)



[Figure 6-2] Average Score in Usability by OECD Member and Non-Member Countries (2013-14)

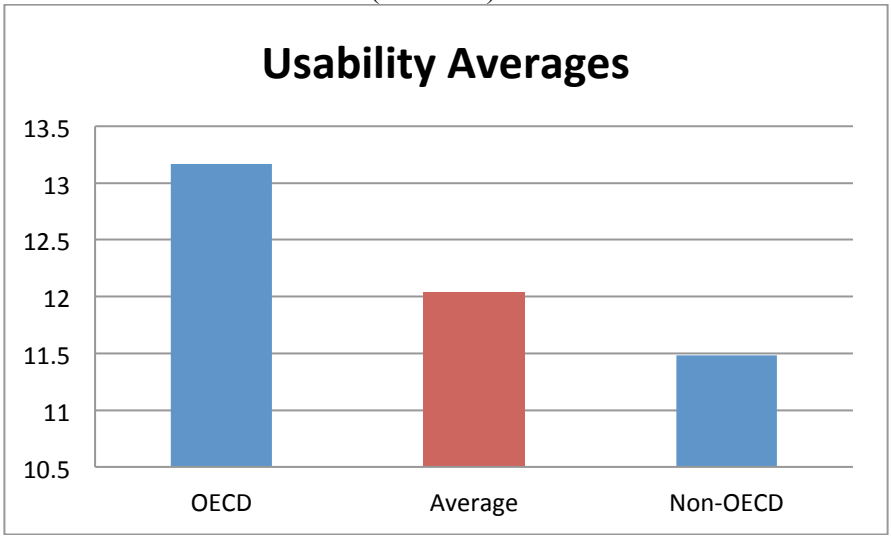


Table 6-3 lists the results of the evaluation of key aspects in the category of Usability by continent. With respect to targeted audience links, 56% of cities in Europe, 75% of cities in South America, and 64% of cities in Africa have targeted audience links divided into more than three categories (e.g., general citizens, youth, the elderly, women, family, citizens in need of social welfare services, businesses, industry, small businesses, public employees, etc.), while, on average, 62% of all cities have such links. Also, as to a site map, 66% in Europe and 45% in South America have a sitemap containing active links and are less than two screens in length. Conversely, 50% of cities in Oceania and 57% of cities in Africa provide sitemaps online. In terms of online search tools, all cities in Oceania, about 94% of cities in Europe, and 93% of cities in Asia were found to provide online search tools.

[Table 6-3] Results for Usability by Continent (2013-14)

	Europe	South America	Africa	Average	Asia	Oceania	North America
Targeted Audience	56%	75%	64%	**62%**	63%	100%	59%
Site map	66%	45%	57%	**61%**	65%	50%	50%
Search tool	94%	85%	93%	**90%**	93%	100%	68%

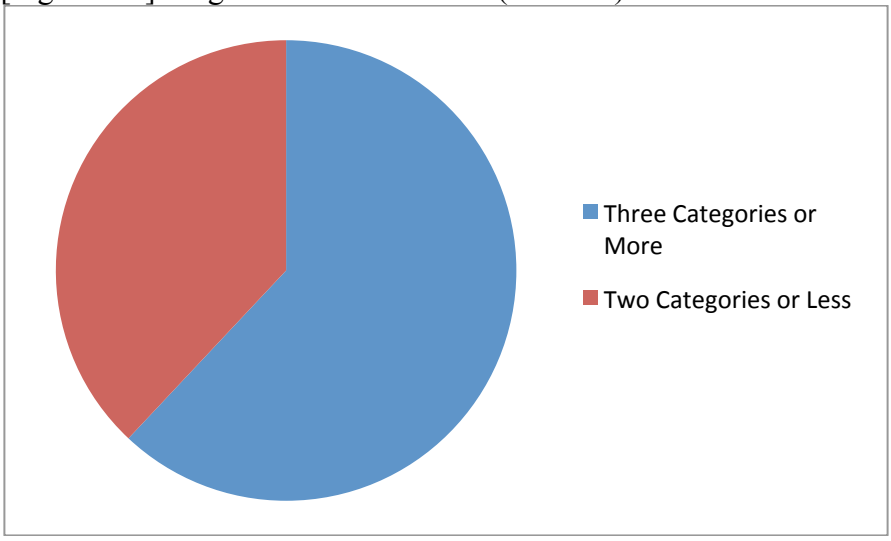
Table 6-4 indicates the results of assessments of Usability among OECD and non-OECD countries. In terms of targeted audience links, about 75% of cities in OECD countries have links divided into more than three categories, while only 54% of non-OECD countries have such links. As to sitemaps, about 71% of cities throughout the world have a sitemap containing active links and are less than two screens in length. Also, 97% of the cities in OECD countries and 86% in non-OECD countries provide online search tools.

[Table 6-4] Results for Usability by OECD Member and Non-Member Countries (2013-14)

	OECD	Average	Non-OECD
Targeted Audience	75%	**62%**	54%
Site map	71%	**61%**	56%
Search tool	97%	**90%**	86%

With regard to the topic of "Targeted audience links: Are targeted audience links available on the homepage?" (e.g., general citizens, youth, the elderly, women, citizens in need of social welfare services, businesses, industry, public employees, etc.), 62% of municipal websites are divided into more than three categories (Figure 6-3).

[Figure 6-3] Targeted Audience Links (2013-14)



7

CONTENT

Results for the category of content indicate that Seoul, Toronto, Stockholm, Yerevan, and New York are the top-ranked cities in this category. New to the top five are Stockholm, Yerevan, and New York. Stockholm was ranked 11th in 2011-12, with a score of 12.54, but it has improved to take the second position, with a score of 16.19 in 2013-14. Yerevan was ranked 13th in 2011-12, but it has improved to fourth overall, with a score of 14.92 in 2013-14. New York was ranked 6th in 2011-12, with a score of 13.81, but it is now ranked fifth, with a score of 14.45. Table 7-1 summarizes the results for all the municipalities evaluated in the content category.

The average score for the top-five-ranked cities in 2013-14 is 15.84, while the overall average score for this category has increased from 7.38 in 2011-12 to 7.62 in 2013-14.

[Table 7-1] Results for Content (2013-14)

Rank	City	Country	Content
1	Seoul	Korea (Rep.)	17.46
2	Toronto	Canada	16.19
2	Stockholm	Sweden	16.19
4	Yerevan	Armenia	14.92
5	New York	United States	14.45
6	Auckland	New Zealand	14.29
7	Oslo	Norway	13.97
7	Singapore	Singapore	13.65
9	Brussels	Belgium	13.33
10	Mexico City	Mexico	13.18
10	Montevideo	Uruguay	13.18
12	Tokyo	Japan	13.02
13	Vilnius	Lithuania	12.23
13	Hong Kong	Hong Kong, China	12.22
15	Tallinn	Estonia	12.07
16	London	United Kingdom	11.91
17	Bratislava	Slovak Republic	11.43
17	Macao	Macao, China	11.43
19	Shanghai	China	11.27
20	Zurich	Switzerland	11.11
21	Paris	France	10.79
22	Jakarta	Indonesia	10.48
23	Vienna	Austria	10.16
23	Ljubljana	Slovenia	10.16
25	San Marino	San Marino	10.00
26	Prague	Czech Republic	9.84
26	Belgrade	Serbia	9.84
26	Dublin	Ireland	9.84
29	Guayaquil	Ecuador	9.69
30	Copenhagen	Denmark	9.52

[Table 7-1] Results in Content (Cont. 2013-14)

31	Sydney	Australia	9.37
32	Sao Paulo	Brazil	9.05
33	Luxembourg	Luxembourg	8.89
33	Sarajevo	Bosnia and Herzegovina	8.89
35	Chisinau	Moldova	8.57
35	Bogota	Colombia	8.57
35	Berlin	Germany	8.57
35	Tbilisi	Georgia	8.57
39	Schaan	Liechtenstein	8.42
40	Johannesburg	South Africa	8.26
40	Helsinki	Finland	8.26
42	Buenos Aires	Argentina	8.10
43	Dubai	United Arab Emirates	7.94
43	Kuala Lumpur	Malaysia	7.94
43	Lisbon	Portugal	7.94
43	Zagreb	Croatia	7.94
43	Madrid	Spain	7.94
43	Almaty	Kazakhstan	7.94
49	Rome	Italy	7.62
50	Jerusalem	Israel	7.46
50	Lagos	Nigeria	7.46
52	Minsk	Belarus	7.30
53	Muscat	Oman	6.99
54	Bucharest	Romania	6.98
55	Lima	Peru	6.67
55	Sofia	Bulgaria	6.67
57	Caracas	Venezuela	6.51
58	Riyadh	Saudi Arabia	6.35
58	Riga	Latvia	6.35
58	San Salvador	El Salvador	6.35
61	Budapest	Hungary	6.19

[Table 7-1] Results in Content (Cont. 2013-14)

62	Saint Joseph	Costa Rica	6.04
63	Panama City	Panama	6.03
64	Santo Domingo	Dominican Rep.	5.72
65	Nicosia	Cyprus	5.71
65	Istanbul	Turkey	5.71
67	Warsaw	Poland	5.56
67	Tirane	Albania	5.56
69	Guatemala City	Guatemala	5.40
70	Moscow	Russia	5.24
71	Santiago	Chile	5.08
71	Hamilton	Bermuda	5.08
71	Quezon City	Philippines	5.08
74	Amsterdam	Netherlands	4.92
75	Amman	Jordan	4.76
76	Kathmandu	Nepal	4.60
77	Kiev	Ukraine	4.45
77	Tehran	Iran (I.R.)	4.45
79	Athens	Greece	4.29
80	Ho Chi Minh	Viet Nam	4.13
80	Asuncion	Paraguay	4.13
82	Cairo	Egypt	3.97
83	Mumbai	India	3.81
83	Karachi	Pakistan	3.81
83	Dhaka	Bangladesh	3.81
83	Casablanca	Morocco	3.81
87	Tunis	Tunisia	3.65
88	Baghdad	Iraq	3.34
88	Colombo	Sri Lanka	3.34
90	Bangkok	Thailand	3.33
90	Santa Cruz de la Sierra	Bolivia	3.33

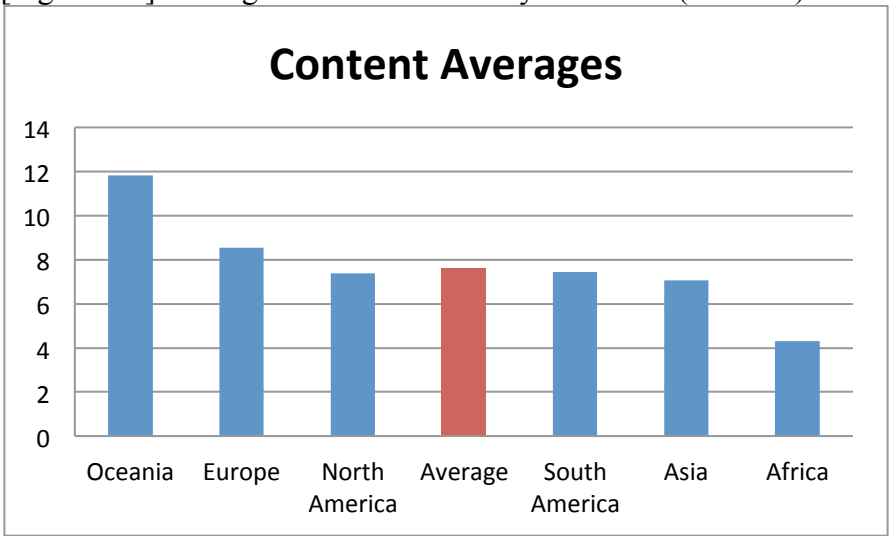
92	Bandar Seri Begawan	Brunei Darussalam	2.86
93	Kuwait City	Kuwait	2.54
93	Manama	Bahrain	2.54
93	San Juan	Puerto Rico	2.54
96	Accra	Ghana	1.59
97	Nairobi	Kenya	1.43
97	Tashkent	Uzbekistan	1.43
99	Valletta	Malta	0.79
100	Castries	St. Lucia	0.16

Table 7-2 represents the average score in Content by continent. Overall, cities in Oceania scored 11.83, the highest average score, while Africa remained the continent with the lowest average, with a score of 4.31. As shown in Figure 7-2, cities in OECD countries scored an average of 10.46, while cities in non-member countries scored only 5.73 in this category. Cities in economically advanced countries continue to have more emphasis on website content than do cities in less developed countries. Figures 7-1 illustrates the data presented in Table 7-2.

[Table 7-2] Average Score in Content by Continent (2013-14)

	Oceania	**Europe**	**Average**	**North America**	**South America**	**Asia**	**Africa**
Content Averages	11.83	8.53	**7.62**	7.37	7.43	7.05	4.31

[Figure 7-1] Average Score in Content by Continent (2013-14)



[Figure 7-2] Average Score in Content by OECD Member and Non-Member Countries (2013-14)

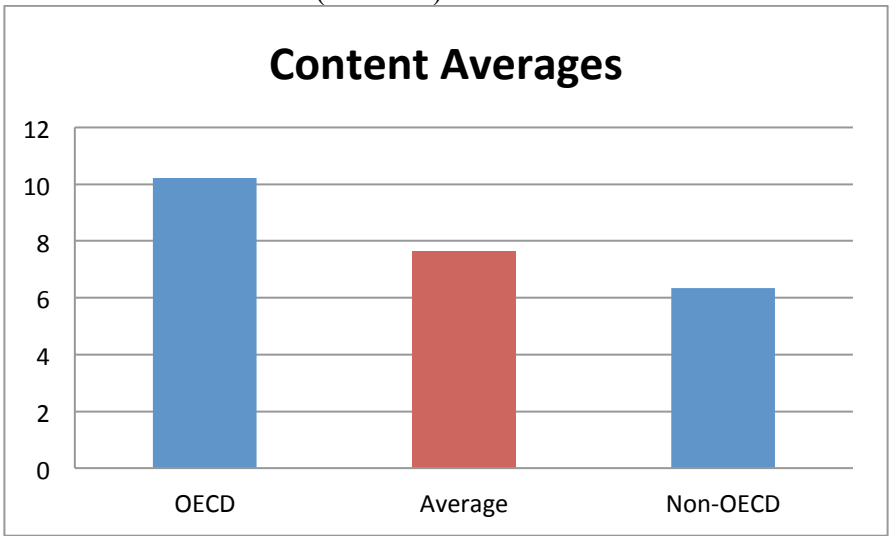


Table 7-3 indicates the results of the evaluation of Content by continent. More than 30% of cities evaluated in Oceania, Europe, and Asia have websites with mechanisms in the area of emergency management or alerts (severe weather, etc.). Also, with regard to disability access for the blind, only about 17% of cites have websites providing such access (e.g., Bobby compliant: http://www.cast.org/bobby). Oceania cities have the highest percentage of municipal websites with that feature. In addition, about 11% of cities have websites providing disability access for the deaf (TDD phone service). Cities in Africa have no websites providing disability access for the blind.

With respect to the use of wireless technology, 24% of cities in Europe and 28% in Asia have websites using wireless technology, such as messages to a mobile phone or PDA (Personal Digital Assistant) to update applications, events, etc. No cities in Oceania or Africa have websites using this technology. Also, more than two-thirds of cities in Asia and Europe have websites offering access in more than one language.

[Table 7-3] Results for Content by Continent (2013-14)

	Oceania	Europe	Average	Asia	North America	South America	Africa
Emergency Management	50%	36%	**35%**	42%	23%	20%	29%
Access for the Blind	50%	31%	**17%**	10%	0%	5%	0%
Access for the deaf	50%	16%	**11%**	8%	9%	5%	0%
Wireless technology	0%	24%	**22%**	28%	14%	20%	0%
More than one language	50%	71%	**55%**	67%	27%	0%	29%
Performance Measurement	100%	44%	**40%**	27%	36%	50%	36%

Table 7-4 indicates the results of the assessments of Content

among OECD and non-OECD countries. Like the other categories discussed above, cities in OECD countries have more advanced websites in terms of content than do cities in non-OECD countries. As to an emergency management or an alert mechanism, 48% of cities in OECD countries have such websites, but only 28% of cities in non-OECD member countries have such capacities.

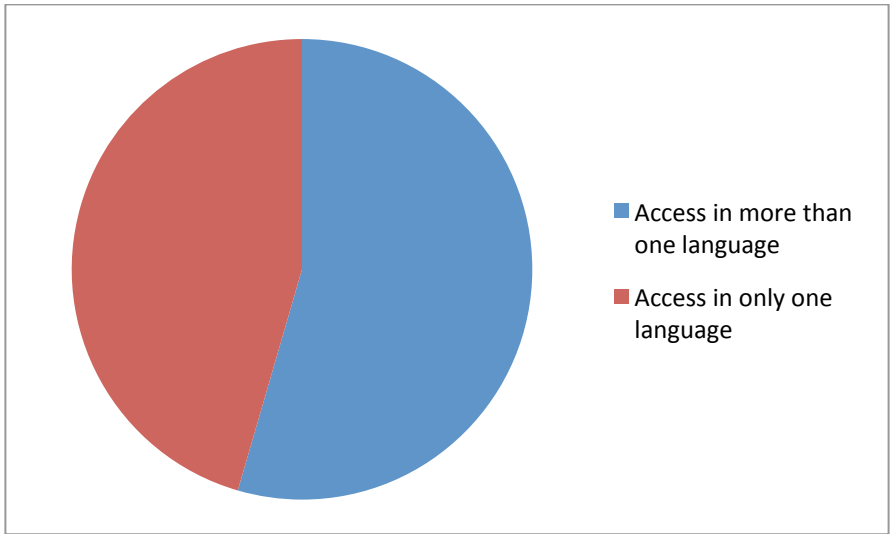
With regard to disability access for the blind, about 36% of cites in OECD countries have websites providing such access, whereas only 7% of cities in non-OECD countries have that capacity. In addition, about 20% of cities in OECD countries have websites providing disability access for the deaf, while only 7% of cities in non-OECD countries offer it. With respect to the use of wireless technology, about 36% of cities in OECD countries have websites using wireless technology to update applications, events, etc., while only 14% of cities in non-OECD countries have websites using that technology. In addition, about 77% of cities in OECD countries have websites offering access in more than one language, while 43% in non-OECD countries offer multilingual access.

[Table 7-4] Results for Content by OECD Member and Non-Member Countries (2013-14)

	OECD	Average	Non-OECD
Emergency Management	48%	**35%**	28%
Access for the blind	36%	**17%**	7%
Access for the deaf	20%	**11%**	7%
Use of wireless technology	36%	**22%**	14%
More than one language	77%	**55%**	43%
Performance Measurement	48%	**40%**	34%

Furthermore, with respect to the question, “Does the site offer access in more than one language?” 55% of cities evaluated have a website that offers access in more than one language, while 45% of cities have access in only one language. Figure 7-3 represents these findings in terms of overall percentages.

[Figure 7-3] Access in Multiple Languages (2013-14)



8

SERVICES

The following chapter highlights the results for the category of online services. Results indicate that Seoul, Shanghai, New York, Dubai, and Stockholm are the top-ranked cities in the category of online services. Seoul ranks first, with a score of 16.72 out of a maximum score of 20, followed by Shanghai in second place, with a score of 15.41. New York is ranked third, with a score of 15.25, followed by Dubai in fourth, with a score of 13.77. The fifth ranked city is Stockholm, with scores of 13.11. Table 8-1 summarizes the results for all municipalities evaluated in this category.

The average score in this category is 5.49, and the average score for the top-five-ranked cities in 2013-14 is 14.85. Cities in OECD countries scored an average of 7.70, while cities in non-member countries scored only 4.40 in this category.

[Table 8 -1] Results in Services (2013-14)

Rank	City	Country	Services
1	Seoul	Korea (Rep.)	16.72
2	Shanghai	China	15.41
3	New York	United States	15.25
4	Dubai	United Arab Emirates	13.77
5	Stockholm	Sweden	13.11
5	Hong Kong	Hong Kong, China	12.79
5	Singapore	Singapore	12.30
8	Yerevan	Armenia	12.13
8	Kuala Lumpur	Malaysia	12.13
10	Toronto	Canada	11.15
11	Helsinki	Finland	9.84
12	Bratislava	Slovak Republic	9.51
12	Prague	Czech Republic	9.51
12	Dublin	Ireland	9.51
12	Riga	Latvia	9.51
16	Auckland	New Zealand	9.18
16	Mexico City	Mexico	9.18
18	Brussels	Belgium	8.52
18	Copenhagen	Denmark	8.52
20	Tallinn	Estonia	8.36
21	Vienna	Austria	8.20
21	Istanbul	Turkey	8.20
23	Macao	Macao, China	7.71
23	Lisbon	Portugal	7.71
25	Madrid	Spain	7.54
26	Vilnius	Lithuania	7.38
27	Jerusalem	Israel	7.22
28	London	United Kingdom	7.05
28	Guatemala City	Guatemala	7.05
30	Bogota	Colombia	6.89

[Table 8-1] Results in Services (Cont. 2013-14)

30	Paris	France	6.89
32	Sao Paulo	Brazil	6.72
32	Lima	Peru	6.72
34	Oslo	Norway	6.56
34	San Marino	San Marino	6.56
36	Rome	Italy	6.23
37	Tokyo	Japan	5.90
37	Zurich	Switzerland	5.90
37	Tbilisi	Georgia	5.90
40	Luxembourg	Luxembourg	5.74
40	Buenos Aires	Argentina	5.74
40	Berlin	Germany	5.74
43	Belgrade	Serbia	5.57
43	Nicosia	Cyprus	5.57
45	Almaty	Kazakhstan	5.41
46	Montevideo	Uruguay	5.25
46	Johannesburg	South Africa	5.25
48	Mumbai	India	5.09
49	Zagreb	Croatia	4.92
49	Muscat	Oman	4.92
51	Athens	Greece	4.76
52	Sydney	Australia	4.75
53	Saint Joseph	Costa Rica	4.59
53	Warsaw	Poland	4.59
53	Tirane	Albania	4.59
56	Moscow	Russia	4.43
57	Minsk	Belarus	4.10
58	Jakarta	Indonesia	3.93
59	Panama City	Panama	3.77
59	Santiago	Chile	3.77
59	Kiev	Ukraine	3.77

[Table 8 -1] Results in Services (Cont. 2013-14)

59	Bangkok	Thailand	3.77
63	Bucharest	Romania	3.61
63	Amsterdam	Netherlands	3.61
63	Guayaquil	Ecuador	3.61
66	Sofia	Bulgaria	3.45
66	Caracas	Venezuela	3.45
68	Cairo	Egypt	3.44
68	Nairobi	Kenya	3.44
70	Sarajevo	Bosnia and Herzegovina	3.28
71	San Salvador	El Salvador	3.12
71	Quezon City	Philippines	3.12
73	Schaan	Liechtenstein	2.95
73	Lagos	Nigeria	2.95
73	Budapest	Hungary	2.95
76	Colombo	Sri Lanka	2.79
77	Riyadh	Saudi Arabia	2.71
78	Ljubljana	Slovenia	2.62
79	Santo Domingo	Dominican Rep.	2.46
79	Ho Chi Minh	Viet Nam	2.46
79	Asuncion	Paraguay	2.46
82	Chisinau	Moldova	2.30
83	Kathmandu	Nepal	2.13
84	Amman	Jordan	1.97
84	Bandar Seri Begawan	Brunei Darussalam	1.97
84	Hamilton	Bermuda	1.97
87	Baghdad	Iraq	1.48
88	Manama	Bahrain	1.32
89	Dhaka	Bangladesh	1.31
89	Santa Cruz de la Sierra	Bolivia	1.31
91	Kuwait City	Kuwait	1.15

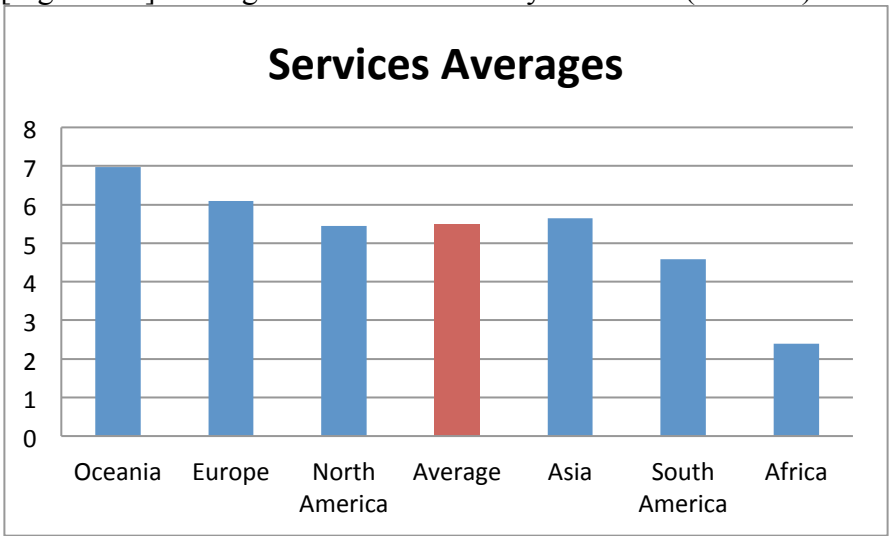
92	Karachi	Pakistan	0.99
93	San Juan	Puerto Rico	0.98
94	Casablanca	Morocco	0.66
95	Castries	St. Lucia	0.50
96	Tunis	Tunisia	0.49
96	Accra	Ghana	0.49
98	Tehran	Iran (I.R.)	0.33
98	Tashkent	Uzbekistan	0.33
98	Valletta	Malta	0.33

Table 8-2 represents the average score of online services by continent. Overall, cities in Oceania ranked highest, with a score of 6.97, followed closely by European cities, with a score of 6.09. Asian cities ranked third, with a score of 5.64, while cities in North America ranked fourth, with a score of 5.45. Besides, cities in OECD countries scored an average of 7.70 in 2013-14, while cities in non-member countries recorded an average of 4.40 in this category. This result suggests that cities in developed countries have provided citizens with more online services than cities in less developed countries. Figures 8-1 and 8-2 underscore that conclusion.

[Table 8-2] Average Score in Services by Continent (2013-14)

	Oceania	**Europe**	**North America**	**Average**	**Asia**	**South America**	**Africa**
Services Averages	6.97	6.09	5.45	**5.49**	5.64	4.59	2.39

[Figure 8-1] Average Score in Services by Continent (2013-14)



[Figure 8-2] Average Score in Services by OECD Member and Non-Member Countries (2013-14)

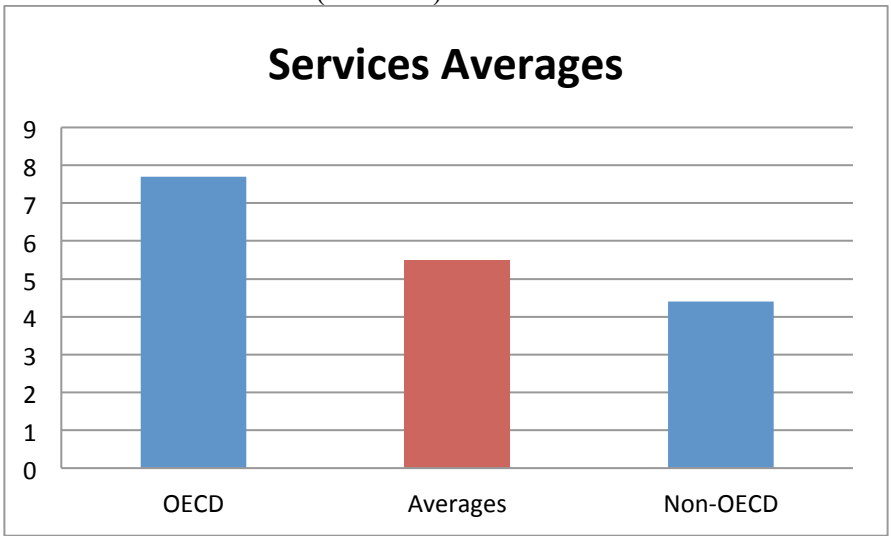


Table 8-3 indicates the results of key aspects selected in the category of service delivery by continent. With regard to searchable databases, more than 50% of cities in Oceania, Europe, Asia, and South America have websites offering a searchable database, while less than 30% of cities evaluated in Africa have sites offering that capacity. In terms of portal customization, 15% of cities in Asia and about 9% in Europe and 5% in North America allow users to customize the main city homepage, depending on their needs. In addition, with respect to access to private information online (e.g., educational records, medical records, point total of driving violations, lost pet dogs, lost property), around 21% of cities in Europe allow users such access.

[Table 8-3] Results for Services by Continent (2013-14)

	Oceania	Europe	Asia	Average	North America	South America	Africa
Searchable Database	50%	50%	53%	**50%**	40%	70%	29%
Portal Customization	0%	9%	15%	**10%**	5%	0%	0%
Access to Private Info	0%	21%	20%	**18%**	18%	15%	6%

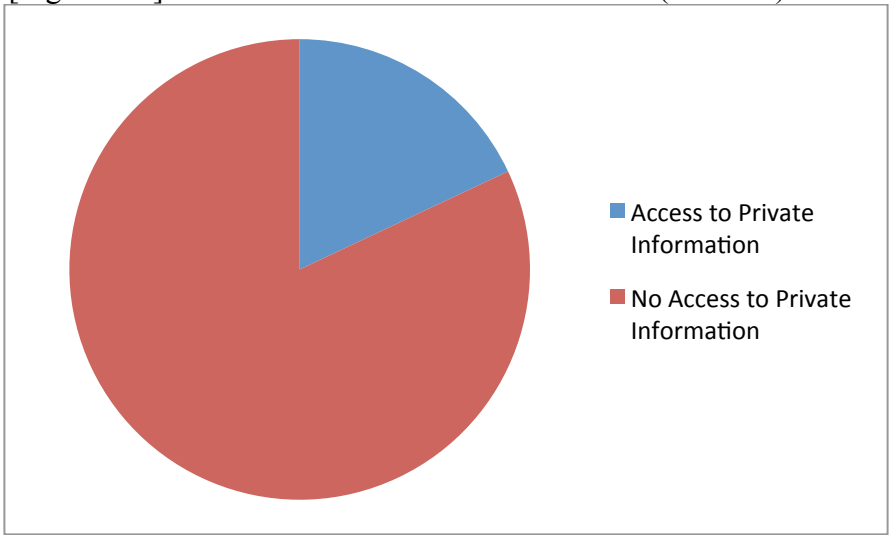
Table 8-4 represents the results of key aspects selected in the category of service delivery by OECD membership. With regard to searchable databases, about 64% of cities in OECD countries have websites offering a searchable database, and about 44% in non-OECD countries have sites offering that capacity. In terms of portal customization, about 12% of cities in OECD countries allow users to customize the main city homepage depending on their needs, and about 7% in non-OECD countries allow citizens to do so. In addition, with respect to access to private information online, 23% of cities in OECD countries allow users to access such information, while 16% of cities in non-OECD countries allow citizens to do so.

[Table 8-4] Results for Services by OECD Member and Non-Member Countries (2013-14)

	OECD	Average	Non-OECD
Searchable Database	64%	**50%**	44%
Portal Customization	12%	**10%**	7%
Access Private Info	23%	**18%**	16%

Overall, 18% of all cities allow access to private information online in response to the question, “Does the site allow access to pri vate information online?” (e.g., educational records, medical record, point total of driving violations, lost pet dogs, lost property). Over 80% of cities do not allow such access. Figure 8-3 illustrates this finding.

[Figure 8-3] Access to Private Information Online (2013-14)



9

CITIZEN AND SOCIAL ENGAGEMENT

The following chapter highlights the results for the category of citizen and social engagement. Results indicate that Seoul, Singapore, Yerevan, Vienna, and Shanghai are the top-ranked cities in the category of citizen participation. New to the top five are Singapore and Yerevan. Seoul ranked first again, with a score of 18.75, compared to its score of 16.25 in 2011-12. Singapore, which ranked 17th in 2011-12, achieved the second position in 2013-14, with a score of 11.46. Yerevan also made a great progress, from its ranking of 43 in 2011-12 with score of 3.13 to the third position in 2013-14 with a score of 11.04. Vienna retained its fourth ranking, with a score 10.21, followed by Shanghai, with a score of 9.58. Table 9-1 summarizes the results for all municipalities evaluated in this category.

The average score in this category is 3.34, a slight decrease from a score of 3.53 in 2011-12. This can be attributed to the lack of support for such online citizen participation practices among municipalities across the world.

[Table 9-1] Results in Citizen and Social Engagement (2013-14)

Rank	City	Country	CS Engagement
1	Seoul	Korea (Rep.)	18.75
2	Singapore	Singapore	11.46
3	Yerevan	Armenia	11.04
4	Vienna	Austria	10.21
5	Shanghai	China	9.58
6	Bratislava	Slovak Republic	9.38
7	New York	United States	8.75
8	Almaty	Kazakhstan	8.54
9	Minsk	Belarus	8.13
10	Hong Kong	Hong Kong, China	7.92
11	Helsinki	Finland	7.29
11	Luxembourg	Luxembourg	7.29
13	Vilnius	Lithuania	7.09
14	Paris	France	7.08
15	London	United Kingdom	6.46
16	Prague	Czech Republic	5.83
17	Toronto	Canada	5.63
18	Mexico City	Mexico	5.21
19	Dubai	United Arab Emirates	5.00
19	Lima	Peru	5.00
19	Guayaquil	Ecuador	5.00
22	Montevideo	Uruguay	4.79
23	Zurich	Switzerland	4.38
23	Muscat	Oman	4.38
23	Amman	Jordan	4.38
26	Copenhagen	Denmark	4.17
26	Tbilisi	Georgia	4.17
26	Rome	Italy	4.17
29	Jerusalem	Israel	3.96
29	Tokyo	Japan	3.96

29	Buenos Aires	Argentina	3.96
32	Macao	Macao, China	3.75
32	Bogota	Colombia	3.75
32	Belgrade	Serbia	3.75
32	Chisinau	Moldova	3.75
36	Warsaw	Poland	3.55
37	San Marino	San Marino	3.34
38	Kuala Lumpur	Malaysia	3.33
38	Tallinn	Estonia	3.33
38	Bucharest	Romania	3.33
41	Ho Chi Minh	Viet Nam	3.13
42	Stockholm	Sweden	2.92
42	Riga	Latvia	2.92
42	Oslo	Norway	2.92
42	Zagreb	Croatia	2.92
42	Sydney	Australia	2.92
42	Brussels	Belgium	2.92
42	Berlin	Germany	2.92
42	Baghdad	Iraq	2.92
50	Auckland	New Zealand	2.71
50	Sofia	Bulgaria	2.71
50	Riyadh	Saudi Arabia	2.71
50	Santiago	Chile	2.71
54	Sao Paulo	Brazil	2.50
54	Moscow	Russia	2.50
56	Istanbul	Turkey	2.30
57	Johannesburg	South Africa	2.29
57	Santo Domingo	Dominican Rep.	2.29
59	Lisbon	Portugal	2.09
59	Guatemala City	Guatemala	2.09
59	Schaan	Liechtenstein	2.09

[Table 9-1] Results in Citizen and Social Engagement (Cont. 2013-14)

59	Kuwait City	Kuwait	2.09
63	Panama City	Panama	2.08
64	Caracas	Venezuela	1.88
64	Cairo	Egypt	1.88
66	Kiev	Ukraine	1.67
67	Athens	Greece	1.46
68	Madrid	Spain	1.25
68	Saint Joseph	Costa Rica	1.25
68	Jakarta	Indonesia	1.25
68	Bangkok	Thailand	1.25
68	Lagos	Nigeria	1.25
68	Colombo	Sri Lanka	1.25
68	Casablanca	Morocco	1.25
75	Nicosia	Cyprus	1.05
75	Tirane	Albania	1.05
77	Budapest	Hungary	1.04
77	Kathmandu	Nepal	1.04
79	San Salvador	El Salvador	0.84
79	Quezon City	Philippines	0.84
79	Ljubljana	Slovenia	0.84
79	Hamilton	Bermuda	0.84
79	Dhaka	Bangladesh	0.84
79	Karachi	Pakistan	0.84
85	Dublin	Ireland	0.83
86	Amsterdam	Netherlands	0.63
86	Manama	Bahrain	0.63
88	Santa Cruz de la Sierra	Bolivia	0.42
88	San Juan	Puerto Rico	0.42
88	Tehran	Iran (I.R.)	0.42
88	Asuncion	Paraguay	0.42

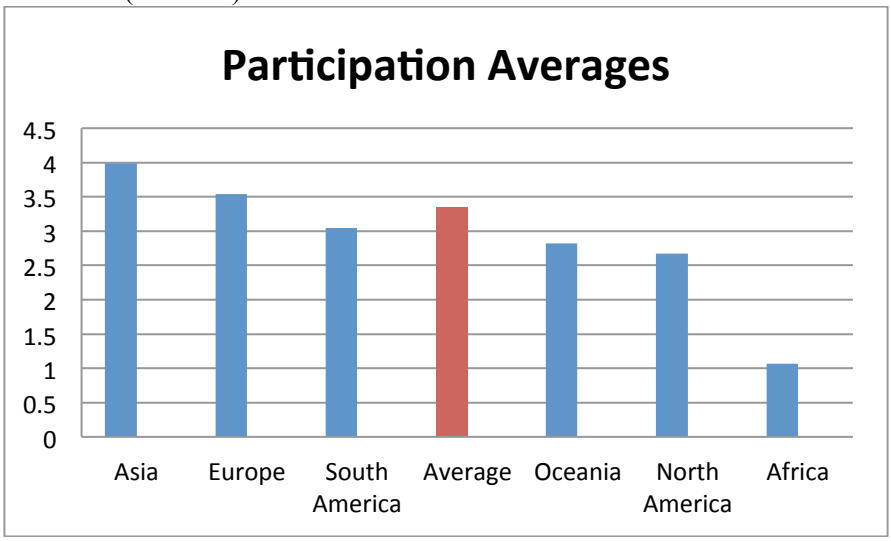
88	Tunis	Tunisia	0.42
93	Nairobi	Kenya	0.21
93	Bandar Seri Begawan	Brunei Darussalam	0.21
93	Accra	Ghana	0.21
93	Valletta	Malta	0.21
97	Mumbai	India	0.00
97	Sarajevo	Bosnia and Herzegovina	0.00
97	Castries	St. Lucia	0.00
97	Tashkent	Uzbekistan	0.00

Table 9-2 represents the average score in Citizen and Social Engagement by continent. Overall, cities in Asia ranked the highest among the continents, with a score of 3.99, replacing Europe. As shown in Figure 9-2, cities in OECD countries scored an average of 5.12, while cities in non-member countries scored only 2.68 in this category. This result indicates that cities in economically advanced countries continue to place more emphasis on citizen participation than do cities in less developed countries. Figures 9-1 illustrates the data presented in Table 9-2.

[Table 9-2] Average Score in Citizen and Social Engagement by Continent (2013-14)

	Asia	Europe	South America	Average	Oceania	North America	Africa
CSE Averages	3.99	3.54	3.04	**3.34**	2.82	2.67	1.07

[Figure 9-1] Average Score in Citizen and Social Engagement by Continent (2013-14)



[Figure 9-2] Average Score in Citizen and Social Engagement by OECD Member and Non-Member Countries (2013-14)

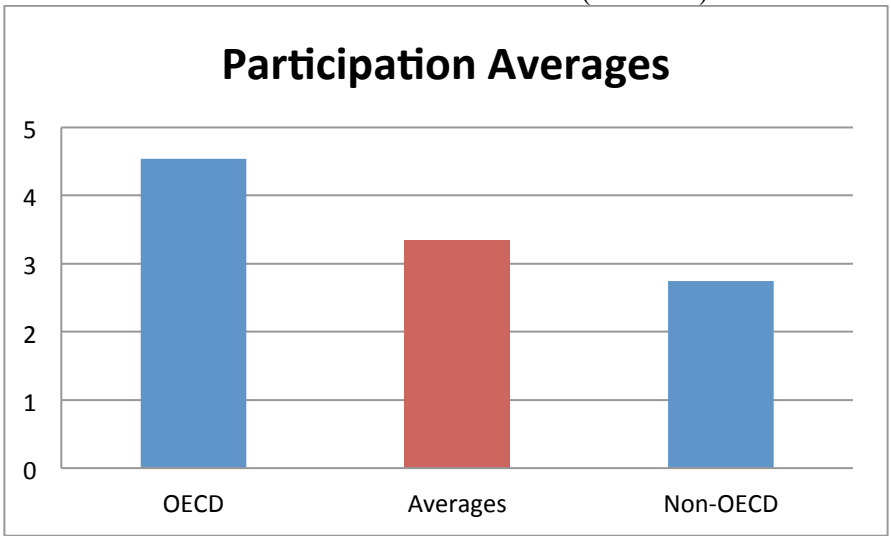


Table 9-3 indicates the results of key aspects selected for the category of Citizen and Social Engagement by continent. In terms of the evaluation of the question, "Does the website allow users to provide comments or feedback to individual departments/agencies through online forms?" 60% of municipalities provide a mechanism allowing comments or feedback through such forms. Fifty percent of cities in Oceania, along with many more in Europe, South America, North America, and Asia, provide such an online feedback form. With respect to online bulletin board or chat capabilities for gathering citizen input on public issues ("online bulletin board" or "chat capabilities" means the city website where any citizens can post ideas, comments, or opinions without specific discussion topics), some 24% have these capabilities. With regard to online discussion forums on policy issues ("online discussion forum" means the city websites where the city arranges public consultation on policy issues, and citizens participate in discussing those specific topics), 20% of the municipalities evaluated have a site containing an online discussion forum.

[Table 9-3] Results for Citizen and Social Engagement by Continent (2013-14)

	Oceania	Europe	Asia	Average	North America	South America	Africa
Feedback Form	50%	65%	60%	**60%**	55%	65%	22%
Bulletin Board	0%	29%	32%	**24%**	45%	10%	14%
Policy Forum	50%	23%	30%	**20%**	10%	10%	10%

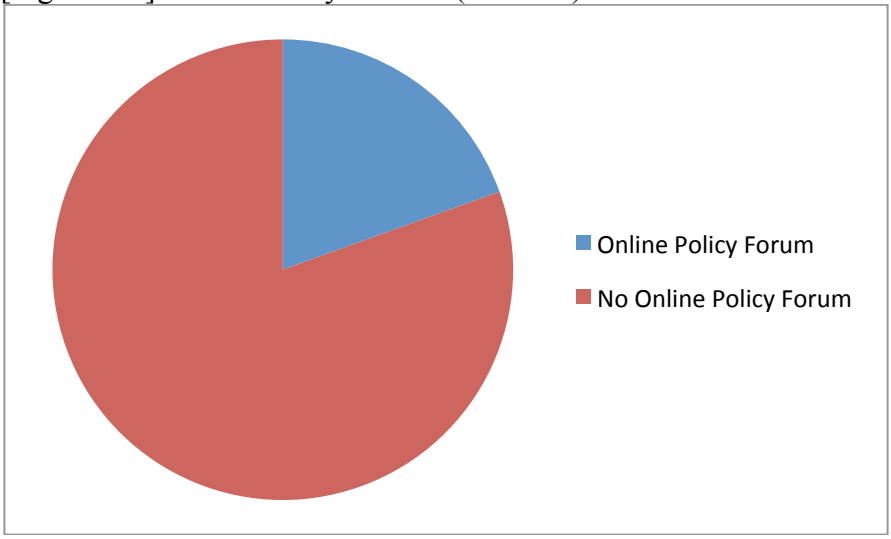
Table 9-4 represents the results of key aspects selected in the category of Citizen and Social Engagement across OECD and non-OECD countries. In terms of the question, "Does the website allow users to provide comments or feedback to individual departments/agencies through online forms?" 73% of municipalities in OECD countries provide a mechanism allowing comments or feedback through online forms. Only 52% of municipalities in non-

OECD countries provide a mechanism allowing comments or feedback through online forms. With respect to online bulletin board or chat capabilities for gathering citizen input on public issues, 29% of municipalities in OECD countries provide online bulletin board or chat capabilities, while only 21% of municipalities in non-OECD countries provide such capabilities. With regard to online discussion forums on policy issues, 27% of municipalities in OECD countries have a site containing an online discussion forum, but only 16% of municipalities in non-OECD countries have a site containing such a forum.

[Table 9-4] Results for Citizen and Social Engagement by OECD Member and Non-Member Countries (2013-14)

	OECD	Average	Non-OECD
Feedback Form	73%	**60%**	52%
Bulletin Board	29%	**24%**	21%
Policy Forum	27%	**20%**	16%

[Figure 9-3] Online Policy Forums (2013-14)



10

BEST PRACTICES

SEOUL

Seoul ranked #1 again in the Sixth Worldwide Digital Governance Survey. Seoul's official website scored high in all five categories, including #1 in Privacy/Security, Content, Services, and Citizen & Social Engagement. It ranked #3 in Usability.

Seoul's website design is user-oriented and quite easy to use. The relatively short homepage, consistent navigation and formatting, excellent sitemap, and so on, make the website very user-friendly. The advanced search tool and targeted audience links help visitors to find both information and services conveniently and efficiently. Seoul's website also serves as a leading example in the area of Security/Privacy as systematic measures are taken to protect the privacy of visitors.

As for online services, Seoul is doing an excellent job by providing comprehensive services, such as paying for utilities, taxes, and tickets online. It also enables citizens to apply for permits or licenses, download documents, and request information and services directly through the website. The well-designed system improves the efficiency and quality of service provision.

Seoul ranked #1 in citizen participation. It always emphasizes the importance of citizen engagement in government

decision-making processes. Residents can contact public officials directly to provide their feedback. Online discussion boards enable citizens to raise and discuss public issues. Additionally, online surveys are conducted to collect public opinion on specific public issues or policies.

NEW YORK

New York's ranking rose to #2 in the Sixth Global E-Governance Survey, compared to its ranking as #6 in 2011-12. New York has continually ranked very high in the past global surveys, reflecting its excellent performance in digital governance. In specific categories, New York ranked #7 in Privacy/Security, #5 in Content, #3 in Services, and #7 in Citizen & Social Engagement.

Similar to Seoul, the design of New York's website is also citizen-oriented. Information and services are well-organized based on specific topics (Business, Environment, Education, etc), which enables visitors to locate them easily. Contact information, such as phone numbers and email addresses, are provided online for the public to enable users to provide comments or request information and services. Newsletters and updates are distributed via emails, which enables residents to better follow public events.

As for online services, tickets, bills, tax, certificates, licenses, and related matters can all be paid online. Services can also be requested by citizens through a 311 link. And, the status of services can be tracked online as well. With more and more people using smart devices, New York's 311 App was designed to help citizens obtain information and services directly through their smart devices.

As for citizen engagement, citizens can directly file a complaint through the website for such matters as noise, transportation and public safety. New Yorkers are able to use social media, such as Facebook, Twitter, Foursquare, Instagram, Tumblr, to connect and interact with government officials through the

website as many departments have their own social media accounts. The website serves as a best practice for enabling the public to better engage with government.

HONG KONG

Hong Kong ranked#3 in the Sixth Worldwide Digital Survey, compared to its ranking of #5 in the 2011-12 survey. It has continually ranked in the top 5 in the past four surveys. In the specific categories, it ranked #6 in Services, #14 in Content, #8 in Privacy and Security, and #10 in Citizen and Social engagement.

The website design of Hong Kong is similar to New York's in that all the information and services are well-organized based on what citizens want to know and want to do through this website. Under different topics, such as environment, education, health care and social services, visitors can locate the information they need efficiently. Hong Kong does an excellent job of sharing database with the public through its "Data.One" portal. Citizens have access to a range of public data, including geospatial, population, public transportation, water quality, weather, etc. These data enable citizens to both better oversee government and make better choices in their everyday lives. As to public transportation, citizens can access to the live video or traffic condition snapshots through the website.

Hong Kong also provides an excellent example of using applications to provide information and services to the public. Similar to New York, Hong Kong has designed many mobile applications for citizens so as to access information and services more conveniently. Those applications cover many different areas, such as drainage services, health and education. Hong Kong also directly lists the hot searches and top online services on the main page. All of these reflect its high level of e-governance and its competence in serving the public.

TORONTO

Toronto is also a leading municipality in e-governance. Although its ranking dropped slightly this year, Toronto serves as an exemplar in many areas.

As to Content, the homepage of Toronto is designed very well, with content divided into four parts: “Living in Toronto”, “Doing Business”, “Visiting Toronto”, and “Accessing City Hall.” Visitors can easily find information and services based on their goals and status. For example, residents can go directly to the major four categories to find information on health, environment, culture and recreation. Users can choose to subscribe to different government events based on their needs. These events are also available through an audio version which can be directly downloaded. The city has Facebook, Twitter, and YouTube accounts so that the public might follow updates through social media.

Toronto also serves as an exemplar for opening government performance data to the public. Data of many kinds, such as community services, culture and tourism, finance, garbage and recycling can be searched and downloaded, which enables citizens to better understand government. For example, citizens have access to the dataset of voter statistics for elections and the dataset of 311 service requests from customers in the past month. Toronto also publishes the “Performance Management and Benchmarking Report”, which provides residents with government performance data. The report has detailed information about performance measurements and indicators in 33 services areas, through which citizens may know whether improvements have been made in certain areas and thereby evaluate government performance.

SINGAPORE

Similar to Toronto, information and services in Singapore are also divided into different categories: Government, Citizens &

Residents, Businesses, and Non-Residents. Information such as government news, calendar of events, and directory are clearly posted on the main page for public access. Online services under topics such as education, employment, housing, immigration and citizenship, are provided to citizens. Applications for passports, paying income and property tax, and paying bills for school fees can be completed online as well. Well-designed search tools on the website enable citizens to locate services they need fast and conveniently.

One feature of Singapore's online services is the "OneInbox," which is an account enabling residents access to their government statements, advisory notes, reminders, payment notices, and more from one convenient place. With this account, users can easily sign-up, view, file and track correspondence, receive reminders via email, and so on, a convenient means for citizens to obtain services online. Another excellent example Singapore has provided is in engaging citizens. It is widely known that citizen participation plays an important role in government decision-making processes, helping governments to be more responsible, transparent, effective and efficient. The problem is how to use ICTs to better involve citizens in government's operations. In Singapore, online surveys and forms are provided for citizens to directly provide their feedback and comments. Singapore also has a website, "eCitizen Ideas," on which government posts the challenges or public issues that the city is facing. Then, prizes are provided to motivate citizens to offer their ideas. Citizens can post those ideas and interact with others. In the end, government will analyze feedback from the public and make the final decision. This is an effective way to involve citizens at the earliest stages of policy-making processes.

11

CONCLUSION

The study of municipal e-governance practices throughout the world is an area that clearly requires ongoing research. Our research represents a continued effort to evaluate digital governance in large municipalities throughout the world. Previous research on government websites has focused primarily on e-governance at the federal, state, and local levels in the United States. Only a few studies have produced comparative analyses of e-governance in national governments throughout the world. Our studies in 2003, 2005, 2007, 2009, 2011-12 and 2013-14 have produced findings that contribute to the e-governance literature, in particular in the areas of website Privacy/Security, Usability, Content, Services, and Citizen and Social Engagement. The 2013-14 study highlights the increased attention spent on Usability and Content, and the need for further attention in the area of Privacy and Security, Services and Citizen and Social engagement via municipal websites. Similar to our previous findings, citizen participation has recorded the lowest score among the five categories. Cities have not yet fully recognized the importance of involving and supporting citizen participation online.

In addition, the digital gap between OECD and non-OECD member countries in average scores is still large. It is very important for international organizations such as the UN and cities in advanced

countries to help continue bridging the digital divide. In many nations, especially those belonging to the non-OECD category, the digital divide may imply more than access to the internet alone; this divide refers to access to basic infrastructure such telephones, electricity, communications, etc. We therefore recommend developing a comprehensive policy for bridging that divide. That comprehensive policy should include capacity building for municipalities, including information infrastructure, content, applications and access for individuals, and educating residents with appropriate computer education.

The continued study of municipalities worldwide, with a sixth evaluation planned in 2015, will further provide insights into the direction of e-governance and the performance of e-governance throughout regions of the world. Every region has examples of best practices for overall performance and in each specific e-governance category. As municipalities seek to increase their municipal website performance, searching for models within their region is an opportunity to identify e-governance benchmarks. Those municipalities that serve as top performers in their respective regions can then look to the top ranked cities in municipalities throughout the world.

Comparison between UN Survey and Rutgers Survey

Beginning in 2003 and aimed at measuring municipal capacity to provide public services via information technology, the UN E-Government Survey and the Rutgers Global E-Governance Survey both share commonalities and differences. The discussion below provides a comparison between the two in terms of Methodology and Evaluation Results.

Methodology

Similarity

Table 11-1

	UN Survey	Rutgers Survey
Similarity		
Worldwide Focus	√	√
Citizen-centric Approach	√	√
Reflect Four-stage E-government Development	√	√
Timely Updates	√	√

Table 11-1 highlights the similarities in the two surveys. Both evaluate e-governance worldwide instead of only focusing on a particular nation or region. Both surveys adopt a citizen-centric approach. The UN survey measures the extent to which national governments use information technology to provide citizens with services in a timesaving manner. Similarly, the Rutgers e-governance survey uses 104 measures to evaluate the abilities of city level governments in providing effective and efficient services to citizens. The Rutgers survey also evaluates the measures taken by governments to protect the privacy and security of users and whether opportunities are provided online for citizen engagement and participation. That is, both surveys pay attention to the "demand side" of citizens and use the citizen-centric approach.

Both of the assessment questionnaires reflect the four stages of e-government development: Presence, Interaction, Transaction, and Transformation. The Rutgers e-governance survey uses a five-category index to measure the availability of useful information, documents, records and so on; whether citizens can apply for licenses or permits online; whether citizens can provide opinions or feedback to governments through the websites; whether they can pay their tickets, fines and taxes online; whether businesses are able to bid online; whether citizens have opportunities for participation and interaction; and so on. So, the measures in both surveys

comprehensively reflect the stages of e-governance in particular municipalities.

Additionally, the two surveys divide data into categories for further comparison and analysis. For example, the UN survey divided the data based on their regional groupings and economic progress (developed and developing countries). The Rutgers survey divided the data based on continent and OECD or non-OECD status. Also, both vary from one edition to the next, adapting their indexing and evaluation systems to the e-government and technology changes.

Differences

Although there is much in common, the UN E-Government Survey and the Rutgers Global E-Governance Survey are characterized by considerable differences, including Research Level, Coverage, Survey Instrument, Evaluation Process, and Languages. Table 11-2 summarizes the differences between the two surveys.

Table 11- 2

	UN Survey	**Rutgers Survey**
Differences		
Research Level	Country Level	City Level
Coverage	193 Member States	Largest city of Top 100 Most Wired Nations
Survey Instrument	Three Component Indexes	Five Categories
	Most Questions Use Binary Response	Combination of Different Scales Based on Needs
Evaluation Process	Evaluated by Original Reviewer, and then Senior Researcher Re-verifies	Evaluated by Two Evaluators and Third Evaluator Will Be Needed if the Difference Is Larger than 10%
	Team Members	Researchers Justify

	Justify The URLs	the URLs and Evaluators Double Check
Languages Used	Native Languages if Possible; If not, Another Language Available on the Site	Native Languages

First, the two surveys focus on different levels. The UN Survey is based on a comprehensive survey of all the 193 Member States, while the Rutgers E-Governance Survey selects the largest city by population in the top 100 most wired nations identified by using information on total number of online users from the International Telecommunication Union (ITU) of the United Nations (UN). And the rationale for selecting the largest municipalities stems from the e-governance literature, which suggests a positive relationship between population and e-governance capacity at the local level (Moon, 2002; Moon & deLeon, 2001; Musso, et. al., 2000; Weare, et. al. 1999). So, one survey evaluates the national level and the other the local level.

Differences exist in their survey instrument. The UN E-Government Survey score is a weighted average of three equal component indexes, including scope and quality of online services, development status of telecommunication infrastructure, and inherent human capital. And, the assessment rates are relative. However, the Rutgers E-Governance Survey Instrument uses 104 measures in five distinct categorical areas of e-governance research: 1. Privacy and Security; 2. Usability; 3. Content; 4. Services; and 5. Citizen and Social Engagement. Each category produces a 20% weighted score, and the score is absolute instead of relative.

Regarding the e-government scale, except for a small number of questions that use a 4-point scale, almost all questions in the UN survey use a binary response of yes (1 point) or no (0 points). However, the Rutgers E-Governance Survey uses different scales in different categories based on specific relevance. The dichotomous measures in the "service" and "citizen participation" categories correspond with values on a four-point scale of "0" or "3";

dichotomous measures in "privacy" or "usability" correspond to ratings of "0" or "1" on the scale.

Additionally, the evaluation process is also different in both surveys. Researchers for the UN survey are trained to assume a mind-set as an average citizen user. And, after the evaluation is finished by the original reviewer, the senior researcher reviews it again to re-verify all the answers. To ensure reliability, the Rutgers E-governance Survey requires each municipal website to be assessed by two evaluators, and in cases where significant variation (+ or − 10%) existed on the weighted score between evaluators, websites were analyzed a third time. Furthermore, an example for each measure indicated how to score the variable. Evaluators were also given comprehensive written instructions for assessing websites.

To guarantee the accuracy of the website link, team members of the UN survey were asked to justify the selection of URLs and to check whether these URLs were the same as the past surveys. The Rutgers survey uses a different method, with the researchers first identifying the official websites for these 100 cities. Then, the evaluators were asked to find the official websites by themselves. If the URLs found by evaluators did not match the URLs provided, then the researchers and evaluators worked together to identify the correct website link.

The surveys also differ with regard to the languages used for evaluation. Although the research team for the UN survey is fluent in the six official languages of the United Nations, they attempt to review the website in the official languages of each country, but would use another language available on the site if using the official language is impossible. The Rutgers e-governance survey evaluated the official websites of the largest cities in the one hundred most wired countries in their native languages. Moreover, the Rutgers survey selected evaluators from these countries, and these evaluators then evaluated the websites in their native languages.

Results

Since the two surveys focus on different levels of government

(one is country level and the other is city level) and they have differences in methodology, survey instruments, and so on, the results do differ from each other. However, their results are strongly related to each other because they both evaluate the e-governance capacity of the municipality, and the e-governance level of the largest city is reflective of the capacity of the country to a large extent. Table 11-3 below makes a comparison of the results between the Rutgers and UN Surveys. This comparison shows that among the top 30 rankings, the two surveys have 17 in common (56.67%); among the top 60, they have 45 in common (75%); among all 100 cities, they have 81 in common (81%).

Table 11-3

City	Country	Rutgers Rank	Rutgers Score	UN Rank	UN Score
Seoul	Korea (Rep.)	1	85.8	1	0.94623
New York	United States	2	66.15	7	0.87483
Hong Kong	China	3	60.32	70	0.54501
Singapore	Singapore	4	59.82	3	0.90762
Yerevan	Armenia	5	59.61	61	0.58969
Bratislava	Slovak Republic	6	58.31	51	0.61478
Toronto	Canada	7	58.05	11	0.84177
Shanghai	China	8	56.02	70	0.54501
Dubai	United Arab Emirates	9	55.89	32	0.71358
Prague	Czech Republic	10	54.88	53	0.60695
Vilnius	Lithuania	11	53.82	29	0.72709
Vienna	Austria	12	53.4	20	0.79124
Oslo	Norway	13	52.52	13	0.83572
Stockholm	Sweden	14	52.25	14	0.8225
London	United Kingdom	15	51.9	8	0.86948
Helsinki	Finland	16	51.27	10	0.84491
Macao	Macao, China	17	48.69	70	0.54501
Mexico City	Mexico	18	47.01	63	0.5733
Kuala Lumpur	Malaysia	19	46.16	52	0.61152
Zurich	Switzerland	20	45.36	30	0.7267
Sao Paulo	Brazil	21	44.64	57	0.60082

Auckland	New Zealand	22	44.42	9	0.86436
Brussels	Belgium	23	44.05	25	0.75638
Copenhagen	Denmark	24	43.14	16	0.8162
Tokyo	Japan	25	43.11	6	0.88744
Buenos Aires	Argentina	26	42.89	46	0.63059
Jerusalem	Israel	27	41.76	17	0.81615
Schaan	Liechtenstein	28	40.85	35	0.69823
Madrid	Spain	29	40.62	12	0.84098
Guayaquil	Ecuador	30	40.45	83	0.50529
Dublin	Ireland	31	39.39	22	0.781
Luxembourg	Luxembourg	32	38.97	24	0.75911
Berlin	Germany	33	38.65	21	0.7864
Tallinn	Estonia	34	38.36	15	0.81796
Sydney	Australia	35	37.75	2	0.91034
Montevideo	Uruguay	36	36.97	26	0.74195
Bogota	Colombia	37	36.78	50	0.6173
Lisbon	Portugal	38	36.28	37	0.68996
Muscat	Oman	39	36.14	48	0.62732
Almaty	Kazakhstan	40	35.81	28	0.72827
Riyadh	Saudi Arabia	41	35.59	36	0.69001
Johannesburg	South Africa	42	34.97	93	0.48688
Belgrade	Serbia	43	34.79	69	0.54715
Lima	Peru	44	34.64	72	0.54354
Paris	France	45	33.2	4	0.89384
Minsk	Belarus	46	33.14	55	0.60529
Mumbai	India	47	32.34	118	0.38343
Warsaw	Poland	48	31.57	42	0.64822
San Marino	San Marino	49	31.57	62	0.58225
Riga	Latvia	50	31.4	31	0.71775
Zagreb	Croatia	51	31.09	47	0.62817
Guatemala City	Guatemala	52	30.81	133	0.31603
Bucharest	Romania	53	30.52	64	0.56315
Chisinau	Moldova	54	30.48	66	0.55708
Istanbul	Turkey	55	30.1	71	0.54428
Rome	Italy	56	29.89	23	0.7593
Saint Joseph	Costa Rica	57	29.68	54	0.60614

Athens	Greece	58	29.05	34	0.71176
Amsterdam	Netherlands	59	28.99	5	0.88966
Ljubljana	Slovenia	60	28.93	41	0.65054
Santiago	Chile	61	28.55	33	0.71216
Tbilisi	Georgia	62	28.36	56	0.60468
Cairo	Egypt	63	27.85	80	0.51293
Jakarta	Indonesia	64	27.54	106	0.44874
Hamilton	Bermuda	65	26.97	N/A	N/A
Panama City	Panama	66	25.95	77	0.52422
Sofia	Bulgaria	67	25.92	73	0.54209
Santo Domingo	Dominican Rep.	68	25.48	107	0.44808
Moscow	Russia	69	25.04	27	0.72959
San Salvador	El Salvador	70	24.4	88	0.49885
Tehran	Iran (I.R.)	71	24.2	105	0.45075
Sarajevo	Bosnia and Herzegovina	72	23.42	97	0.47069
Budapest	Hungary	73	23.37	39	0.66374
Nicosia	Cyprus	74	22.96	58	0.59576
Kiev	Ukraine	75	22.7	87	0.50316
Ho Chi Minh	Viet Nam	76	22.08	99	0.47045
Amman	Jordan	77	21.91	79	0.51674
Lagos	Nigeria	78	21.84	141	0.29287
Bangkok	Thailand	79	20.72	102	0.46308
Caracas	Venezuela	80	20.27	67	0.55639
Tunis	Tunisia	81	19.56	75	0.53895
Quezon City	Philippines	82	19.34	95	0.47681
Tirane	Albania	83	19.32	84	0.50455
Casablanca	Morocco	84	18.84	82	0.50598
Baghdad	Iraq	85	17.42	134	0.31414
Karachi	Pakistan	86	16.74	158	0.25799
Kathmandu	Nepal	87	16.64	165	0.23442
Valletta	Malta	88	16.61	40	0.6518
Colombo	Sri Lanka	89	16.56	74	0.54176
Asuncion	Paraguay	90	16.24	122	0.374
Nairobi	Kenya	91	15.39	119	0.38054
Kuwait City	Kuwait	92	14.21	49	0.6268

Dhaka	Bangladesh	93	13.77	148	0.27572
Manama	Bahrain	94	12.92	18	0.80885
Santa Cruz de la Sierra	Bolivia	95	12.29	103	0.45617
San Juan	Puerto Rico	96	12.07	N/A	N/A
Tashkent	Uzbekistan	97	12.07	100	0.46951
Bandar Seri Begawan	Brunei Darussalam	98	11.66	86	0.50424
Accra	Ghana	99	9.82	123	0.37354
Castries	St. Lucia	100	5.03	104	0.45248

Figure 11-1 and Figure 11-2 below provide another comparison between the Rutgers Survey and the UN Survey in both rank and score. The analysis shows that the correlation between the Rutgers rank and UN ranks is 0.6424, and the correlation between the Rutgers score and UN score is 0.6144. So, the analysis reflects the strong relationship between the two surveys and confirms the validity and reliability of them.

Figure 11-1

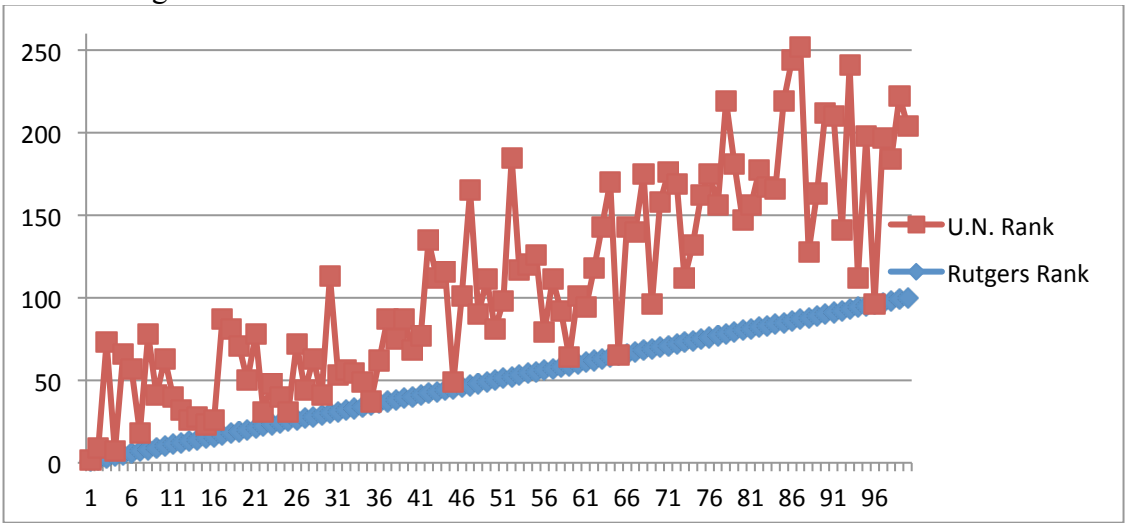
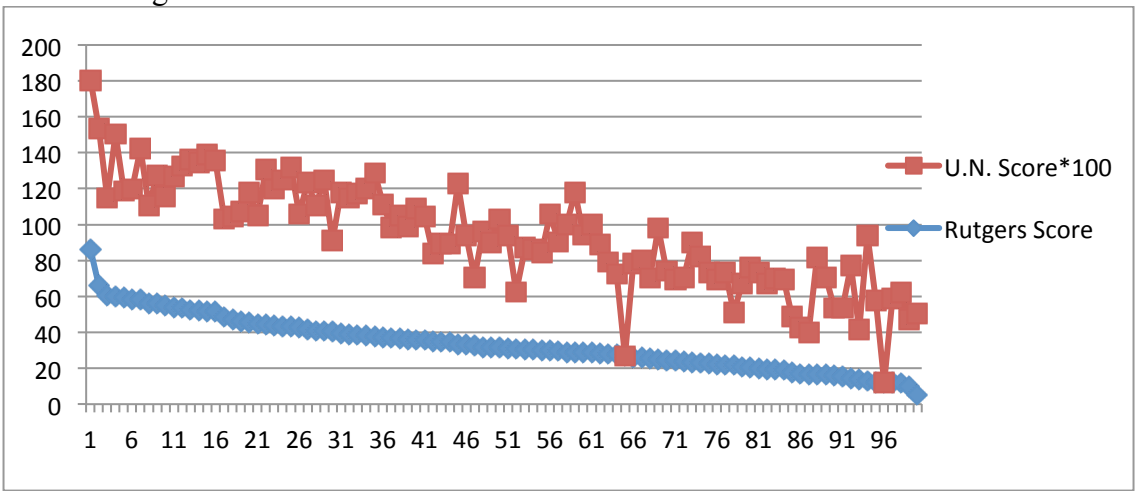


Figure 11-2


200
180
160
140
120
100
80
60
40
20
0
1
6
11
16
21
26
31
36
41
46
51
56
61
66
71
76
81
86
91
96
U.N. Score*100
Rutgers Score

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Holzer, M, & Kim, S.T., (2005) "Digital Governance in Municipalities Worldwide, A Longitudinal Assessment of Municipal Web Sites Throughout the World", the E-Governance Institute, Rutgers University, Newark and the Global e-policy e-government Institute, Sungkyunkwan, University

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APPENDIX

APPENDIX A

Privacy/ Security	
1-2. A privacy or security statement/policy 3-6. Data collection 7. Option to have personal information used 8. Third party disclosures 9. Ability to review personal data records 10. Managerial measures 11. Use of encryption	12. Secure server 13. Use of "cookies" or "Web Beacons" 14. Notification of privacy policy 15. Contact or e-mail address for inquiries 16. Public information through a restricted area 17. Access to nonpublic information for employees 18. Use of digital signatures
Usability	
19-20. Homepage, page length. 21. Targeted audience 22-23. Navigation Bar 24. Site map	25-27. Font Color 30-31. Forms 32-37. Search tool 38. Update of website
Content	
39. Information about the location of offices 40. Listing of external links 41. Contact information 42. Minutes of public 43. City code and regulations 44. City charter and policy priority 45. Mission statements 46. Budget information 47-48. Documents, reports, or books (publications)	49. GIS capabilities 50. Emergency management or alert mechanism 51-52. Disability access 53. Wireless technology 54. Access in more than one language 55-56. Human resources information 57. Calendar of events 58. Downloadable documents

Service	
59-61. Pay utilities, taxes, fines 62. Apply for permits 63. Online tracking system 64-65. Apply for licenses 66. E-procurement 67. Property assessments 68. Searchable databases 69. Complaints 70-71. Bulletin board about civil applications	72. FAQ 73. Request information 74. Customize the main city homepage 75. Access private information online 76. Purchase tickets 77. Webmaster response 78. Report violations of administrative laws and regulations
Citizen and Social Engagement	
79-80. Comments or feedback 81-83. Newsletter 84. Online bulletin board or chat capabilities 85-87. Online discussion forum on policy issues 88-89. Scheduled e-meetings for discussion	90-91. Online survey/ polls 92. Synchronous video 93-94. Citizen satisfaction survey 95. Online decision-making 96-104. Performance measures, standards, or benchmarks