

Digital Governance in Municipalities Worldwide (2007)

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A Longitudinal Assessment of
Municipal Websites Throughout the World

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And

Global e-Policy e-Government Institute
Graduate School of Governance
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Co-Sponsored by
Division for Public Administration and Development Management
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And

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CONTENTS

| | |
|------------------------------------|-------|
| Executive Summary | pg 5 |
| Chapter 1: Introduction | pg 13 |
| Chapter 2: Methodology | pg 15 |
| Chapter 3: Overall Results | pg 29 |
| Chapter 4: Longitudinal Assessment | pg 41 |
| Chapter 5: Privacy and Security | pg 49 |
| Chapter 6: Usability | pg 57 |
| Chapter 7: Content | pg 65 |
| Chapter 8: Services | pg 73 |
| Chapter 9: Citizen Participation | pg 81 |
| Chapter 10: Best Practices | pg 89 |
| Chapter 11: Conclusion | pg 93 |
| Bibliography | pg 95 |
| Appendices | pg 97 |

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EXECUTIVE SUMMARY

The Digital Governance in Municipalities Worldwide Survey assessed the practice of digital governance in large municipalities worldwide in 2007. This research, replicating our continuing surveys in 2003 and 2005, evaluated the websites of municipalities in terms of digital governance and ranked them on a global scale. Simply stated, digital governance includes both digital government (delivery of public service) and digital democracy (citizen participation in governance). Specifically, we analyzed 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 and Kim, 2005).

The methodology of the 2007 survey of municipal websites throughout the world mirrors our previous research in 2003 and 2005. This research focused on cities throughout the world based on their population size and the total number of individuals using the Internet in the 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 countries was then selected for the study and used as a surrogate for all cities in the respective country.

To examine how the local population perceive their government online, the study evaluated the official websites of each of these largest cities in their native languages. Of the 100 cities selected, 86 cities were found to have official municipal websites and these were evaluated between August 2007 and December 2007. For the 2005 survey, 81 of the 100 cities had official websites, which

increased to 86 for the 2007 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/Security; (2) Usability; (3) Content; (4) Services; and (5) Citizen Participation. For each of those five components, our research applied 18-20 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). Furthermore, in developing an overall score for each municipality we have equally weighted each of the five categories so as not to skew 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 2005 and 2003 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 2007 evaluation of 86 cities, Seoul, Hong Kong, Helsinki, Singapore and Madrid represent the cities with the highest evaluation scores. There were noticeable changes in the top five cities when compared to the 2005 study. Seoul remained the highest ranked city, and the gap between first and second had slightly increased. In some cases, the scores may have slightly declined from the previous study. Table 1 lists the top 20 municipalities in digital governance 2003 through 2007, with Table 2 listing the 20 municipalities from the 2007 study along with their scores in individual categories. Table 3 to Table 7 represent the top-ranking municipalities in each of the five categories.

[Table 1] Top Cities in Digital Governance 2003 - 2007

| 2007 Rank | 2007 | | 2005 | | 2003 | |
|-----------|--------------|--------------|------------|--------------|------------|--------------|
| | City | Score | City | Score | City | Score |
| 1 | Seoul | 87.74 | Seoul | 81.70 | Seoul | 73.48 |
| 2 | Hong Kong | 71.24 | New York | 72.71 | Hong Kong | 66.57 |
| 3 | Helsinki | 71.01 | Shanghai | 63.93 | Singapore | 62.97 |
| 4 | Singapore | 68.56 | Hong Kong | 61.51 | New York | 61.35 |
| 5 | Madrid | 67.98 | Sydney | 60.82 | Shanghai | 58.00 |
| 6 | London | 65.79 | Singapore | 60.22 | Rome | 54.72 |
| 7 | Tokyo | 59.89 | Tokyo | 59.24 | Auckland | 54.61 |
| 8 | Bangkok | 59.01 | Zurich | 55.99 | Jerusalem | 50.34 |
| 9 | New York | 56.54 | Toronto | 55.10 | Tokyo | 46.52 |
| 10 | Vienna | 53.99 | Riga | 53.95 | Toronto | 46.35 |
| 11 | Dublin | 53.38 | Warsaw | 53.26 | Helsinki | 45.09 |
| 12 | Toronto | 51.99 | Reykjavik | 52.24 | Macao | 44.18 |
| 13 | Berlin | 51.36 | Sofia | 49.11 | Stockholm | 44.07 |
| 14 | Zurich | 51.02 | Prague | 47.27 | Tallinn | 43.10 |
| 15 | Prague | 50.34 | Luxembourg | 46.58 | Copenhagen | 41.34 |
| 16 | Buenos Aires | 49.89 | Amsterdam | 46.44 | Paris | 41.33 |
| 17 | Bratislava | 49.82 | Paris | 45.49 | Dublin | 38.85 |
| 18 | Sydney | 48.60 | Macao | 45.48 | Dubai | 37.48 |
| 19 | Amsterdam | 47.72 | Dublin | 44.10 | Sydney | 37.41 |
| 20 | Rome | 46.98 | Bratislava | 43.65 | Jakarta | 37.28 |

[Table 2] Top 20 Cities in Digital Governance (2007)

| Ranking | City | Score | Privacy | Usability | Content | Service | Participation |
|---------|--------------|-------|---------|-----------|---------|---------|---------------|
| 1 | Seoul | 87.74 | 17.60 | 18.13 | 16.00 | 19.83 | 16.18 |
| 2 | Hong Kong | 71.24 | 12.40 | 16.35 | 18.80 | 19.83 | 3.86 |
| 3 | Helsinki | 71.01 | 15.60 | 17.82 | 14.60 | 11.36 | 11.64 |
| 4 | Singapore | 68.56 | 14.00 | 16.57 | 12.20 | 12.88 | 12.91 |
| 5 | Madrid | 67.98 | 12.80 | 18.75 | 16.40 | 14.58 | 5.45 |
| 6 | London | 65.79 | 15.60 | 18.75 | 12.80 | 13.73 | 4.91 |
| 7 | Tokyo | 59.89 | 14.41 | 13.44 | 13.40 | 11.02 | 7.64 |
| 8 | Bangkok | 59.01 | 11.20 | 11.88 | 14.80 | 9.49 | 11.64 |
| 9 | New York | 56.54 | 11.60 | 14.69 | 13.20 | 10.51 | 6.54 |
| 10 | Vienna | 53.99 | 10.40 | 15.00 | 10.20 | 9.66 | 8.73 |
| 11 | Dublin | 53.38 | 9.60 | 14.69 | 13.60 | 9.49 | 6.00 |
| 12 | Toronto | 51.99 | 5.60 | 16.25 | 12.60 | 11.36 | 6.18 |
| 13 | Berlin | 51.36 | 11.20 | 14.69 | 11.20 | 8.81 | 5.46 |
| 14 | Zurich | 51.02 | 7.20 | 15.63 | 12.00 | 9.83 | 6.36 |
| 15 | Prague | 50.34 | 9.60 | 14.69 | 12.60 | 10.00 | 3.46 |
| 16 | Buenos Aires | 49.89 | 4.00 | 17.19 | 14.80 | 11.36 | 2.55 |
| 17 | Bratislava | 49.82 | 11.20 | 13.13 | 10.40 | 7.46 | 7.64 |
| 18 | Sydney | 48.60 | 9.60 | 15.63 | 9.00 | 9.83 | 4.55 |
| 19 | Amsterdam | 47.72 | 10.00 | 11.56 | 10.80 | 6.27 | 9.09 |
| 20 | Rome | 46.98 | 10.00 | 11.25 | 9.60 | 10.68 | 5.45 |

[Table 3] Top 10 Cities in Privacy/Security (2007)

| Ranking | City | Country | Score |
|---------|-----------|-------------------|-------|
| 1 | Seoul | Republic of Korea | 17.60 |
| 2 | Helsinki | Finland | 15.60 |
| 2 | London | UK | 15.60 |
| 4 | Tokyo | Japan | 14.41 |
| 5 | Singapore | Singapore | 14.00 |
| 6 | Madrid | Spain | 12.80 |
| 7 | Hong Kong | Hong Kong | 12.40 |
| 7 | Mumbai | India | 12.40 |
| 9 | Almaty | Kazakhstan | 12.00 |
| 10 | New York | USA | 11.60 |
| 10 | Lima | Peru | 11.60 |
| 10 | Dubai | UAE | 11.60 |

[Table 4] Top 10 Cities in Usability (2007)

| Ranking | City | Country | Score |
|---------|--------------|-------------------|-------|
| 1 | Madrid | Spain | 18.75 |
| 1 | London | UK | 18.75 |
| 3 | Seoul | Republic of Korea | 18.13 |
| 4 | Helsinki | Finland | 17.82 |
| 5 | Buenos Aires | Argentina | 17.19 |
| 6 | Singapore | Singapore | 16.57 |
| 7 | Hong Kong | Hong Kong | 16.35 |
| 8 | Toronto | Canada | 16.25 |
| 9 | Zurich | Switzerland | 15.63 |
| 9 | Sydney | Australia | 15.63 |

[Table 5] Top 10 Cities in Content (2007)

| Ranking | City | Country | Score |
|---------|--------------|-------------------|-------|
| 1 | Hong Kong | Hong Kong | 18.80 |
| 2 | Madrid | Spain | 16.40 |
| 3 | Seoul | Republic of Korea | 16.00 |
| 4 | Bangkok | Thailand | 14.80 |
| 4 | Buenos Aires | Argentina | 14.80 |
| 6 | Helsinki | Finland | 14.60 |
| 7 | Dublin | Ireland | 13.60 |
| 8 | Tokyo | Japan | 13.40 |
| 9 | New York | USA | 13.20 |
| 10 | London | UK | 12.80 |

[Table 6] Top 10 Cities in Service Delivery (2007)

| Ranking | City | Country | Service |
|---------|--------------|-------------------|---------|
| 1 | Seoul | Republic of Korea | 19.83 |
| 1 | Hong Kong | Hong Kong | 19.83 |
| 3 | Madrid | Spain | 14.58 |
| 4 | London | UK | 13.73 |
| 5 | Singapore | Singapore | 12.88 |
| 6 | Helsinki | Finland | 11.36 |
| 6 | Buenos Aires | Argentina | 11.36 |
| 6 | Toronto | Canada | 11.36 |
| 9 | Tokyo | Japan | 11.02 |
| 10 | Mexico City | Mexico | 10.85 |

[Table 7] Top 10 Cities in Citizen Participation (2007)

| Ranking | City | Country | Participation |
|---------|------------|-------------------|---------------|
| 1 | Seoul | Republic of Korea | 16.18 |
| 2 | Singapore | Singapore | 12.91 |
| 3 | Bangkok | Thailand | 11.64 |
| 3 | Helsinki | Finland | 11.64 |
| 5 | Amsterdam | Netherlands | 9.09 |
| 6 | Vienna | Austria | 8.73 |
| 7 | Sofia | Bulgaria | 8.37 |
| 8 | Riga | Latvia | 7.82 |
| 9 | Tokyo | Japan | 7.64 |
| 9 | Bratislava | Slovakia | 7.64 |

Our survey results indicate that the number of cities with official websites has increased to 86%, compared to 81% in 2005, as indicated by Table 8.

[Table 8] Municipalities with Official Websites by Continent

| | Oceania | Europe | South America | Asia | Average | North America | Africa |
|-------------|---------|--------|---------------|------|------------|---------------|--------|
| 2007 | 100% | 100% | 100% | 89% | 86% | 70% | 50% |
| 2005 | 100% | 100% | 100% | 78% | 81% | 80% | 29% |
| 2003 | 100% | 97% | 100% | 87% | 84% | 75% | 33% |

Based on the 2007 survey, 50% of cities selected in Africa established official city websites, which represented a significant increase from 29% of the cities in 2005. In Asia, the percentage of cities that established websites increased from 78% in 2005 to 89% in 2007. While 70% of the cities in North America have established official city websites, every city selected in Europe, South America and Oceania had its own official website. These findings reflect the fact that cities across the world, especially the non-OECD cities, are becoming more involved in offering government services online.

The average score for digital governance in municipalities throughout the world is 33.37, an increase from 33.11 in 2005 and 28.49 in 2003. The average score for municipalities in OECD countries is 45.0, while the average score in non-OECD countries is 27.46. The number of cities in OECD countries with scores above average is 20 out of 29, while only 16 of 57 cities in non-OECD countries are above that average.

Our 2005 research indicated a divide in terms of digital governance throughout the world, but in 2007 the divide appears to have been slightly bridged. Among the OECD and non-OECD countries, the digital gap between the two scores increased from 12.08 in 2003 to 17.85 in 2005, but decreased to 17.54 in 2007. However, more needs to be done in non-OECD countries to bridge the divide, and it is very important for international organizations such as the UN and cities in advanced countries to assist this effort.

This research represents a continued effort to evaluate digital governance in large municipalities throughout the world. The continued study of municipalities worldwide, with the next Worldwide Survey planned in 2009, will further provide insight into the direction and the performance of e-governance throughout regions of the world.

1

INTRODUCTION

This research replicates surveys completed in 2003 and 2005, and evaluates the practice of digital governance in large municipalities worldwide in 2007. 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. The methodological steps taken by the 2007 surveys of municipal websites mirror those of the previous research done in 2005. Our survey instrument uses 98 measures and we use a rigorous approach for conducting the evaluations. Chapter 3 presents the overall findings for the 2005 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 2003 and 2005 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 municipalities throughout the world. Chapter 7 presents the findings for Content, while Chapter 8 looks at Services. Chapter 9 concludes the focus of specific e-governance categories by presenting the findings of Citizen Participation online.

Chapter 10 takes a closer look at the best practices, with comparisons to the results from the 2005 and 2003 evaluations. This report concludes with Chapter 11, which provides recommendations and a discussion of significant findings.

2

METHODOLOGY

The methodological steps taken by the 2007 survey of municipal websites throughout the world mirror the previous research done in 2005 and 2003. The following review of our methodology borrows from our Digital Governance (2005) report based on the 2005 data. The methodology of the 2007 survey of municipal websites throughout the world involves the same 98-measure Rutgers-SKKU Survey Index, along with some changes in the cities selected. This research focused on cities throughout the world based on their population size and the total number of individuals using the Internet in the 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, obtained from the ITU-UN. The largest city, by population in each of these 100 countries was then selected for the study and used 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 and 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, 86 cities were found to have official municipal websites and these were evaluated from August 2007 to December 2007. For the 2005 survey, 81 of the 100 cities had official websites, which increased to 86 for the 2007 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 (2007)

| Africa (16) | |
|----------------------------------|-----------------------------------|
| Accra (Ghana)* | Harare (Zimbabwe)* |
| Algiers (Algeria)* | Kampala (Uganda) |
| Cairo (Egypt) | Khartoum (Sudan)* |
| Cape Town (South Africa) | Lagos (Nigeria) |
| Casablanca (Morocco) | Lome (Togo)* |
| Cotonou (Benin)* | Lusaka (Zambia)* |
| Dakar (Senegal) | Nairobi (Kenya) |
| Dar-es-Salaam (Tanzania)* | Tunis (Tunisia) |
| Asia (27) | |
| Almaty (Kazakhstan) | Kuala Lumpur (Malaysia) |
| Amman (Jordan) | Kuwait City (Kuwait) |
| Baku (Azerbaijan)* | Mumbai (India) |
| Bangkok (Thailand) | Muscat (Oman) |
| Beirut (Lebanon) | Port Louis (Mauritius) |
| Damascus (Syria)* | Quezon City (Philippines) |
| Dhaka (Bangladesh) | Riyadh (Saudi Arabia) |
| Dubai (United Arab Emirates) | Seoul (Republic of Korea) |
| Ho Chi Minh (Vietnam) | Shanghai (China) |
| Hong Kong (Hong Kong) | Singapore (Singapore) |
| Jakarta (Indonesia) | Tashkent (Uzbekistan) |
| Jerusalem (Israel) | Tehran (Iran) |
| Kabul (Afghanistan)* | Tokyo (Japan) |
| Karachi (Pakistan) | |
| Europe (36) | |
| Amsterdam (Netherlands) | Madrid (Spain) |
| Athens (Greece) | Minsk (Belarus) |
| Belgrade (Serbia and Montenegro) | Moscow (Russian Federation) |
| Berlin (Germany) | Nicosia (Cyprus) |
| Bratislava (Slovak Republic) | Oslo (Norway) |
| Brussels (Belgium) | Paris (France) |
| Bucharest (Romania) | Prague (Czech Republic) |
| Budapest (Hungary) | Riga (Latvia) |
| Chisinau (Moldova) | Rome (Italy) |
| Copenhagen (Denmark) | Sarajevo (Bosnia and Herzegovina) |
| Dublin (Ireland) | Sofia (Bulgaria) |
| Helsinki (Finland) | Stockholm (Sweden) |
| Istanbul (Turkey) | Tallinn (Estonia) |
| Kiev (Ukraine) | Vienna (Austria) |
| Lisbon (Portugal) | Vilnius (Lithuania) |
| Ljubljana (Slovenia) | Warsaw (Poland) |
| London (United Kingdom) | Zagreb (Croatia) |
| Luxembourg City (Luxembourg) | Zurich (Switzerland) |

[Table 2-1] (cont.) 100 Cities Selected by Continent (2007)

| North America (10) | |
|----------------------------|-------------------------------------|
| Guatemala City (Guatemala) | San Jose (Costa Rica) |
| Kingston (Jamaica)* | San Juan (Puerto Rico) |
| Mexico City (Mexico) | San Salvador (El Salvador) |
| New York (United States) | Santo Domingo (Dominican Republic)* |
| Port-au-Prince (Haiti)* | Toronto (Canada) |
| South America (9) | |
| Buenos Aires (Argentina) | Montevideo (Uruguay) |
| Caracas (Venezuela) | Santa Fe De Bogota (Colombia) |
| Guayaquil (Ecuador) | Santiago (Chile) |
| La Paz (Bolivia) | Sao Paulo (Brazil) |
| Lima (Peru) | |
| Oceania (2) | |
| Auckland (New Zealand) | Sydney (Australia) |

* Official city websites unavailable

WEBSITE SURVEY

In this research, the main city homepage is defined as the official website where information about city administration and online services are provided by the city. Municipalities across the world are increasingly developing websites to provide their services online; however, e-government is more than simply constructing a website. The emphasis should be more focused on using such 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, 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. Thus, it is essential that the fundamentals of government service delivery are not altered simply by introducing a website as the new window on government (Pardo, 2000). E-government initiatives clearly extend beyond the textual listing of

information to a more “intentions-based” design so that citizens can more effectively utilize web portals (Howard 2001).

The city website includes information about the city council, mayor and executive branch. If there are separate homepages for agencies, departments, or the city council, evaluators examined if these sites were linked to the menu on the main city homepage. If the website was not linked, it was excluded from evaluation.

E-GOVERNANCE SURVEY INSTRUMENT

The Rutgers-SKKU E-Governance Survey Instrument is the most comprehensive index in practice for e-governance research today. With 98 measures and five distinct categorical areas of e-governance research, the survey instrument is unlike any other. Our instrument for evaluating city and municipal websites consists of five components: (1) Privacy/Security; (2) Usability; (3) Content; (4) Services; and (5) Citizen Participation. Table 2-2, E-Governance Performance Measures, summarizes the 2005 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 | 18 | 25 | 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 | 20 | 48 | 20 | Access to current accurate information, public documents, reports, publications, and multimedia materials |
| Services | 20 | 59 | 20 | Transactional services - purchase or register, interaction between citizens, businesses and government |
| Citizen Participation | 20 | 55 | 20 | Online civic engagement/ policy deliberation, citizen based performance measurement |
| Total | 98 | 219 | 100 | |

The following section highlights the specific design of our survey instrument as presented in our 2005 report, with changes noted throughout. Our 2007 survey instrument utilizes 98 measures, of which 43 are dichotomous. For each of the five e-governance components, our research applies 18 to 20 measures, and for questions which were not dichotomous, each measure was coded on a four-point scale (0, 1, 2, 3; see Table 2-3 below). Furthermore, in developing an overall score for each municipality, we have equally weighted each of the five categories so as not to skew the research in favor of a particular category (regardless of the number of questions in each category). The dichotomous measures in the Services and Citizen Participation categories correspond with values on our 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 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.

On the other hand, 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 security 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 Participation involve examining how local governments are engaging citizens and providing mechanisms for citizens to participate in government online.

PRIVACY/SECURITY

The first part of our analysis examined the security and privacy of municipal websites in two key areas, privacy policies and authentication of users. In examining municipal privacy policies, we determined whether such a policy was available on every page that accepted data, and whether or not the word “privacy” was used in the link to such a statement. In addition, we looked for privacy policies on every page that required or accepted data. We were also interested in determining if privacy policies identified the agencies collecting the information, and whether the policy identified exactly what data was being collected on the site.

Our analysis checked to see if the intended use of the data was explicitly stated on the website. The analysis examined whether the privacy policy addressed the use or sale of data collected on the website by outside or third party organizations. Our research also determined if there was an option to decline the disclosure of personal information to third parties. This included other municipal agencies, other state and local government offices, or businesses in the private sector. Furthermore, we examined privacy policies to determine if third party agencies or organizations were governed by the same privacy policies as was 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 assure that it is not used for unauthorized purposes. The use of encryption in the transmission of data, as well as the storage of personal information on secure servers, was also examined. We also determined if websites used digital signatures to authenticate users. In assessing how or whether municipalities used their websites to authenticate users, we examined whether 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. Other research has discussed

the governance issues associated with sites that choose to charge citizens for access to public information (West, 2001). We add 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 addresses online access to public databases by determining if public information such as property tax assessments, or private information such as court documents, is available to users of municipal websites. In addition, there are concerns that public agencies will use their websites to monitor citizens or create profiles based on the information they access online. For example, many websites use “cookies” or “web beacons”¹ to customize their websites for users, but that technology can also be used to monitor Internet habits and profile visitors to websites. Our analysis examined municipal privacy policies to determine if they addressed the use of cookies or web beacons.

USABILITY

This research also examined the usability of municipal websites. Simply stated, we wanted to know if sites were “user-friendly.” To address usability concerns we adapted several best practices and measures from other public and private sector research (Giga, 2000). Our analysis of usability examined three types of websites: traditional web pages, forms, and search tools.

To evaluate traditional web pages written using hypertext

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 hyper text 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 a profiling of the affected party.”

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 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 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 their 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," 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

Content is a critical component of any website. No matter how technologically advanced a website's features, if its content is not current, if it is difficult to navigate, or if the information provided is not correct, then it is not fulfilling its purpose. When examining website content, our research examined 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 also looked for the availability of office hours or a schedule of when agency offices are open. In assessing the availability of public documents, we looked for the availability of the municipal code or charter online. We also looked for content items, such as agency mission statements and minutes of public meetings. Other content items included 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 if audio or video files of public events, speeches, or meetings were available.

SERVICES

A critical component of e-governance is the provision of municipal services online. Our analysis examined two different types of services: (1) those that allow citizens to interact with the municipality, and (2) services that allow users to register for municipal events or services online. In many cases, municipalities have developed the capacity to accept payment for municipal services and taxes. The first type of service examined, which implies interactivity, can be as basic as forms that allow 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 examined municipal websites to determine if such interactive services were available.

The second type of service examined in this research determined if municipalities have the capacity to allow citizens to register for municipal services online. For example, many jurisdictions 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, some local governments are using the Internet for procurement, allowing 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.

This analysis also examined municipal websites to determine if they developed the capacity to allow users to purchase or pay for municipal services and fees online. Examples of transactional

services from across the United States include the payment of public utility bills and parking tickets online. In many jurisdictions, cities and municipalities allow online users to file or pay local taxes, or pay fines such as traffic tickets. In some cases, cities around the world are allowing their users to register or purchase tickets to events in city halls or arenas online.

CITIZEN PARTICIPATION

Finally, online citizen participation in government continues to be the most recent area of e-governance study. As noted in the 2003 survey, the Internet is a convenient mechanism for citizen-users to engage their government, and also because of the potential to decentralize decision-making. We have strengthened our survey instrument in the area of Citizen Participation 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 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.

3

OVERALL RESULTS

The following chapter presents the results for all the evaluated municipal websites during 2007. Table 3-1 provides the rankings for 86 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 87.74, the highest ranked city website for 2007. Seoul's website was also the highest ranked in 2005 and 2003 with scores of 81.70 and 73.48. Hong Kong had the second highest ranked municipal website, with a score 71.24, moving up two places from its fourth place ranking in 2005. However, Helsinki, Finland moved up significantly in ranking since 2005, to a third ranked score of 71.01 in 2007. Singapore and Madrid, Spain complete the top five ranked municipal websites with scores of 68.56 and 67.98, respectively. Singapore was also ranked in the top five in 2003; while Madrid significantly increased in score and in ranking (ranked 54th with a score of 23.24 in 2005).

The results of the overall rankings are separated by continent in Tables 3-2 through 3-7. The six predetermined continental regions had a few changes in the top ranked cities for each region. Cape Town (Africa), Seoul (Asia), New York City (North America), and Sydney (Oceania) all remained the top ranked city for each continent as they were in the 2005 evaluations. Helsinki replaced Zurich as the highest ranked city for European cities and Buenos Aires switched places with Sao Paulo as the highest ranked city in South America. Also included in the rankings by continent are the scores for each of the five e-governance component categories.

[Table 3-1] Overall E-governance Rankings (2007)

| Ranking | City | Country | Score |
|---------|--------------|-----------------------|-------|
| 1 | Seoul | Republic of Korea | 87.74 |
| 2 | Hong Kong | Hong Kong | 71.24 |
| 3 | Helsinki | Finland | 71.01 |
| 4 | Singapore | Singapore | 68.56 |
| 5 | Madrid | Spain | 67.98 |
| 6 | London | UK | 65.79 |
| 7 | Tokyo | Japan | 59.89 |
| 8 | Bangkok | Thailand | 59.01 |
| 9 | New York | USA | 56.54 |
| 10 | Vienna | Austria | 53.99 |
| 11 | Dublin | Ireland | 53.38 |
| 12 | Toronto | Canada | 51.99 |
| 13 | Berlin | Germany | 51.36 |
| 14 | Zurich | Switzerland | 51.02 |
| 15 | Prague | Czech | 50.34 |
| 16 | Buenos Aires | Argentina | 49.89 |
| 17 | Bratislava | Slovakia | 49.82 |
| 18 | Sydney | Australia | 48.60 |
| 19 | Amsterdam | Netherlands | 47.72 |
| 20 | Rome | Italy | 46.98 |
| 21 | Auckland | New Zealand | 46.14 |
| 22 | Sofia | Bulgaria | 42.67 |
| 23 | Shanghai | China | 41.64 |
| 24 | Riga | Latvia | 39.74 |
| 25 | Moscow | Russia | 39.41 |
| 26 | Ho Chi Minh | Vietnam | 38.84 |
| 27 | Mexico City | Mexico | 38.75 |
| 28 | Almaty | Kazakhstan | 36.40 |
| 29 | Paris | France | 35.78 |
| 30 | Dubai | UAE | 35.65 |
| 31 | Istanbul | Turkey | 35.63 |
| 32 | Mumbai | India | 34.75 |
| 33 | Belgrade | Serbia and Montenegro | 34.74 |
| 34 | Zagreb | Croatia | 34.52 |
| 35 | Lima | Peru | 34.08 |
| 36 | Jerusalem | Israel | 33.72 |
| 37 | Bucharest | Romania | 33.51 |
| 38 | Brussels | Belgium | 33.05 |

[Table 3-1] (cont.) Overall E-governance Rankings (2007)

| | | | |
|----|--------------------|------------------------|-------|
| 39 | Cape Town | South Africa | 33.02 |
| 40 | Vilnius | Lithuania | 32.53 |
| 41 | Caracas | Venezuela | 31.95 |
| 42 | Copenhagen | Denmark | 31.73 |
| 43 | Kiev | Ukraine | 30.14 |
| 44 | Luxembourg City | Luxembourg | 29.14 |
| 45 | Jakarta | Indonesia | 28.83 |
| 46 | Santiago | Chile | 28.04 |
| 47 | Minsk | Belarus | 27.66 |
| 48 | Santa Fé De Bogotá | Colombia | 27.57 |
| 49 | Nicosia | Cyprus | 26.81 |
| 50 | Oslo | Norway | 26.45 |
| 51 | Lisbon | Portugal | 26.16 |
| 52 | Athens | Greece | 26.13 |
| 53 | San Juan | Puerto Rico | 26.07 |
| 54 | Sao Paulo | Brazil | 26.05 |
| 55 | Sarajevo | Bosnia and Herzegovina | 25.81 |
| 56 | Ljubljana | Slovenia | 25.09 |
| 57 | Tallinn | Estonia | 24.97 |
| 58 | Stockholm | Sweden | 23.82 |
| 59 | Karachi | Pakistan | 22.99 |
| 60 | San José | Costa Rica | 22.80 |
| 61 | Casablanca | Morocco | 22.69 |
| 62 | Guatemala City | Guatemala | 22.00 |
| 63 | Guayaquil | Ecuador | 20.81 |
| 64 | Kuala Lumpur | Malaysia | 20.70 |
| 65 | Amman | Jordan | 20.29 |
| 66 | Muscat | Oman | 19.10 |
| 67 | Budapest | Hungary | 19.03 |
| 68 | Warsaw | Poland | 19.00 |
| 69 | Chisinau | Moldova | 18.99 |
| 70 | Tehran | Iran | 18.60 |
| 71 | Montevideo | Uruguay | 18.52 |
| 72 | San Salvador | El Salvador | 18.28 |
| 73 | Riyadh | Saudi Arabia | 18.15 |
| 74 | Tunis | Tunisia | 17.34 |
| 75 | La Paz | Bolivia | 16.94 |
| 76 | Kampala | Uganda | 16.81 |
| 77 | Beirut | Lebanon | 16.36 |
| 78 | Cairo | Egypt | 15.74 |

[Table 3-1] (cont.) Overall E-governance Rankings (2007)

| | | | |
|----|-------------|-------------|-------|
| 79 | Dhaka | Bangladesh | 15.72 |
| 80 | Kuwait City | Kuwait | 15.71 |
| 81 | Port Louis | Mauritius | 15.27 |
| 82 | Quezon City | Philippines | 15.24 |
| 83 | Lagos | Nigeria | 12.59 |
| 84 | Dakar | Senegal | 10.17 |
| 85 | Nairobi | Kenya | 6.63 |
| 86 | Tashkent | Uzbekistan | 3.73 |

[Table 3-2] Overall Results of Evaluation in African Cities (2007)

| Ranking | City | Score | Privacy | Usability | Content | Services | Participation |
|---------|------------|--------------|---------|-----------|---------|----------|---------------|
| 1 | Cape Town | 33.02 | 0.00 | 10.94 | 11.00 | 5.08 | 6.00 |
| 2 | Casablanca | 22.69 | 0.00 | 11.25 | 6.40 | 3.22 | 1.82 |
| 3 | Kampala | 16.81 | 1.20 | 9.07 | 1.60 | 2.04 | 2.91 |
| 4 | Tunis | 17.34 | 0.00 | 10.31 | 4.80 | 1.87 | 0.36 |
| 5 | Cairo | 15.74 | 0.40 | 10.31 | 3.80 | 0.68 | 0.55 |
| 6 | Lagos | 12.59 | 0.00 | 6.88 | 2.40 | 1.87 | 1.46 |
| 7 | Dakar | 10.17 | 0.00 | 6.25 | 2.20 | 1.35 | 0.36 |
| 8 | Nairobi | 6.63 | 0.00 | 4.07 | 2.40 | 0.17 | 0.00 |

[Table 3-3] Overall Results of Evaluation in Asian Cities (2007)

| Ranking | City | Score | Privacy | Usability | Content | Services | Participation |
|---------|--------------|--------------|---------|-----------|---------|----------|---------------|
| 1 | Seoul | 87.74 | 17.60 | 18.13 | 16.00 | 19.83 | 16.18 |
| 2 | Hong Kong | 71.24 | 12.40 | 16.35 | 18.80 | 19.83 | 3.86 |
| 3 | Singapore | 68.56 | 14.00 | 16.57 | 12.20 | 12.88 | 12.91 |
| 4 | Tokyo | 59.89 | 14.41 | 13.44 | 13.40 | 11.02 | 7.64 |
| 5 | Bangkok | 59.01 | 11.20 | 11.88 | 14.80 | 9.49 | 11.64 |
| 6 | Shanghai | 41.64 | 9.20 | 12.50 | 7.00 | 9.66 | 3.28 |
| 7 | Ho Chi Minh | 38.84 | 8.40 | 13.75 | 7.00 | 6.78 | 2.91 |
| 8 | Almaty | 36.40 | 12.00 | 11.57 | 4.80 | 4.41 | 3.64 |
| 9 | Dubai | 35.65 | 11.60 | 11.25 | 5.80 | 3.73 | 3.27 |
| 10 | Mumbai | 34.75 | 12.40 | 11.57 | 4.00 | 6.61 | 0.18 |
| 11 | Jerusalem | 33.72 | 2.80 | 14.07 | 8.60 | 6.44 | 1.82 |
| 12 | Jakarta | 28.83 | 3.60 | 9.69 | 9.00 | 2.54 | 4.00 |
| 13 | Karachi | 22.99 | 0.00 | 11.26 | 5.60 | 3.05 | 3.09 |
| 14 | Kuala Lumpur | 20.70 | 3.60 | 9.07 | 2.20 | 4.75 | 1.09 |

[Table 3-3] (cont.) Overall Results of Evaluation in Asian Cities (2007)

| Ranking | City | Score | Privacy | Usability | Content | Services | Participation |
|---------|-------------|--------------|---------|-----------|---------|----------|---------------|
| 15 | Amman | 20.29 | 1.60 | 12.19 | 1.00 | 1.86 | 3.64 |
| 16 | Muscat | 19.10 | 1.60 | 8.44 | 3.05 | 4.92 | 1.09 |
| 17 | Tehran | 18.60 | 4.40 | 8.13 | 3.00 | 2.71 | 0.36 |
| 18 | Riyadh | 18.15 | 0.00 | 10.63 | 5.60 | 1.01 | 0.91 |
| 19 | Beirut | 16.36 | 0.00 | 10.00 | 3.40 | 1.86 | 1.09 |
| 20 | Dhaka | 15.72 | 0.00 | 9.69 | 3.60 | 1.52 | 0.91 |
| 21 | Kuwait City | 15.71 | 1.20 | 9.38 | 3.20 | 0.85 | 1.09 |
| 22 | Port Louis | 15.27 | 0.00 | 8.75 | 2.60 | 3.56 | 0.36 |
| 23 | Quezon City | 15.24 | 0.00 | 8.44 | 3.20 | 3.05 | 0.54 |
| 24 | Tashkent | 3.73 | 0.00 | 2.82 | 0.40 | 0.51 | 0.00 |

[Table 3-4] Overall Results of Evaluation in North American Cities (2007)

| Ranking | City | Score | Privacy | Usability | Content | Services | Participation |
|---------|----------------|--------------|---------|-----------|---------|----------|---------------|
| 16 | New York | 56.54 | 11.60 | 14.69 | 13.20 | 10.51 | 6.54 |
| 17 | Toronto | 51.99 | 5.60 | 16.25 | 12.60 | 11.36 | 6.18 |
| 18 | Mexico City | 38.75 | 1.60 | 12.19 | 11.20 | 10.85 | 2.91 |
| 19 | San Juan | 26.07 | 1.20 | 11.88 | 7.80 | 3.56 | 1.64 |
| 20 | San José | 22.80 | 1.20 | 7.81 | 4.00 | 5.42 | 4.36 |
| 21 | Guatemala City | 22.00 | 0.00 | 11.57 | 3.60 | 6.10 | 0.73 |
| 22 | San Salvador | 18.28 | 0.00 | 8.75 | 5.60 | 3.39 | 0.55 |

[Table 3-5] Overall Results of Evaluation in South American Cities (2007)

| Ranking | City | Score | Privacy | Usability | Content | Services | Participation |
|---------|--------------------|-------|---------|-----------|---------|----------|---------------|
| 1 | Buenos Aires | 49.89 | 4.00 | 17.19 | 14.80 | 11.36 | 2.55 |
| 2 | Lima | 34.08 | 11.60 | 9.38 | 6.40 | 5.25 | 1.45 |
| 3 | Caracas | 31.95 | 1.20 | 13.75 | 6.80 | 4.75 | 5.45 |
| 4 | Santiago | 28.04 | 1.20 | 13.44 | 6.00 | 5.76 | 1.64 |
| 5 | Santa Fé De Bogotá | 27.57 | 1.20 | 11.56 | 6.20 | 6.61 | 2.00 |
| 6 | Sao Paulo | 26.05 | 0.00 | 13.13 | 5.80 | 4.58 | 2.54 |
| 7 | Guayaquil | 20.81 | 0.00 | 8.44 | 6.40 | 5.42 | 0.55 |
| 8 | Montevideo | 18.52 | 1.20 | 9.38 | 5.00 | 2.03 | 0.91 |
| 9 | La Paz | 16.94 | 0.00 | 10.63 | 4.40 | 1.19 | 0.73 |

[Table 3-6] (cont.) Overall Results of Evaluation in European Cities (2007)

| Ranking | City | Score | Privacy | Usability | Content | Services | Participation |
|---------|------------|--------------|---------|-----------|---------|----------|---------------|
| 1 | Helsinki | 71.01 | 15.60 | 17.82 | 14.60 | 11.36 | 11.64 |
| 2 | Madrid | 67.98 | 12.80 | 18.75 | 16.40 | 14.58 | 5.45 |
| 3 | London | 65.79 | 15.60 | 18.75 | 12.80 | 13.73 | 4.91 |
| 4 | Vienna | 53.99 | 10.40 | 15.00 | 10.20 | 9.66 | 8.73 |
| 5 | Dublin | 53.38 | 9.60 | 14.69 | 13.60 | 9.49 | 6.00 |
| 6 | Berlin | 51.36 | 11.20 | 14.69 | 11.20 | 8.81 | 5.46 |
| 7 | Zurich | 51.02 | 7.20 | 15.63 | 12.00 | 9.83 | 6.36 |
| 8 | Prague | 50.34 | 9.60 | 14.69 | 12.60 | 10.00 | 3.46 |
| 9 | Bratislava | 49.82 | 11.20 | 13.13 | 10.40 | 7.46 | 7.64 |
| 10 | Amsterdam | 47.72 | 10.00 | 11.56 | 10.80 | 6.27 | 9.09 |
| 11 | Rome | 46.98 | 10.00 | 11.25 | 9.60 | 10.68 | 5.45 |
| 12 | Sofia | 42.67 | 5.60 | 10.94 | 9.80 | 7.96 | 8.37 |
| 13 | Riga | 39.74 | 2.40 | 15.00 | 9.60 | 4.92 | 7.82 |
| 14 | Moscow | 39.41 | 4.40 | 15.00 | 8.00 | 4.92 | 7.09 |
| 15 | Paris | 35.78 | 4.40 | 12.82 | 8.40 | 5.25 | 4.91 |
| 16 | Istanbul | 35.63 | 7.20 | 13.13 | 7.20 | 6.10 | 2.00 |
| 17 | Belgrade | 34.74 | 0.80 | 14.07 | 9.60 | 6.27 | 4.00 |
| 18 | Zagreb | 34.52 | 1.60 | 13.13 | 10.60 | 3.56 | 5.64 |
| 19 | Bucharest | 33.51 | 3.60 | 14.38 | 7.80 | 6.10 | 1.63 |
| 20 | Brussels | 33.05 | 5.20 | 14.38 | 7.80 | 4.58 | 1.09 |
| 21 | Vilnius | 32.53 | 2.40 | 13.13 | 7.60 | 5.76 | 3.64 |
| 22 | Copenhagen | 31.73 | 3.60 | 10.63 | 10.20 | 4.58 | 2.73 |
| 23 | Kiev | 30.14 | 0.00 | 13.75 | 9.40 | 3.90 | 3.10 |
| 24 | Luxembourg | 29.14 | 5.20 | 11.88 | 4.52 | 6.27 | 1.27 |
| 25 | Minsk | 27.66 | 4.80 | 10.94 | 4.00 | 3.56 | 4.36 |
| 26 | Nicosia | 26.81 | 0.00 | 11.26 | 6.60 | 6.95 | 2.00 |
| 27 | Oslo | 26.45 | 0.00 | 10.00 | 7.40 | 5.60 | 3.46 |
| 28 | Lisbon | 26.16 | 0.00 | 8.76 | 8.60 | 6.27 | 2.55 |
| 29 | Athens | 26.13 | 1.60 | 13.76 | 6.60 | 2.54 | 1.64 |
| 30 | Sarajevo | 25.81 | 2.00 | 11.24 | 6.00 | 2.20 | 4.36 |
| 31 | Ljubljana | 25.09 | 0.00 | 13.76 | 6.80 | 2.71 | 1.82 |
| 32 | Tallinn | 24.97 | 0.00 | 10.63 | 8.60 | 3.56 | 2.18 |
| 33 | Stockholm | 23.82 | 1.20 | 11.57 | 6.60 | 3.73 | 0.73 |
| 34 | Warsaw | 19.00 | 3.60 | 9.66 | 4.00 | 1.02 | 0.73 |
| 35 | Budapest | 19.03 | 0.00 | 10.00 | 4.80 | 1.86 | 2.37 |
| 36 | Chisinau | 18.99 | 0.00 | 10.63 | 7.00 | 1.18 | 0.18 |

[Table 3-7] Overall Results of Evaluation in Oceanian Cities (2007)

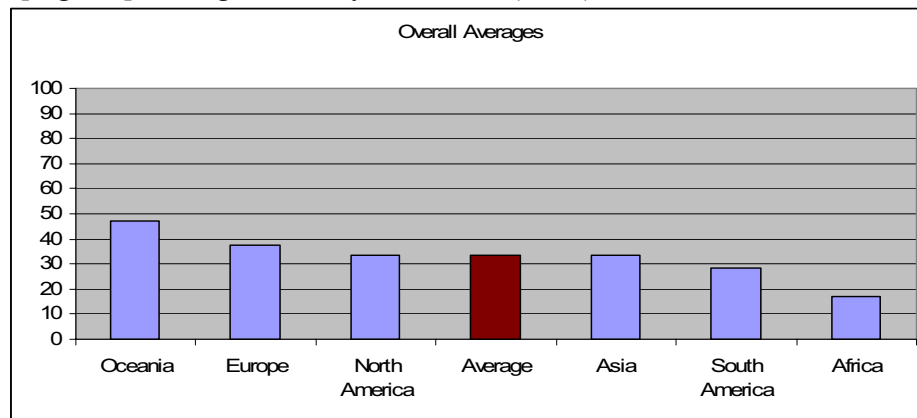
| Ranking | City | Score | Privacy | Usability | Content | Services | Participation |
|---------|----------|--------------|---------|-----------|---------|----------|---------------|
| 1 | Sydney | 48.60 | 9.60 | 15.63 | 9.00 | 9.83 | 4.55 |
| 2 | Auckland | 46.14 | 8.80 | 12.82 | 8.60 | 8.48 | 7.46 |

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 47.37, and Europe, with a score of 37.55, retained the second highest rank, followed closely by North America and Asia. The overall average score for all municipalities is 33.37 for 2007, an increase from 33.11 in 2005 and 28.49 in 2003. Ranked fifth is South America, with an overall average score of 28.20. Dropping into the sixth and final ranking for 2005 is Africa, with an average score of 16.87.

[Table 3-8] Average Score by Continent 2007

| | Oceania | Europe | North America | Average | Asia | South America | Africa |
|-------------------------|---------|--------|---------------|--------------|-------|---------------|--------|
| Overall Averages | 47.37 | 37.55 | 33.77 | 33.37 | 33.26 | 28.2 | 16.87 |

[Fig 3-1] Average Score by Continent (2007)



OECD MEMBER DATA

The following tables and figures compare the results between OECD member countries and non-OECD member countries. Seoul was the highest ranked OECD municipality and Hong Kong was the highest ranked non-OECD in 2007. 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 (2007)

| Ranking | City | Country | Score |
|---------|-------------|-------------------|-------|
| 1 | Seoul | Republic of Korea | 87.74 |
| 2 | Helsinki | Finland | 71.01 |
| 3 | Madrid | Spain | 67.98 |
| 4 | London | UK | 65.79 |
| 5 | Tokyo | Japan | 59.89 |
| 6 | New York | USA | 56.54 |
| 7 | Vienna | Austria | 53.99 |
| 8 | Dublin | Ireland | 53.38 |
| 9 | Toronto | Canada | 51.99 |
| 10 | Berlin | Germany | 51.36 |
| 11 | Zurich | Switzerland | 51.02 |
| 12 | Prague | Czech | 50.34 |
| 13 | Bratislava | Slovakia | 49.82 |
| 14 | Sydney | Australia | 48.60 |
| 15 | Amsterdam | Netherlands | 47.72 |
| 16 | Rome | Italy | 46.98 |
| 17 | Auckland | New Zealand | 46.14 |
| 18 | Mexico City | Mexico | 38.75 |
| 19 | Paris | France | 35.78 |
| 20 | Istanbul | Turkey | 35.63 |
| 21 | Brussels | Belgium | 33.05 |
| 22 | Copenhagen | Denmark | 31.73 |
| 23 | Luxembourg | Luxembourg | 29.14 |
| 24 | Oslo | Norway | 26.45 |
| 25 | Lisbon | Portugal | 26.16 |
| 26 | Athens | Greece | 26.13 |
| 27 | Stockholm | Sweden | 23.82 |
| 28 | Budapest | Hungary | 19.03 |
| 29 | Warsaw | Poland | 19.0 |

[Table 3-10] Results for OECD Non-Member Countries (2007)

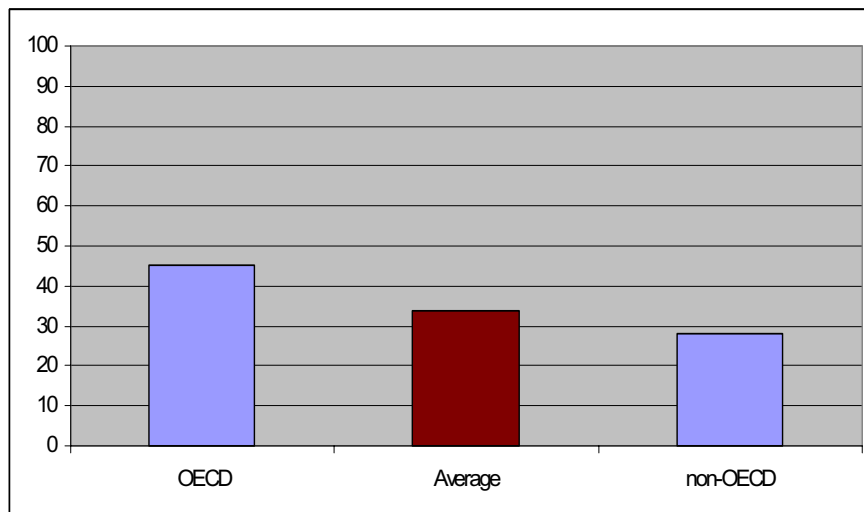
| Ranking | City | Country | Score |
|---------|--------------------|------------------------|-------|
| 1 | Hong Kong | Hong Kong | 71.24 |
| 2 | Singapore | Singapore | 68.56 |
| 3 | Bangkok | Thailand | 59.01 |
| 4 | Buenos Aires | Argentina | 49.89 |
| 5 | Sofia | Bulgaria | 42.67 |
| 6 | Shanghai | China | 41.64 |
| 7 | Riga | Latvia | 39.74 |
| 8 | Moscow | Russia | 39.41 |
| 9 | Ho Chi Minh | Vietnam | 38.84 |
| 10 | Almaty | Kazakhstan | 36.40 |
| 11 | Dubai | UAE | 35.65 |
| 12 | Mumbai | India | 34.75 |
| 13 | Belgrade | Serbia and Montenegro | 34.74 |
| 14 | Zagreb | Croatia | 34.52 |
| 15 | Lima | Peru | 34.08 |
| 16 | Jerusalem | Israel | 33.72 |
| 17 | Bucharest | Romania | 33.51 |
| 18 | Cape Town | South Africa | 33.02 |
| 19 | Vilnius | Lithuania | 32.53 |
| 20 | Caracas | Venezuela | 31.95 |
| 21 | Kiev | Ukraine | 30.14 |
| 22 | Jakarta | Indonesia | 28.83 |
| 23 | Santiago | Chile | 28.04 |
| 24 | Minsk | Belarus | 27.66 |
| 25 | Santa Fé De Bogotá | Colombia | 27.57 |
| 26 | Nicosia | Cyprus | 26.81 |
| 27 | San Juan | Puerto Rico | 26.07 |
| 28 | Sao Paulo | Brazil | 26.05 |
| 29 | Sarajevo | Bosnia and Herzegovina | 25.81 |
| 30 | Ljubljana | Slovenia | 25.09 |
| 31 | Tallinn | Estonia | 24.97 |
| 32 | Karachi | Pakistan | 22.99 |
| 33 | San José | Costa Rica | 22.80 |
| 34 | Casablanca | Morocco | 22.69 |
| 35 | Guatemala City | Guatemala | 22.00 |
| 36 | Guayaquil | Ecuador | 20.81 |
| 37 | Kuala Lumpur | Malaysia | 20.70 |
| 38 | Amman | Jordan | 20.29 |
| 39 | Kampala | Uganda | 19.49 |

[Table 3-10] (cont.) Results for OECD Non-Member Countries (2007)

| Ranking | City | Country | Score |
|---------|--------------|--------------|-------|
| 40 | Muscat | Oman | 19.10 |
| 41 | Chisinau | Moldova | 18.99 |
| 42 | Tehran | Iran | 18.60 |
| 43 | Montevideo | Uruguay | 18.52 |
| 44 | San Salvador | El Salvador | 18.28 |
| 45 | Riyadh | Saudi Arabia | 18.15 |
| 46 | Tunis | Tunisia | 17.34 |
| 47 | La Paz | Bolivia | 16.94 |
| 48 | Beirut | Lebanon | 16.36 |
| 49 | Cairo | Egypt | 15.74 |
| 50 | Dhaka | Bangladesh | 15.72 |
| 51 | Kuwait City | Kuwait | 15.71 |
| 52 | Port Louis | Mauritius | 15.27 |
| 53 | Quezon City | Philippines | 15.24 |
| 54 | Lagos | Nigeria | 12.59 |
| 55 | Dakar | Senegal | 10.17 |
| 56 | Nairobi | Kenya | 6.63 |
| 57 | Tashkent | Uzbekistan | 3.73 |

The results above are further analyzed (below) through grouped averages. Figure 3-2 highlights how the OECD member countries have a combined average of 45.0, well above the overall average for all municipalities, 33.37. Non-OECD member countries have an overall average of 27.46. The increase for OECD member countries from 2005 was only 0.65 points, and for non-OECD member countries there was an increase of 0.96 from 2005.

[Figure 3-2] Average Score of Cities in OECD Member and Non-Member Countries (2007)

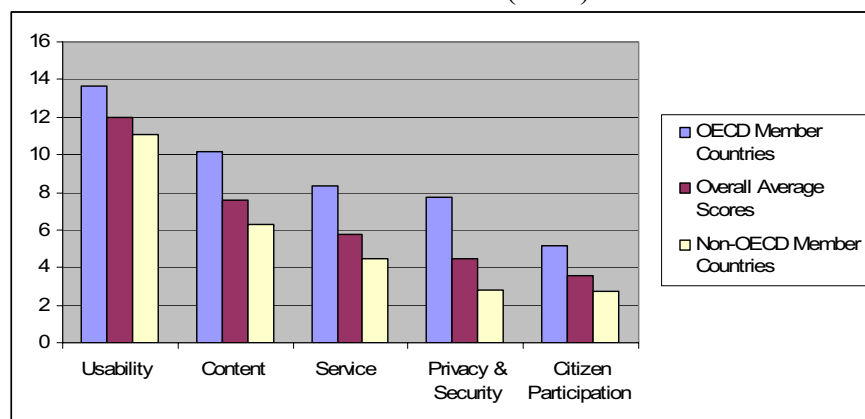


To further highlight the results between OECD and non-OECD member countries, the results presented below distinguish results by the five e-governance categories. Table 3-11 presents the scores for OECD member countries, non-OECD member countries and overall average scores for each of the e-governance categories: Usability, Content, Services, Privacy/Security, and Citizen Participation. 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. Figure 3-3 visually represents this same data.

[Table 3-11] Average Score of E-governance Categories in OECD Member and Non-Member Countries (2007)

| | Usability | Content | Service | Privacy/ Security | Citizen Participation |
|----------------------------------|-----------|---------|---------|----------------------|--------------------------|
| OECD Member Countries | 13.64 | 10.15 | 8.33 | 7.74 | 5.14 |
| Overall Average Scores | 11.95 | 7.58 | 5.8 | 4.49 | 3.55 |
| Non-OECD Member Countries | 11.08 | 6.27 | 4.51 | 2.84 | 2.74 |

[Figure 3-3] Average Score by E-governance Categories in OECD Member and Non-Member Countries (2007)



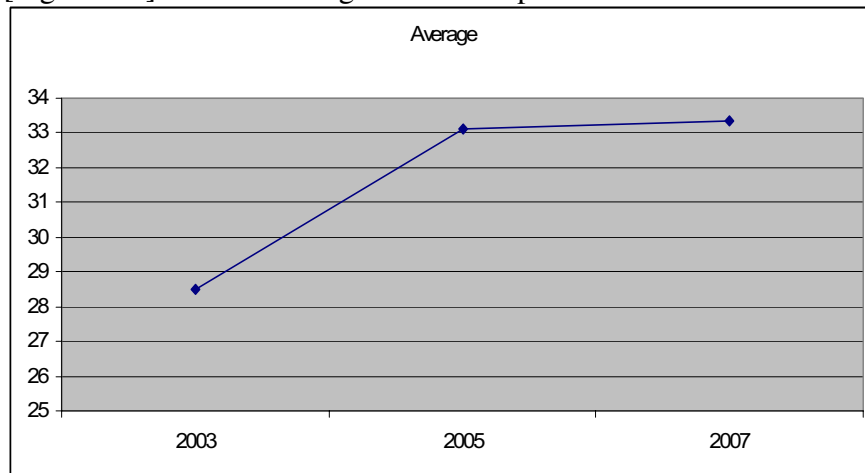
The overall results presented in this chapter highlight an overall increase in scores among municipalities surveyed. The results of the evaluation will be discussed in further detail in the following chapters.

4

LONGITUDINAL ASSESSMENT

The following chapter outlines the comparisons between the findings from the 2003 and 2005 evaluations and the findings of the 2007 evaluation. The overall average score for municipalities surveyed has increased to 33.37 in 2007 from 33.11 in 2005 and 28.49 in 2003 (Figure 4-1). This would be the expectation for municipalities increasingly utilizing technology to increase effectiveness and efficiency. Table 4-1 and Figure 4-2 highlight these increases by continent.

[Figure 4-1] Overall Average Score Comparison 2003 - 2007

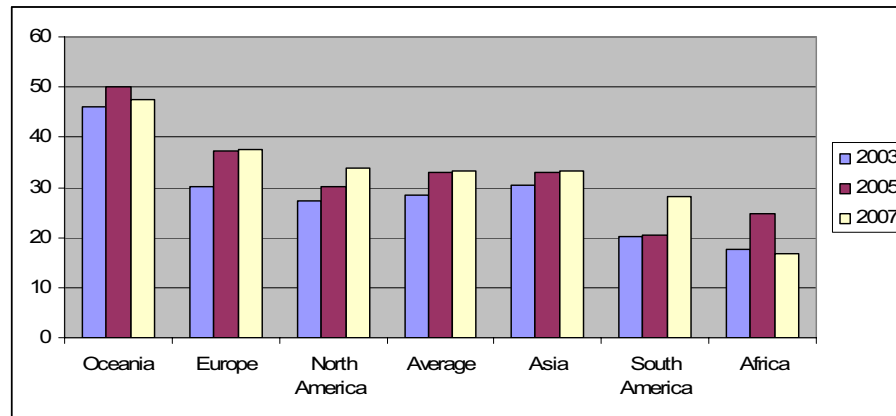


[Table 4-1] Average Score by Continent 2003 - 2007

| | Oceania | Europe | North America | Average | Asia | South America | Africa |
|------------------------------|---------|--------|---------------|--------------|-------|---------------|--------|
| 2007 Overall Averages | 47.37 | 37.55 | 33.77 | 33.37 | 33.26 | 28.2 | 16.87 |
| 2005 Overall Averages | 49.94 | 37.17 | 30.21 | 33.11 | 33.05 | 20.45 | 24.87 |
| 2003 Overall Averages | 46.01 | 30.23 | 27.42 | 28.49 | 30.38 | 20.05 | 17.66 |

Oceania was once again the highest ranked continent with an average score of 47.37, although it slightly decreased from a score of 49.94 in 2005. Except for Oceania and Africa, all regions have collectively improved their e-governance performance from 2005. Europe, with a score of 37.55, retained the second highest rank, followed closely by North America and Asia, with scores of 33.77 and 33.26 respectively. The overall average score for all municipalities is 33.37 for 2007, an increase from 33.11 in 2005 and 28.49 in 2003. South America recorded the highest increase in average of about 38%, significantly higher than other regions, as shown in Figure 4-2.

[Figure 4-2] Average Score by Continent for 2003 - 2007



Our survey results indicate that the number of cities with official websites has increased to 86%, compared to 81% in 2005, as indicated by Table 4-2.

[Table 4-2] Municipalities with Official Websites by Continent

| | Oceania | Europe | South America | Asia | Average | North America | Africa |
|-------------|---------|--------|---------------|------|------------|---------------|--------|
| 2007 | 100% | 100% | 100% | 89% | 86% | 70% | 50% |
| 2005 | 100% | 100% | 100% | 78% | 81% | 80% | 29% |
| 2003 | 100% | 97% | 100% | 87% | 84% | 75% | 33% |

Based on the 2007 survey, 50% of cities selected in Africa established official city websites, which represented a significant increase from 29% of the cities in 2005. In Asia, the percentage of cities that established websites increased from 78% in 2005 to 89% in 2007. While 70% of the cities in North America have established official city websites, every city selected in Europe, South America and Oceania had its own official website. These findings reflect the fact that cities across the world, especially the non-OECD cities, are becoming more involved in offering government services online. However, some of these new cities are still in the initial stages of e-governance, having established websites with only the basic features. This phenomenon accounts for the reduced rate of increase in the overall average scores for all municipalities, despite the significant increase of online municipalities worldwide.

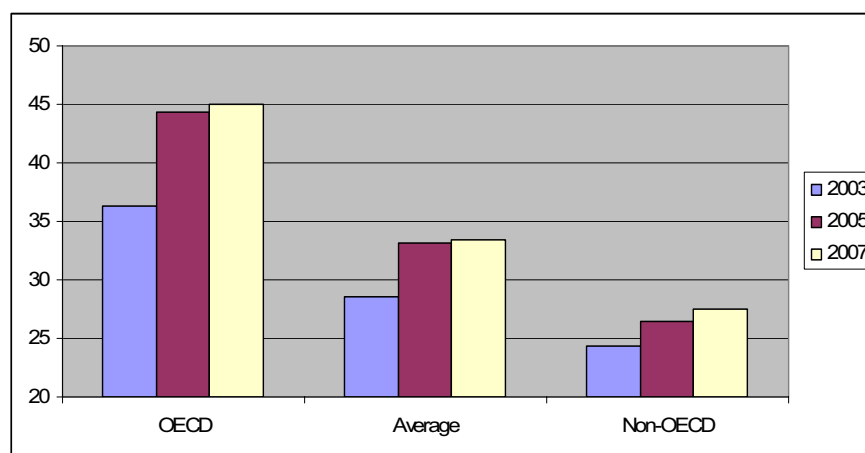
The improvements in score from 2003 to 2007, represented by both OECD and non-OECD member countries are shown below-

[Table 4-3] Average Scores by OECD Member and Non-Member Countries 2003-2007

| | OECD | Average | Non-OECD |
|------------------------------|-------------|----------------|-----------------|
| 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 increased in average score from 44.35 to 45.0. Municipalities surveyed from non-OECD member countries increased in average score from 26.50 to 27.46. Table 4-3 above and Figure 4-3 below highlight these findings. The increase for OECD member countries from 2005 was only 0.65 points, and for non-OECD member countries there was an increase of 0.96 from 2005

[Figure 4-3] Average Score of Cities in OECD Member and Non-Member Countries for 2003 - 2007



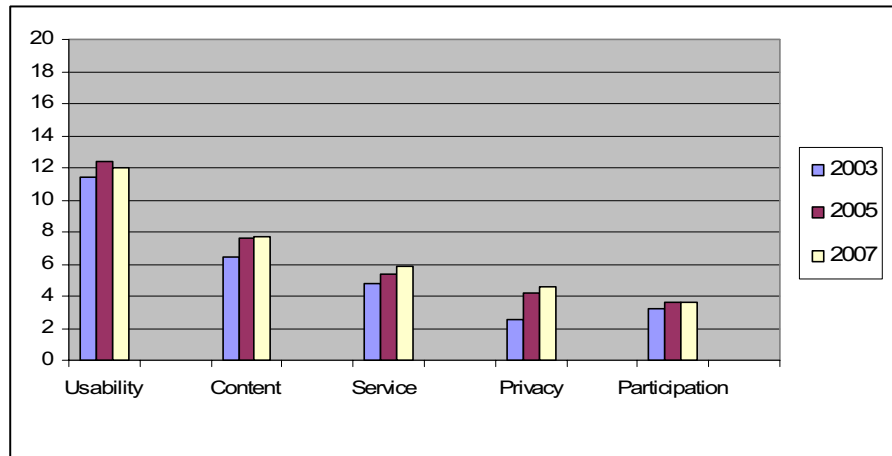
More importantly, the gap between OECD and non-OECD member countries decreased since the 2005 evaluation. The difference in 2003 between the average scores of OECD and non-OECD member countries was 12.08, which increased to 17.85 in the 2005 evaluation. Based on the 2007 evaluations, the gap has begun to decrease, although slightly to 17.54. More effort is needed in non-OECD countries to bridge the digital gap and it is very important for international organizations such as the UN and cities in advanced countries to assist this effort.

Specific increases in the five e-governance categories are discussed in the following chapters. It is important to note that the most significant improvement in average score is in the area of Services. The category of Usability still recorded the highest average score, while Citizen Participation continues as the category with the lowest average score. Table 4-4 and Figure 4-4 highlight these findings.

[Table 4-4] Average Score by E-governance Categories 2003 - 2007

| | Usability | Content | Service | Privacy/ Security | Citizen Participation |
|------------------------------------|------------------|----------------|----------------|------------------------------|----------------------------------|
| 2007 Average Scores | 11.95 | 7.58 | 5.8 | 4.49 | 3.55 |
| 2005 Average Scores | 12.42 | 7.63 | 5.32 | 4.17 | 3.57 |
| 2003 Average Scores | 11.45 | 6.43 | 4.82 | 2.53 | 3.26 |

[Figure 4-4] Average Score by Categories 2003 - 2007



Privacy/Security has continued to increase among municipalities across the world along with Services and Citizen Participation. Twenty-six cities evaluated scored 0 in Privacy, a decrease in the total number of municipalities that earned 0 points in 2005 (31) and 2003 (36). Also, the overall percentage for cities that have a privacy or security policy online is 47%, a significant increase from 37% in 2005 and 22.5% in 2003. However the overall average scores in the categories of Usability, Content, and Citizen Participation have decreased marginally in average scores among cities across the world. This could be attributed to the introduction of new cities, with official websites still in the initial stages of e-governance. Moreover, the rate of change in the categories indicates that municipalities globally are gradually focusing on increasing their services and improving the privacy on existing websites.

Similar to our 2005 finding, Citizen Participation has recorded the lowest score among the five categories. Cities are yet to recognize the importance of involving and supporting citizen participation online. A promising finding in terms of citizen participation however is the growing tendency in municipalities to publish performance measurement data on their websites. The

number of websites providing data from citywide performance measurement systems has doubled globally to 20% in 2007, with cities in Oceania (100%) and North America (43%) taking the lead.

The following section highlights some of the changes in the individual municipal rankings from 2003 to 2007. Table 4-5 shows the rankings of the top 10 municipalities based on the 2007 evaluations, as well as their rankings in 2003 and 2005. Websites would not be expected to decrease in score or ranking significantly, as a reduction in website services and functions is not a common practice. For the most part, ranking changes were three places or less; however, there are significant changes in a few websites that have improved over the four years between evaluations. Those websites that have improved their websites significantly, as is apparent by their increase in overall ranking, are Helsinki, London, Madrid, and Bangkok.

[Table 4-5] Change in Rankings 2003-2007

| Rank | City | Country | 2003 | 2005 | 2007 | Rank | Rank | Rank |
|------|-----------|-------------------|-------|-------|-------|------|------|------|
| | | | | | | 2003 | 2005 | 2007 |
| 1 | Seoul | Republic of Korea | 73.48 | 81.7 | 87.74 | 1 | 1 | 1 |
| 2 | Hong Kong | Hong Kong | 66.57 | 61.51 | 78.2 | 2 | 4 | 2 |
| 3 | Helsinki | Finland | 45.09 | 34.68 | 71.01 | 11 | 35 | 3 |
| 4 | Singapore | Singapore | 62.97 | 60.22 | 68.56 | 3 | 6 | 4 |
| 5 | Madrid | Spain | 26.16 | 23.24 | 67.98 | 40 | 54 | 5 |
| 6 | London | UK | 19.08 | 43.17 | 65.79 | 55 | 21 | 6 |
| 7 | Tokyo | Japan | 46.52 | 59.24 | 59.89 | 9 | 7 | 7 |
| 8 | Bangkok | Thailand | - | 24.88 | 59.01 | - | 51 | 8 |
| 9 | New York | USA | 61.35 | 72.71 | 56.54 | 4 | 2 | 9 |
| 10 | Vienna | Austria | 33.43 | 34.62 | 53.99 | 25 | 37 | 10 |

5

PRIVACY AND SECURITY

Privacy/Security results indicate that Seoul, Helsinki, London, Tokyo and Singapore are top ranked cities in this category. Seoul retains the first position from the 2005 survey while the other cities are new to the top five. Helsinki was ranked 51st in 2005 but has significantly improved to second overall with a score of 15.60 in 2007. London was ranked 27th in 2005 with a score of 4.80, but has also improved to second overall with a score of 15.60 in 2005. Similarly Tokyo has improved from 8th rank with a score of 12.00 to 5th position overall with a score of 14.41, and Singapore improved from 14th position to the 5th position. Table 5-1 summarizes the results for all the municipalities evaluated in this category.

The average score in this category is 4.49, an increase from a score of 4.17 in 2005. Twenty-six cities evaluated earned 0 points in this category, a decrease in the total number of municipalities that earned 0 points in 2005 (31) and 2003 (36). Many cities still have not properly understood the importance of a privacy and security policy, a very important deficiency in the development of digital governance.

[Table 5-1] Results in Privacy/Security (2007)

| Rank | City | Country | Score |
|------|-----------------|-------------------|-------|
| 1 | Seoul | Republic of Korea | 17.60 |
| 2 | Helsinki | Finland | 15.60 |
| 2 | London | UK | 15.60 |
| 4 | Tokyo | Japan | 14.41 |
| 5 | Singapore | Singapore | 14.00 |
| 6 | Madrid | Spain | 12.80 |
| 7 | Hong Kong | Hong Kong | 12.40 |
| 7 | Mumbai | India | 12.40 |
| 9 | Almaty | Kazakhstan | 12.00 |
| 10 | New York | USA | 11.60 |
| 10 | Lima | Peru | 11.60 |
| 10 | Dubai | UAE | 11.60 |
| 13 | Bangkok | Thailand | 11.20 |
| 13 | Berlin | Germany | 11.20 |
| 13 | Bratislava | Slovakia | 11.20 |
| 13 | Vienna | Austria | 10.40 |
| 17 | Rome | Italy | 10.00 |
| 17 | Amsterdam | Netherlands | 10.00 |
| 19 | Prague | Czech | 9.60 |
| 19 | Dublin | Ireland | 9.60 |
| 19 | Sydney | Australia | 9.60 |
| 22 | Shanghai | China | 9.20 |
| 23 | Auckland | New Zealand | 8.80 |
| 24 | Ho Chi Minh | Vietnam | 8.40 |
| 25 | Muscat | Oman | 7.68 |
| 26 | Zurich | Switzerland | 7.20 |
| 26 | Istanbul | Turkey | 7.20 |
| 28 | Sofia | Bulgaria | 5.60 |
| 28 | Toronto | Canada | 5.60 |
| 30 | Brussels | Belgium | 5.20 |
| 30 | Luxembourg City | Luxembourg | 5.20 |
| 32 | Minsk | Belarus | 4.80 |
| 33 | Tehran | Iran | 4.40 |

[Table 5-1] (cont.) Results in Privacy/Security (2007)

| | | | |
|----|--------------------|------------------------|------|
| 33 | Paris | France | 4.40 |
| 33 | Moscow | Russia | 4.40 |
| 36 | Buenos Aires | Argentina | 4.00 |
| 37 | Jakarta | Indonesia | 3.60 |
| 37 | Kuala Lumpur | Malaysia | 3.60 |
| 37 | Copenhagen | Denmark | 3.60 |
| 37 | Warsaw | Poland | 3.60 |
| 37 | Bucharest | Romania | 3.60 |
| 42 | Jerusalem | Israel | 2.80 |
| 43 | Riga | Latvia | 2.40 |
| 43 | Vilnius | Lithuania | 2.40 |
| 45 | Sarajevo | Bosnia and Herzegovina | 2.00 |
| 46 | Amman | Jordan | 1.60 |
| 46 | Zagreb | Croatia | 1.60 |
| 46 | Athens | Greece | 1.60 |
| 46 | Mexico City | Mexico | 1.60 |
| 50 | Kuwait City | Kuwait | 1.20 |
| 50 | Stockholm | Sweden | 1.20 |
| 50 | Santiago | Chile | 1.20 |
| 50 | Santa Fé De Bogotá | Colombia | 1.20 |
| 50 | San José | Costa Rica | 1.20 |
| 50 | San Juan | Puerto Rico | 1.20 |
| 50 | Montevideo | Uruguay | 1.20 |
| 50 | Caracas | Venezuela | 1.20 |
| 50 | Kampala | Uganda | 1.20 |
| 59 | Belgrade | Serbia and Montenegro | 0.80 |
| 60 | Cairo | Egypt | 0.40 |
| 61 | Dhaka | Bangladesh | 0.00 |
| 62 | Beirut | Lebanon | 0.00 |
| 62 | Port Louis | Mauritius | 0.00 |
| 62 | Karachi | Pakistan | 0.00 |
| 62 | Quezon City | Philippines | 0.00 |

[Table 5-1] (cont.) Results in Privacy/Security (2007)

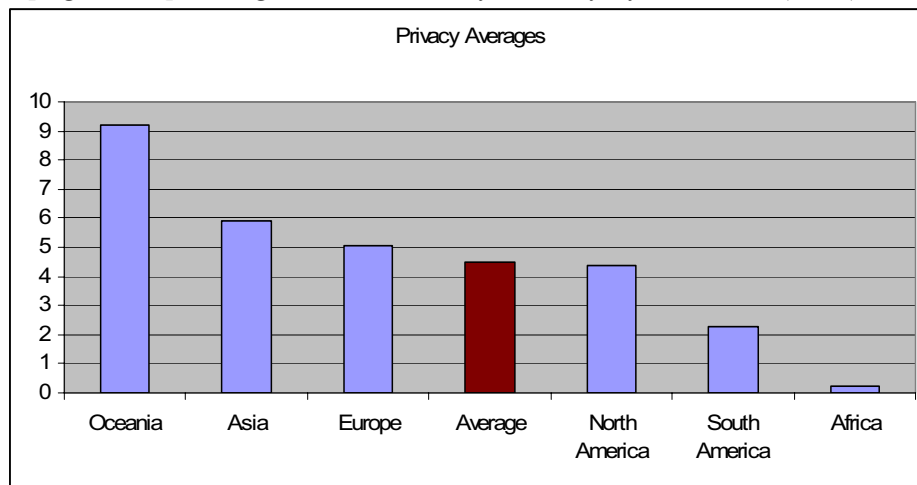
| | | | |
|----|----------------|--------------|------|
| 62 | Riyadh | Saudi Arabia | 0.00 |
| 62 | Tashkent | Uzbekistan | 0.00 |
| 62 | Nicosia | Cyprus | 0.00 |
| 62 | Tallinn | Estonia | 0.00 |
| 62 | Budapest | Hungary | 0.00 |
| 62 | Chisinau | Moldova | 0.00 |
| 62 | Oslo | Norway | 0.00 |
| 62 | Lisbon | Portugal | 0.00 |
| 62 | Ljubljana | Slovenia | 0.00 |
| 62 | Kiev | Ukraine | 0.00 |
| 62 | La Paz | Bolivia | 0.00 |
| 62 | Sao Paulo | Brazil | 0.00 |
| 62 | Guayaquil | Ecuador | 0.00 |
| 62 | San Salvador | El Salvador | 0.00 |
| 62 | Guatemala City | Guatemala | 0.00 |
| 62 | Nairobi | Kenya | 0.00 |
| 62 | Casablanca | Morocco | 0.00 |
| 62 | Lagos | Nigeria | 0.00 |
| 62 | Dakar | Senegal | 0.00 |
| 62 | Cape Town | South Africa | 0.00 |
| 62 | Tunis | Tunisia | 0.00 |

Table 5-2 represents the average score in Privacy/Security by continent. Oceania remained as the continent with the highest average scores with 9.20 points, which decreased from 12.00 in 2005. Africa replaced South America as the continent with the lowest average score. South America increased from its score of 0.67 in 2005 to a score of 2.27 in 2007. Table 5-2 also presents the data separated by OECD and Non-OECD member countries for the category of Privacy/Security. Cities in OECD countries scored an average of 7.74, while cities in non-member countries scored only 2.84 in this category. This result indicates that cities in economically advanced countries continue to have more emphasis on privacy and security policy than do cities in less developed countries. Figures 5-1 and 5-2 illustrate the data presented Table 5-2.

[Table 5-2] Average Score in Privacy/Security by Continent and OECD Member and Non-Member Countries (2007)

| | Oceania | Asia | Europe | Average | North America | South America | Africa |
|-------------------------|---------|-------|--------|-------------|---------------|---------------|--------|
| OECD | 9.20 | 16.00 | 7.05 | 7.74 | 6.27 | - | - |
| Privacy Averages | 9.20 | 5.92 | 5.08 | 4.49 | 4.35 | 2.27 | 0.20 |
| Non-OECD | - | 5.0 | 1.97 | 2.84 | 1.52 | 2.27 | 0.20 |

[Figure 5-1] Average Score in Privacy/Security by Continent (2007)



[Figure 5-2] Average Score in Privacy/Security by OECD Member and Non-Member Countries (2007)

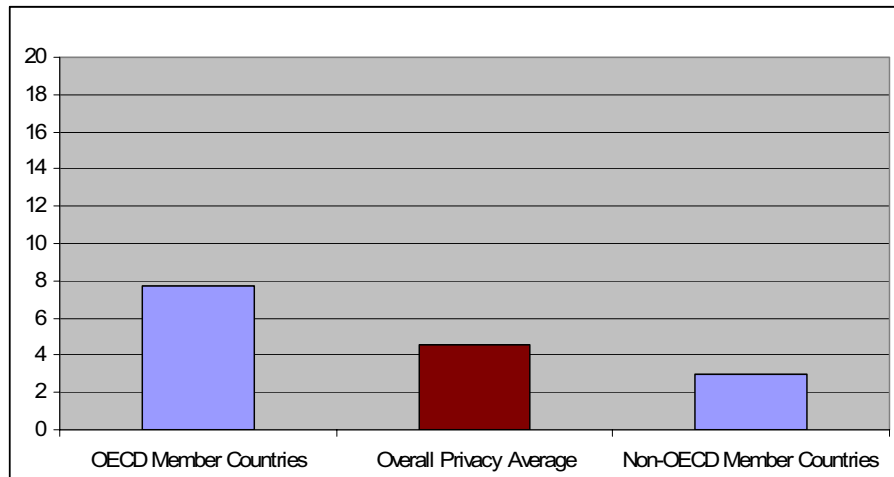


Table 5-3 lists the results of evaluation of key aspects in the category of Privacy/Security by continent. Overall, cities across the world are found to pay more attention to privacy and security matters on their websites based on the comparison between the 2007 and 2005 surveys. All cities evaluated in Oceania, 56% of cities in Europe, 52% of cities in Asia, and 43% of cities in North America have developed a privacy or security statement/policy. However, only 22% of cities in South America and 20% of the cities in Africa have developed privacy statements for their websites. The overall percentage for cities that have a privacy or security policy online is 47%, a significant increase from 37% in 2005 and 22.5% in 2003.

With regard to the use of encryption in the transmission of data, all of the cities evaluated in Oceania, as well as 36% of cities in Asia, 29% in North America, and 25% of cities in Europe have a policy addressing the use of encryption on their websites. The overall percentage for cities that have a policy addressing the use of encryption online is 26%, a significant increase from 21% in 2005 and 5% in 2003. In addition, all cities evaluated in Oceania, 31% of cities in Europe, and 28% of cities in North America and Asia have a policy addressing the use of “cookies” or “web beacons” to track

users. The overall percentage for cities that have a policy addressing the use of “cookies” or “web beacons” to track users is 27%, also an increase from 23% in 2005 and 5% in 2003.

[Table 5-3] Results for Privacy/Security by Continent (2007)

| | Oceania | Europe | Asia | Average | North America | South America | Africa |
|-----------------------------------|---------|--------|------|------------|---------------|---------------|--------|
| Privacy or Security Policy | 100% | 56% | 52% | 47% | 43% | 22% | 14% |
| Use of encryption | 100% | 25% | 36% | 26% | 29% | 0% | 0% |
| Use of cookies | 100% | 31% | 28% | 27% | 28% | 11% | 0% |
| Digital Signature | 100% | 30% | 8% | 20% | 14% | 11% | 0% |

There were no cities worldwide in the 2003 evaluation that had a privacy policy addressing the use of digital signatures to authenticate users; however, 9% of municipalities in the 2005 evaluation did address the use of digital signatures. This percentage increased to 20% in the 2007 evaluation.

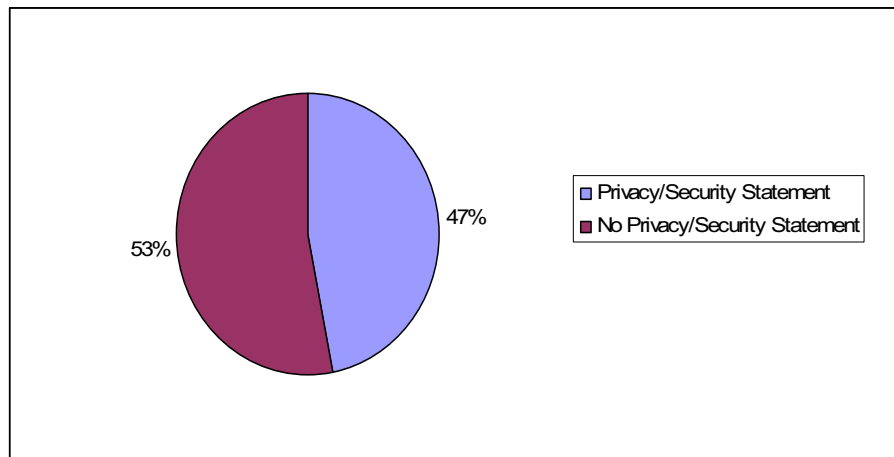
Table 5-4 lists the results of evaluation of key aspects in the category of Privacy/Security by OECD and non-OECD member countries. Overall, cities in OECD countries continue to pay more attention to privacy and security matters on their websites rather than cities in non-OECD countries. About 79% of cities evaluated in OECD countries have developed a privacy or security statement/policy, while about 31% 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, some 35% of cities evaluated in OECD countries have a privacy policy addressing the use of encryption, compared to 21% of cities in non-OECD countries. In addition, 48% of cities evaluated in OECD countries have a privacy policy addressing the use of “cookies” or “web beacons” to track users, while only 16% of cities in non-OECD countries have statements as to the use of “cookies.” overall average.

[Table 5-4] Results for Privacy/Security by OECD Member and Non-Member Countries (2007)

| | OECD | Average | Non-OECD |
|-----------------------------------|-------------|----------------|-----------------|
| Privacy or Security Policy | 79% | 47% | 31% |
| Use of encryption | 35% | 26% | 21% |
| Use of cookies | 48% | 27% | 16% |
| Digital Signature | 31% | 20% | 14% |

Overall, while cities in OECD countries score above average throughout the world, cities in non-OECD countries continue to be below the average. In terms of the question “Does the site have a privacy or security statement/policy?” 47% of cities have privacy and security policies compared to 37% in 2005. More than half of the cities, however, have not yet provided citizens with a privacy and security statement (Figure 5-3). Cities such as Seoul, Helsinki, London, Tokyo and Singapore have clear privacy or security statements/ policies, as reflected by their overall rankings in the category.

[Figure 5-3] Existence of Privacy or Security Statement/Policy (2007)



6

USABILITY

The following chapter highlights the results for Usability. Results indicate that Madrid, London, Seoul, Helsinki and Buenos Aires are top ranked cities in the category of Usability. Except Seoul, the other cities are new to the top five rankings. London and Madrid share the first position with a score of 18.75, and Seoul follows in the third position with a score of 18.13. Helsinki is ranked 4th with a score of 17.82 and Buenos Aires is ranked 5th with a score of 17.19. Table 6-1 summarizes the results for all the municipalities evaluated in the category.

The average score in this category is 11.95, a decrease from a score of 12.42 in 2005. Cities in OECD countries scored an average of 13.64, while cities in non-member countries scored only 11.08 in this category. Overall, cities in Oceania scored the highest average of 14.22, while cities in Africa scored the lowest average of 8.63 in the category of Usability.

[Table 6-1] Results in Usability (2007)

| Ranking | City | Country | Usability |
|---------|--------------|-----------------------|-----------|
| 1 | Madrid | Spain | 18.75 |
| 1 | London | UK | 18.75 |
| 3 | Seoul | Republic of Korea | 18.13 |
| 4 | Helsinki | Finland | 17.82 |
| 5 | Buenos Aires | Argentina | 17.19 |
| 6 | Singapore | Singapore | 16.57 |
| 7 | Hong Kong | Hong Kong | 16.35 |
| 8 | Toronto | Canada | 16.25 |
| 9 | Zurich | Switzerland | 15.63 |
| 9 | Sydney | Australia | 15.63 |
| 11 | Vienna | Austria | 15.00 |
| 11 | Riga | Latvia | 15.00 |
| 11 | Moscow | Russia | 15.00 |
| 14 | New York | USA | 14.69 |
| 14 | Berlin | Germany | 14.69 |
| 14 | Dublin | Ireland | 14.69 |
| 14 | Prague | Czech | 14.69 |
| 18 | Brussels | Belgium | 14.38 |
| 18 | Bucharest | Romania | 14.38 |
| 20 | Jerusalem | Israel | 14.07 |
| 20 | Belgrade | Serbia and Montenegro | 14.07 |
| 22 | Athens | Greece | 13.76 |
| 22 | Ljubljana | Slovenia | 13.76 |
| 22 | Ho Chi Minh | Vietnam | 13.75 |
| 22 | Kiev | Ukraine | 13.75 |
| 22 | Caracas | Venezuela | 13.75 |
| 27 | Tokyo | Japan | 13.44 |
| 27 | Santiago | Chile | 13.44 |
| 29 | Zagreb | Croatia | 13.13 |
| 29 | Vilnius | Lithuania | 13.13 |
| 29 | Bratislava | Slovakia | 13.13 |
| 29 | Istanbul | Turkey | 13.13 |
| 29 | Sao Paulo | Brazil | 13.13 |

[Table 6-1] (cont.) Results in Usability (2007)

| | | | |
|----|--------------------|------------------------|-------|
| 29 | Paris | France | 13.13 |
| 35 | Auckland | New Zealand | 12.82 |
| 35 | Shanghai | China | 12.82 |
| 37 | Amman | Jordan | 12.50 |
| 38 | Mexico City | Mexico | 12.19 |
| 38 | Bangkok | Thailand | 12.19 |
| 40 | Luxembourg City | Luxembourg | 11.88 |
| 40 | San Juan | Puerto Rico | 11.88 |
| 40 | Mumbai | India | 11.88 |
| 43 | Almaty | Kazakhstan | 11.57 |
| 43 | Stockholm | Sweden | 11.57 |
| 43 | Guatemala City | Guatemala | 11.57 |
| 43 | Amsterdam | Netherlands | 11.57 |
| 47 | Santa Fé De Bogotá | Colombia | 11.56 |
| 47 | Karachi | Pakistan | 11.56 |
| 49 | Nicosia | Cyprus | 11.26 |
| 49 | Dubai | UAE | 11.26 |
| 51 | Rome | Italy | 11.25 |
| 51 | Casablanca | Morocco | 11.25 |
| 51 | Sarajevo | Bosnia and Herzegovina | 11.25 |
| 54 | Minsk | Belarus | 11.24 |
| 55 | Sofia | Bulgaria | 10.94 |
| 55 | Cape Town | South Africa | 10.94 |
| 55 | Muscat | Oman | 10.94 |
| 58 | Riyadh | Saudi Arabia | 10.67 |
| 59 | Copenhagen | Denmark | 10.63 |
| 59 | Tallinn | Estonia | 10.63 |
| 59 | Chisinau | Moldova | 10.63 |
| 59 | La Paz | Bolivia | 10.63 |
| 59 | Cairo | Egypt | 10.63 |
| 64 | Tunis | Tunisia | 10.31 |
| 64 | Beirut | Lebanon | 10.31 |

[Table 6-1] (cont.) Results in Usability (2007)

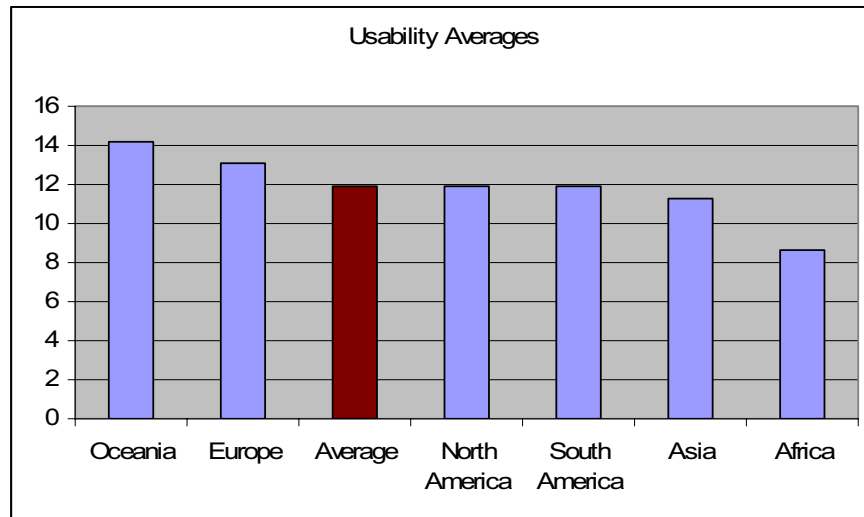
| | | | |
|----|--------------|-------------|-------|
| 66 | Budapest | Hungary | 10.00 |
| 66 | Oslo | Norway | 10.00 |
| 68 | Dhaka | Bangladesh | 9.69 |
| 68 | Jakarta | Indonesia | 9.69 |
| 70 | Warsaw | Poland | 9.66 |
| 71 | Kuwait City | Kuwait | 9.38 |
| 71 | Lima | Peru | 9.38 |
| 71 | Montevideo | Uruguay | 9.38 |
| 74 | Kuala Lumpur | Malaysia | 9.07 |
| 74 | Kampala | Uganda | 9.07 |
| 76 | Lisbon | Portugal | 8.76 |
| 77 | Port Louis | Mauritius | 8.75 |
| 77 | San Salvador | El Salvador | 8.75 |
| 79 | Quezon City | Philippines | 8.44 |
| 79 | Guayaquil | Ecuador | 8.44 |
| 81 | Tehran | Iran | 8.13 |
| 82 | San José | Costa Rica | 7.81 |
| 83 | Lagos | Nigeria | 6.88 |
| 84 | Dakar | Senegal | 6.25 |
| 85 | Nairobi | Kenya | 4.07 |
| 86 | Tashkent | Uzbekistan | 2.82 |

Table 6-2 represents the average score in Usability. Overall, cities in Oceania scored the highest average of 14.22, while cities in Africa scored the lowest average of 8.63 in this category. North America increased its score of 10.55 in 2005 to 11.88 in 2007. Table 6-2 also presents the data separated by OECD and Non-OECD member countries for the category of Usability. Cities in OECD countries scored an average of 13.64, while cities in non-member countries scored only 11.08 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 has slightly decreased from that in 2003. Figures 6-1 and 6-2 illustrate the data presented Table 6-2.

[Table 6-2] Average Score in Usability by Continent and OECD Member and Non-Member Countries (2005)

| | Oceania | Europe | Average | North America | South America | Asia | Africa |
|---------------------------|---------|--------|--------------|---------------|---------------|-------|--------|
| OECD | 1422 | 13.3 | 13.64 | 14.38 | - | 15.78 | |
| Usability Averages | 14.22 | 13.07 | 11.95 | 11.88 | 11.88 | 11.23 | 8.63 |
| Non-OECD | - | 12.7 | 11.08 | 10.0 | 11.88 | 10.82 | 8.63 |

[Figure 6-1] Average Score in Usability by Continent (2005)



[Figure 6-2] Average Score in Usability by OECD Member and Non-Member Countries (2007)

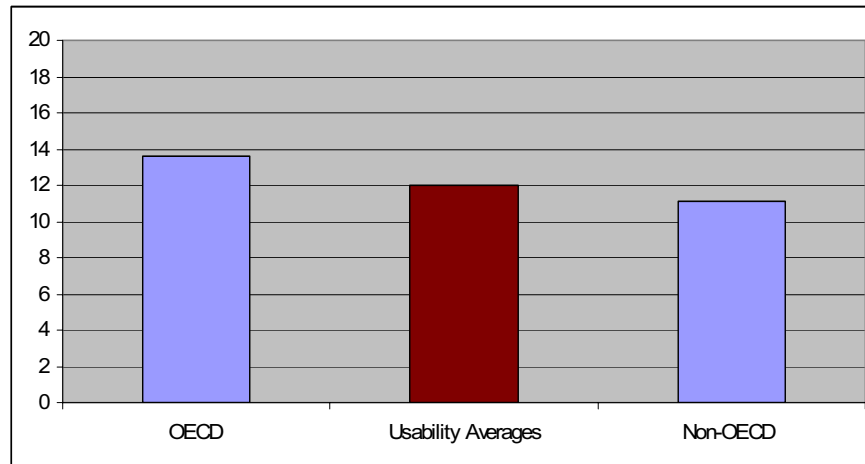


Table 6-3 lists the results of the evaluation of key aspects in the category of Usability by continent. In terms of homepage length, with text size set to “medium” at the “view” menu of Internet Explorer on a 17 inch monitor, cities in Europe, North America, South America, Asia, and Oceania score above average, while cities in Africa are below average. That is, under the conditions above, many cities in Europe, North America, South America, Asia and Oceania require two screens or less to view the main city homepage.

With respect to targeted audience links, 70% of cities in Europe, 67% of cities in South America and 63% in Africa have the targeted audience links divided into more than three categories (e.g. general citizens, youths, the old, women, family, citizens in need of social welfare services, businesses, industry, small businesses, public employees, etc.), while on average, 63% of all cities have such links. Also, as to a site map, 86% in Europe and 67% in South America have a sitemap containing active links and less than two screens in length, whereas only 50% cities in Oceania and 37% of cities in Africa provide sitemap online. Moreover, in terms of online search tools, all cities in Oceania, about 89% of cities in Europe and 84% in Asia are found to provide online search tools.

[Table 6-3] Results for Usability by Continent (2007)

| | Europe | South America | Africa | Average | Asia | Oceania | North America |
|--------------------------|--------|---------------|--------|------------|------|---------|---------------|
| Targeted Audience | 70% | 67% | 63% | 63% | 56% | 50% | 42% |
| Site map | 86% | 67% | 37% | 70% | 60% | 50% | 57% |
| Search tool | 89% | 78% | 50% | 82% | 84% | 100% | 58% |

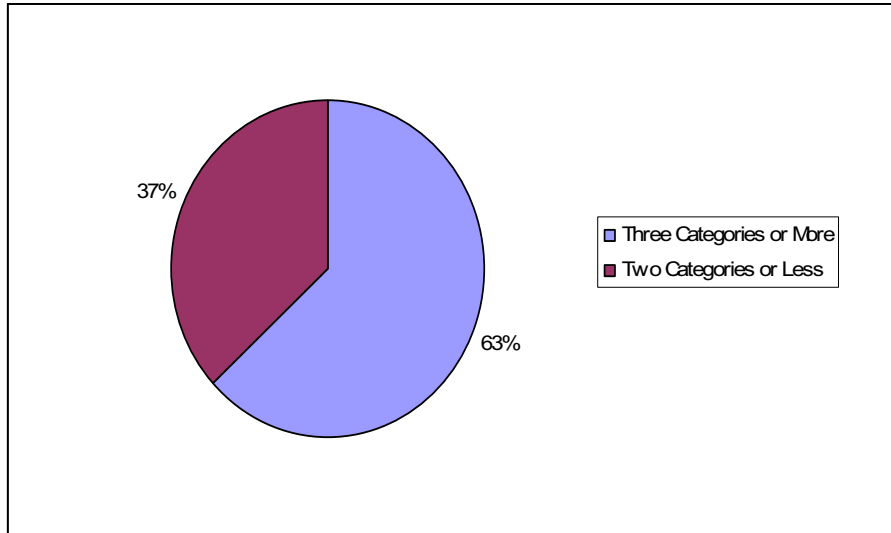
Table 6-4 indicates the results of assessments of usability among OECD and non-OECD countries. In terms of targeted audience links, about 70% of cities in OECD countries have links divided into more than three categories, while only 60% of non-OECD countries have such links. As to site map, about 70% of cities throughout the world have a sitemap containing active links and less than two screens in length. Also about 93% of cities in OECD countries and 76% in non-OECD countries provide online search tools.

[Table 6-4] Results for Usability by OECD Member and Non-Member Countries (2007)

| | OECD | Average | Non-OECD |
|--------------------------|------|------------|----------|
| Targeted Audience | 70% | 63% | 60% |
| Site map | 87% | 70% | 61% |
| Search tool | 93% | 82% | 76% |

With regard to “Targeted audience links: Are targeted audience links available on the homepage? (e.g. general citizens, youth, the old, women, citizens in need of social welfare services, businesses, industry, public employees, etc.),” 63% of municipal websites are divided into more than three categories, (Figure 6-3).

[Figure 6-3] Targeted Audience Links (2007)



CONTENT

Results for Content indicate that Hong Kong, Madrid, Seoul, Bangkok and Buenos Aires are top ranked cities in the category of Content. New to the top five are Madrid, Bangkok and Buenos Aires. Madrid was ranked 64th in 2005 with a score of 3.75, but has improved to second overall with a score of 16.40 in 2007. Bangkok was ranked 61st in 2005 with a score of 4.17, but has improved to fourth overall with a score of 14.80 in 2007. Buenos Aires was ranked 50th in 2005 with a score of 5.83, but is now ranked fourth along with Bangkok. Table 7-1 summarizes the results for all the municipalities evaluated in the Content category.

The average score for the top five cities has increased significantly from 2005. The average score for the top five ranked cities in 2007 is 16.16, while the average score for the top five ranked cities was 14.33 in 2005 and 14.08 in 2003. However the overall average score for this category has decreased to 7.58 in 2007 from a score of 7.63 in 2005.

[Table 7-1] Results in Content (2007)

| Ranking | City | Country | Content |
|---------|--------------|-----------------------|---------|
| 1 | Hong Kong | Hong Kong | 18.80 |
| 2 | Madrid | Spain | 16.40 |
| 3 | Seoul | Republic of Korea | 16.00 |
| 4 | Bangkok | Thailand | 14.80 |
| 4 | Buenos Aires | Argentina | 14.80 |
| 6 | Helsinki | Finland | 14.60 |
| 7 | Dublin | Ireland | 13.60 |
| 8 | Tokyo | Japan | 13.40 |
| 9 | New York | USA | 13.20 |
| 10 | London | UK | 12.80 |
| 11 | Prague | Czech | 12.60 |
| 11 | Toronto | Canada | 12.60 |
| 13 | Singapore | Singapore | 12.20 |
| 14 | Zurich | Switzerland | 12.00 |
| 15 | Berlin | Germany | 11.20 |
| 15 | Mexico City | Mexico | 11.20 |
| 17 | Cape Town | South Africa | 11.00 |
| 18 | Amsterdam | Netherlands | 10.80 |
| 19 | Zagreb | Croatia | 10.60 |
| 20 | Bratislava | Slovakia | 10.40 |
| 21 | Vienna | Austria | 10.20 |
| 21 | Copenhagen | Denmark | 10.20 |
| 23 | Sofia | Bulgaria | 9.80 |
| 24 | Rome | Italy | 9.60 |
| 24 | Riga | Latvia | 9.60 |
| 24 | Belgrade | Serbia and Montenegro | 9.60 |
| 27 | Kiev | Ukraine | 9.40 |
| 28 | Jakarta | Indonesia | 9.00 |
| 28 | Sydney | Australia | 9.00 |
| 30 | Jerusalem | Israel | 8.60 |
| 30 | Tallinn | Estonia | 8.60 |
| 30 | Lisbon | Portugal | 8.60 |
| 30 | Auckland | New Zealand | 8.60 |

[Table 7-1] (cont.) Results in Content (2007)

| | | | |
|----|--------------------|------------------------|------|
| 34 | Paris | France | 8.40 |
| 35 | Moscow | Russia | 8.00 |
| 36 | Brussels | Belgium | 7.80 |
| 36 | Bucharest | Romania | 7.80 |
| 36 | San Juan | Puerto Rico | 7.80 |
| 39 | Vilnius | Lithuania | 7.60 |
| 40 | Oslo | Norway | 7.40 |
| 41 | Istanbul | Turkey | 7.20 |
| 42 | Shanghai | China | 7.00 |
| 42 | Ho Chi Minh | Vietnam | 7.00 |
| 42 | Chisinau | Moldova | 7.00 |
| 45 | Ljubljana | Slovenia | 6.80 |
| 46 | Caracas | Venezuela | 6.80 |
| 47 | Nicosia | Cyprus | 6.60 |
| 47 | Athens | Greece | 6.60 |
| 47 | Stockholm | Sweden | 6.60 |
| 50 | Guayaquil | Ecuador | 6.40 |
| 50 | Lima | Peru | 6.40 |
| 50 | Casablanca | Morocco | 6.40 |
| 53 | Santa Fé De Bogotá | Colombia | 6.20 |
| 54 | Sarajevo | Bosnia and Herzegovina | 6.00 |
| 54 | Santiago | Chile | 6.00 |
| 56 | Dubai | UAE | 5.80 |
| 56 | Sao Paulo | Brazil | 5.80 |
| 58 | Karachi | Pakistan | 5.60 |
| 58 | Riyadh | Saudi Arabia | 5.60 |
| 58 | San Salvador | El Salvador | 5.60 |
| 61 | Muscat | Oman | 5.05 |
| 62 | Montevideo | Uruguay | 5.00 |
| 63 | Almaty | Kazakhstan | 4.80 |
| 63 | Budapest | Hungary | 4.80 |
| 63 | Tunis | Tunisia | 4.80 |

[Table 7-1] (cont.) Results in Content (2007)

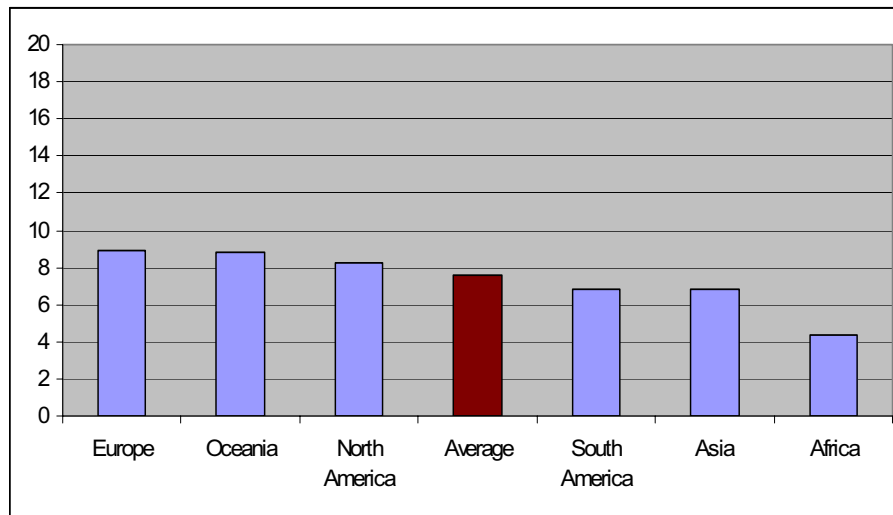
| | | | |
|----|-----------------|-------------|------|
| 66 | Luxembourg City | Luxembourg | 4.52 |
| 67 | La Paz | Bolivia | 4.40 |
| 68 | Mumbai | India | 4.00 |
| 68 | Minsk | Belarus | 4.00 |
| 68 | Warsaw | Poland | 4.00 |
| 68 | San José | Costa Rica | 4.00 |
| 72 | Cairo | Egypt | 3.80 |
| 73 | Dhaka | Bangladesh | 3.63 |
| 74 | Guatemala City | Guatemala | 3.60 |
| 75 | Beirut | Lebanon | 3.40 |
| 76 | Kuwait City | Kuwait | 3.20 |
| 76 | Quezon City | Philippines | 3.20 |
| 78 | Tehran | Iran | 3.00 |
| 79 | Port Louis | Mauritius | 2.60 |
| 80 | Nairobi | Kenya | 2.40 |
| 80 | Lagos | Nigeria | 2.40 |
| 82 | Kuala Lumpur | Malaysia | 2.20 |
| 82 | Dakar | Senegal | 2.20 |
| 84 | Kampala | Uganda | 1.60 |
| 85 | Amman | Jordan | 1.00 |
| 86 | Tashkent | Uzbekistan | 0.40 |

Table 7-2 represents the average score in Content by continent. Overall, cities in Europe scored 8.94, while cities in Africa scored only 4.33 in this category. Europe replaced Oceania as the continent with the highest average score with a slight decrease from 9.23 in 2005. Africa replaced South America as the continent with lowest average score of 4.33. Table 7-2 also presents the data separated by OECD and non-OECD member countries for the category of Content. Cities in OECD countries scored an average of 10.15, while cities in non-member countries scored only 6.27 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 and 7-2 illustrate the data presented Table 7-2.

[Table 7-2] Average Score in Content by Continent and OECD Member and Non-Member Countries (2007)

| | Europe | Oceania | North America | Average | South America | Asia | Africa |
|-------------------------|--------|---------|---------------|--------------|---------------|------|--------|
| OECD | 9.56 | 8.80 | 12.33 | 10.15 | - | 14.7 | - |
| Content Averages | 8.94 | 8.80 | 8.29 | 7.58 | 6.87 | 6.59 | 4.33 |
| Non-OECD | 7.96 | - | 5.25 | 6.27 | 6.87 | 5.86 | 4.33 |

[Figure 7-1] Average Score in Content by Continent (2007)



[Figure 7-2] Average Score in Content by OECD Member and Non-Member Countries (2007)

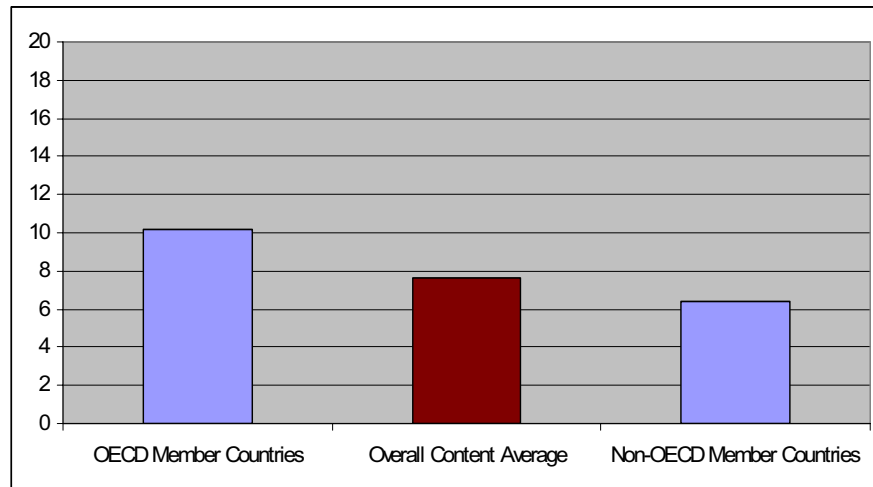


Table 7-3 indicates the results of evaluation of Content by continent. About 40% of cities evaluated in all continents, except South America, have websites with mechanisms in the area of emergency management or alert mechanisms (severe weather, etc.). Also, with regard to disability access for the blind, only about 18% of cities have websites providing such access (e.g. Bobby compliant: <http://www.cast.org/bobby>). European cities had the highest percentage of municipal websites with that feature. In addition, only 11% of cities have websites providing disability access for the deaf (TDD phone service). Cities in Africa have no websites providing disability access for either the blind or the deaf.

With respect to the use of wireless technology, 33% of cities in Europe and 29% in North America have websites using wireless technology, such as messages to mobile phone, PDA (Personal Digital Assistant) or a Palm Pilot to update applications, events etc. No cities in Oceania and Africa have websites using this technology. Also, more than half of cities in Asia, and Europe have websites offering access in more than one language. This overall average for websites has decreased slightly to 62% from 65% in 2005.

[Table 7-3] Results for Content by Continent (2007)

| | Oceania | Europe | Average | Asia | North America | South America | Africa |
|-------------------------------|---------|--------|------------|------|---------------|---------------|--------|
| Emergency Management | 50% | 34% | 34% | 44% | 43% | 0% | 25% |
| Access for the Blind | 0% | 31% | 18% | 12% | 15% | 0% | 0% |
| Access for the deaf | 50% | 14% | 11% | 4% | 15% | 11% | 0% |
| Wireless technology | 0% | 33% | 24% | 20% | 29% | 11% | 0% |
| More than one language | 50% | 78% | 62% | 76% | 15% | 22% | 25% |

Table 7-4 indicates the results of 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, with only 26% of cities in non-OECD member countries. However in 2003, OECD member countries had a significantly lower score than those of non-OECD member countries.

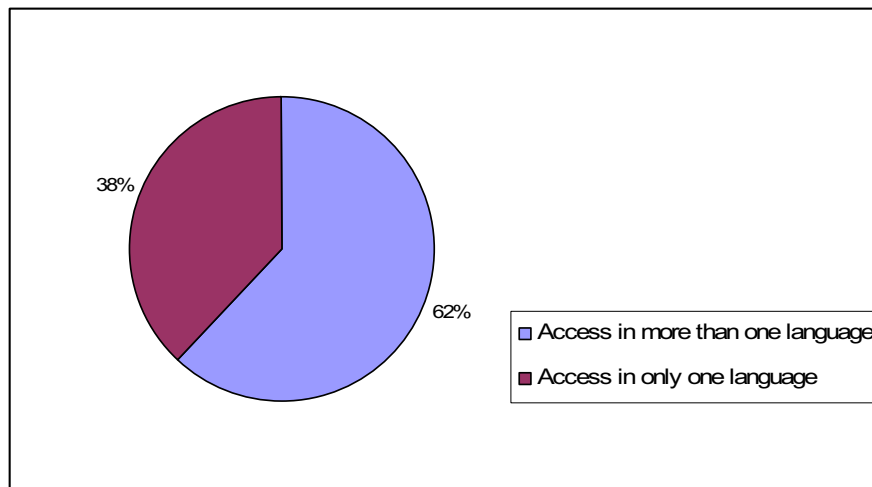
With regard to disability access for the blind, about 35% of cities in OECD countries have websites providing such access, whereas only 9% of cities in non-OECD countries have that capacity. In addition, about 14% of cities in OECD countries have websites providing disability access for the deaf, while only 9% of cities in non-OECD countries offer it. With respect to the use of wireless technology, about 52% of cities in OECD countries have websites using wireless technology to update applications, events etc while only 9% of cities in non-OECD countries, have websites using that technology. In addition, about 66% of cities in OECD countries have websites offering access in more than one language, while 60% in non-OECD countries offer multi-lingual access.

[Table 7-4] Results for Content by OECD Member and Non-Member Countries (2007)

| | OECD | Average | Non-OECD |
|-----------------------------------|-------------|----------------|-----------------|
| Emergency Management | 48% | 34% | 26% |
| Access for the blind | 35% | 18% | 9% |
| Access for the deaf | 14% | 11% | 9% |
| Use of wireless technology | 52% | 24% | 9% |
| More than one language | 66% | 62% | 60% |

Furthermore, with respect to the question “Does the site offer access in more than one language?,” 62% cities of those evaluated have a website that offers access in more than one language, while only 38% cities have no such features. Figure 7-3 represents these findings in terms of overall percentages.

[Figure 7-3] Access in multiple languages (2007)



8

SERVICES

The following chapter highlights the results for online Services. Results indicate that Seoul, Hong Kong, Madrid, London and Singapore are the top ranked cities in the category of online Services. New to the top five are Madrid, London and Singapore. Seoul and Hong Kong share the first position with a score of 19.83. Madrid is ranked third with a score of 14.58, followed closely by London and Singapore with scores of 13.73 and 12.88 respectively. Table 8-1 summarizes the results for all the municipalities evaluated in this category.

The average score in this category is 5.8, an increase from a score of 5.32 in 2005 and 4.82 in 2003. No cities evaluated earned 0 points in this category compared to two in 2005 and three in 2003. The average score for the top five ranked cities in 2007 is 16.17, while the average score for the top five ranked cities in 2005 and 2003 were 14.51 and 13.69 respectively.

[Table 8 -1] Results in Services (2007)

| Ranking | City | Country | Service |
|---------|--------------------|-----------------------|---------|
| 1 | Seoul | Republic of Korea | 19.83 |
| 1 | Hong Kong | Hong Kong | 19.83 |
| 3 | Madrid | Spain | 14.58 |
| 4 | London | UK | 13.73 |
| 5 | Singapore | Singapore | 12.88 |
| 6 | Helsinki | Finland | 11.36 |
| 6 | Buenos Aires | Argentina | 11.36 |
| 6 | Toronto | Canada | 11.36 |
| 9 | Tokyo | Japan | 11.02 |
| 10 | Mexico City | Mexico | 10.85 |
| 11 | Rome | Italy | 10.68 |
| 12 | New York | USA | 10.51 |
| 13 | Prague | Czech | 10.00 |
| 14 | Zurich | Switzerland | 9.83 |
| 14 | Sydney | Australia | 9.83 |
| 16 | Shanghai | China | 9.66 |
| 16 | Vienna | Austria | 9.66 |
| 18 | Bangkok | Thailand | 9.49 |
| 18 | Dublin | Ireland | 9.49 |
| 20 | Berlin | Germany | 8.81 |
| 21 | Auckland | New Zealand | 8.48 |
| 22 | Sofia | Bulgaria | 7.96 |
| 23 | Bratislava | Slovakia | 7.46 |
| 24 | Nicosia | Cyprus | 6.95 |
| 25 | Ho Chi Minh | Vietnam | 6.78 |
| 26 | Mumbai | India | 6.61 |
| 26 | Santa Fé De Bogotá | Colombia | 6.61 |
| 28 | Jerusalem | Israel | 6.44 |
| 29 | Luxembourg City | Luxembourg | 6.27 |
| 29 | Amsterdam | Netherlands | 6.27 |
| 29 | Lisbon | Portugal | 6.27 |
| 29 | Belgrade | Serbia and Montenegro | 6.27 |

[Table 8-1] (cont.) Results in Services (2007)

| | | | |
|----|----------------|--------------|------|
| 33 | Bucharest | Romania | 6.10 |
| 33 | Istanbul | Turkey | 6.10 |
| 33 | Guatemala City | Guatemala | 6.10 |
| 36 | Vilnius | Lithuania | 5.76 |
| 36 | Santiago | Chile | 5.76 |
| 38 | Oslo | Norway | 5.60 |
| 39 | San José | Costa Rica | 5.42 |
| 39 | Guayaquil | Ecuador | 5.42 |
| 41 | Paris | France | 5.25 |
| 41 | Lima | Peru | 5.25 |
| 43 | Muscat | Oman | 5.08 |
| 43 | Cape Town | South Africa | 5.08 |
| 45 | Riga | Latvia | 4.92 |
| 45 | Moscow | Russia | 4.92 |
| 47 | Kuala Lumpur | Malaysia | 4.75 |
| 47 | Caracas | Venezuela | 4.75 |
| 49 | Brussels | Belgium | 4.58 |
| 49 | Copenhagen | Denmark | 4.58 |
| 49 | Sao Paulo | Brazil | 4.58 |
| 52 | Almaty | Kazakhstan | 4.41 |
| 53 | Kiev | Ukraine | 3.90 |
| 54 | Dubai | UAE | 3.73 |
| 54 | Stockholm | Sweden | 3.73 |
| 56 | Port Louis | Mauritius | 3.56 |
| 56 | Minsk | Belarus | 3.56 |
| 56 | Zagreb | Croatia | 3.56 |
| 56 | Tallinn | Estonia | 3.56 |
| 56 | San Juan | Puerto Rico | 3.56 |
| 61 | San Salvador | El Salvador | 3.39 |
| 62 | Casablanca | Morocco | 3.22 |
| 63 | Karachi | Pakistan | 3.05 |
| 63 | Quezon City | Philippines | 3.05 |
| 65 | Tehran | Iran | 2.71 |

[Table 8-1] (cont.) Results in Services (2007)

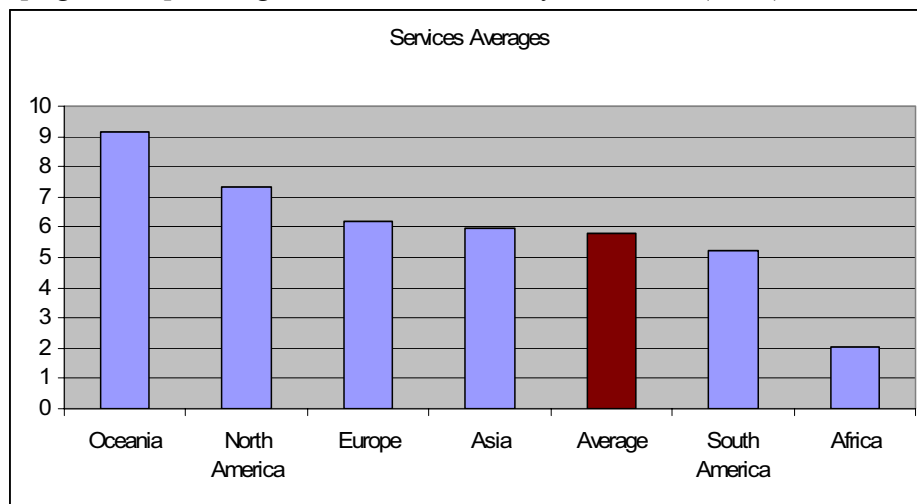
| | | | |
|----|-------------|------------------------|------|
| 65 | Ljubljana | Slovenia | 2.71 |
| 67 | Jakarta | Indonesia | 2.54 |
| 67 | Athens | Greece | 2.54 |
| 69 | Sarajevo | Bosnia and Herzegovina | 2.20 |
| 70 | Kampala | Uganda | 2.04 |
| 71 | Montevideo | Uruguay | 2.03 |
| 72 | Lagos | Nigeria | 1.87 |
| 72 | Tunis | Tunisia | 1.87 |
| 74 | Amman | Jordan | 1.86 |
| 74 | Beirut | Lebanon | 1.86 |
| 74 | Budapest | Hungary | 1.86 |
| 77 | Dhaka | Bangladesh | 1.52 |
| 78 | Dakar | Senegal | 1.35 |
| 79 | La Paz | Bolivia | 1.19 |
| 80 | Chisinau | Moldova | 1.18 |
| 81 | Warsaw | Poland | 1.02 |
| 82 | Riyadh | Saudi Arabia | 1.01 |
| 83 | Kuwait City | Kuwait | 0.85 |
| 84 | Cairo | Egypt | 0.68 |
| 85 | Tashkent | Uzbekistan | 0.51 |
| 86 | Nairobi | Kenya | 0.17 |

Table 8-2 represents the average score of online Services by continent. Overall, cities in Oceania scored 9.15, while cities in Africa scored only 2.03 in this category. Oceania remained as the continent with the highest average score, increasing from a score of 7.54 in 2005. Africa remained as the continent with the lowest average score. Table 8-2 also presents the data separated by OECD and Non-OECD member countries for the category of online Services. Cities in OECD countries increased their average to 8.33 from 7.50 in 2005, while cities in non-member countries increased their average score to 4.51 in this category, from 4.03 in 2005. This result indicates that cities in developed countries have provided citizens with more online services than cities in less developed countries. Figures 8-1 and 8-2 illustrate the data in Table 8-2.

[Table 8-2] Average Score in Services by Continent and OECD Member and Non-Member Countries (2007)

| | Oceania | North America | Europe | Asia | Average | South America | Africa |
|--------------------------|---------|---------------|--------|-------|-------------|---------------|--------|
| OECD | 9.15 | 10.90 | 7.26 | 15.43 | 8.33 | - | - |
| Services Averages | 9.15 | 7.31 | 6.20 | 5.95 | 5.8 | 5.22 | 2.03 |
| Non-OECD | - | 4.62 | 4.54 | 5.09 | 4.51 | 5.22 | 2.03 |

[Figure 8-1] Average Score in Services by Continent (2007)



[Figure 8-2] Average Score in Services by OECD Member and Non-Member Countries (2007)

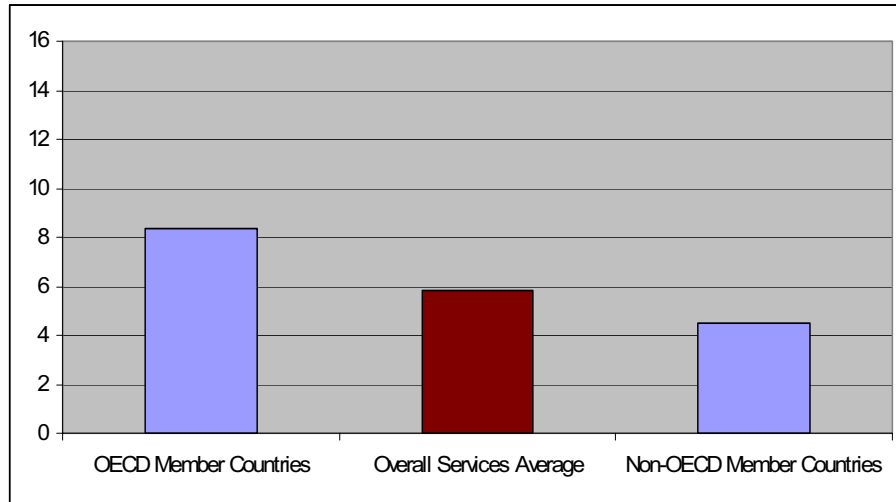


Table 8-3 indicates the results of key aspects selected in the category of Service delivery by continent. With regard to searchable databases, more than 50% of cities in Oceania, Europe and Asia have websites offering a searchable database, while less than 25% of cities evaluated in South America have sites offering that capacity. In terms of portal customization, all cities in Oceania, 17% of cities in Europe and about 15% 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), all cities in Oceania and 72% in North America allow users to access private information online, while no cities in Africa allow citizens to do so.

[Table 8-3] Results for Services by Continent (2007)

| | Oceania | Europe | Asia | Average | North America | South America | Africa |
|-------------------------------|---------|--------|------|------------|---------------|---------------|--------|
| Searchable Database | 100% | 59% | 56% | 52% | 29% | 22% | 38% |
| Portal Customization | 100% | 17% | 12% | 13% | 15% | 0% | 12.5% |
| Access to Private Info | 100% | 20% | 28% | 26% | 72% | 11% | 0% |

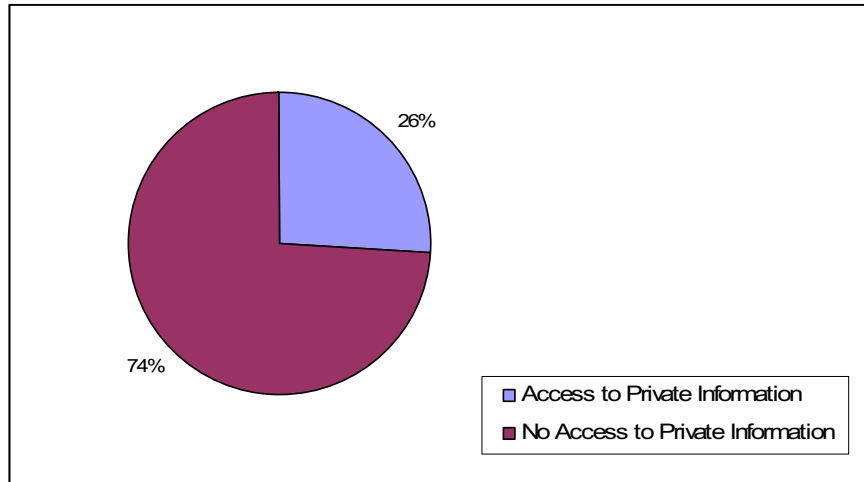
Table 8-4 represents the results of key aspects selected in the category of service delivery by OECD membership. With regard to searchable databases, about 69% of cities in OECD countries have websites offering a searchable database, and about 42% in non-OECD countries have sites offering that capacity. In terms of portal customization, about 28% of cities in OECD countries allow users to customize the main city homepage depending on their needs, and about 5% in non-OECD countries allow citizens to do so. In addition, with respect to access to private information online, 45% 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 (2007)

| | OECD | Average | Non-OECD |
|-----------------------------|------|------------|----------|
| Searchable Database | 69% | 52% | 42% |
| Portal Customization | 28% | 13% | 5% |
| Access Private Info | 45% | 26% | 16% |

Twenty-three cities (26%) do allow access to private information online in response to the question “Does the site allow access to private information online (e.g. educational records, medical records, point total of driving violations, lost pet dogs, lost property)?” Over 70% of cities do not allow such access. Figure 8-3 illustrates this finding.

[Figure 8-3] Access to Private Information Online (2007)



9

CITIZEN PARTICIPATION

The following chapter highlights the results for Citizen Participation. Results indicate that Seoul, Singapore, Bangkok, Helsinki and Amsterdam are top ranked cities in the category of Citizen Participation. New to the top five are all of those cities except Seoul, which repeats as the top ranked city in the category. Singapore was ranked 12th in 2005 with a score of 7.64, but has improved to second overall with a score of 12.91 in 2007. Bangkok was ranked 16th in 2005 with a score of 5.64, but has received a third overall ranking with a score of 11.64 in 2007. Helsinki was ranked 32nd in 2005 with a score of 3.64, but has improved to third overall along with Bangkok. Amsterdam was ranked 11th in 2005 but has received a fifth overall ranking with a score of 9.09 in 2007. Table 9-1 summarizes the results for all the municipalities evaluated in this category.

The average score in this category is 3.55, a slight increase from a score of 3.57 in 2005. 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 Participation (2007)

| Ranking | City | Country | Participation |
|---------|---------------|------------------------|---------------|
| 1 | Seoul | Republic of Korea | 16.18 |
| 2 | Singapore | Singapore | 12.91 |
| 3 | Bangkok | Thailand | 11.64 |
| 3 | Helsinki | Finland | 11.64 |
| 5 | Amsterdam | Netherlands | 9.09 |
| 6 | Vienna | Austria | 8.73 |
| 7 | Sofia | Bulgaria | 8.37 |
| 8 | Riga | Latvia | 7.82 |
| 9 | Tokyo | Japan | 7.64 |
| 9 | Bratislava | Slovakia | 7.64 |
| 11 | Auckland | New Zealand | 7.46 |
| 12 | Moscow | Russia | 7.09 |
| 13 | New York | USA | 6.54 |
| 14 | Zurich | Switzerland | 6.36 |
| 15 | Toronto | Canada | 6.18 |
| 16 | Dublin | Ireland | 6.00 |
| 16 | Cape Town | South Africa | 6.00 |
| 18 | Zagreb | Croatia | 5.64 |
| 19 | Berlin | Germany | 5.46 |
| 20 | Rome | Italy | 5.45 |
| 20 | Madrid | Spain | 5.45 |
| 20 | Caracas | Venezuela | 5.45 |
| 23 | Paris | France | 4.91 |
| 23 | London | UK | 4.91 |
| 25 | Sydney | Australia | 4.55 |
| 26 | Minsk | Belarus | 4.36 |
| 26 | Sarajevo | Bosnia and Herzegovina | 4.36 |
| 26 | San José | Costa Rica | 4.36 |
| 29 | Jakarta | Indonesia | 4.00 |
| 29 | Belgrade | Serbia and Montenegro | 4.00 |
| 31 | Hong Kong SAR | Hong Kong SAR | 3.86 |
| 32 | Muscat | Oman | 3.67 |

[Table 9-1] (cont.) Results in Citizen Participation (2007)

| | | | |
|----|--------------------|-------------|------|
| 33 | Amman | Jordan | 3.64 |
| 33 | Almaty | Kazakhstan | 3.64 |
| 33 | Vilnius | Lithuania | 3.64 |
| 36 | Prague | Czech | 3.46 |
| 36 | Oslo | Norway | 3.46 |
| 38 | Shanghai | China | 3.28 |
| 39 | Dubai | UAE | 3.27 |
| 40 | Kiev | Ukraine | 3.10 |
| 41 | Karachi | Pakistan | 3.09 |
| 42 | Ho Chi Minh | Vietnam | 2.91 |
| 42 | Mexico City | Mexico | 2.91 |
| 42 | Kampala | Uganda | 2.91 |
| 45 | Copenhagen | Denmark | 2.73 |
| 46 | Lisbon | Portugal | 2.55 |
| 46 | Buenos Aires | Argentina | 2.55 |
| 48 | Sao Paulo | Brazil | 2.54 |
| 49 | Budapest | Hungary | 2.37 |
| 50 | Tallinn | Estonia | 2.18 |
| 51 | Nicosia | Cyprus | 2.00 |
| 51 | Istanbul | Turkey | 2.00 |
| 51 | Santa Fé De Bogotá | Colombia | 2.00 |
| 54 | Jerusalem | Israel | 1.82 |
| 54 | Ljubljana | Slovenia | 1.82 |
| 54 | Casablanca | Morocco | 1.82 |
| 57 | Athens | Greece | 1.64 |
| 57 | Santiago | Chile | 1.64 |
| 57 | San Juan | Puerto Rico | 1.64 |
| 60 | Bucharest | Romania | 1.63 |
| 61 | Lagos | Nigeria | 1.46 |
| 62 | Lima | Peru | 1.45 |
| 63 | Luxembourg City | Luxembourg | 1.27 |
| 64 | Kuwait City | Kuwait | 1.09 |
| 64 | Beirut | Lebanon | 1.09 |

[Table 9-1] (cont.) Results in Citizen Participation (2007)

| | | | |
|----|----------------|--------------|------|
| 64 | Kuala Lumpur | Malaysia | 1.09 |
| 64 | Brussels | Belgium | 1.09 |
| 68 | Dhaka | Bangladesh | 0.91 |
| 68 | Riyadh | Saudi Arabia | 0.91 |
| 68 | Montevideo | Uruguay | 0.91 |
| 71 | Warsaw | Poland | 0.73 |
| 71 | Stockholm | Sweden | 0.73 |
| 71 | La Paz | Bolivia | 0.73 |
| 71 | Guatemala City | Guatemala | 0.73 |
| 75 | Guayaquil | Ecuador | 0.55 |
| 75 | San Salvador | El Salvador | 0.55 |
| 75 | Cairo | Egypt | 0.55 |
| 78 | Quezon City | Philippines | 0.54 |
| 79 | Tehran | Iran | 0.36 |
| 79 | Port Louis | Mauritius | 0.36 |
| 79 | Dakar | Senegal | 0.36 |
| 79 | Tunis | Tunisia | 0.36 |
| 83 | Mumbai | India | 0.18 |
| 83 | Chisinau | Moldova | 0.18 |
| 85 | Tashkent | Uzbekistan | 0.00 |
| 86 | Nairobi | Kenya | 0.00 |

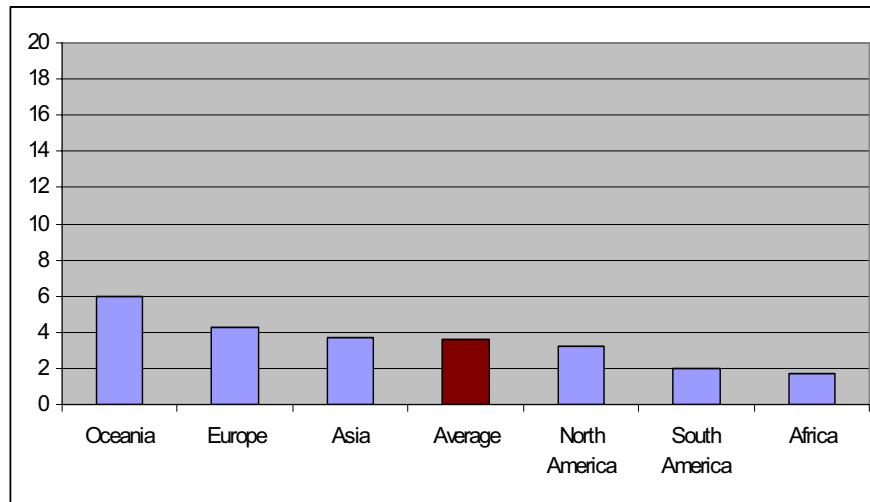
Table 9-2 represents the average score in Citizen Participation by continent. Overall, cities in Oceania ranked the highest among the continents with a score of 6.0, while cities in Africa scored only 1.68 in this category. Oceania replaced Europe as the continent with the highest average, while South America was replaced by Africa as the continent with lowest average score. South America increased its score of 0.69 in 2005 to a score of 1.98 in 2007. Table 9-2 also presents the data separated by OECD and Non-OECD member countries for the category of Citizen Participation. Cities in OECD countries scored an average of 5.14, while cities in non-member countries scored only 2.74 in this category. This result indicates that cities in economically advanced countries continue to have more emphasis on citizen participation than do cities in less

developed countries. Figures 9-1 and 9-2 illustrate the data presented Table 9-2.

[Table 9-2] Average Score in Citizen Participation by Continent and OECD Member and Non-Member Countries (2007)

| | Oceania | Europe | Asia | Average | North America | South America | Africa |
|------------------------------|---------|--------|-------|-------------|---------------|---------------|--------|
| OECD | 6.0 | 4.44 | 11.91 | 5.14 | 5.21 | - | - |
| Citizen Participation | 6.0 | 4.27 | 3.56 | 3.55 | 3.27 | 1.98 | 1.68 |
| Non-OECD | - | 4.01 | 2.8 | 2.74 | 1.82 | 1.98 | 1.68 |

[Figure 9-1] Average Score in Citizen Participation by Continent (2007)



[Figure 9-2] Average Score in Citizen Participation by OECD Member and Non-Member Countries (2007)

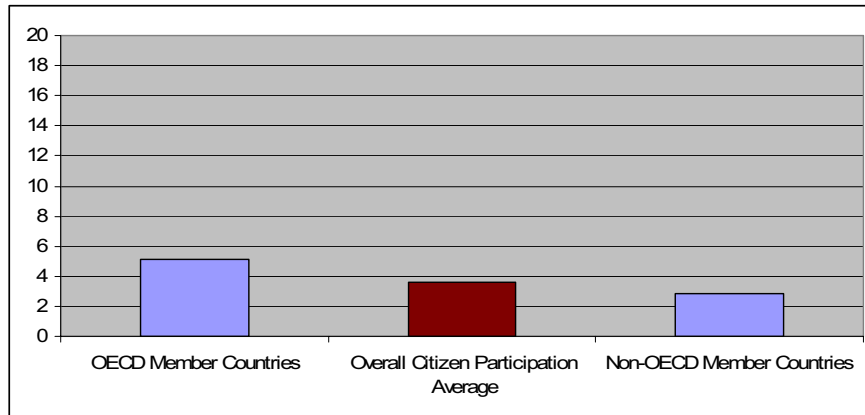


Table 9-3 indicates the results of key aspects selected for the category of Citizen Participation by continent. In terms of the evaluation of “Does the website allow users to provide comments or feedback to individual departments/agencies through online forms?,” 64% of municipalities provide a mechanism allowing comments or feedback through online forms, compared to 31% in 2005. Fifty percent of cities in Oceania and much more in Europe, Asia, North America and South America 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.), over 34% do have these capabilities. All cities in Oceania and 45% of cities in Europe provide online bulletin board or chat 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.), 21% of municipalities evaluated do have a site containing an online discussion forum, which decreased from 25% in 2005. However, the data from citywide performance measurement systems are being

increasingly provided by the municipal websites of more than 20% of the cities evaluated compared to only 10% in 2005. Oceanic and North American cities lead the way with 100% and 43% of their cities currently offering such services.

[Table 9-3] Results for Citizen Participation by Continent (2007)

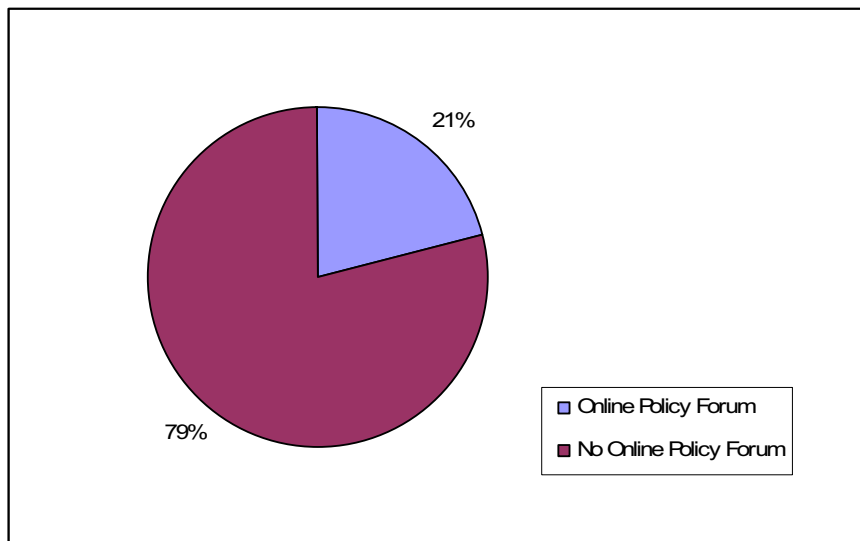
| | Oceania | Europe | Average | Asia | North America | South America | Africa |
|--------------------------------|---------|--------|------------|------|---------------|---------------|--------|
| Feedback Form | 50% | 69% | 64% | 72% | 71% | 55% | 12.5% |
| Bulletin Board | 100% | 45% | 34% | 32% | 15% | 11% | 12.5% |
| Policy Forum | 100% | 23% | 21% | 24% | 0% | 11% | 12.5% |
| Performance Measurement | 100% | 22% | 21% | 16% | 43% | 0% | 12.5% |

Table 9-4 represents the results of key aspects selected in the category of Citizen Participation by OECD membership. In terms of the evaluation of “Does the website allow users to provide comments or feedback to individual departments/agencies through online forms?,” 76% of municipalities in OECD countries provide a mechanism allowing comments or feedback through online forms. About 58% 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, 45% of municipalities in OECD countries provide online bulletin board or chat capabilities. Only 28% of municipalities in non-OECD countries provide online bulletin board or chat capabilities. With regard to online discussion forums on policy issues, 28% of municipalities in OECD countries have a site containing an online discussion forum. Only 17% of municipalities in non-OECD countries, however, have a site containing an online discussion forum. The data from citywide performance measurement systems are provided by 38% of municipalities in OECD countries, while only 12% of municipalities in non-OECD countries have performance measurement systems online. Figure 9-3 illustrates the overall presence of online policy forums.

[Table 9-4] Results for Citizen Participation by OECD Member and Non-Member Countries (2007)

| | OECD | Average | Non-OECD |
|--------------------------------|-------------|----------------|-----------------|
| Feedback Form | 76% | 64% | 58% |
| Bulletin Board | 45% | 34% | 28% |
| Policy Forum | 28% | 21% | 17% |
| Performance Measurement | 38% | 21% | 12% |

[Figure 9-3] Online Policy Forums (2007)



BEST PRACTICES

SEOUL, REPUBLIC OF KOREA

Overall, Seoul has been ranked #1 in this evaluation, just as it was in the 2005 and 2003 evaluation. Seoul has a well developed website that has recorded a high score in all five e-governance categories. It was the top ranked city in the areas of Privacy/Security, Service and Citizen Participation, and third in Usability and Content. Seoul's Cyber Policy Forum is representative of the municipality's efforts toward enhancing online citizen participation. The Cyber Policy Forum aims to "provide citizens with opportunities to understand policy issues and to facilitate discussions; to encourage citizen participation in public administration and to obtain feedback about policy issues; and to reflect citizens' opinions in city policies and produce more tailored policy solutions for citizens." So it is no surprise that Seoul's performance, especially in the area of Citizen Participation, remains as the top ranked among all municipal websites evaluated. As Table 10-1 indicates, Seoul increased its scores in Usability, Service and Citizen Participation compared to its scores in 2005. In the Privacy category, it retained its 2005 score of 17.60, while it decreased slightly by 0.04 in the category of Content. The website of Seoul provides a privacy policy that is accessible on every page that accepts data and addresses the use of cookies or web beacons to track users. The city's homepage is very user-friendly, along with targeted audience links available on each page. The city of Seoul continues to provide citizens with opportunities to participate in governmental processes, including well-organized and systematic opportunities to submit their ideas and suggestions on

proposed policies via policy forums in which citizens can freely suggest policy ideas and agendas to public servants. The website is offered in more than one language – in Korean, English, Japanese, Chinese, French and Spanish. Finally, it is important to note that the gap in the overall score between Seoul and the second ranked city has continued to increase in 2007 as in 2005.

[Table 10-1] Average Scores for Seoul, 2003 - 2007

| Year | Score | Privacy | Usability | Content | Service | Participation |
|------|--------------|---------|-----------|---------|---------|---------------|
| 2007 | 87.74 | 17.60 | 18.13 | 16.00 | 19.83 | 16.18 |
| 2005 | 81.70 | 17.60 | 17.81 | 16.04 | 16.61 | 13.64 |
| 2003 | 73.48 | 11.07 | 17.50 | 13.83 | 15.44 | 15.64 |

HONG KONG

The inclusion of Hong Kong as the second best practice for the 2005 report is based on its second place ranking in the 2005 evaluation. Hong Kong received an overall score of 71.24, a great improvement from its score of 61.51 in 2005. Hong Kong was also highly ranked in 2003, second overall, but dropped slightly to third overall in 2005 and is now again at the second position overall in 2007. The city's homepage is less than two screens, making it very user-friendly along with targeted audience links available on each page. The screen and the text are highlighted by attractive, consistent font size and font along with a searchable database for the city ordinance, city regulations or contact information. Information is posted periodically on the website on job opportunities along with a link to the calendar of events. Table 10-2 highlights the comparison in scores by category from 2003 to 2005.

[Table 10-2] Average Scores for Hong Kong in 2003 - 2007

| Year | Score | Privacy | Usability | Content | Service | Participation |
|------|--------------|---------|-----------|---------|---------|---------------|
| 2007 | 71.24 | 12.40 | 16.35 | 18.80 | 19.83 | 3.86 |
| 2005 | 61.51 | 15.60 | 16.25 | 13.75 | 13.73 | 2.18 |
| 2003 | 66.57 | 15.36 | 19.38 | 13.19 | 14.04 | 4.62 |

HELSINKI, FINLAND

Helsinki increased in its overall score and its ranking significantly from those in 2005 and 2003. Helsinki was ranked 35th with a score of 34.62 in 2005 and was not ranked in the top five cities in any of the categories. However, in 2007 it ranked third overall, along with second in Privacy, third in Citizen Participation and fourth in Usability. The website of Helsinki provides online forums for citizens/users to provide feedback to administrative departments and also provides an online newsletter to keep the community informed of its activities. The website provides online survey/polls for specific issues and strives to engage the residents of Helsinki in community discussions like blogs, bulletin boards, e-discussions, or policy forums. The website allows users to report crimes, violations of administrative laws and regulations, as well as to register or purchase tickets to events in city/municipal halls, arenas, or facilities of the city. The site offers access in Finnish, Swedish, English, German, French and Russian.

[Table 10-3] Average Scores for Helsinki, 2003 - 2007

| Year | Score | Privacy | Usability | Content | Service | Participation |
|------|--------------|---------|-----------|---------|---------|---------------|
| 2007 | 71.01 | 15.60 | 17.82 | 14.60 | 11.36 | 11.64 |
| 2005 | 34.68 | 0.00 | 14.38 | 10.00 | 6.61 | 3.64 |
| 2003 | 45.09 | 8.57 | 15.94 | 11.70 | 6.32 | 2.56 |

SINGAPORE

The inclusion of Singapore as the third best practice for the 2007 report is based on its third place ranking in the 2007 evaluation. Singapore received an overall score of 68.56 and has been ranked at the fourth position. The high score for Singapore's website is not necessarily based on its best performance in any one category, but rather a reflection of its balanced performance throughout all five categories. The website is ranked fifth in Privacy, sixth in Usability, fifth in Services and second in Citizen Participation. The website of Singapore provides its citizens with opportunities to participate in

governmental processes online, such as discussion forums and online surveys. Singapore was also highly ranked in 2005, sixth overall. Table 10-4 highlights the comparison in scores by category from 2003 to 2007. Singapore's website ranked high especially in the categories of Privacy and Citizen Participation. The website allows users to file taxes, pay for utilities, apply for permits, report crimes, violations of administrative laws and regulations, as well as to register or purchase tickets to events in city/municipal halls, arenas, or facilities of the city.

[Table 10-4] Average Scores for Singapore in 2005 - 2003

| Year | Score | Privacy | Usability | Content | Service | Participation |
|------|--------------|---------|-----------|---------|---------|---------------|
| 2007 | 68.56 | 14.00 | 16.57 | 12.20 | 12.88 | 12.91 |
| 2005 | 60.22 | 10.40 | 15.94 | 11.67 | 14.58 | 7.64 |
| 2003 | 62.97 | 11.79 | 14.06 | 14.04 | 13.33 | 9.74 |

MADRID, SPAIN

Madrid represents how a municipal website can quickly improve in performance over a short period of time. Madrid increased from its 54th place ranking to a top five ranking for 2007 with a score of 67.98. Its score increased in all five categories for a total score increase of 37.58 and is ranked first in the category of Usability. The city's homepage is very user-friendly and attractive and provides targeted audience links available on each page. The website offers a searchable database that provides minutes of public meetings, budget documents in downloadable formats, city ordinance, city regulations and contact information for agencies and administrators. Table 10-5 highlights the comparison in scores by category from 2003 to 2007.

[Table 10-5] Average Scores for Madrid in 2005 - 2003

| Year | Score | Privacy | Usability | Content | Service | Participation |
|------|--------------|---------|-----------|---------|---------|---------------|
| 2007 | 67.98 | 12.80 | 18.75 | 16.4 | 14.58 | 5.45 |
| 2005 | 23.24 | 2.80 | 11.88 | 3.75 | 3.73 | 1.09 |
| 2003 | 26.16 | 2.5 | 12.81 | 6.38 | 4.21 | 0.26 |

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 have 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 and 2007 have produced findings that contribute to the e-governance literature, in particular in the areas of website Privacy/Security, Usability, Content, Services, and Citizen Participation. The 2007 study highlights the increased attention spent on Privacy/Security and Services, and the need for further attention in the area of Usability, Content and Citizen Participation via municipal websites. Similar to our 2005 finding, citizen participation has recorded the lowest score among the five categories. Cities are yet to recognize the importance of involving and supporting citizen participation online. A promising finding in terms of citizen participation however is the growing tendency among municipalities to publish performance measurement data on their websites. The number of websites providing data from citywide performance measurement systems has doubled globally in 2007.

However the overall average scores in the categories of Usability, Content and Citizen Participation have decreased marginally among cities across the world. This could be attributed to the increase in the number of new cities in the survey, with official websites still in the initial stages of e-governance. Moreover, the rate

of change in the categories indicates that municipalities globally are gradually focusing on increasing their services and improving the privacy on existing websites.

In addition, the digital gap between OECD and non-OECD member countries in average scores that increased in 2005 had decreased slightly in 2007. 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 internet alone; this divide refers to access to basic infrastructure like telephone, electricity, communication 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 the residents with appropriate computer education.

The continued study of municipalities worldwide, with a fourth evaluation planned in 2009, will further provide insight in 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 at the top ranked cities in municipalities throughout the world. Although the 2007 study highlights increases in e-governance performance throughout the world, continuous improvement should be the norm for every municipality.

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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 Participation | |
| 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 96-98. Performance measures, standards, or benchmarks |