How can e-Government services develop and maintain high quality?

A study submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Information Systems Management

At

THE UNIVERSITY OF SHEFFIELD

By

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September 2011
Abstract

Background. Almost governments have their own website to provide more efficient services for their citizens. However, the concept and definition of high quality e-services is still in its early stages. In order to develop and maintain high quality e-Government services, understanding and analysing the high quality e-Government services meanings and factors is necessary.

Aims. This study aimed to find the solutions of improving and maintaining high quality e-Government services through understanding a variety of concepts regarding e-Government services quality and investigating current e-Government best practices.

Methods. High quality factors and criteria were discovered from previous research, and were used for setting the core questions of questionnaire. Both Internet and paper questionnaire which was fully pre-tested were conducted. Target groups were civil servants (632 people) and citizens (54 people), and total response rate was 20.4% with 140 people (civil servant: 101, citizen: 39).

Results. The viewpoint of civil servants and that of citizens regarding high quality e-Government services criteria was different. Civil servants focused on back-office process, system reliability, policies and training ICT experts, while citizens regard outcomes, citizen-oriented website and usefulness of services as important factors. The main reason why citizens visited government website was just to obtain some useful information. Although civil servants (53%) more satisfy with current e-Government services quality than citizens (37%), the satisfaction of almost respondents were above average.

Conclusions. Taken together, all findings regarding high quality e-Government service quality was closely related to satisfying citizens’ expectation and needs. Therefore, Government always should consider barrier and influential quality factors when planning e-Government service provision project. In addition, in future, the conjunction of government and citizens should be required when collecting and analysing citizens’ requirement.
Acknowledgements

I would like to thank my supervisor Dr. Angela Lin for her guidance and valuable advice.

I would also like to thank Mr. Alastair Allan for his very useful e-Government lecture and interest in my dissertation topic and helpful advice.

I would like to express my deepest gratitude to all the respondents to my questionnaire. Without their earnest answers, this dissertation will never be completed.

Finally, I would like to say to my wife and son, your existence always makes me happy and motivated.
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   (As many as applicable)
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How can e-Government services develop and maintain high quality?

1. Introduction

1.1 Background

In modern society, the Internet has been considered as a contributory factor which can improve the quality of citizens’ life. According to Agrawal et al. (2008), citizens in all countries always expect that their government have to provide people with a new and high quality services. This expectation contributes to a burden and responsibility that the government has to make every effort to develop and maintain high quality government services. For this reason, many central and local governments have more than one website in order to provide more efficient public services for their citizens, and the quality of government service through these websites has become one of the most significant issues. In line with this trend, there has been an increasing considerable amount of literature on the concept of service quality. For example, according to Slack et al. (2007), quality is defined as “consistent conformance to customers’ expectations” and Alanezi et al. (2010) also highlight that service quality has been considered as one of the most important factors in maintaining organisation. However, the concept of e-service quality compared with its important status and, in particular, the definition of e-Government service quality, is still in its early stages (Alanezi et al., 2010). In this context, Chutimaskul et al. (2008) claimed that many e-Governments are made without consideration of the actual needs of governments and citizens. Therefore, this research focused on the recent concept of e-Government service quality and the ways of improving it through analysing the differences between the quality of general and e-services based on related literature. In addition, a questionnaire/survey targeting citizens and civil servants was also performed in order to obtain more reliable results of this research. Although this research has limited and a small scale target questionnaire population, the latest literature and practical opinions from civil servants covered this limitation. Consequently, it can be said that this research will provide appropriate help to understand the ways of developing and maintaining high quality e-Government services which can satisfy citizens’ needs and expectations.
1.2 Aims and Objectives

The aim and objectives of this research are to discover the solutions of improving and maintaining high quality e-Government services through understanding a variety of concepts of quality and investigating current high quality services. Detailed objectives and research questions are as follows.

Objectives
- To identify the general concept of e-Government and service quality.
- To investigate good practices of e-Government services.
- To compare and contrast the quality between e-Government services.
- To investigate the requirements of citizens for e-Government services.
- To examine obstacles of managing high quality e-Government services.
- To discover the best way to develop high e-Government service quality.

1.3 Research questions

In order to achieve above research aims and objectives, it is necessary to find problems, issues and related evidence regarding this research topic. In addition, to compare related literature with real practices and to contrast the viewpoint of citizens with that of civil servants regarding high quality e-government services are required. In this context, below research questions are prepared vis-à-vis the objectives.

Research questions
- What are the differences in quality between general services and e-Government services?
- What factors are related to e-Government services qualities?
- What are the criteria of good e-Government service qualities?
- What are the expectations regarding quality of citizens for e-Government services?
- What are the barriers and challenges in managing quality of e-Government services?
- How should e-Government services be improved and high quality be maintained?

The answers of above six questions were found through conducting eight kinds of literature review regarding e-Government services areas and analyzing the result of questionnaire targeting the UK and Korea civil servants and citizens.
1.4 Research structure

This research is structured with total 6 chapters and the main idea of each chapter is as follows:

Firstly, the literature review which consists of two main tasks and eight areas was introduced in Chapter 2. The main purpose of this literature review was to understand the concept of e-Government and to analyse a variety of factors or characteristics of the high quality e-Government services. This literature review also produced the criteria regarding various factors regarding high quality e-Government services and those were used for designing and making main questions of questionnaire.

Secondly, the overall process and framework of this research were presented in Chapter 3. Furthermore, this chapter explained the philosophical background and detailed data collection methods which were used for this research. That is, the philosophical background of this research was similar to positivism and partly using secondary data from previous researches and quantitative data through conducting questionnaire are adopted for this research.

Thirdly, Chapter 4 & 5 analysed and interpreted the results of questionnaire through comparing the related issues from literature review. Particularly, in order to easily understand the meaning of the results of questionnaire, most results were present through charts and graphs. In addition, a variety of opinions and suggestions which were shown through open questions were also discussed deeply.

Finally, this research concluded with the summary of main finding from this research and the suggestions concerning how to minimise current limitations of this research. In addition, all answers to research questions and objectives were reviewed at the end of Chapter 6 in order to easily grasp arguments of this research.
2. Literature review

In order to find solutions to developing and maintaining high quality e-Government services, first and foremost, it is necessary to 1) understand the concept of e-Government service quality and 2) analyse various factors of high quality of e-Government services. In order to achieve these two tasks, the literature review of this research consists of two tasks with total six areas [Table 1]. Each task and arena will be described at the following subchapters in detail.

Table 1 Literature Structure

<First task: Understanding the concept of e-Government service quality>

<table>
<thead>
<tr>
<th>Arena</th>
<th>Related literature</th>
</tr>
</thead>
</table>
- Heeks (2006)  
- Roy (2007)  
- Shin and Kim (2007)  
- World Bank (2006) |
| 2     | Differences between the concept of general e-services and e-Government services | - Alanezi et al. (2010)  
- Ancarani (2005)  
- Buckley (2003)  
- Jun et al. (2009)  
- Landrum et al. (2010)  
- Parasuraman et al. (2005)  
- Rolland & Freeman (2010)  
- Sung et al (2009) |
| 3     | Criteria of a good e-Government services quality | - Middleton (2007)  
- Jin-fu et al. (2009)  
- Porter Research (2002)  
- Rhee & Rha (2009) |
<Second task: Analysing various factors of high quality of e-Government services>

<table>
<thead>
<tr>
<th>Arena</th>
<th>Related literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Influential factors in e-Government services quality</td>
</tr>
<tr>
<td></td>
<td>- Agrawal et al. (2008)</td>
</tr>
<tr>
<td></td>
<td>- Alanezi et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>- Chee-wee et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>- Dongsha et al. (2008)</td>
</tr>
<tr>
<td></td>
<td>- Halaris et al. (2007)</td>
</tr>
<tr>
<td></td>
<td>- Papadomichelaki et al. (2009)</td>
</tr>
<tr>
<td></td>
<td>- Rhee &amp; Rha (2009)</td>
</tr>
<tr>
<td>5</td>
<td>Requirements for high quality e-Government services</td>
</tr>
<tr>
<td></td>
<td>- Ancarani (2005)</td>
</tr>
<tr>
<td></td>
<td>- Bertot et al. (2008)</td>
</tr>
<tr>
<td></td>
<td>- Chutimaskul et al. (2008)</td>
</tr>
<tr>
<td></td>
<td>- Gorla et al. (2010)</td>
</tr>
<tr>
<td></td>
<td>- Kim et al. (2005)</td>
</tr>
<tr>
<td></td>
<td>- Papadomichelaki et al. (2009)</td>
</tr>
<tr>
<td></td>
<td>- Willoughby et al. (2010)</td>
</tr>
<tr>
<td>6</td>
<td>Barriers/Challenges and Benefits/ Opportunities of e-Government services</td>
</tr>
<tr>
<td></td>
<td>- Gilbert et al. (2004)</td>
</tr>
<tr>
<td></td>
<td>- Hazlett et al. (2003)</td>
</tr>
</tbody>
</table>

2.1 General concepts and development stages of e-Government

2.1.1 e-Government concepts

The concepts of e-Government are slightly different according to the point of views of scholars and international organisations. Chissick & Harrington (2004) state that e-Government is not the meaning of purely using the Internet to access government information or contacting civil servant by email but increasing the efficiency of government through reinventing the relationships between government, citizens, businesses and other parts of government by applying Information Technology (IT). In this context, there has been much literature which explains a variety of concepts of e-Government. [Table 2] shows that several definition and concept of e-Government from other authors and organisations.
[Table 2] Various definitions of e-Government

<table>
<thead>
<tr>
<th>Sources</th>
<th>Definitions/Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heeks (2006)</td>
<td>“office automation and internal management information systems and expert systems, as well as client-facing websites”.</td>
</tr>
<tr>
<td>Roy (2007)</td>
<td>“The continuous innovation in the delivery of services, citizens participation, and governance through the transformation of external and internal relationships by the use of information technology, especially the Internet”</td>
</tr>
<tr>
<td>Shin and Kim (2007)</td>
<td>“The e-Government provides the business and the citizens with high quality service that developing innovation throughout the whole public activity and by transmitting efficient public services with information technology”</td>
</tr>
<tr>
<td>UN (2005)</td>
<td>&quot;the capacity and the willingness of the public sector to deploy ICT for improving knowledge and information in the service of the citizen&quot;</td>
</tr>
<tr>
<td>World Bank (2006)</td>
<td>&quot;the use of information and communications technologies (ICT) to improve the efficiency, effectiveness, transparency and accountability of government&quot;</td>
</tr>
</tbody>
</table>

With regard to above various concepts of e-Government, interestingly, almost authors highlighted the use of Information and Communications Technologies (ICTs) in order to enhance the quality of public services for citizens. Therefore, it can be summarised that the ultimate object of e-Government is the provision of high quality services for citizens by taking advantage of ICTs. However, Ndou (2004) states that the definition in a narrow sense which are only focused on ICTs or the creation of websites and insufficient understanding regarding e-Government concepts can lead to the failure of e-Government projects. In this context, Chutimaskul et al. (2008) also pointed out that e-Government is not merely computer or ICT but a very complicated system with working a variety of components each other in order to satisfy other governmental parts’ needs. Therefore, the broad and various definition of e-Government from a variety of perspectives should be understood in order to complete successful e-Government project. In this context, Ndou (2004) suggests three e-Government application domains which are e-Administration, e-Services and e-Society. [Figure 1] and [Table 3] clearly explains these concepts.
[Table 3] Three e-Government application domains
(Adapted from Ndou, 2004; Guro-gu Office, 2006)

<table>
<thead>
<tr>
<th>Domains</th>
<th>Descriptions</th>
</tr>
</thead>
</table>
| e-Administration | - Automation and computerization of administrative process  
                        e.g. Electronic document system, Knowledge management system, Personnel system. |
| e-Services   | - Automated system to deliver government services to citizens  
                        e.g. Issue certificates, e-Tax, e-procurement |
| e-Society    | - Relationships and interactions between public agencies, citizens and private sector.  
                        e.g. E-mail to Mayor, Cyber Survey, SMS Survey, Cyber Policy Forum |

[Figure 1] e-Government domains (Source : Ndou, 2004)

2.1.2 Development stages of e-Government services
Before arguing how to improve the quality of e-Government services, it seems to be important to survey what kinds of e-services are in the e-Government. In this context, UN report (2003), defines a five-stage of e-Government services which are 1) Emerging Presence, 2) Enhanced Presence, 3) Interactive Presence, 4) Transactional Presence, and 5) Networked Presence. With regard to this concept, Guro-gu Office (2006) clearly presents the examples of e-Government services in each stage [Figure 2].
2.1.3 New trend of e-Government services (Web/Gov2.0 → Web/Gov3.0)

According to Roy’s (2007) definition regarding e-Government, which is the latest concept of e-Government, continuously innovative delivery services and citizens participation were emphasised as main feature of e-government. In this context, Web 2.0 technology can be considered as a solution to develop high quality e-Government services. According to Deloitte Consulting (2010), the main characteristic of Web 2.0 is interactive information sharing, large-scale participation, collaboration and user-oriented design. Good examples of this technology are Wikipedia and blog. Therefore, Web 2.0 technology can provide people with personalized and integrated user-centric services which are innovative, easy-to-use (Deloitte Consulting, 2010). Below [Table 4] well explains main features and differences between Web 1.0 and Web 2.0.

[Table 4] The shift from Web1.0 to Web2.0 (Source: Deloitte Consulting, 2010)
In line with this Web 2.0 trend, e-Government services have been also changed into Gov 2.0 format. Deloitte Consulting (2010) states that Gov 2.0 means to utilise web 2.0 technologies in order to provide more convenient services for citizens through easy interaction and communication with them. Therefore, there are many kinds of benefits in this Gov 2.0, such as 1) time savings, 2) to simplify service delivery, 3) user friendly service, 4) convenient and better information provision and 5) personalisation and innovation. For this reasons, the operating process and format of e-government have been converted into Gov 2.0 style – i.e. more networked, flexible, collaborative transparent and citizen participative style. However, privacy risks still exist in Gov 2.0 (Deloitte Consulting, 2010).

[Table 5] The shift from Gov 1.0 to Gov 2.0 (Source: Deloitte Consulting, 2010)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Government 1.0</th>
<th>Government 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating model</td>
<td>• Hierarchical</td>
<td>• Networked</td>
</tr>
<tr>
<td></td>
<td>• Rigid</td>
<td>• Collaborative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Flexible</td>
</tr>
<tr>
<td>New models of service</td>
<td>• One-size-fits-all</td>
<td>• Personalized</td>
</tr>
<tr>
<td>delivery</td>
<td>• Monopoly</td>
<td>• Choice-based</td>
</tr>
<tr>
<td></td>
<td>• Single channel</td>
<td>• Multi-channel</td>
</tr>
<tr>
<td>Performance-driven</td>
<td>• Input-oriented</td>
<td>• Outcome-driven</td>
</tr>
<tr>
<td></td>
<td>• Closed</td>
<td>• Transparent</td>
</tr>
<tr>
<td>Decision-making</td>
<td>• Spectator</td>
<td>• Participative</td>
</tr>
</tbody>
</table>

### 2.2 Differences between general e-services and e-Government services

A considerable amount of literature has been published on the distinctions between general e-services and e-government services. The general meaning of e-service can be simply defined as “the electronic provision of a service to customers” (Saanen et al., 1999 cited in Buckley, 2003). In addition, Parasuraman et al.’s (2005) study show that general e-services is closely related to e-commerce websites services, such as Amazon and Walmart. With regard to e-Government services, Jun et al. (2009) argue that e-Government services are quite different from the concept of general e-service. This is because 1) e-Government websites provide
citizens with only public services, 2) e-Government websites need more personal information than commercial website, 3) some kinds of e-Government services request the responsibility of citizens, such as tax payment, and 4) some sensitive and important information can be provided for citizens. However, interestingly, Sung et al.’s research (2009) indicates that the different point of view about service quality between e-Government users and administrators concerning e-Government portal website. According to Sung et al.’s (2009) study, website design is the most important factor of e-Government services quality from the e-Government users’ point of view, while reliability is the most important factor of that from the administrators’ point of view. The main reason why there is gap between the point of view of ordinary users (citizens) and that of administrators (civil servants) would seem that users simply have visited website to find information of interest rather than to perform online transaction with government. On the other hand, administrators believe that websites should be integrated system to provide government services for users (Sung et al., 2009).

2.3 Criteria of e-Government service quality

According to Rhee and Rha (2009), the quality of service and the satisfaction of customer have been considered as a very important factor in the public sector since the 1990s. Halaris et al. (2007) also insisted that the quality of service in the public area was a critical issue so many organisations have attempted to self-evaluate or have assessment for their service quality.

Recently, Government websites have played an important role to provide citizens with a variety of e-Government services. Therefore, it can be said that many kinds of evaluation criteria of e-Government websites can be helpful for understanding the criteria of e-Government services quality. These criteria are suggested by Porter Research (2002) and Middleton (2007). [Table 6] introduces various e-Government evaluation factors. However, these evaluation factors appear to be outdated. This is because current websites have many other functions, such as connecting social networking, online participation and Really Simple Syndication (RSS).
### Table 6: Criteria of e-Government evaluation (Porter research, 2002)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>weight</th>
<th>Detailed elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard elements</td>
<td>20%</td>
<td>About Us statement (2%), Publications / Forms (2%), Organisation structure / Who’s in charge (2%), Contact Us / Feedback (2%), News / Press Releases (2%), what’s New (2%), Search (2%), FAQs (2%), Glossary (2%), Help (2%)</td>
</tr>
<tr>
<td>Interaction</td>
<td>10%</td>
<td>Email Response e.g. Within 24 hours (10%), Within 2 Working days (8%), Within 3 Working days (6%), Within 5 Working days (4%), Within 5 Working days (2%), More than 5 Working days (0%)</td>
</tr>
<tr>
<td>Search Engine Registration</td>
<td>5%</td>
<td>Using standard search facilities, such as Google and Yahoo</td>
</tr>
<tr>
<td>Design</td>
<td>15%</td>
<td>Design consistency, unfavorable factors, such as poor quality, font, inappropriate imagery and waste of space on the page</td>
</tr>
<tr>
<td>Navigation</td>
<td>20%</td>
<td>General Navigation (10%), Online Functionality (5%), Content Quality (5%)</td>
</tr>
<tr>
<td>Performance</td>
<td>30%</td>
<td>Browser compatibility (5%), Accessibility (10%), Speed of loading (5%), site errors and warnings (10%)</td>
</tr>
</tbody>
</table>

Interestingly, Middleton’s (2007) research clearly showed the differences between general and e-Government websites evaluation factors. According to Middleton’s (2007) research, broadly, generic website evaluation criteria are focused on functionality, authority, validity, obtainability, relevance and substance. On the other hand, e-Government websites emphasise security / privacy, usability, content, personal participation and other special features.

### Table 7: Summary of e-Government/generic website evaluation categories

(Adapted from Middleton, 2007)

<table>
<thead>
<tr>
<th>e-Government website</th>
<th>Examples</th>
<th>Generic website</th>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security/privacy</td>
<td>Privacy policy</td>
<td>Functionality</td>
<td>Site maps</td>
<td></td>
</tr>
<tr>
<td>Usability</td>
<td>Disability access</td>
<td>Authority</td>
<td>Affiliation</td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Public information</td>
<td>Validity</td>
<td>Referring links</td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>Online registration</td>
<td>Obtainability</td>
<td>Format support</td>
<td></td>
</tr>
<tr>
<td>Citizen participation</td>
<td>Online survey or polls</td>
<td>Relevance</td>
<td>Currency</td>
<td></td>
</tr>
<tr>
<td>Features</td>
<td>Personal Pages</td>
<td>Substance</td>
<td>Evidence</td>
<td></td>
</tr>
</tbody>
</table>
By combining the above both [Table 6] and [Table 7], the criteria and concept of e-Government service quality can be understood. That is, the quality of e-Government services is closely related to a variety of factors, such as usefulness of content, protection privacy, innovation and ease of using services. Below [Table 8] show the evaluation criteria and indicators of some famous survey and ratings agencies.

[Table 8] Good e-Government services criteria of various evaluation organisations

<table>
<thead>
<tr>
<th>Organisations</th>
<th>Criteria/Indicators</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Nations Public Administration Network (UNPAN)</td>
<td>Capacity indicators</td>
<td>* Percent of staff in government institutions with a computer, disaggregated by gender</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of staff in government institutions with Internet access at the office, disaggregated by gender</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of government institutions with websites and/or databases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of government institutions with corporate networks (LAN, intranet, extranet)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of government institutions offering mobile phone technology accessible platforms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of ICT personnel in government institutions, disaggregated by gender</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Number of intrusions and hacking of networks and websites of government institutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of spam messages per total email messages received</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of expenditure on ICT per total expenditure of government institutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of ICT budget spent on institutional capacity-building and human resource development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of government institutions with access to the Internet by type of access (narrowband, fixed broadband, mobile broadband)</td>
</tr>
<tr>
<td></td>
<td>Usage indicators</td>
<td>* Percent of open source software vis-a-vis proprietary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent and type of applications used, e.g. word processing, accounting, data base, website</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Percent of staff in government institutions who are trained on use of ICTs, disaggregated by gender</td>
</tr>
<tr>
<td></td>
<td>Transformation indicators</td>
<td>* Percent of government institutions providing services online and type of services; e.g. retrieval and printing of online forms, use of interactive online forms, online bids, payment of bills, tax filing applications, company registration, car registration, voting, public grievance systems, online feedback</td>
</tr>
</tbody>
</table>
2.4 Influential factors in e-Government services quality

There have been a lot of studies that had tried to identify the main influential factors of e-Government services quality. [Table 9] shows a variety of e-service/e-Government service quality factors. According to the findings from these studies, it can be said that most of the e-Government service quality factors are closely linked to customer expectations and needs, such as service reliability, prompt response and customer service.
### Table 9: Influential factors of e-Government SERVQUAL from the literature

<table>
<thead>
<tr>
<th>Authors</th>
<th>SERVQUAL factors</th>
<th>Descriptions</th>
</tr>
</thead>
</table>
| Agrawal et al. (2008) | Reliability              | • Protecting personal Information and privacy  
• Obtaining right information or services  
• 7 days 24 days availability of on-line services                                                                                             |
|                       | Resourceful              | • Updated and useful information                                                                                                                                 |
|                       | Utility                  | • A variety of services and contact option through single website, Customised according to users’ needs                                      |
|                       | Assurance                | • Transparent all transactions, prompt response,  
• Providing other way to contact to other users (e.g. blog, online discussion)                                                                  |
|                       | Accountability           | • Responsibility for service/system failure  
• Guarantee for financial security                                                                                                                                 |
|                       | Convenience              | • Obtaining timely/reliable information  
• Easy to search and use information                                                                                                                                 |
|                       | Appealing website       | • Good designed website and interfaces                                                                                                          |
| Alanezi et al. (2010) | Web site design         | • Technical functioning and web site appearance                                                                                                                                 |
|                       | Reliability              | • Conducting by the expected time  
• Confidentially providing right products  
• Offering correct rates                                                                                                                              |
|                       | Responsiveness           | • No delay of reply and helpful to citizens                                                                                                                                 |
|                       | Security / privacy       | • Protecting personal information                                                                                                                                 |
|                       | Personalization         | • Various services for specific individual citizen’s needs.                                                                                      |
|                       | Information              | • Right, up-to-date and easy to understand                                                                                                                                 |
|                       | Easy to use             | • easy to use web site and search information                                                                                                                                 |
| Halaris et al. (2007) | Service reliability      | • Consistent e-service delivery  
• Providing the same results  
• Ideally satisfying or exceeding services’ specifications.                                                                                         |
|                       | Personalization         | • Customising pages to individual users’ characteristics or taste                                                                                   |
|                       | Information/content      | • The value of information to the users  
• The quality of the content of information systems                                                                                                   |
|                       | Navigation/ accessibility| • The extent how much easily move between pages  
• The degree how many users can get service from website without modification                                                                       |
|                       | Customer service         | • Technical support to users by a variety of ways, such as e-mail, chat, voice on the web                                                                 |
|                       | Overall evaluation       | • Indicating the extent of citizens’ satisfaction by single number or scale value.                                                                              |
| Chee-wee et al. (2010)| Tangible                | • High technology  
• Visible attraction  
• Appropriate and tidy design  
• Easy to understand                                                                                                                                       |
| Dongsha et al. (2008) | Reliability              | • To complete on time  
• To solve problems  
• One-stop services                                                                                                                                 |


For instance, Rhee and Rha (2009) describe the relationships between public service quality and citizens satisfaction through investigating the characteristics of service quality in the public sector. This study shows that the most important quality of public service can be changed according to the types of customers. For example, as shown [Figure 3], generally, citizen consider the quality of process and final product as the most important quality, on the other hand, intermediary customer such as social welfare centres have a tendency to regard the quality of design and relationship as the most significant quality.

[Figure 3] Quality and satisfaction from two types of customers’ point of view

(Source: Rhee and Rha, 2009)
In addition, Halaris et al. (2010) define the main quality factors of e-Government as process performance, technical performance, site’s quality and customer satisfaction. [Figure 4] clearly show that citizen (user) focus on customer satisfaction and site quality level, such as user interface and usability, while organisation emphasize on back office process and technical performance, such as site reliability and security.

![Quality assessment levels](image)

[Figure 4] Quality assessment levels (Source: Halaris et al., 2010)

2.5 Requirements for high quality e-Government services

2.5.1 Strategies for establishing high quality e-Government service

As discussed before, much literature shows that the key issue concerning high quality e-Government service is to satisfy citizens’ expectation and needs (Bertot et al., 2008; Kim et al., 2005; Willoughby et al., 2008). For example, Papadomichelaki and Mentzas (2009) strongly insist that the most important factor of e-Government services is to provide better services which can satisfy citizens’ needs. In particular, Bertot et al. (2008) emphasise citizen-centred e-Government system which is easy for citizens to use it in order to achieve citizens’ satisfaction. This is because users have tendency not to use a too complex and difficult system and it can leads to system failure (Bertot et al., 2008). In addition, some authors focus on other aspects regarding the requirements for enhanced e-Government services. For example, according to Ancarani (2005), the increasing request for the usefulness, transparency, and efficiency in the quality of service is an important issue in public area.
2.5.2 High quality e-Government model
As shown above literature, the high quality of e-Government services is closely linked to the satisfaction of citizens’ needs and expectations. In this context, Chutimaskul et al. (2008) insist that sustainable e-Government model should be established in order to satisfy citizens’ requirements. For this reason, much literature introduces the successful e-Government quality model which can influence users’ satisfaction. With regard to this, Delone and Mclean (2003) suggested that elements of e-Government quality which are process quality, information quality and service quality [Figure 5].

![Three aspects of e-Government quality](source)

- Process Quality: The quality of work and/or activities under e-Government system. (e.g. functionality, reliability, usability, and efficiency)
- Information Quality: The quality of information relating to government activities. (e.g. accuracy, timeliness, relevance, precision, and completeness)
- Service Quality: The quality of e-Government communication that is effectively used by citizens. (e.g. tangibility, reliability, responsiveness, assurance, and empathy)

[Figure 5] Three aspects of e-Government quality (Source: Chutimaskul et al., 2008)

With regard to this, Gorla et al. (2010) insist that these aspects of qualities directly or indirectly affect organizational positive impact. In addition, Chutimaskul et al.’s (2008) research indicates that citizens’ opinion about the importance of each quality elements for e-Government [Table 10].

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As seen above, it can be said that the recommendable solution to improve and sustain high quality of e-Government services can be found by the analysis of citizens’ expectation and viewpoint of current e-Government services. As a result of this, finally, Chutimaskul et al. (2008) strongly insist that e-Government is not simple information system but sophisticated system which many other components are connected and interact mutually in order to conduct governmental business. That is, the quality of e-government services can be decided by the combination and interaction of a variety of e-Government component such as organisation, human factor, environment, policy and ICT (Chutimaskul et al., 2008). This concept is well expressed by [Figure 6].

[Table 10] Priority of e-Government quality elements from citizen’s point of view (Adapted from Chutimaskul et al., 2008)

<table>
<thead>
<tr>
<th>Order</th>
<th>Process Quality</th>
<th>Information Quality</th>
<th>Service Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Accuracy</td>
<td>Confidentiality</td>
<td>Presentation of information</td>
</tr>
<tr>
<td>2</td>
<td>Maturity</td>
<td>Integrity</td>
<td>Guidance on usability</td>
</tr>
<tr>
<td>3</td>
<td>Compliance</td>
<td>Compliance</td>
<td>Dialogue principles</td>
</tr>
<tr>
<td>4</td>
<td>Security</td>
<td>Availability</td>
<td>User guidance</td>
</tr>
<tr>
<td>5</td>
<td>Operability</td>
<td>Reliability</td>
<td>Command dialogue</td>
</tr>
</tbody>
</table>

[Figure 6] Suggested quality framework of sustainable e-Government development (Source: Chutimaskul et al., 2008)
In addition, Papadomichelaki et al. (2009) also suggest that six categories for the criteria of e-Government service quality [Figure 7].

![Conceptual model for e-Government service quality](source)

[Figure 7] Conceptual model for e-Government service quality (Source: Papadomichelaki et al., 2009)

With regard to this Conceptual model for e-Government service quality, detailed quality factors are well explained by [Table 11]

![Table 11](source)

[Table 11] e-Government quality area and attributes (Source: Papadomichelaki et al., 2009)

<table>
<thead>
<tr>
<th>Authors</th>
<th>SERVQUAL factors</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papadomichelaki et al. (2009)</td>
<td>Ease of Use</td>
<td>- Structure of web site, such as site-map</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Tailored search functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Linking with search engines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ease of remembering URL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Individualising of information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ability of customization</td>
</tr>
<tr>
<td>Trust</td>
<td></td>
<td>- Secure recording personal data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Procedure of acquiring username and password</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Right transaction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Encrypting messages</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Digital Signatures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Access control</td>
</tr>
<tr>
<td>Functionality of the interaction environment.</td>
<td></td>
<td>- Providing on-line help forms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Reusing citizen information to assist the progress of future interaction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Automatic calculation of forms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Adequate response format</td>
</tr>
</tbody>
</table>
### Reliability
- Performing the promised service accurately
- Service delivery at a proper time
- Accessibility of site
- Compatibility of web browser
- Speed of loading and transaction time

### Content & Appearance of Information
- Integrity of data
- Accuracy and conciseness of data
- Relevancy of data
- up to dated information linkage
- Easy to understand
- Interpretable Data
- Graphical design, such as using colours and animations
- Size of web pages

### Citizen Support (Interactivity)
- Providing user friendly guidelines, help pages and FAQs
- Providing the function of transaction tracking
- Offering contact information, problem shooting
- Quickly answering to customer inquiries
- Knowledge/good manners of employees
- Staffs who make trust and confidence

### 2.6 Barriers/Challenges and Benefits/Opportunities of e-Government services

However, Ndou (2004) argues that e-Government should be always considered for the challenges of e-Government, such as 1) Poor ICT infrastructure (e.g. Digital divide, IT facilities), 2) Complicated policy issues (e.g. New rules, Unsuitable standards), 3) Human Resource Management issue (e.g. Experts, Skills, Learning system).

Gilbert et al. (2004) and Ndou (2004) clearly state the obstacles and benefits for maintaining a good quality of e-Government services [Table 12].
[Table 12] Barriers/Challenges and Benefits/Opportunities of e-Government services

<table>
<thead>
<tr>
<th>Literature</th>
<th>Barriers/Challenges</th>
<th>Benefits/Opportunities</th>
</tr>
</thead>
</table>
| Gilbert et al.(2004) | - Confidentiality issue  
- Difficult to use  
- Uninteresting  
- Unreliable  
- Safety issue  
- Web design issue | - Avoiding personal interaction  
- Controlling delivery  
- Convenience  
- Saving cost  
- Personalisation  
- Saving time |
| Ndou (2004)      | - Digital divide  
(ICT infrastructure, digital literacy)  
- Policy issues (rules)  
- Human resource issues  
- Resistance to change  
(Culture, management)  
- Necessity of collaboration and partnerships with private sectors  
- Strategy (vision, mission)  
- Role of leadership (motivation, involvement, influence and support) | - Reducing cost and gaining efficiency  
- Quality of service delivery  
- Transparency  
- Anticorruption  
- Accountability  
- Increasing government performance  
- Creating network and community  
- Improving decision making process quality  
- Promoting use of ICT in other society parts |

In this context, as discussed above, Hazlett and Hill (2003) highlight that although there are much more complex issues, such as cost, currency and accuracy of information in e-Government services, the most important factor in achieving and ensuring high quality e-services is to understand the needs of users and to satisfy with their expectations. In this context, Ndou (2004) emphasises that one of the e-Government opportunities is quality of service delivery to customers. This can be simply summarised by the question that is “Have you solved the right problem and have you helped me solve it well?” (Hoenig, 2001 cited in Hazlett and Hill, 2003). Therefore, it can be said that the factors which are related users’ satisfaction are very important in order to solve the barriers and challenges in managing e-Government quality. This is because users’ dissatisfaction can make present shortcomings worse electronically (Hazlett and Hill, 2003).
2.7 Summary

This chapter has introduced that a variety concepts and background knowledge regarding of e-Government services. One of the significant findings of this chapter is that although the main purpose of e-Government is the delivery of high quality services for satisfying citizens by using ICT (Shin and Kim, 2007; UN, 2005; World Bank, 2006), this concept is changing from generic e-service delivery services to participative user-centric services by using more advanced ICT, such as Web2.0. The common point between general e-services and e-Government is that both are the electronic service delivery by using ICT, while the main different point is that the services’ provider and its attributes are different. For example, general e-services is related to private sectors services, on the other hand, e-Government services are provided from public sectors (Parasuraman et al., 2005; Jun et al., 2009). With regard to the quality criteria of e-Government services, a variety of evaluation elements for e-Government websites and services can be considered as e-Government services quality criteria. As regards many kinds of influential factors for e-Government services quality, Sung et al. (2009) and Halaris et al. (2010) state that the point of view between civil servants and the citizens regarding the importance of quality is different. That is, civil servants more focus on internal process and system integrity, while citizens consider website design and outcome as more important factors. Lastly, with regard to the requirements and model for high quality e-Government services, Chutimaskul et al. (2008) highlight that e-Government is very complex system which is connected with many other parts. In conclusion, it can be said that above all findings suggest that the final destination of all kinds of e-Government service quality factors is closely connected with the satisfaction of citizens’ expectations and needs.
3. Methodology

3.1 Philosophical background

Basically, it can be said that the philosophical background of this research is concerned with positivism. According to O’Leary (2007), the main point of positivism is that all knowledge should be engaged in scientific method. In this context, Saunders et al. (2009) describe that the important characteristics of positivism are that firstly, it is similar to philosophical attitude of the natural scientist, secondly, research resources will be related to facts rather than feeling, lastly, the research approach of this can be objective. So the final product of positivist approach to research is very similar to a kind of principle or standard which is established by natural scientists. The area of e-Government is based on scientific method and technical factors, such as information and communications technologies (ICT). Therefore, it can be said that positivism is closely related to e-Government subject area.

3.2 Research process

The overall structure of this research process is outlined below [Figure 8]

[Figure 8] Overall research process
Basically, the each criteria of this research was established by synthesising the results of previous researches.

As shown above [Figure 8], in this research, two kinds of basic activities, such as literature review and exploring best practices were conducted in order to support high quality e-Government services criteria which were drawn from previous literature. Based on these defined criteria, the core questions of questionnaire were produced. And then, both Internet and paper questionnaire were conducted in order to collect data from civil servants and citizens. Before distributing questionnaire, the questionnaire was pre-tested with my family and some of colleagues in order to increase the reliability and validity of this research instrument. As a final stage, the collected data were analysed and discussed through quantitative and qualitative approach.

### 3.3 Framework for achieving research aims

Next [Figure 9] clearly shows the main activities for achieving the aims of this research. Firstly, in order to understand the concept of e-Government service quality, to review three kinds of literature area and to explore advanced current e-Government websites were performed. Again, as regards the analysis of high quality of e-Government services, three areas of literature and high-ranked e-Government services relating to high quality e-Government services were analysed.

In particular, in line with above basic literature, exploring and analysing superior e-Government websites will be helpful to achieve the aims and object of this research. This is because this website will have real practices of advanced e-Government services. Good practices of e-Government service can be found authoritative survey and ratings agencies [Table 13]. Representative examples of this is that UNPAN and Europe's Information Society has researched for the development of e-Government services and as a result of this, they produced numerous document and reports every year. These organisations or agencies which have own objective evaluation criteria will be able to guarantee and support why these e-Government sites and services are superior. Therefore, it can be said that the high ranked e-Government services on these website are very reliable and useful.
1. General concepts and development stages of e-Gov
   - Chissick & Harrington (2004)
   - Heeks (2006)
   - Roy (2007)
   - Shin and Kim (2007)
   - World Bank (2006)

2. Differences between the concept of general e-services and e-Gov services
   - Alanezi et al. (2010)
   - Ancarani (2005)
   - Buckley (2003)
   - Jun et al. (2009)
   - Landrum et al. (2010)
   - Parasuraman et al. (2005)
   - Rolland & Freeman (2010)
   - Sung et al (2009)

3. Criteria of a good e-Gov services quality
   - Porter Research (2002)
   - Middleton (2007)
   - Jin-fu et al. (2009)

4. Influential factors in e-Gov services quality
   - Agrawal et al. (2008)
   - Alanezi et al. (2010)
   - Chee-wee et al. (2010)
   - Dongsha et al. (2008)
   - Halaris et al. (2007)
   - Papadomichelaki et al. (2009)
   - Rhee & Rha (2009)

5. Requirements for high quality e-Gov services
   - Ancarani (2005)
   - Bertot et al. (2008)
   - Chutimaskul et al. (2008)
   - Gorla et al. (2010)
   - Kim et al. (2005)
   - Papadomichelaki et al. (2009)
   - Willoughby et al. (2010)

6. Barriers and challenges in managing e-Gov services quality
   - Gilbert et al. (2004)
   - Hazlett et al. (2003)

* Exploring advanced e-Gov websites
* Analysing high-ranked e-Gov services

[Figure 9] Framework for achieving research aims
* Exploring and analysing advanced e-Government websites

The area of e-Government has been a rapidly changing and developing according to the remarkable development of ICT. In line with this, recently, a number of organizations have emerged with a view to introducing and sharing good e-Government services of advanced countries. The main activities and roles of each organization are very similar in terms of to discover good practices and to evaluate them. That is, many authoritative survey and ratings agencies, such as United Nations Public Administration Network (UNPAN), World e-Governments Organisation (WeGO) and European Information Society have similar aims which are 1) Information sharing, 2) to discover good practices of e-Governance and to exchange best practices. Therefore, a variety of e-Government services which are introduced as a good practice by several organisations in [Table 13] would be able to well explain the characteristics of advanced e-Government websites. Interestingly, these good practices which are recommended by above organisations show that the e-Government services are closely related to the needs and expectations of citizens. In other words, the main role of e-Government websites is to make citizens’ life more convenient. Therefore, it can be said that the ultimate object of above all things are closely connected with the improvement citizen life through e-Government services.
### Table 13 Organisations for evaluation e-Government services and good practices

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Aims and tasks</th>
<th>Good practices</th>
</tr>
</thead>
</table>
| UK Public Sector Digital Awards 2011 | - To reward outstanding achievement and innovation in the use of technology  
- To help businesses and citizens interact with Government.  
Retrieved from [http://www.ukpublicsectordigitalawards.co.uk/](http://www.ukpublicsectordigitalawards.co.uk/) | - Ealing Help ([www.ealinghelp.org.uk](http://www.ealinghelp.org.uk))  
- Specifically designed website for helping families and carers of children with disabilities |
| Excellence in e-Government Awards in Australian government | - To recognise the most outstanding initiatives in e-Government  
- To promote excellence in the use of ICT  
- To provides tools for creating and maintaining a school websites without cost and complex technical support |
| United Nations Public Administration Network | - To support intergovernmental Processes  
- To research and analysis comparative Policies  
- To share information and to train programmes  
- To provide advisory services  
- An integrated single online service which citizens can easily obtain government information and use a variety of services. |
| World e-Governments Organisation (WeGO) | - To share our knowhow  
- To bridge the digital divide  
- To use ICT to advance public administration  
- To discover good practices of e-Governance  
- To promote exchanges and cooperation  
- To work with international bodies  
- To prevent children kidnap or missing by connecting CCTVs, e-tags and cellular phones |
| Europe's Information Society | - To help researchers, companies and public administrations  
- To work together across Europe to develop the technologies  
- To exchange best practices and construct a coordinated approach  
- To avoid reinventing the wheel 27 times across the EU  
- To learn from each other's successes and failures,  
- To provide citizens necessary information, such as living and working in Austria. |
3.4 Research approach

3.4.1 Deductive and Inductive approach
According to Saunders et al. (2009), deductive approach means testing theory through gathering quantitative data and this approach is closely related to scientific research and positivism. On the other hand, inductive approach is building theory from understanding and observation of empirical and qualitative data. So it can be said that the philosophical background of this inductive approach is more close to interpretivism.

<table>
<thead>
<tr>
<th>Deduction</th>
<th>Induction</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The need to explain causal relationships</td>
<td>- Gaining an understanding of the meanings</td>
</tr>
<tr>
<td>between variables</td>
<td>humans attach to events</td>
</tr>
<tr>
<td>- The collection of quantitative data</td>
<td>- Close understanding of the research context</td>
</tr>
<tr>
<td>- The application of controls to ensure</td>
<td>- The collection of qualitative data</td>
</tr>
<tr>
<td>validity of data</td>
<td>- More flexible structure to permit changes of</td>
</tr>
<tr>
<td>- The operationalization of concepts to ensure</td>
<td>research emphasis as the research progress</td>
</tr>
<tr>
<td>clarity of definition</td>
<td>- Realization that the researcher is part of</td>
</tr>
<tr>
<td>- Highly structured approach</td>
<td>the research process</td>
</tr>
<tr>
<td>- Researcher independence of what is being</td>
<td>- Less concern with need to generalize</td>
</tr>
<tr>
<td>researched</td>
<td></td>
</tr>
<tr>
<td>- The necessity to select sample of sufficient</td>
<td></td>
</tr>
<tr>
<td>size in order to generalise conclusions</td>
<td></td>
</tr>
</tbody>
</table>

The most important objective of this research is to find and maintain high quality of e-government services through using the results of previous researches and current quantitative data by conducting questionnaire. Therefore, it can be said that deductive research approach is more suitable for this research and this approach was chosen as a research approach of this research.

3.4.2 Triangulation
In order to help ensure and strengthen the validity of a research, triangulation method is used. According to Saunders et al. (2009) and Bryman and Bell (2007), triangulation means the use of more than one method or independent source of data in order to cross-check the findings.
Although triangulation method was not directly used in this research, it seems that many open questions in questionnaire of this research could cover the weak points this research investigation method. An example of this is that the presence of ambiguous questions and the omission of a key question were found through the answers of open questions.

3.4.3 Quantitative and Qualitative research

Saunders et al. (2009) and Bryman and Bell (2007) clearly explain the differences between quantitative and qualitative method [Table 15]. Although Bryman and Bell (2007) state all quantitative/qualitative research do not always follow the characteristics of [Table 15], Saunders et al. (2009) insist that the main features of quantitative is to use numeric data by using graphs of statistics, while the characteristic of qualitative is represented for words data through and interview.

[Table 15] Distinctions between quantitative and qualitative
(Source: Saunders et al., 2009 and Bryman and Bell, 2007)

<table>
<thead>
<tr>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Based on meaning derived from number</td>
<td>· Based on meanings expressed through words</td>
</tr>
<tr>
<td>· Collection results in numerical and standardised data</td>
<td>· Collection results in non-standardised data requiring classification into categories</td>
</tr>
<tr>
<td>· Analysis conducted through the use of diagrams and statistics</td>
<td>· Analysis conducted through the use of conceptualisation</td>
</tr>
<tr>
<td>· Point of view researcher</td>
<td>· Points of view of participants</td>
</tr>
<tr>
<td>· Generalisation</td>
<td>· Contextual understanding</td>
</tr>
<tr>
<td>· Deductive approach</td>
<td>· Inductive approach</td>
</tr>
<tr>
<td>· Objectivist</td>
<td>· Constructivist</td>
</tr>
<tr>
<td>· Influenced by positivism</td>
<td>· Influenced by interpretivism</td>
</tr>
</tbody>
</table>

With regard to these two research, the main processes of each research are well summarised by [Figure 10] and [Figure 11]. These two figures show that quantitative research focuses more on analysing data, on the other hand, qualitative research attend more to interpretation of data.
<The process of quantitative research>

[Figure 10] The process of quantitative research (Source: Bryman and Bell, 2007)

[Figure 11] The main steps of qualitative research (Source: Bryman and Bell, 2007)
In this research, although the main data collection method of this research is questionnaire, there are a lot of open questions which can substitute for interview in this questionnaire. Therefore, it can be said that this research used the combination of quantitative and qualitative technique. However, it can be said that this research more focused on quantitative methodology. This is because, as discussed above, e-Government area is more close to scientific and can be well presented by the analysis of numerical data through tables, graphs or charts.

3.5 Data collection technique

3.5.1 Using secondary data
To conduct this research efficiently, a great amount of secondary data based on a variety of literature was used to find answers to the research questions of this research. In addition, questionnaire targeting the citizens and civil servants of the UK and South Korea is performed in order to support findings from secondary data.

Firstly, with regard to secondary data, this research used various precedent studies which are related with this research. Saunders et al. (2009, p.256) define secondary data as already “collected data for some other purpose”. In this context, there are various kinds of secondary data, such as documentary, books, journals and the results of governments’ surveys regarding e-service quality. In this research, much journal article, governmental websites and reports are used to find the factors and criteria of high quality e-Government services. These findings from secondary data were used for designing questionnaire and making questions of it. For example, Sung et al.’s research (2009) identified various factors of e-service quality focused on e-Government and Chutimaskul et al.’s study (2008) also well state the quality framework of e-Government development. These secondary data can be useful to compare the results between this research and other similar cases, and can also discover unexpected new findings (Saunders et al., 2009). Therefore, it can be said that the main advantage of the use of secondary data is that the possible answers of research questions can be found from them without direct investigation.
These secondary data could be obtained through Google scholar, the library’s subject database, such as web of knowledge (WoK), the Association for Computing Machinery (ACM) and Emerald. Therefore, secondary data could make this dissertation more reliable and valuable.

3.5.2 Conducting questionnaire

The questionnaire was designed based on the e-Government service quality framework which is reorganised from related literature review of this research. The question format was both open and closed question. According to Saunders et al. (2009), open question allows respondents to answer in their own way and closed question can make respondents reply limited a limited answer such as multiple choice question. Therefore, the closed question seems to more difficult to answer and analyse than open question.

In order to conduct questionnaire effectively, the students of The University of Sheffield (TUoS), the UK residents who are the parents of Lydgate Junior School, the people of Korea community in Sheffield, and the civil servants of Seoul Metropolitan Government (SMG) and London local governments were chosen as a target population. The main reasons why these groups were chosen as a main target population for this research are, first of all, the requirements and expectations of both citizens and civil servants for e-Government services can be obtained. Especially, the probable ways to improve and maintain high service quality can also be gained from officials who are working public sector. Another reason is that target groups seem to have more chances to use Internet services and background knowledge regarding civil service compared with other people. This is because their social position is student and civil servant.

To distribute and to collect questionnaire for the students of TUoS, the civil servants of the UK and Seoul Metropolitan Government (SMG) were performed by using the Internet survey system (http://www.surveyasp.com/), which is operated by Korea Internet survey provider. The questionnaire of the other groups who were Korea community people, parents, and English Language Teaching Centre (ELTC) students were conducted by paper survey through contacting person to person as researcher could not obtain their e-mail addresses. As regards processing and analysing of collected data, MS Excel software was used, so the results could be presented graphs or charts format which could help everyone understand them more easily.
3.5.3 Comparison online with offline questionnaire

As mentioned above, with regard to conducting questionnaire, the questionnaire survey was conducted by both offline and online survey. The main differences between online and offline survey are well explained by [Table 16].

[Table 16] Advantages and disadvantages of online and offline surveys questionnaire
(Adapted from Bryman and Bell, 2007)

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Online questionnaire</th>
<th>Offline questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits</td>
<td>Low cost</td>
<td>High response rate</td>
</tr>
<tr>
<td></td>
<td>Faster response</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attractive format</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unrestricted geographical coverage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fewer unanswered question</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Better response to open question</td>
<td></td>
</tr>
<tr>
<td>Drawbacks</td>
<td>Low response rate</td>
<td>Relatively high cost due to postal fee</td>
</tr>
<tr>
<td></td>
<td>Restricted to online population</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Requires motivation</td>
<td>Slower feedback</td>
</tr>
<tr>
<td></td>
<td>Confidentiality and anonymity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multiple replies</td>
<td>Missing questions</td>
</tr>
</tbody>
</table>

In this research, above all characteristics were clearly proven. For example, the response rate of paper questionnaire in this research is 100% and it was much higher than that of online questionnaire (20.4%). In addition, with regard to the response rate of open question, only one respondent answered for one open question in paper questionnaire, while 24 respondents (21.4% of total online respondents with 112) wrote their opinions on the text box on the Internet questionnaire.

As regards the drawbacks of online questionnaire, researcher can guess who and what answer for specific questions through checking recipients’ IP address and email open time. This is because most Internet survey website can provide all related information for researcher. Therefore, it can be said that confidentiality and anonymity of online questionnaire are relatively low than that of paper. For example, in this research, the online questionnaire recipients’ log file clearly showed that above all records.
With regard to offline questionnaire, the problem which was found in this research is that the possibility of participants’ mistakes can be much more compared with online questionnaire. For example, two respondents did not carefully read or follow guidance and indicator. As a result of this, they did not answer for pertinent questions or responded for irrelevant questions. On the other hand, online questionnaire automatically can prevent these kinds of participants’ mistakes. In fact, in this research, there was not any mistake of participants in the online questionnaire. Aside from that, an interesting finding of online questionnaire is to provide limited text box which can write under 200 or 300 word count. For instance, one respondent of this research could not fully present his/her opinion due to this text box word limit. [See Appendix 4, answer to question 25]

3.5.4 Distribution and Response rate
The major target group of this research was civil servant and citizens and the questionnaires were mailed 450 SMG civil servants and 99 UK civil servants and 83 Sheffield city councillors. Among them, civil servants and councillors who are related public services account for 92.1% with 632 people of total target population with 686 people. Detailed target group and each response rate are well presented below [Table 17].

<table>
<thead>
<tr>
<th>Distribution method</th>
<th>Target people</th>
<th>Distribution number*</th>
<th>Respondent number</th>
<th>Response rate</th>
<th>Remarks (Others)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>686</td>
<td>140</td>
<td>20.4%</td>
<td></td>
</tr>
<tr>
<td>Online</td>
<td>The UK civil servants &amp; councillors</td>
<td>182</td>
<td>Civil servant: 3 Other: 5</td>
<td>4.3%</td>
<td>employee: 2 other: 3</td>
</tr>
<tr>
<td>Online</td>
<td>Korea civil servant</td>
<td>450</td>
<td>Civil servant: 89 Other: 2</td>
<td>20.2%</td>
<td>housewife: 1 employee: 1</td>
</tr>
<tr>
<td>Online</td>
<td>TUoS Students</td>
<td>24</td>
<td>13</td>
<td>54.2%</td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td>ELTC students</td>
<td>9</td>
<td>9</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Paper</td>
<td>The UK residents &amp; Korean in the UK</td>
<td>21</td>
<td>Civil servant: 9 Other: 10</td>
<td>90.5%</td>
<td>housewife: 5 employee: 4 other: 1</td>
</tr>
</tbody>
</table>

* The UK civil servants (99 people)
* Sheffield City Councillors (83 people)
* Seoul Metropolitan Government civil servant (450 people)
As regards access issues, Saunders et al. (2009) explained that access is “1) the process involved in gaining entry into an organisation to undertake research, 2) the situation where a research participant is willing to share data with a researcher”. In this context, access issues appear to be not serious. This is because researcher had acquaintance with the all target people for this research and they already willingly consented to answer to the questionnaire of this research.

3.5.5 Pilot test

According to Saunders et al. (2009), the main purpose of pilot test is to find the concealed problems in answering the questions and recording data as well as to previously assess the validity of questions and the reliability of data. In this context, to begin with, paper questionnaire in this research was many times pretested with my familiar colleagues before distributing to the target population. And next, collected questionnaire was converted into web based questionnaire. After converting into online questionnaire, many times self-test were also performed in order to avoid missing question and prevent participants’ mistakes. As a result of this, this research could minimise the possibility of respondents’ mistakes in answering and prevent invalid questionnaire. In fact, only two respondents of total 30 collected paper questionnaire made mistake in completing questionnaire.

3.6 Reliability and validity

Bryman and Bell (2007) describe that reliability is related to whether the results of a study can be repeatable or not. In other word, it is concerned with the question of whether the data collection techniques or analysis procedure of a research can produce consistent findings (Saunders et al., 2009). With regard to validity, according to Bryman and Bell (2007), it is connected with the integrity of the results that are concluded from a research and the issue of causality. As regards these two concepts, basically, all factors of this research questionnaire were drawn from previous reliable literature and major target population is also current civil servants who are already aware of e-Government services. In addition, through performing pilot test, invalid collected data could be minimised. Therefore, it can be said that the results of this research have reliability and validity.
3.7 Ethical aspects

According to Bryman and Bell (2007), there are four main areas of ethical principles — i.e. 1) harm to respondents, 2) a lack of informed consent, 3) invasion privacy and 4) involved deception. The all of above are closely related to collecting data from targeting people by using interview or questionnaire. Therefore, it is natural that ethical aspects should be very carefully considered during carrying out research projects. However, these ethical aspects appear not to be important in this research. The reason is that although human participants, such as questionnaire is required for this research project, they are asked merely to give their opinions regarding the experiences and satisfaction of current e-Government service quality. In addition, basically, this research was conducted based on much literature which is related to e-Government service quality and surveying e-Government websites which are acknowledged as the best services. For these reasons, therefore, it can be said that the ethical issue classification of this research would be very low.

3.8 Summary

The philosophical background of this research is related to positivism. This is because e-government area relies on scientific method and technical factors. The overall process of this research consisted of four parts which are 1) literature review, 2) exploring best practices, 3) conducting questionnaire including pilot test, 4) analysing the collected data and discussion. The research approaches which were adapted in this research were both quantitative and qualitative approach. As regards questionnaire, in order to make suitable questions, a considerable amount of secondary data was used. The major target population was civil servant of London and Seoul Metropolitan Government (SMG). In addition, in order to obtain, citizens’ point of view, Sheffield University students and Korean and the UK residents were also chosen as target people. Both Internet and paper questionnaire were used according to target people situation and these two kinds of survey clearly showed the advantages and disadvantages of each method. For example, the response rate of paper questionnaire was much higher than that of Internet. With regard to reliability and validity, basically, the all questions and criterias were based on reliable literature and pretested before distributing. It can be said that there are reliability and validity in this research. Lastly, with regard to ethical issue, this research does not have any relation to privacy and involve any
deception. So the results of this research will not harm to anybody. Therefore, ethical issue would not be important in this research.

4. Findings


Above [Table 8] in chapter 2 clearly showed that the key aims of each evaluation organisations for deciding good e-Government services is 1) to help business and citizens, 2) usability and accessibility, 3) value for money and customer satisfaction, and 4) to provide cost savings and efficient solutions. Good e-government practices above [Table 13] in chapter 3, also show that most e-Government practices would seem to be closely related to citizens’ life. For example, the common points of best practices which were chosen by a variety of organisations are to increase the quality of citizens’ life, such as to help families and carers of children with disabilities and easy access to government information. Good example sites were http://help.gv.at, http://www.ealinghelp.org.uk and http://www.korea.go.kr. Therefore, it can be said that all kind of e-Government quality issues are closely connected with the satisfaction of citizens’ expectations and needs.

4.2 Analysis of questionnaire

The questionnaire of this research consisted of four parts. First part is general questions for participants, such as the place where respondent lives, occupation, gender and age group. Second part is the questions for asking civil servants’ point of view regarding high quality e-Government factors. Third part is the questions regarding citizens’ experiences of using the Internet. And last part is the questions for asking both civil servants’ and citizens’ opinions regarding the criteria of good e-Government services.

All questions were easily explained in order that ordinary people, even children, can understand the meaning of e-government.
4.2.1 General information of respondents

The total number of valid respondents is 140. It account for 20.4% of the total target population with 686. As regards abode, the number of participants in Korea is approximately twice that in the UK. As to gender group, the rate of male respondents with 74 people was 53% of the total respondents with 140 people. On the other hand, that of female was 47%. That is, it can be said that male respondents were slightly more than female respondents. Flowing [Graph 1] and [Graph 2] clearly show this general information of respondents.

[Graph 1]  Where do you live now?  [Graph 2]  What is your gender?

With regard to age group, most of the respondents were over 31 years, which accounts for 82% of the total respondents. Interestingly, under 20 age group was only 1% with 1 people, while over 50 age group (8% with 11 people) was much more than this group.

[Graph 3]  What is your age group?
Below [Graph 4] shows Korean participants’ occupations when they lived in Korea. According to this pie chart, most of the responses were civil servants (47%) and student (33%) before they come to the UK.

[Graph 4] What did you do in Korea before you come to the UK?

Similarly, the results of current occupations of all respondents also demonstrate that the greater part of the respondents are civil servants (72%, 101 people) and students (16%, 22 people). This is because researcher is governments’ sponsored student and he could more easily access his colleagues as a target population than other kinds of occupation.

[Graph 5] What is your current occupation?
With regard to the length of period for civil servants, most of the participants had over 11 years work experience. Under 5 years civil servants were only 15% with 15 people. Interestingly, the longer work period, the greater the response of this survey. It probably could be because the civil servants who have much work experience can be aware of problems and solution concerning e-Government services until now. Below [Graph 6] shows civil servants’ length of period.

![Graph 6] Length of work period as a civil servant

4.2.2 Civil servants’ point of view regarding high quality e-Government factors

This is only civil servants’ point of view concerning important factors to develop high quality of e-Government services. As discussed before, civil servants who were in this research participants had a great amount of work experience and related knowledge regarding e-Government services. Therefore, their opinions concerning barrier/challenge, benefit and influential factors of e-Government services would be very reliable. With respect to the barrier/challenge factors to achieve high quality e-government services, below [Graph 7] clearly illustrates that information security factor, such as the risk of hacking and the difficulties of protecting personal data are the most serious problems. On the other hand, this result shows that digital illiterate was nearly neutral. According to Norris (2001), the most important factor regarding digital divide is whether people can use computer or not. Therefore, it can be said that digital illiterate is closely related to the issues of digital divide.
As for the benefit factors which can be obtained from high quality e-government services, economical elements, such as saving time and money are considered as the most benefit factors. However, it was shown that the avoiding personal interaction is not important compared with other factors. That is, it can be said that people still want to have relationships or communications with other people.

[Graph 7] Barrier/challenge factors to achieve high quality e-government services

[Graph 8] Benefit factors which can be obtained from high quality e-government services
Lastly, as regards influential factors to develop high e-government service quality, almost factors are considered as important factors. In particular, among them, ease of understanding and using services, even children can easily understand how to use e-Government services, are recognised as the most important factors which can influence on improving e-Government services quality. As a result of this, it can be said that people still have difficulties to use computer and the Internet. However, emotional engagement which e-government can provide opportunities to contact for other users through blogs/discussions forums was just over neutral. It may mean that people believe that e-Government does not need to interact with people and all concerns can be dealt automatically without intervention of human.

![Graph 9] Influential factors to develop high e-government service quality

4.2.3 Citizens’ experiences of using the Internet
This chapter will analysis citizens’ patterns of using the Internet in order to find what kinds of e-Government services are preferred by citizens. At the same time, if citizens have never used e-Government services, the reasons why they did not use e-Government services were surveyed. However, the survey targeting civil servants was omitted. This is because recent civil servants have to do always use e-Government website due to doing their own work.
The total number of citizens who have visited the government websites was 69% with 27 people, while 31% with 12 people have never visited the government websites. Below [Graph 10] clearly illustrates the percentage of citizens who have experience of visiting government websites.

![Graph 10] Have you visited government websites? – For citizens

As regards the frequency of visiting the government websites, just over a half of total respondents had visited every few months. On the other hand, the respondents who had visited every day or week were very few.

![Graph 11] How often do you visit the government/city portal websites?

With regard to the extent of difficulty of finding information and/or services on government websites, most of the respondents (78%) answered above average. (it was above average). Interestingly, no one answered that it was very difficult. Therefore, it can be said that current websites are designed so that easy to use.
How difficult do you find information and/or services on government/city portal websites?

The most popular area of e-Government services which citizens used through government websites was childcare and education and it account for 59%. And next was housing/living and Business/Economy of 41% respectively. Interestingly, this result shows that people did not have interest regarding public concerns, such as planning development, environment and art/culture. Therefore, it can be said that people have a tendency to individual issues rather than public issues.

What areas of e-Government services do you use through government websites?
(As many as applicable)
With regard to the kinds of e-Government services which people had used through government websites, information providing service (93%) outweighed the other kinds of services. However, the reporting something and participating in policy making process account for merely 4% and 7% with respectively just one and two people. Therefore, according to this result, in fact, it can be said that current stage of e-Government is still closer to enhanced presence-stage 2 than Networked Presence-stage 5 (UN, 2003).

Another good example is that For example, according to Sung et al. (2009), the main objectives of most users in Taiwan visit government websites is to obtain some information rather than to use online transaction services of government.

![Graph 14](image)

What kinds of e-government services do you use through government websites? (As many as applicable)

Lastly, the reasons why people had not used the government websites seem to be very important issue. [Graph 15] of next page clearly demonstrates many kinds of reason why people did not visit the government websites. According to [Graph 15], the main reason was because the government information may be not useful for citizen (42%). On the other hand, slow feedback account for 17% Therefore, it can be said that more important factor is usefulness rather than speed of reply.
4.2.4 To compare civil servants’ with citizens’ views regarding e-Government services criteria

This chapter as the most major part of this survey will describe that all participants’ point of view regarding the criteria of good e-Government service quality. Firstly, with respect to related barrier/challenge factors, as discussed above the second part, the security concerns, such as eliminating hacking threats and protecting personal data are suggested again as critical factors. The different point compared with above the second part results is that the factors for citizen were more emphasised (from 3.34, 3.25 to 4.29, 4.17). In addition, the most interesting point of this result is that the point of view of citizens and that of civil servants is slightly different each other according to their position. For example, improving current policies and training ICT experts are more important in the perspective of civil servant. On the other hand, supporting citizen and eradicating digital illiterate are much more critical as for citizen.
Secondly, as for related benefit factors, although appearance of this result looks like almost same as the result of above the second part, there are very interesting point in terms of comparing between citizens’ and civil servants’ viewpoint. That is, citizens importantly consider almost all benefit factors, only except avoiding personal interaction factor, as the criteria of good e-Government service quality. However, below [Graph 17] clearly shows that civil servants do not consider as much as citizens do.

[Graph 17] The criteria of good e-Government service quality related Benefit factors
Lastly, with regard to related Influential factors, interestingly, reversely above the second beneficial factors, civil servants importantly consider almost all influential factors, only except usefulness of services factor, as the criteria of good e-Government service quality. In particular, with regard to usefulness, the fact that citizens regard usefulness as very important factor could well explain the main reason why some citizens had never visited the government website. That is, first and foremost, e-Government services have to greatly help to people.

[Graph 18] The criteria of good e-Government service quality related to influential factors

Aside from above factors, compensation for the loss or damage of people resulted from faulty e-Government services or information was relatively low compared with other factors. It would mean that people have a tendency to not believe government websites information.

[Graph 19] Compensation for faulty services or information
In conclusion, this research clearly shows that the differences between the point of view of civil servants and citizens regarding the criteria of high quality of e-Government services exist. To summarize, the results of this comparison civil servants’ and citizens’ perspectives regarding e-Government services criteria demonstrated that civil servants more importantly considered improving current policies, training ICT experts and easily understanding services as a high quality e-Government service criteria than citizens, while citizens much more seriously recognised designing citizen-oriented websites, supporting citizen, anticorruption and saving time. These findings through conducting this questionnaire survey are consistent with those of Halaris et al.’s (2010) who state quality assessment level [Figure 4].

4.2.5 To compare civil servants’ with citizens’ views regarding e-Government services quality Below Graphs clearly show that the point of view between citizens and civil servants regarding current e-Government services quality is significantly different each other. The satisfaction level of Civil servants (54% with 54people of total 101 respondents) is slightly higher than that of citizens. However, interestingly only a few respondents answered that current e-Government services are poor and no one answers to very poor and. That means, it can be said that current e-Government services would seem to be available.

[Graph 20] Civil servants’ point of view [Graph 21] Citizens' point of view
4.3 Summary

To summarise, with regard to general information of this research, the total number of target people was 686 and valid response rate was 20.4% with 140. The major group was civil servants and it accounts for 72% with 101. The results of questionnaire clearly showed that there are apparent differences between civil servants and citizens’ point of view regarding e-Government services criteria and quality. That is, civil servants regard improving current policies, training ICT experts and easily understanding services as more important factors of high quality e-Government services than other elements, while citizens more importantly consider supporting citizens, eliminating digital illiterate and citizen-oriented website. Another interesting finding of this research was that the main reason why citizens visit government website was just to obtain some useful information and why have not visited is that current e-government service is that e-Government services was not useful for them. Finally, with regard to satisfaction with current e-government services quality, there was also difference between civil servants’ and citizens’ point of view. That is, civil servants some more satisfy with current e-Government services quality than citizens. However, almost respondents (civil servants: 98% of 101 people), citizens: 92% of 27 people) answered that satisfaction was above average.

[Graph 22] Comparison civil servants with citizens’ point of view
5. Discussion

5.1 What is the high quality of e-Government services?

As shown [Table 2] in Chapter 2, the definition and basic concept of e-Government has been discussed by many other researchers and organisations. However, it seems that the exact meaning of ‘high quality’ is uncertain for many people. In fact, three respondents questioned what “high quality e-Government services” meaning is. So they suggested that the simple explanation or definition regarding high quality e-Government services’ is required on the questionnaire cover page. In order to find possible answer to this basic question, it seems that firstly, the terms of ‘high quality’ and ‘e-Government’ should be understood respectively and then secondly, it needs to try to combine two meanings. According to Slack et al. (2007), quality means “consistent conformance to customers’ expectations”, and e-Government services means e-services which exist only in public sector. In addition, ‘high’ would mean that all kinds of e-Government services quality factors are satisfied. Therefore, it can be said that high quality e-Government means public e-services which can consistently satisfy citizens’ expectations, needs and civil servants’ requirement.

5.2 What are expectations of citizens for e-Government services quality?

It seems that the expectations of citizens for e-Government services quality are closely related to whether people really need them. For example, an answer to the Question 14 “What kinds of e-government services do you use through government websites?” was “I have not got anything that is needed to contact” and the other answer to the Question 22 “We would like to know your opinion regarding the criteria of good e-government service quality “ was “In my opinion, e-Government can also provide a table or board that shows all the activities or festivals which will be undertaken in a period so that citizens could know what will happen in their city”. That is, it can be said that the expectations of citizens for e-Government services quality is whether the services can satisfy citizens’ needs or not. This research could also find that the biggest reason why people do not visit governmental website. That was “Government information may be not useful for me”. Therefore, it can be said that to develop and to provide useful services and information are very important to satisfy citizens’ expectations.
5.3 What are the barriers of managing quality of e-Government services?

According to previous research ([Table 12] in chapter 2), there are many kinds of barriers of managing e-Government services. Among them, according to the result of questionnaire, the major obstacles were security concerns, such as hacking and protecting personal data. For example, one of responses was “To prevent illegal software and to improve recognising of the risk of private information leaking are required”. Besides, a lack of human resource management, such as training IT experts and facilitating IT education was found as a main obstacle. In this research, many respondents agreed that this issue was one of the most serious problems. For example, one answer was “Even IT companies have difficulties to secure professional developers and engineers. So there are many difficulties for carrying out a development project. Other answer was “a lack of knowledge of civil servants who are working IT sector is serious problem”. The main reason of this may be the indifference of Government and the lack of related policy and budget concerns rather than heavy work load of civil servants. This finding was exactly accord with Heeks’s (2006) opinion. According to Heeks (2006), human resource concerns, such as skills and knowledge are critical factors of e-Government.

5.4 How to manage and control the quality of e-Government services?

The solutions of this question seem to be closely link to how to eliminate the barrier and challengeable factor for high quality of e-Government services. In addition, to consider influential factors and requirements for high quality e-Government services is also required. One of the answers regarding this question is that “The key issue is online transactions - not matter how good your website if the back-end processes are broken the customer will not have a good experience and the take-up of e-services will be low.” In this context, to construct comprehensive information management system and to formulate related policies are required. Owing to a lack of these, the other respondent stated that there were many kinds of serious problems, such as the troubles on the policy making process of superior authorities, miscommunication, frequent change the person in charge and excessively attaching weight to short-term project. This finding is in agreement with Heeks’s (2006) opinion which is more important thing in e-Government is politics rather than technology. Therefore, it can be said that to establish strategy and planning for back office process is also very important factor as the solution to this question.
5.5 What is the best way of managing the quality of e-Government services?

The suitable answer for this question could be found from one respondent’s opinion. That is “In order to maintain sustainable high quality e-government, the collecting and analysing of citizens’ requirements is needed. Central and local government together with citizens should be involved in this task. It seems that unilateral implementing e-Government project is not efficient”. In addition, other respondent describe that “The system or regulation which can accommodate users’ requirements has to be prepared in order to make narrow the different point of view between citizens and system developers”. This finding would seem to strongly support the result of previous Chutimaskul et al.’s (2008) study. Chutimaskul et al.’s (2008) stated that the quality requirement of e-Government services should be citizen-centric as the main participant on the government business is citizens. This result means that civil servants have to concentrate on narrowing the differences between their and citizens’ point of view regarding e-Government services in order to provide better services for their citizens. Aside from that, with regard to this issue, a variety of opinions were suggested as following.

- It seems that dignitaries have to understand e-Government issues and budget issues have to be sorted out previously.
- The treatment for program developers of IT companies and their understanding for e-Government should be improved. In addition, unreasonable reduction for budget should also be done away with.
- According to the paradigm shift toward smart technology, there is a need for changing education from PC-based into smart device. The rapid propagation of smart device leads to the emergence of a new type of digital divide.
- The development of e-government services by using mobile digital map is required in order to increase practicality.

Above combination of findings would be able to provide some solution for the best way of managing the quality of e-Government services.
5.6 Summary

The combination of previous researches and questionnaire results has shown the appropriate answers to main questions of this research. That is, firstly, the quality of e-Government services means that high quality e-Government means the best public e-services which can unchangingly satisfy citizens’ and civil servants’ needs and expectations. Secondly, with regard to citizens’ expectations, this research showed that the most important factor of satisfy citizens’ expectation was usefulness. Thirdly, many respondents answered that the serious obstacles of e-Government services was information security issue and a lack of IT man power. Lastly, as regards the way of managing and controlling e-Government services, the most important thing is citizen-centric approach. This is because main customers of government service are citizens. Therefore, it can be said that the main finding of this research is that the most important e-Government quality issue is closely related to whether e-Government services and satisfy citizens’ expectations and needs. This is closely related to citizen-centred-e-Government concept. According to Bertot et al. (2008), citizen-centered e-Government means that the e-Government knows what citizens’ expectation and needs to e-Government are. That is, the first belief of e-Government services quality is ‘citizen-centred’ (Jin-rong, 2011).
6. Conclusion

6.1 Summary of Work

The ultimate aim of this research is to find the ways of developing and maintaining high quality e-Government services. In order to achieve this main object, this research has surveyed a considerable amount of literature and explored a variety of websites for evaluating e-Government services. In addition, in order to compare and contrast citizens’ point of view and civil servants point of view regarding the factors and criteria of good e-Government services, the questionnaire targeted both civil servants and citizens was performed.

The main findings from literature review are that firstly, the terminological difference between general e-service and e-Government services is who services provider is. Secondly, as for the quality criteria for e-Government services, a variety of evaluation factors for e-Government website can be one of the criteria. In addition, the best e-government practices which were introduced from many evaluation organisations and agencies can also be helpful to decide reasonable quality criteria.

The most obvious and significant finding from this research is that citizens point of view for e-Government service quality and criteria was different from that of civil servants. That is, civil servants focused on back-office process and system reliability, while citizens regard outcomes and usefulness of services as important factor. This finding was very similar to the results of previous research. Another interesting finding from this survey was that civil servants’ satisfaction with current e-Government services was slightly higher than that of citizens. Taken together, the all findings of this research suggest that the most important and unchangeable principle is to meet citizens’ expectation and to satisfy needs. Therefore, an implication of this research is that as a solution to manage and control high quality e-Government services, citizen-centric approach is required.
6.2 Achievement of Research aims

Objective 1: To identify the general concept of e-Government and service quality.

The general concept of e-Government and service quality was identified through surveying a considerable amount of literature review. Much literature states that the general concept of e-Government is the provision citizens with high quality services by using ICTs (Shin and Kim, 2007; UN, 2005; World Bank, 2006). As for service quality, the general meaning of quality is “consistent conformance to customers’ expectations” That is, the concept of quality is closely related to consistently satisfying customers’ expectations. Therefore, it can be said that the first object of this research was clearly achieved through surveying previous researches.

Objective 2: To investigate good practices of e-Government services.

Recommnendable e-government services were regularly introduced by authoritative survey and ratings agencies in [Table 13]. The common points of these practices, such as http://help.gv.at and http://www.ealinghelp.org.uk are closely related to citizens’ life. Through exploring these good practices, it become very clear that the main factors of e-Government services quality and the satisfaction of citizens’ expectations and needs are closely linked each other. Therefore, it can be said that this second object was also, to some extent, achieved.

Objective 3: To compare and contrast the quality between e-Government services.

From citizens’ point of view, there are many kinds of e-government services as follow;

1) To obtain information, such as legislation, news, business/education/travel, etc.
2) To report something, such as illegal act, harmful environment, etc.
3) To appeal, such as petition, complaint, etc.
4) To do financial transaction, such as, online payment, online bidding, etc.
5) To take part in policy making process, such as online discussion forums, questionnaire, etc.

However, this research surveyed only the number of using these services of citizens through questionnaire. For this reason, other important factors, such as users groups, satisfaction level, and suggestions for improvement for each e-Government service could not grasp. Therefore, in order to understand more detailed quality factors concerning a variety of e-government services, further research is required in this area.
**Objective 4: To investigate the requirements of citizens for e-Government services**

This research tried to find various citizens’ requirements through questionnaire. The results of questionnaire showed that citizens consider the provision of useful information, saving time, using anytime / anywhere, easy to understand and quick reply as important factors. In addition, the answer of civil servants regarding benefits and influential factors of high quality e-Government services also showed that civil servants have same viewpoint with citizens’ it. These factors are closely linked to citizens’ expectations and needs for e-Government service. Therefore, it would seem that this second object was also, to some extent, achieved.

**Objective 5: To examine obstacles of managing high quality e-Government services**

The main obstacles of managing high quality e-Government services which were found from literature were security, usability, digital divide, policy and human resource issues. As regard these barrier factors, both citizens and civil servants agreed that security issues, such as hacking threat and leaking personal data were the most serious problem. In addition, the results of questionnaire showed another interesting finding. That is, citizens more focused on usability issues than civil servants, while civil servants considered human resource issues as more important factors than citizens. Therefore, it can be said that this objective was also, in some degree, achieved.

**Objective 6: To discover the best way to develop high e-Government service quality.**

The most suitable answers to this question could be found from the suggestions of questionnaire respondents. According to the answers, the most important thing to develop high e-Government service quality is to collect and analyse citizens’ requirement through working together government and citizens. In addition, many other useful ideas and solutions, such as sufficient budget, better treatment for IT staff, and development mobile solutions are suggested from civil servants. Therefore, it can be said that this last objective was also accomplished.
6.3 Responses to Research Questions (RQ)

**RQ1: What are the differences in quality between general services and e-Government services?**
The terminological difference between general e-service and e-Government services could be found through literature review. That is, the main different point of these two terms is that who is provider (Parasuraman et al., 2005; Jun et al., 2009). Therefore, other quality factors also follow the characteristics of public sector and private sector. That is, e-government services provide citizens with more important and sensitive information data than general e-services. Therefore, it can be said that security issues can be more importantly considered as quality factors in e-Government services.

**RQ2: What factors are related to e-Government services qualities?**
Many kinds of quality factors regarding e-Government services could also be obtained from various previous researches. (See [Table 9], [Table 10], [Table 11] and [Table 12])

**RQ3: What are the criteria of good e-Government service qualities?**
Among above quality factors in the tables of RQ2, the criteria of good e-Government services could be found from the results of questionnaire survey. That is, firstly, with regard to barrier/challenge factors, security issues, such as no hacking risk, protecting personal information are revealed as the most important quality criteria. Secondly, As regards benefit factors, economical elements, such as saving cost and time are regarded as the most significant criteria. Lastly, usability factors, such as easy to use and understand are considered as the most influential factors to develop and maintain high e-government service quality.

**RQ4: What are the expectations regarding quality of citizens for e-Government services?**
Citizens’ expectations are closely linked to citizens’ needs. That is, it can be said that expectation means whether the services can continuously meet citizens’ needs without any change. Although many kinds of expectation factors, such as reliability, speed of reply, usefulness and easy to use are found from much literature, the results of this research attached importance to only usefulness aspect of services. For this reason, further research, to some degree, is required.
RQ5: What are the barriers and challenges in managing quality of e-Government services?

According to both literature review and questionnaire survey, the most serious obstacles in managing e-Government services quality are security issue (This is both civil servants’ and citizens’ point of view), usability issue (This citizens’ point of view) and human resource issue (This is civil servants’ point of view).

RQ6: How should e-Government services be improved and high quality be maintained?

In order to improve current e-government services and maintain high quality, first and foremost, understanding citizens’ expectations through collecting and analysing citizens’ needs and requirements is required. According to the result of this research, there were big differences of point of view on the e-Government service quality factors between civil servants and citizens. Therefore, Government always should consider barrier and influential quality factors according to citizens’ point of view when providing e-Government services. Furthermore, the conjunction of government and citizens have to be considered when collecting and interpreting citizens’ needs.

6.4 Limitations

In this research, some limitations need to be considered. Firstly, it was likely to be difficult for some ordinary citizens to understand basic concept and terminology of e-Government area in questionnaire questions. For example, some respondents answered that they do not have ideas of high quality e-Government services. So explanation page regarding the basic concept of e-Government and services quality should have been prepared together with questionnaire before distributing questionnaire. Another limitation in this research was that the number of respondents of the UK civil servants very extremely small compared with that of Korea. In addition, the number of respondent of citizens was also relatively small compared with that of civil servants. So, it was not possible to compare and contrast the point of view of UK civil servants with that of Korea civil servants concerning their country’s e-Government services quality. In addition, the results of the comparison of civil servants’ viewpoint with citizens’ viewpoint regarding current e-Government services quality and criteria would seem to be unreliable and invalid due to relatively small respondents. Therefore, further data collection is needed to increase the reliability and validity of this research.


6.5 Future research

This research threw many questions in need of further investigation.

Firstly, this study is in need of exploration of a variety of superior e-services of private sector in order to compare and contrast with government sector. This is because private sectors’ e-services reflect more customer-oriented and collaborative approach by using the newest ICT than public sector (Deloitte Consulting, 2010). In order to do this, more research into many other best e-Government services is also required.

Secondly, in order to establish citizen-centric delivery services framework, the measurement of citizen satisfaction is also in need of private sectors approach. A good example is Customer Journey Mapping (CJM) which is similar to mystery shopping. This innovative approach were used for the e-Government services of the Netherlands (European Commission study report, 2010)

Thirdly, to investigate new digital divide issue will also be worth researching. The reason is that although recently, many people can use the Internet due to continuous government efforts to bridge digital divide, rapidly developing ICT always bring unfamiliar digital devices and new digital terminology and, such as smart phone, social tagging and Web 2.0/3.0.

Lastly, to study new ICT trends and applications seems to be necessary. According to Australian Government report (2011). Recently, many advanced countries (e.g. the UK, Australian) begin to establish clouding computing system. Even private sectors (e.g. google and amazon) already started to provide clouding computing services for people. Furthermore Web trend is also rapidly changing from Web 2.0 to Web 3.0, so-called intelligent web. Future research should therefore focus on the other issues and areas which can make current e-Government services more effective and useful in order to satisfy citizens’ expectations and needs.
References


Jin-rong (2011). Study on Citizen-centered E-government Public Service System: IEEE, 139-144


Appendix 1 Questionnaire

Survey Introduction

Hello,

My name is WOJONG LEE. Currently, I am a postgraduate student at the University of Sheffield in the UK. My course is Information Systems Management. This questionnaire is a part of my dissertation for master's degree regarding the way of developing and maintaining high quality e-government services. The findings of this research will greatly help to enhance and improve current e-government service quality.

It will take approximately 5-10 minutes to complete the questionnaire. All provided information and comment will be treated confidentially. If you have any comment concerning this questionnaire, please leave your opinion at the end of this questionnaire.

Thank you very much for your time and support.

<table>
<thead>
<tr>
<th>How to develop high quality e-government services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Where do you live now?</td>
</tr>
<tr>
<td>• The UK</td>
</tr>
<tr>
<td>• Korea</td>
</tr>
<tr>
<td>2. What is your current occupation?</td>
</tr>
<tr>
<td>• Civil Servant</td>
</tr>
<tr>
<td>• Student</td>
</tr>
<tr>
<td>• Housewife</td>
</tr>
<tr>
<td>• Businessman</td>
</tr>
<tr>
<td>• Employee</td>
</tr>
<tr>
<td>• Other</td>
</tr>
</tbody>
</table>

If you are NOT Civil Servant, please go to Question 11. If you are Civil Servant proceed to the next Question.
3. Please indicate your length of period in civil service.

- ☐ < 5 years
- ☐ 6-10 years
- ☐ 11-15 years
- ☐ 16 years +

4. We would like to know your opinion regarding the barrier/challenge factors to achieve high quality e-government services. Please indicate what is your view:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Most problem</th>
<th>Problem</th>
<th>May be problem</th>
<th>Not problem</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital illiterate (e.g., People are not accustomed to using computer)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulties of training ICT experts (e.g., Civil servants do not have time to learn new IT technologies owing to their workload)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulties of protecting personal data (e.g., Personal data can be leaked for other purpose)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Difficulties of managing information (e.g., Information is not quickly updated)</td>
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</tr>
<tr>
<td>Difficulties of supporting citizens (e.g., Problems and complaints are not solved immediately)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Difficulties of designing citizen-oriented websites (e.g., To make user-friendly and easy to use website is very difficult due to the limitation of time and budget)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complicated policies (e.g., New regulations and standards for e-government are not enough)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Risk of hacking (e.g., People are always worried about their financial transactions on the government websites)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. If you have any other opinions about Question 4, please specify below

[Text box for additional comments]
6. We would like to know your opinion regarding the benefit factors which can be obtained from high quality e-government services. Please indicate what is your view:

<table>
<thead>
<tr>
<th>Benefit Factor</th>
<th>Most benefit</th>
<th>Benefit</th>
<th>Maybe benefit</th>
<th>Not benefit</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saving money (e.g., People can get services more cheaply than before)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saving time (e.g., People can get services more quickly than before)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using public services anytime, and anywhere (e.g., People can use public services 24 hours and 7 days regardless of state)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customized services for individuals (e.g., People can use public suitable services for each personal circumstance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfying citizens’ needs (e.g., e-government can provide desired services for citizen)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfying citizens’ expectation (e.g., What citizens want to get from government can be realized more easily)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing capacity of government (e.g., Government can more work efficiently)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transparency (Citizens can clearly know and check the procedure and process of government work)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-corruption (e-government can prevent corruption)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accountability (The responsibility of government for citizens increase)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoiding personal interaction (People can get services without relationship or communication with people)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. If you have any other opinions about Question 6, please specify below

Continue
8. We would like to know your opinion regarding the influential factors to develop high e-government service quality. Please indicate what is your view:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Very important</th>
<th>Important</th>
<th>May be important</th>
<th>Not important</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of using services (e.g., even children can easily use e-government services)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Ease of understanding services (e.g., everyone does not need to question about services)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Usefulness of content (e.g., e-government services greatly help to people)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Responsiveness (e.g., people can get quick and correct response within the expected time)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Integration (e.g., people can use one-click service through a single website)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Emotional Engagement (e.g., e-government provides opportunities to contact other users through blogs/discussions forums)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Assurance (e.g., protecting privacy and financial security during the online transaction can be guaranteed)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

9. If you have any other opinions about Question 8, please specify below:

10. What do you think of current e-government services quality?

<table>
<thead>
<tr>
<th>Rating</th>
<th>Very good</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Very Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Please go to question 18

11. Have you visited government websites?

<table>
<thead>
<tr>
<th>Answer</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

If “No” please go to question 17. If “Yes” proceed to the next question.
### How to develop high quality e-government services

<table>
<thead>
<tr>
<th>12. How often do you visit the government/city portal websites?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Every day</td>
</tr>
<tr>
<td>☐ Almost every day</td>
</tr>
<tr>
<td>☐ Every week</td>
</tr>
<tr>
<td>☐ Every month</td>
</tr>
<tr>
<td>☐ Every few months</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13. How is finding information and/or services on government/city portal websites?</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Very easy</td>
</tr>
<tr>
<td>☐ Easy</td>
</tr>
<tr>
<td>☐ Average</td>
</tr>
<tr>
<td>☐ Difficult</td>
</tr>
<tr>
<td>☐ Very Difficult</td>
</tr>
</tbody>
</table>

### How to develop high quality e-government services

<table>
<thead>
<tr>
<th>14. What kinds of e-government service areas do you use through government websites? (Please tick as many as applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Health/Social care</td>
</tr>
<tr>
<td>☐ Childcare/Education</td>
</tr>
<tr>
<td>☐ Business/Economy</td>
</tr>
<tr>
<td>☐ Tourism/Leisure</td>
</tr>
<tr>
<td>☐ Art/Culture</td>
</tr>
<tr>
<td>☐ Housing/Living</td>
</tr>
<tr>
<td>☐ Environment</td>
</tr>
<tr>
<td>☐ Road/Transport</td>
</tr>
<tr>
<td>☐ Planning Development</td>
</tr>
<tr>
<td>☐ Jobs</td>
</tr>
<tr>
<td>☐ Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. Why do you visit the e-government website? (Please tick as many as applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ To obtain information, such as legislation, news, business, education, travel, etc.</td>
</tr>
<tr>
<td>☐ To report something, such as illegal act, harmful environment, etc.</td>
</tr>
<tr>
<td>☐ To appeal, such as petition, complaint, etc.</td>
</tr>
<tr>
<td>☐ To do financial transaction, such as, online payment, online bidding, etc.</td>
</tr>
<tr>
<td>☐ To take part in policy making process, such as online discussion forums, questionnaire, etc.</td>
</tr>
<tr>
<td>☐ Other</td>
</tr>
</tbody>
</table>

Continue
### How to develop high quality e-government services

<table>
<thead>
<tr>
<th>16. What do you think of current e-government services quality?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
</tr>
<tr>
<td>-----------</td>
</tr>
</tbody>
</table>

Please go to **question 18**

### How to develop high quality e-government services

<table>
<thead>
<tr>
<th>17. Why do not you visit the government website? (Please tick as many as applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not believe information/data on the government website.</td>
</tr>
<tr>
<td>Government information may be not useful for me.</td>
</tr>
<tr>
<td>The way of using may be very difficult.</td>
</tr>
<tr>
<td>I do not want to provide my personal information for website.</td>
</tr>
<tr>
<td>I am not good at using the Internet.</td>
</tr>
<tr>
<td>Quick and correct answers/feedback may be impossible.</td>
</tr>
<tr>
<td>I like better face to face that using computer screen.</td>
</tr>
<tr>
<td>The network speed of the government website is too slow.</td>
</tr>
<tr>
<td>The design and appearance of the government website is poor.</td>
</tr>
<tr>
<td>If you have any other reasons, Please specify</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

Continue
18. We would like to know your opinion regarding the criteria of good e-government service quality. Please indicate what is your view: (Related barrier/challenge factors)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Very important</th>
<th>Important</th>
<th>May be important</th>
<th>Not important</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eradicating digital illiterates (e.g., People can use computers)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Training ICT experts (e.g., Civil servants have to be able to learn new IT technologies)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Protecting personal data (e.g., Personal data must be protected at any cost)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Managing information (e.g., Information has to be quickly updated)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Supporting citizens (e.g., Problems and complaints have to be solved immediately)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Designing citizen-oriented websites (e.g., Website should be user friendly and easy to use)</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Improving current policies for e-government (e.g., New regulations and standards for e-government have to be established)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Eliminating the risk of hacking (e.g., All financial transactions on the government websites have to be secure)</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>○</td>
</tr>
</tbody>
</table>
19. (Continuing) We would like to know your opinion regarding the criteria of good e-government service quality. Please indicate what is your view. (Related Benefactors)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Very important</th>
<th>Important</th>
<th>May be important</th>
<th>Not important</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saving money (e.g., People can get services more cheaply than before)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Saving time (e.g., People can get services more quickly than before)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Using public services anytime, and anywhere (e.g., People can use public services 24 hours and 7 days regardless place)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Customized services for individuals (e.g., People can use public suitable services for each personal circumstance)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Satisfying citizens’ needs (e.g., e-government can provide desired services for citizen)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Satisfying citizens’ expectation (e.g., What citizens want to get from government can be realized more easily)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Increasing capacity of government (e.g., Government can more work efficiently)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Transparency (e.g., Citizens can clearly know and check the procedure and process of government work)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Anticorruption (e.g., e-government can prevent corruption)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Accountability (e.g., The responsibility of government for citizens increase)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Avoiding personal interaction (e.g., People do not need directly communicate with people)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
20. (Continuing) We would like to know your opinion regarding the criteria of good e-government service quality. Please indicate what is your view: (Related Influential factors)

<table>
<thead>
<tr>
<th></th>
<th>Very important</th>
<th>Important</th>
<th>May be important</th>
<th>Not important</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of understanding services (e.g. Everyone does not need to question about services)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Usefulness of services (e.g. e-government services greatly help to people)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Responsiveness (e.g. People can get quick and correct response within the expected time)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Integration (e.g. People can use one-click service through a single website)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Emotional Engagement (e.g. e-government provides opportunities to contact other users through blogs/discussions forums)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

21. (Continuing) We would like to know your opinion regarding the criteria of good e-government service quality. Please indicate what is your view: (Other)

<table>
<thead>
<tr>
<th></th>
<th>Very important</th>
<th>Important</th>
<th>May be important</th>
<th>Not important</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compensation (e.g. Government have to compensate when faulty e-government services or information result in the loss or damage to people)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

22. If you have any other opinions about Question 18-21, Please specify below

[Space for text input]

Continue
**This question is for only Korean people who are currently studying in the UK**

What did you do in Korea before you come to the UK?

1) Civil Servant  2) Student  3) Housewife  4) Businessman  
5) Employee  6) Other
Appendix 2  E-mail to UK civil servants for Internet questionnaire

Dear Officer,
Hello,
May I ask a favor of you?
My name is WOOJONG LEE.
I could find your email on your city website.
I am a civil servant of Seoul Metropolitan government, South Korea as well as a postgraduate student at the University of Sheffield.
Currently, I am surveying regarding the way of developing and maintaining high quality e-government services.
This questionnaire is a part of my dissertation for master's degree.
It will take approximately 5-10 minutes to complete the questionnaire. All provided information and comment will be treated confidentially.
I think, the findings of this research will greatly help to enhance and improve your current e-government service quality.
So, if you have any comment or want to get my completed dissertation, please leave your opinion at the end of this questionnaire or send email to me.
After finishing this research, I will send you my dissertation.
Thank you very much for your time and support.
Please click below my online questionnaire
http://www.surveyasp.com/survey.asp?id=9288432
Yours sincerely,
WOOJONG LEE

Appendix 3  Letter to citizens for paper questionnaire

Dear _____’s parent,
Hello, I am _____’s father.
May I ask a favor of you?
Now I am doing survey related to my dissertation.
My dissertation covers an area of the government internet web services.
I need UK resident’s opinion about UK government internet web services.
Would you complete the questionnaire for my dissertation?
Probably, it will take 5-10 minute.
If you can help me, Please tick below box and then send back to me.
I will send you questionnaire.

Yes  ☐  Sorry  ☐
Appendix 4  Answer list to open questions of questionnaire

< Internet>

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
</table>
| 5        | · The key issue is online transactions - not matter how good your website if the back-end processes are broken the customer will not have a good experience and the take-up of e-services will be low.  
· It seems that dignitaries have to understand e-Government issues and budget issues have to be sorted out previously.  
· The treatment for program developers of IT companies and their understanding for e-Government should be improved. In addition, unreasonable reduction for budget should also be done away with.  
· To prevent illegal software and to improve recognising of the risk of private information leaking are required.  
· The system or regulation which can accommodate users’ requirements has to be prepared in order to make narrow the different point of view between citizens and system developers.  
· It seems that the main reasons why the training of IT experts is difficult are the indifference of Government and the lack of related policy and budget concerns rather than heavy work load of civil servants.  
· Even IT companies have difficulties to secure professional developers and engineers. So there are many difficulties for carrying out a development project.  
· In order to maintain sustainable high quality e-government, the collecting and analysing of citizens’ requirements is needed. Central and local government together with citizens should be involved in this task. It seems that unilateral implementing e-Government project is not efficient.  
· A lack of knowledge of civil servants who are working IT sector is serious problem.  
· The technical system, investment and increasing manpower for preventing from hacking is required. |
A lack of efforts for improving technologies is serious problem.
A lack of comprehensive information management system is serious problem. (e.g. the problems on the policy making process of superior authorities, miscommunication, excessively attaching importance to performance based administration and short-term project, frequent change the person in charge, etc.)
It seems that digital divide issues are more important.

It would be premature to provide customized services for individuals in terms of national digital literate.
The responsibility of corruption and transparency are directly linked to integrity.

The reliability which is based on system stability is required.
The development of e-government services by using mobile digital map is required in order to increase practicality.

What does e-government mean?
Tax payment.

I have not got anything that is needed to contact.

Government sites are extremely variable
Have a calling option, like customer service
In my opinion, e-government can also provide a table or board that shows all the activities or festivals which will be undertaken in a period so that citizens could know what will happen in their city
To compare with private sector may be better.
The governmental investment for e-government system is needed

I am a local government officer, not a civil servant. So I used "employee". Need access to digital media as well as digital literacy. Greater links to social networking.....200 characters not enough
According to the paradigm shift toward smart technology, there is a need for changing education from PC-based into smart device. The rapid propagation of smart device leads to the emergence of a new type of digital divide.

*Italic type letter is SMG civil servants’ answer which is translated Korean into English

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Using statistics</td>
</tr>
</tbody>
</table>