AN INVESTIGATION OF E-GOVERNMENT SERVICES IN CHINA
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ABSTRACT
This objective of this research is to understand the adoption of e-government services in China, especially in the cities of Beijing, Shanghai and Shenzhen. An online survey was conducted to investigate the level of awareness, usage and satisfaction of e-government services in these cities. The survey questionnaire, translated in Chinese, was sent to some 330 participants (110 from each city). The findings show that e-government services in China are not that advanced to address the actual expectations of the communities. There is a general mismatch between what the governments wish to provide online with what the communities see value in. Inadequate promotion, lack of content and the design of the websites are some of the factors that limit the value of the e-Government services. The paper provides suggestions on how the local governments of Beijing, Shanghai and Shenzhen can improve the adoption of e-government services.

Keywords: E-government, Emerging Economies, Information and Communication Technology, China e-government websites, Beijing, Shanghai, Shenzhen.

1. INTRODUCTION
With advancing Internet technologies and infrastructure, various governments around the world have tapped on information and communication technology (ICT) to serve its communities and citizens more efficiently and effectively. E-governments websites or portals provide governments the best opportunities to improve their administrative processes and procedures, to connect to their citizens effectively as well as to build and bond interactions with its societies, businesses and institutions (Heeks, 2008).

However, e-government transformations pose one of the biggest implementation challenges within the ICT-related sectors in terms of its scale and complexity in addition to providing citizens’ and the communities a new service platform (Spremić et al., 2009). In fact, even though there are various frameworks on e-government adoptions, the strategies to develop ICT differ in various types of economies – developing, emerging and transition economies; for instance, in emerging or transition economies, ICT is used to support its growth as a means to reach out to its rapidly growing stakeholders base whilst in more mature economies, it is used to manage and enhance its services for more competitive advantage (Roztocki & Weistroffer, 2009). Roztocki et al. (2007) further advised that measuring the progress of ICT implementation in terms of gauging Internet access maybe reasonable in developed economies but it may not be accurate in developing countries. This is because in developing economies, most people may access Internet through their workplace, public libraries, or internet cafes rather than owing their computers. Likewise, business models proven successful in developed economies may also not transfer readily to developing economies. Instead, various approaches should be used in their adoptions as different economies are likely to accomplish different objectives. Avgerou (2008) reviewed various works of ICT adoptions in developing countries and found two focus areas – using ICT as the
strategic resource for macroeconomic development and advancing the contributions of ICT to improving social services and institutions. In other words, depending on the types of economies, successful ICT adoption is contingent on the differing context in which the e-government is strategized (Shin et al., 2008).

The Networked Readiness Index (NRI) that measures a composite of factors indicates the propensity for nations to exploit ICT may be a guide to understanding why and how some e-government projects are more successful than others (Dutta et al., 2011). Developed by Insead in collaboration with World Economic Forum in 2002, the index assesses the extent to which different economies across the world leverage advances in ICT—and comprises three sub-indices such as (1) the environmental readiness for ICT (in terms of market, political and regulatory and infrastructure), (2) the readiness of the main stakeholders to use ICT (individual, business and government) and (3) the actual usage of ICT among the stakeholders. Not surprisingly, the NRI reports state that there is a general trend that developed economies rank high in their capacity to leverage ICT than least-developed countries because they have the necessary economic and financial resources as well as technical expertise and capabilities. However, it is interesting to note that while the findings support that factors driving networked readiness are similar for all countries, size of the country is not a factor, which contradicts the notion that small economies have a clear advantage when it comes to implementing a digital agenda (ibid, 2011).

2. CONTRIBUTION
This paper makes a contribution to the understanding of the implementation issues of e-government services as well as its adoption challenges in emerging economies. In particular, the paper highlights that e-government adoptions in emerging economies can be more complex compared to those in the developed economies. Thus, such economies should take different strategies, for instance, using a cultural context rather than the broad economic approach as often used by developed economies.

The study provides evidence, that in China, the e-government services are still not well received and indeed present various challenges to its usage. The research suggests that for emerging economies, it is necessary to address systematically the fundamental components rather than present a grand big bang approach especially in the context of building the nation’s ICT. This research is expected to be interesting to scholars who research on the impact of ICT adoptions and government officials who focus on the implementing of e-government services. It may also be interesting to the information systems practitioners who provide the ICT infrastructure and components of e-government services.

3. E-GOVERNMENT IMPLEMENTATION FRAMEWORK
Early e-government concepts were derived mostly as emulation of e-commerce websites but for the public sector. Its development followed the evolutionary e-commerce processes in which the focus was simply the website interface that provides information with little possibilities of interactions and transactions. However, today’s “e-government refers to the use by government agencies to adopt information technologies ... that have the ability to transform relations with citizens, businesses and other arms of government” (Basu, 2004). In other words, to achieve its objectives to transform its relationships with the communities, e-government portals focus on providing more efficient public services to its citizens as well as advancing effective interactions with the business communities with the aim of empowering citizens and businesses through access to government information and transactions.

Bertot and Jaeger (2008), however, advised that to implement a citizen-centered government through e-government services, governments need to understand the expectations of such services in the following areas: (1) assessing the actual information and service needs
of the users; (2) assessing the technological capabilities of the users; for instance, governments cannot assume that a computer and Internet access are sufficient to engage in e-government; (3) assessing the information literacy of the citizens to use e-government services; (4) assessing the government literacy in terms of understanding how users understand the structure of the government; (5) assessing the usability and functionality of the websites, that is, the need to engage in an iterative design process that encompasses user evaluations throughout the service’s development process; (6) assessing accessibility of the systems in terms of its availability and affordability; and finally (7) assessing the consistency between sites and services as well as the content presented. It is noted that failure in any of the areas identified could lead to diminished use of e-government services, worst loss of confidence amongst the citizens which may hamper further developments.

While there are many e-government initiatives around the world, there are still challenges as building e-government services is not a process that can be achieved within a simple step or phase. Indeed, its implementation can well take over a decade as infrastructures must be built, policy issues resolved and interoperability of computer systems established. For instance, Chan et al. (2008) conducted a macro analysis of Singapore’s e-government initiatives that traced back to the early 1980s and identified four components that led to its successful implementations as: (1) building information content, (2) laying the fundamental ICT infrastructure, (3) establishing e-government infrastructure and (4) promoting e-government services. The Singapore government’s concerted efforts in providing its e-government services have been well recognized by the international communities, however, its implementation took a couple of decade as the Singapore government had systematically computerized both the public and private sectors and eventually providing a broadband network for the nation using a planned supply-push and demand-pull framework (Tan & Teo, 1999). In another approach, Layne and Lee (2001) proposed a four stage model of e-government consisting of (1) cataloging, (2) transaction, (3) vertical integration and (4) horizontal integration that was based on their observations of how the developed countries build their e-government portals. The model provides a systematic approach to implementing the multi-perspective transformation beginning with the government structures and functions as they make transitions to e-government for the citizens.

According to AOEMA (Asia Oceania E-Business Marketplace Alliance, 2007), e-government initiatives tend to go through five fundamental phases. The first phase begins with the establishment of the official online presence, and content is somewhat static, not necessarily in response to citizen expectations. The second phase is enhanced where the e-government websites are expanded to include more dynamic information and is regularly updated; there are also downloadable forms, documents and features like site search and e-mail on the web sites. The third phase is interactive when users can download forms, e-mail officials and interact through the web. The portal is also linked to related sites, specialized databases, thus providing online forms submission, user login etc. The fourth phase is transactional when users can pay for services and transactions online, thus providing for email confirmation and acknowledgement receipt. Finally the fifth or integrated phase is when there is full seamless integration of e-services across administrative boundaries.

In fact, even though there are frameworks or steps for implementing e-governments portals or solutions, reports of their success are still patchy (Economists, 2008). Evans & Yeh (2005) found cultural and social adaptations issues impact on the e-government implementations. For instance, Spremić et al. (2009) noted that cultural impediments may hinder the process of e-government adoptions; and that such cultural impediments exist not only in developing but also developed countries as well. In other words, when governments build and deploy e-government services, they need to understand and consider certain
fundamental cultural characteristics of its populations, such as digital literacy, economic status, as well as the status of its digital infrastructure in terms of availability and affordability. Considering that e-governments require heavy investments, this study aims to evaluate whether e-governments have actually provided the benefits as claimed, in delivering better government services to the citizens, improving interactions with businesses, or empowering citizens through access to information or more efficient government.

4. E-GOVERNMENT DEVELOPMENTS IN CHINA

According to a report by In-Focus (2006), China’s central government has established more than 90 governmental portals, and over 10,000 regional and municipal websites, amounting in excess of some US$3.6 billion spent on IT in 2005. Through these investments, China has since overtaken Japan to rank as Asia’s largest online population, second globally only to the United States. We are thus motivated to understand the adoption of e-government services in China, especially in the cities of Beijing, Shanghai and Shenzhen. China is unique in the sense that it can be classified as both an emerging market economy, with a low absolute but fast growing per capita income, and with an administration that is dedicated to economic liberalization (Arnold & Quelch, 1998); or a transitioning economy, that previously had communist style with centrally planned economies, and have recently moved or are in the process of moving to a free market system (Roztocki & Weistroffer, 2008).

Indeed, China is no different from many other governments trying to deploy ICT to reach out to its citizens and communities effectively. With the tremendous speed in economic, social and cultural developments in recent decades, the Chinese government needs to disseminate more information to its communities and citizens. In fact, arising from the rapid economic developments in China’s main cities, its e-government plays a particularly important role in meeting the citizens’ needs. For instance, with increased regulations that need to be updated constantly and disseminated quickly, it is necessary to build e-government services to bring about transparency and openness on such information, for example, in bidding for public projects, informing employment opportunities, updating price index of goods and services. Thus, in terms of improving China’s government transparency and citizen outreach, e-government plays an important role (Li, 2006; Shi, 2007). The electronic space is especially useful for citizens’ outreach, getting feedback from the community, or hearing out complaints and exposing public crimes and bad behaviors. For example, in some cities, the Governor’s Mayor’s mail box has been very successful with feedback and complaints. Some other features like discussion forums and public opinions surveys are also attracting people who wish to express their expectations as well as to connect with government departments. In recent times, the e-government websites offer opportunities for the Chinese citizens to engage in political activities although it is still in its infancy (Li, 2006). Because of the importance of this public interaction with government, it is critical to understand the effectiveness of and level of satisfaction in these e-government services.

China’s central government has put in a lot of resources and effort into supporting its ICT plans; for instance, in 1992, under the direction of the Chinese Communist Party (CCP), the State Council general office initiated the ICT plan to build an office automation system for national administration. A year later, the three ‘Golden Projects’ were launched to establish a sophisticated information network across the country (Ma et al., 2005). Comprising a series of separate information infrastructure initiatives aimed at developing an information economy and promoting administrative capabilities, the ‘golden bridge’ project was aimed at building the fundamental information systems infrastructure of the nation; the ‘golden gate’ project was aimed at developing the backbone electronic interchange system (EDI) for the nation's economic and trading system; whilst the ‘golden card’ project was
aimed at promoting the use of various forms of digital currencies and personal identifications such as credit card, smart ID card and online banking.

In 1999, the ‘Government Online Project’ (GOP) was strategized to focus on ‘administrative reform’ aimed to provide better services to its citizens. The objective was to improve administrative efficiency and effectiveness, so as to expand the economic development and administrative capacity. Thus, setting up government websites would provide the public the chance to acquire information and procure services online quickly and efficiently. Indeed, the development of China’s digital government can be viewed as an approach for its government to reform its mode of management, to optimize the administrative processes, to improve operational efficiency, and to reduce administrative costs (Zhang et al., 2005). As traditional administrative processes are usually department-oriented and can no longer meet the requirements of the modern society, future administrative processes should be customer-oriented, starting from request of services and ending with the delivery of public services. The redesigned processes are supposed to reduce unnecessary overheads and inefficiencies that tend to exist in traditional physical services. Modern digital government should provide reliable, convenient services to citizens anytime anywhere.

The Chinese government identified four key objectives for developing its e-Government websites. The first objective is to provide information online, such as government information, news and events such as the 2008 Olympic Games. In other words, the links to newspaper, journals, government laws, regulation and major public agencies/department websites are important to keep its citizens informed. The second objective is to provide online services; indeed, many government websites have improved significantly in recently years, for example, Beijing e-government provides e-services for filing taxes, applying business licenses and loans, applying for marriage certificates, passport and citizen ID cards. The third objective is to enable transparency and openness and the fourth objective is to reach out to the citizens as well as to enable feedback and comments from the communities.

Considering the rapid development of e-government websites and that the Chinese citizens were encouraged to use them, Shi (2007) did an exploratory study evaluating the accessibility of local government websites. The study revealed that Chinese e-government websites have significant web accessibility problems especially for the disabled users as all surveyed web sites (324) failed in one or more of the W3C (World Wide Web Consortium) accessibility measures. Unfortunately, the web designs have not aimed at maximum inclusion as there were around sixty million people with disabilities in China (ibid 2006). In a different context, Liu et al. (2012) did a study evaluating whether the e-government development in China is ready to adopt contemporary public administration principles using a framework that assesses the government portal websites in terms of their content, function and construction. They found that the websites fit the dimensions of interactions, transparency, efficiency and effectiveness and thus reflect the contemporary public administration principles. However, they found that the functional quality of the websites was not as high as their content quality and web construction quality. They found that China is still focusing on the delivery of news and policies rather than providing online services and that there are shortcomings in terms of transparency of the operations of the government. They suggested that the e-government should put more emphasis on addressing the needs and service requirements of their citizens.

5. **Research Method**

In this study, we selected the government websites of three cities, namely, Beijing, Shanghai and Shenzhen because these cities are considered to have relatively high levels of development in ICT. Located in the north, east and south of the country respectively, these cities have followed very different development paths over the past 20 years. Beijing, the
capital of China, is recognized as the political, educational and cultural center of the country. There are over 12 million people living and working in this city. Beijing is a vital inland transportation hub, connecting dozens of railways, freeways and international flights. The city is fast changing due to rapid economic development. In this environment, e-government has become a useful platform to deal with the enormous information exchanging between public communities and government organizations. Shanghai, on the other hand, is the largest modern city in China with a population of about 20 million people, and is seen as the “window to the world”, leading the way in construction, finance, and communications. With the busiest ports in China, and close proximity to Japan and Korea, Shanghai is often considered the most advanced city in China. With all of the diverse community needs, online governmental service in this city is promoted as a benchmark. Shenzhen is the first of the Special Economic Zone (SEZ) cities, located in Southern China with a population of about 10 million people. It is the provincial capital of Guangdong province, situated north of Hong Kong. Since the late 1970s, Shenzhen has been one of the fastest growing cities in the world, and has been a destination of foreign investment. Shenzhen Government Online was built to serve the rapid increasing population.

To provide the context of the study, the government websites of Beijing, Shanghai and Shenzhen were established in 1998, 2002 and 2006 respectively. All of them have three language versions, simplified Chinese, traditional Chinese and English, so as to reach most people. Because of the different cultures and focus of each government, the websites have different characteristics. Appendix B (Beijing), Appendix C (Shanghai) and Appendix D (Shenzhen) provide the screenshots of the homepages of the respective websites.

Beijing’s e-government provides a comprehensive communication channel for collecting public opinions as there is a program where government officers are invited to explain the policies online and answer questions that the public are concerned with. It is interesting that Beijing e-government also provides information such as folk stories, local food which is very helpful especially for foreigners. For instance, during the Olympic Games in Beijing, there was an introduction of the city of Beijing, including e-services such as flights booking and accommodation/hotel booking. Shanghai’s e-government provides e-services that are closer to the daily activities of its people, e.g. information on water and electricity fees, payment of tax online etc. As the commercial center of China, the e-government services provide investments guide, governmental preferential policy, business consultancy etc. There is also a WAP version for users to access via mobile phone. Although the website provides e-services, the layout of the website is messy and can be confusing. Also, some information is not updated, worse some links are dead. Although Shenzhen’s e-government was established much latter than the other two cities, Beijing and Shanghai, its website is impressive. It has a tidy and clear layout, and the information is well organized, with different types of information color-coded or by title, for example, information are presented in blue and e-services in yellow. As the fastest growing city in China, its e-government provides abundant information for investors and visitors but no e-services for transactions.

Comparing the three e-government websites, Beijing provides the most comprehensive information, and its interactive communication with public appears the best, and the most updated. Shanghai provides the best e-services, as many services could be done online, however, the layout of Shanghai e-government website is a rather messy and the classifications are not very distinct, which can be confusing to users. Shenzhen has the best layout and users can locate information easily. The information is updated; however, the e-service is not very good, since users cannot do online applications on this e-government site. Overall, there are still lot potentials to improve the e-governments in China, especially for most e-services, only downloading of forms is available, and users are still not able to
complete the entire process or transaction online. It is also interesting to note that some of the current e-government websites in China tend to be "propagandistic"; they also tend to provide superficial service, unverified or unscientific content and sometimes the classifications of services are problematic (Zhou, 2005). In fact, various works have shown that in order to ensure that websites are frequently visited; they should provide relevant types of information as well as enhancing its quality of services. In other words, it is essential that websites are designed to be “user-centered” by understanding users’ needs such as analyzing users' preference, explore services with strong practicability, as well as making effort to communicate in order to improve its services.

As each of these cities has different backgrounds, politics, economics, and cultures which are also reflected in the style and positioning of the e-government solutions, we are motivated to understand the e-government services in each of the cities. Thus the objectives of the research are as follows:

To identify the types of online content and services provided for citizens.
To understand the adoption, usage and satisfaction of the e-government services.
To evaluate the problems, which affect the development of government websites.

6. DATA COLLECTION
An online survey was conducted to investigate the objectives of the research. The survey questionnaire was developed based on research conducted by Lee et al. (2006) and it consisted of four components: (1) demographics, (2) awareness of online government services, (3) usage in terms of frequency and duration of visiting the websites, and (4) satisfaction of the online government services.

Translated into Simplified Chinese, the online questionnaire was sent to a total of 330 individuals who live in Beijing, Shanghai and Shenzhen (110 participants in each city). The participants were randomly chosen by the researchers who invited each participant on email to respond to the questionnaire. This survey was conducted over a period of 3 weeks.

As the aim of the research is to understand the services that are provided in the government websites in the different cities - Beijing (www.beijing.gov.cn), Shanghai (www.shanghai.gov.cn) and Shenzhen (www.shenzhen.gov.cn), we reviewed the existing government sites to identify the types of services that were available, how the content was structured as well as to understand the distinctive characteristics of each e-government website. Appendix A provides the types of services that were indicated on the various websites of the cities.

7. FINDINGS AND DISCUSSIONS
Of the 330 participants, 238 responded, providing a response rate of 72 percent. The total 238 responses were as follows: 85 from Beijing, 53 from Shanghai and 100 from Shenzhen, thus giving the response rate as - 77 percent, 48 percent and 91 percent respectively. In terms of the profile of the respondents, 148 (62 percent) are female and 90 males (38 percent). Overall, most respondents (74 percent) are fairly young, between 18-30 years, whilst 24 percent between 31-50 years old. The results show that overall, most respondents (81 percent) have relatively high education with qualifications of undergraduate degree; Shanghai having the highest percentage of degree holders, (90 percent) followed by Shenzhen (88 percent) and Beijing (68 percent). In terms of internet usage, 95 percent of the respondents have been using the internet for over one year, yet 33 percent said that they do not own a computer. The probable reason for high internet usage is perhaps most of them are office workers and therefore they could get access to the internet from their workplace.
Overall most respondents are aware of the government websites (82 percent) with only a small 18 percent not being aware of such websites. Surprisingly, Beijing has the highest respondents who are not aware (34 percent) and 66 percent being aware of e-Government website; whilst Shenzhen has only 5 percent who do not realize there is an e-government website. A possible reason could be that as the launch was only some 6 years ago in 2006, the Shenzhen e-government’s promotion may be effective. Shanghai has some 86 percent of being aware and 14 percent of not being aware of its government website.

In terms of visiting the e-Government websites, overall 80 percent have visited whilst about 20 percent have never visited the websites. We asked the respondents the reasons for not visiting the websites and the results showed 42 percent prefer to use other approaches to get government services, whilst 21 percent said that they do not know the website address the other 21 percent said that they do not know how to use these e-services. Interestingly, some 16 percent said that they do not know what types of services are available. In other words, even though they use the internet, they do not use e-government services, and the plausible reason could be due to the poor design of the website which makes navigation difficult or confusing. We asked the respondents what channels they used to obtain public information, and it is interesting to note that people in Beijing and Shenzhen prefer the internet (see Figure 1), whilst those in Shanghai tend to like the newspaper as well as getting information from formal announcements. The reason for such phenomena is probably because the respondents in Shanghai tend to have more traditional habits. Google search is another channel indicated by the respondents for the option of “Others”. These findings might demonstrate that there is a lack of awareness, which may be countered by organizing workshops, seminars or events, to show the benefits of e-Government websites at a community level (Ndou, 2004).

Figure 1: Channels for Getting Public Information

Figure 2 shows the frequency of the respondents visiting the government websites. Overall, a large majority (65 percent) visit the websites few times a year, whilst 22 percent visit only a few times a month. This result implies that the engagement of e-government in public life is very low. There are two plausible reasons; the first reason is that they realize the website is not always updated; and second is that they are not having much confidence or trust in the online systems.
Overall, only 15 percent of respondents have used e-service over the three years as shown in Figure 3. Considering that the e-government has been developed more than ten years ago, the results show that the public engagement of e-Government is indeed very low. Low accessibility and immature website and system design could be the possible reasons for the low engagement. However, in the last 1-3 years, there appears to be an increased usage of e-government services in Beijing and Shanghai.

Most respondents think the e-government websites are useful, and topping the factors (see Figure 4) include – accessing the services at any time (25 percent), do not have to queue (21 percent), much easier as there are no documents (21 percent). Saving time and high effectiveness are also major reasons for people to consider its usefulness, especially in rapidly developing cities. On the other hand, there are respondents who do not think that the websites are useful giving the following reasons: the website is too complicated, (35 percent), lack of instructions to use the websites (33 percent) and the internet access is not always available. However, there is a still a small proportion who prefer the traditional approach (14 percent). The online government mode is still not so acceptable, and it appears to be reflective of a common problem of government websites in China.
To evaluate the satisfaction of e-Government services, Figure 5 shows that in terms of information searching, "Shenzhen Government Online (SGO)" is the one with the most satisfaction score of “OK” (67 percent), while 71 percent think the Shanghai government website is bad. This result fits well that SGO is simpler in navigating the content than that of Shanghai.

In terms of the friendliness of the website interface, Figure 6 shows that 50 percent of respondents in the three cities are only "OK". It is interesting to note that some 40 percent in Shanghai think that its website has a good interface. On the other hand, 44 percent in Shenzhen consider its interface has a bad website design.
Figure 7 shows that the flow of e-service in Shenzhen and Beijing websites are considered as “OK” with 59 percent and 53 percent respectively. However, the result shows that 49 percent of respondents in Shanghai think its e-government website is bad on processing online services. It indicates that the e-service quality in Shanghai needs to be improved.

In terms of online response speed, as shown in Figure 8, all three websites are comparable and were “OK” with 39 percent from Beijing, 49 percent from Shanghai and 60 percent from Shenzhen.
In terms of the types of e-services, and the satisfaction regarding the services, Table 1 shows the types of e-services of the three cities. The findings show that only few respondents marked “very good” or “very bad” while they evaluated most e-service as “good”, “OK” and “Bad”. Online services of the “Senior citizen portal” had not been marked as “used” at all, which means this service is of little use. Almost the same situation applies for “National Service” – only one vote is selected. The fact that senior citizens and soldiers have very low usage or need to use the internet and therefore the government should not spend too much resources implementing such services. Yet, on the other hand, it may be that the respondents are fairly young working adults, thus such services are not relevant to them currently.

In Beijing, the commonly used sites are education, housing, mailing services and online enquiry. In Shanghai, the popular sites include tax services, social insurance and labour legal issues. In Shenzhen, the popular sites include social insurance, visa service, education and labour laws. Overall, the e-services in all the three government websites are just having an average score of ‘OK’. In fact, it appears that the satisfaction level of both website design and e-service processes is just an "OK".

8. CONCLUSION
This paper contributes to the understanding of the complexity involved in governments’ adoption of ICT to transform and provide more effective services to its stakeholders and citizens. Although there are various frameworks to adopting e-government services, there is no one approach for developing e-government websites. Nevertheless, it is important to understand that the design and development of ICT for public sectors should be different from the private organizations. Further, in emerging or transitional economies, ICT adoptions should take a different perspective and strategy compared to the more mature economies.

It is interesting to note that although the levels of e-government development in China and the developed countries have narrowed, however, this research that presents an analysis of the adoption of e-government services in the cities of Beijing, Shanghai and Shenzhen, confirms the works of Liu et al. (2012) that China still has a long way to go in terms of providing effective digital services to its people. Unfortunately, after almost ten years of nationwide e-government development since 1999, it appears that the websites still show the early rudimentary forms of e-government infrastructure. In other words, its e-government services are still at the initial stage compared to some other developing countries which are also providing e-Government services. For instance, it lacks building the interactions between the government and citizens for the very purpose of what they set out to achieve.
Like many emerging or transition economies adopting ICT, the Chinese government too faces various challenges and issues in adopting e-government services to support its rapid economic growth as well as its growing stakeholders’ and citizens’ expectations. As evidence in more mature economies such as Singapore, success is accorded only after many well co-ordinated and concerted efforts in planning as well as systematic implementations of the national information infrastructure. It must be noted that Singapore’s systematic ICT implementations took many decades. Indeed, there was also the constant nurturing, motivating and incentivizing of its stakeholders, both individuals and organizations, to deploy the e-government services. Although the Chinese government has shown some kind of planning approaches by adopting the three basic principles, such as to support economic growth, to promote transformation of government functions, and to provide transparent services to the citizens and communities, however, its implementation appears short as noted by the various research that investigated its e-government services impact.

A significant barrier that the Chinese government needs to address is to improve its e-government effectiveness by not focusing too much on providing information about political policies but to provide more relevant online information and services. Indeed, it was noted that even with the rise in the numbers of people using e-government services, there are still lots of citizens who are not aware that such websites exist. However, for those who are aware of such e-government services, they do not seem to use the services due to factors such as poor access to the internet, do not own a computer, or do not see the need to go online. In fact, some found it hard to change their traditional views to adopt e-government services. This of course requires the changing of mindset that will take time, especially in terms of the providers who are the government officials as well as more senior citizens who are not computer literate. But the most important factor for the failure to use the websites is the lack of promotion or publicity to educate citizens on how to use e-government services.

Table 1: Types and rating of e-services of Beijing, Shanghai and Shenzhen
(Legend: BJ-Beijing.gov.cn, SH-Shanghai.gov.cn, SZ-Shenzhen.gov.cn)

<table>
<thead>
<tr>
<th>Service item</th>
<th>Amount of participants</th>
<th>VERY Good</th>
<th>Good</th>
<th>OK</th>
<th>Bad</th>
<th>Very Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BJ</td>
<td>SH</td>
<td>SZ</td>
<td>BJ</td>
<td>SH</td>
<td>SZ</td>
</tr>
<tr>
<td>Marriage Registration</td>
<td>2</td>
<td>2</td>
<td>20</td>
<td>2</td>
<td>1</td>
<td>16</td>
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<tr>
<td>Temporary resident registration</td>
<td>1</td>
<td>13</td>
<td>10</td>
<td>1</td>
<td>9</td>
<td>4</td>
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<td>Register permanent residence</td>
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<td>5</td>
<td>20</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Birth registration</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
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<td>17</td>
<td>20</td>
<td>3</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Social Insurance</td>
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<td>1</td>
<td>4</td>
<td>3</td>
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<tr>
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<td>40</td>
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<td>Mailing service</td>
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<td>14</td>
<td>45</td>
<td>10</td>
<td>11</td>
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<td>Senior citizen portal</td>
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<td>Visa service</td>
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<td>1</td>
<td>5</td>
<td>4</td>
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<tr>
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<td>17</td>
<td>20</td>
<td>1</td>
<td>1</td>
<td>8</td>
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</table>

| Total votes                  | 8  | 10 | 5  | 58 | 42 | 95 | 86 | 66 | 216 | 86 | 55 | 67 | 11 | 3  | 12 |

Table 1: Types and rating of e-services of Beijing, Shanghai and Shenzhen
(Legend: BJ-Beijing.gov.cn, SH-Shanghai.gov.cn, SZ-Shenzhen.gov.cn)
Further, with the traditional government systems, which are largely based on the planned economy of the past, government officials tend to hold back further development of e-government due to the problems of overlapping departmental functions, lack of standard procedures, and the complexity involved in the administrative processes, systems and leaderships. In other words, the Chinese government lacks the unified planning approach thus resulting in bottlenecks and poor interconnectivity between e-government systems. To overcome the problems, Peking University and Oracle have jointly launched an e-Government Centre of Excellence (CoE), with the aim to accelerate adoption of information technology, and for fostering greater understanding of e-government. Its main role is to offer ideas and counsel to government committees, workgroups and taskforce, focusing on practical support and solutions, with regards to their vision and strategy.

9. REFERENCES


## Appendix A: Services - provided on Beijing, Shanghai, and Shenzhen Government Websites

<table>
<thead>
<tr>
<th>City/Service</th>
<th>e-governance</th>
<th>e-service</th>
<th>e-knowledge</th>
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| Beijing.gov.cn | 1) Mayor mailbox  
2) Complaint and prosecution  
3) Administrative affair hotline  
4) Online interview video  
5) Survey and idea collection  
6) Email addresses list  
7) Message board | 1) Residence registration  
2) Visa application  
3) Marriage and adoption  
4) Driver license  
5) Small & medium business affairs  
6) Hotline service and online enquiry  
7) Application form downloading | 1) News press release  
2) Legal regulation  
3) Organization responsibility  
4) Financial management  
5) Human resources, crime supervise  
6) Education plan, food quality control  
7) Old story  
8) Special topic reports  
9) Pictures and e-magazine  
10) Site map navigation  
11) Q&A and online enquiry  
12) Quick links and search engine |
| Shanghai.gov.cn | 1) Mayor window  
2) News channel  
3) Government Politics  
4) Economics information  
5) Investment information  
6) Public opinion survey  
7) Public scrutiny information  
8) Public affairs  
9) Q&A (for policy interpretation)  
10) Connected links | 1) Declare damage  
2) Complaint only  
3) Meters check  
4) Online approve on coal business  
5) Agriculture products  
6) Second-hand cars business  
7) Military products  
8) Auction business  
9) Animals slaughter business  
10) Online legal aid  
11) Traveling and tourism  
12) National exam registration  
13) Bill payments | 1) Demographic information, history  
2) Tourist information  
3) Include view-points  
4) Transportation information  
5) Culture  
6) Sports  
7) Public accommodation information  
8) Shopping  
9) Food  
10) House  
11) Transportation  
12) Entertainment ‘live in shanghai’ information |
| Shenzhen.gov.cn | 1) Mayor Information  
2) Leader mail box  
3) Consultation and complaint  
4) Online survey  
5) Public opinion collection  
6) Online interview video and message board  
7) Government branch mail box addresses  
8) Online survey and public opinion collection | 1) Residence registration  
2) Marriage registration  
3) Education and employment  
4) Medical care  
5) Housing  
7) Social insurance  
8) National service  
9) Finance and tax  
10) Business registration & Certificate  
12) Intellectual property issues  
13) Finance and tax  
14) Human resource | 1) Government policy announcements  
2) Government news and gazette  
3) Statute and archives  
4) Human resources  
5) Finance publicity  
6) Special topic reports  
7) User guide  
8) Approach Shenzhen  
9) Investment direction |
Appendix B: Beijing.gov.cn Screen shot
### Appendix C: Shanghai.gov.cn Screen shot

#### Government Services
- **Online Services:**
  - Property Management
  - Construction Management
  - Employment
  - Business Registration
  - Tax Services
  - City Planning
- **Business Information:**
  - Statistics
  - Data Analysis
  - Economic Development
- **Contact Information:**
  - Contact us
  - Feedback

#### City Information
- **News and Events:**
  - Local News
  - Events
- **City Services:**
  - Transportation
  -Health Services
  - Education
- **City Guides:**
  - Tourist Guides
  - Restaurant Guides

#### City Administration
- **Government Structure:**
  - Municipal Government
  - District Governments
- **Regulations:**
  - Environmental Regulations
  - Labor Regulations
- **City Plans:**
  - Urban Development Plans
  - Transportation Plans

#### Economic Development
- **Industry Focus:**
  - Manufacturing
  - Technology
  - Tourism
- **Investment Opportunities:**
  - FDI Opportunities
  - Export Promotion
- **Entrepreneurship:**
  - Startup Support
  - Incubator Programs

#### Public Services
- **Healthcare:**
  - Hospitals
  - Clinics
- **Education:**
  - Schools
  - Universities
- **Culture:**
  - Museums
  - Theaters

#### Legal Information
- **Law Enforcement:**
  - Police Services
  - Crime Reporting
- **Legal Services:**
  - Lawyer Directory
  - Notary Services
- **Courts:**
  - District Courts
  - Supreme Court

#### Transportation
- ** Roads and Infrastructure:**
  - Road Construction
  - Public Transportation
- **Transportation Networks:**
  - Airports
  - Railways
- **Traffic Management:**
  - Traffic Alerts
  - Parking Services

#### Tourism
- **Tourist Attractions:**
  - Historical Sites
  - Natural wonders
- **Tourist Information:**
  - Travel Guides
  - Accommodation
- **Tourist Activities:**
  - Festivals
  - Recreational Activities

#### Agriculture
- **Agricultural Policies:**
  - Farming Programs
  - Agricultural Research
- **Agricultural Products:**
  - Crop Information
  - Livestock Information
- **Agricultural Markets:**
  - Market Prices
  - Trade Agreements

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Appendix D: Shenzhen.gov.cn screen shot