

Electronic Government Development in China

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Abstract

Governments around the world have been realizing the great opportunities and challenges provided by the use of modern information and communication technologies. They have been increasingly exploring new ways of delivering e-government services and interacting with citizens. Although China has been making significant progress in adoption of information technologies for e-government applications, it is still at an initial stage compared with many other countries. It is vital for China to learn from the successful experiences of other countries during the development of e-government. This should include key factors hindering development and corresponding solutions. In this paper, we review international e-government developments and major difficulties which have been encountered with the development of e-government in China. We make suggestions for the future of e-government development in China.

Keywords

Governments, Information Policy

INTRODUCTION

The great opportunities and challenges provided by the internet and the World Wide Web have been recognized by the world. The Chinese government has achieved considerable progress in transforming its functions in order to adapt to the requirements of modern society. In this paper we focus on the content of contemporary literature on E-government including surveys and case studies. We examine the adoption and experiences of e-government in developed countries, find out what has prevented the development of e-government in China and we present concluding observations and advice for the application of IT in e-government.

The paper is organized as following. We begin with an overview of e-government, including the background of e-government, and current applications and performance. We consider global trends emerging in e-government and the major barriers which are restricting the development of e-government. We then consider progress in the development of e-government in a number of key countries which have successful experiences in e-government. Finally, considering the adoption of e-government in China, we investigate the factors which are hindering its development and seek for the corresponding solutions.

AN OVERVIEW OF E-GOVERNMENT

Since the 1990s, the basic outline of an electronic government (e-government) vision has emerged out of the rapid development of information and communication technologies (ICT) which are able to improve efficiency, accessibility, transparency, accountability, and responsiveness in the public sector (Myoung Park 2005). E-government has the potential to provide information and services online and through these lead to an improvement in the relationships between citizens, business and

government agencies. E-government has been rapidly embraced by governments around the world and the drive to implement e-government services can be seen as a global phenomenon.

A logical place to start is by considering the definition of e-government. Many authors have regarded e-government just as a reflection of traditional government in a digital world – i.e. simply the process of moving existing government functions to an electronic platform. Although a variety of definitions of e-government are available, no single definition has been widely accepted within the e-government research literature. Some definitions enumerate the areas of impact on government, others read like task and vision statements. In some research, e-government is simply defined as “the delivery of government service and information electronically 24 hours per day, seven days per week.” (Norris et al.2001). Many of the more recent definitions emphasize an orientation on the needs of citizens, business and agencies, or on the gains in administrative efficiency, or on high service availability such as the use of information technology to support government operations; enhance the access to the delivery of government information and services to citizens, business, agencies, and other entities (Jochen Scholl 2003). It includes all administrative measures to improve the satisfaction of citizens and businesses, and to optimize the processes within the administration to make services more widely accessible.

Categories of E-government

E-government can be categorised into four main groups (Bose, 2004):

1. **Government-to-Citizens (G2C):** provision of public information that is easy to find and utilise; one-stop point-of-service that facilitates citizens’ access to high-quality government services.
2. **Government-to-Business (G2B):** delivery of business services and information that reduces the burden imposed on business by government by eliminating redundant collection of data and better leveraging of e-business technologies for communication.
3. **Government-to-Government (G2G):** supporting all levels of government in meeting reporting requirements and participation as full partners in citizen services by sharing and integrating relevant data, while enabling better performance measurement.
4. **Internal efficiency and effectiveness (IEE):** improved effectiveness and efficiency in administration, eliminating delays in processing and improving public satisfaction.

Critical condition for e-government

A number of critical conditions can be identified for in supporting the development of e-government. These relate to demand orientation of services, organizational, legal and technological conditions (Traunmüller Wimmer 2001):

1. **Demand orientation:** the use of electronic administrative services should be demand-orientated and impact-orientated in order to simplify the contact to government and support simple and fast information procurement and transactions (Wimmer, Traunmüller 2000).
2. **Organizational conditions:** the development of e-government and the redesign of administrative processes and structures must occur together and be appropriately integrated and synchronized (Oberer, 2002).
3. **Legal conditions:** consideration must be given to aspects such as the current definition of laws, standards and protocols for access and use of electronic service by citizens and businesses, regulations about security infrastructure and formulation of an information policy (Oberer, 2002).
4. **Technological conditions:** the appropriateness of current information and communication technologies must be considered.

Applications of IT to e-government

The current application of IT to government services can be divided into three different supply models: information, communication and transaction. The most common e-government application is providing citizens with access to information. This level of support has been widely supported in most countries. Fewer countries will have moved on to a second level bi-directional communication – and where this is supported, it often is limited – including, for example, e-mail functionality for users. Fewer countries still have encompassed full service provision and transactional support. This level of support has largely been limited to the USA, Canada, Australia and members of the European Union – though even in these countries support is still sporadic.

Various corporate reports (e.g. those from Accenture) have considered the level of support for e-government. One of the most detailed (Accenture, 2003) undertook a quantitative assessment of the quality and maturity of services available for both citizens and businesses within 22 nations which had substantial e-government projects. This identified an e-government maturity plateau divided into five stages: Service Transformation, Service Delivery, Service Availability, Basic Capability, and Online Presence. The report identified Canada as the only country having made the first steps toward Service Transformation; America, France, UK, Australia, Germany, Denmark, Hong Kong (China), Belgium, Finland, Ireland, and Singapore are in the second level – Service Delivery; the countries in the Service Availability level are Japan, Italy, Spain, Malaysia, The Netherlands, Norway; and other countries, such as Brazil, Mexico, Portugal, South Africa belong to the Basic Capability stage (Accenture, 2003)

Important global trends

Current literature about e-government, particularly research involving surveys and cases studies of e-government initiatives in those countries with best-practice, illustrates that we have seen significant recent changes in the global development of e-government. Many governments have made successful progress in implementing highly visible e-government services in terms of service maturity breadth, depth and particularly the maturity of CRM (Customer Relationship Management).

1. **E-government matures through a series of plateaus.** The e-government landscape has changed significantly and progress toward e-government maturity can be seen to exhibit a series of development plateaus. The countries which are at the start of each maturity stage make large steps and often rapid development, and the barriers to further progress become apparent and the rate of development slows after each plateau is approached. The average time interval between plateaus is two to three years (Accenture, 2003)
2. **Value drives e-government visions** (Accenture 2003, 2004). Those countries with leading e-government developments will often be found to be considering and re-evaluating their e-government programs - and especially considering how they can be driven by value rather than focusing on getting as many services online and quickly as possible. Unconditional support is being replaced by growing demand for return on investment in terms of greater service effectiveness for their customers and increased internal efficiency.
3. **Identification of the right services** on which to focus. There is an increasing emphasis on consideration of customers' needs and a realisation of the potential benefits which can be achieved by increasing service take-up rather than availability. The more successful e-government initiatives are those which adopt a customer-centric point of view and consider how to continue to increase take-up and deliver online services based on demand of customers instead of brief descriptions of their own organization structures and responsibilities (Accenture, 2003, 2004).
4. **Development of 'one-stop' portals** that integrate online service delivery and collaborate with other relevant commercial services (Holden et al. 2003). Successful e-government projects have a focus on provision of services in a more integrated fashion – often through a

central portal that is a reliable source of accurate, timely and comprehensive information, resources and services. The result is a single point of entry for integrated services, often across multiple government agencies and even combining government services with private-sector offerings which provide for higher potential impact from each interaction with the government.

Countries progress in E-Government

E-government in Canada

Canada has been a consistent leader in the development of e-government services. It has been the only country to have successfully made the first steps towards service transformation within e-government (Accenture 2003, eGovernment Leadership: Engaging the Customer “Canada has placed number one in our ranking of eGovernment maturity and ... it is the only country that has begun the move to the Service Transformation stage of eGovernment”).

Its fundamental e-government principles of clear vision, user involvement, good targets, and departmental and jurisdictional integration have served it well. Key to Canada’s continuing success is the Government On-Line (GOL) strategy, which has adopted a broader service vision focusing on the centrality of the customer and a whole-of-government approach. This strategy has also continued to evolve and adapt over time as more is learnt. The government has: instituted an interdepartmental committee governance structure to promote the shift toward a broader multi-channel service vision; continued to invest in e-government improvements; and actively monitors international trends.

Now the GOL has developed a performance measurement framework for all of its e-government initiatives which includes three main outcomes: citizen/client-centered government; better/more responsive services; and capacity for online service delivery.

E-government in The United States

In recently years, the United States has made good progress in the practices of providing timely and accurate information and the delivery of a variety of leading edge services to citizens and government decision makers whilst ensuring security and privacy through the use of improved information technology. Its e-government vision, which remains as first released in 2001, was updated in April 2003 and focused on “citizen-centered; results-oriented, producing measurable improvements for citizens; and market-based, actively promoting innovation”. The US Federal government has been working on specific initiatives including: expanding and improving the central government portal (www.firstgov.gov – see below); ensuring that it is sufficiently secure to support online transactions between Federal agencies and customers; developing a federal government-wide public key infrastructure; and moving all agencies to a single e-procurement portal (www.FedBizOpps.gov) (Accenture 2004). It is claimed that this has resulted in the delivery of substantial improvements in terms greater savings, better results and improved customer service levels (Executive Office of the President of the United States 2004).

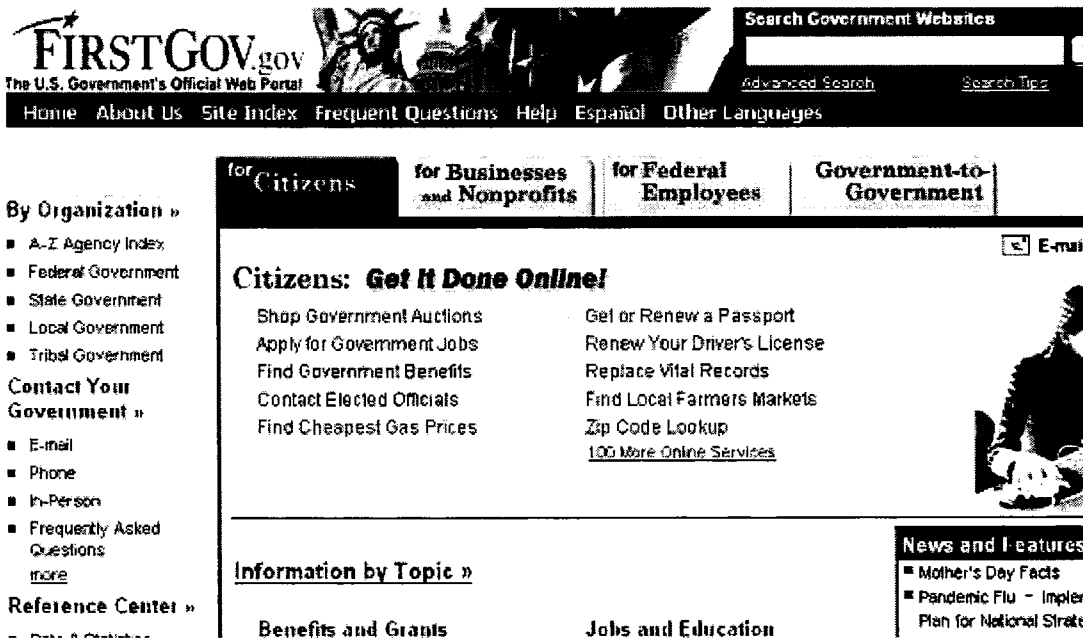


Figure 1: US Government official Web portal - <http://www.firstgov.gov/>

E-government in Singapore

The Singapore government has been one of the most successful in implementing an e-government vision. In this particular case, the vision is to electronically deliver every service that can feasibly be migrated to electronic delivery. The result of current progress is that the Singaporean Government's initiatives have been rated as the second most advanced in the world, equal with that of the US and following only Canada's initiatives (Accenture 2004, eGovernment Leadership: High Performance, Maximum Value "Singapore once again proved its eGovernment prowess, maintaining its number two position (joint with the United States) in the rankings for the fourth year in a row").

In 2003, the Singaporean Government updated its e-government action plan to include a focus on the achievement of three primary outcomes: delighted customers, connected citizens and networked government. To achieve these goals, the government increased the investment to upgrade and develop capabilities in mobile, Web services and portal, wired and wireless network infrastructure; and further improvements to electronic public services (Accenture 2004). In addition, the government provided incentives to encourage the public to transact online and continued to collaborate with private sector companies to encourage greater innovation in the use of ICT to delivery accessible quality e-services.



Figure 2: Singaporean Government Web portal - <http://www.ecitizen.gov.sg/>

General Lessons

Although different countries prioritize in quite different ways their objectives with regard to development of e-government initiatives, we can gain significant insights into governance models which might be most appropriate by considering the leading practices in individual countries. From this we can provide recommendations which guide governments in their efforts in developing an e-government program that streamlines processes and enhance service to customers. (Accenture 2003, eGovernment Leadership: Engaging the Customer)

1. E-government requires clear central leadership that owns the responsibility and the authority in terms of e-government decision making and implementation, and mechanism to coordinate different agencies and explore innovative implementation models for e-government projects (Asian Development Bank 2003).
2. E-government implementation needs a customer-centric vision or strategy which defines value drivers and clear action plans for operations.
3. E-government needs broad combinations of government service with private-sector offering to formed strong public-private sector partnership within e-government implementations.
4. E-government programs need to be supported through sufficient valuable investment in e-government foundations.
5. E-government needs to consider privacy issues, and put in place uniform and systematic processes to ensure information and individual privacy are protected.

E-GOVERNMENT DEVELOPMENT IN CHINA

Current E-government developments

Rapid technological evolution and strenuous economic integration have stimulated China to realize the power of the internet to support enhanced government operations and performance. This includes: reducing tension between the government and the citizens; fostering economic growth; rethinking development strategies that speed up industrialization and simultaneously promote adoption of information technologies. China started research and development of e-government

with the concept of Office Automation (OA), initiated in the 1980s. Initiatives in the early 1990s required that all government offices move online, starting with an information-carrying Web site, and then moving towards more complex and comprehensive interactive services.

The “Three Golden Projects” (the Golden Tax Project, the Golden Customs Project and the Golden Card Project) were launched in 1993 as the country’s first step to building an information technology infrastructure, and subsequently became the roots of e-government in China. In November 2001, China's State Economic and Trade Commission published the "Tenth Five-Year Plan of Industrial Structure Adjustment." One of the six major adjustments was "to promote industrialization by informatization (sic)" (Zhou, 2004).



Figure 3: The website for the Central People’s Government of the People’s Republic of China <http://english.gov.cn/>

In recent years the Chinese government has been working on developing a Government Online Project which incorporates strong support for electronic commerce. Significant progress has been made on this objective. By the end of 2005 the competing state-owned telecommunications providers – China Telecom, China Unicom, China Mobile, China Netcom, JiTong Communications Company, and China Railway Telecom – had built their own networks and more than 49.5 million computers and 111 million people had internet access (The China Internet Network Information Center [CNNIC], 2006). Since joining in the WTO, Chinese Governments at all levels are actively developing plans and policies to improve administrative utilisation of information technologies and develop e-government in order to adapt to the new environment. Government websites have become an important resources for government information. The China Internet Network Information Center (CNNIC) semi-annual report counted 10,260 gov.cn domain names in 2004, with the number increasing to 11,995 in 2005 (The China Internet Network Information Center [CNNIC], 2005,2006).

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Figure 4: Chinese Science and Technology Network <http://www.cstnet.net.cn/>

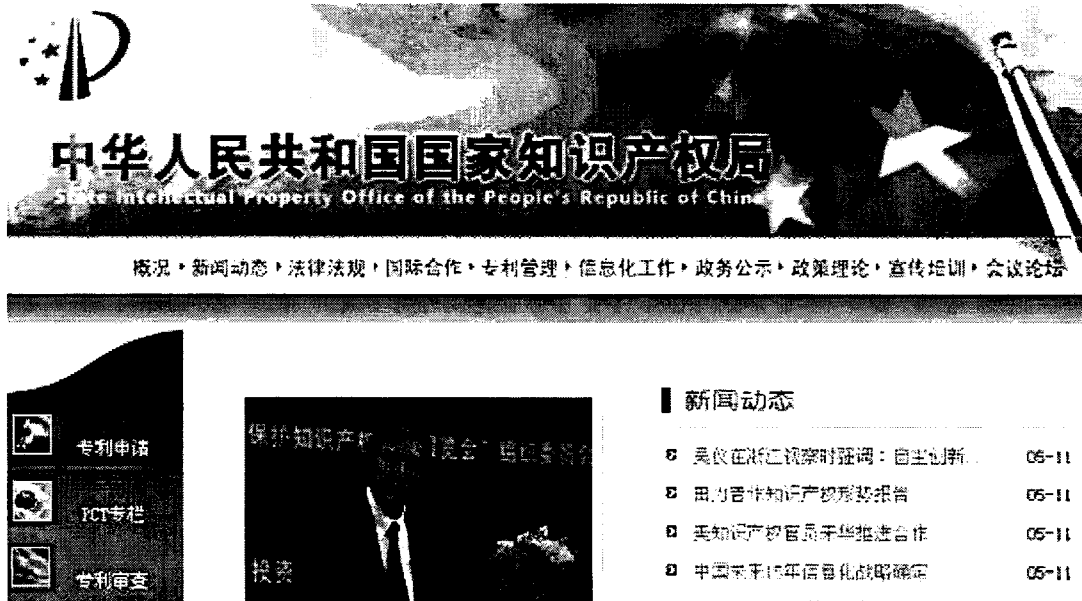


Figure 5: The State Intellectual Property Office of the People's Republic of China (SIPO) <http://www.sipo.gov.cn/sipo/>

Despite the substantial progress, and partly because of the unique circumstances in China compared with other developed countries, the Chinese e-government initiatives are still at a relatively low level. There exist various barriers to the development of e-government in China – such as China’s social system, weak infrastructure construction and individuals’ traditional values and culture.

The traditional administrative operational systems and the traditional views of government officials limit the development of e-government in China. The traditional administrative systems and operational framework have emerged under the influence of the planned economy. As a consequence, there exists problems with e-government development, including: unreasonable institutions; overlap of department functions; complex administration processes; lack of transparency etc. In addition, traditionalist views have become rooted in government officials’

minds for so long that it has often become very difficult for them to change their views within a reasonable timeframe to accept and adopt e-government as a new management model (Li, 2005).

The low level of adoption of information technologies within Chinese society and the slow development of electronic commerce restrict to some extent the development of Chinese e-government. The Chinese government has placed considerable emphasis on adoption of information technologies and the development of e-commerce applications. Further, there has been considerable effort directed towards legislation, policy and financial support. However, when compared with most advanced countries, there is still a very low level of information technology adoption in the broader society, particularly in certain geographic areas. This presents a major barrier and when coupled with other weaknesses, such as with limitations of payment systems and credit systems, becomes a bottleneck which restricts the development of e-commerce systems.

No uniform programming and technology standards in e-government applications. Experiences in some advanced countries has indicated that the development of effective e-government applications requires uniform programming and technology standards. The lack of these elements within Chinese e-government projects is a significant concern, particularly in terms of the creation of applications requiring effective interdepartmental interconnection.

Security has become a key issue impacting on the development of e-government. It is well known that security is a key problem for governments considering the development of e-government applications. Presently the capability in research and development of information technology in China is relatively weak, particularly with regard to security issues. This has obvious detrimental effects on e-government initiatives.

The legislation supporting Chinese e-government lags relatively behind equivalent legislation in many other developed countries. Many advanced countries have already established a series of regulations and laws related to improving their support for e-government, and there is strong evidence that this is a significant prerequisite for e-government success. The Chinese government is yet to substantially address this issue, and needs to formulate more effective legislation and regulations related to e-government, particularly in terms of guiding electronic transactions and e-payment, and to protect the safety of databases (Li, 2005).

Further development of e-government in China: Recommendations

From the review of the development of e-government initiatives both in China and more broadly in successful implementations in other countries, we can identify key points related to further development of e-government in China.

Learning from previous successful experiences in developed countries, and according to the unique condition of China, the Chinese government needs to solve a range of key problems associated with the evolution of e-government. Solving these issues will help create an appropriate environment for progress. Key aspects are outlined in Table 1.

1. China should establish and then continue to evolve long-term strategies to guide and implement e-government according to the principle “useful, practical and helpful”. According to previous successful experiences in developed countries, the process of the construction of e-government is a complex and long-term effort. An effective and efficient strategy focusing on customer centricity and a whole-of-government approach is the key to realising progress in e-government initiatives.
2. China should provide support for speeding up the development of information infrastructure in finance and take effective measures to improve the capability of applying information tools. Government adoption of information technologies is based on social adoption of information technologies and is closely related with enterprise, society and individual adoption of information technologies (Li, 2005). It is clear that improving the level of social

adoption of information technologies is a necessarily base for successful e-government initiatives.

3. China should further investigate effective legislation, regulations and rules to ensure the establishment of a favourable environment for developing e-government initiatives (Li, 2005). They are key prerequisite for e-government success in China - government legislation and regulations will remain critical in determining the direction of development, guiding the electronic transactions, and protecting the safety of information resources.
4. China should reform the traditional mode of the administrative functions, organization and workflows to create a more conducive environment for e-government. A series of administrative reforms are the preconditions of developing e-government, as is consideration of possible co-location of governmental functions.
5. China should establish clearer guidance on the adoption of standardised technologies appropriate for e-government implementation. Uniform technical standards are particularly vital in the development of integrated "one-stop online service" applications, which are partly based on the interconnection between different Government departments (Li, 2005).
6. China should set up effective security management systems to guarantee the successful migration of e-government from policy to technology. Only secure products and technologies can form the basis of appropriate security guarantees for government information. The Chinese government should determine the corresponding security protection systems, publish its security policy for e-government and stipulate appropriate specific security criteria, including software and hardware, systematic safe operation, database copying and restoring (Li, 2005).

Table 1: Key problems to solve in Chinese E-Gov

<i>What to solve or develop</i>	<i>How to solve or develop</i>
Long term strategies	Customer centricity; a whole-of-government
Information infrastructure	Improving social informatization level
Favorable environment	perfect regulation
Health circumstance	Administrative reform
Interconnection between departments	Technology standards
Safe e-gov systems	Security management system

CONCLUSION

Presently, the Chinese government has realized the power of information and communication technologies to drive economic and social change, and achieved great progress in adoption of information technologies. Nevertheless, the development of Chinese e-government initiatives still lags relatively behind many other developed countries. We should learn from successful experiences of other developed countries and use these lessons in supporting the implementation of e-government which is adapted to the particular characteristics of the Chinese context. This includes regarding the development of e-government initiatives as a complex systematic engineering task, and choosing the priority development programs according to the principle "from simple to complex". Additionally, a series of reforms to the current administrative systems is crucial in creating an ideal environment for developing e-government in China.

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