

A Study of Chinese Governments Informatization

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Abstract

Government informatization has gained intense attention in China. After years of development, there have been some achievements, but at the same time, there are still many problems. With a comprehensive analysis on the background of government informatization in China, we expound on the trend of e-government in China, and predict that the trend for government informatization will continue to develop and propose that e-government will be the future direction for government informatization.

Keywords: Government informatization, electronic government, integrated information systems

Introduction

As far as modern governing is concerned, the most important effect of informatization is to break up the traditional physical division of administration by applying information communication technology (ICT), to integrate the process of administration, and to perform the function of the government based on electronic government – in short e-government. The core value of e-government lies in the great transparency and simplicity of connection that promote efficiency of administration and social democratization through the process of interactive communication between the government and the general public, and real-time publication of information. Thus, a comprehensive development of administration will be pushed forward. In the paper we adopt Rogers (2000) definition of informatization which means that we define it as: informatization is the process through which new communication technologies are used as a means for furthering development as a nation becomes more and more an information society. E-government can then be said have a close connection to informatization and we define e-government as referring to the use of ICT to provide and improve government services, transactions and interactions with citizens, businesses, and other parts in the government context.

Within the context of rapid development of both economic and information globalization, the development of government informatization has become one of the major factors that influence a country or a region in the global competition. The reason behind this is that a government is, on the one hand, the largest information possessor; and on the other hand, the largest information user. It can be stated that governments, as the “central node” for the organization of a country and the flow of information, constitutes an

important aspect of informatization and therefore act as a leading factor boosting informatization. In an information society, information has become the most vital strategic resource. Meanwhile, the increasingly evolving ICT has been widely applied in management of governments. Consequently, information and networking will function as the central neurological system for any government in the future. Correspondingly, the running of a government equates with the processing of information. Therefore, the development of government informatization shall be regarded as a transformation of the original government in terms of how they deal with information management in the future.

Informatization Construction in China's Government

The transformation into an informatized government dates back to the 1980's, and achieved a substantial progress in the 1990's. In this respect we have witnessed a remarkable achievement over the past 20 years globally as well as in China. The public information network has covered all the urban and rural areas in China; the "Golden Projects" of state-level electronic information application have been realized one by one and have been put into operation; the ministries and commissions under the State Council and local government at all levels have connected in succession and have begun to perform their functions online. The embryonic form of e-government administration is being formed.

Generally, informatization of Chinese government can be divided into three periods. A timeline over the major initiative of informatization is shown in Figure 1.

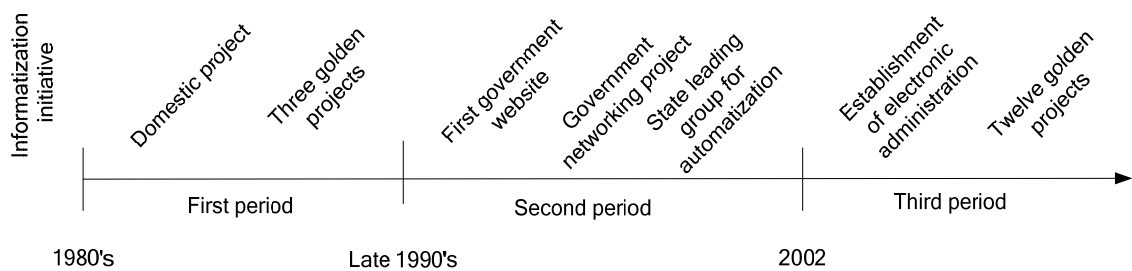


Figure 1 A timeline over major initiative of informatization in China

The **first period** lasted from the mid 1980's to the late 1990's, during which government informatization was in its preliminary phase.

The "Domestic Project" in 1985 was one of the first informatization project in China, aiming at constructing office automatization in the central government and connecting decision-making and administrative information step by step. A special working group, with special staffing and funds, was set up for this project.

In December 1993, the State Council convened the "Joint Conference for National Economic Information", which constituted more than 20 ministries and commissions, as well as representatives from enterprises, and thereafter started the "Three Golden Projects", i.e. the Golden Bridge Project, the Golden Gate Project and the Golden Card Project. These were the components for the systematic program initiated by the central government and characterized by the government informatization. They focused on the construction of infrastructures for informatization to transmit data and information for key industries and departments. All these "huge" information projects, starting with the domestic project, have greatly promoted informatization in related government departments.

When it comes to the “Golden Projects”, the Golden Bridge Project directly serves the state macro-economic control and decision making by setting up a special communications network that connects all provinces, municipalities, more than 400 key cities and dozens of ministries and commissions. It has an impressive capacity for public service.

The Golden Gate Project is an information network aimed at promoting modern management and service in foreign trade and other related fields. Under this project, coding standards for import and export enterprises and for commodities have been formulated and implemented. Various application systems have also been set up, e.g. the administrations systems for quota permission, import and export statistics, export tax return, and a cancel-after-verification system for exchange collecting for export and for exchange payment for import. The Golden Card Project mainly facilitated cross-bank transactions via bank cards. All 12 pilot cities have completed cross-bank networking among ATM machines within the cities. The national electronic banking network handles more than 50,000 transactions every day, with a total monetary amount of 80 to 100 billion RMB and an increase in capital employed for the state by 50 billion RMB per day. Besides banks, intelligent cards have also been widely used in public security, insurance, payment, transportation administration and medical care. In addition, the first part of what is known as the Golden Tax Project was devoted to establishing a computer checking system for special invoice of value-added tax. According to incomplete statistics, since the computer checking system was put into use three years ago, more than 30,000 cases involving fraudulent invoices have been unearthed, with 1.5 trillion RMB retrieved.

The **second period** lasted from the late 1990's to the year 2002. As a result of rapid development of information and internet technology and improvement of information infrastructures, electronic management of state affairs has reached new momentum, unfettered by the traditional constraint of region and departments, directed to interactivity and interconnection. In April 1998, the first real government website in China, Qingdao Public Information for Government Affairs, was set up in Qingdao. In January 1999, more than 40 ministries, commissions, bureaus and offices initiated the Government Networking Project, which initially aimed to complete the network in more than 60% of the ministries and governments at all levels and later raised this figure to 80% by 2000. By May 1999, government domain names registered under gov.cn had increased to 1470. By the end of December 2001, the figure jumped to 5,864, accounting for 4% of the domestic domain names. More than 3,200 government websites have been completed under the World Wide Web and more than 70% of the governments at the municipality level have offered online services. At the same time, the local area network (LAN) among government departments was hugely developed, with a remarkable improvement in the electronic and informatized administration.

The General Office of the Chinese State Council issued the “Announcement on the Further Promotion of the Construction and Application of Office Automatization” in May 2000. In December 2001, the “State Leading Group for Automatization” was set up to strengthen the unified leadership for informatization nationwide which largely accelerated the informatization process for both the government and the society.

The **third period** started 2002, the first year after China was granted WTO membership and also a year that witnessed leaps and bounds in the application of electronic administration in Chinese government. The “Directive Opinions on the Establishment of Electronic Administration in the Tenth Five-year Period Nationwide” was issued to accelerate the construction of a platform for government affairs, to integrate information resources and to achieve a unified platform and a uniform standard. The 2003 work plan for electronic administration centered on the construction of two networks, one website, four databases and twelve golden projects. One website refers to the government portal

site, two networks to the internal and external network for government affairs, four databases to the four databases for population, enterprises with the legal person status, geography and natural resources (Luo et al 2007), and macro economy, and twelve golden projects to the twelve key systems such as the office-work resource system. These key systems can be further divided into three categories. The first are the office-work resource system and the macro economy administration system that are a key to supervision reinforcement, efficiency enhancement and the promotion of public service. The second is the five systems of golden taxation, golden customs, golden finance, financial supervision and golden administrative approval that help to strengthen the government's earning capability and ensure rational public expenditure. The third is the five systems of golden shield, social welfare, golden agriculture (Huang and Zhu, 2008; Wu and Ji, 2008, Xu, Liang and Gao, 2008), golden water resources, and golden quality that guarantee social stability and lay a solid foundation for national economy and social development.

Factors affecting government informatization in China

Although there has been significant progress concerning government informatization in China there have been some problematic issues. Some of the impediments are conceptual while others have newly emerged as a result of implementation. In the following sections we list and describe four categories of problems related to government informatization in China.

Obstacles posed by traditional work processes and lack of planning and uniform standards

The running government administration system and mechanism was formed and established mainly under the planned economy (Feng and Xu 2000). Some problems in this aspect have been solved with the development of a market economy. However, some deep-rooted problems remain unresolved, such as the institutions that were set up improperly, an excessive overlapping in functions of different departments, the complicated procedure of examination of approval, lack of a strict procedure in government affairs and the unreasonable work flow (Warfield 2008). These will all turn out to hamper the government informatization.

Although there are some specific regulations in China, departments differ greatly in terms of a technical standard. If the situation is not properly addressed, interconnectivity can never be accomplished, and it would also result in a great amount of waste. In addition, there are severe divisions between regional and governmental departments, which have produced numerous redundant constructions in the basic network.

Experiencing low level of informatization and differences between regions, urban and rural areas

As far as the current situation is concerned, the reform in the electronic field is far from complete. There is still a long way to go before achieving compatibility of computers, cable TV and telecommunications, which severely influencing the construction of telecommunication infrastructure. The coverage of computers and the telecommunication network is far from enough, and the infrastructures for data communication such as wireless internet, digital TV, and call center are still at the initial stage. Consequently, the overall material and technical condition lags far behind the need for being able to improve government informatization.

China has a vast administrative region, which includes more than 30 provinces, autonomous regions and municipalities, more than 500 cities and more than 230 counties.

There are huge differences among the governments at all levels and each of their departments, among the functions of the various agencies, and among the objects of their service (Fei et al 2000). On the other hand, there is a large disparity among the qualities of life of the Chinese population, with thousands of intellectuals and thousands of illiterates, with 540 million urban dwellers and more than 760 million peasants, with thousands of netizens and still more non-netizens. The majority of Chinese people, due to the inadequacies of their qualities of life, computer skills, economic status and the local ICT facilities, cannot enjoy the benefit of government informatization.

Factors related to the management and legislation of informatization

Government informatization requires and aims at achieving one-stop business handling and online service not constrained by time and place, in addition to the requirement of interactivity between different government branches and the capacity for the bulk of public affairs (van Sinderen, 2008). However, in China the operation of different departments falls into an independent system, with a huge difference in their duties. As a result, it would be quite difficult in China to interconnect government agencies serving different functions, integrate various departments and achieve a one-stop service.

Because government informatization in China started comparatively late, studies on information legislation is still immature, and the construction of a legal system regarding information is still slow. The executive branch has enacted some prohibitive regulations on the administration of the internet, but laws regulating electronic transaction, electronic signature and electronic payment are still to be formulated. Therefore, some blind spots and blanks have seriously hampered informatization in Chinese governments.

Lack of unified administration for implementation purpose and inadequate funding for information infrastructure

In China, institutions, their respective responsibilities, and subordination in the local informatization administration are yet to be further clarified, since they now lack unified planning, deployment and coordination. Many departments conduct constructions and management on their own, without authentication, planning and assessment. A unified standard for technology and security, such as operating system, server, browser, communication protocol and type of database, are absent among departments, and the lack of standard poses a blockade for interconnectivity among various departments.

As the material precondition for informatization, information infrastructures require a large amount of capital annually for construction of information systems as well as development of ICT. Although China has already invested considerably in information infrastructures and therefore gained some achievements, problems such as limited methods for financing and monopoly by government departments have not been eradicated. The accessory projects generally lag behind, while ICT and the network are still to be developed.

Discussing government informatization trends in China

Government's role will be more reasonably oriented with the deepening of institutional reform in the government

In order to better facilitate government informatization and solve problems in the government operation mechanism, we believe that further institutional reform and a more reasonable government re-orientation will become a necessary trend for being able to increase government informatization in China.

Government informatization is not to simply transfer existing frameworks for government management and operation onto the internet, but to carry out necessary modification and reform present government administration, organization and workflow. The key point is to properly handle re-organization and integration of the government organizations, administrative work flow, and information of government affairs. We propose that the reform in the government institutions will be deepened in the following aspects. First, the arrangement of government institutions should be based on the scientific configuration of the government's duty. Second, an effective mechanism should be set up to control the size of the government. Third, new problems brought about by the electronic government should be given ample consideration in the integration of administrative organization. The reform of government institutions should be deepened to serve re-organization and integration of government's organizational structure, through which the operation will better conform to the needs of the development of electronic administration. In terms of re-organization and integration of government's work flow, the traditional administrative work flow, which was formed during a planned economy, should be reformed vigorously, including establishing a unified work standard for all government departments, reforming current systems for administrative examination and approval, and transforming government's administration and service to meet objective requirement of electronic administration as easy, concentrated and efficient. In terms of information resources of government affairs as a whole, the database should be set up and improved, the monopoly on and blackout of information should be eliminated, and the information resources should be integrated and interconnected to facilitate the openness of information resources to the society.

It can also be said that the government's role needs more proper orientation with the deepening of government reform. The proper configuration of the government's duty is both the precondition for effective administration and the basics for the exercise of all kinds of power. We maintain that the orientation of a modern government's role will also come in two folds based on government reform. The first is its fundamental responsibility and a scientific arrangement of departments as well as a reasonable division of power among them, which are closely linked. The second is the three problems to be solved in the guiding ideas: 1) to set up the perception of scientific management and excellent service; 2) to delimit and define the power and responsibility among government departments within the administrative system and to enhance the effectiveness of administration and service; 3) to pay attention to the transformation of the government's duty in the redefinition.

Incessant advancement of standardization and institutionalization of government's affairs, sustainable development of government's informatization and information quality-oriented education

The standardization and institutionalization of government's affairs, which regularize the information processing in a specific government, will become another trend for government informatization.

Government networking, whose ultimate aim is to develop and utilize information resources, is a key link in the informatization of the entire society and a long-term continuous process. It involves mobilizing the sources of information, sending valuable information online and setting up a scientific and rational operating mechanism for the government websites. We suggest that, to achieve this goal, governments should take the initiative to transform internal management using ICT, and put some of the administrative procedures online, as well as raise the informatization level for society-oriented

administration and service gradually. This will consequently result in the rise of the popularity of modern technology among enterprises and the general public.

Moreover, people, particularly civil servants, are the determinant for the success of government informatization. Therefore, we think that the cultivation of the civil servants' quality should be stressed to boost sustainable development of government informatization and quality-oriented information education. Meanwhile, the government should widely implement education on information technology and information capability, set up and perfect the training system for informatized education, popularize knowledge on informatization and raise application capability, in order to enhance the information awareness of the whole population.

Continuous amplification of the encryption mechanism of information security and legislation on government informatization

Information security is a key point for government informatization in China, which has been listed in the standardized guide for electronic administration as one of the six components of the technical system for government informatization. Governments should reinforce the security control, its back-up and its effectiveness. A physical separation should be set up between internal network of government departments and public networks, to protect from external attacks. From the government perspective, frameworks for security systems of electronic administration demands prompt study and establishment. It is also imperative to embark on the preliminary study for legislation on electronic signature and stamping and information publication. From the users' perspective, the users of electronic administration have taken information security into full account in terms of planning and implementation. There is an ever-increasing proportion of the total expenditure on informatization allocated to improving information security; from the manufacturers' perspective, the manufacturers of security facilities, both home and abroad, enjoy a rapid development in their IT industries, with a fast increase in the number and size of the manufacturers. Thus, it is reasonable to assume that the importance of information security will be further highlighted.

Government informatization should be based on laws. Sound laws are urgently needed in the administration of government informatization. Only in this way can the government informatization in China achieve a sustainable, rapid and healthy development along a favorable legal track. Thus, we propose that the relevant legal system needs constant improvement to set up a sound assessment standard and mechanism for government informatization and to boost its healthy development.

Pursue the road of a unified organization, a uniform standard and a centralized administration

The Chinese government has been engaged in enhancing the government working efficiency with ICT since the 1990's. However, the problems of isolated islands of information and redundant construction are common in the process of government informatization as a result of historical reasons. When solving these problems, it can be stated that it is not affordable to abandon current infrastructures and application systems and rebuild them with new products and technology.

Meanwhile, after almost 20 years of development, we would say that there are some intermediate achievements: different government departments are equipped with ICT infrastructures, the network installation has made huge strides thanks to the government networking project, and special networks have been set up to cover the entire system for most of the functional departments. Under such circumstances, we conclude that to pursue

the road of unified organizations, a uniform standard and a centralized administration will be an unavoidable trend for government informatization. The current lack of overall management calls for a rational central planning for government informatization and its mandatory implementation. Then it is necessary that existing infrastructures and application systems are integrated on an advanced platform for information integration. Such platform will effectively integrate and utilize current application systems for government affairs, facilitate a fast and convenient link of the existing infrastructures and application systems to it, achieve a smooth application upgrade and expansion based on protection of present investments, and thus eradicate isolated islands of information. Moreover, the platform will effectively reduce redundant construction by exercising unified control on investment.

Conclusion

In conclusion, government informatization and electronic administration will transform the traditional pattern of administration. Great changes will take place in working mechanisms, methods, and ideas of the government. The former division between different departments will be eliminated to establish a comprehensively electronic virtual government, and the traditional pyramid structure will be replaced by a flat, decentralized network. The former authority enjoyed by the administration will face a formidable challenge, as there will be no authority at all on the internet. The government will have to face a myriad of feedback from the public directly. The pattern of administration will be changed from being only administration to a combination of administration and service. The high speed and global connectivity of the internet will work profound changes in the production and dissemination of government information as well as the method of administration. The government will be more powerful in information acquisition and control in some areas. Government's will thus expand its functions and exercise its control over the society more effectively. In the meantime, the monopoly government has enjoyed in information acquisition and control will be broken up, confronted with competition from every level of society, which will lead to the contraction and loss of some of its current functions. These will all bring revolutionary changes in the administration pattern. In the 21st century, the state government and its departments at all levels should be able to make constant adjustments and transformations in the course of reform to become more streamlined, sensitive, responsive and decisive. Undoubtedly, electronic government will be the ideal prospect for government informatization, and systems science will be a necessity to deal with the overwhelming systems complexity.

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