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A NEW LONG MARCH: E-GOVERNMENT IN CHINA

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A NEW LONG MARCH: E-GOVERNMENT IN CHINA[†]

Introduction

1. This report is a first step in providing baseline information and policy assessments on key issues in the development of China's e-government initiative. It reviews the past and current state of e-government initiatives and analyzes the objectives and prospects for change.

2. The report draws upon more than 30 interviews, a multitude of publications and presentations, and four focus groups of ordinary Chinese citizens. These sources of information demonstrate unique characteristics in the initial efforts of the Chinese government to utilize information and communication technologies (ICT). They also show that, not unlike similar projects in OECD member states, e-government in China will "help forward the public reform agenda" because the Chinese government has recognized that it "serves as a tool for reform; renews interest in public management reform; highlights internal inconsistencies; and underscores commitment to good governance objective" (OECD, 2003, p. 41).

I. The Case for E-Government

3. Since China launched its first public Internet service in 1994, the growth of ICTs has been phenomenal. In less than ten years China had the world's second largest Internet user population (80 million by the end of 2003) and the largest mobile phone user population (269 million) (Ministry of Information Industry, hereafter MII). By 2003, the number of online computers in China had reached 31 million and nearly 600,000 WWW sites were based on servers in the country (China Internet Network Information Center, hereafter CNNIC).

4. This rapid growth, however, is only starting to have an impact on China, due to the low penetration rates of ICT across the total population base of 1.3 billion. Only 6.1 percent of Chinese can access the Internet and almost 60 percent of the population still do not have a landline or mobile phone. ICT distribution is disproportionately concentrated in urban areas along the coast. Moreover, many Internet users have never visited e-government websites. The reach of e-government in China, therefore, is still limited.

5. The coupling of high-speed development in e-government with low per capita indicators among ordinary citizens reflects the overall transitional nature of China's economy. Since 1978, the country has been experiencing "marketization" reform designed to fundamentally transform the Maoist planned economy. With its accession into the WTO in December 2001, China has also been increasingly integrated into the global market, which creates a pressing need for significant improvement of its business environment.

6. In this context, given the growing demand for information and the rise of information economy, the Chinese government has formulated and implemented a proactive "cyber-strategy" to reap the economic and social benefits of ICT while minimizing its potential threats (Hachigian, 2001). One of the

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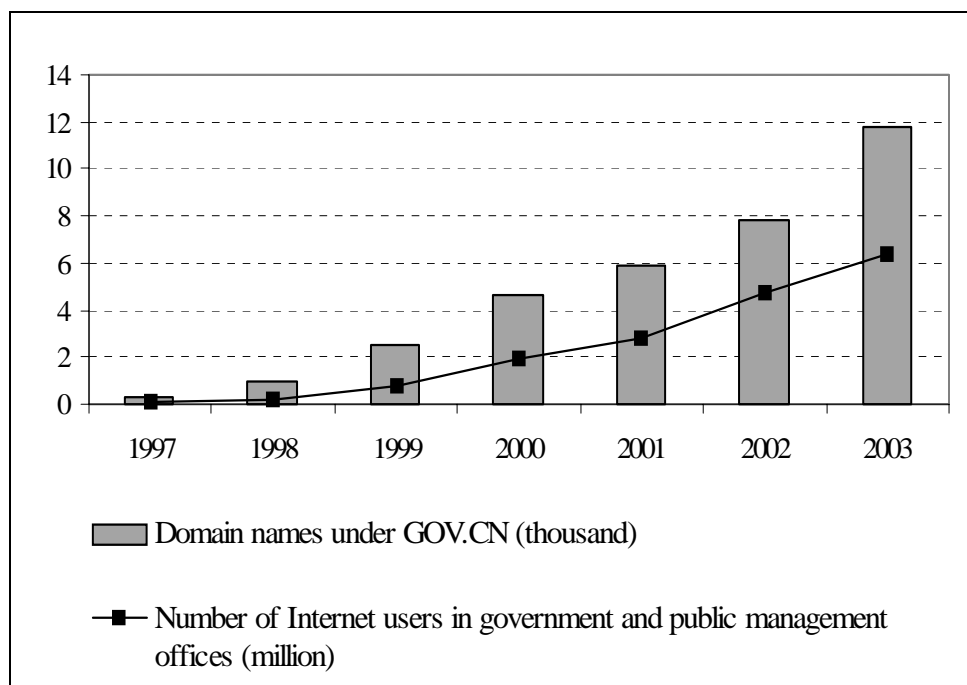
main components of this strategy is China's recent effort to develop e-government, which is expected by the government to help sustain growth in the IT sector in the midst of the worldwide e-commerce meltdown.

7. Although economic gains have been a main objective, within the Chinese government, the most fundamental benefits of e-government are the reform of the structure and procedures of government itself. This is particularly important because the transformation of the public sector toward a more efficient, transparent, and accountable model has been a centerpiece of China's recent reform efforts (World Bank, 2003).

8. High-level policymakers in Beijing have reached a consensus that the ultimate purpose of e-government in China is to facilitate public sector reform. According to the Resolution of the Sixteenth National Congress of the Chinese Communist Party (CCP) held in November 2002, e-government is to be understood within the framework of "deepening institutional reforms in public sector management," as part of the efforts to "further change the functions of the government, improve the mode of management, promote e-governance, enhance administrative efficiency, and reduce administrative cost, in order to form an administrative management system with standardized procedures and concerted actions that are just, transparent, clean, and highly efficient" (translation by author).

9. Under this guiding principle, China's e-government is burgeoning "on a scale without precedent among developing nations" (Kluver, 2004). One indicator is the number of registered domain names under gov.cn, which grew from 323 in 1997 to 11,764 in 2003 (CNNIC). During this short period of six years, the number of Chinese Internet users who work in government and public management offices also increased from fewer than 6,000 to 6.4 million (ibid).

Figure 1. The growth of e-government resources in China



10. According to the National Conference on Government and the Informatization of Public Administration held in December 2003 (Xinhua, 11 December 2003), 97 percent of regional government agencies in China have established computer networks for internal usage. Seventy-five percent of them

have connected internal networks among their subordinate departments, bureaus, cities, and counties. Meanwhile, at the national level, 43 percent of ministry-level State Council offices have constructed their own intranets that cover subsidiary agencies throughout the country.

11. The rapidity of growth owes much to China's booming economy, WTO entry, and fledging information society. More immediately, within the government, it has to do with the official recognition of "informatization" (*xinxihua*) as a central strategy for modernization and, most important, the resolve of Chinese authorities to advance public sector reform.

12. E-government, therefore, has the potential to serve as a new anchor point that connects reform programs in the realms of law, administrative institution, and macro economic management. If successfully carried out, it will play an important role in the modernization of China's public sector, helping the Chinese authorities to "achieve better government," the ultimate goal identified in *The E-Government Imperative* (OECD, 2003).

Box 1. Timeline

Mid 1980s – Computers entered Chinese government offices during the country’s first wave of “office automation” applications.

1993 – The initiation of the Three Golden Projects (Golden Bridge, Golden Gate, and Golden Card) marked the formal beginning of e-government in China. Computers and databases started to be networked.

April 1997 – The National Informatization Convention announced China’s guiding principle for informatization: “coordinated planning led by the state; unified standards built cooperatively; interconnected resources shared among the departments.”

January 1999 – The Government Online Project (www.gov.cn) was launched by China Telecom and the Information Center of State Economy and Trade Commission, with support from more than 40 ministries and ministry-level offices.

October 2000 – China’s 10th Five-Year Plan promotes a new overall strategy for economic and social development: “the utilization of informatization to propel industrialization” (*yi xinxihua daidong gongyehua*).

August 2001 – The National Informatization Steering Group (NISG) was re-established; so was its standing administrative organ, the State Council Informatization Office (SCIO). SCIO and the State Council Office of Public Sector Reform (SCOPSR) are now the two central coordinators for e-government in China.

July 2002 – The second NISG meeting passed “the NISG Recommendations on the Construction of E-Government in China.” Also known as “State Council Document No.17,” it lays out the overall structure of e-government in China including “Two Networks, One Portal; Four Databases, Twelve Golden Projects.”

November 2002 – The Resolution of CCP Sixteenth National Congress called for “a major strengthening of e-government initiatives” within the framework of “deepening institutional reforms in public sector management” in order to “form a public administrative institution with standardized procedures and concerted actions that are just, transparent, clean, and highly efficient.”

April 2003 – The State Council Informatization Office, the Ministry of Science and Technology, and the Ministry of Information Industry jointly issued “the Technical Guidelines for E-Government Projects.”

May-June 2003 – During the SARS epidemic, Beijing and several city governments initiated disease control information systems to centrally manage the SARS crisis. Some of these projects received financial and expert support from international organizations such as UNDP.

July 2003 – The third NISG meeting passed “the Recommendation on the Strengthening of Information Security Protection,” which was later promulgated by the State Council General Office as “Document No.27.”

II. E-Government Context & Structure

13. Although the Chinese government has been using computers for office work since the 1980s (see Box 1), the administrative structure for the country's e-government initiatives has yet to be completely established. In the context of fast economic growth and the furthering of marketization reform, the government launched the Three Golden Projects (Golden Bridge, Golden Gate, and Golden Card) in 1993, aiming at the construction of basic infrastructure and the promotion of electronic transactions in both public and private sectors. The Three Golden Projects have been superseded by a series of new programs since 2002, which will be introduced in section IV.

14. In 1999, a few entrepreneurs affiliated with China Telecom, the country's largest telecom operator, initiated the Government Online Project. With help from the Information Center of State Economy and Trade Commission, they enlisted more than 40 ministry-level offices in a drive to facilitate the utilization of Internet technologies in government agencies across the country (Government Online, 2003). The main website of Government Online Project, www.gov.cn, is now a comprehensive portal for e-government websites in China. However, Government Online is a for-profit organization that does not have a direct mandate from the Central Government to be a major e-government player. This is likely to limit its role, especially at the decision-making level, despite its significant past contributions.

15. Although the Central Government issued broad guidelines back in 1997, the current, better-developed administrative framework for e-government coordination did not exist until after August 2001, when the State Council Information Steering Group (NISG) was re-established to be the highest authority on matters regarding ICTs. Since then a national structure for e-government has gradually emerged, reflecting recent changes in the overall environment of public sector reform and the understanding of the role that e-government can play in reform efforts. This structure is outlined in the "NISG Recommendations on the Construction of E-Government in China" (hereafter "State Council Document No.17") issued in July 2002

16. Before the promulgation of State Council Document No.17, the relationship between e-government and public sector reform was unclear. Consequently, there was insufficient coordination of e-government initiatives by the Central Government and the majority of projects were conducted by sectoral and local authorities or propelled by commercial operations, producing a level of chaos with overlapping programs in certain areas and many isolated "information islands" (*xinxi gudao*).

17. However, since the release of State Council Document No.17, much progress has been made in clarifying the responsibilities for the development of China's e-government programs. As Premier Wen Jiabao emphasized at the third NISG meeting in 2003, "The foci of our work include transforming government functions, advancing e-government at faster speed, enhancing government capacities in economic regulation, market supervision, social management and public services, and increasing openness in the public sector." In order to realize this vision, the institutional structure for e-government projects will have to reflect new principles for public administration in the realms of transparency, accountability, anti-corruption, and the separation of decision-making and implementation.

18. Although the NISG is the highest authority for ICT matters in China, it only convenes once a year. Hence, the central decision-makers for national e-government policies are the State Council Informatization Office (the standing office for NISG, hereafter SCIO) and the State Council Office of Public Sector Reform (hereafter SCOPSR). Since 2003, SCIO and SCOPSR have been working closely to establish frameworks that will guarantee long-term development and the realization of reform outcomes in the public sector.

19. In addition, at the national level there are service-delivering agencies that help provide financial, technological, and personnel support for e-government projects in general, such as the Ministry of Information Industry, the Ministry of Science and Technology, the National Development and Reform Commission, and the Ministry of Finance. Moreover, from education to healthcare, from trade to public security, every government unit at the ministerial level has launched e-government initiatives in its specific domain of jurisdiction.

20. At the local level, however, leadership for e-government varies greatly. Not surprisingly, there is often stronger commitment among provincial and city-level authorities in wealthy regions such as coastal areas in the southeast. This pattern reflects the vision of certain local leaders, which, in turn, reflects the higher financial capacities of these local governments. In many cases, rapidly expanding local businesses and burgeoning export industries in these areas also create strong demand for the transformation of government functions. In a manner similar to the process of public sector reform at the national level, the utilization of ICT can assist in the implementation of administrative reform in these locations. The result is that some of the most forward-looking and creative e-government projects are found at the provincial, city, or township levels.

21. The informatization offices (*xinxiban*) are the central sites for e-government coordination at the sub-national level, but the institutional position of local informatization offices differs from place to place. Some are built on the basis of previous “information centers” (*xinxi zhongxin*), which tend to have less administrative power. Others are located within local planning commissions that directly control development projects of all kinds. Still others draw from the political clout of local CCP propaganda divisions, science and technology bureaus, or telecom regulatory agencies. With the SCOPSR joining the decision-making process of e-government at the national level, local SCOPSR offices may also play an increasingly important role in the localities, as part of their oversight function for public management reform and public sector human resources.

22. Differences in the bureaucratic setup of informatization offices lead to a wide margin of maneuver among local state agencies, whose role often goes beyond the simple implementation of national policies. This is particularly the case because, during the reform era, governance in China is centralized in principle but often decentralized in practice. However, local variation in China’s e-government has yet to be systematically investigated.

23. Despite the differences in their institutional settings, local informatization taskforces are key players in China’s e-government development. In many cases, especially in wealthier regions, local operations tend to be “one step ahead” and provide valuable lessons for the rest of the country. E-government initiatives in mega-cities such as Shanghai (see Box 2) and Guangzhou, as well as those in smaller cities such as Fuzhou, Qingdao, and Nanhai, whose local experimentation dates back to the mid-1990s, have all informed national e-government programs.

24. Whereas affluent cities continue to play a pioneering role in e-government development, national-local interaction has become a common practice, too. It is now routine for national projects by ministry-level authorities to begin with selected local experiments, the lessons from which will then inform wider implementation efforts. Such experiments usually cover diverse geographic regions and include less developed cities or provinces. The generalization value of these cases therefore exceeds that of spontaneous local experiments in wealthy areas, although there is still insufficient evaluation of such projects and the formal channel remains limited for the national diffusion of local experiences.

Box 2. Shanghai Informatization Committee

A notable development at the local level is the establishment of Shanghai Informatization Committee (www.shanghaiit.gov.cn) on August 1, 2003. This is the first major experiment approved by CCP Central Committee and the State Council that uses institutional restructuring to enhance local e-government programs. With its corresponding branches set up in all of Shanghai's urban districts and rural counties, the new Shanghai Informatization Committee is half a rank higher than most municipal bureaus. Such a change not only centralizes its functions in drafting local regulations, supervising telecom services, and managing of local infrastructures but also gives the committee additional authority in e-government implementation across the municipality.

III. Barriers to E-Government

25. Despite its booming economy and rapid IT growth, China faces multiple barriers in developing e-government due to its size, pre-reform institutional legacies, and the transitional nature of its state-society relationship. Most of these hurdles are not particular to e-government programs but involve larger issues in the public sector and the reality that China's information society is still in its initial phase of development. At this early stage, it is imperative to recognize these barriers both within and outside the public administration before any assessment can be made regarding the current state of e-government in China. The OECD draws attention in particular to those barriers that demand a broader understanding of the context within which individual e-government projects are taking place: "External e-government barriers often concern breakdowns, missing components or lack of flexibility in the government-wide frameworks that enable e-government" (OECD, 2003, p. 48).

Legislative Barriers

26. Legal system reform is central to e-government initiatives because progress in public sector reform is impossible without the modern rule of law. The core issue in China's legal reform that concerns e-government is the clarification of power relationships between state and society and among different government agencies. In the past, Chinese laws and regulations tended not to restrict the political and administrative power of government officials, which was particularly true when the regulation of online content and transactions was concerned (Harwit and Clark, 2002; Cheung, 2003). This is inconsistent with the goals of transparency and accountability in e-government because, with unchecked political power, officials or government agencies can choose to release very little information about their practices, especially with regard to wrongdoings.

27. Realizing this challenge, China's top leaders have in recent years paid more attention to the creation of a legal framework that focuses on balancing the power of administrative agencies. In the 16th CCP Congress, former President Jiang Zemin called for "the restraining and monitoring of power" and "serious implementation of a system to publicize government information." Since then, legislative measures have established new parameters that restrict the government's power in the handling of information, a fundamental dimension for progress in e-government.

28. One major undertaking is the proposal of an "Open Governance Act," designed to balance existing legislation such as the State Secrets Provisions and Measures for Managing Internet Information Services. Still under revision, the new act for the first time defines "state secrets" in legal terms and requires government officials to obtain approval from a central agency before withholding information. If passed and implemented, this will lead to a sea change in the Chinese government in which all non-secret information will belong to the public domain and can be put onto the Internet.

29. Apart from the Open Governance Act, the future of e-government in China depends on a series of legal measures, some already issued and some still being drafted or revised. These include the Public Procurement and Bidding Act and Network Security Management Measures for the construction of e-government projects, the Privacy Protection Act for state-citizen relationship, and the Electronic Signature Act and Government Information Registration Measures for everyday administrative routines. All these legislative efforts have spurred debates over the basic principles of e-government in China, among institutions and social groups with different policy priorities.

30. Despite recent legislative moves, China's e-government is still supported by a very inchoate legal system with insufficient measures to guarantee the healthy and sustainable development of e-government in the long run. The fundamental challenge is as much about clarifying nationwide goals and priorities as about setting up basic procedures that can be enforced at the local level. It is therefore unsurprising that so far informal relationships remain important to the success of many e-government projects in China, which rely on the personal influence of key officials due to the lack of laws and formal regulations.

Budgetary Issues

31. In 2002, China spent approximately 30 billion RMB (US\$ 3.6 billion) on e-government including 23 billion on hardware and infrastructure, 3.8 billion on software, and 3.2 billion on IT services. The total expenditure was estimated to grow 17 percent to reach 35 billion in 2003 (CCW Research).

32. The size and speed of growth in the gross e-government budget, however, do not mean that a good budgetary system is in place. On the contrary, several officials we interviewed in the Central Government and local state agencies in East China said budgeting e-government projects remains a major problem throughout the country. Although a key Beijing official acknowledged that in recent years there was some improvement in budget control, he maintained, "No one knows how much money has been wasted."

33. E-government in China is currently financed in a variety of ways. Government bodies at the sub-national level provide much of the funding, since many e-government projects are local or regional experiments, although there are also a significant number of national projects funded directly by the ministries. Local initiatives sometimes receive subsidies from higher levels of government and sometimes utilize bank loans or investment from the private sector. However, since local operations, especially those using private funds, tend to produce network redundancy and incompatible platforms, the consensus since the NISG conference of 2002 is that more coordination and supervision are needed to ensure structural optimization and maximum cost efficiency.

34. Even with this consensus, the budgetary system remains insufficiently structured, lacking formal rules or clear guidelines. In general, it allows for different government entities to share expenses, but guidance is often unclear when it comes to the budgeting of a specific project that involves multiple divisions at different administrative levels. At the national level, the consensus is that construction costs should be covered by the basic infrastructure funds of the Central Government, whereas operational costs should be included in the budgets of the corresponding ministries and coordinated by the Ministry of Finance. At the sub-national level, usually local states are responsible for the construction and maintenance of their own e-government projects, although they may also receive subsidies from the Central Government in case of need.

35. Although national e-government decision-makers are concerned about cost efficiency, the problem is sometimes neglected at the local level and in certain economic sectors. As a result, many e-government projects are unnecessarily expensive, and a large portion of the budget is spent on hardware

and infrastructure rather than on software and applications. Often there is insufficient funding for system update and maintenance, leaving expensive equipment and network resources underutilized.

Security & Surveillance

36. Another major challenge facing e-government in China is developing network security measures and surveillance mechanisms to oversee internal usage. Concerns about computer viruses and unauthorized intrusions are prevalent among state agencies because in China the reliability of computer systems is much more jeopardized by the spread of viruses and worms than in most OECD countries. Periodic hacker attacks once caused damage to thousands of government websites (Qiu, 2002a).

37. Many administrative and technological measures have been undertaken to prevent security problems, including the Golden Shield Project and the physical separation between internal and external networks as required in State Council Document No.17. The interface between the e-government external network and the Internet is protected by passwords, firewalls, and virtual private networks (VPN), among other security technologies. Since 2003 there is also growing support for the use of Public Key Infrastructure (PKI) to ensure the authenticity of user identity so that internal databases and documents will not be inappropriately accessed or modified.

38. There are, however, two inadequacies in the current modes of network security protection, both of which stem from old compartmentalized bureaucratic practices (Ding, 2002) and insufficient central coordination. First, there is the problem of overlapping construction and lack of common standards. Since the first certification authorities (CA) center was established in 1998, China now has more than 70 CA identification centers working in different realms using different standards. Many ministries and local governments have built or are planning to build their own CA identification centers. However, there is no nationwide standard for electronic authorization using technologies such as PKI.

39. Second, insufficient attention is paid to non-technical or low-tech solutions. Often network security is perceived to be a matter of technological sophistication rather than a set of institutional procedures. This mentality, particularly prevalent among members of local informatization offices, puts the responsibility for network security on programmers and devices, which only have a limited ability to ensure safety in an ever-changing technological environment.

40. It is therefore important to internalize such responsibilities and make them part of the operational routine in “a culture of security” that relies on “new ways of thinking and behaving” as much as on technology (OECD, 2003d). Standardized administrative practices would facilitate internal monitoring within the government and would be less expensive and more reliable than a technological solution. They would also contribute to the ultimate goal of government reform.

Digital Divide & Wider Social Appeal

41. The influence of e-government in China is also critically limited by the low level of development of the country’s information society. As previously mentioned, new communication technologies have only diffused to a small percentage of the Chinese population. Reaching and serving the digital “have-nots,” such as the peasants, migrant laborers, laid-off workers, and people with disabilities, will be a formidable task.

42. The most difficult challenge will be to launch and maintain e-government initiatives in the hinterland, in the vast, less developed regions where population density is low with very limited information resources (Qiu, 2002b). Despite China’s “Go West” campaign designed to alleviate poverty in the hinterland, a survey in 2003 found that the digital divide between the east and west regions is still increasing (People’s Daily, 2003). According to Zhao Xiaofan, a high-ranking SCIO official who

supervised the survey, “The key to promoting informatization in the west is to improve computer and Internet literacy among the public” (Ibid).

43. But even among Internet users in the wealthier regions, e-government websites do not draw much attention from the general public because they are usually little more than “online brochures” with insufficient and often outdated information (ibid). This confirms what we found in our focus groups, carried out in 2002 in a southern city where more than 100 million RMB (US\$ 12 million) had been spent on local e-government projects over the course of several years. In spite of this impressive e-government investment, participants reported that they seldom visited the portal site of their city because they did not think it provided very useful information or services. The few people who had visited the e-government website revealed that they found the content useful only for certain aspects of their professional work, but not for their everyday life. Nor did they find the website appealing in design or user-friendly in function.

44. It is clear that, in order for e-government to play a more active role in China, the Chinese government must overcome the barrier of low computer literacy and Internet penetration rates. However, more access to ICT is a necessary but insufficient solution. E-government websites must also develop more broadly useful content and applications to appeal to the general public. Only then can the influence of e-government projects bring more benefits to the Chinese society at large.

IV. Leadership and Planning

45. Compared to other countries, one of China’s major advantages in developing e-government is the commitment of its high-level political leaders to reform the public sector by using ICT in government operations. The new leaders that emerged from the 16th CCP Congress in 2002 inherited the vision of previous leaders that informatization is central to the modernization of the Chinese government. President Hu Jintao and Premier Wen Jiabao have both publicly reiterated the importance of e-government to China’s reform agenda. In addition, numerous provincial governors, mayors, and general secretaries of local CCP committees have been active in promoting e-government at the sub-national level.

46. At the local level, political leadership is essential to the initiation and sustenance of e-government initiatives because the strongest resistance usually comes from those with vested interests in the status quo, such as middle-rank officials who fear losing power as a result of using ICT. So far the prevalent way to counter such resistance has been to launch the so-called “top leadership project” (*yibashou gongcheng*), i.e., the highest CCP or state official at the given administrative level would head the e-government steering group and then try to persuade resisting stakeholders. This has been an effective strategy in most cases, for example, in Nanhai of South China (See Box 3).

Box 3. “Top Leadership Project” in Nanhai

The local government of Nanhai is among the first in the country to launch major citywide e-government projects since 1996 (Qiu, 2003). It offers a good example for the “top leadership project” because high-ranking officials, including Nanhai CCP Secretary Deng Yaohua and Mayor Chen Zhongyuan, were active in promoting the application of Internet in government work. Under their leadership, an informatization steering committee was formed that included chief directors of all major local state agencies. Special incentive mechanisms were established to reward progress with bonuses and promotions. Facing resistance from middle-level officials, members of this committee insistently advocated e-government projects to their subordinates in both public gatherings and everyday work. To increase impact, committee members were encouraged to “reiterate in all meetings, large or small, on daily basis (*dahuijiang, xiaohuijiang, tiantianjiang*).”

A major resistance came from the technophobia of older officials, who had little training in using computers or the Internet. The steering committee thus decided to provide technical training to most of the local government employees by hiring, at competitive salaries, professors and IT experts from around China. Following a classic model of public persuasion used in China since the early years of CCP, they also selected model students in these training programs and gave them significant publicity. One such model student was “Uncle Fa (*fashu*),” a 55-year-old clerk with only an elementary school education. He was highly praised by the local government for his quick adoption of new technologies. “If Uncle Fa can do this,” said the leader of a township, “there is no excuse for most of us younger people not to learn the new technology.”

47. Since 2002, the Central Government has also taken a strong leadership role in putting into place a common framework to guide and coordinate e-government projects throughout the country. According to State Council Document No.17 (i.e., the NISG E-Government Recommendations), China’s key nationwide e-government initiatives include “two networks, one portal; four databases, and twelve Golden Projects.” This programmatic structuring signals that the core leadership of the Central Government has adopted a hands-on approach toward e-government. The purpose of this new framework is to clarify responsibilities at the national level around key government priorities, to ensure common standards for interoperability, and to create a technical platform on which individual agencies and local government can develop their own services.

Two Networks

48. The “two networks” refers to the “internal network” (*neiwang*) for use inside government offices (i.e. G2G) and the “external network” (*waiwang*) that reaches citizens and businesses (G2C and G2B). The new division of labor centered on these two networks indicates that China has passed the early development phase in which e-government was dominated by local experiments. A more streamlined cooperative relationship has started to take shape that allows the Central Government to play a more important role in both macro-management and the supervision of local operations.

49. This structure also demonstrates Chinese concerns about the security of its information systems. According to “the NISG Recommendations on the Strengthening of Information Security Protection” (hereafter State Council Document No.27) released in 2003, the internal network is mostly for transmitting secret information among central government bodies and 47 departments at or above the vice-provincial level. For security considerations, it is “physically separated” (*wuli geli*) from the external network and offices below the vice-provincial level. The internal network is also used for the transfer of data between ministries, for example, in large national G2G databases (i.e. the four databases to be discussed below), which play a major role in improving services for citizens and businesses throughout the country.

50. Local governments below the vice-provincial level are encouraged to concentrate on the construction and maintenance of the external networks or *waiwang*, whose main purpose is to provide services directly to the general public. These external networks are operated by local governments; usually by a set of local state agencies under the coordination of the corresponding city or provincial informatization offices. Information on the external networks can be accessed via the Internet but, as required by State Council Document No. 27, some of the contents are “logically separated” (*luoji geli*), meaning they are protected by passwords and firewalls.

One Portal

51. Ministries and sub-national governments are encouraged to have one central portal for the public information, service applications, and interactive functions they provide. The information and services can be stored in a portal website directly operated by a ministry or a local government such as a province or a city. They can also be maintained by sub-divisions of the particular state agency but include hyperlinks to the central portal. This is part of the effort to construct an efficient interface between the external network and the public. The portal is supposed to help users find information and services stored in different parts of the e-government external network or in non-government websites to which the portal may hyperlink.

52. Although this guideline has been in place since 2002, at the national level there has been little indication of who is actually responsible for building the one portal for the Central Government and whether it will be based on certain existing sites such as the one operated by Government Online. With the exception of the Ministry of Defense and the Ministry of National Security, most ministries and ministry-level commissions of the Central Government have established “one portals” for themselves that are accessible to the general public.

53. At the sub-national levels, many local governments, especially those in wealthier regions, have already established their one-portal websites. According to the National Conference on Government and the Informatization of Public Administration held in December 2003, 85 percent of China’s regional governments had established portals for citizens and businesses. In addition to local government and CCP offices, these also include portals for the People’s Congress, the Political Consultative Conference, and the Judiciary.

Four Databases

54. The following databases, as recognized by the State Council, are the four pillars of e-government in China. They are designed to facilitate the storage, transmission, and retrieval of information that is central to the everyday operation of the government. Since these are nationwide databases involving exchange among the ministries, a large amount of their information is transmitted via the G2G internal network. But these key databases also play an important role in back-office reforms by facilitating data sharing across institutional barriers.

55. With the exception of the Basic Population Information Database (BPID), these databases are still at a very early stage of development. The main task is not only adding and processing data but also integrating fragmented data resources currently housed in individual government agencies. Once completed, they will provide a powerful tool for the Chinese government to provide data-sharing services. Such a comprehensive plan would have been impossible without China’s strong Central Government. But it remains to be seen how these four databases will actually materialize, what level of data quality they will produce, and whether their construction will be slowed down due to old institutional barriers and new concerns about the privacy of individual citizens and the protection of information regarding business enterprises.

56. **Basic Population Information Database (BPID)** – Formally initiated in October 2002, the construction of BPID is led by the Ministry of Public Security (MPS) and jointly managed by the State Family Planning Commission, National Bureau of Statistics, Ministry of Labor and Social Security, and State Administration of Taxation. It is the largest and most comprehensive database to store basic information and provide unique identifiers for individual citizens in China.

57. Building on the existing population information system of MPS, the BPID has covered approximately 1.17 billion residents (i.e., 90% of total population), of which 760 million entries can be remotely retrieved. As of December 2003, the BPID was still in its experimental stage when different technical solutions, models of funding, and administrative frameworks were being tested in selected localities.

58. Phase One of BPID is to be completed by the end of 2006, with its main task being the construction of comprehensive databases at each level of administration and the integration of certain public management information resources. Phase Two will start in 2007 to integrate population information resources in different government departments and provide information services to the general public.

59. **Basic Juridical Person Information Database (BJPID)** – BJPID is designed to standardize the ways in which information about commercial entities and non-profit organizations are collected and exchanged. It is spearheaded by the National Bureau of Quality Supervision and jointly managed by the State Administration for Industry and Commerce, State Administration of Taxation, Ministry of Civil Affairs, State Council Office of Public Sector Reform, and National Bureau of Statistics.

60. The first meeting on BJPID was convened in September 2002. By May 2003, the draft proposal for BJPID construction had gone through two rounds of revisions, and more comments from experts were being solicited. The plan is to first spend three years developing database standards and inputting content. Then, in the following two years, the focus will be on developing networked application systems at the national, provincial, and county levels.

61. **Natural Resource, Space, and Geography Information Database (NRSGID)** – This database is under the jurisdiction of the State Development and Reform Commission, which coordinates the Ministry of Land Resources, Ministry of Water Resources, Chinese Academy of Science, State Oceanic Administration, National Bureau of Topography, National Bureau of Forestry, and National Bureau of Meteorology.

62. China has a complicated geography and very rich natural resources, which are currently managed by separate government bodies. The purpose of NRSGID is to develop a system with shared standards for all these resources that can be constantly updated and easily exchanged so that optimal resource management (e.g., of land) can be achieved. The project started in September 2002. The first draft of the project proposal was completed in July 2003. Its feasibility research is currently under way.

63. **Macro Economic Information Database (MEID)** – This initiative is led by the National Bureau of Statistics and also involves the State Development and Reform Commission, Ministry of Finance, State Economic and Trade Commission, People's Bank, State Administration of Taxation, Customs General Administration, State Administration for Industry and Commerce, and the National Bureau of Quality Supervision. The initiative's goal is to establish a distributive economic information database to serve the needs of macro-economic management, public service delivery, and requests from international partners.

64. The first meeting on MEID was held in September 2002. The MEID Construction Project Proposal was drafted in December 2002. Comments are still being solicited.

The Golden Projects

65. According to State Council Document No.17 of 2002, the first phase of e-government in China focuses on twelve professional systems known as the “twelve Golden Projects.” These include (a) core systems designed to strengthen supervision and enhance efficiency (i.e. Administrative Professional Resources System and Golden Macro), (b) projects designed to safeguard government revenue and rationalize government spending (i.e., Golden Tax, Golden Customs, Golden Audit, Golden Finance, and Golden Card), and (c) systems designed to ensure basic order in national economy and social development (i.e., Golden Shield, Golden Quality, Golden Agriculture, Golden Water Conservancy, and Golden Social Security). While some of these projects include front-office applications on the external network, most of them operate on the e-government’s internal network with direct links to the main databases.

66. The twelve Golden Projects are as follows:

67. **1) *The Administrative Professional Resources System (bangong yewu ziyuan xitong)*** is under the direct coordination of the State Council. Unlike other Golden Projects, this is a comprehensive system that underlies e-government operations in all divisions of government work.

68. The project has five components: (1) a desktop video-conference system; (2) an electronic meeting announcement and registration system; (3) a State Council supervision management system; (4) an electronic document transmission system; and (5) a government crisis management system. While some of these components continue past efforts in corresponding areas, all of them are expected to enter a new phase of development in 2004. Public records so far show no definite deadline for the completion of this project.

69. SCIO serves as the main planner of the Administrative Professional Resources System, with MII the implementer and the Ministry of Finance the funding agency. Several other ministries, such as the Ministry of Public Security and the State Secrecy Bureau, are also involved.

70. **2) *Golden Macro (jinhong)***, also known as the Macro Economic Management Information System, is directed by the State Development and Reform Commission and jointly led by the Ministry of Finance, Ministry of Commerce, People’s Bank, State Assets Supervision and Management Commission, Customs General Administration, National Bureau of Statistics, and State Administration of Foreign Exchange. The main purpose of Golden Macro is to increase connectivity and information sharing among government bodies in charge of macroeconomic management so that national economic policymaking can be more efficient, accurate, and transparent.

71. **3) *The Golden Tax (jinshui) Project***, led by the State Administration of Taxation, is intended to prevent tax evasion that uses counterfeit receipts and invoices. So far this is one of the most successful Golden Projects in promoting efficiency and accountability. Phase One of the Golden Tax Project was launched in 1994. Phase Two started in May 2000 with some adjustments in planning and implementation. By the end of 2002 it had covered approximately 600,000 units, i.e., about 45 percent of taxpayers nationwide. It had also integrated 3835 taxation agencies at or above the urban district or rural county level.

72. Phase Three of the Golden Tax Project began in December 2002 and will take four to five years. The new focus is on the China Taxation Administration Information System, a multi-functional platform that will provide secure and integrated information about taxation at national and sub-national levels.

73. **4) *Golden Customs (jinguan)***, also known as the Golden Gate Project, was one of the three Golden Projects initiated by the Chinese government in 1993. It was formally launched in 2001 under the leadership of the Ministry of Foreign Trade and Economic Cooperation. The Customs General

Administration and eleven ministry-level departments were involved in the establishment of “electronic port centers,” a centerpiece of the Golden Customs (see Box 6 for the Golden Customs’ anti-corruption achievements).

74. The Project’s current emphasis is on developing application systems for (1) quota and licenses, (2) import/export statistics, (3) tax returns for exporting companies, and (4) international trade currency transactions. Its long-term objective is to facilitate the modernization of China’s international trade and economic transaction system by using computer network technologies.

75. **5) The Golden Finance (*jincai*) Project** started in 1999 as the Ministry of Finance attempted to construct its Government Finance Management Information System. As the main effort to modernize financial management within the Chinese government, Golden Finance has two primary objectives: first, to integrate eleven existing sub-systems at the national level, from income and budgeting management to procurement and debt control; and second, to establish vertical networks that include provincial and municipal bureaus of finance.

76. By the end of 2002, the Project had expanded to thirty-eight national government agencies (762 budgeting units) and twenty-five provincial-level units. This included the payment of salaries for most government entities at or above the provincial level as well as the management of non-tax revenues.

77. **6) Golden Card (*jinka*)** is part of the overall Financial Supervision (*jinrong jianguan*) Project designated in State Council Document No.17. Originally one of the three key informatization projects initiated in 1993, Golden Card promotes the use of electronic currency in Chinese society. By the end of 2002, the Project had extended to banks and department stores in more than 300 cities where more than 60 million debit cards and credit cards issued by financial institutions have been in circulation.

78. The Central Government calculates that the spread of electronic currency usage will not only enhance e-commerce but also allow government offices to improve the regulation of financial markets based on a unified payment clearance system. Effective supervision of financial exchange will enable public authorities at different levels to track and monitor transactions in public and private sectors, which also enhances anti-corruption efforts.

79. **7) Golden Audit (*jinshen*)** is under the National Audit Office. It was formally launched in November 2002 with an initial funding of 50 million RMB (US\$ 6 million) provided by the Ministry of Finance. Its long-term goal is to establish a centrally organized electronic auditing system for government entities in China. By the end of July 2003 the Project was mainly focused on building infrastructure within the National Audit Office and its eighteen subsidiaries nationwide. Meanwhile, the development of application systems and information databases was in progress and the Handbook for Audit Software R&D was compiled, which specified standard procedures, database structures, and ways to guarantee interconnectivity and information sharing.

80. **8) The Golden Shield (*jindun*)** Project was initiated by the State Planning Commission and Ministry of Public Security in July 2001. Its goal is “the adoption of advanced ICTs to strengthen central police control, responsiveness, and crime combating capacity, so as to improve the efficiency and effectiveness of public security work.” Two phases are planned, with Phase One (2002-2004) focusing on building infrastructure and a common operation platform, and Phase Two (2005-2006) emphasizing the development of applications.

81. By the end of Phase One, the Project is expected to connect all public security units at or beyond the regional level and 95 percent of units at the county level. The National Public Security High-Speed Inquiry System (including the China Crime Information Center) will also be completed. In the meantime,

the National Public Information Network Security Supervision Center is also being set up, with the mandate to combat hacker attacks and computer viruses.

82. **9) The Golden Social Security (jinbao) Project** was launched in October 2002 during the National Conference on the Informatization of Labor Protection. The Ministry of Labor and Social Security spearheads the Project, which has the long-term goal of setting up a unified national information system for labor protection and social security.

83. In addition to recording and processing information about people and work units in the social security system, the Golden Social Security Project will also monitor changes in the labor market and provide policy recommendations to government offices at national, provincial, and city levels. By April 2003, twenty-nine provincial units had confirmed funding to support the Project at local levels. Preparation for the nationwide networking of retirement insurance information systems was in progress. In September 2002 the website "China Labor Market" (<http://www.lm.gov.cn/>) was launched to provide job and employment information as well as national policies for labor market regulation.

84. **10) The Golden Quality (jinzhi) Project** has the goal of transforming quality supervision authorities into public service providers, enhancing transparency in administration, and forming a standardized national network. The Project is housed under the National Bureau of Quality Supervision. Until 2003, the Project was mostly in the stage of feasibility research. A main challenge for its implementation is funding, particularly for local inspection units in less developed regions.

85. **11) Golden Agriculture (jinnong)** promotes the utilization of ICT for agriculture in China. Led by the Ministry of Agriculture, Phase One of the Project is attempting to build a monitoring and management information system that will connect government agencies in China's vast countryside. This Phase is expected to last until 2005. Phase Two (until 2010) will expand the system to more realms of service delivery, such as agriculture adjustments and market supervision. The Project will have three major applications: (1) a monitoring and alert system that will provide warnings for agricultural production and animal diseases, (2) an information system that will supervise the marketing of production materials, and (3) a service system that will provide science and technology information for agriculture production.

86. **12) The Golden Water Conservancy (jinshui) Project**, led by the Ministry of Water Resources, was launched in 2001. Its short-term goals include building basic infrastructures, increasing the supply of information, and enhancing the capacity for data sharing. In the long run, the Project will provide more advanced specialized applications for government decision-making. Two central components of the Golden Water Conservancy Project were launched in 2003: one is the National Flood-Control and Draught-Relief Command System, and the other is the National Supervision Network for Water and Soil Conservation.

87. Overall, the twelve Golden Projects represent a comprehensive framework for coordinating and streamlining e-government initiatives at the ministerial level. While the Administrative Professional Resources System and Golden Macro are of fundamental significance to the general functioning of state agencies, the other ten Golden Projects are expected to become the pillars of e-government application in their respective sectors.

88. The development of the Golden Projects, however, has been quite uneven. Some projects have gone through the first or second phase of construction already, whereas others are still at the planning stage or are just beginning to establish computer networks between relevant offices. In general, those projects dealing with economic management and law enforcement tend to be built up at a faster speed than those providing other services to the general public. This is in part because some projects were initiated earlier

than others; it is also due to the different amount of resources controlled by the ministerial agencies, reflecting the priority placed on economy and security.

89. Other Golden Projects are not included in the twelve mentioned above. One is the Golden Bridge (*jinqiao*) Project started in 1993 to connect government offices, state-owned enterprises, and the general public. Since this is a basic infrastructure project led by China Jitong Telecom Inc., it does not count as one of the main e-government initiatives in State Council Document No.17. The list of twelve also excludes several other Golden Projects sponsored by either individual ministries (e.g., Golden Hygiene, Golden Wisdom, Golden Trade, Golden Travel) or government bodies at lower levels (e.g., Golden Enterprise).

V. Customer Focus

90. China's traditional administrative framework, characterized by strict hierarchy and sectoral division, fundamentally contradicts the customer-centered restructuring process observed in e-government programs worldwide (ChinaLabs, 2002). But as we have learned from fieldwork and reports, new e-government projects with a customer focus have made major inroads among certain local state agencies and government sectors. The development remains uneven, especially with regard to structural back-office change. However, the progress in e-government empowers reform-minded officials so that they can more effectively transform the public sector with regard to higher work quality in information provision, service delivery, and citizen engagement, i.e., three of the main functions of e-government identified by the OECD (2003a).

91. Before reviewing these three aspects of e-government services, it is important to point out that the following assessments are all ex-poste evaluations. There have been very few attempts to systematically "evaluate customer demand of e-government services" before actual project implementation. Such evaluation efforts were identified as a major part of e-government leadership in OECD countries (OECD, 2003c), but they are yet to be carried out in most e-government programs in China.

Information Provision

92. By the end of 2003, most Central Government agencies in China had launched their websites for external usage among citizens and businesses. So had 85 percent of the regional governments (Xinhua News Agency, 11 December 2003). The quality of information provided from these websites, however, vary tremendously. While some provided comprehensive information for the public as discussed below, others were poorly maintained. An earlier study found that among China's 2,500 e-government portal sites, approximately one third were "dead sites" that could not be opened (Yang, 2003). The problem may have improved since, because e-government leaders at all levels have been emphasizing the importance of website maintenance.

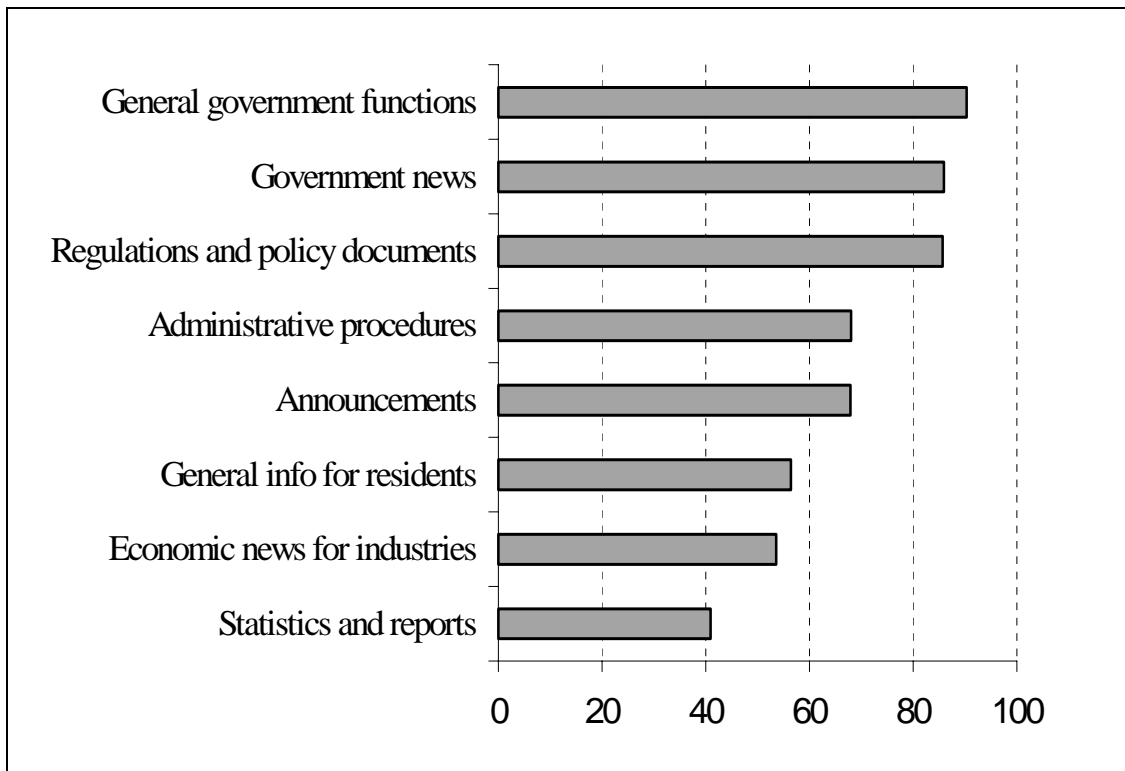
93. Among all the working websites, most contain general introductions about the public offices, government news, and regulations and policy documents. A moderate number provide information about administrative procedures, announcements, and other information needed by the industries and the general public. These are some of the main findings from the 2002 Quantitative Survey on Internet Information Resources in China conducted by China Computer Industry Development Research Institute (CCID) and CNNIC under the supervision of SCIO.

94. The survey found that the "overall situation for the updating of government website information is not optimistic." Only a small number of the web-hosts update on a monthly basis their online statistics and reports (5.7 percent) and introductions about administrative procedures (5.2 percent). Other types of

information are renewed more frequently on a monthly basis, such as government news (57.5 percent), economic news for industries (54.3 percent), information for residents regarding housing, transportation, and so on (75.8 percent), and announcements (85.7 percent).

95. The predominant majority of websites do not support interactive exchange. Only 26.4 percent allow users to conduct an automated information search and a mere 10.7 percent accept inquiries from the public regarding the progress of particular administrative work.

Figure 2. Types of information provided by China's e-government websites (%)



Source: CCID and CNNIC (2002).

96. More than half of the websites (53.6 percent) have English versions. 10.4 percent have a Japanese version. Meanwhile, 22.3 percent have a traditional Chinese version using BIG5 coding, the official standard in Taiwan and Hong Kong. Although the foreign language and BIG5-coded web pages often contain less information, the sizeable proportion of them indicates that many e-government sites are indeed designed to meet the demand of globalization.

97. Yet, as mentioned earlier, China's e-government websites still need to have a broader appeal to average Chinese citizens. This is what we found in the focus groups where Internet users saw the e-government website of their city (a medium-sized city in south China) as unattractive and of little help to their everyday lives. The finding was confirmed in an earlier study based on log analysis, showing that very few people accessed government websites by the end of 2000 (Zhang, 2002). For example, in a city of 2.79 million, the daily click-through number for the main government website was only 18; in a smaller city of 440,000 residents, the number was 3. The website of a major ministry-level agency received about 32 hits each day. Although it is likely that the situation has significantly improved since 2000, a more recent survey in 2003 found that most e-government websites still function as merely "online brochures"

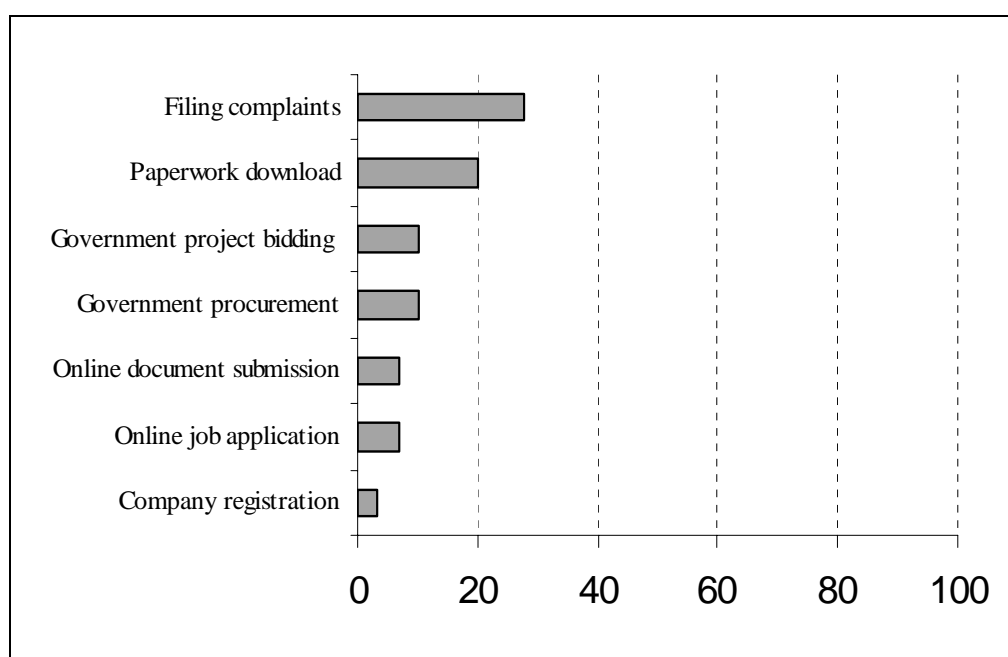
(People's Daily, 2003). Improving information provision therefore remains an important task for e-government in China.

Service Delivery

98. Compared to the information provision function, there are significantly fewer e-government websites offering online service delivery to citizens. The QSIIRC Survey shows that in 2002 the more frequently offered services were filing complaints (27.6 percent) and downloading paperwork (20.1 percent). About one-tenth of the websites supported online bidding for government projects and web-based government procurement of supplies. Only a small percentage provided online document submission (6.9 percent), job application (6.9 percent), or company registration (3.4 percent).

99. The capacity for service delivery to citizens and businesses has been quickly increasing since 2002, especially with the launching of the twelve Golden Projects whose effects on back-office are not readily quantifiable. For instance, the Golden Tax Project simplifies the process of invoice verification, increases efficiency, and greatly reduces corruption by enabling online supervision from the national to county-level taxation offices. By so doing, it not only guarantees government revenue but also shortens the process of filing taxes and getting tax returns. These reforms may not be apparent from the examination of websites on the external network, but their profound impact is not to be underestimated.

Figure 3. Online service deliveries by China's e-government websites (%)



100. Shanghai Municipality, for example, is particularly active in promoting web-based service delivery to citizens and businesses. The website of the Shanghai Informatization Committee (www.shanghaiit.gov.cn) provides twelve service links for the general public, allowing residents to apply for social security cards, join IT training schools, and check scores for college entrance examinations. It has comprehensive functions to assist commercial enterprises including the downloading of 16 forms and 15 online application programs as of March 2004. The Shanghai Administration of Industry and Commerce (www.sgs.gov.cn) also provides a series of online services for local and international entrepreneurs, who can fill in and submit most of the registration and licensing paperwork on the Internet.

101. In addition to online services targeting Internet users, e-government may also bring about back-office changes that can improve service to those without Internet access who contact the government through more traditional channels. For instance, local governments in China are experimenting with innovative ways to blend online e-government applications with such traditional media as the telephone. The Haishu District Government of Ningbo City, Zhejiang Province, established the 81890 Community Service Center, which is both a website (www.81890.gov.cn) and a hotline. Using either mode of communication, residents can request a wide variety of services from plumbing to childcare to street repair. The system is supported by several databases that record not only service requests and appointment information but also customer feedback and ratings for service quality. By the end of June 2003, the center had handled 142,518 requests since its inception in August 2001. Similar e-community services have been launched in Shanghai, Hangzhou (Zhejiang Province), and Jiangmen (Guangdong Province), using both the Internet and the telephone.

102. Innovative modes of G2G service delivery are also emerging at the local levels. In Nanhai, Guangdong Province, an online accountancy center was established that centrally manages financial accounts for all public sector units (PSUs) directly under the city government. This is a secured internal-network system that gives high-ranking officials more access to financial information updated on daily basis with data retrieved from the PSUs and their bank accounts. As a result, the PSUs no longer need to have their own accountants. Bookkeeping and funds allocation can all be done online.

Citizen Engagement

103. According to the QSIIRC 2002 study, one-fifth (20.1 percent) of China's e-government websites have online polls or designated space to accept suggestions from the public. This is a fairly recent development that is mostly found in wealthy areas and economic sectors. The limited scope of online citizen participation is due in part to insufficient mechanisms for ensuring public participation in decision-making processes generally, given that administrative reform is only gradually proceeding in this area. For obvious reasons, the CCP is pursuing such reforms cautiously. Out of habit, most private citizens, for-profits, and NGOs often perceive themselves as being incapable of engaging in political processes and making any difference. This situation, however, has slowly started to change with the growth of e-government.

104. Since 2003, it has become increasingly common for national or local government agencies to host online public opinion polls and solicit feedback on policy proposals. One example is the web-based opinion collection for regulations issued by the State Administration of Industry and Commerce (SAIC). From March to July 2003, SAIC's China Foreign Investor Registration Network (<http://wzj.saic.gov.cn>) publicized five draft regulations and received 1,200 comments and suggestions, of which 41 were incorporated into the final documents. The most outstanding experiment at the sub-national level is being carried out in east China's Suzhou City, which has launched a website with an active public forum that attracts considerable input from the city residents (see Box 4).

Box 4. Suzhou's Public Supervision BBS

Suzhou Online (www.suzhou.gov.cn) is a prominent local experiment intended to increase citizen participation through ICT. Hosted by Suzhou City, Jiangsu Province, this portal has three features to ensure that public voices are heard in policy-making and everyday administration. First, it allows the delivery of email to the inboxes of city mayors, heads of district/county governments, and directors of all city-level departments. Second, there is a designated "Open Governance (*zhengwu gongkai*)" section on the website that publicizes regulations, shows administrative structure, and introduces key national and local policies.

Third, the most innovative feature is Suzhou Online's electronic bulletin board system (BBS) titled "Public Supervision" (*gongzhong jiandu*), which enables individual citizens to share their concerns with related government agencies in an open public forum. In addition to the content of citizen-government interactions, this BBS also shows when an inquiry was first raised, which office was in charge, whether it replied, and if so, when.

By the end of February 2004, the forum had close to 1,000 posts, of which more than 900 received replies from specified government offices. One typical message was from an anonymous resident who expressed concern about the police's use of force during a car chase following a kidnapping incident. The City Bureau of Public Security posted a reply on the following workday reporting the result of a quick internal investigation, explaining that adequate precaution was taken and thanking the citizen for his/her concern. In another message, a Suzhou resident proposed to reduce bus noise by stopping the announcement of bus station names using loudspeakers. The City Bureau of Transportation responded within 24 hours, saying that it had asked bus companies to control noise in the evenings and that the situation would soon improve. With such open and interactive online features, Suzhou residents are participating in the policymaking process of the city in an unprecedented way.

105. However, Suzhou has a population that is relatively affluent and well educated, and the city's geographic adjacency to Shanghai means it is more influenced by global market forces than elsewhere. So, it remains to be seen whether or not such examples of increased openness will spread to other parts of the country or to other spheres of state-society relationship such as NGOs, which are largely absent in the current e-government processes due to insufficient funds and lack of training opportunities. On this note, if the Central Government is closely watching the Suzhou experiment, to what extent are the nation's top leaders willing to include non-state actors not merely in local experiments but as a formal national policy with tangible enforcement mechanisms? This question addresses one of the ultimate tests that e-government in China has to meet.

VI. Common Frameworks

106. Sharing information across institutional boundaries is among the most serious challenges facing e-government in China. For decades, the culture of the government has been to guard information rather than share it. Before 2002, local governments, agencies led by the ministries, and competing commercial enterprises initiated a large number of e-government projects. Most of them centralized information to governing bodies at a certain administrative level or in a certain sector. The need for data sharing with other e-government systems in the country was often neglected, giving rise to a great number of "information islands" with incompatible formats and structures.

107. It was precisely because of this problem that the NISG recognizes that the main challenges to China's e-government are "(1) separate operations in network construction that result in overlapping and/or incorrectly structured systems; (2) inadequate online platforms with limited scope of application and services; (3) slow utilization of information resources constrained by the lack of interconnectivity and sharing; and (4) incompatible standards, security risks, and legislative weaknesses" (2002).

108. State Council Document No.17 thus outlined the common framework of "Two Networks, One Portal, Four Databases, and Twelve Golden Projects." While the internal and external networks are expected to provide the infrastructure for data sharing, the four nationwide databases are the most central to the effort of integrating separate information resources. Unconfined by sectoral and ministerial boundaries, the Four Databases under construction are structured to provide a material basis for data sharing about the management of individual citizens, juridical persons (non-profit or for-profit organizations), natural resources, and the macro economy. While most of these initiatives are in progress, they are establishing common standards for a large number of state agencies at various administrative

levels to work together in a shared framework. It is reasonable to predict that in a few years China's e-government systems, and the administrative framework at large, will be much more closely integrated.

109. However, the development of e-government standards is still at an early stage in China. Although official documents often call for more interconnectivity, they are seldom translated into actual operational procedures with the necessary level of specificity. One exception is the Technical Guidelines for E-Government Projects jointly issued by SCIO, the Ministry of Science and Technology, and the Ministry of Information Industry in April 2003. This document attempts to give operational instructions, but even so it provides mostly "guidelines" at the national level. Our interviews with local state agencies and IT industry players show that, while they appreciate the value of the Technical Guidelines, the need for more specific standards persists.

110. Here exists a tension: while lower-level officials and e-government contractors (e.g., programmers) demand more detailed guidelines, for example, about system standardization, leaders at higher administrative levels tend to be cautious and would like to see more experiments and more "natural selection" in the marketplace before the Central Government promotes any specific standard. This is understandable given the preliminary stage of e-government in China, and it will take some time to regularize interactions across the government and with the IT industry to produce a more inclusive framework of cooperation. In the meantime, local government officials do not have the authority to make formal decisions. Hence, without sufficient guidance, there is a real danger of a roadblock in terms of e-government policy and decision-making.

111. The government's responsibility for anticipating risk and responding to emergencies, accompanied by increased transparency and accountability, may also be instrumental in facilitating interconnectivity across administrative boundaries. For instance, during and after the epidemic of Severe Acute Respiratory Syndrome (SARS) in 2003, Beijing and several city governments initiated disease control information systems to manage the crisis (see Box 5). Although the bulk of work was carried out based on existing systems that were not linked at the time, much e-government effort since then has been to connect and integrate the distributed information sources.

Box 5. SARS as a Catalyst for E-Government

At the early stage of the SARS outbreak, information about the disease was distributed in many organizations, such as hotel clinics, military hospitals, university health centers, and local hygiene bureaus, that normally do not need to communicate with each other at high speed. Although many of these organizations were equipped with online computers, they were not integrated in the same system. The fragmented structure of information distribution was an important factor leading to the delay of government response in many places.

On May 25, 2003, China's first multi-dimensional SARS prevention information system went into operation in Beijing. With assistance from UNDP and other international organizations, the Beijing Municipal Informatization Office coordinated this project together with the Beijing Bureau of Hygiene and the Beijing Center of Disease Control. Greatwall Software Inc programmed the "Beijing Epidemic and Patients Information Delivery System," which integrated information about SARS diffusion, treatment, case tracking, and analyses.

Similar projects emerged quickly across the country. Larger endeavors were in progress to not only connect sub-units of the healthcare system but also reach other systems, such as transportation, telecommunication, and mass media. In the aftermath of SARS, it was estimated that 2.36 billion RMB (US\$ 285 million) would be spent on healthcare informatization by the end of 2003.

VII. Organizational Change

112. According to the Proclamation of the 16th CCP Congress in November 2002, China has committed to reconfiguring its existing system of public administration into a new organism that is "just, transparent, clean, and highly efficient." To reach this goal, the general function of government is to be transformed from traditional top-down regulation focusing on service provision and management. E-government is the centerpiece of this transformation, which will lead to changes in administrative processes, working methods, and organizational culture. As former Premier Zhu Rongji reportedly said, the focus of e-government initiatives were not on the "e," but rather on the "government," "to improve the transformation of government in terms of management systems, management values, management patterns, and management methods" (Zhang and Gao, 2003).

113. Despite the early stage of transformation and the lack of indicators, we have observed positive organizational changes resulting from e-government developments in different geographic regions and different sectors. The main outcomes include the enhancement of efficiency, transparency and accountability, which all contribute to China's anti-corruption endeavors. Besides back-office G2G relations, the new, more transparent administration also encompass G2C and G2B connections to engage members of the growing civil society and private sector players.

Efficiency

114. E-government programs significantly elevate the efficiency of government work. This was the consensus of officials, IT entrepreneurs, and NGO representatives with regard to the specific tasks and projects they engaged in. At the national level, the framework of "two networks, one portal, four databases, and twelve Golden Projects" explicitly encourages interconnectivity and content sharing within the government both horizontally and vertically. In so doing, it is creating a simplified structure across the nation that is expected to greatly improve administrative efficiency.

115. Meanwhile, the Central Government is promoting the standardization of operational procedures, which is essential to meet the goals of public sector reform. Two kinds of procedures are affected: the

processes of e-government construction (front office) and the applications of e-government in administrative work (back office). Both attract so much attention from Chinese officials and analysts that discussions of procedural measures from policy formation to implementation to outcome assessment have become a main component of e-government policy deliberation in the country.

116. Under such circumstances, local projects that aim at increasing efficiency have begun to emerge, especially since 2002. For example, Suzhou Industrial Park One-Stop Service Center was established on January 1, 2003, so that local businesses can obtain most of the services they need in one centralized location. With five main offices and 24 windows, the Center accommodates officials from various local state agencies, whose computer terminals in the building are networked with their central offices, such as the Bureau of Industry and Commerce, of Taxation, and of Land Resources. The Center is equipped with a website (<http://ossc.sipac.gov.cn>) offering document downloading, online consultation, and online application services.

117. The “one-stop” setup greatly enhances productivity for government and for users. From the customer’s perspective, applicants no longer need to travel back and forth among multiple office buildings to complete one task, such as setting up a new firm. It also simplifies work for government employees because, after visiting the website and getting consultation services, most business representatives walk in better informed about the administrative procedure, and many of them have already completed their downloaded paperwork. By September 2004, the Center had received more than 55,000 service requests, of which more than 54,000 were already processed.

118. With the progress of e-government, measures have also been taken in cities such as Beijing to consolidate previously separate procedures into so-called “one-form” services. In November 2002, the Beijing Administration of Industry and Commerce simplified its administrative process by consolidating eight different business enterprise registration forms into a single document. The Haidian District Committee of Zhongguancun Science and Technology Park launched one-form services in June 2002 so that only one document needs to be exchanged between business enterprises and the local government, while information is shared among relevant state agencies (Zhu, 2002). As a result of this restructuring, on average it now only takes three working days to approve a new domestic enterprise, as opposed to fifteen working days in the past.

119. In South China, the People’s Court of Nanhai (<http://fayuan.nanhai.gov.cn>) is using its website to provide services more efficiently to the general public. In addition, its local access network allows multiple offices to share data and automatically assign cases to judges following a random selection procedure. As a result, while it used to take about one week for the court to accept a case and put it on file for investigation and prosecution, it now takes thirty minutes.

120. Local e-government projects that considerably increase work efficiency are scattered throughout the country, especially in the wealthier coastal regions. While these are among the most laudable achievements of e-government in China, most of the projects are fairly recent, which means it is still too early to fully evaluate the organizational impact of the newly simplified procedures, if they can persist in the long term, and if the more efficient technical structure will result in any permanent alteration of the organizational culture of Chinese bureaucracies. These examples provide anecdotal evidence of the effect of e-government on productivity for both the government and users. Aggregate data and measures of productivity do not yet exist but will become increasingly important as e-government projects mature and officials begin to ask what has been the impact of ICT investment.

Transparency & Accountability

121. By providing information about government structure and administrative procedures, e-government initiatives are increasing official transparency and accountability both inside the government and vis-à-vis the general public. The scope of this organizational change in the public sector, although still in an initial stage, is of great significance because many institutional remnants from the age of planned economy are inconsistent with the goal of building a more transparent and accountable government. Essential to this transformation are three measures taken by the Central Government: (1) setting up standardized operational guidelines for public administrators, (2) reshaping the examination and approval system in the administrative structure, and (3) formulating specific measures to ensure openness and transparency (Wang, et al, 2003, p. 21).

122. As discussed earlier, a key move that may lay the cornerstone for a more transparent government is the Open Governance Act, which is being revised as we write this report. This is a crucial development because, although many e-government experiments like the Public Supervision BBS in Suzhou (see Box 4) are taking place, they are only local projects yet to be elevated into formal rules of behavior for all government employees. Hence, the fact that this act was drafted and is now under revision suggests that a significant force has gathered within the Chinese government in support of more transparency.

123. However, because the act is still under revision, it is possible that the legislative process may be slow and involve many internal negotiations that could result in significant compromises at the expense of transparency, especially transparency toward the public. Most critical is the institutional setup of the government unit that will decide what is a state secret and what is not, and the enforcement mechanism that decision would entail. Without a robust organizational framework and concrete operational guarantees, the Open Governance Act may not be able to overcome resistance within the government during its implementation stage (People's Daily, 2001).

124. Meanwhile, with the increase of transparency enabled by the internal network, it is now easier for officials to quickly retrieve information and distribute documents at and across administrative levels. This is particularly helpful for authorities at higher levels because, as Foster, Goodman, and Tan write, "in the interests of productivity, the government wants to decentralize decision making to the provinces and the markets, but wants to make sure that it is able to keep track of those decisions" (2000). Thus, as Hachigian observes, "the Central Government is using the Internet's infrastructure to improve its own administrative control over provincial and local officials" by acquiring a stronger capacity to monitor administrative procedures and results at the sub-national levels (2001).

125. One of the most notable changes in local-level administrative practice is in the procedures of e-government construction itself. Before 2002, given the predominantly local experimental nature of e-government at the time, few guidelines addressed the proper working methods for e-government projects. Contracts were therefore often given to companies that had personal connections to local decision makers through an informal process that was neither transparent nor accountable, causing particular problems with meeting deadlines and controlling budgets.

126. However, since 2002, new measures have been taken to transform the practice of government procurement and project bidding. According to the Government Procurement Act promulgated in June 2002, state agencies are now required to first release information to the general public about its future purchases. A formal process of bidding follows, after which a committee will choose the best bidder based on factors such as price, work quality, and risk estimation. At the end, the selected company must sign a contract specifying terms, including penalties if requirements or deadlines are not met.

127. These measures are carried out in many localities as we observed in fieldwork during 2003-2004. Since by that time most local governments had established their online presence, it was common practice to include pop-up announcements on their portals about government purchase and future projects. Some large cities also launched special websites for this purpose; for example, the Shanghai Government Procurement Network (<http://www.ccg-p-shanghai.gov.cn>). From interviews conducted in South, East, and North China, we learned that this open bidding system had greatly improved government procurement practices in general and the processes of e-government construction in particular by significantly lowering costs and enhancing the work quality of contractors.

128. On another note, while some maintain that China's e-government initiatives are largely designed to increase surveillance over not only other governmental entities but also private citizens (Walton, 2001; Kluver, 2004), the growth of the external network is exposing an increasing amount of government activities to public scrutiny. There is certainly an enormous need to increase citizen engagement, as previously discussed. But as shown in the case of Suzhou's Public Supervision BBS (see Box 4), citizens and business firms may begin to hold government agencies accountable by subjecting them to the new online environment of open inquiries. From the city mayor to investors to ordinary residents, everyone can see which city government offices receive what kinds of queries and suggestions, how they respond, and how long it takes for them to provide feedback. The formalization of measures to increase government accountability is still a pending issue, though, as progress is often made within the limited institutional context of a specific city or particular profession. But despite the limited scope, at least the process of transformation has begun in the actuality of organizational practice, not as mere rhetoric.

Anti-Corruption

129. Progress in e-government effectively counters corruption by placing officials in a transparent environment where they can be more easily held accountable. This is of particular significance to the Chinese government, which has identified corruption as the most serious obstacle to the country's modernization drive (Gong, 2003). Successful projects such as the Golden Customs and Golden Tax have demonstrated the usefulness and potential cost-savings of e-government initiatives to eliminate corruption (see Box 6).

Box 6. Anti-Corruption through the Golden Customs

Due to the lack of real-time interconnection within the customs system, illegal transactions frequently took place with support from government employees who accepted bribes. However, the Golden Customs Project implemented the "electronic port system" that networks twelve divisions, including customs, banks, import/export inspection, foreign currency management, foreign trade administration, and taxation. Using a model called "electronic base-record + online crosschecking," no transaction can be approved without positive feedback from all the networked databases.

According to the Customs General Administration, the total amount of illegal transactions caused by official corruption was 1.5 billion RMB (US\$ 181 million) in 1997 and 2.1 billion RMB (US\$ 253.9 million) in 1998. The number decreased to 313 million RMB (US\$ 37.8 million) in 1999, the first year that the "electronic port system" was completed. It has become almost non-existent since 2000

130. The observation about Golden Customs is consistent with arguments that a major function of e-government in China is to increase the capacity of the Central Government to step up internal monitoring of subordinate agencies (Hachigian, 2001; Kluver, 2004). This is an urgent task because government corruption stems not from the flawed personalities of individual officials but also from a deformed organizational culture or an "incentive structure for not telling the truth" (Ding, 2002, p. 200). As a result, the solution must be a fundamental overhaul of this culture of corruption so that high-level decision-

making bodies will no longer be left “in a state of systemic misinformation” (ibid, p. 208). Although it remains uncertain how ICT-based anti-corruption measures can be implemented in sectors other than customs, e-government offers a rare opportunity to uproot the culture of corruption with institutional reforms embedded in specific technological mechanisms.

Public Management

131. A main promise of e-government in China is that it will enhance the government’s capacity to manage public resources and provide services by using ICT. But to realize this goal, long-standing issues in the existing public management system must be resolved, such as the relatively low computer/Internet literacy among government workers, the traditional top-down approach to treating citizens and businesses, and the ambiguous relationship between the public and the private.

132. Compared to government workers in OECD countries, state employees in China require more technical training because their competence in using ICT varies significantly. Although 65 percent of employees in the Central Government are college-educated, only 10 percent of those who work at the sub-national level have a college education (Wang, et al, 2003, p. 16). A large number of those who have not attended college have low computer literacy, which is particularly an issue in small cities and less-developed inland regions. It thus remains an urgent task to increase information management skills among average Chinese officials.

133. Besides increasing technological know-how, the Chinese government faces a deeper problem because, in the existing administrative culture, officials tend to take a top-down approach in their management style when dealing with citizens and businesses. As Kluver (2004) points out, this is very different from most OECD countries, in which technology is used to reinforce good existing government practices. In China, “in attempting to launch the e-government initiatives, the government is implementing procedures that are based on a set of assumptions about human behavior that are largely untested.”

134. An important task is, therefore, to transform the outdated management style, or else e-government in China won’t be able to succeed. With their old bureaucratic mentality and work habits, certain officials would use ICT for their own personal benefit or for the sole purpose of social control, which contradicts the goals of cost reduction and transparency. Transforming general management style obviously goes beyond the undertaking of e-government and may need much more time than the diffusion of technology. But it is critical because, after all, the essence of e-government is overcoming dysfunctional past tendencies to achieve better government.

135. Due to the influence of the previous socialist planned economy, the ambiguous relationship between state and non-state sectors poses another barrier to public management. As mentioned earlier, for-profit and private companies have played an important role in the early development of e-government in China, and they continue to be an indispensable driving force in the e-government market. These include a large number of telecom service providers, infrastructure builders, and software and hardware producers from both within and outside the country, whose relationship with state agencies is often contingent upon specific contexts and the informal personal connections of *guanxi*.

136. While it is understandable that the direct involvement of foreign companies is usually limited to the provision of hardware and some basic software for the protection of state secrets, the debate is ongoing regarding whether and how domestic private or for-profit organizations should play a role in the e-government process. This is not an easy decision, because many commercial e-government operations, like the Government Online Project, were initiated with administrative support from certain state agencies. Many companies were also funded in part or in full by local governments, which adds to the situation’s complexity. Although the recent Government Procurement Act standardizes the public-private relationship

to some extent, the cooperative ties remain murky in many cases, indicating a need to enhance the public management framework when it comes to working with non-state organizations in e-government projects.

Key Variables and Issues

137. The Long March of e-government has just begun in China. Policy priorities are far from settled. Also remaining to be settled are the legal framework, the procedures for local implementation and the connections between e-government programs and the broader society. Due to the complexity of e-government issues and the early stage of its development, it is crucial for the OECD to avoid hurried conclusions based on random observations or untested presumptions in its future cooperations with China.

138. Attention should be paid to several key variables and issues that are most urgently needed in the Chinese context. These include aspects of the internal reform of state administration as well as the relationship between government, civil society, and the IT industry.

The most imperative intra-institutional issues facing e-government include:

- The establishment of basic legal parameters – This provides the most fundamental rule of the game, guaranteeing the long-term development of e-government in the country. Besides the Open Governance Act, a new set of rules needs to include more coordinated considerations for intellectual property rights, network security, and privacy.
- The reshaping of institutional frameworks – Institutional barriers are the most obvious impediments to e-government, requiring administrative simplification and deeper back-office reform aiming at better customer focus and data sharing. In addition to its guiding principles, China needs more detailed implementation plans that specify priority orders, procedures, and ways of adjusting to a changing environment.
- The problem of interconnectivity – This is a specific institutional barrier with a unique organizational history. A major challenge for the Chinese government is integrating existing e-government “information islands” that use different platforms, standards, and protocols. Connectivity and interoperability is a pressing issue nationwide.
- Leadership style – So far, strong political leadership has been a most important asset for e-government in China. However, the existing leadership style is also problematic because of its reliance on top-down commands and informal personal relationships. Moreover, we know very little about the specific processes of “Top Leadership Projects” and the like, or how they are influencing average government employees with what kinds of intended and unintended consequences.
- Network security – Most officials are concerned about network security. To solve this issue, not only does China need better security technologies and more training, but it also needs to develop and implement a comprehensive set of organizational rules and procedures. The technical and non-technical measures for security protection should be incorporated in the plan for a common e-government framework so that it will not overly compromise efficiency and transparency.
- Budgeting – Determining and allocating funds remains a central issue in the planning and implementation of e-government projects. Most local governments are yet to institute a formal procedure to estimate cost, which has to do with the lack of formative research. Insufficient funding for software, application development, and system maintenance is common. The general budgeting problem is particularly challenging in less-developed regions.

139. The following issues are central to e-government as a new way of improving the relationship between government, civil society, and the IT industry:

- Balancing the functions of social control and public service – The last thing an international organization would like to see is e-government becoming merely another powerful instrument for state surveillance and social control. Although the concern over electronic surveillance has been voiced in many societies, including most OECD member states, there is relatively little discussion on this subject within the e-government policymaking community of China. The recent emphasis on service provision and customer focus is helping to restore the balance between service and control, although this subject requires attention in the long run because of its fundamental significance in state-society relationship.
- The digital divide and e-government in less developed regions – National coordination is required to address this problem, which may benefit from China's "Go West" inland development strategy. So far there is no specific policy to encourage e-government in less-developed regions. Future steps need to include new policies for and investments in infrastructure building, training, and technical assistance, as well as the research and development of new applications that would suit the needs of citizens and state agencies in these regions. The Chinese government may partner with certain international organizations (e.g., the World Bank) and charitable organizations (e.g., the Gates Foundation) that are already working on digital divide issues in the country to meet the challenge of diffusing e-government services to more Chinese people.
- Public-private relationship – Debate continues over whether e-government taskforces should form cooperative ties with private and non-state IT enterprises, including domestic and foreign firms, especially the local IT companies that were founded in the first place to implement e-government experiments with state sponsorship. The promulgation of the Government Procurement Act is but a first step in clarifying the public-private relationship. It will be important to identify which form of collaboration is best suited for which type of e-government project; for example, network maintenance or the development of multi-functional platforms.
- Citizen engagement and the involvement of NGOs – Although some local state agencies are experimenting with e-government as a new way to spur citizen engagement, these trial efforts have not been systematically examined to draw broader lessons for the rest of the country. Moreover, there has been virtually no effort to include Chinese NGOs in the e-government policy process. Although state officials are not yet ready to work with NGOs on this matter, NGO representatives in Beijing have expressed their eagerness to facilitate the realization of China's e-government goals, if there is sufficient financial and technical support.
- Using other ICTs such as mobile phone and cable/digital TV – If e-government projects can extend beyond the Internet, they will serve a much larger group of citizens and businesses. A promising possibility is m-government, which uses mobile telephone and short messaging system (SMS), which has diffused to different social classes in large cities and small towns. This would be particularly valuable in extending the reach of e-government because China has the world's largest population of mobile phone subscribers. Cable TV systems (especially digital TV with interactive functions) may also be incorporated as another platform for e-government, given the near saturation of cable TV in urban areas. Although like m-government, this means developing new technical standards and platforms on the external network, it should be a cost-efficient solution if resources on e-government websites could be shared.

List of Acronyms

BJPID	Basic Juridical Person Information Database
BPID	Basic Population Information Database
CA	Certification Center
CCID	China Computer Industry Development Research Institute
CCP	Chinese Communist Party
CNNIC	China Internet Network Information Center
G2B	Government-to-business
G2C	Government-to-citizen
G2G	Government-to-government
ICT	Information and communication technology
IT	Information technology
MEID	Macro Economic Information Database
MII	Ministry of Information Industry
MPS	Ministry of Public Security
NGO	Non-government organization
NISG	National Informatization Steering Group
NRSIGID	Natural Resource, Space and Geography Information Database
OECD	The Organization for Economic Cooperation and Development
PRC	People's Republic of China
PSU	Public Sector Unit
QSIIRC	Qualitative Study of Internet Information Resources in China
R&D	Research and Development
RMB	Renminbi
SAIC	State Administration of Industry and Commerce
SARS	Severe Acute Respiratory Syndrome
SCIO	State Council Informatization Office
SCOPSR	State Council Office for Public Sector Reform
SMS	Short-messaging system
UNDP	United Nations Development Programme
VPN	Virtual Private Networks
WTO	World Trade Organization

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Ministry of Education	www.moe.gov.cn
Ministry of Public Security	www.mps.gov.cn
Ministry of Civil Affairs	www.mca.gov.cn
Ministry of Finance	www.mof.gov.cn
Ministry of Information Industry	www.mii.gov.cn
Ministry of Foreign Trade and Economic Cooperation	www.moftec.gov.cn
Ministry of Foreign Affairs	www.fmprc.gov.cn
Ministry of Culture	www.ccnt.gov.cn
Ministry of Labor and Social Security	www.molss.gov.cn
National Bureau of Statistics	www.stats.gov.cn
National Informatization Evaluation Center	www.niec.org.cn
Ningbo 81890 e-Community Service Center	www.81890.gov.cn
The People's Bank of China	www.pbc.gov.cn
The People's Government of Beijing Municipality	www.beijing.gov.cn
The People's Government of Shanghai Municipality	www.shanghai.gov.cn
The People's Government of Guangdong Province	www.gd.gov.cn
The People's Court of Nanhai	http://fayuan.nanhai.gov.cn
State Administration of Foreign Exchange	www.safe.gov.cn
State Administration of Taxation	www.chinatax.gov.cn
State Administration of Industry and Commerce	www.saic.gov.cn
State Development and Planning Commission	www.sdpc.gov.cn
State Economic and Trade Commission	www.setc.gov.cn
Shanghai Administration of Industry and Commerce	www.sgs.gov.cn
Shanghai Informatization Committee	www.shanghaiit.gov.cn
Shanghai Government Procurement Network	http://www.ccgp-shanghai.gov.cn
Suzhou Industrial Park One-Stop Service Center	http://osscc.sipac.gov.cn

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