Effective finding for e-government is a big challenge that all governments are facing. For government itself, an effective funding strategy must be developed and implemented. Accordingly, government should carefully design its own funding mechanism. Particularly, funding for e-government should be integrated into annual budget process of government, not only for development but also for operation, maintenance and upgrading of e-government systems. In addition, effective funding strategies should be closely linked with collaboration strategies among the agencies so as to promote cross-agency e-government initiatives.

Government direct funding for e-government remains fundamental at the moment. However, this is not necessary the situation when e-government project becomes a more marketable project. So it is important to raise awareness of both the public and private sectors and seek funding from any possible partners. On the one hand, government can accelerate its pace of informatization and provide better services to civil society without spending too much money of taxpayers. On the other hand, the investors can also benefit a lot, from a large market share to substantive increasing of revenue.

For long-term success of any e-government project, it is crucial that sustainable relationships are developed across the public, the private and other sectors, and collaborations with partner agencies and stakeholders are effectively established. With this regard, China has made significant progress over the past six years which has greatly stimulated China’s e-government development.

I. The Development of Government Informatization in China

The beginning of government informatization in China dates back to 1975 and is marked by the establishment of the National Computer Center within the State Planning Commission. In 1983, approved by the State Council, the Office for Management of Economic Information was set up, responsible for planning and building of the State Economic Management Information System. In the sequel, computer centers in 43 ministries and agencies at the central government were
established; total investments for the State Economic Management Information Systems (SEMISs) amounted to 20 billions RMB Yuan; 1,391 units of mainframes and mini-computers as well as 60,000 PCs and 30,000 terminals were imported; and 174 databases and 252 various management information systems (MISs) were developed.

The benefits of these informatization efforts were obvious. For example, a national banking clearing system developed by the China People’s Bank connected computers in 400 cities via satellite and reduced the time needed for clearing trillion RMB Yuan from 7-10 days to 1-2 days. A three-tiers national railway MIS was established within the Ministry of Railways, connected 12 Bureaus and 57 Sub-Bureaus and networked 87% of locomotive depots and 67% of trainmasters. By 1991, within the central government, 806 databases with different themes were developed, among which 360 (45%) are in sciences and engineering; 234 (29%) in education, culture and health; 167 (21%) in economy, finance and fiscal, and commercial.

In 1993-1994, in response to the Information Highway Plan of US, the National Economic Informatization Joint Meeting was established and chaired by a Vice Premier in order to accelerate the informatization process of China. Three large-scale projects, so called “three Golden Projects” - Golden (Bank) Cards, Golden Customs, and Golden Bridge project, were launched. Since then, a prefix “Golden” is added to all national government information system projects. In the middle of 1995, the Information Services Network of the State Information Center (SICNET) began to provide daily information services to the government and the public, covering data and information on daily-economy, money and fiscal, macro-economy, prices of goods, foreign investments, real estates, international economy, etc. Value-added services, such as email, video-conferencing, phone-conferencing, and advertisements are also available.

By 1999, Golden-Customs made great achievement. A number of sub-systems were established, including coding system of goods and enterprises, quota and certificates management system, import and export statistical system, management system of tax reimbursement for export, etc. The customs computer system connects with the bank branches and the Exchange Control Administration, and correspondingly, networked examination and verification of customs declarations were achieved. As a result, various relevant crimes were effectively prevented while raising the efficiency of customs business. Golden-Card project promoted the networking of different banks so that bank cards could be used across different banks. At the beginning, clients could withdraw money from ATM in 12 cities, and the National Banking Network System could handle more than 50,000 transactions per day, amount to 80-100 billion RMB Yuan. In the mean time, smart cards began to be used in non-banking businesses, such as public safety, insurance, payroll, transportation, health and medicare.
In 1992, the Office of the State Council started to promote the development of office automation systems at all levels of the Chinese Government. By 2000, a national-wide office automation system connecting the government ministries, departments and the governments at different levels was established. In April 1998, the City of QingDao established the first government website of China. In January 1999, China Telecom, together with more than 40 government agencies, advocated “Government Online Engineering”, the goal is to have 60% of ministries and 80% of local government online in 1999 and 2000, respectively. By May 1999, there were 1470 domain names registered under gov.cn in China.

In August 2001, the Leading Group of State Informatization, headed by the Premier Zhu RongJI and membered by the heads of the key ministries, was established. At the same time, the State Council Informatization Office was set up as the secretariat of the Leading Group and is responsible for policy, strategy and coordination. The Advisory Committee for State Informatization, consisting of 55 outstanding experts covering economic, social, politic, scientific, cultural and engineering, was also established as the primary consultation body to the Leading Group. In December 2001, the Leading Group held its first meeting and decided that e-government should be the first priority of the state informatization. Obviously, the intention of the Government is to use e-government to leverage the overall development of informatization in China, particularly in the economic and social spheres, as well as the booming of information industry in China.

Since then, the e-government has been developed at an accelerated speed. The official portal of the Central Government came into operation formally on 1 January 2006 (www.gov.cn, Fig.1). By the end of 2006, the registered Chinese Government domain names (gov.cn) and the government websites have reached 23,800 and 11,052,
respectively. The penetration of the government websites at the levels of ministry, province, city and county was 96.1%, 96.9%, 97% and 83.1%, respectively. A series of national information systems have played significant role in the normal operation of China’s economic and social system. For example, By June of 2005, the national eTaxation system has connected with 25,749 nodes and 18,181 LANs in operation. More then 30-million enterprises and 22-million taxpayers are being managed by the computer systems. For the year of 2005, China’s revenue increased by 500 billion RMB Yuan comparing with the year of 2004. Among the increment, 300 billions came from the e-taxation system – according to the Taxation Authority. The Portal of Ministry of Commerce has become a window for information publication, a platform for opening government business, a bridge between government and the public, and a gateway for providing public services. Its monthly visitors worldwide surpass 20 millions in 2006. The Online Service Center of the Ministry helps enterprises greatly, e.g. 206,383 contracts for processing trade were approved via the Internet for the first half of 2006; 24,471 enterprises participated into open tendering for three textile export quota on the Internet in 2006.

II. Government Funding

Government direct funding is fundamental for a healthy development of e-government in many countries, so is in China. In fact, a large percentage of funds for e-government come from the Treasury of the Chinese Government. In order to further clarify the funding mechanism, the Office of the State Council, on behalf of the Leading Group of State Informatization of China, issued a government instruction in August 2002, which outlines the main requests for e-government funding including:

- The governments at all levels must ensure the funds available for the development and operation of e-government projects,
- The funds for national e-government systems will be shared by the central government and the local governments involved,
- The construction expenses of e-government projects to be borne by the central government will be charged to the development budget of the central government, which is managed by the State Development and Reform Commission, and the operation expenses for the systems in use will be borne by the Treasury of the central government, which is under the Ministry of Finance.
- The funds for the development and operation of local e-government systems, in principal, should be borne by the relevant local governments. However, for those governments which are grappling with financial difficulties, some financial assistance can be expected.

This instruction plays a significant role in promoting e-government development in China. In particular, the third point above is very important and solves a long-pending problem for the normal operation of government information systems. Because, the case
before e-government becomes popular is always like this: there is money for building a
government information system but no money for its normal operation and maintenance,
needless to say upgrading.

Fig. 2. eGovernment Spending in China, 2003-2005

Fig. 2. shows the e-government spending of China from 2003 to 2005, provided by
CCID Consulting, China. During this period, China’s annual expense for e-government
development is about $5.64 billion US dollars with an increasing rate of 17 percentages.
Fig.3. gives the estimated e-government spending from 2006-2008, which shows that
China’s e-government spending will continuously increase in a rate of 15%~16% and
will reach $9.6 billion US dollars in 2008 – more then doubled comparing with the data
in 2003.

The figures above cited does not take into account the inputs of the government
information infrastructure building since, in the most of the cases, governments at all
levels are encouraged to use the public telecommunication network and VPN technology instead of building their own infrastructure. By the end of 2006, China’s optical fiber cable length is about 4.26 million kilometers, among which 0.72 million kilometers are long-distance optical fiber cable.

III. BOO and BOT Models

While government direct funding remains fundamental at the moment, however, this is not necessary the situation when e-government becomes more marketable. In China, the governments attach importance to raise both the public and private sector awareness and to seek funding from any possible bodies. The governments’ wish is, on the one hand, to use social capital to accelerate e-government development and benefit the people and, on the other hand, to stimulate the development of information industry in China, particularly, the service industry development. In this regard, BOO and BOT models presented below are increasingly being adopted and become useful and effective tools for funding e-government.

**BOO (Build-Own-Operate) Model**

With the build-own-operate model, a private company is granted the right to develop, finance, design, build, own, operate, and maintain e-government projects. The private sector partner owns the project outright and retains the operating revenue risk and all of the surplus operating revenue in perpetuity. While this approach is more common in power supply, civil engineering and telecommunications, it has also been used to develop government informatization projects as well.

Capital Information Development Corporation Ltd. (CIDC), an IT company in Beijing, China, has developed a cooperation model with governments, i.e., so called BBO model. Under this model, the company invests and undertakes design, system development, operation, maintenance, training, etc. of an information system engineering, and will own the property right of all the hardware, software and other assets to be invested into the system, while government will be responsible for environment cultivation, agency coordination, user requests clarification and confirmation, and an annual payment to the company for the use of the hardware, the software, the system and the services. Thus government can also ensure the system’s vision and its compliance with the legal requirement. Taking advantage of this model, CIDC has built the Beijing Public Platform Network for the Beijing Municipal Government and has developed and kept upgrading all the application systems based on the network, including the Portal of the Beijing Municipal Government (“The Window of Beijing”) and the services provided to the public. CIDC has cooperated with the Beijing Municipal Government for years and both are very satisfied with this type of cooperation model.

In July 2002, CIDC also signed an agreement with the Municipal Government of YingKou, a city in LiaoNing Province of Northeasten China. According to the agreement,
CIDC enjoys the franchise right and takes the overall responsibility for this city’s important information application systems, including overall planning, design, construction, operation, maintenance, management, and funding. In July 2003, a video conference of experts on appraisal and evaluation of “The YingKou Informatization Development Plan” and “The Overall Scheme of YingKou e-government Design” was held at Beijing and YingKou at the same time. The cooperation between CIDC and the YingKou government gives a good opportunity for CIDC to use its experiences and mature technologies outside Beijing, which has no doubt not only saved the investment of CIDC in the projects of YingKou, but also saved the expenses of the YingKou Government and accelerated the pace of e-government development in YingKou. Therefore, it is a win-win situation, indeed. In addition, CIDC has developed a joint venture as well with a local company in YingKou to implement, operate and maintain the information systems developed. It goes without saying that this act also stimulates local capacity building of informatization and e-government.

**BOT (Build-Operate-Transfer) Model** More and more governments are turning to the Build-Operate-Transfer (BOT) model to accomplish the expensive and enormously challenging task — allowing private developers to design, finance, construct, and operate revenue-producing public projects, and then turn them over to the community at the end of an agreed payback period. In China, BOT model has also become very popular in e-government development.

The Labour and Social Security Bureau, QingHai Province - a remote and a less developed region in north-western of China, adopted the BOT model to build its Information Network for Labour and Social Security. QingHua TongFang Corporation Ltd., a well-known company set up by QingHua University of China, takes the contract and is responsible for funding and investment, system development, operation and maintenance, and owns the property right of the assets invested. With this contract, the Labour and Social Security Bureau of QingHai provides policy guidance, right protection, and data and information resources. QingHua TongFang Corporation Ltd. has its capital recovery from selling social security cards, advertisements, and the charges for social security services. The property right of the recovery portions is then transferred to the Labour and Social Security Bureau of QingHai Province. This project with a total investment of 80 million RMB Yuan took off in November 2003 and accomplished in three years.

In July 2004, a “Forum on Accelerating e-government Development in North-Eastern China by Means of BOT” was held in the city of DaLian, LiaoNing Province. At the Forum, TaiFu Digital Corporation Ltd. and the Bureau of Information Industry of the DaLian Municipal Government signed a BOT agreement of e-government, which symbolizes the use of BOT model in the north-eastern part of China. Since then, more and more governments in LiaoNing Province use the BOT model to accelerate their e-government development.
Both BOO and BOT models materialize socialization of investment and operation of e-government. It is good for governments, in particular, for those of short of capital and in less developed areas, because it reduces government’s burden while promoting the development of government informatization. BOO and BOT models also reduce the risks to be undertaken by government in e-government development. It is good for the society as well because a variety of enterprises with respect to e-government, hardware sales, software development, and system integration can compete and find their own opportunities for development and, accordingly, BOO and BOT models stimulate the booming of local information industry. Comparing with BOT model, obviously, BOO model still requests government to pay for the use of the systems and the services.

IV. Public Private Partnership (PPP)

For the long-term success of any e-government project, it is crucial that sustainable relationships are developed across the public, private and other sectors. Links with ICT companies and central or local government agencies are important for the development of technical infrastructures, systems and services. Relationships with other associate organizations for distribution of government services are also the keys to succeed.

In order to provide an integrated and one-stop public services to the enterprises and the citizens, the City of HengShui in HeBei Province, built a “Centre for Administrative Services”, which concentrates 150 government staff and networks more than 40 governmental agencies and deals with 550 items of administrative approvals, 180 items of administrative fee charges. In addition, the Center accepts and hears complains and appeals, and provides government information services.

In the construction of the Centre – a building of 5,600 square meters, the expense of the building and offices fitment was loaned by a local bank and refunded by the monthly inputs from the service charges provided to the public. The costs of the hardware, software, as well as the system development, operation and maintenance were borne by China Netcom – a telecommunication company, with a mutual understanding that the HengShui Municipal Government must hire its circuits. In another words, this is a deal of bartering government resource for market share. The successful implementation of this PPP model shows that the development of e-government in a less developed area is not only possible but also implementable without larger input of government finance.

It is true that governments can barter its own scarce resources for capitals needed. Accordingly, governments need to recognize and rationally manage and operate its resources so as to benefit from its resources as large as possible. In this sense, government officers should have business consciousness to take advantage of its resources. For example, an Internet portal of a local government is an important government resource and can be contracted to a company for building it without any government input to it. Many IT companies would like to do so because they can transfer the authority of government to their own credit and win a larger market share.
However, not all of government businesses are profitable. Therefore, sometimes it is hardly possible or it takes a long time for companies to have returns on investment, or in other situation that profits from e-government project are far less than its investment. In such cases, some of government direct investment is still inevitable.

In HeiLongJiang Province of China, 26 cities and counties have completed the construction of their e-government platforms and the development of various application systems, including information infrastructure, local area networks, websites, portals, and office automation. In addition, another 17 counties have accomplished funding of e-government and are ready for lunching their e-government projects. The market principle is widely adopted by these local governments, and the funding sources of e-government include government financial, telecommunication companies, and IT companies.

V. Collaboration with Telecommunications Company

The telecommunications sector in China has been being developed at a very fast pace over the last 20-30 years and has become one of the most profitable and “rich” sectors in China. In the year of 2006, its annual turnover achieved more then $200 billion US dollars and created a revenue of approximate $100 billion US dollars. Comparing with the year of 2005, the percentage increases of the annual turnover and the revenue are 24.6% and 10.6%, respectively. Currently, the telecommunications companies in China are very keen to invest into the informatization and e-government projects of China for not only more profits but also pursing larger market shares. In this regard, there is a strong competition among the Chinese telecommunication companies, which is definitely in favor of the development of e-government. In fact, the telecommunication sector has played an increasingly important role in China’s informatization and e-government, in terms of not only the information infrastructure building but also, more importantly, the value-added services.

In a number of provinces of China, the telecommunications companies are more and more involved in informatization and e-government, from infrastructure building to funding e-government projects. In Jilin Province of North-Eastern China, with the financial support and technical assistance of the China Netcom, the Bureau of Agriculture of the Provincial Government has developed an “Agricultural Information and Knowledge Service System” to provide hotline services to the farmers on production and trading, particularly those in the remote areas. Besides accessing to the Internet portal of the system to obtain the various information services, another channel to access the services is to directly talk with more then 400 agricultural experts covering various subjects, who are selected from the universities and the research institutes, and equipped with cellular phones and committed turning it on 24 hours a day. A call centre with 12 experts of the 400 on duty everyday is established within the office building of the China Netcom. Whenever farmers have any questions
on agricultural information and knowledge, they can dial the number “12316” from anywhere, by means of either telephone or cellular phone, to reach the call center and put forward their questions. In case the expert on duty is not able to answer a farmer’s question, one of the 400 experts will be informed and connected to deal with the question. During the development of the system, the China Netcom invests 20 million RMB Yuan for both the necessary infrastructure and the information system, provides the offices and facilities of the call center, and pays for the experts either on duty or answering questions according the services they provided. The Bureau of Agriculture is responsible for the contents of the system, the selection of the experts, the terminals to be provided to the farmers, and the operation and management of the system. The farmers only need to pay the charges for the calls they made, which are much lower than the toll of general voice calls. For example, the monthly charge would be 3 RMB Yuan or about $0.40 US dollars. Obviously, the benefit to the telecommunications company is a larger market share because the farmers will still use their lines for any other purposes of calls. Nine months after the establishment, the system has begun to have positive money flow, i.e., the China Netcom has begun to make profits. The Bureau of Agriculture has extended the services to many other areas that the farmers need, such as “what the weather will be like the day after tomorrow”, “what is the illness of my daughter”, “what medicine should I take”, “what is wrong with the pigs I feed”, and so forth. Hence, the network provides not only agricultural information services but also every question that the farmers want to have an answer. Obviously, more questions mean more calls, and, accordingly, mean more uses of the telecommunication infrastructure, and more revenues of the China Netcom.

It is true that the concept of “universal service” and that let people in remote areas can access to the information facility is important. In many places of the world, telecommunication companies made tremendous efforts to have information infrastructure available to the people. However, they find that no one is interested in using it and it is almost impossible to get their investment back. Fortunately, this is not the case of the China Netcom because it binds the information infrastructure and the information services in one basket and has accomplished real “universal services”. Now, the number “12316” has been very popular in JiLin province. For many farmers, they may not know how to use the Internet but they can easily dial this number and get services they want.

Such a collaboration model between governments and telecommunication companies has been accepted in some other provinces in China, and attracted more investments for improving the information infrastructure and government information services. For example, broadband telecommunication networks using optical fibers have been extended to many villages in HeNan and ShanXi Provinces of China. The ShanXi Mobile, a mobile telecommunications company in ShanXi Province, has extended its fiber optical cable to many villages so that farmers can take advantage of its optical fiber network to enjoy broadband services, including VoIP, Cable TV, as well as access to the Internet.
In cooperation with the Ministry of Agriculture, Chinese Academy of Agriculture, China University of Agriculture, the Farmer’s Daily, the China Mobile - the largest mobile telecommunications company in China, has established a national agricultural information platform to provide information services to the farmers nationwide on relevant agricultural information and knowledge, including production, the market, weather, labours, seeds and fertilizer, plant decease and insect pests, etc. Farmers can access the system via cellular phone, farmer specified information terminal, computer terminal, dialling the number “12582”, or using voice or short message. By October of 2006, 12.67 million farmers have become the frequently users of the system.