

ON OBSTACLES TO E-BUSINESS DEVELOPMENT IN MAINLAND CHINA

Guo-an WANG

College of Business

Hangzhou Institute of Electronic Engineering

Mail Box 65, 65 Wenyi Road, Hangzhou, 310012 P. R. China

Phone & Fax: 86-571-88059076

E-mail: tradelaw@mail.hz.zj.cn

ABSTRACT

Although Internet-based e-business has been developing very rapidly in Mainland China in the last 6 years, the following obstacles have hindered its development: 1. computer illiteracy and English illiteracy among elderly business decision makers; 2. incomplete understanding of the real sense of e-business; 3. insufficient technical and legal protection; 4. no sense of security and no trust in e-business; 5. insufficient human resources in information technology; 6. underdeveloped infrastructure and financial unavailability; 7. lack of a system of Certificate Authority, a national payment system and national credit system; 8. lack of a reliable and efficient logistic system; 9. lack of a unified national technology standard to guarantee interoperability; 10. uneven interregional Internet and e-business development. But if great importance is attached to these obstacles and effective measures are taken to overcome them, e-business in Mainland China will make more rapid progress. Otherwise, it will lag farther behind developed countries in this respect and China will be in a disadvantageous position in the era of information and knowledge-based economy.

This paper at first reviews the e-business development in Mainland China, reveals the obstacles and challenges it is confronted with and puts forward some countermeasures to overcome them. Finally it concludes that the e-business future of Mainland China is promising in the coming years if the Chinese government on different levels acts as a strong regulator, an effective coordinator, an aggressive infrastructure builder, and an active e-business initiator and consumer.

I. INTRODUCTION

Though the general Chinese public did not hear the words "Internet" and "e-business" until early 1995, the Internet and

e-business have experienced dramatic development and growth in the last 6 years in Mainland China despite the tough and harsh e-environment in its primary stage. The obstacles to e-business development in Mainland China deserve great attention from Chinese policy makers, officials and administrators, business leaders, and law-making bodies in order to secure sustained and continuous development of its e-business.

II. A REVIEW OF INTERNET-BASED E-BUSINESS DEVELOPMENT IN MAINLAND CHINA

2.1 Mainland China's Access to the Internet Overseas

Although as early as September 20, 1987, Professor QIAN Tian-bai, who was in charge of Chinese Academic Network (CANET), sent the first email message from Mainland China to KARLSRUHE University in Germany, Mainland China did not really enjoy access to the Internet until April 20, 1994, when it was officially recognized as one of the Internet members in the world after China's NCFE Project had become connected with Sprint in the USA[8].

2.2 The Launch of Golden Engineering Project by the State Council of P. R. China

The word "Internet" was not known to the general public until March 12, 1993, when then Vice Premier of the State Council of P. R. China, ZHU Rong-ji, put forward the plan to undertake the Golden Engineering Project to construct China's national public economic and information network. The Golden Engineering Project did not really begin, however, until after June 8, 1994, when the State Council issued *Announcement Concerning Golden Engineering Project [(Golden Bridge, Golden Cards and Golden Taxes) Document No. 18, 1994]*. From that time, the Golden Engineering Project was in full swing[1]. Public and

business-oriented applications appeared and increased in pace with the development of an information infrastructure. More and more enterprises and individuals became acquainted with the words "Internet" and "e-business" or "e-commerce."

2.3 Tough E-business Environment and Rapid Development

E-business did not begin to develop until the spring of 1995 when Internet services began to be available to the general public. The Internet and Internet-based e-businesses have been developing very rapidly in Mainland China since January 1995, when a group of young pioneers headed by HE Yi-bing and Jack MA, crashed into this brand-new field with path-breaking courage and the commitment never to give up. As a result, the first commercial website called chinapages.com was set up in Mainland China, followed by infohiway.com and chinaonline.com. The e-business environment for the three pioneers in Mainland China was then characterized by the following:

1) Few people in China knew the Internet. Much educational work had to be done. The staff members in the three e-business enterprises were very often engaged in the patient work of enlightenment.

2) Chinese enterprises or business leaders were very reluctant to spend money on Internet ventures.

3) There were no laws or rules at all available regarding e-business in China. Therefore, chinapages.com gradually became the target of imitation and copying. Many sites bearing a name similar to chinapages either in pronunciation or in writing appeared one by one all over China. Over 600 brand names of the Chinese enterprise were illegally or inappropriately registered on the Internet by businessmen overseas[4].

4) The Internet infrastructure was very poor and undeveloped. Therefore, the Internet was very slow and very expensive.

With the strong support from the Chinese governments at all levels, the e-environment in Mainland China has greatly improved in the following aspects since 1995:

1) Both the Chinese governments at all levels and the ordinary Chinese people have come to realize the economic potential of the Internet. A recent survey indicates now 98% of the Chinese enterprises have come to realize the very positive effects of the Internet on their business. Consequently, the e-business volume increased from 0.18 million RMB yuan in 1999 to 0.4 billion RMB yuan in 2000 in China[8].

2) More and more Chinese people, especially the younger ones, are becoming English literate and computer literate. English and computer courses are provided to all the students from junior high schools to universities, even to pupils in some of the kindergartens and elementary schools. All the college students must pass the tests of English and computer applications administered by the Ministry of Education of China. Since English is the tool of communication in international business, the improvement of English literacy and computer literacy has certainly contributed to the development of e-business in mainland China.

3) The charges for telecommunication and Internet services have been decreased dramatically in March and October 1999, and in 2001. As a result, the Internet services are affordable for more people.

4) The infrastructure for e-business has been improving. The capacity of the international line increased from 351M in 1999 to 1234 M in 2000, and again to 3257M in June 2001. China has been connected with major business partners, such as the USA, Canada, Australia, the UK, Germany, France, Japan, and South Korea[8].

5) Since 1996 twelve national and departmental regulations and rules regarding the Internet and e-business have been promulgated, which will certainly contribute to the creation of a fair and orderly e-business environment.

With these improvements, consequently, the number of computers with access to the Internet, Internet users, domain names registered under "cn" and www websites shot up at the annual rate of 220% or more (See Table 1 below), while Mainland China's GDP has maintained an increase of 7% -8% for the last few years. According to the most recent Survey Report on Internet development in China, released by the China Internet Network Information Center (CNNIC) July 24, 2001, the number of computers with access to the Internet had reached 10.02 million by the end of June 2001, and had increased by 54% in comparison with the corresponding period of last year. The number of Internet users had amounted to 26.5 million and increased by 4 million. The number of domain names registered under "cn" had reached 128,362 and increased by 28.7%, in comparison with the corresponding period of last year. Of the Internet users, 73.9% often or sometimes reviewed e-business websites and 31.9% of them shopped on line primarily because of time-saving (46.7%) and operational convenience (44.2%)[8].

Table 1 The Internet Development in Mainland China

Year	Number of computers with access to the Internet (1000)	Number of Internet users (1000)	Number of domain names under "cn"	Number of www websites
1997	299	620	4066	1500
1998	747	2100	18396	5300
1999	3500	8900	48965	15153
2000	8920	22500	122099	265405
annual increase rate	224.4%	238.43%	222.67%	219.6%

Source: Survey Reports on Internet Development in China since October 1997 by the China Internet Network Information Center (CNNIC) [8]

Note: The data in 1997 cover the dates until October 1997, and the other data cover the dates until the end of each respective year.

Table 2 Internet users among 100 people

USA	Finland	South Korea	Germany	Japan	China
45	38	21	18	15.5	2%

Source: 1. LI Guo-jie. The Difficulties Facing China's E-commerce Development and Its Counter-measures. *Proceedings of International Symposium on Government in E-commerce Development, Ningbo, China, April 23-24, 2001. ISBN 7-308-02695-7* [6]

2. Survey Report on Internet Development in China released by CNNIC on July 24, 2001 [8]

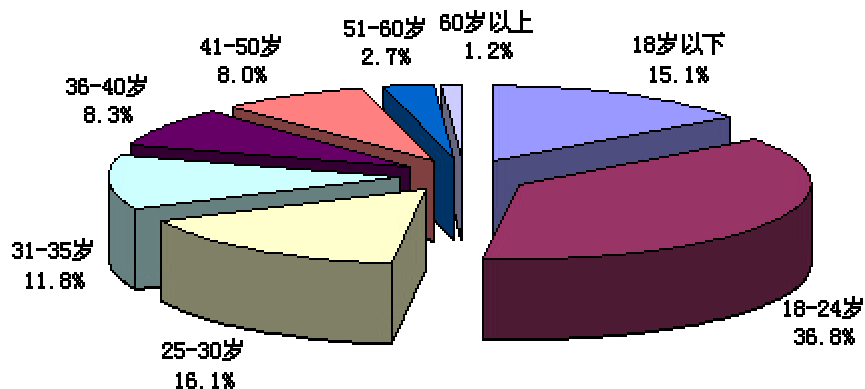
Table 3 Computers owned by every 10 thousand people

World	High-income countries	Middle- and low-income countries	Finland	USA	China
63.1	375	2.41	996	976	0.16

Source: LI Guo-jie. The Difficulties Facing China's Ecommerce Development and Its Counter-measures. *Proceedings of International Symposium on Government in E-commerce Development, Ningbo, China, April 23-24, 2001. ISBN 7-308-02695-7*[6]

Table 4 Internet users in different age range (%)

Age range	under 18	18-24	25-30	31-35	36-40	41-50	51-60	Over 60
%	15.1	36.8	16.1	11.8	8.3	8	2.7	1.2



Source: CNNIC Survey Report on Internet Development in China released on July 24, 2001[8]

Despite its increased Internet use, Mainland China still has lagged far behind in the level of informatization if we take

the huge population of nearly 1.3 billion into consideration and compare it with that of some developed countries (See Table 2 and Table 3 above).

III . BARRIERS TO E-BUSINESS DEVELOPMENT IN MAINLAND CHINA AND COUNTERMEASURES

Generally speaking, China's e-business is still in the primary stage of development. Both the number of people who have shopped online and the e-business volume is still very small. The following factors have hindered e-business development in China:

3.1 Computer Illiteracy and English Illiteracy among Elderly Business Decision Makers

As Table 4 above indicates, the Internet users above 40 account for only 11.9% of all the Internet users while the rest account for 88.1%. As the decision-making power structure is based on the pyramid of seniority in Mainland China, most of the decision makers in Chinese business management and enterprises are above 40. Because China was closed to the West before the 1980s, generally speaking, the older the decision makers are, the less literate they are in computer use and English. If the decision makers are computer illiterate and English illiterate in an institution or enterprise, it will be difficult for them to understand and adopt e-business practices, since 70% of the information on the Internet is in English, no matter whether one likes it or not. The development of e-business depends mainly on the younger Chinese generation and the updated knowledge of the English language and computer applications on the part of Chinese people over 40.

3.2 Incomplete Understanding of the Real Sense of E-business

Some businessmen and business decision makers think that e-business means only sending business messages by email or just having a domain name registered on the Internet or creating a website at www. In fact, e-business is far more than that. It refers to a series of trading activities in which inquiring, offering, ordering, producing, marketing, advertising, warehousing, buying, selling, insuring, transporting, paying and delivering are handled or arranged through the Internet, Intranet, Extranet, etc., so that the costs are reduced, the processes are sped up, efficiency is greatly improved, and profits are increased. It

involves the flow of information, cash, and commodities online. It is a radical revolution and represents the advanced productivity that is replacing our traditional storefront businesses. It is radically changing and will radically change the way business is conducted, the way we work, and the way we live and learn.[3]

An e-business is an enterprise designed for success in the knowledge-based economy. It brings into full play an organization's resources and partners in new and innovative ways to create clear strategic advantages. The potential of e-business goes far beyond new technologies to impact and engage all aspects of business strategy, process, organization, and systems to extend the business beyond its own boundaries where there is, in fact, no boundaries.

3.3 Insufficient Technical and Legal Protection

Of the computers with access to the Internet in Mainland China, 47.1% have been infected with viruses and/or attacked by hackers, which have resulted in huge losses. Though twelve national and departmental regulations and rules have been promulgated regarding the Internet and e-business, no national or local e-business laws have been developed. So far Chinese business laws and rules have not yet confirmed the legal efficacy of electronic signatures and authentication in e-business. No legal platform has been set up to secure the legitimate and successful execution of e-business transactions. Since e-business is trans-national and thus extends beyond its own national borders, Chinese e-business laws must be in strict conformity with international e-business laws and practices. They should cover not only e-business transactions, but also high technologies like electronic encrypting and automatic authentication. It is very urgent to annul the outdated laws and regulations which hinder e-business and to issue laws regarding computer virus and hackers. Priorities should also be given to the laws regarding information security, business secrecy, legal efficacy of e-business transmission dates and e-signatures, the protection of personal privacy and of intellectual property rights on the Internet, and the protection of children from violence and obscenities online. Laws regarding import and export duties and tariffs on e-business must follow, or else the government will sustain huge losses with the increase of e-business volume. As we

can see, technical and legal protection means far more than just a virus killer and a firewall fixed in the computer.

3.4 No Sense of Security and No Trust in E-business

Chinese Internet users are most concerned about Information security (33.4%), reliability of the online business information, enterprises' credit, and prompt after-sales services (33%)[8]. They do not trust e-business because of insufficient legal and technical protection. Traditionally Chinese consumers are weak and are vulnerable to fraud through deceptive practices such as fake, shoddy products and false advertisements. For example, in addition to a large number trading disputes concerning shoddy and fake products, there were 13,565 lawsuits in courts in Mainland China initiated by consumers who bought fake and shoddy products even in physical storefront businesses in 2000 (*Law Today Program by CCTV Channel 1, July 28, 2001*). They do not have effective legal protection from law-enforcement departments concerned. In e-business there is no face-to-face contact and consumers cannot examine their purchased products with their eyes and hands. The after-sale services still have much room for improvement. They feel that they are more vulnerable to cheating through fraud and false information online than in the physical storefront businesses. Therefore, they prefer door-to-door delivery and cash on delivery (COD). They are generally reluctant to disclose personal or corporate information on the Internet. Though there are some Chinese laws regarding the protection of consumers' rights and interests, they are yet to be strictly enforced.

3.5 Insufficient Human Resources in Information Technology (IT)

The demand for information technology engineers and technicians greatly exceeds the supply in the human resources market. At the last job fair in Hangzhou, the number of IT positions in demand was twenty times as big as that of IT job seekers. Moreover, every year a large number of IT engineers from Mainland China have left for developed countries or regions for employment because of the higher salary there. Consequently, it is difficult for small and medium-sized enterprises in Mainland China to employ IT engineers. Among the 10 million small and medium-sized enterprises registered in State Administration for Industry and Commerce of P. R. China,

the business information of only less than 10% of them is electronically processed. Among the approximate 15,000 state-owned large- and medium-sized enterprises, the business information of only 10% of them is basically computerized and one fifth of them have only a few computers used merely as typewriters or employed in their financial departments [3].

3.6 Underdeveloped Infrastructure and Financial Unavailability

The infrastructure for the Internet is still poor. High-speed information transmission main network and high-speed broad bandwidth Internet services are available to residents in only a few big cities. Most of the Internet users have access to the Internet via the telephone line. The Chinese telecommunication industry is monopolized by the state. As a result, the Internet services are characterized by low speed and high cost, with which Internet users are most dissatisfied; 42.7% of them complain about the too slow speed. Monopoly has to be done away with in the telecommunication industry before the price for the Internet services can decrease. Since most of the Internet users are under 30 and the average monthly salary for an Internet user is less than 1500 RMB yuan (less than 200 UD\$), the high cost (5 RMB yuan per hour on line with all the costs added up) makes Internet services unaffordable to many people, especially to young students with no salary at all, but who account for 23% of all the Internet users in Mainland China[8],[9]. Only after China has deepened its economic reform and fulfilled its commitments with other WTO members can the monopoly of the Chinese telecommunication industry be completely done away with and the general republic enjoy easier access to the Internet and lower prices for the Internet services.

3.7 Lack of a System of Certificate Authority, a National Payment System, and National Credit System

There is no system of Certificate Authority or identity authentication to identify the parties involved in the e-business transactions. We must guarantee data security by preventing unauthorized parties from acquiring the data online. This security can be accomplished through certificate authority or identity authentication or by allowing users to acquire authorized information through the right setting and data hiding technology. It is more complex than a password or a firewall and involves a set of

systematic technologies of hardware and software. Online there is a no national payment system or national credit system. Though 30% of the Chinese Internet users have credit cards, they are inclined to resort to COD for online purchases. Since the differences between domestic trade and international trade are greatly diminished online, the inconvertibility of the Chinese currency RMB in the international financial market also stands in the way of international payment in e-business transactions[6].

3.8 Lack of a Reliable and Efficient Logistic System

The smooth flow of commodities is a very important process in the chain of an e-business transaction. A reliable and efficient logistic system is the cornerstone of e-business. The present goods delivery system in Mainland China is far from reliable, efficient, and punctual. How to

improve the infrastructure for transportation by sea, by air, and by land and to set up a modern and comprehensive system of warehousing, transporting and delivering is of vital importance not only to the development of e-business, but also to the sustained and continuous economic development of China.

3.9 Lack of a Unified National Technology Standard to Guarantee Interoperability

There are now several platforms for e-business, such as XML, Open Buying, Java, and electronic data interchange (EDI). E-business providers must collaborate to work out a unified standard for the sake of interoperability for all products in China.

3.10 Uneven Interregional Internet and E-business Development

Table 5 Top Eight Provinces and Municipalities Holding Internet Users, WWW Websites and Domain Names (%)

	Beijing	Shanghai	Guangdong	Jiangsu	Shandong	Zhejiang	Liaoning	Fujian	Total
A. Internet users	12.39	8.97	9.69	5.43	5.33	6.62	4.66	3.59	56.68
B. www websites	21.8	10.7	14	6	3.33	5.3	3.6	5.7	70.43
C. domain names under "cn"	34.8	9.4	14.1	5.2	3.9	4.3	3.9	2.4	78

Note 1. A is from CNNIC Survey Report on Internet Development in China released January, 2001 and it covers until the end of 2000.

2. B and C are from CNNIC Survey Report on Internet Development in China released on July 24, 2001 and it covers until the end of June 2001.

As Table 5 shows, the number of Internet users, www websites, and domain names held by the top eight provinces and municipalities accounts for 56.68%, 70.43% and 78% respectively in Mainland China. The above top eight provinces and municipalities are concentrated in the eastern region along the coast and are economically well-developed. The eastern region accounts for 58% of national GDP in Mainland China (calculated as per *China Statistical Yearbook 1999*). Apparently, the favorable economic situation is beneficial to the rapid development of e-business, which will contribute to the growth of the economy. It is of great concern that the disparity of e-business development

between developed regions and less developed (central and western) regions will contribute to a sharper contrast between wealth and poverty, which will contribute to the social instability in Mainland China. "Although e-commerce and Internet itself are driven primarily by the market force and the private sector, the governments on different levels still have four important roles to play: regulator, coordinator, infrastructure builder and e-business user" (LAN Yi-sheng. *The Uneven Regional Economic Development and Ecommerce Promotion in China. Proceedings of the International Symposium on Government and E-commerce Development, p.112*). However, some of the aforementioned obstacles cannot

be overcome overnight, yet if great importance is attached to them and effective measures are taken to overcome them, e-business in Mainland China will make more rapid progress. Otherwise, it will lag farther behind developed countries and China will be in a disadvantageous position in the era of information and knowledge-based economy. "We were not in time for the Renaissance. And we missed the Industrial Revolution. Today, we shall not let slip the wave of Information Age!" (*Chinapages.com Bulletin*).

IV. CONCLUSION

According to CNNIC Survey Report on Internet Development in China released on July 24, 2001, Internet users in Mainland China have confidence in the future of e-business, and 79% of them believe that e-business in Mainland China will grow dramatically both in volume and in scale in the coming five years, although some of them have a passive attitude towards it or have some doubt about it. Among Internet users, 60.5% of them believe that shopping online will be the most promising undertaking on the Internet. They also believe that online distance learning (54.7%), online communications (52.4%) and online stock trading (50.09%) will be promising, too[8].

After Mainland China joins the WTO, its e-business will meet with more opportunities than challenges. The rapid growth of e-business in Mainland China will contribute substantially to its sustained and continuous economic growth, if the Chinese government at all levels becomes a strong regulator in mapping out national and local policies and strategies, and building a legal platform for e-business; acts as an effective coordinator in creating a fair and orderly e-environment for all domestic and overseas parties concerned in collaboration with international institutions and bodies concerned; serves as an aggressive e-business infrastructure builder to pave the material way to its success; and plays an active role as an e-business initiator and consumer in e-business modes, such as B2B, B2G and B2C.

REFERENCES

- [1] Great Events of the Internet Development in China, CNNIC. <http://www.cnnic.cn>
- [2] Guo-an WANG. On the Challenges in Taxation in the Development of E-commerce. *Proceedings of International Symposium on Government in E-commerce*

Development, Ningbo, China, April 23-24, 2001. ISBN 7-308-02695-7

[3] Guo-an WANG. CHINAPAGES.COM's Success in E-Business in China's Tough E-environment, *International Conference on Management Science and Engineering, Harbin, China, August 18-20, 2001.*

[4] Guo-an WANG. On Accumulation & Protection of Intangible Assets & Promotion of China's National Industries, *Xiangtan University Journal*, 1997 Vol. 21

[5] James J. Zhu. A Reality Check of E-commerce Development in China. *Proceedings of International Symposium on Government in E-commerce Development, Ningbo, China, April 23-24, 2001. ISBN 7-308-02695-7*

[6] LI Guo-jie. The Difficulties Facing China's E-commerce Development and Its Counter-measures. *Proceedings of International Symposium on Government in E-commerce Development, Ningbo, China, April 23-24, 2001. ISBN 7-308-02695-7*

[7] Report on China's E-commerce Index. CII, www.cii.net.cn. 2000

[8] Survey Reports On Internet Development in China from October 1997 to July 2001 by CNNIC. <http://www.cnnic.cn>

[9] Weidong YANG. Secretary-General of China E-commerce Association. Overall Situation of World E-commerce Development. www.chinayou.com

[10] Weidong YANG. Secretary-General of China E-commerce Association. Beijing Evening News. April 3, 2001