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# Approaching the Internet in Small Chinese Cities

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# **Approaching the Internet in Small Chinese Cities**

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# Preface

How many Chinese people are going online? What are they doing on the Internet? What is the social impact of the growing Internet use in China? With more and more people paying attention to the development of the Internet in China, such specific questions are being frequently asked. However, little empirical research has been conducted in this field. Currently, one of the blind spots in the field and the most mutable factor is the small cities.

The idea of doing research on small cities started from early 2001 when Jim Steinberg, who was senior advisor for the Markle Foundation at the time, and Nina Hachigian, visited Nanhai, which is a model of e-government in China. Thanks to the financial support from the Markle Foundation and the advice from Stefaan Verhulst, the CASS Internet research<sup>1</sup> can be continued and expanded to the small cities.

Contrary to the mode of "the countryside besieges the cities" as noted by Chairman Mao, the digital revolution in China began in the large cities. It is quite common to think that Internet users in China are mainly those who live in metropolises such as Beijing, Shanghai, or Guangzhou. Therefore, until now, most research on the Internet in China has focused on the large cities.<sup>2</sup> This is based on two assumptions: first, the economy of the small cities is comparatively backward and the use of high-tech like the Internet requires a large amount of investment. Factors like the high price of PCs or the monthly costs of using the Internet have become the main obstacles preventing people in small cities from enjoying the Internet. Second, small cities are far removed from the mainstream culture and it appears that their requirements for Internet use and related "modern" culture are not very high.

However, although people are worrying about the "digital divide", Internet use in Chinese small cities is rising silently and rapidly. If it was correct to make the judgment a few years ago that the development of the Internet in small cities was backward, this situation has already reversed. Hence, detailed studies on Internet use as well as its impact on small cities are needed. The research should explain: the current situation of Internet use in small cities; the reason why the Internet was being able to develop so rapidly in these areas; what are the different development modes in the small cities: the roles respectively played by local government, ISPs, Internet cafés and Internet users etc.; and the benefits and the existing problems.

In addition to these topics, studies on Internet usage and its impact on small cities might have some "extra" academic value as well: when we study the impact of the Internet on society, it

<sup>1</sup> Guo Liang and Bu Wei: *Survey Report on Internet Use and its Impact in Beijing, Shanghai, Guangzhou, Chengdu, and Changsha*, Research Center for Social Development, Chinese Academy of Social Sciences, April 2001.

<sup>2</sup> Jack Linchuan Qiu and Joseph Man Chan, (2003). *China Internet studies: A review of the field*. In Helen Nissenbaum and Monroe Price (eds.). *The Academy and the Internet: New directions in information scholarship*. New York: Peter Lang Publishing.

is hard to differentiate the various impacts. Isolated from the mainstream of culture, the social impact of Internet use may be released more clearly in the small cities. Thus, small cities should be an ideal place to study the social impact of the Internet.

The small cities with urban populations of around one hundred thousand were chosen according to the factors such as location, economic development, and popularization of the Internet. Both highly developed cities such as Nanhai in Guangdong, which ranks third in China's top 100 counties, and comparatively undeveloped cities like Guangshui in Hubei province and Yima in Henan province were covered in the research. The locations of the cities were carefully thought out as well. There are both coastal cities like Nanhai and Jimo and also inland cities like Yima. The locations are shown on the following map.

**The locations of the five small cities covered in this research.**



# 1. RESEARCH OBJECTIVES

This research aims to gain a comprehensive knowledge about Internet usage and its impact on small cities. The following research questions were asked:

## 1.1 Internet usage

- The policies of the local governments regarding Internet development.
- The contributions of the Internet connection service providers (including ISP, Telecom, Internet cafés, etc.) and the local ICPs to the development of the local Internet.
- Internet users: How do users adopt the Internet (including connection mode, frequency, time, location)? What do they think about the current situation of local Internet usage and the online content?
- The reason why non-users do not use the Internet.
- Current developments in e-government.

## 1.2 People's view of and attitudes toward the Internet

Examine and compare the attitudes within the above groups and determine the reasons for such views.

## 1.3 The social impact of the Internet

- Government agencies: what are the primary goals in developing the Internet? Have those goals been achieved?
- Internet users: how do they describe the impact of the Internet on their lives, works and study. This research will identify each impact as well as the relationships among them.
- Internet non-users: attitudes toward others using the Internet, the influence on non-users by other family members who use the Internet (if they do), such as a decrease in communications due to using the Internet.

This research concentrates specifically on the practical effects of e-government and the possible influence of the Internet on social openness (including people's understanding of "openness") and democracy.

**1.4 A comprehensive identification and comparison among the results of the various small cities will be conducted, and policy suggestions will be provided.**

# 2. METHODOLOGY

The above goals render a case study methodology the most appropriate approach for this project. In order to gain a comprehensive and ecological understanding of Internet development in small cities, the case study method requires that the data be collected via a variety of means, including the following:

## **2.1 Archival and Documentary Research**

Before the fieldwork, we went to public libraries and university archive centers, searching through newspapers, magazines, yearbooks, and industry reports concerning Internet development in the city.

During the fieldtrips, we also gathered publications from a wide range of government offices and commercial entities. The data collected through this method include:

- 2.1.1 General information: maps (location, area, administrative classifications, etc.), demographic data, economic development data, cultural and educational data, etc.
- 2.1.2 Internet policies of the local governments.
- 2.1.3 General information about Internet usage patterns: When did the Internet connection begin? Current connection modes, total bandwidth, number of registered users, estimated number of users and computers, number of Internet cafés, etc.
- 2.1.4 The situation prior to the adoption of the Internet.

## **2.2 Interviews**

Based on the documentary research, we identified several key players (organizations or individuals) to interview.

- 2.2.1 Local government agencies and officials: We contacted the chosen officials and conducted face-to-face interviews regarding the history of the organization, its role in city Internet construction, model projects, unique characteristics, and the advantages and disadvantages of Internet development. (Appendix I provides the outline used in the interviews.)
- 2.2.2 Local IT companies and entrepreneurs including ISPs and ICPs, especially the local ICPs. The interviews were aimed to elicit their comments on governmental policies and their attitudes toward the current situation of Internet usage. (Please see Appendix II.)
- 2.2.3 Internet café owners. (Please see Appendix III.)
- 2.2.4 Internet users. The interviews focused on the reasons for using the Internet and attitudes toward it. (Please see Appendix IV.)

## **2.3 Focus Groups**

We organized four focus groups with 6 to 8 people in each group. Two people from the same work place, school, or family were not allowed to be in one group (please see Appendix V.). Four groups were formed, including male Internet users, male non-users, female users, and female non-users (teenage user and non-user groups or other types of focus groups may also be added). Gender groups were kept separate to allow for fuller expression of personal opinions, especially among females. Non-users were also included to reveal their perceptions about the technology and the barriers they face in attaining Internet access. Most of the participants were long-term residents in the city: students, white-collar workers, housewives, private business owners, and so on.

## **2.4 Survey**

Small cities are not included in the population of the WIP survey conducted by CASS. However, the 200 samples from small cities here are sufficient to reveal a complete picture of Internet usage in cities of such a scale. A detailed analysis of the questionnaire results provides a valuable reference for the Internet study in these cities.

## **2.5 Field Observation in Internet Cafés**

Research people were asked to investigate the distribution of Internet cafés and the existence and number of so-called "illegal Internet cafés." The scale, equipments and services of the Internet cafés were observed on the spot during certain representative time periods. In addition, the number of users and the way they use the Internet were also observed. Some typical Internet café users were chosen to be interviewed.

## **2.6 Comparative Studies**

During and after the data collection using the above methods, comparisons were made based on what was learned from the various data sources. The findings may cross-validate each other, demonstrating the robustness of our methodology. Yet this does not occur all of the time. Those who speak on behalf of groups or organizations with conflicting interests tend to give conflicting accounts of the same event. People at different levels, like high-ranking officials versus ordinary residents, may also base their perceptions on different criteria. Hence, it is oftentimes helpful to piece together different opinions from the different viewpoints - with the exception of the inaccurate or false information of course - so that the case studies will show the Internet development in the city as a multi-level and multi-faceted process. The results of the comparison shall inform later data collection efforts. In addition to a comparison among the data collected via different methods, we also compared the situations in the various small and medium-sized cities to facilitate constructing a theoretical framework that will answer the aforementioned research questions in this project.

Before the fieldwork was conducted, the project director discussed the goals and the research methods with the fieldwork conductors many times. All the focus groups and interviews were done by the conductors and all the interviewers were strictly trained. We have typed most of the records into text files and will put the text on the Web for the purpose of academic research.

# **3. MAJOR FINDINGS**

## **3.1 Fast Growing Internet Use in Small Cities**

The fast-growing Internet application in small cities is beyond imagination. Because of the low level of the popularization of Internet users in China, we did not design a national survey this year. Even in the individual cases of small cities, we simply planned to learn about the

basic situation for using the Internet. However, the results of the survey show that the proportion of Internet users in small cities is far beyond expectation. The sampling method for this survey is not strictly random based on the entire population. It paid more attention to the Internet users.<sup>3</sup> Yet by asking the question "How many people are there in your family?" and "How many Internet users are there in your family?" we can approximate the proportion of Internet users as shown in the following table:

**Table 1: Proportion of Internet users in Chinese small cities<sup>4</sup>**

City and region	Total number of Internet users in the families	Total number of people in the surveyed families	Proportion of Internet users
Nanhai, Guangdong province	324	910	36%
Yima, Henan province	196	714	27%
Jimo, Shandong province	156	698	22%
Guangshui, Hubei province	175	771	23%
Fengnan, Hebei province	164	646	25%

From the above table we can estimate that the proportion of Internet users in small cities is even higher than in some of the provincial capitals. In the *CASS Internet Survey 2003* we found that the proportion of Internet users in Chengdu, the provincial capital of Sichuan, was 23 percent, and in Shenyang, the provincial capital of Liaoning, the proportion was only 21 percent, ranking the lowest among the 12 surveyed cities.

The survey results from the above-mentioned five small cities show that about 65 percent of the Internet users have less than three years of experience. This means that they have only used the Internet since about 2000.

### 3.2 Four Players in the Growth of the Internet in China

Why are so many people going online? And why has Internet use grown so rapidly in China? One of the important objectives of the case studies is to interview the different players so as to determine their roles in the growth of the Internet in the small cities. The major players, as we have described above, include the government, which encourages people to go online; the ISPs, which provide inexpensive and convenient ways to connect to the Internet; the legal and illegal Internet cafés, which narrow the "digital divide"; and most important of all, the Internet users who spend all of their leisure time going online and who are eager to learn about the outside world that their parents have never known.

<sup>3</sup> Refer to Appendix II of *CASS Internet Survey Report 2003*, for a detailed explanation of the sampling method.

<sup>4</sup> The proportion of Internet users in the population of a city is equal to the total number of "AG. How many people are there in your family" ÷ the total number of "AL. How many people in your family are going online" in the questionnaire.

### 3.2.1 The Government: Encouraging People to Access the "Healthy" Internet

One of the achievements of the reform has been to pay more attention to the economy and to provide a better life for the common people. Examining the economic growth over the past twenty years, especially in the United States, we found that the IT industry has played a great role. It is obvious that a modern economy largely depends on the IT industry. As a result, the electronic information industry has become the number one fundamental industry in the Chinese economy, contributing 46 percent to exports. Beginning in 1994, the Internet industry has been growing 300 percent each year, with 68 million current Internet users today.

*"None of the four modernizations can be realized without informatization."*

— Jiang Zemin, former general

Internet development in Nanhai in Guangdong province is typical of the "government driven model." In the current political system in China, "government driven" plays an important role in the development of the Internet. Since the mid 1990s, the Nanhai municipal government has followed the strategy of *"Stimulate modernization through informatization."* The Party secretary of the city himself is involved with the *"informatization"* and the project is called a *"top leader project."* Therefore, informatization is required for grassroots cadres regardless of whether they understand its significance or whether they benefit from it. As the Survey report on Internet development in Nanhai points out: "The government agencies, especially Party secretary Deng, are the most important driving force behind the Internet development in Nanhai."

Certainly, informatization is not a mere slogan. It requires a large amount of capital support. As we learned from the interviews, the Nanhai municipal government invests a vast amount of money in its informatization endeavors. Each year, the government allocates US\$6.25 million of special funds to areas where the economy is backward for the purpose of developing the Internet. Thus, under the direct promotion of the government, the target of *"every village is connected with an optical cable, and every family is connected to the Internet"* has been realized. The direct consequence is the development of e-government. This has resulted in office automation and open information, not only improving the work efficiency, but to some extent also limiting corruption.

Obviously, the "Nanhai model" is not a model for every city in China. Few local government leaders had such a view about informatization and Internet construction at the early stages, to say nothing of having a large amount of funds to invest. However, the "Nanhai model" shows that in the current political system, government involvement may play a major role in the development of the Internet. Thus, we can say that the Nanhai model typifies the government role in informatization development in China. This is not only the case in Nanhai; to some extent informatization in Jimo is promoted by the e-government resources of the higher-level government of Qingdao municipality.

### 3.2.2 Internet Companies: Competition Leads to Development

A prerequisite for IT development is economic growth. Unlike the government propaganda,



the IT companies have to consider their benefits and income. They have to earn money from their services. Regarding the Internet as a sunrise-industry and a potential market, the local telecom companies and ISPs play active roles in developing local Internet services, regardless of whether or not they make initial profits. Within three years of effort, the rapid growth of Internet applications has resulted in more than 20 percent of the local population in small-sized cities becoming Internet users. The Internet service has thus been industrialized.

Furthermore, unlike the telephone and television markets in China, the Internet service industry has never been a monopoly industry. Competition among the ISPs has led to good services and low costs to use the Internet. The widespread broadband connection in small cities is not commensurate with levels of economic development. The beneficiaries are the ordinary people who are eager to use the Internet but who lack adequate financial resources. In Yima city, where economic conditions are relatively poor, the monthly dial-up fee is only US\$ 3.75 and an ADSL connection costs only US\$ 7.5.

Not only providing high speed and low costs for Internet access, ISPs are also trying to provide an easy and convenient way to use the Internet. Many ISP companies have special telephone numbers available for people who dial up. That is to say, people do not even have to have a permanent Internet account. All they need is a computer, and regardless of where they are, they can just dial up a certain number to access the Internet. The ISP company will charge the Internet fee according to the telephone fee, which usually is about US\$ 0.3 per hour.

### 3.2.3 Internet Cafés: The Solution of Internet use in the Small Cities'

*"The popularization of computer ownership is limited but the number of Internet users here is unlimited."*

— An interviewee  
in Guangshui city

For those who do not own a computer, the best place to access the Internet is a so-called "Internet café." In Guangshui city, an interviewee from the local Broadcasting and Television Bureau said: "The popularization of computer ownership is limited but the number of Internet users here is unlimited." The conflict between limited and unlimited has been solved through the development of the Internet cafés. Considering that average disposable annual income in this city is only about US\$500, it is impossible for average people to buy a computer for family use. Thus the Internet café is the best "solution".

Originally, although the CASS Internet research project paid attention to the importance of Internet cafés, we did not list them as an independent item. However, all the final reports from the case studies noted the roles and influences of the Internet cafés. This shows that the Internet cafés play an important role in the small cities. From the results of the surveys, we see that, except for in Nanhai city where the economy is well developed, the proportion of Internet café users is quite high. In Guangshui city, it reaches 83 percent. The following table shows the proportion of Internet café users in small cities:



**Table 2: Proportion of Internet Café users in small cities**

Nanhai, Guangdong province	Yima, Henan province	Jimo, Shandong province	Guangshui, Hubei province	Fengnan, Hebei province
20%	45%	66%	83%	43%

### 3.2.3.1 Three roles of the Internet Cafés

The Internet cafés in small cities have three basic roles: First, they are schools to learn Internet skills. The high-tech features of the Internet require special skills. Yet people in small cities have few opportunities to master such skills, except in the Internet cafés. In most cases, this is where they have their first experience of accessing the Internet. As the Internet has become fashionable, young people enjoy showing off their Internet skills. Beginners may spend days on end in cafés watching others play on the Internet. They clearly hope to follow the fashion and access the Internet themselves. According to the report on Guangshui: “The most important function of the Internet café is to educate almost all the Internet users in Guangshui city, and at the same time to provide a space for most Internet users. During the interviews, almost all the interviewees said that they first learned to use the Internet at an Internet café.”

The second role of Internet cafés is to provide an easy, inexpensive and convenient way to access the Internet. Using the Internet requires a computer and the cost for accessing the Internet is not low for ordinary residents in small cities; thus the Internet cafés provide a way to lower the cost of using the Internet. In small cities, the normal fee to access the Internet is about US\$ 0.125-0.25 per hour, in addition to having access to a computer. Most families cannot afford to buy a personal computer for home use. In contrast, the price for using the Internet in an Internet café is extremely low. It is usually the same price that the local ISP charges for using the Internet at home. So it is not necessary for ordinary people to buy a computer to access the Internet at home; they simply can go to the Internet cafés. The reasonable prices at the Internet cafés allow them to conveniently practice their Internet skills.

In addition to the price, the atmosphere in the Internet cafés is especially suitable for young people. There is always support staff available if there are technical problems and there are always available partners to play the games. Some interviewees reported that even though they have a computer at home, they prefer to go to the Internet cafés.

### 3.2.3.2 Two kinds of Internet Café

Generally speaking, there are two types of Internet cafés: 1) The small businesses, which are usually “*Family Internet Cafés*.” They remain competitive due to their flexibility and inexpensive fees, and 2) The large-scale businesses. They depend on advanced equipment and high-quality services to remain competitive.

Suppose an Internet café buy 5 computers with relatively high quality equipment so as to be able to access the Internet. This requires an investment of about US\$ 1875. If each com-



Photo by Xianhong Hu

In this way, they learn to use the Internet.



Photo by Xianhong Hu

After school activities.

puter can be used an average of 12 hours per day (actually, some “family Internet cafés provide Internet access 7 days a week and 24 hours a day) and the hourly rate is US\$ 0.20, then the daily income for the Internet café should be about US\$ 12. Excluding operations costs (though “family Internet cafés” do not need to pay housing rent), a small Internet café can usually earn back its initial investment within half a year.

For example, in Yima city, the number of Internet cafés grew from 1 or 2 to 50 or 60 within about six months. Since 2000 the government has required registration for the operation of Internet cafés in line with the regulations. Each Internet café must have at least 20 computers (in Yima and Guangshui), or at least 40 (in Jimo city). However, some small Internet cafés can share one place together while running their businesses independently.

The large-scale and well-managed Internet cafés have the advantages of advanced and updated machines, so it is easy for them to build their competitive advantage. People tend to prefer to frequent those Internet cafés with high-speed networks and faster computers. According to recent reports, the government has begun to support the large-scale Internet café chains. As a result, the family Internet cafés are at a disadvantage. It was reported on April 24, 2003 that the Ministry of Culture is promoting Internet café chains. Yet very few large companies can receive permission to operate a chain. One of the large companies, “Zhong Lu Shi Kong”, charges about US\$ 12,000 for anyone wanting to open a franchise.

### *3.2.3.3 The Challenge for the Internet Cafés*

One of the challenges that the small and maybe illegal Internet cafés face is the competition from the large Internet cafés. The policy supporting Internet café chains makes it difficult, if not impossible, for small companies to maintain operations. As a result, the disabled and jobless find it difficult to make money. The only way that the small Internet cafés can compete with the large-scale and well-managed Internet cafés is to allow the “illegal use” of the cafés, such as allowing teenagers under the age of 18 to access the Internet or to allow them to access the Internet until midnight, or not to check the users’ ID cards, ect.

Most owners of Internet cafés originally thought that they would make a contribution to the national informatization program and help the country and the people. However, they now face the same predicament as the Karaoke and game houses that must be regulated and supervised by the government.

On the one hand, Internet users in small cities heavily depend upon the Internet cafés, but, on the other hand, the government is trying to manage these places so as to avoid a social crisis. This is especially the case after an Internet café called “Lan Ji Su” caught on fire in Beijing, killing 24 people. A direct result of the supervision and regulation is a decrease in the number of users. Statistics from the CASS survey demonstrate a negative relationship between the supervision and regulation of the Internet cafés and the increase in the number of Internet users. The following figure shows that the number of users increased the most in 2000. This coincided with the prospering of the Internet cafés in the small cities. However, the number has dropped dramatically since 2001 when the government began to manage the Internet cafés.



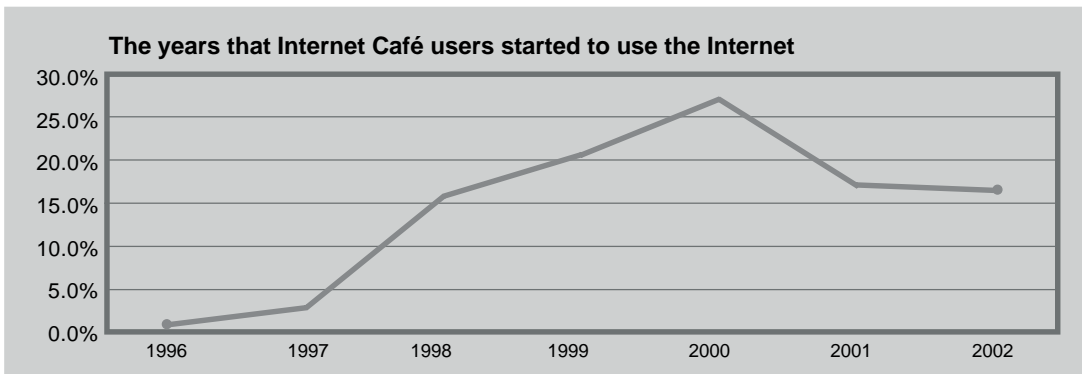
Photo by Xianhong Hu

A typical Family-owned Internet café.



Photo by Xianhong Hu

An Internet café with relatively good condition.



In the small cities, the following certificates are required to start an Internet café:

- Security Check Certificate
- Taxation Registration Certificate
- Business License for Internet Culture
- Business License for an Individual Fund Enterprise
- Sanitation Certificate

In addition to these certificates, the following announcements must be posted:

- Police announcement
- Internet access Registration
- Responsibilities of the security staff in places of business providing Internet access
- Management system in places of business providing Internet access

As a matter of fact, most “illegal” Internet cafés are those that have not been able to complete these complicated certifications.



The regulations and announcements displayed in an Internet café.

Photo by Xianhong Hu

### 3.2.4 Internet Users: the Unlimited Social Needs

Regardless of the economic situation, and regardless of the controls over the Internet cafés, many young people in small cities are still eager to access the Internet. Their primary motive is entertainment. As a result of the development of productivity, people have more leisure time. Yet the traditional sources of entertainment are not satisfying for the youth. They need to find new types of entertainment. The view of an interviewee in Guangshui was typical: *“Life and work are serious, but people go online only for fun.”* Therefore, the emergence of the Internet took place at the right time and in the right place.

Second, small cities are no longer isolated from the modern culture. Traditional media like television and magazines are magnets for consumers. They present the colorful outside world to the people in the small cities. Once people know something about the outside world, they want to learn more. Even if they cannot personally visit the outside world, the Internet is a platform providing them with a window to understand what exists outside their hometowns. They are proud to share this knowledge with their relatives and friends.

*“I typed Bush, space, and Saddam onto google, and all the related information appeared .....*”

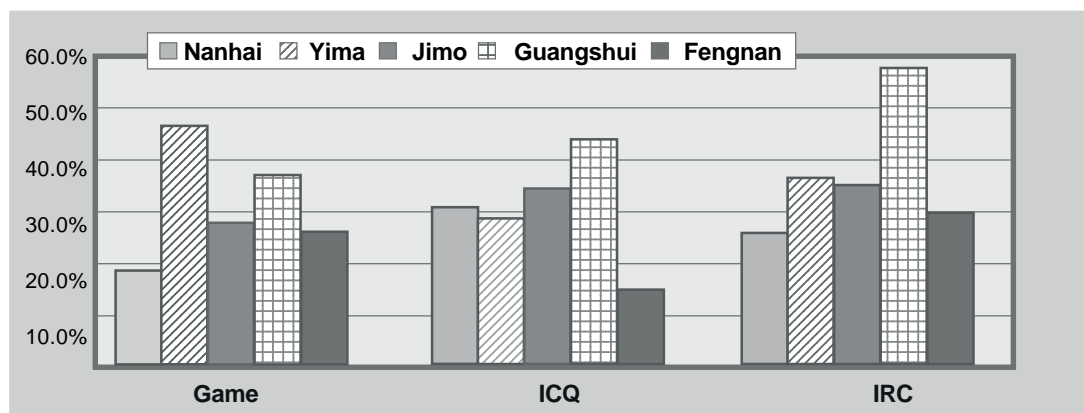
— An interviewee  
in Fengnan city

Third, some people also want to have an opportunity to partake this colorful world. The Internet can serve as a bridge between the modern world and their uncultured hometowns. Although relatively poor, Internet users are active in the city of Yima, 21.5 percent of the Internet users (N=20) frequently use the Internet to “learn or to obtain a degree,” and 31.2 percent of the users (N=29) do so occasionally. Only 47.3 percent (N=44) Internet users have never tried to study or to obtain a degree from the Internet.

Yet the Internet cafés are an “open space” for everyone. People can watch one another and share their experiences. It is very difficult to maintain one’s privacy in a café. So the environment in many Internet cafés is one of entertainment and games rather than being suitable for obtaining information or for studying. People smoke and cheer while they play the games. The cafés certainly are not a place for older people or women.

Because most people learn their Internet skills at Internet cafés, instead of at school or at home, Internet café users have an influence on one another. If playing Internet games is popular in a small city, then other beginners are likely to play games as well. Hence, unlike in the large cities, Internet users in the small cities easily form their own type of “Internet culture.” The following graph presents the survey results from the five small cities: Internet users in Yima city tend to play games, while users in Guangshui are more likely to chat. A chi-square test reveals significant differences among these cities (Sig=.000).

Proportion of use of game, ICQ and chat room in different cities.



So it is more important to guide the Internet users in small cities in seeking the information they need than simply managing or controlling the Internet access. In fact, the small cities are far away from the mainstream cultural centers. Therefore, the Internet should be a channel to absorb information about the outside world and not only a place to play games or chat.

China needs economic growth, and the Internet, especially the Internet cafés, contributes a great deal to the information revolution. Yet economic growth also requires “social stability.” The management and control of the Internet cafés is a type of social control, rather than political control, in order to maintain social stability. The challenge is to maintain a balance between social stability and Internet growth. The current policy has decreased the growth of the Internet cafés, but some major problems remain. Many “illegal Internet cafés” still provide 24-hour service, and many Internet café users are younger than the age of 18. This presents problems for the “legal Internet cafés”.

More than 90 percent of the area in China is made up of countryside and 64 percent of the Chinese population lives in the rural areas. Only when these people go online, can we say that the informatization has been realized. Current Internet use in the small cities provides us with an example of how the Internet may eventually spread into the poor areas.

Guo Liang  
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A corner of Nanhai in Guangdong province

# **THE MODEL OF E-GOVERNMENT: A CASE STUDY OF NANHAI**

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## **INTRODUCTION**

Nanhai City is located at the center of the Pearl River Delta, bordering Guangzhou to the east and Shunde to the south. Up to 2002, it consisted of 20 townships and districts and 252 administrative villages, covering 1,150 square kilometers of land, and accommodating 1.1 million registered residents and 650,000 migrant workers. Nanhai is home to more than 400,000 overseas Chinese expatriates, scattered throughout Hong Kong, Macau, Southeast Asia, and the rest of the world. It is also home to several important historic figures, such as the great reformer Kang Youwei, the famous engineer Zhan Tianyou, China's first modern textile capitalist Chen Qiyuan, and the martial art master Huang Feihong.

Historically, Nanhai is known as one of the three wealthiest places in the Pearl River Delta (the other two being Panyu and Shunde). Its traditional economic output includes silk, pottery, pond fish, and sugar cane. Since 1978, Nanhai has built on its existing industries and become a major center in South China for the production and trade of textiles, ceramics, electronic appliances, aluminum, and leather products.

Before 1992, Nanhai was a county subordinate to the city of Foshan. Thereafter, it was a county-level city with relative administrative autonomy until the end of 2002 when it became an urban district of Foshan. During the Eighth Five-Year Plan (1990-1995), Nanhai's GDP increased by 36 percent every year, and the financial revenue of the City Government grew at the average rate of 43 percent per annum. In terms of overall economic development, Nanhai was ranked no.3 and no.4 nationwide and no.1 in Guangdong Province during the 1990s. In 2001, it was recognized as the second most developed county (or county-level city) in China, with a total GDP of US\$ 4.72 billion and local state financial revenue of US\$ 302.66 million.

We made three trips to study Internet development in Nanhai during summer 2003. The first visit was on June 26, 2003, for archive collection, Internet café observation, and a brief interview at the City Science and Technology Bureau. The second and most rewarding fieldtrip took place during July 16-19, when we interviewed more than a dozen local officials at eight local state agencies for an in-depth examination of e-government initiatives in Nanhai. During August 13-19, an additional visit was paid to ISPs and Internet cafés in the city. Focus groups were held with male and female users and non-users. The list of the fieldtrip sites and interviews are as follows:

1. Communist Party Committee of Guicheng District (fieldtrip and personal interview)
2. Xiqiao District Government Informatization Office (fieldtrip and personal interview)
3. Nanhai City Administrative Services Center (fieldtrip and personal interview)
4. Nanhai Financial Accountancy Center for Municipal Non-Profit Administrative Organizations (fieldtrip and personal interview)
5. Minle Village Committee, Xiqiao District (fieldtrip)
6. Nanhai City Information Center (fieldtrip and personal interview)
7. People's Court of Nanhai City (fieldtrip and personal interview)
8. Nanhai Jietong Company (fieldtrip and personal interview)
9. Nanhai China Telecom (fieldtrip and personal interview)
10. Nanhai District Branch, Foshan China Unicom (telephone interview)
11. Xintianyou Internet Café (fieldtrip, participant observation, and personal interview)
- City Speed Internet Café (fieldtrip, participant observation, and personal interview)

The demographic profiles of focus group participants are in **table 1**:

Focus Groups	Average Age (mean)	Years Living in Nanhai (mean)	Average Educational Level (mode)	Occupation (in descending order of frequency)
Male users (n=6)	28.5	21.3	College graduates	Engineer (3), Lawyer (1) Government official (1) Self-employed (1)
Male non-users (n=2)	36.5	36.5	Junior high graduates	Self-employed (1) Salesperson (1)
Female users (n=5)	22.4	18	College graduates	Student (3), Engineer (1) Bank clerk (1)
Female non-users (n=7)	27.5	12.7	Junior high / high-school graduates	Student (4), Housewife (2) Accountant (1)
<b>Total (n=20)</b>	27.5	19	High-school graduates	

## THE INTERNET IN NANHAI: AN OVERVIEW

The aim of this report is to introduce and analyze Internet development in Nanhai up to its merger with Foshan at the end of 2002. We chose Nanhai for this case study because the city has received much attention in recent years for numerous achievements in Internet development, in terms of both mass media coverage and formal recognition from higher-level authorities. Reports about computer networks in Nanhai have appeared in many influential media outlets such as *People's Daily*, *Xinhua Digest*, *Guangming Daily*, and on various national and provincial broadcasting channels. In 2001, then President Jiang Zemin and then Premier Zhu Rongji both visited Nanhai because of its successful e-government initiatives and informatization projects for local economic development. Nanhai is also a model city or

experimentation city for various Internet projects at both national and provincial levels, including:

- National Experimentation City for Computer Network Construction, State Science and Technology Commission (1996)
- National Experimentation City for Urban Information Network Services System Construction (1997)
- Guangdong Provincial Experimentation District for Informatization Construction (1998)
- Guangdong Province Experimentation City for Informatization of Economic Transactions (1999)
- National Experimentation City for Informatization (2000)
- National Model Project for E-Government Applications (2001)
- National Experimentation City for Information Security Applications (2001)
- Provincial Experimentation City for Social Security Information Systems (2001)

By the end of 2001, Nanhai had constructed a fiber optic network that connects government offices in the urban areas with all of its 252 administrative villages in the rural areas,<sup>1</sup> greatly enhancing the ability of all households in the city to go online. There were more than 60,000 people who went through computer training programs organized by work-units in the city. In total, there were almost 70,000 households with Internet connections, accounting for more than 20 percent of the households in Nanhai. All elementary and middle schools in Nanhai are equipped with computer labs. Starting from the third grade (age 9), students are required to take an "information class" that introduces them to basic IT know-how and various Internet-related issues. As a result, as one senior city official told us, almost all households with school children have online computers at home.

## THE LOCAL STATE AND THE NEW MEDIUM

The remarkable speed and scale of Internet development in Nanhai certainly is related to the strength of the local economy and the support from higher-level government agencies. However, the critical enabling force for the local Internet boom is the local government, led by Secretary Deng Yaohua of the Nanhai CCP Committee, known as the "informatization secretary" among local cadres.

### The Role of Leadership

Back in the 1980s when Secretary Deng was studying at the Provincial CCP Party School in Guangzhou, he started to become aware of information technologies and their profound impact on the economy and society. Upon returning to Nanhai, he saw IT industries generally, and the Internet specifically, as opportunities for a new mode of economic development that was different from agriculture and traditional industries. In 1995, after Nanhai passed the national standards for being a wealthy county-level city (*xiaokang dabiao*), Secretary Deng proposed that informatization could bring about a "second wave of growth" (*di'erci zengzhang*) in Nanhai. Despite initial suspicion and resistance, Deng was able to push through his agenda

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<sup>1</sup> Nanhai officials promote this achievement with the phrase, "all villages are linked up by fiber optics, all households may go online" (*cun cun tong guangqian, huhu ke shangwang*).

garnering support from most city-level leaders, including the mayor, Mr. Chen Zhongyuan. He advocated that developing the Internet was indeed a key issue that would sustain economic growth in Nanhai, as later documented in *Nanhai Reference*:

In tandem with the deepening of reform and the rapid development in other places, economic competition has intensified, leading to the gradual diminishing of certain advantages that our city has enjoyed in the past and the growth of several disadvantages, such as the shortage of natural resources, especially land, and high production and labor costs. We will face more challenges in socio-economic development in the future. Therefore, we have to seek new opportunities and driving forces if we want to maintain our competitive edge and realize sustainable development in Nanhai, if we want to create a second leap forward and bring Nanhai into a more wealthy and civilized twenty-first century. It has become increasingly clear that information technology and informatization methods are factors in economic development. Those who control IT will achieve accelerated economic growth. Those who are better at controlling IT will accelerate even more quickly. Therefore, developing an information industry and advancing informatization projects have become a major way to demonstrate economic power and are a main source of economic competition, which is also the key to the economic future of Nanhai.<sup>2</sup>

With this consensus, Nanhai city leaders promulgated the policy of "using informatization to propel modernization" (*yi xinxihua tuidong xiandaihua*) in 1995. The City Informatization Committee was established in August 1996 to coordinate informatization projects. Meanwhile, the Nanhai Information Network Inc was founded jointly by the City Science and Technology Council, the City Post and Telecom Bureau, the City Broadcasting Bureau, and Nanhai Investment Development Inc. The first narrowband infrastructure, the Nanhai Comprehensive Information Network, was launched on October 21, 1996.<sup>3</sup> In 1997, a fiber optic backbone was established to connect the city government, the township and district governments, and some of the larger village committees. By the end of 1998, the Nanhai city leadership had put forward the goal of "constructing a digital city" (*chuangjian xinxi*) that emphasized Internet applications beyond official circles. The new Nanhai Software Science and Technology Park was also established in 1998. By the end of 1999, most governmental agencies in Nanhai City and its subordinate townships and districts had started to apply Internet applications.

In retrospect, the success of the Internet in Nanhai was very closely related to the top local leaders, both Secretary Deng and Mayor Chen, who set the agenda for informatization and followed through the actual processes of policy implementation in this "Top Leadership Project" (*yibashou gongcheng*), as local officials call it. From setting up the Informatization Committee to the construction of networks, from providing useful online content to developing the hi-tech park and creating online services for the benefit of ordinary Nanhai people, these all would have been impossible without the vision and unusually active promotion on the part of the highest leadership in Nanhai.

The essential role of the leadership, as we learned from the archives, was confirmed in all our interviews with local officials, ISPs, Internet café owners, and ordinary Nanhai residents.

<sup>2</sup> *Nanhai Reference*, edited by Nanhai City CCP Committee Policy Analysis Division, March 11, 1997, pp. 2-3.

<sup>3</sup> *Nanhai Yearbook* (1997).

Everyone agreed that the city government was the most important driving force for Internet development in Nanhai, although they had different assessments regarding the processes and consequences of informatization. As perhaps in other places, there are indeed people who are more resistant to new technologies including the Internet, such as officials of the older generations or those whose personal power depends on the lack of information transparency. Only a very determined leadership team could overcome such institutional inertia, especially from the middle-ranked officials. Nanhai, fortunately, had such a team of leaders headed by Secretary Deng.

## **Transforming the Local Economy**

As previously demonstrated, the single most important justification given by the city administration for developing the Internet in Nanhai was that the new technology would help improve the local economy and transform it onto a new stage with a more competitive edge and sustainability. This was in fact a continuation of the pro-IT policies adopted by Nanhai officials that can be traced back almost two decades.

The first attempt by Nanhai to venture into the "information economy" was in the mid-1980s when the then Nanhai County started the Zhong Nan (South Central) Computer Factory, which turned out not to be very successful. "It was too early and it generated too little profit," a top city official told us. The County CCP Standing Committee appointed one of its members as the factory's manager, but the project did not have a desirable outcome despite its high-level support. Intervention into the local economy appeared to be a formidable task for the Nanhai government.

However, Nanhai officials did not abandon their ambitions. Throughout the late 1980s and early 1990s, cadres at different levels helped foster Computer Aid Design (CAD) applications in local factories, especially those forming the economic pillar of Nanhai, such as textile firms and companies specializing in aluminum frames. With the burgeoning of the Internet, the CAD projects are now interconnected within Nanhai and connected with their partners around the world.

Huadagao Wooden Mold Factory is a specific case of such an online CAD applications. Before the Internet, the factory had to send people to Japan to fetch blueprints. It often took months to process a passport, visa, and to travel back and forth, which was very inefficient especially when modifications were needed. With the help of the local government, a CAD system is now set up on the Internet, and it can perform real-time interactive design editing with the Japanese partners. That was "miraculous," said our interviewee.

A more prominent project fostered by the local government is Nanfang Textile Network,<sup>4</sup> housed in the Nanfang Technology Innovation Center in Nanhai's Xiqiao District. Based on the solid local traditions in textile production, this network, with most of its initial funds coming from the city government, plays a very significant role because today's textile industry is heavily based on fashion and requires frequent updates. Yet, due to historical reasons, the great majority of local textile factories are small operations. They are not able to afford the frequent design updates due to scale constraints. However, when they are networked via this

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<sup>4</sup> <http://www.gd-textile.com/>

online service, their ability to keep up with the latest trends is enhanced extraordinarily. They can not only exchange useful information with each other but also to get help from specialists in the government-funded Technology Innovation Center.

The latest development for Nanhai City to improve the local economy has been since 1998 when it invested heavily in the Nanhai Information Technology Park,<sup>5</sup> which covers an area of about 20 square kilometers. As one of the four key software engineering centers in Guangdong, Nanhai IT Park has formed cooperative relationships with Microsoft, IBM, the Chinese Academy of Sciences, Peking University, and several important IT research institutes in and outside of China. It has also attracted universities to establish local educational branches, such as South China Normal University and Northeast University Software Engineering School.

According to official figures from the Nanhai government, in 2001, the proportions of the city's primary, secondary, and tertiary industries were approximately 6:50:44. The total value of the IT sector was about US\$ 1.23 billion, including US\$ 217.91 million from software and operating system integrations, US\$ 290.56 million from telecommunications and cable television, and US\$ 726.39 million from the production of IT equipment. This shows, together with the evidence previously presented, that the endeavor by the Nanhai government has been largely successful in promoting informatization as a new driving force for traditional industries and as a new source of economic growth.

## E-Government

Compared to Nanhai's efforts to "informationize" its local economy, even more remarkable achievements have been made in the field of e-government, seen by local officials as the application of computer and Internet technologies to various governmental processes. e-government in Nanhai, like the Internet in the city in general, began in 1995 when computers in different local offices started to be networked. By the end of 1999, all major administrative agencies in the urban and suburban areas of Nanhai had been connected with an "internal network" (*neiwang*) that handles inquiries and file transfers among various government offices at different levels of administration. At the same time, most key offices at the city, township, and district levels had established websites for public information (*zhengwu gongzhong xinxi wangzhan*), which is part of the Internet and known as an "external network" (*waiwang*) or "public network" (*gongwang*). Most governmental offices in Nanhai now have their own webmasters.

As revealed from our interviews with local officials, e-government initiatives were believed to fulfill at least three major purposes:

- (1) *Enhance work efficiency and reduce costs.* For instance, at the Nanhai People's Court, it used to take almost a week to start a case and process the initial notifications. However, it now takes only 30 minutes to do the same thing, with the help of the local access network (LAN).
- (2) *Increase information transparency.* We saw touch-screen computers with access to specific LAN systems at the People's Court and at Minle Village Committee. These are designed to

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<sup>5</sup> <http://www.nhitp.com/gb/kj/yq.htm/>



provide useful information to ordinary Nanhai residents about legal procedures and the operations of the rural village, respectively.

- (3) *Provide more convenience to local enterprises and residents.* The best example is the new City Administrative Services Center, opened in January 2002, which houses 16 city bureaus/offices that local enterprises and residents have to deal with most often, from water and electricity provision to hygiene control to public security to the issuing of various kinds of licenses and permits. These state agencies are scattered in different parts of Nanhai. Now each of them sends staff members to work at the Administrative Services Center with computers linked back to the databanks in their main offices. The Internet technology thus enables a "one-station" (*yizhanshi*) management mode, which greatly benefits those who have to deal with the bureaucracy.

Some e-government projects, such as the Financial Accountancy Center for City Non-Profit Administrative Organizations, may simultaneously meet several of the above objectives. This is a highly computerized office, beginning operations in March 2002, which directly controls about two-dozen city-level government service providers, such as the public library and the transportation unit of the city government. The office functions as a central node in the nerve system that does bookkeeping for all the subordinate offices and operationalizes all transactions between these governmental bodies and their bank accounts. In so doing, the non-profit administrative organizations no longer need to finance their own accountancy staff, thus reducing administrative costs and increasing efficiency. Most importantly, it also allows city leaders to check the accounts of all subordinate organizations online in real time. This not only increases information transparency but also "deters corruption" and "enhances social democracy," as one official said to us. "We realize that this is a revolution on our own heads" (*geming gedao women ziji toushang*), he continued, "because we all have to be more careful in spending state money." "But we are willing to proceed with the revolution since it empowers the leadership to control financial flows and enforce budgetary planning. It also prevents problems in the management processes and provides a most effective technological guarantee (*jishu baozhang*) for anti-corruption."

There is little doubt that the applications of e-government have a transformative effect that some local officials may not like, particularly those whose jobs and/or powers depend on the less efficient mode of the traditional bureaucracy. Internet-based reforms such as those hosted by the Accountancy Center and the Administrative Services Center actually change the local power structure in a way that empowers top city leaders and ordinary Nanhai people to different degrees, whereas the ability of mid-level officials to exert control is significantly reduced.

E-government initiatives are also costly. Although every year the city government allocates US\$ 6.05 million to key projects and to the most needy townships and districts, still there are many work-units reluctant to dedicate part of their own budgets to computer networks, which they either do not understand or they fear because of the possibility of subsequent loss of power. It is at this point that the critical role of the top leadership becomes indispensable. Indeed, we were told that the top leaders in Nanhai had to hold many, many meetings to "unite thoughts" about informatization. Sometimes it had to be repeated at several meetings during the same week when there appeared to be resistance among middle-rank officials.

The City CCP Committee Office, City Mayor's Office, and Informatization Office also established a semi-annual examination procedure whereby e-government progress in all state and party work-units have to be assessed every half-year. Despite the persistence by e-government policymakers, there were still significant variations in terms of the actual utilization of Internet technologies in various governmental offices. For instance, it was revealed in July 2002, during an assessment of public information websites in Nanhai, that only one third have frequent updates. One third had few updates and even content that had expired in 1998.

Since there is relatively more resistance at the mid-level of the bureaucracy, an interesting pattern of e-government initiatives has been established in Nanhai known as "bureaucracy being propelled by the grassroots" (*jiceng tuidong jiguan*). The grassroots refers to the vast rural areas of Nanhai and the townships and districts that were traditionally less wealthy. State and CCP cadres in these areas are more enthusiastic about the new technology because they receive more funding from the city and they are more willing to share information with the top leadership in Nanhai. Out of the 250 village committees, for example, 190 had established a Rural Informatization Management System, a local LAN designed for the supervision of all major aspects of rural life, from control of the population and collective resources to the interactions between cadres and villagers. At a touch-screen computer in Minle Village of Xiqiaoshan District, we accessed the village's Rural Informatization Management System and were able to check the financial records of the village committee, and of the village's sub-units, and even the status of family planning in different neighborhoods.

Major suspicions about e-government were that it may cause information leaks or that governmental datasets might be hacked. Nanhai has dealt with this concern by keeping the internal and external networks physically separate (*wuli geli*). However, this works against the basic logic of e-government because it is more costly and less efficient to transfer files from the internal network to the external one, and the interactivity of the overall e-government network structure is compromised. Nanhai therefore has invested in network security research in recent years, and it partners with the National Science and Technology Commission in developing electronic identification systems, particularly the PKI platform that will in the future link up the internal and external e-government networks while ensuring information security.

In sum, Nanhai has made substantial progress in its e-government initiatives since 1995 owing to its booming economy and most importantly to its pro-IT leadership team. For the most central figures in this new technological adventure, e-government initiatives are not only ways to improve their work; they also serve some larger purposes such as the strengthening of socialist democracy and paving the way for the realization of communism. As one of them told us:

Communism is a good social system. So it



Photo by Jack Linchuan Qiu

Checking the financial record of the village committee on a touch-screen in Mile Village.

needs good technical support. That was why East Europe failed; they didn't know the secret of information technology. Informatization is indeed the essence of communism. The last time I sang the Internationale, I thought, 'Gee, the Internationale (*yin te na xiong na'er*) - that sounds very close to the Internet (*yin te nai te*).' That's very obvious, isn't it?

## COMMERCIAL PLAYERS

The commercial aspect of Nanhai's Internet development is both similar to and different from local state initiatives. It is similar because local governments, from city-level offices to village committees, remain a primary source of investment in building the local infrastructure, and therefore are the largest wholesale purchaser of Internet equipments, software, and online services. However, looking at the Internet in Nanhai from a commercial perspective is also very different because there has been an upsurge in competition among the ICPs and ISPs, which, unlike the centralized hierarchy of the local state, are more varied and capable of reflecting the arguments of various interest groups. As stated in a magazine article:

After the bursting of bubbles such as the 'knowledge economy' and the 'Internet myth,' we have seen the agony of a failed digital economy around the world. However, it was because of the grounded nature of Nanhai's 'digital reform' rooted in the local economy that kept the transformation from becoming a solely governmental movement.<sup>6</sup>

In order to study Nanhai's commercial Internet players in a more objective manner, we did not use our contacts in the city government to conduct our interviews during our third fieldtrip to Nanhai, which formed the bulk of this section. As expected, this method yielded certain findings that were not observable in our interviews with city officials, thus providing supplementary accounts of the complex processes by which the Internet was and is being built in Nanhai.

### State-Related Operations

It is important to note that, from the very beginning, the local state in Nanhai has not been the sole investor. Foreign capital, especially from overseas Chinese expatriates, was another important source of investment. There have also been various ways of generating investment from non-governmental channels, stock exchange markets, and venture capital. However, as the leading player of informatization in Nanhai, the city government has made numerous efforts to enter the commercial market and to consolidate key commercial players under its control, while establishing an integrated single network infrastructure for the delivery of telephone, television, and Internet through one broadband cable per household.<sup>7</sup>

This grand ambition was initiated in 1995 at the same time when the Internet made its debut in the city. In 1996 the project entered an experimentation stage in the new residential areas in Lishui District not far from Guangzhou. City officials had an important influence on this

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<sup>6</sup> Yuan Weidong, "Government with 'No Action,'" (*wuwei de zhengfu*), *Windows of Southern Winds* (*Nanfengchuang*), December 2001, no. 2, p. 22.

<sup>7</sup> In Nanhai, this experimentation is known as "Three Gadgets, One Network" (*sandian tongwang*) and "Many Database, One Network" (*yiwang duoku*).

process because in the newly established Nanhai Information Network Inc, two out of the four major power holders - the City Science and Technology Council and Nanhai Investment Development Inc - received major funding from the city government. As to the other two stakeholders, the Nanhai City Post and Telecom Authorities (PTA) and the city's Broadcasting Bureau (in charge of cable TV systems) did not receive much funding from the city government and were designed to play a minor role in the single-network experimentation. But under the pressure created at the hype of the informatization in 1996, they reluctantly entered the coalition in which the PTA provided transmission services, CATV provided programs, and the City Science and Technology Council played the main coordinating role.

The situation changed in the following year, 1997, when the Propaganda Bureau of the Guangdong Provincial CCP Committee realized that if this experimentation were to become successful, they would lose control over the Cable TV systems, which had great potential to offer telephone and Internet services on their own. The conflict of interests resulted in a sustained media campaign led by the Provincial Propaganda Bureau, accusing the Nanhai City Government of "attempting to dilute the leading role of the Cable TV network [and therefore the leadership of the Communist Party]." It created tremendous pressure on the city government until Guangdong Provincial Governor, Lu Ruihua, talked to the Provincial CCP propaganda director Xu Guanghui, and reached a compromise whereby the three major networks of telephone, cable television, and the Internet would not be consolidated into a single network. Since then, the strategic goal in Nanhai has been to maintain the relative autonomy of the three networks while keeping them interconnected.

The single-network experimentation powerfully showed that the determined will of the top city leadership does not explain everything about Internet development in Nanhai. When power holders at higher levels are involved, especially when the conflict of interests has wider commercial implications, the relationships among key Internet players have to be carefully coordinated. The methods of administrative commands and repeated meetings may work in the case of middle-level officials who have reservations about e-government initiatives. But when it comes to a second opinion held by either China Telecom or the Cable TV operators, the effectiveness of the "Top Leadership Project" begins to erode.

### **China Telecom and Its Competitors**

China Telecom remains a most important actor in the online landscape of Nanhai because, like elsewhere in China, many Nanhai residents still use phone lines to access the Internet. Although nationwide there have been a few competitors to China Telecom, new firms such as China Netcom Communications and Tietong have not entered Nanhai's telecom market in a major way. Other than the firms backed by the city government, the only significant challenge to Nanhai China Telecom came from China Unicom. However, since Unicom in Nanhai was administratively set up as part of the Foshan Branch of Unicom, it was difficult for local Unicom planners to coordinate them and design targeted commercial campaigns for the Nanhai market alone. In addition, since Unicom is traditionally stronger in pager and mobile phone services, it would be hard for it to compete with China Telecom in the area of Internet access and service provision.

Nanhai China Telecom also has a close relationship with Foshan China Telecom, but it is an independent financial entity. Internet services provided by Nanhai China Telecom have also experienced a boom in recent years, due to three reasons, as identified by a manager at Nanhai China Telecom:

- (1) The promotion of Internet technologies on the part of the city government,
- (2) The decrease in the cost of going online, which is part of a national trend,
- (3) The rapid development of the local economy. This has led not only higher demand for information but also to the development of large-scale residential districts, which have been a driving force behind Internet growth.

In 2001 Nanhai China Telecom started to actively promote broadband services, such as ADSL for individual users, DDN for work-units, and LAN for residential districts. The cost for a regular home broadband connection is more than US\$ 12.11 per month. Therefore, only the more wealthy officials, those who exchange stocks, and those with a high education are able to afford broadband access at home. Many teachers also enjoy this privilege because their broadband connections are subsidized. A major project started in August 2002 by Nanhai China Telecom and the local Education Bureau is called "Morning Sun Online" (*zhaoyang zaixian*). Connected by fiber optics, this network provides services to teachers and students so that they can retrieve, transfer, and upload school-related information online in a secured manner, both at school and at home.

One of our interviewees expressed dissatisfaction regarding network inter-connectivity between the city e-government network, CATV, and China Telecom. He said, with disapproval, "We are businessmen and businessmen only. They have more power than us. So, they can retrieve our information, but we can't retrieve theirs."

Overall, our respondents at Nanhai China Telecom saw four barriers to the further development of the Internet in Nanhai. First, development is very uneven in different townships and districts. Second, the cost is still too high for average Nanhai residents. Third, most residents in Nanhai do not have high levels of education, which not only prevents them from learning how to use the Internet, but also makes them suspicious about what the new technology may do to their children. Finally, there are few information sources about the local community in Nanhai, with very infrequent updates. So far Nanhai does not have a major commercial ICP.

## **Guerrilla Forces**

In addition to the local state agencies, their commercial operations, and the major ISPs like Nanhai China Telecom, there are also many smaller enterprises such as Internet cafés and various kinds of private businesses, sometimes operating underground, which often escape the radar screen of the larger players. After interviewing city officials and China Telecom managers, we usually asked them where we could find an Internet café to check our e-mail. Their answers were all more or less the same: "There might be an Internet café somewhere down the street. But I'm not sure of its exact location, and whether it's still in operation. We have a good Internet connection at work and at home. We don't go to those places."

However, with a floating population of more than 650,000 in Nanhai, there is a large potential market for smaller operations. This includes a sizeable group of migrants with college diplomas, who came to staff the city's booming e-economy because, after all, most long-term residents in Nanhai have only a low to medium level of education. Two participants in our male Internet user focus group belong to this group of hi-tech migrants. Although they earn decent salaries and are familiar with computer networks, they chose not to have home Internet access in part because they may relocate to another city in the future and the service contract for a home computer would be a costly commitment.

From the owner of an Internet café in downtown Nanhai we learned that the migrant population did make up a good proportion of those who used the Internet there. But the majority of users were still teenagers and those in their early twenties, as we witnessed on our fieldtrips, because it was during the summer and the number of student users was larger than usual. Unlike the older generations who spend most of their time checking e-mail, reading news, and studying stock information,<sup>8</sup> most student users play online games. This pattern became most prominent after 2001 when TV game rooms were banned in the city. The users come into the cafés as a group, and play, yell, and share tips about the games. Some of them also watch online video, listen to streaming music, and participate in QQ or chatrooms. They are transforming the space into a socializing and recreational arena for youngsters.

But users in Internet cafés are mostly male. One Internet café owner estimated that no more than 20 percent of his customers were female. This pattern of male dominance is seen in other small cities as well, which differs from the pattern in the urban centers of Beijing or Guangzhou where anecdotal visits revealed a higher proportion of female users in the Internet cafés.

By August 2002 the Nanhai Public Security Bureau had approved seven Internet cafés and five had received permits from the Nanhai Bureau of Industry and Commerce. Most of these licensed or semi-licensed Internet cafés were in Guicheng District, the main urban area of Nanhai. An unknown number of underground Internet cafés exist in the rest of the city. As elsewhere, Internet café owners in Nanhai complained about the complicated procedures to open their businesses. "I know we are building a 'digital city,'" said one of the café owners, "but is there any special favorable arrangement that we receive for running this business? I don't know of any."

Indeed, while the city government favored large-budget e-government and e-commerce projects, it did nothing to facilitate private Internet enterprises, be it Internet cafés or local dot-coms. After issuing several Internet café licenses in 1997, the government actually suspended all Internet café licensing work for almost three years between 1998 and 2001. Many Internet cafés had to be shut down because they could not renew their licenses. We were able to talk to two owners who lost their businesses in 1999 because of this change in government policy. One of them was not able to recover most of his investment. The other opened a second Internet café in 2002 when licensing resumed. He also suffered a severe financial loss and he regretted that the three years lapse had greatly advantaged to Internet cafés in Foshan, which is right next to Guicheng District, because local young people had

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<sup>8</sup> The Internet in Nanhai is often used to check stock information in both Internet cafés and at home, especially for the older generation. In fact, one of the Internet café owners whom we interviewed started using the Internet because he hoped to learn more about the stock market.

already formed the habit of going to Foshan to visit Internet cafés and it was not easy to draw them back.

As a result, the number and scale of licensed Internet cafés in Nanhai were significantly below the level of those in neighboring cities such as Foshan or Guangzhou, to say nothing of Shenzhen and Zhuhai where the Internet café business prospered during the period of our fieldwork in summer 2002. In the aftermath of Beijing's deadly Internet café fire in July 2002, Internet café owners in Nanhai expressed complicated feelings. On the one hand, they said they would guarantee all security measures, and cooperate with the presiding authorities. On the other hand, they also felt frustrated about the increased pressure on their businesses. One of them said he was "most afraid of public opinion that stigmatizes all Internet cafés. But we are legal operations. I pay taxes, observe the regulations, and use filter software from the Public Security Bureau that costs more than US\$ 242.13 a year." Another café owner put it more bluntly, "Why do those problems in Beijing have to affect us? I don't understand."

Another more unique, yet disgraceful, underground operation in Nanhai involves the refurbishing and reassembly of used computer parts shipped from overseas, mostly computers thrown away as garbage in developed nations. It is unclear whether this underground industry was calculated as part of the US\$ 726.39 million local GDP for "information industries" in 2001. But as we learned from news investigative articles and a special program on Oriental Time (*dongfang shikong*) by China Central Television in June 2002, there is a large-scale production and marketing network for imported trashed computers in Nanhai, concentrated in four villages in the township of Dali.<sup>9</sup> Here, local residents use the Internet to shop around for garbage sales and place orders based on images seen online. Normally, the electronic garbage costs US\$ 1,210 per ton. When it arrives, it is taken by migrant workers, mostly from Hubei, Sichuan, and Hunan, who reassemble it into computers with famous brands, to be sold as second-hand computers, usually at the wholesale price of US\$ 36.32 for a desktop and US\$ 121 for a laptop. In the four villages of Dali Township alone, there are more than 1,000 shops that produce or sell such second-hand computers. By 2002, the underground market had already existed for more than 10 years, despite repeated efforts by the local government to clean it up.

There are many complicated issues involved in the case of foreign electronic garbage in Nanhai, which I shall not discuss until the last part of this report. But it is essential to bear in mind that, despite the wealth and strength of the Nanhai city government, there are certain aspects of the e-economy that fall beyond the realm of its jurisdiction.

## INTERNET USERS AND NON-USERS

There has been a wide variety of large and small players, with or without connections to the local government, who are involved in the development of the Internet in Nanhai. The Internet market in this small city is quite vibrant. Our survey of Internet users conducted in February 2003 shows that, although 46 percent of Nanhai users rely on telephone lines for Internet access, 48.5 percent of them have been using broadband connections such as DSL/ADSL



Turning garbage into computers.  
(Taken by under-cover camera)

<sup>9</sup> See Yan Zhigang, "When Will It Be Over - 'Foreign Garbage' in Nanhai," *Economics Daily (Jingji ribao)*, August 19, 1998; "Putting Foreign Garbage Into Famous Brand Computers," *Southern Urban Daily (Nanfang dushi bao)*, May 21, 2002; and Wen Sheng, "Ten-Thousand Yuan Per Ton: Second-Hand Laptops Are Foreign Garbage," *Beijing Youth Daily*, June 25, 2002.

(17.5 percent), dedicated line such as T1 and T2 (15 percent), cable modem (9 percent), and ISDN (7 percent). The finding that there are more broadband users than dial-up users is a positive indicator of the general infrastructure of computer networks in Nanhai.

On average, Nanhai Internet users also spend significantly more time online while at work (3 hours X52 minutes per week) than at home (3 hours 18 minutes per week). This confirms our earlier observation that the local government is a primary driving force for Internet growth in Nanhai. In contrast, the average amount of time people go online in Internet cafés is only 38 minutes per week.

Aside from the sheer amount of time spent on the Internet, what websites do people visit? Do they go to websites put up by the local state offices? Do e-government initiatives have an impact on the everyday life of Nanhai residents? We asked these questions to our interviewees in the city government, but they did not provide us clear, positive answers. Instead, they said they could let us visit some "model Internet households" during our "next trip to Nanhai," leaving us wondering whether the actual impact of the Internet projects in Nanhai was as satisfactory as it should be.

We confirmed this suspicion in our Internet user focus groups, among both female and male respondents. During the discussions we asked them whether they had visited webpages hosted by local officials and, if so, how they would assess the usefulness of these websites. Except for a very few participants who had to deal with the local government at work (e.g., a state official, a bank clerk, and a China Telecom employee), all other Internet users said they have never visited local e-government pages. Even those who frequent local state websites at work reported they were not well designed for use by average Nanhai residents; some were hard to use or they were not updated regularly. As a result, most participants in our Internet user focus groups still go to large commercial portals such as Netease.com and 21cn.com for online information.

In terms of general access provision, one of the male participants made a point that everyone else in the group agreed with. "Now we are building a 'digital city'," he said, "but why don't we have lower access fees than in other places? If the city government really wants to encourage us to go online, that's one thing they should do." Indeed, during our interviews, city officials and large Internet operators in Nanhai, never considered from the perspective of the average Internet users in the city. But this is a most tangible concern - as we found in our survey. Although Nanhai is a wealthy region and Internet users tend to have higher incomes than non-users, still 43 percent of the users identified "expensive Internet access fees" as one of the major obstacle to going online.

In general, opinions that surfaced in the two Internet user focus groups are more complicated than those in the two non-user groups. Male users were the most knowledgeable about the Internet, and held both positive and negative impressions of it, whereas female non-users were the most pessimistic. Concerns about online pornography, fake identities (especially in Internet-based dating), and network security issues were found across the board in all focus groups, particularly among those who had children. Apparently, they have learned about the negative aspects of the Internet from the mass media channels; this is especially true for



non-users.

A middle-aged housewife said, "I know the city has spent a great deal of money on informatization. It's a good thing. But it does not change my life at all." "It's not something for people like us," continued one of her friends in the focus group. "I don't know where I can learn those things," she said with frustration, "but the less I know, the more I worry about my kids being online." This is more likely a feeling shared by older non-users in Nanhai and elsewhere. The diffusion of the Internet among all members of a society is therefore a dual task: on the one hand, training programs are needed for average members of the society (not just those in selected work-units) so as to enhance the technical know-how among non-users; on the other hand, a perhaps more important task is to change the popular perception of the Internet as an outlandish luxury replete with fraud and extremism to something that can be integrated into the everyday life of average people, including those who have received less education. The city government and large Internet companies can play a major role in fulfilling the first objective by setting up training sessions and workshops. But in order to achieve the second goal, a larger coalition is needed that includes the mass media and other organizations such as schools and small IT enterprises.

## **EVALUATION: A NANHAI MODEL?**

Overall, Nanhai does have more developed Internet infrastructure compared to most other small cities, both nationwide and in the Pearl River Delta. However, there are still underground operations and numerous needs of smaller Internet enterprises and individual users that have yet to be met. The following questions need to be answered: (1) What are the basic patterns of Internet diffusion in Nanhai? (2) How did these characteristics, and not others, come into being? and (3) Is there a Nanhai model that might be applied to other small cities and/or help us understand the modes of Internet development in a way that goes above and beyond what we currently know about the Internet in large Chinese cities?

Government offices, at the city level, township/district level, and even village level, have the largest number and highest percentage of online computers, which are connected either to the Internet or to the internal e-government network. Most schools in Nanhai have online computers, as do large local enterprises involved in cross-boundary economic transactions. Many wealthy long-term residents have Internet access at home, especially those living in the newly built residential parks (*xiaoqu*) that are equipped with broadband networks. However, still there are many smaller factories and companies with no Internet access. The penetration rate for ordinary households remains low. It is particularly problematic for migrant workers to use the new technology because Internet cafés, their main point of access, are not well developed due to various policy constraints, that have caused deep-seated discontent among the owners and managers of these establishments.

Such a pattern of diffusion is indeed unsurprising because the terrain of Nanhai is a mix of a small newly urbanized district (*Guicheng*, see map on p. 1) surrounded by a vast span of urbanizing townships and rural villages, and the general education level of Nanhai residents is not very high. As we found in the focus groups and survey data, those who have college

degrees are much more likely to become Internet users than those with lower levels of education. However, the proportion of college graduates in Nanhai is much lower than that in large cities, which in part explains the difficulties for ordinary households to adopt the new technology.

In spite of the education bottleneck, the Nanhai City Government has by and large successfully implemented its informatization plans, mostly in public offices and large local enterprises, which is a project that requires serious commitment and extraordinary persistence. For this, the leaders of the Nanhai CCP and local government, especially Secretary Deng Yaohua, should be credited for being the single most important force contributing to the prominent achievements of the city in terms of Internet development. The "Top Leadership Project" means that a huge amount of institutional and financial resources were spent on e-government and e-commerce initiatives. This model of growth has yielded significant results in Nanhai. But it may not be applicable to other small cities because they may not have such a strong local economy that can support large-scale Internet experimentation. Even if their local economies are strong, they would still need a determined leadership team such as existed in Nanhai.

It is therefore clear that the *Nanhai model of Internet growth, which is heavily state-driven and money-driven, may not apply elsewhere in small cities/counties of inland China, or even in neighboring regions of the Pearl River Delta* where there are similar levels of economic development and dependency on export-oriented production. Hence, the real question is not how Nanhai's experiences may serve as a model for the future direction of Internet growth in small and medium-sized Chinese cities, but *what we can learn from the Nanhai experience regarding more general issues of local Internet development, the players, and their relationships and mechanisms of change*. This case study may thus provide some insights for future policy implication.

The first of such general issues involves the relationship between economic prosperity and Internet development. It is commonly believed that places with a stronger economy and higher incomes will adopt new technologies more quickly. To a certain extent, this is the case in Nanhai. Without the general economic take-off in the city since 1978, the local government most certainly would have been unable to provide sufficient funds for its Internet projects. But two additional observations may weaken this economic-determinist view because, on the one hand, other rich cities in the region, from Shunde - a similar scale county-level city - to major metropolitan areas such as Guangzhou and Shenzhen, did not promote the Internet as a primary mode of modernization as early as 1995. On the other hand, when examining the characteristics of Nanhai, a senior official told us that the city's two wealthiest townships, Dali and Nanzhuang, were in fact slower in Internet development than the rest of the city, whereas the poorest town of Jinsha founded the city's second hi-tech innovation center for hardware production. Both findings suggest that, *although the availability of economic resources plays an indispensable role in the growth of the Internet in medium and small Chinese cities, there are other more significant factors that explain the spatial variation of the diffusion of the Internet in Nanhai*.

One such factor is the structure of the local economy. In the towns of Dali and Nanzhuang,

for example, the pillar industry is aluminum processing, especially aluminum frames used to build windows and doors for urban and suburban construction. The techniques to make these aluminum products do not need frequent updates. And the factories do not need to expand their markets because of the ongoing surge in China's construction industry, and, most importantly, Nanhai had already established itself as the largest trade center for aluminum in South China. In contrast, business operations in less wealthy towns such as Jinsha and Xiqiao were smaller and were more sensitive to market fluctuation. Hardware and textiles both require more design than aluminum frames, and they both have to keep up with the latest global trends in order to meet the demand outside of China. As a result, the information components of local products and the need of local companies to work together is a better explanatory factor than the sheer size of the local economy, in aggregate or per capita terms.

Faster development of the Internet in certain poorer areas of Nanhai is also due to the city's policy of allocating more than US\$ 6.05 million in special funds to the less developed areas. We have repetitively emphasized the central role of state initiatives in the history of the Internet in Nanhai. But why did Nanhai, and not other wealthy small cities in the Pearl River Delta, become the most enthusiastic about its Internet projects?

Besides the probably coincidental personal interests of Secretary Deng in informatization, there is also a political logic underlying Nanhai's Internet boom. First, since 1992 when Nanhai acquired its county-level city status, the most overwhelming public discourse about modernization in China has been captured by Al Gore's "information superhighway" speech and the plan for a National Information Infrastructure (NII) in the U.S. This occurred at the same time that the new leaders in Nanhai were attempting to make their own distinctive contribution to the city.

Meanwhile, records also show that throughout the 1980s, particularly in the aftermath of June 4, 1989, Nanhai was repeatedly criticized for being a "heaven of the petty bourgeoisie" (*xiaoshengchanzhe de tiantang*) because most of its local businesses were privately owned enterprises that were seen as hotbeds of capitalism that lacked economies of scale.<sup>10</sup> Reportedly, the leaders of Nanhai at the time did not dare to sit in the front seats during meetings in Guangdong Province for fear of being publicly censured.<sup>11</sup> This makes it less surprising that Nanhai suddenly engaged in building the huge computer networks because, according to the popular consensus at the time, the Internet is the ultimate coming together of the latest technological achievements of human society, which should represent the most advanced "mode of production," as expressed in Marxian terms. The inclination for larger economies of scale explains the vast amount of financial inputs made by the Nanhai city government, which did not occur in other cities of similar level of economic development. It also resolves the puzzle of why the city leaders remained indifferent towards and indeed contributed to the hardships of the Internet cafés in the midst of their informatization campaign, when Internet cafés in adjacent cities were mushrooming and local demand for Internet café services remained strong.

It is also worth mentioning that the centralized internal/external network structure and several e-government projects, such as the online accountancy center and the extension of fiber optics into all rural villages, first and foremost reinforced the position of the top leaders in

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<sup>10</sup> See footnote no.6, p. 21.

<sup>11</sup> *Ibid.*

the city government while weakening the power of middle-level officials by reducing their control over certain critical information (e.g., of extra budgetary funds). This explains the reluctance among township leaders in some wealthy areas to participate in e-government experimentation. They thought the new technology might harm their relative autonomy. There is no doubt that there were ways to construct the network in such a way that would be more beneficial to middle-level officials, grassroots leaders, or ordinary residents in the city. But the fact that the top leaders were the only de facto policymakers for the Internet in Nanhai ruled out other alternatives. And now, because those who did not participate in the policy process receive fewer benefits from the Internet campaigns, they are more suspicious about the technology itself.

In a word, the speed of Internet development does not always correlate with the level of economic development in the localities. In cases like Nanhai, *the role of the local government is oftentimes more important than economic factors alone, and state involvement may both facilitate or constrain the informatization of the city.*

But, is local state power omnipotent in shaping all aspects of the Internet in Nanhai? The answer is negative. Anyone examining Nanhai's Internet achievement would be very impressed with the ability of the city government to implement all its e-government and e-commerce initiatives. But as soon as we talked to non-governmental agencies and ordinary Nanhai residents, we began to realize how limited an impact the Internet has had on the activities and everyday life of companies and residents of the city. There were also times when the city's ambitions may have clashed with those of various interest groups at higher levels, such as the dispute with the Guangdong CCP Propaganda Bureau in 1997, which worked, for good or for bad, as a significant check on the power of the local state.

Grassroots groups are also indispensable and active, not passive, parts in the ecology of Nanhai's Internet. Teenagers were discouraged from playing games, video game stores were shut down, and all Internet cafés in Nanhai were closed (at least formally) for as long as three years. But these teenagers could travel to Foshan, ten to fifteen minutes away from downtown Nanhai, to play online games. And when the Internet cafés were allowed to reopen, they remained the most visible group that transformed the commercial space of Internet cafés into a domain of social interactions and collective entertainment, which was also the goal of most Internet café owners. In a similar way, private Internet entrepreneurs and managers also faced great prejudices from the city officials, and were forced to either go underground or to completely lose their businesses. But some of these owners were persistent. They would reopen and reapply for a license despite the difficulties of the bureaucratic procedures. And, most importantly, *many of the private Internet entrepreneurs are not college graduates. They are long-term local residents, usually with only a high school education, who are determined to participate in the economic transition toward e-economy although they receive no support from the city. In a sense, they represent the most grounded force of Internet development that is rooted in Nanhai society.*

Another demonstration of the limited state power is the garbage computer industry. Its implications are quite complicated. In addition to the previous discussion, the following questions need to be addressed: Why do people need such computers? Why have local villages allowed

this to take place for more than ten years? Are there better jobs that the migrant workers could do aside from working on these garbage computers? Finally, is making garbage computers a learning experience that allows the laborers, at least in some sense, access to the e-economy? We are not ready to answer these questions at this point because, due to the constraints of time and resources, we could only rely on existing journalistic coverage that did not discuss these issues in depth. But this is an important topic for future exploration, which will be a major supplement to what we know about the entire ecology of Internet development in the city.

Finally, what are the barriers to the further development of the Internet in Nanhai? As we have identified on the basis of different methodological findings, a low average educational level and a lack of technical know-how constitute some of the major barriers. In addition, the centralized power structure for government-led Internet projects, which, although greatly enabling large-scale network infrastructure growth at one level, also constrains Internet growth at another level, especially when the less powerful are involved. From the city's teenagers to private Internet access providers, these actors at the grassroots did not receive many direct benefits from the e-government and e-commerce enterprises, and they were subject to strict control, or even the risk of completely losing their businesses even if they were doing nothing wrong. However, the grassroots players are not only to be acted upon; they also can take action and pursue their own dreams in cyberspace unfettered by the physical restraints of this county-level city. It is along these dual tracks of dedicated state leaders and tenacious grassroots players that Nanhai possesses valuable assets for its cyber-future. However, there are serious challenges as well, especially if there is a schism in this complex duality.



The only main street in Yima city, Henan province.

# FROM THE GRASSROOTS TO THE INTERNET: A CASE STUDY OF YIMA CITY

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## CITY INFORMATION

Yima City is located in the hilly area of western Henan province, which is in central China and called the “cradle of Chinese civilization” because of its long history. There are many historic sites in Yima, such as the Yangshao Cultural site which dates back more than 6,000 years ago. Yima is located 183 kilometers from the provincial capital Zhengzhou City, lying just between Luoyang and Sanmenxia, the two other important cities in Henan province.

Yima, covering an area of 112 square kilometers and with a population of 120,300 urban residents and 31,000 rural residents, was acknowledged as a county-level city by the State Council in 1981. It is now administrated by Sanmenxia City. Its urbanization level is at 88 percent<sup>1</sup>.

Yima is rich in coal reserves and has developed its coal mining industries. The local leading enterprise, Yima Mining Corporation, employing more than 90 percent of the local laborers, plays an important role in municipal development. In 2000, the average income of Yima’s urban residents was 4,021 RMB (about US\$ 487)<sup>2</sup> and the Engel Coefficient was 32.1 percent. Yima’s average GDP in 2001 is 9,873 RMB (about US\$ 1,195). In terms of overall economic development, in 2002 Yima ranked 936 among more than 2000 county-level cities in the country. According to the Yima municipal government annual reports at the beginning of 2003, Yima’s GDP for 2002 was estimated to be 1.639 billion RMB (about US\$ 198 million), with 62 million RMB (about 7.50 US\$ million) in local state revenue and the yearly average income of urban residents at 4,475 RMB (about US\$ 542). About 12 percent of the population has received two years of college education or more. There are few public infrastructures, such as libraries, salons or entertainment places in the city, and most of the local residents maintain a simple life style staying home and watching TV after work.

The local media, solely sponsored and run by the Yima municipal government, include the official newspaper Yima Today which began in 1995, the Yima Radio Station and cable TV (with 7500 household users) which broadcasts a very limited content of one or two hours per day. The Yima Mining Corporation’s official newspaper Mining Workers and its cable TV station reach most of the local population as well.

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1 Propaganda Department of Yima City Government: “The development strategy of Yima”, *Yima Today*, issue no.690, February 11, 2003.

2 The exchange rate between the RMB and the US\$ is 8.26:1.

## **METHODOLOGY**

The field study in Yima was carried out from January 29 to February 14, 2003, using the following methodologies.

### **Door-to-door Survey**

With 200 samples allocated in Yima by the project, an Equidistant Sampling Method was applied to choose the respondents among all the households. Yima's 120,000 urban registered permanent residents belong to 25,875 households which are administered by 35 local residential communities.

But the residential administration in Yima is poor: there is a lack of computerized database management, many registered street addresses are invalid and the distribution of dwellings is confusing with assorted types of dwellings mixed together. Therefore, it was neither feasible nor possible to conduct a standard equidistant sample through computer database and then to choose respondents by registered address.

Inevitably, the Equidistant Sampling Method had to be adapted to the practical situation in Yima. Given its small population, a special type of Equidistant Sampling Method was applied as follows:

First, we took the 35 local residential communities as the basic unit for the sampling so that our sample would cover all the residential communities. The number of respondent households was allocated to each residential community according to their relative proportions, ranging 3 to 9 households for each community.

Second, in order to guarantee that every sample was chosen as equably as possible, we required a detailed draft drawing showing the exact distribution of all the households in each local residential community, which was jointly done by our local investigators and those officials in charge of the resident communities. Based on this drawing, the investigators went to the field and chose the samples equidistantly. As shown by the results of the collected data, in this way the error of the sampling for Yima's survey was controlled at an acceptable level.

Because no reliable number of local households was available, the total number of urban households in this survey was derived from the total of the accurate number of households provided by the official in each local residential community, after screening for invalid addresses, false permanent residence registrations, and etc, so as to come up with a reliable figure.

### **Interviews**

A series of face-to-face interviews on the use and impact of the Internet were conducted in Yima. The interviewees were carefully selected based on the following:

1. Local government officials: the director of Yima city government administrative office for



the Internet and Telecommunications, and the official of the city cultural bureau in charge of the Internet café.

2. Local leading industry entrepreneurs: the general manager of Yima Mining Cooperation and the director of its Science and technology department in charge of the informatization campaign of the enterprise.
3. Local IT and telecom entrepreneurs: the manager of Yima Netcom, Yima Mining Cooperation Telecom company, and the major ICP Yima Information Harbor.
4. Internet café owners: By the beginning of 2003, there were 38 formally registered Internet cafés in Yima, 13 of which were randomly selected to be interviewed, in addition to two illegal Internet cafés.
5. 15 Internet users: ranging in age from 10 to 37 years old, 5 of whom were female.

**Focus Groups**

Four focus groups were organized each with 6 to 8 people but with no two people from the same work place, school, or family. The four groups included male Internet users (4.7 years of Internet use), male non-users, female users (3.8 years of Internet use), and female non-users. Discussions lasted 150 and 90 minutes for the users and non-users respectively.

**Table 1: Profiles of the participants in the Yima Focus Groups**

Groups	Average Age	Educational	Profession
Male users (n=7)	29.2	Bachelor's degree 4 Two Years College 2 Technical Secondary School 1	Engineer3, College Student 2, Teacher 1, Self-employed 1
Male non-users (n=8)	38.0	Bachelor's degree 2 Two Years College 2, Technical Secondary School 2 Middle School 2	Worker 6, Engineer1, Teacher 1
Female users (n=7)	29.2	Bachelor's degree 2 Two Years College 5	Deputy director 1, Engineer 2, Technician 3, College Student 2
Female non-users (n=6)	40.6	Two Years College 1 Technical Secondary School 2 Senior Middle School 3	Worker 4, Teacher1, Civil Servant 1

**Archive and documentary research**

The general data about Yima and its Internet usage and development were collected from newspapers, magazines, yearbooks, and industrial reports concerning Internet development in the city.

**Field observations**

The distribution, scale, equipments and services of the Internet cafés, the existence of illegal Internet cafés and their number were investigated and photographed in this survey.

## INTERNET USE IN YIMA: AN OVERVIEW

The short history of Yima's Internet connection dates back to 1998 when Yima Telecom Company began to provide Internet services. During the past four years, the telecom industry and Internet cafés have prospered so as to play an active role in Internet development in Yima, and the number of individual users has increased by leaps and bounds. In contrast, the local government, companies, and non-profit administrative organizations have been quite slow to adopt this new technology.

### Yima Telecom and its competitors

As a county-level city, Yima's telecom industry is quite developed. About 92.06 percent of the households have telephones and 17,000 mobile phones are in use among the 120,000 residents. In terms of Internet connection services, Yima Telecom Company, a subdivision of China Netcom, serves the largest ISP in Yima. It has provided 163 dial Internet connections, costing 30 RMB (about US\$ 3.63)/month for the individual user since 1998; ADSL broadband service 600 RMB (about US\$ 72.64)/year or 60 RMB (about US\$ 7.26)/month for individual users since June 2002; and optic fiber service at 400RMB (about US\$ 48.43)/year in addition to 200 RMB(about US\$ 24.21) for the installation fee for individual users since May 2002 .

There were 2000 Internet connection subscribers at the time of this survey, 60 percent of whom were customers of Yima Telecom Company, and the remainder being customers of Yima Mining Corporation's (YMC) Telecom Company, the most important competitor to Yima Telecom. In part due to YMC's vital role in the local economy and its ongoing informatization campaign, YMC's subsidiary company, YMC Telecom company, has developed a strong capability to provide Internet connection services to the public rather than serving only the corporation. In addition, China Intercom, China Mobil, and other ISPs have also started to build optic fiber networks in Yima. The official in the city government in charge of the telecom industry said: " We welcome more telecom operators to Yima, so that the price will decrease and the people will benefit." In fact, the Internet connection cost in Yima is relatively low, and the manager of YMC Telecom Company claimed they were offering a favorable price.

**Table 2: The Market of Internet Connection Services in Yima<sup>3</sup>**

Connection Mode	Yima Telecom Company (Number of Subscribers)	YMC Telcom Company(Number of Subscribers)	Total
163 Dial	900	400	1300
ADSL Broadband	400	200	600
Optic Fibre	100	80	180
Total	1400	680	2080
Note	<p>1 There are many public username access users who are not included.                  2 China mobile provides Internet access for mobile users, with 500 subscribers in Yima.</p>		

<sup>3</sup> Because of competitive fears, Yima Telecom refused to provide precise data. The numbers here are approximate ones provided by Yima Information Harbor.

## **Internet use by the local government, companies and non-profit administrative organizations**

Although Internet connections have been available since 1998, the local government, local companies and non-profit administrative organizations are not enthusiastic about use of the Internet. In response to the March 2001 "Government-online Project" of the superior government-the Sanmenxia Informatization Office, the Yima city government delegated Yima Telecom Company to establish the "Yima Information Harbor" to be responsible for developing and promoting Internet use among the local government, local companies, and non-profit administrative organizations by offering them free services such as making web pages. Therefore, Yima Information Harbor works as a major ICP in Yima since there are no commercial ICPs in the area.

Due to efforts of Yima Information Harbor, the official website for the local government <http://www.yima.com> was launched in August 2001, aiming to "present the general information about Yima and to introduce Yima to the outside." However, due to the lack of financial support, this website has not been updated since May 2002. During the interviews and focus group discussions, users said they did not like this website because of its lack of information and lack of updates, in comparison to the various services offered on the websites of the big cities.

Unlike the big cities, the Yima city government has no specific branch in charge of informatization, and e-government has yet to be initiated. Though the official in charge of the Internet remains positive about e-government, his understanding of e-government may be limited: "We have 7 mayors and numerous documents to deal with everyday. I think e-government will help each mayor read these documents in a timely manner and help us organize meetings efficiently." In terms of practical steps, he said: "Yima's e-government should start from serving the mayors and then extend to the subordinate departments of the government." This official's understanding of e-government as a kind of "automatic office" is quite representative among those in the government.

In small towns such as Yima, the government's action is usually the model for the local society. In light of the city government's slowness to adopt the Internet, it is not strange that despite the free webpage services offered by Yima Information Harbor in 2001, only 8 companies, including Zhenxing Chemical Factory, Yima Mining Corporation, and 12 non-profit organizations such as the City Transportation Bureau and Tobacco Bureau, have had their web pages built. Furthermore, when Yima Information Harbor asked them to pay for the updates for their web pages in 2002, only two private companies agreed. The Yima Information Harbor could no longer afford the free services and had to transfer its function of promoting Internet to its sponsor, the Yima Telecom Company.

"It was an unexpected but very regretful failure," the leader of Yima Information Harbor said, "Perhaps two reasons contributed to this situation. One the one hand, the government did not put enough emphasis on this; as you know, the attitude of the government is very influential here; on the other hand, the enterprises failed to realize the benefits of using the Internet. Indeed, Yima Magenetic Materials Factory sold its product in northeastern China with a very simple web page, thus reducing the management costs."

Apart from these two factors, another bottleneck is the special structure of local industry. Yima's economy is dominated by traditional heavy industry, such as coal mining and energy resources, whose special structure and management systems make it difficult to go online. The general manager of Yima Mining Corporation said: "It costs more than 1 billion RMB to hold an exchange fair each year. Five years ago we had the idea of online procurement but it is still only an idea due to the huge amount of exchange in the coal industry that cannot be perfectly handled by the Internet. "

### **The Internet Café in Yima**

The Internet café is one of the major driving forces in the development of the Internet in Yima. It has contributed greatly to promoting Internet use and even computer use among local residents. At the beginning of 2003, there are as many as 38 formally registered Internet cafés in Yima among a population of 120,000. The Internet café is still often the place for many Internet users in Yima to first go online.

Yima's Internet café emerged at the end of 2000 before the local government had established a procedure for approval and registration. After implementing procedures at the beginning of 2001 the development of Internet cafés has been very rapid. By mid 2001 there were already 50~60 legal and illegal Internet cafés. More cafés continued to emerge in Yima until the national ban in August 2002, when all the Internet cafés were required to close down and to re-register according to new rules with strict requirements about the minimum number of computers and space. Upon re-registration, the original 50~60 Internet cafés were reduced to 38. The government official in charge of Internet cafés said: "The number of cafés has been reduced, but the total number of computers has increased and the dial connection has been replaced by ADSL broadband. The overall scale of Yima's Internet cafés is indeed expanding." Meanwhile, the interviewed Internet café owners complained that they had to borrow financial resources to increase the number of computers and to update the hardware to meet the new requirements, thus putting them in a difficult situation.

The procedure for approving an Internet café is quite complicated, requiring four licenses issued by the City Cultural Bureau, the Public Security Bureau, the Industry and Trade Bureau and the Fire Control Bureau. Among these four institutions, the Cultural Market Management Office of the Yima Cultural Bureau, a subordinate branch of the city government takes the major responsibility for the regulation and surveillance of the Internet cafés, as well as other cultural and entertainment businesses including bookstores, game rooms, dancing halls, and etc.

## **REGULATIONS ON INTERNET CAFÉS IN YIMA**

Internet cafés in Yima began in 2000 before most governmental departments or enterprises had launched their own web sites or online businesses. Some Internet pioneers in Yima opened private Internet cafés, some of which were even illegal. The emergence of these new businesses motivated the local government to issue some relevant regulations on licensing Internet cafés. At a rocketing speed, the number of Internet cafés soared to 60 in 2001 and

this surge continued in the first half of 2002. Regretfully, however, the Internet café business has been in a recession since August 2002 due both to the national ban and the serious problems involving juveniles. The ways to resolve the serious problem of regulating Internet cafés will be addressed in this report.

### **Illegal Internet Cafés**

"Illegal Internet cafés" are Internet cafés without licenses or without completely legal licenses. Although the local government claimed that all illegal Internet cafés had been closed, " We resolved to close all illegal Internet cafés, and they are now extinct," according to the chief official in the Cultural Market Management Office in Yima. However, during the field observation of Internet cafés, several illegal cafés were found to be still operating and many a Internet café owner still complained about the unfair competition from illegal competitors. How have the illegal Internet cafés been able to take an upper hand in the competition?

**Table 3: A comparison between legal and illegal Internet cafés**

<b>Item</b>	<b>Legal Internet Cafés</b>	<b>Illegal Internet Cafés</b>
Internet Connection Costs	ISDN for enterprise 500RMB (about US\$ 60.53)/month	ISDN for households 60RMB/month, or telephone dial up 30RMB/month
Four licenses	About 5000RMB (about US\$ 605.32)	0
Tax and management fees to the government	Varying, based on Chinese law	0
Space rental	1000RMB (about US\$ 121.07)/month	Remote places or private houses
Fines	Various fines on juveniles using the Internet, and etc.	0
Charges to customers	1.5-2.0RMB (about US\$ 0.18-0.24) /hour	1RMB (about US\$ 0.12)/hour
Business hour	8:00-24:00	24 hours

Obviously, illegal Internet cafés enjoyed much lower expenses and more flexibility in management and price. Furthermore, they are free from the official regulations for Internet cafés. Young people more often frequent illegal cafés, because of the lower hourly charge and the expanded business hours, and because they are less likely to be subject to their teacher's surveillance.

Emerging voluntarily, it is fair to say that the first Internet cafés began illegally before the regulations were enacted. However, even after the regulations went into effect, institutional flaws allowed the illegal cafés to continue to exist. The troublesome licensing procedure led some people with exclusive personal connections to the local authorities to go through the back door to operate cafés without licenses. According to some café owners, at the end of 2001 more than half of the total 50 to 60 cafés were illegal.

After the latest government action against illegal Internet cafés in 2002, most of them were closed down and only a few survived. At that time, the lower prices in Table 3 were no longer

the main reason for their existence. Rather, the local government's judgment that the number of Internet cafés had reached its limit and its decision to stop issuing licenses made registering new legal Internet cafés very difficult. An illegal owner moaned, "I need a license, but I can never get it. Several hundred US dollars has been spent in treating those officials, with no result at all." Legal owners complained as well about the "difficulties getting the license," "troublesome procedures, annual checkings, the former license is invalid now, invalidation of old licenses and having to apply for new ones, and the considerable expenses."

The chief official at the Yima Cultural Market Management Office said, "Thirty-eight Internet cafés are more than enough for Yima, a city with a population of only 120,000. Generally speaking, 100,000 people with 10 Internet cafés are a proper proportion. So we won't issue any more Internet café licenses." The decision obviously lacked further consideration: the ever increasing number of Internet users surely resulted in a larger demand for Internet cafés. As a result, more illegal Internet cafés began to appear.

### **Regulation Is Not Management**

Apart from the illegal Internet cafés, other problems also plaguing the Internet café business, include the lack of regulated management mechanisms and vicious competition among the cafés. According to the current management system, the Cultural Market Office is in charge of Internet cafés as a "public entertainment business"; the police are in charge of the Internet cafés "security"; the fire department is in charge of "fire safety"; and the industrial and commercial department is in charge of "taxes". The complicated management by various governmental offices results in no management at all. In effect, the administrative chaos has burdened the business and worsened the business environment. The Internet café business, as a commercialized information and entertainment service, is still virtually beyond regulations.

Rectification of Internet cafés is merely an administrative measure, which can only be useful in the short run and will never work effectively to regulate market management in the long run. The rectification in the summer 2002 resulted in unfair competition among the Internet café owners. The owner of Star River Internet café said, "I had thought that after my café managed to satisfy the requirements, and with the illegal café's retreating from the market, my business would rise. But unqualified cafés are still operating, business is becoming more difficult, and to make things worse I can't recover my investment. I just hope I can keep on to ends meet."

More importantly, even after the 2002 rectification, many Internet cafés are frequently visited by young people who, according to the governmental regulations, should not go to Internet cafés freely. This is because young people are the main source of revenue for the Internet cafés. Consequently, some profit-hungry owners made big money by receiving young people in spite of the existing regulations, whereas those strictly following the rules have had to close because of lack of business.

### **The Social Role of Internet Cafés**

As a private business, it is natural that owners of Yima's Internet cafés rely on online games to attract young customers, directly contributing to their addiction to cyber games. But this business strategy is unacceptable in a society where the parents and schools prohibit the

students from frequenting Internet cafés. But some people may overestimate the negative influence of the Internet on young people. Several of the teenage users interviewed in a café strongly stated that they have learned a lot while having fun on the Internet without any negative impact on their studies. They also understood the importance of properly controlling themselves to prevent addiction. As shown in the survey results, though half the respondents are worried that young people will be exposed to inappropriate content, only 12.8 percent of the users have the same worry. These unnecessary worries may be due to limited or misunderstood information about the Internet, especially among those non-users who know Internet mainly through the media and word of mouth.

Furthermore, it is also questionable whether the government should classify Internet cafés as "purely profitable entertainment businesses", like discos or nightclubs. After the rectification, the business environment worsened, and this made owners even more profit-driven and more likely to break the rules. Therefore a mistaken judgment about the Internet café business may be the root of this vicious cycle which continues to this day.

In fact, it is unnecessary for Internet cafés to focus on young people as their target customers, since the adult market holds great potential as well. The comparatively low average personal incomes of most Yima citizens make them turn to Internet cafés when they need access to the internet. In the focus group discussions, all the non-users from 27 to 55 years old, both male and female, expressed a desire to go to Internet cafés. In discussing their failed attempts to use the Internet in Internet cafés, some said, "All the customers are children, so it made me feel that I should not go there." Female respondents said they did not frequent an Internet café because "it's full of men."

Let us therefore redefine the social role of Internet cafés. Internet cafés are not only "entertainment places." The business is also a "public cultural arena", which should provide a variety of information services and fulfill a variety of needs for people of all ages. The regulation of Internet cafés requires cooperative efforts by the entire society. There could be various kinds of Internet cafés: some providing online games, others providing information services; some designated for young people, others for adults. What's more, local governments, schools, and other public institutions should operate some non-profitable Internet cafés in order to guide public understanding and proper use of the Internet. Last but not least, commercial Internet cafés should be subject to regular and proper management and regulation by special institutions instead of the issuance of intermittent bans. Only with a better understanding of the Internet cafés and their careful nurturing and development will Internet cafés be able to better serve people in Yima and to realize their own diversity as well.

## **USERS AND NON-USERS**

According to data from the questionnaire survey in Yima in 2003, the total number of Yima Internet users was about 33,000, 27.17 percent of the entire urban population. This is a relatively high proportion considering Yima's level of economic development. More than 60 percent users began using the Internet after the year 2000, with the remainder beginning in 1998 or 1999. Internet cafés have prospered since 2000, indicative of the interest of local

people to go online. In terms of connection modes, more than half of the users use dial-up connections, and only 10 percent use ADSL.

### **Internet usage patterns**

Most users go online at home or in Internet cafés, and half of the users use the Internet at the office or at the homes of friends or relatives. Yima users use the Internet quite frequently: half of the users use the Internet 1~6 times per week and one-third use it more than 7 times a week. In terms of the time they spent online, half of the users use the Internet more than 10 hours per week.

Most users go online to read the news(96.8%)or to browse the websites(92.6%), especially mainland Chinese websites. Entertainment and online chatting are the other two major activities of Yima users: 85.1 percent users download music online, 78.7 percent of users play online games, 86.2 percent of users use chat rooms, 50 percent of users use BBS with some of them participating in the discussions, 64.9 percent make friends on. the Web.

77.7 percent of Yima's users use e-mail, but only a few users pay for an e-mail account. Importantly, more than half of the users have attended an online education program, including professional training or formal college education. One-third of the users conduct online stock exchange business. Some users look for jobs through the Internet, especially since there are quite a number of unemployed in Yima. Several laid-off workers said that the Internet helped them earn a living. A male user reported being successful on the online stock exchange and has since worked as an agent for many customers on the web. All of the above shows that the Internet is penetrating Yima people's daily lives in various ways to meet their various needs. However, due to the backwardness of e-commerce, very few users engage in banking operations or online purchases.

Combining the field observations with the interviews of Internet users, Yima users' online activities can be distinguished according to where they use the Internet. The users going online mainly in the cafés are mostly young males (about 80~90 percent of all customers, as observed by most café owners), ranging between 20 and 30 years old, who use the Internet solely for entertainment and communication by frequenting Chat rooms, OICQs and playing Internet games. They seldom browse the web pages.

The home Internet users are mostly 30 to 40 years old, male and well off, who can afford the expense of a computer and Internet connection at home. These users are good at exploring all aspects of Internet resources, browsing Web pages, reading news to improve their knowledge and vision, and using chat rooms and playing games for communication and entertainment. In Yima a certain number of users also go online in the office, even though they do not use the Internet for work.

Yima users' favorite websites are the three Chinese portal websites: Netease, Sohu and Sina as well as a provincial portal website "Henan Information Harbor." They seldom browse foreign websites because of language barriers but some feel a need to study English in order to get more information. Few users browse Yima's local websites because they lack information and updates and, indeed, local information is easy to access through personal



communications.

### **Attitudes toward the Internet**

Both users and non-users hold positive attitudes toward the Internet as shown in the questionnaire survey. Most agree that the Internet will make the world better and by using the Internet one can work and study more efficiently and become more competent. The focus group discussions confirmed the results of the survey.

A male user in a focus group said: "With the process of information globalization, people cannot live without the Internet. The entire society will not move ahead without the Internet." A female user said: "Using the Internet helps improve my quality of life and my abilities." Most non-users in the focus group expressed a strong curiosity about the Internet and a desire to go online. According to the survey data, non-users had not used the Internet mostly because they did not have a computer.

More than half of Yima users are satisfied with the Internet's great capability to provide information, entertainment and communication. Regarding management and control of the Internet, most respondents agree that the Internet should be managed, and especially that pornography and violence should be "removed." But the political contents should not be controlled. During the focus group discussions, some users held the view that the Internet should not be managed or controlled at all. A male user said: "The Internet is like a new-born baby and there is still much potential to be developed, so it is too early to restrict it." Another user agreed with this view and said: "The issues of Internet cafés, e-government, and viruses are only problems for the moment, and they may not constitute any problem at all after ten or twenty years, since the Internet represents the future direction of mainstream society."

### **The Internet's impact on the users' daily lives**

In discussing the changes in their lives after going online, almost all the interviewed users' first response was that they read fewer newspapers and watch less TV than before, which is also confirmed by the survey data revealed that after using the Internet nearly half of the users reduced the time they spent on traditional media.

In the focus group discussions, users highly praised the "pluralism" and "interactivity" of the Internet as a new medium. A male user said excitedly: "I don't have to read any newspapers or magazines since there is abundant useful information online. Online news is presented by groups of reports and articles relevant to my topic, so I can research an issue from different angles, levels, and aspects. In contrast, the news reports in the newspapers or on TV only represent the idea of one department or one person." Another said: "I love to read the negative news reports online, especially the common people's complaints. Those brave reports could never be released by the traditional media; only on the Internet is it possible to read them." A female user said: "The online news is fast and diversified, and the best thing is you can read the feedback from others." Another said: "All netizens can participate in the discussions; I love to hear so many different voices on the Internet."

The survey data also show that to some extent the Internet not only changed people's use of the media but also their daily communication patterns as well. More than half of the users

increased the number of friends with whom they are in frequent contact. "Friends made through the web" was a popular phrase at the time of the survey. Nearly one-third of the users increased the time they spent on communications with colleagues and friends, and one-tenth of users admitted that they fell in love on the web, which is quite incredible for such a small town.

### **Deeper influences: a more open and tolerant mentality?**

Apart from the changes in daily life, many users said using the Internet has made them more open and tolerant.

In a focus group discussion, a young male user said: "The Internet changes people's conceptions since it shows you how the same things can be handled in different ways and how people have different perspectives toward the same thing." Another male user said: "The Internet makes people more tolerant. The Internet's openness means internationalization, which brings a diversity of information and makes one learn how to be tolerant of different things that can not be changed." A middle-aged male user said: "I work in a factory and all my colleagues are very conservative and traditional people, but they agree that I am a tolerant person with open views, which I believe mainly is due to my two-year experience of using the Internet. Without this experience I would have been the same as the others in the factory. The Internet has helped me understand many things I had not been able to understand and has revealed to me the diversity of the world."

Female users may feel a change in a different way. A middle-aged female user said: "Through using the Internet, I have made friends with different characteristics and cultural background. Communication with them has helped me to broaden my vision and knowledge, and I have become more open." Another young girl said: "I used to have many conventional ideas, but through using the Internet I have become more tolerant; for example, I used to think homosexuality was unacceptable, but now I feel it quite understandable."

As compared to other big cities, the traditional life and ideas of Yima people remained quite intact. For example, when asked about their attitudes toward "Adults using pornographic websites," almost all the users and non-users thought that it is inappropriate. However, because of this, Yima people are much more shocked when they are exposed to the diversity of information and ideas on the Internet, which helps to cultivate their critical thinking and to enrich their lives. As a male user said: "The domestic news reports are not good because most of them serve political needs and are not true. I read more international news, which I can access from different sources on the Internet and then I can reach my own ideas after comparisons and analysis."

## **CONCLUSION: A DIFFUSION MODEL STARTING FROM THE GRASSROOTS**

The diffusion of the Internet in Yima follows a special model that starts from the diffusion of grassroot groups. This contradicts the conventional hypothesis that new technology is diffused from higher social and economic status to lower status.

When Yima Telecom Company started to provide Internet connection services in 1998, the mainstream groups - leaders of the local government, enterprises and non-profit organizations were not enthusiastic and the local government was only responding to the mandate of the superior level government.

Yima's e-government and E-commerce still remain at a very preliminary stage, and there are several factors contributing to this situation. Apart from the relatively low level of development of the local economy, there are other important reasons as well. As stated above, the special structure of the energy resource industry make it difficult for local enterprises to adopt new technologies. What should also be noted is the special cultural and psychological contexts of Yima.

In a small town such as Yima where kinship, connections, and the bureaucracy dominate all political and social activities, the Internet, as a new technology, works against the existing mode of local society and brings equality and transparency to the local communication ecology. When asked why they do not use the Internet in their daily work, both local officials and entrepreneurs complained that "Internet cannot replace personal and emotional communications." Some officials are reluctant to "search for information online or to use the computer because these tasks should be delegated to their secretaries."

All the above elements have hindered the Internet's diffusion among social organizations and social elites. The official of the city government in charge of the Internet understands e-government as a kind of "automatic office" and also holds the view that "local residents are not sufficiently well educated to participate in e-government." But the fact is that grassroot groups in Yima have unexpectedly preceded the higher levels in adopting the Internet and they play a more active role in the development of the Internet in Yima. As one male user said: "The Internet has been being widely accepted among ordinary residents, which will possibly motivate the local government to adopt e-government."

Although the mainstream groups did not adopt the Internet, many retired or laid-off workers began Internet café businesses in Yima before the government had figured out how to regulate it. At the beginning of the Internet café business in 2000 when there were a number of laid-off workers due to the economic difficulties of the local state-run enterprises, the owners of the Internet cafés just wanted to make a living. As a result, many ordinary residents not only learned to use the Internet and computers for the first time and learned to type in order to chat online. An illiterate male user interviewed at an Internet café said he had learned to type at an Internet café and now can type quite well in the chat rooms.

With the application of the ADSL broadband connection in 2001, the number of Yima's Internet cafés and household users increased greatly. Up to now, household users constitute 80 percent of the total users in the city. Based on that, the diffusion of the Internet in Yima seems to have now reached a new height. In the April 2003, the local government began to conduct a preliminary investigation on the feasibility of launching e-government, with one of the mayors in charge of this new campaign. Meanwhile, Yima Mining Corporation is making more efforts to further the ongoing informatization of the enterprise.

The advantage of this kind of Internet diffusion in Yima lies in the fact that the wide participation of ordinary residents will facilitate the future development of the Internet at the societal level, such as e-government and E-commerce. But the local state should play a more active role than it does at present.

The Internet diffusion model of Yima indicates that economic factors may not be the decisive elements in Internet diffusion. Even among all the county-level cities in Sanmenxia district, Yima's economy is relatively weak, but the number of Internet cafés is large and the percentage of users is high. Instead, the local industrial structure and the special cultural and media ecology play an important role in contributing to this situation.

The situation in Yima also shows that the social or economic status may not be bottlenecks for individuals' adoption of the Internet, and it is indeed possible to somewhat narrow the so-called digital divide. Because of the lack of channels of information, those of inferior social and economic statuses have the strongest desires to access information and to exchange ideas with others. The Internet's volume of information and interactivity have amazed local residents so much so that they are enthusiastic and quick to adopt this new medium, which is beyond the restrictions of their low incomes and low educational levels, as demonstrated by the prosperity of the Internet cafés and the lower social and economic statuses of local users .

Further, the fact that Internet diffusion in Yima follows a track whereby grassroot groups were penetrated by the Internet before it reached higher levels should also be attributed to the special nature of the Internet itself.

On the one hand, the Internet, as an integrated comprehensive platform of information, entertainment and communication, was initially regarded as part of the information industry instead of the media which are highly regulated by the government in China. Therefore, many Internet cafés were thus able to appear and they were treated only as entertainment businesses. Indeed they played an important role as a medium, thus changing the previous monotonous media environment that was comprised of only a limited number of media.

On the other hand, the Internet is a cheap and convenient medium, so it can be easily accessed by those of lower social and economic statuses for the information, entertainment, and communication that they have been deprived for so long. There are high entry barriers to establishing mass media in the society and Yima's economy does not nurture such an industry, so the Internet's emergence has filled a void in the local media, providing every individual a chance to see the outside world and to communicate with others.

Looking at the combination of the Internet's communication advantages and Yima's lack of information and communication, it is quite easy to understand why Yima residents have been driven to adopt the Internet in various aspects of their lives--not only for information but also for communication and entertainment. A certain number of users even use the Internet for education, training, and job searches. All this shows that the Internet is closely related to meeting the needs and enriching the lives of Yima people. Predictably, this process will exert a deep and wide impact at both the individual and societal levels on lifestyles and on world views.

# INTERNET USAGE AND IMPACT IN JIMO CITY, SHANDONG PROVINCE

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## CITY INFORMATION

The precise location of Jimo on the map is longitude 120°07' – 121°23' east, and latitude 36°18' – 36°37' north. The city is in the southwest of Shandong peninsula, occupying a land area of 1,780 square kilometers. In September 1989 Jimo became a satellite city of Qingdao. Currently, Jimo municipality governs 18 towns, 4 town-street offices, 1 economic development zone, and 1 scenic area of provincial importance. The latest census in 2002 records 325,500 households in Jimo, making a total population of 1.0753 million. Among them, 540,800 are male and 534,500 are female; 142,000 people in Jimo do not engage in farming. The city zone has expanded to an area of 34 square kilometers, while the urban population has increased to 375,000; 39.6 percent of Jimo is urbanized.

Jimo's advantage in transportation is apparent. It is located at the convergence of Qingdao's highways that lead to other Chinese cities. Two railways run to the west of its borders: the Jiao-Ji line, which links the entire Jiaodong peninsula with Ji'nan, the provincial capital, and the Lan-Yan line that connects Lancun and Yantai, one of China's largest seaports. A number of provincial standard highways span across the region, linking Jimo to most other Chinese cities. The downtown area is less than 15 kilometers away from Liuting Airport, and 40 kilometers away from Qingdao seaport. The Jimo Railway Station is 24 kilometers to the west and the Lancun Railway Station is 15 kilometers to the west. There are also 2 open harbors in the region, Aoshan and Nu'dao, completing Jimo's convenient multi-dimensional traffic system.

Due to its convenient geographic location, Jimo has a strong tradition in merchandising and trade. With the implementation of the "Merchandised Market" strategy, Jimo has established a number of comprehensive and professional markets for clothing and small merchandise. The town markets meet in Jimo; the largest one on the north bank of the Yangtze River is known throughout Shandong province and even the entire country. The flourishing business has brought Jimo even closer to other Chinese cities. In addition, acting as Qingdao's northern portal and satellite city, while leaning on the "Grand Qingdao" development scheme, Jimo incorporated into its city planning a strategy that stresses "Openness, Dependence; Fusion and Services." It is increasingly connected with Qingdao in every respect. Meanwhile, Qingdao's growing outward power in Jimo's political, financial, and cultural sectors is also apparent.

In recent years, Jimo's economy has been fast-growing. The comprehensive status of its economy has significantly improved. Jimo's fundamental competitive power ranks 36th among the 100 most competitive regional economies at the town level nationwide. According to official data, Jimo's GDP was approximately US\$ 2 billion in 2002, an average of US\$ 2,000 per person. Fiscal income has reached US\$ 132 million. At present, merchandising, knitting and the development of an industrial park are the major driving forces of the local economy. Economic development has also enriched the local people. By the end of 2002, the average annual income of every worker in Jimo city was US\$ 1171 and the average annual net income for every farmer was US\$ 497.

The city's thriving economy has extended its degree of openness. This survey attempts, from a variety of perspectives, to understand and illustrate the status quo and future impacts of Jimo's Internet development.

## **METHODOLOGY AND PROCEDURES**

This survey commenced on January 21, 2003. Because of the Chinese New Year, it was conducted during two separate periods: the first period was from January 21 to January 30 and the second period was from February 10 to February 17, totaling 18 days. Since the primary objective of this research was to review Internet usage and its impact on city residents, the location of the survey was limited to the central city of Jimo, which includes 2 town-street offices (Tongji and Huanxiu,) and one economic development zone, the Jimo Economic Development Zone. Although 2 other town-street offices, Bei'an and Longshan, are also part of the Central City, they are the result of the recent reshuffling of the periphery villages. (Bei'an was built on the basis of Yin'shang County during a large-scale urbanization movement in 2001, and Longshan was formerly Yuanliu Village prior to May 2002.) The newly formed town-street offices are far from any central city standards, both in terms of economic strength or demographic conditions, and therefore were excluded from our survey.

Based on our research objectives, the survey used the following methods to collect data: questionnaire survey, interviews, focus group discussions, documentary and archival research as well as a field study.

### **Questionnaire Survey**

The questionnaire survey began on January 24, 2003 and ended on January 30; 192 valid questionnaires were completed.

**Sampling Frame:** Within the research location we included those who are 1.) Indigenous and registered with permanent residency and 2.) Alien without permanent residency but have been living there for up to one year, within the ages of 17 and 60.

**Sampling:** Using an equidistant sampling method. First, we collected the lists of all residential districts from each of the 3 town-street offices and the number of households from each residential district. Then we sampled according to the household number in each residential

district. After every residential district was sampled, we again used an equidistant sampling method again on the number of residential districts. However, due to various limitations, we regret to say that the equidistant sampling was not precise. Nevertheless, the sampling was so small in the residential districts (at most 15, about 7) that the accuracy and effectiveness could still be maintained if the equidistance of the household numbers within each residential district was more precise.

According to data collected from the questionnaire survey and the formula "Internet User=Internet home user/total home population ;Á total city population," we calculated the percentage of Internet users in Jimo to be 22.3 percent.

## **Interviews**

**Internet Users:** Total 5. 3 males and 2 females. We took into consideration profession, users' habits, and users' Internet access

**Internet Café owners:** 5.

### **Government Officials:**

1. Spoke with the Director of the Information Office of the Jimo municipal government and government officials who are responsible for the planning and building of Jimo's e-government, in order to better understand the development of e-government and the pace of informatization.
2. Discussions with key members of the Cultural Inspection Brigade in the Cultural Bureau on Internet café-related issues.

### **Local ISP and ICP and IT entrepreneurs:**

1. Spoke with the Manager of the Data Operation Department at Qingdao Netcom's Jimo branch, a local Internet Service Provider (referred to as "Jimo Communications" in following passage).
2. Discussions with the Supervisor of the Computer Information Center of the Jimo Science Committee regarding its projects that provides the Internet content for Jimo's state-owned enterprises.

## **Focus Group Discussions**

The 4 focus groups included: male users' group with 6 participant (100 minutes of Discussion); female users' group with 6 participants (80 minutes of discussion); male non-users' group with 6 participants (60 minutes of discussion); female non-users' group with 6 participants (50 minutes of discussion).

## **Field Study**

The field study was intended to investigate the local Internet cafés by: 1. Studying the distribution pattern of Internet cafés across the city, their special features and their business operations and, 2. Composing an Internet café journal to record Internet usage at one Internet

café during different hours of the day.

In addition, the investigation also gathered other relevant material and statistics.

## **AN OVERVIEW OF INTERNET DEVELOPMENT IN JIMO**

Since 1997, the mass public has been aware of the technology called the "Internet," but the boom in the Internet in Jimo did not occur until 1999. At that time people in government, business and at home were either talking about the Internet or using it. According to official statistics,<sup>1</sup> by the end of 2002, the number of households going online in Jimo city was 6,513, a 10.07 percent increase from the previous year.<sup>2</sup> Using statistics provided by the ISP Jimo Communications,<sup>3</sup> we see that by the end of January 2003, Jimo had developed dozens of broadband IP users, among which 35 were businesses and a dozen were homes. Jimo also had 1250 ADSL users (ISDN included), among which 82 were Internet cafés; More than a thousand paid registered members used phone dialing connections, and the number of unregistered users, though untraceable, may have even been greater.

It is noteworthy that the public dial-up numbers 163 and 169, under the original China Telecom operation, were revised in July of this year (due to the split of the company into 2 separate network operators: "China Telecom" in the north and "CNC" in the south.) and the survey was conducted prior to these changes. Therefore the two dial-up numbers were still mentioned in the survey. The Chinese modem users can be classified into 2 categories: registered users and non-registered users. The unregistered users could utilize a public account, such as dial-up numbers of 163 or 169 to access the Internet with a modem connection. The convenience of the public account was known to dial-up users as the "Internet express." Assuming that the "Internet Express" was widely preferred by most families using modem connections, the data from the 2 different sources may then cross-validate each other. The data are primarily based on the statistical number of computers that were linked to the network. An annual growth rate of 11 percent is indicative of the rapid development of local Internet usage. With little doubt, the local Internet population will become larger in the coming future.

In conclusion, a number of crucial factors have affected Jimo's Internet development. These same factors also helped shape the patterns of local Internet development. We shall summarize them briefly and illustrate them further in the following passages.

### **The strong local economy provides a solid foundation for Internet development**

The latest information technology has brought about a new phase of overwhelming globalization. Reaching far and wide, the Internet has demonstrated its speed, convenience, and splendor with the combined power of modern media. Its impact has been "subversive."<sup>4</sup> The power of its articulation is one of the predominant forces in our times. An Internet future has been visualized though the details of its scope remain unclear. In such a context, the public has come to understand the Internet concepts and technologies. The network has also found its way to our homes and offices. It is no longer strange and denounced. In the focus group discussions, we discovered that many people were still vague and sometimes even mistaken about some functions and definitions of the Internet. However, most of them

<sup>1</sup> The official statistics cover the entire Jimo administrative region, which exceeds the boundaries of the area of our survey.

<sup>2</sup> "Annual Report of Jimo Municipal Government 2002."

<sup>3</sup> Ibid.

<sup>4</sup> We use "subversive" to indicate the power of the new technology, as exemplified by the Internet, to re-shape all of modern society.



were very much aware of the existence of such technology and expressed fairly strong interest in using it. This no doubt is indicative of the impact of the Internet on man in modern times. The Internet also goes beyond differences in gender, education, and social status and frees us from ethnic, territorial, or other boundaries. It speaks of equality rooted in technology and demonstrates the possibility of achieving equality via the separation of innovation and application. Nevertheless, technology seldom stands alone. Material and non-material support are often crucial to the technology's development. The degree of innovation depends upon such foundations and as a result varies widely. The elements of these foundations include the hardware equipment necessary for Internet connections (PCs, servers, and other network accessories) and the software, such as investment in training and education vital for the promotion of Internet usage. Even in the face of overwhelming globalization, we should not overlook the economic and social factors. The survey calls our attention to this, Jimo citizens' enthusiasm, as well as their investment in Internet technology, has been steadily rising. Adults are purchasing network equipment to catch up with their neighbors. Parents are buying computers for their children's futures. Companies, realizing the benefits, are doubling their investment and efforts to go online. For many reasons the government has also expedited its investment to build e-government to be part of the Internet movement. Accordingly, many schools and training centers have designed Internet training courses. The number of Internet cafés and other Internet service providers has skyrocketed. Therefore, we should not underestimate the power of the economy on Internet development. This argument will also be the basis for our following assumptions.

### **Thriving telecommunication help spur the spread of the Internet**

The main Internet Service Provider in Jimo is Jimo Communications. At present the company has a wide range of data processing services (VPDN, Virtual Communication, etc.), as well as Internet services that include network dial-up service, public account management or "the Internet express," ADSL services, and broadband IP services. These services are designed to satisfy users' groups at all levels. More importantly, the company has also put more emphasis on the completion of network infrastructure. In addition to the mature telephone wiring network and TV cable network, the promotion of broadband network services, which includes both ADSL and broadband IP, plays a key role in the operation of Jimo Communications. Using a lower rate to attract users, Jimo Communications has also quickened its pace and investment in the construction of broadband infrastructure. According to the manager of the Data Service Department of Jimo's Communication, the company has implemented the following strategies to promote broadband usage: 1. Focus on major clients which refer to businesses like banks and large corporations, post offices and government branches, etc. and, 2. Territorial expansion by laying network infrastructure in the shortest possible time, like cables and optic fibers, and building relay stations. These measures will give Jimo Communications a leading edge and lay a solid foundations for its future development. Emphasis should be placed upon broadband construction in the residential area. The corporate plan for the broadband future is "gigabyte capacity for each residential area, 100 megabyte capacity for each residential building, and 10 megabytes capacity for each computer desktop." According to the management at Jimo Communications, more than 20 residential districts, some even still under construction, have already shown interest in broadband connections. About 7-8 districts are under construction. Most of the newly constructed districts in the city will need broadband connection. At present, 1 district has already become a broadband community, with a dozen

households connected to the Internet via broadband.

These developments have no doubt laid a sound foundation for the future of the local Internet.

### **The Lack of Comprehensive and Foreseeable Strategic Planning in Local Informatization**

It is important for any city that wishes to expedite the process of its informatization to have a coherent and unified strategy. In the survey we discovered that, besides the e-government project, (highly supported and recognized by the Qingdao municipal government, as noted below), many Internet projects in Jimo city lack systematic planning. Jimo municipality should be held responsible for the lack of information management in both the social and economic arenas. The process of Internet development in Jimo can be described as self-governing or technology driven.

### **Rapid Development Accompanied by a Low Level of Cognition and Usage**

In reality, the rampant growth in the number of Internet cafés and the explosion of the Internet population and infrastructural investment are evidence of the vigorous development of local Internet usage. Especially during the last two years, "going online" has become a catchphrase among families, workmates, and government officials. However, in sharp contrast to the public zeal, the level of Internet application and the level of cognition among individuals, managers, and officials are still comparatively low. Generally speaking, local Internet development is still in its infancy. It appears that Jimo still has a long way to go in its informatization, as this article will elaborate further below.

## **USERS AND NON-USERS: FACING THE INTERNET**

### **I. Summary of Internet users' online experiences**

We define users as those people who actually used Internet in the 6 months prior to the day we began our survey. The household sample was selected by an equidistant sampling method, and within the family sample, the member was randomly picked. Therefore, based on the equation "the number of users per family/ all family members = the total number of local Internet users / local population (age 17-60)" we calculated the percentage of Internet users in Jimo against the city population as a whole to be 22.3 percent. Considering the errors and imperfections in our sampling, this percentage may be an understatement of Jimo's Internet population. Nevertheless, it shows that margin of error has been controlled for within an acceptable range. So the outcome of the statistical analysis can still, to a certain degree, reflect the size of the Internet population. Matching the results of interviews and field studies, Jimo's Internet population is still large and fast growing, considering the city's Internet development and level of urbanization.

#### **Users' profile**

The questionnaire survey shows that in terms of education, less than 1.0 percent of the users are junior high (9th grade) school or under, 32.4 percent go to high school or receive professional training, 30.5 percent go to community college, and 36.2 percent attend university. In

terms of age, most users are younger than 30, and a large proportion (67.6 percent) of users are between 17 and 24. The older the age group, the smaller the proportion of users, but still each age group has at least some users. In terms of income, 55.2 percent of users do not have any income, 10.5 percent have a monthly income between US\$ 50 and US\$ 100; 19 percent of users have an income between US\$ 100 and 200 per month; 15.2 percent of users' monthly income is higher than US\$ 200. It is apparent that local users tend to be young and students make up the largest proportion of users, thus explaining the users' higher level of education. But it should be noted that the level of education may have little to do with Internet use. The Internet technology is not at all complicated at an application level. The Internet is easy to use. It does not require users to undergo master training. This allows many people, older and less educated, to go online. Apart from the students, we find users in a variety of occupations. However, young users tend to welcome innovation. They receive the new technology more speedily and willingly. With a higher level of education, they have better cognition and learning capacities. We offer two explanations for the youth phenomenon in the users' profile: 1. As we will later show, the main purpose of Internet usage at present is online entertainment, recreation, and socializing. Thus, the Internet is tremendously popular among young people. We can instantly identify youth behavior in the activities that the network provides. 2. More and more training schools have made the Internet a vital part of their curriculum. They not only teach students what the Internet is, but also teach them how to use it. Therefore, students make up a larger proportion of the Internet users, and they access the Internet more frequently in their studies and also are better acquainted with Internet usage.

### **Internet usage status**

The modes of connection for local users include modem connections, (23.6 percent), DSL or ADSL connections (18.2 percent), ISDN (12.7 percent), dedicated line (T1, T3) (10 percent) or cable modem (8.2 percent). We can see that modem connections and ADSL (and ISD) connections are still the primary choices of Jimo users. Approximately 36.4 percent of the users are unclear about the different modes of connection. This shows again, indirectly, that cognition of the Internet may have little to do with the technology's application. The lack of sufficient knowledge about the Internet itself will not keep users from using it. This argument may also help readers understand the early mentioned "mass audience tendency" mentioned earlier in the on-going process of Internet development.

**Location and timing:** We examined those users who spend more than one hour online at a certain location every week and found that 62 percent of all users spent more than one hour per week at the Internet cafés; 40 percent of all users spent more than one hour at school; 24 percent at home ; and 15 percent at work. We can see that the Internet cafés remain the primary spot for Internet usage. If we take into consideration those users, like students who come from other cities, for example, who already have access to the Internet at school, then the Internet cafés play an even more important role in connecting the local people to the Internet. In addition, although home connections were available, users seemed reluctant to choose them. Some of the users we interviewed specifically expressed their preference for Internet cafés, even if they could have home access, because the Internet cafés are "faster" and "cheaper." At present many Internet cafés have ADSL connections and a number of cafés emphasize their "high-speed specialized broadband connections" in their marketing. We

have reasons to believe that the proportion of ADSL connections is greater than what we observed from our statistics.

**Internet usage analysis**

The Internet provides a variety of contents for its users. According to the different functions and characteristics of the Internet content providers, and based on our own observation, the Internet usage in Jimo falls into the following categories:

1. Recreation. Activities like online computer games, movie and downloading of music, etc. Based on our findings, we note that 28 percent of all users are frequent game players, with 43 percent playing games occasionally. 51 percent of all users indicate a high frequency in downloading sound and audio files, and 36.7 percent of them do so only on occasion. However, according to the field study at a specific Internet café, we were astonished to find that almost all users engage in online computer games. (Please refer to page 50 table 2: One day record of a Internet café in Jimo city.)
2. Communication. e-mail, IRC, OICQ or ICQ, Forum and BBS. As shown on table 1, nearly all communication modes are used by above 57 percent of users. The percentage of e-mail and IRC usage even reaches 73 percent. The Internet clearly serves as a communication platform for interpersonal relations and social gathering. It has won the hearts of many users for its simplicity, convenience, efficiency, and interactive features.

**Table 1: Usages of different online communication modes .**

Option Frequency Mode	Often		Occasional		Never		Total Number of people
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	
<b>E-MAIL</b>	53	48.18	27	24.55	30	27.27	110
<b>IRC</b>	39	35.78	42	38.53	28	25.69	109
<b>OICQ/ICQ</b>	36	32.73	26	23.64	48	43.64	110
<b>BBS</b>	16	14.55	49	44.55	45	40.91	110

3. Website browsing. 65 percent of all users often browse websites, and merely 8.2 percent of all users indicate they never visit any websites. In the survey designed to test users' readership of news, over 58 percent of users said that they often follow the news on the Internet, whereas 11 percent of all users indicated they never read the news online.
4. Consulting and Practical Uses, including online professional training, Internet schooling and online study programs for further degrees, the virtual stock-exchange market, Internet banking, online shopping, downloading PC tools, E-clinics and virtual health-care. Online studies and the downloading of PC tools enjoy higher popularity among users (45 percent and 50 percent of all users indicate frequent or occasional usage respectively). Users seldom exploit the other uses. More than 75 percent of all users never go further than online studies and downloading of PC tools, whereas the percentage of non-usage in

some categories is higher than 90 percent (such as Internet banking). Nonetheless, the figure also indicates that people have begun to recognize the Internet's importance in their work and study, and in their lives. In our interview with Internet café owners, we discovered that a number of users frequent the café for stock-trading purposes only. Thus, users have indeed begun to make use of Internet services to reap more benefits than for simply recreation.

Generally speaking, Internet usage in Jimo is still primarily recreational and communicative. Other Internet functions like online study, Internet banking, searching for information and online shopping are seldom utilized. To elaborate the argument further, when the asked question, "In my opinion, the Internet is more like...", 52 percent of all interviewees believed the Internet is like a "library," but 48 percent view the Internet as an "amusement park", 45 percent look to the Internet for socializing. The percentage of users who perceive of the Internet as a post-office, school or shopping mall is 30 percent, 29 percent, and 28 percent respectively.<sup>5</sup> Thus, more than half of the interviewees recognized the functions and importance of Internet as an information platform. Up till now, the library functions are inadequately exploited. In the case interviews and focus group discussion, users and non-users all expressed concern about over-usage of the Internet for amusement purposes. Some of the interviewees even openly attacked such tendencies and believe usage of the Internet in Jimo city remains at an infant stage. Furthermore, in the survey we also discovered, from a personal usage perspective, that all users have a rather specific purpose in using the Internet, which would satisfy certain personal interests. Users are either there to play online games or to chat. Others only go and search for the information they need, obviously unaware of the comprehensive uses of the Internet.

To explore the issue further, we discovered that the communicative and recreational contents pose a major attraction for most users. The rich contents are interactive, user-friendly, and technologically mature, providing users with a new online experience. Most users still look to the Internet mainly for relaxation after work and study. Comparatively, users do not feel so strongly about other conveniences the Internet may bring them, such as e-commerce or other services. To some extent, the network is not yet a necessity for average people in their work and lives. This may also be a matter of the cognition and application levels. Users have only just begun to use and understand the Internet. A fact remains, on the sideline that a condition persists. Diversity is an important feature of the Internet, allowing people to efficiently locate whatever information they need. Therefore, the ability to quickly search for and find information is, to some degree, a reflection of one's Internet knowledge and usage. Search engines are the primary Internet tools to look for information online. However, the questionnaire survey shows that a majority of Jimo users have never used a search engine. This fact was further revealed in the interviews. Thus, some portal-websites (such as [www.sina.com](http://www.sina.com), [www.163.com](http://www.163.com), and [www.sohu.com](http://www.sohu.com)) are popular sites for their relatively comprehensive content and functions.

## II. Investigating Non-users' Reason for Not Using the Internet

In the investigation of the non-users group, we were particularly interested in their reasons for not going online. The answer to this question will, to a large extent, help us understand

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<sup>5</sup> The statistics include users and non-users. The choices of Internet content and usages by the local users will affect the perceptual knowledge of the non-users. Therefore, the answers of the non-users could also, from another perspective, reflect the behavior of the Internet users.

the pattern and process of the dissemination of information technology in Jimo. From another perspective, it can also indicate the cognition of the Internet and its conditions and usage.

In summary, what prevents most people from going online may be attributed to the following:

1. Absence of equipment. One of the answers on our questionnaire allowed one to choose "No computer."; 45 percent of all interviewees believe this is the major reason for not using the Internet. No one believed the reason for not using the Internet was "The computer is not good enough" or "Computer breakdowns." Merely 2.3 percent of all interviewees were vexed by "difficulties of connections."
2. Differences in personal interest, needs and scheduling. 25.6 percent of all interviewees said that having "little interest" is the major reason for not using the Internet; 17.4 percent of them thought it is "too time-consuming," whereas 32.6 percent confessed they are "too busy" to log on. A 10.5 percent of the people directly showed their disdain for the network because they think the Internet is "not very useful."
3. Technical problems: 48.8 percent stated they don't use the Internet because they "don't know how to use it." In contrast, only 3.5 admitted that "techno phobia" has hindered their use of the Internet.
4. The negative aspects of the Internet itself, issues such as cost, slow transmission speeds, unhealthy contents, etc.: Cost is no doubt a major concern compared with the other considerations, since 30 percent reported that "going online is expensive."

However, the analysis tends to oversimplify the issue.

In fact, the non-users' age and education will lead to different reasons for Internet non-usage. Generally speaking, in China the older the user, the less educated he or she tends to be, thus the more obstacles the users will face at a technical level. The younger the users, the more educated they are and willingness to use the Internet is more likely to be influenced by personal preferences, orientation, and time constraints.

The problem of technical obstacles is persistent but not decisive. In fact, our interviews with users revealed a great many of them are driven by sheer curiosity to savor the Internet. When they were asked "Why use the Internet in the first place?" they told us how often they saw others doing so and heard them talking about it and so they gradually felt interested and even developed a sense of mystery about it. Then they began to itch for "the first net experience." At the beginning, most of them were anxious about not being able to learn, since they found the technology difficult and they lacked the knowledge and the skills. Nearly all were taught either by friends or acquaintances (like Internet café owners). With help and advice, many of them realized it was not so difficult after all. Although their knowledge and skills about Internet usage were still limited, as they learned no further than how to chat and browse, at least they were able to open the gate of the technology that connects the cyber-world and reality. And began to feel the impact of the virtual reality. We can see the technology may have deterred many non-users from using the Internet, but this has been over-exaggerated. Less than 4 percent of interviewees confessed a "techno-phobia." Likewise, the absence of online equipment is not a crucial factor in non-usage. We find from the survey that many

homes own a PC, but around 50 percent of them are not yet connected to the network. 18 percent of the PC owners explicitly told us that they have no intention of connecting. The reason may be cost. So far, the most common locations for Internet usage in Jimo are still the Internet cafés, and there are a large number of such places. These cafés provide easy and inexpensive access for most users. For this reason, the absence of equipment or the issue of cost should not deter usage.

Generally speaking, personal preference, intention, and time are the major reasons affecting one's willingness to utilize the network. This argument is not only supported by findings from the statistics gathered in the questionnaire survey, but also was revealed in the interviews. In the focus group discussion for male non-users, when we asked for the "reason not to use the Internet," two interviewees, both aged 38 (junior high school graduates and salespersons in the town market) said: "I wish I could, but I don't have the time. Besides, there is no need to and I do not know how". A 25-year-old interviewee (junior high graduate in the car business) remarked: "I do not feel it necessary to use the Internet, because the Internet is useless in both my work and my studies". From this we can see that Internet usage is not something done impulsively, but rather based on a rational decision. On the one hand, Internet usage is affected by the lack of technical skills and knowledge. Nevertheless, the novel experience of the Internet technology is appealing. The yearning for such an experience becomes the very momentum for learning, driving each individual to briefly touch, involve, and embrace the network as it is. On the other hand, people's basic needs in their work or their studies can still be satisfied without the help of the Internet. They can still use conventional methods to obtain what they need. They remain skeptical and even scornful about the intensiveness and extensiveness of the Internet to fulfill their needs. In other words, the Internet is not a "must."

### **III. The Influence of the Internet: Measuring Its Impact on Openness**

Whatever the basis of the technology on which the Internet is built, or the emphasis on the contents and access which may transcend space or time, the most prominent feature of the Internet is its openness. This open characteristic will eventually have a profound influence on the attitudes, notions, and behavior of Internet users. If we use "openness" as a criterion to measure the impact of the Internet on local users, then how profoundly have users been affected by this characteristic? Are they more likely to be "open" than non-users?

From whatever perspective, the Internet, in one way or another, has affected the users' psyches, attitudes, and behavior. This is manifested in a number of ways: in one way, the Internet helps eradicate the alienation of space and time, and largely extend one's horizon, so people now have a multi-perspective in their observations. Some users during the interviews mentioned that the abundant online news gives them a truly global view. They are no longer constrained by the contents provided by the conventional media, such as TV and newspapers. Comparatively speaking, the content of the Internet is more diversified and has more perspectives in its coverage, which is absent from the conventional media. Users are able to compare and arrive at their own conclusions by reading different coverage and by hearing different opinions. In contrast with the circumstances in present-day Chinese society, the Internet has genuinely provided an open platform. On the other hand, the interactive nature

and virtual reality of the Internet have enabled people to communicate and interact better both emotionally and perceptively. Some users spoke of the benefits of Internet communications, such as the vetting of personal emotions and confusion in their thinking which may otherwise be impossible in a face-to-face real-life situation. It helps to promote their social abilities, and to communicate their ideas with others, thus changing their own attitudes and perceptions.

The Internet may have indeed affected individual users in a number of ways. However, these influences are in line with the intensity of usage. According to our survey and interviews, at least for now, users and non-users did not show clear differences in the openness of their ideas and behavior. If there are such differences, they are more likely to be caused by differences in education, age, or occupation etc. Comparing the answers of both the users and non-users on some issues such as under-aged users and visits to porno sites, non-users and users share identical views.

When we asked them if the Internet has had any influence on their perceptions and attitudes toward certain facts or issues, most interviewees explained: "There has not been any major shift." So, at least for now, the Internet has not exerted much influence on local users' perceptions and behavior. We offer two explanations for this phenomenon: First, there is a trend of growing openness in their economic and cultural lives, thus making citizens more open-minded; Second, this is linked with the development of both local Internet hardware and Internet usage. In fact, it is fairly difficult for us to monitor the effects of the Internet on the openness of the local users' group. But still we could answer the questions by looking in an opposite direction, i.e., by observing the degree of usage of some Internet contents that are most likely to bring about changes in users' attitudes toward openness. The contents have to be highly interactive and communicative in nature in order to be effective, such as BBS, IRC, or e-mail, etc. At present, IRC and e-mail remains a primary tool for emotional exchanges or daily affairs. It is less likely to affect the users' openness. The content that exerts the most influence is that of BBS and as we have shown in the earlier analysis, so far the users' participation is weak. Regretfully, although a great many people indicated occasional usage, fewer than 15 percent were frequent users. The number of those who had joined an online discussion was even smaller.

In the near future, as people become more and more involved with Internet usage, its power of will become more and more dominant.

## **INTERNET CAFÉS: EXISTENCE AND INFLUENCE**

As we have mentioned earlier, since the first day when the Internet was introduced to the city, Internet cafés have been playing a unique role in Internet development. They are the primary locations for Internet usage in Jimo city. In fact, most users have their first online experience in an Internet café. Although the number of home-users is rising, Internet cafés are still irreplaceable. For these reasons, we will pay special attention to the role of Internet cafés.



## I. The Status Quo of Internet Cafés in Jimo

Internet cafés have existed since the first day the Internet was introduced to Jimo. Although few in number, these Internet cafés were pioneers in the early stage of local Internet development. They helped to promote Internet usage. By the year 2000, Internet cafés had proliferated, as more and more investors saw profits from the growing number of users. In 2002 alone, more than 50 new Internet cafés opened in the city. In some ways, the Internet café is symbolic of the development of the local Internet industry.

According to the latest figures of Qingdao municipality collected during the second evaluation of all Internet cafés, by the end of the survey, i.e., January 2003, there were 104 officially registered Internet cafés. Among them, 61 had completed the application procedures and obtained all required permits. They were also conferred a Business License for Internet culture by the Cultural Bureau. The other Internet cafés are still undergoing the application procedures. Under normal circumstances, it will take at least two months to complete all the procedures and obtain the necessary documents.<sup>6</sup>

With respect to geographic locations, there are 79 Internet cafés in the city's downtown area,<sup>7</sup> which are evenly distributed in several districts. There is no sizable "Internet café zone." However, there are more cafés on the busy streets where people tend to congregate. We counted 5 Internet cafés on either side of the street, every 0.5 or 1 kilometer. The other 25 Internet cafés are located in counties and villages near the city. Similarly, they are mainly located in the busiest areas - such as Lancun, Ao'Shan and Dianji-to take advantage of the larger customer flow. We can see that the Internet has also found its way to the countryside through the Internet cafés, thus contributing to local usage.

The average size of Internet cafés in the city so far (if measured by the amount of online equipment) is 30 computers. The largest Internet café in the city has 60 computers. According to the regulations of Qingdao municipality, by the end of 2003, only those Internet cafés that have achieved the scale of 40 computers may continue business operations. All Internet cafés should have ADSL connections and their own specific IP, meaning that they must use lines designated by the Telecom Department. At present, about half of the Internet cafés have 512 K bandwidth, the rest are 2MB or above. The ADSL users are more privileged than the dial-up users in terms of speed and even cost, since the cost of Internet café usage (averaging US\$ 0.25 per hour) is far lower than the cost of dial-up connections. This may also be one of the reasons why Internet cafés enjoy tremendous popularity among users.

Generally speaking, the condition and environment for business operations for most Internet cafés are deteriorating because of the rising competition, lower rates for connections for home users, and limitations of government policy. Many owners of Internet cafés, in the interviews felt helpless. They are still waiting to see if the business is lucrative enough to continue operations. Nevertheless, the size of the users group is becoming larger. During peak hours, all Internet cafés are filled with users. The fast growth of the Internet has created more opportunities for the development of Internet cafés. That is probably why a great number of Internet cafés keep running despite the hardships.

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<sup>6</sup> According to the Chinese legislature, locations that provide Internet access, such as Internet cafés, are co-administrated by four departments: the Cultural Bureau, the Police Department, the Fire department, and the Commercial and Industrial Administration. The Cultural Bureau is the major administrator. Anyone who wishes to open a café should obtain licenses from those departments. There are different procedures to apply for each license.

<sup>7</sup> Including the Tongji Town-Street Office, Huanxiu Town-Street Office and the Jimo Economic Development Zone, and the downtown area of Jimo city, which are also within the parameters of our survey.

## II. Internet café customers and online activities

With respect to age, customers in Internet cafés are mainly between the ages of 15 and 30. The proportion of users from other age groups is small. This confirms our earlier observation on the general age grouping of local users. The customers in Internet cafés are mainly teenagers, aged between 18 and 30. As for their gender, most of them are male. According to our field study, more than 80 percent of all users in the Internet cafés are men.

With respect to occupations, most Internet cafés users are students. Because they have learned the necessary skills and knowledge about Internet usage from their lessons, they make up the most predominant force of local Internet users. Because we conduct our survey during a student holiday, there should have been an increase in the number of student users. We are unable to specify the number of students at other times, but given the current composition of local users and media coverage, students are doubtlessly a major part of the local users. Second, some people from other professions also pay occasional visits to the Internet cafés. These people may be government officials, or employees in state owned businesses, and state departments. In addition, there are also private business owners, migrant workers and salespersons, and even the jobless and unemployed. Jimo's merchandising market is relatively well developed, and a large group of merchandisers and migrant dealers spend a considerable amount of time online. The Internet cafés have also provided a haven for the

**Table 2: One day record of a Internet café in Jimo city (January 29, 2003).**

Time of record	Number of customers	Percentage of PC usage	Number of game players	IRC or Audio and Video	Others
9:30	23	79%	16	2	5
10:30	26	89%	21	2	3
11:30	24	80%	18	4	2
12:00	22	72%	20	0	2
14:00	29	97%	20	3	6
15:30	30	100%	21	5	4
16:30	30	100%	24	4	2
17:30	12	40%	8	2	2
18:30	20	67%	16	3	1
19:30	29	97%	20	3	6
20:30	29	97%	23	3	3
21:30	24	80%	22	1	1
22:30	15	50%	13	2	1

**Notes:** The Internet café we cite here owns 30 computers. It is near the Jimo Market which specializes in wholesale clothing. Because the location is ideal, there are also two other Internet cafés in the vicinity which have similar conditions. The data only represent usage on one particular day but at different times of that day (broken down by the hour). The number recorded is the number of users' engaged in certain activities at the time of the record. For example, some users may chat while waiting for a response, or browse other contents on the Internet. So we had to clarify that the activity recorded here is the user's activity at the moment of the recording.

jobless and the unemployed. Compared with other locations that enjoy Internet access, Internet cafés are more tolerant and open. They provide a channel for Internet access for people at all levels. The following chart records online usage at one specific Internet café.

In terms of Internet usage, games (single player games or multi-player games) make up the largest proportion of activities; 80 percent of all users in the Internet café are game players. That is why, in our survey, many interviewees have the impression that the Internet cafés is a "game-house in disguise." Other major activities include online chatting (the utilization of instant messaging programs, OICQ and chat-rooms, or IRC), socializing, and audio and visual or other recreational pleasures. Only a handful of people were engaging in other functions and contents of the Internet. Thus, the main Internet use in the Internet café is recreational and communicative in nature, typified by games and chat rooms (as we show on Chart 2). However, there are users who tend to use it for practical purposes as well. They surf the net for information and knowledge that is closely related to their professions, such as stock prices or financial news. But their number is not large.

### **III. Brief Discussion**

In fact, the most significant of all Internet café issues is their problematic management, which involves allowing underaged users to access the Internet, Internet games addictions, visits to porno sites, and the lurking dangers of public safety. Meanwhile, public opinion is also directed against most Internet cafés, and the government, too, has tightened its control over Internet cafés through stipulations of stricter policies. On these matters, the owners of the Internet cafés are somewhat helpless. They were cautious and even evasive in their comments on the subject. Judging from the present situation, the control by the government has been more or less ineffective. Considering the important role the Internet cafés play in the local development of Internet usage, the government cannot simply clamp down on all of them. An official at Cultural Bureau remarked: "The numbers of Internet users and Internet cafés rise with the local economy. Under normal circumstances, we seldom reject an application if the applicant meets all the requirements. The policies stipulated by the municipal government for control of Internet cafés have been difficult to execute. We face many problems and difficulties." We see from these remarks that the government needs to reassess its policies, and more realistic regulations for Internet cafés should be implemented. Meanwhile, the problems of the Internet cafés are not caused by the owners of the Internet cafés alone. Individuals, families, schools, and society should also be held responsible.

Since the survey was devoted to examining of the effects of Internet café on users' behavior and local Internet development, we will not discuss the management issues further. In addition to the earlier mentioned function of the Internet cafés as a driving force for local Internet development, there are two other functions of Internet cafés that should be noted:

#### **1. The Internet cafés' influence on users' cognition and behavior**

As noted earlier, the Internet café has been the primary location for Internet usage. Therefore a close inspection of the users' behavior and activities in the Internet cafés can more or less reflect the behavior of all local users. In fact, many interviewees confessed that their

first online experience was introduced or helped by friends or acquaintances, either to chat or to play games, both of which they were interested in in the first place. Their first impression has been everlasting and the lack of further knowledge or skills has made their first online experience, playing games or chatting, a permanent orientation of their personal interest.

On the other hand, an important feature of Internet cafés is their room for collective behavior. The interaction between users and the "spreading effects" may be the main reason for unanimous Internet cognition or usage. In addition, the atmospheric and environmental factors should not be overlooked. In our survey, we were interested to find out: whether with the popularization of household Internet usage Internet cafés will continue to exist and how far they will develop. We received answers that were surprisingly identical from both users and owners: Internet cafés can sustain an atmosphere for gamers and chatters, which other locations for Internet access can never provide. They provide a "bar-like" atmosphere and, most importantly, a recreational feeling. For this reason, the unique atmospheric dispositions of the Internet cafés have shaped the behavior of the local Internet users.

## **2. Internet cafés' effects on users' gender differences**

The gender differences of Internet users are, to a certain degree, affected or even enhanced by the characteristics of the Internet cafés. Many female users and non-users believe that more men than women go to Internet cafés for games. Men engage in noisy conversations and their language is usually foul. Some users like to smoke in the cafés, which makes the air filthy and the environment much less desirable. Female users can seldom enjoy such an atmosphere. "They are taken aback, even if they want to go in there." In reality, the Internet café has been shaping a male-dominated world. The stereotypical thinking, "a man's technology," which embodies male values and the gender differences in social habits and cognition, further enhances this impression of male dominance. The Internet café has unconsciously enhanced the gender differences that already exist over the Internet.

# **E-Government**

## **I. General information on the development of local e-government**

According to the 5-year state planning for the informatization of all government systems formulated by the State Council Office, the overall objective is to complete the framework of government information services on the basis of the "3 networks and 1 database"<sup>8</sup> within 3 to 5 years, which is in line with our country's present situation. The objectives require the construction of Jimo's e-government to concentrate on the following two areas:

### **1. Internal Network Construction (Office Network Built Within the Government System)**

In the construction of a governmental office network, Jimo municipality built a computer center (under the direct leadership of the municipal government office) in 1996 for the planning and building of a digital office. In 1997 a trial test of paperless documentation was

<sup>8</sup> The "3 Networks and 1 Database" refers to the electronic information database shared by the government system. The 3 networks refers to: the internal office network of local official departments, the administrative resource network connecting each regional department and the office of the State Council, and the government's public information network linked together via the Internet.

launched. In February 1999, this method was introduced to all departments. With respect to network construction, the Qingdao Municipal Government has launched the "Jin-Hong Project" (the purpose of which is to build a "network dedicated to macro decision-making and office information services within 3-level administrative departments"). Currently, Jimo has already formed an area network system linked by 120 government units. Apart from the core LAN in the Municipal Government Office Building, which enjoys broadband connections (for the exclusive use of the Municipal Council), other offices still use modems, which are slow, inefficient, and unreliable. The computers are mainly isolated, if not idle, in the daily office work. The network's primary usage is for the transmission of e-documents, since most departments are connected. Generally speaking, the content and functions provided by the internal network are still primitive and the application level is low.

## **2. External Network Construction (public information network)**

The external network refers to the portal site of Jimo Government (<http://www.jimo.gov.cn>). The website was launched in June 1999 to provide statistical information on the local economy and social development. It also contains guidelines for investment and government policies. The contents are mainly informative and unreadable. Updates are slow and web-page design is static. A few pieces of local news, if any, are released every day, mainly on official events.

## **II. Overall planning and promotion by the Qingdao Municipal Government**

As part of the process of Jimo's e-government construction, we should mention the general planning of Qingdao Municipality.

Qingdao is among the earliest cities that launched an e-government project in China. The municipal government of Qingdao began its "Jing-Hong Project" in 1996. And at the beginning of 2001 when e-government was becoming a rising trend, the municipal council and government of Qingdao took the lead nationwide to begin strategic and technological research on e-government. It officially launched its e-government project at early 2002, which put Qingdao City in a top position for national e-government planning and applications as well as being a trial experimental city for e-government designated by the central government..

Since the Jin-Hong Project, in order to efficiently restrain the negative phenomenon of separating governing and construction and the consequent duplication and waste, Qingdao City implemented, according to the idea of "benefiting through the system and developing through the application" and based on the principle of "strictly enforcing unification", the "Four Unifications and One Division e-government System" which included:

- a) Unification of the organizations, that is, a unified organization of each level of government of Qingdao City to account for the construction, administration, and maintenance of that level; no separation of the Party and the government is allowed.
- b) Unification of planning, meaning the municipal government alone will set the direction and general objectives for e-government development in the city.
- c) Unification of the computer network, that is, to allow the different departments of the

municipal institutions to establish inner networks, and to exchange information with other institutions through interconnection of the computer center of the Municipal Council and government; other specialized citywide networks are not permitted.

- d) Unification of software, that is, the Jing-Hong office service system will be the appointed technical support for office computerization of different levels of institutions all over the city. Within the functional coverage of this system, the development or introduction of other software systems is forbidden so as to safeguard smooth information exchange throughout the city.
- e) Division of administration, that is, the LAN of the computer center and some key areas will be managed and maintained by the Municipal Council and the government computer center; and the branch networks and tele-workstations will be managed by the institutions using them.

A unique e-government mode has therefore come into being. Employing the "radiating from a strong core" pattern, the municipal government will gradually promote the construction and application of e-government in different departments. It was, and will still be, under the unified deployment and leadership of Qingdao City that Jimo, a county-level city affiliated with Qingdao, implemented its e-government strategy. This is the most significant feature and motivation for the development of e-government in Jimo.

### **III. Discussion**

Launching of e-government in the Western countries involves different steps, from its preliminary form (building a government website) to a more complicated form (a digital community or a cyber city providing a wide range of services). We can describe the process of the development of e-government from three dimensions.

- A. E-government functions that feature in the technology
- B. E-government complexity that features in the exchange of information
- C. E-government maturity that features in the satisfaction of the general publics

According to the model, at present Jimo's e-government is still at the preliminary stage of development in every respect. Although the local e-government project started earlier than it did in similar regions and enjoyed some support from senior officials in the Qingdao municipal government, the main focus of the strategy of e-government development was still at the municipal level (the so-called radiating effect). As a result, at least for now the Jimo government has not given enough attention or funding to the development of local e-government. It also lacks a clear objective and systematic planning for future e-government's in the long run. This has created obstacles to the development of local e-government.

In reality, the core value of e-government lies in its fundamental improvement of public services via the Internet. e-government should be more practical and open in sharing resources in order to uphold corporate and public interests. Otherwise, the e-government is a failure. From this perspective, the local e-government has been unsuccessful because it has put too much emphasis on the unilateral content and the closed system in which information can only be shared within the government. It is unable to provide good services to satisfy the

needs of the public and local companies. The ignorance and nonchalance of the local public regarding e-government can be instructive. In the survey, especially in the focus group discussions, when we asked local people: "What is e-government," no one in the non-user group had ever heard of it. A number of people in the users' group said they had never heard of the concept of e-government and, even if they did know what it is, their understanding was limited to words mentioned in the news, like "Government Online." To obtain information, most local people are still using the channels of conventional media. Most of the interviewees said they have never heard of any website launched by the Jimo municipal government. "Never know such a website exists." Among those who knew of the website, only two people had "visited occasionally" or "used to visit." None of them had frequently visited the government's website. Local e-government is still far from effective.

## **CONCLUSION**

If we look at the process of informatization in the entire city, what are the main features and tendencies of Jimo's Internet development?

In our survey, one of the hypotheses we suggested is that the process of informatization is a comprehensive project that builds on all social levels. It is closely related with the interests of individuals' families, government, and different economic organizations. It is fair to say that only by the efforts of each individual, and the participation of every organization as well as the local government, will the local informatization effort be intensified and further developed.

Internet development in Jimo city provides a general picture of a constant developmental process, which is driven by the "technology and choice of the individual." Individuals and families gradually became involved in the on-going revolution without realizing the rapid accession of the Internet and its vast effects. The Internet service providers, such as the Telecom Department, have also been enthusiastic about the prospect of Internet business and driven by corporate interests to increase investment in the hardware and software for Internet development as well as to increase their efforts in the promotion of usage. Other economic organizations as well as government, driven by the same interests, are also taking different approaches to provide momentum for new developments by the innovation of this technology. The network of individuals, families, government, and different organizations is gradually being linked, thus enabling them to share their resources and information interactively and creating a new wave of informatization in the development of the local Internet.

The mode of this development may be limited and affected by two fundamental factors: first, a sound economy that can provide a solid foundation for Internet development and informatization. Second, a new technology that can satisfy the needs and desires of its users. If we disregard the economy, Internet development has been more of an outcome of impetuous behavior by those people who were fascinated by the new technology. As a new technology, the Internet is not only in itself fascinating, but it can also realize a brand new chapter in human society. With the help of the mass media, the spread of the Internet has reached far and wide in the shortest possible time and has attracted numerous modern followers. Internet development in Jimo has no doubt been caught up in this trend and deeply

affected by it. Nevertheless, judging from the standards of Internet technological and infrastructural development, or the levels of users' perceptions, cognitions, and applications, Jimo still has a long way to go in its urban informatization and Internet development.



# Internet Development In Guangshui City

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Guangshui is situated at the northeast of Hubei province, east longitude between 113°31' and 114°07' and north latitude between 31°23' and 32°05'. It is known as "the gateway of northern Hubei province." Formerly called Yingshan County, it was approved to be changed from a county to a city by the State Council in October 1988. In July 2000, after Suizhou city was established with the approval of the State Council, Guangshui became part of it.

Guangshui is located 80 kilometers north of Xinyang and 176 kilometers south of Wuhan. Its transportation facilities are very convenient. The Beijing-Guangzhou railway, the Chongqing-Wuhan railway, the No.107 national highway and the No.316 national highway all pass through it. The Beijing-Zhuhai Expressway and the Wuhan-Shiyan Expressway also run parallel to it. In addition, the No.10 provincial highway connects with 6 main roads. Guangshui covers 2,647 square kilometers and population is 889,000, of whom 146,000 live in urban area. In total, there are three subdistrict offices, 16 town level and one provincial level economic development zones.

In Guangshui, there are four high schools, one Radio and Television University, one normal education junior school (college), one foreign language school and one technical high school, Nine-year compulsory education covers more than 85 percent of the population and literacy rate has been increased to 95 percent. There is one central library, one stadium, one children's cultural palace, four cinemas and more than 50 bookstores. However, the affiliated facilities are so backward that only a few people use them.

Guangshui belongs to the northern subtropical climate. Mountain areas account for 70 percent, ploughed areas 20 percent and water areas 10 percent of its total area. Since the reform and opening up in China, the economy of Guangshui has developed rapidly. In the ratings of national county-level economic competency, it is classified as type C.<sup>1</sup> In 2001, its GDP was US\$ 475 million, of which gross output value of agriculture was US\$ 126.125 million and financial income US\$ 35 million. Its per capita GDP was US\$ 618.5 and its agricultural per capita GDP was US\$ 259.875. Four pillar industries have been developed in the industrial economy, which includes tobacco, machinery, chemicals, construction materials, and textiles. Eight main plantings in the agricultural economy include the following: Commodity grain, tobacco leaf, livestock, garlic, fruit tea, vegetables, silver fish, and mushrooms. Guangshui is a national commodity grain base and a national commodity cattle and honeybee base. It is also an important provincial wood base, tobacco base, and garlic export center. There are

<sup>1</sup> An area must have 200 counties(cities or districts) to qualify as an A type or a B type.

nine central markets and more than 7000 shops in the city.

## **METHODOLOGY**

According to the administrative division, there are three municipal subdistricts in Guangshui city: Yingshan, Guangshui, and Shili. However, this survey mainly focuses on two of them: Yingshan and Guangshui (including Guangshui Economic and Technological Development Zone). The main reason for this is that there exists a large gap between Shili and the other two subdistricts in terms of the number of residents, economic development, and city construction. In addition, the Internet has mainly developed in these two central subdistricts. The survey, covering a population of 150,000 people, lasted 20 days, starting from January 23 2003 and ending on February 11 2003. The procedures are illustrated as the following:

### **Questionnaire Survey**

- (1) There were altogether 183 acceptable respondents to the questionnaires.
- (2) Sampling Frame: Though Guangshui is a small county-level city, its urban area has been expanded rapidly in recent years and the town has experienced a frequent construction. The population is spread between the urban and rural areas. Hence, the survey includes all residents in both Yingshan and Guangshui subdistricts.
- (3) Sampling Method: Because of certain limitations, such as the incomplete local residential committee system and the large-scale old town reconstruction, this survey uses an Equidistant Sampling Method. At first, it collected residents in each city zone of the two subdistricts (they each have three city zones 6 in total). The samples were allocated according to their proportion of the population. After settling on the number of samples in each zone, the samples were collected according to an Equidistant Sampling Method. However, because of various limitations, it was difficult to come up with a strict equal-distance sampling. But this method guaranteed that the sampling covered all residential areas. Thus, it was a random and effective sampling for all of Guangshui.

### **Literature Review**

This mainly consists of collecting data related to Internet applications and development as well as general introduction materials about Guangshui.

### **Interviews**

The Interviewees included the following:

- (1) Government officials: There are no special informatization offices or similar administrations in Guangshui. However, since Internet cafés play very important roles in the local culture, the deputy director-general in charge of the management of the Internet cafés and the head of the investigation group for the cultural market were interviewed.
- (2) Representatives of e-government: There are no official government websites and e-government is still at an early stage. The chiefs of the information center of the local public security bureau and the Guangshui economy and trade office are invited to the interview because Guangshui economy and trade office is responsible for the original government website and the information center of the local public security bureau is the best-informed government agency.

- (3) Local ISPs: There are two main ISPs in Guangshui: Guangshui Telecom and Guangshui Broadcasting and Television Bureau. A sector chief from Guangshui Telecom and the director of the technical department of the Guangshui Broadcasting and Television Bureau were interviewed.
- (4) Local enterprises with Internet applications: There are five enterprises in total that have Internet applications in Guangshui, two of which were interviewed.
- (5) Managers of Internet cafés: Up to early 2003, there were 35 registered Internet cafés in Guangshui. The survey covered 28 of them and three managers were interviewed. The interviews mainly focused on the basic situation of the Internet cafés, the roles that they play during the development of the Internet, the behavior and attitudes of Internet users, and government management.
- (6) Internet users: There are those who use the Internet in cafés and those who use the Internet at home (the survey did not interview Internet users whose the Internet in other places). Four persons are interviewed on the use of Internet and its effects.

### **Focus Group Discussions**

Members of the focus groups came from different enterprises and families. They were classified into four groups: male users, male non-users, female users and female non-users. There were five persons in each group and each group held its own discussion.

### **Field Observation of Internet Cafés:**

The survey investigated and recorded the distribution of Internet cafés, their basic internal situation, Internet users' situations, and the Internet content in the cafés.

## **GENERAL INTRODUCTION TO INTERNET DEVELOPMENT IN GUANGSHUI**

### **I. Current Situation of Internet Development**

Currently, the bandwidth of the backbone network is 100M and the major connections are ADSL or dial-up. ADSL started from May 2002 and since then the numbers of both business users and family users has expanded rapidly. There are altogether eight government departments or institutes setting up LAN and providing ADSL services (2M bandwidth). They include the Electric Power Bureau, the Bureau For Public Health, the Public Security Bureau, the Municipal Government Office Buildings, Guangshui No.1 Hospital, Guangshui Telecom, the State Administration for Taxation, and the Local Taxation Bureau. There are five enterprises with their own websites. They include the following:

- Hubei Yongyang Waterproof Material Co., Ltd. (<http://YYFS.51.Net>);
- Guangshui Maixin Special Rubber Belt Co., Ltd. (<http://sz-www.hb.cninfo.net/mx/Index.htm>);
- Guangshui Shanhe Catalyzer Co., Ltd. (<http://sz-www.hb.cninfo.net/ch/Index.html>);
- Hubei Guangcai Printing Co. Ltd. (<http://www.guangcaiprint.com>);
- Guangda Ligu Coating Co. Ltd. (<http://www.gdlg.net.cn>);

There are 350 ADSL portals in Guangshui Telecom, and 200 of which are in use. Among

them, 28 are used by Internet cafés<sup>2</sup>, 13 are used by government agencies and enterprises, and the remaining 150 or more are used by individual users. Besides, the number of individual, registered dial-up Internet users is around 1,700.

There is no unified deployment plan for informatization in Guangshui. Every enterprise or government agency can "*develop its own informatization*." If they have sufficient resources, they can set up their own LAN. On the other hand, if they do not have sufficient resources, the municipal government does not force them to informatize. Therefore, all current enterprises and government agencies with LAN are comparatively much wealthy than the others.

Formerly there was a government website (<http://www.hbgs.gov.cn>) linked to the Suizhou government website, which was helped by Guangshui Telecom. The two host servers were located in the Guangshui economy and trade office and maintained by this office. Its initial purpose was to publish information about the city and to attract investments. However, there was not much information to be published, and the municipal government did not provide any financial support and for its maintenance. Also, the information provided on the website did not seem to have the effect of promoting investments. As a result, it was closed at the end of 2002.

With regard to e-government, it has not yet begun in Suizhou, nor has Guangshui made any plans for it.

## II. The Development of Internet Connection Modes<sup>3</sup>

The Internet developed in Guangshui as a result of the rise of nationwide informatization. In the early period, it was closely related to the development of Guangshui Telecom. At the end of 1995, in order to provide better services, the local financial systems required networking. Guangshui Telecom helped them set up their own LAN with DDN networks. Since DDN can be either a local network or a remote network, the financial systems not only can network all local branches but also can connect remotely to the provincial branches. As a result, the business of the financial systems expended rapidly. The DDN network still operates in the financial systems and is the main income for Guangshui Telecom's data services. Initially, the monthly fee for a DDN network was US\$ 625 per portal. However, as the Internet has been updated, the fee has now been reduced to US\$ 25 per portal.

In 1996, the packet switching services were introduced in Guangshui. There are two kinds of services: "*leased line with packet switching and dial-up with packet switching*." However, they have not been greatly developed. Especially after the introduction of multimedia data services in 1997, "*they were gradually replaced*", "*Nowadays, few people use them and in 2000, the packet switching service was abandoned*."

In 1997, multimedia data services were introduced. At the same time, dial-up networking was developed on a large scale. At present there are about 1,700 registered users. "*Later on, Internet accounts like 163 and 169 were opened to the public. The number of dial-up users is actually more than that of registered users*." As long as there is a telephone line, it is possible to connect to the Internet. Registered Internet users and public account users now coexist.

<sup>2</sup> There is a total of 35 Internet cafés, some of which use ISDN. Hence, the number of broadband ports is less than the number of Internet café.

<sup>3</sup> Record of the interview with telecom staff.

In 2000, ISDN was developed. It can use the Internet or work as a normal telephone simultaneously. This service belongs to the leased line services. In May or June 2000, Internet cafés emerged and there were about ten in total in Guangshui at that time.

*"In 2002, about April or May, ADSL was introduced. It is a broadband Internet service," "During the first stage, we only set up 48 portals, but during the following expansion, the number doubled to 96." By early 2003, after another expansion, the number increased to 350 and 200 of these portals were in use. "In about November or December 2002, ADSL was introduced to the rural areas, such as Changling, and Maping." There are currently six large-sized villages and towns with ADSL.*

### **III. Development Strategy of the ISPs**

On February 15, 2003, Guangshui Broadcasting and Television Bureau began its own broadband Internet services. However, there are no business users and only a few individual users. It provides two types of services: type A and type B. The former makes use of TV cables and is mainly for individual users. It has a 2M uplink and a 1056k downlink. The current fee is US\$ 6.25 per month (prepayment of US\$ 75 is required for the whole year.) and those who pay monthly receive free connection devices. For other users, the fee is US\$ 0.1 per hour. The latter are connected through the Ethernet. Director Zhou of the technique department of the Guangshui Broadcasting and Television Bureau expected that the fee will definitely be 50 percent less than that of Telecom. Because of its low price, it has attracted great attention on it. Its main target market is individual users.

At present, Guangshui Telecom is the main ISP provider, its users can be classified into two groups: business users and individual users. The fees for each of them differ. The service for individual users began from the end of 2002. There are three kinds of portals, including 512K, 1M and 2M, with monthly fees of US\$ 6.25, US\$ 12.5, and US\$ 25 respectively. Internet cafés use 1M portals and are charged US\$ 150 per month. Government agencies and enterprises are provided with 2M portals, but the monthly fees are still US\$ 150. For those who pay monthly, the connection devices are free as well. Private applicants for broadband services have to pay US\$50 for the connection charge.

### **IV. Estimation of the Proportion of Internet Users in the urban Areas in Guangshui**

*It was estimated by the interviewees from the local Guangshui Telecom that "in urban areas, the youth usually use the Internet; 90 percent of children in schools and those who study in universitie are certainly users. But less than 30 percent of middle-age people use the Internet. Around 80 percent of the people under 25 and very few over 35 are Internet users. "*

According to the field observation and data illustrated from the survey, only 44 percent of the families do not have Internet users. The survey covered about 150,000 residents.

According to data in our questionnaire survey, the proportions can be illustrated as follows:

Proportion of Internet users = 168 (family Internet users) / 740 (total number of family members) = 22.7 percent.

Therefore, we estimate that Internet users should account for around 22.7 percent of the urban population in Guangshui.

## **INTERNET: A DOUBLE-EDGED SWORD**

### **I. The behavior of Internet users**

To evaluate the development level of the Internet in a city, the online contents that are being visited deserve our consideration. It is assumed that the longer the people use the Internet, the more their daily lives depend on it and the higher the percentage of information that is derived from it. Although the educational levels and the occupation of the Internet users are important, the Internet content should also be examined.

In Guangshui, few local residents have personal computers. Of 200 samples in the survey, only 35 families own computers, 200 families possess a total of 42 computers. The majority of people go to Internet cafés to use the Internet. They play games, chat, and watch movies. Only few of them browse websites for information. According to the head of the investigation group, Mr. Huang, among the Internet users at the Internet cafés, 70 percent play Internet games, 20 percent chat, and the remaining 10 percent watch movies and look for news. These figures are consistent with our field.

The reasons for this include: on the one hand, it is related to the set up of the Internet cafés. Internet cafés usually install the following software: games (Lianzhong etc.), chatrooms (QQ, telnet), downloads (FlashGet, NetAnts), and multimedia players (Winamp, Realplayer, Hero Super Convert and Hero Super Player) on the desktop of their computers. Such software generally attracts new Internet users. Furthermore, the chatrooms and games can be addictive. On the other hand, those who frequent the Internet cafés do so for entertainment or relaxation. Due to the limitations of their educational levels and their occupations, this is all they know how to do on the Internet. The youth in Guangshui start by learning how to type. In order to chat online, they have to learn how to type. It is also necessary for them to communicate when they play the Internet games. So they take pride in learning to type quickly.

We will analyze the following:

- Playing games. Most Internet game players are young men. On the one hand, most Internet users in the Internet cafés are male; on the other hand, the contents of the Internet games are knight-errant and war-related, females are generally not interested in these topics. Most people go to the Internet cafés to play games, especially the teenagers.
- Chatting. There are many ways to chat, such as QQ, chat rooms, and BBS. Most Guangshui Internet users are familiar with the popular famous chatrooms: "Guangshui Lover's Pub." It is very easy for them to enter the pub from QQ. With respect to

chatting, there are not many differences between the males and females, but generally females like to chat more than males. Most females use the Internet for chatting.

- Watching movies and listening to music are unimportant functions of the Internet. No one uses the Internet only to watch movies or to listen to music. In most cases, watching movies or listening to music is merely for relaxation after users are tired of playing games or chatting.
- Browsing. Guangshui Internet users rarely go to Internet cafés just to browse websites for information. Most browse entertainment and sports sites after playing games and chatting. Above 60 percent (almost above 80 percent) of them browse mainland Chinese websites, such as Sina, Sohu, and Netease, etc. They browse these websites because of their comprehensive content and free e-mail accounts.
- Other functions. Some people, mainly university students who study outside of Guangshui, use proxy servers. Many people know how to use search engines and how to download. Usually, they download movies, music, and games. We did not find any one who has a personal web page.
- Access to local news. No one uses the Internet to access local news. The main reason for this is that there is no local news provider. Although the Suizhou hotline provides some news about Guangshui, its construction is incomplete, and few people browse it. Most people get the news from newspapers, TV, and personal communications.

## II. Views of the Internet

Different people have different views about the Internet, but almost all feel that the Internet has both advantages and disadvantages, though most think the advantages outweigh the disadvantages.

### General Understanding of the Internet

What is the Internet? Among the interviewees in the survey, the male users usually regard the Internet as a network. It is "a tool used for communication"; the female users regard the Internet as "something interesting" that can be used for entertainment or to acquire information. Those who have never used the Internet see it as synonymous with Internet cafés or computers. Internet users remark that a major feature of the Internet is that it is fast, comprehensive, and free. Users can locate information that they cannot find in the traditional media.

There is a huge gap between the Internet users and non-users in terms of their understanding of the Internet. The reason for this is that their contact with the Internet is different. Only by deeply and comprehensively touching the Internet can one completely understand it. Those who have never used Internet can only understand it at the level of a computer. Therefore, to some extent, they regard the Internet as an extension of the computer.

### The Advantages of the Internet

To Internet users, the advantages are as follows: it increases creativity; it allows one to make purchases; one can make friends, retrieve and send information; it helps to remain competitive and to do one's work and studies efficiently. For non-users, the advantages of the Internet are the following: speed to retrieve information, it is convenient and helpful for the students in elementary and middle school, and it increases one's knowledge about computers.

### **The Disadvantages of the Internet:**

People also have a clear understanding of the disadvantages of the Internet. Most people think that the Internet makes one dependent on the network. It is easy for people to become addicted to Internet games. There is too much spam and too many advertisements.

Much of the content is harmful to teenagers. It is easy for people to make friends with the wrong people and to be affected by the erotic contents. It may lead some to criminal activity. Female users pointed out that the Internet has a complicated influence on people and much of the information on the Internet should be cleaned up.

In addition, they all mentioned that the Internet affects the studies of the primary and middle school students. They believe that students who become addicted to the Internet will do poorly in school. They also mentioned the danger of Internet crimes and the distribution of harmful information. These disadvantages hinder the development of the Internet. To cope with them, most people suggested that the Internet should be managed (supervised) by the government; however, some people did not agree to control the Internet. They felt the best way to manage the Internet is by guidance, not control. Management should be undertaken by the related government agencies. At the same time, the entire society should make a contribution. Management should emphasize the false and harmful information, management of the Internet cafés, guiding the healthy use of the Internet by primary and middle school students.

### **Comparison between Male Users and Female Users**

In the interviews, we found that male users feel that the main purposes of the Internet are e-mail, e-business, and retrieval of information. However, female users felt that the main function of the Internet is communication. Both the male and female groups felt that the Internet is a good tool for entertainment.

In addition, during the interviews, we found that even though male users regard the Internet as "*a tool for communication*," in most cases they also use it to retrieve information, and for entertainment and e-mail, etc., on the other hand, female users mainly use the Internet for chatting, communication, watching movies and listening to music, etc. We found that gender has a great influence on the ways the Internet is used. In field observations, we found that most Internet game users are male. In terms of sending e-mail, and using QQ and BBS, the proportions of male and female are almost equal. The number of males who retrieve information and browse websites is greater than the number of females.

Regarding the degree of trust in the information found on the Internet, female users have less trust than male users. Most female users rarely pay attention to information that has no direct relation to their daily life.

### **Opinions of Teenage Internet Users**

Most teenage Internet users have the same opinion: it is acceptable to use the Internet. Since Internet is a new thing, it can increase one's knowledge and broaden one's horizon. But it is



necessary to prevent teenagers from playing games, chatting, and browsing pornographic sites, and to limit their online time. It is also necessary to guide them since they are not mature enough to deal with the complicated situations on the Internet. In addition, if teenagers spend too much time online, this will affect their school work, and if they are not mature enough, most of the online contents are unsuitable for them. Therefore, as we can see from the above, the disadvantages of the Internet are still very obvious in people's minds.

### **III. Influence on Daily Life, Work, and Study**

The development of the Internet is at an early stage, and broadband was only introduced just recent years. Most people have used the Internet is for only two or three years. The Internet is still not a necessity for them.

In the survey, we found that the Internet has become the main mode of entertainment for local young people. Before that, they had many types of entertainment. Today, especially since the Internet games and making friends online have become popular, using the Internet has become a local fashion. Those young people who are good at using the Internet and who can type fast and are good at chatting are proud of these accomplishments whether one is an eight/nine-year old child or in one's twenties; as long as they have spare time, the young people will consider frequenting the Internet cafés for fun. Therefore, during peak time, especially at noon and at night, all the Internet cafés are full of people. Almost all of the clients are teenagers and young people in their twenties. As a result, billiard club, and video clubs are no longer popular.

At the same time, it was obvious that although the Internet has become a new way of life, it is still not a necessity in the people's daily lives. In the past, the billiard games were quite popular, and there were many billiard clubs. However, billiards is only one kind of entertainment, and without it, people can still find other ways to have fun. Although there is a difference between the Internet and billiards, they are similar in one respect. The reasons for the development of the Internet are its appeal, its comprehensive content, and its novelty to satisfy local people. Local youth need something new to make their lives more colorful. This became quite apparent during the interviews.

On the one hand, we found that the content of their Internet use is very simple. Even though some people have many years of experience in using the Internet, they still are playing games and chatting online. The only difference is that they play different games and chat with different people. They do not make the most use of the Internet, which is quickly and comprehensively updated. They are more likely to look to the Internet as a form of entertainment; on the other hand, we found that the Internet is removed from their daily lives. People go online merely for fun. The Internet has nothing to do with their lives. Although they chat and communicate with others, this is just a way of engaging in these activities more freely than before. In our survey, we found that the users are attracted to the Internet because of the freedom. In addition, the majority of users only have a short period of experience with the Internet. It is possible that the influence of the Internet has not yet manifested itself or that the influence is not that great.

Therefore, there is no difference in the uses daily lives and work after using the Internet. The difference is that there is less time to watch TV or to read newspapers since more time is spent on the Internet. But they are not overly dependent on the Internet. When they were asked such questions as: *"If one day you cannot use Internet, how would you feel?"* Most Internet users replied: *"It will seems as if I lost something" "that is a kind of strange feeling."* One Internet user provided the following metaphor: *"Using the Internet is just like smoking. We can still live without it."*

#### **IV. Reasons Why Non-users Do Not Use the Internet**

From the questionnaire survey, we found that the main reasons why people do not use the Internet are: they have no computer (65 percent); they don't know how to use it (46 percent); they are too busy and have no time (29 percent) or no they have no interest in it (26 percent); it is too expensive (21 percent) or their educational background is too low to learn. From the results of the survey, in the downtown area of Guangshui city, 19 percent of the families have computers, and, among them 31 percent are connected to the Internet. Therefore, most family members, especially adults, are not familiar with computers, to say nothing of the Internet. The material conditions are the chief barriers to their using the Internet.

The second reason is that people do not know how to use the Internet. From their description, we can see that they feel it is difficult for them and they have to spend a lot of time to learn how to use it. So most old people will never touch it unless they have to.

Some non-users said that they are too busy to use the Internet or that they are not interested in it. They feel the Internet is for young people, and it has no practical value. Older people also have heavy burdens in their families, so they do not have much time to learn how to use it. In addition, most older people already have their own hobbies and it is rare for them to want to change them.

In the survey, quite a number of people regarded the Internet is a bad thing. They feel that it makes people pick up bad habits. Due to the limitations of the external environment, lack of knowledge about the Internet, misunderstandings, and the poor image of the Internet cafés, they tend to keep away from the Internet.

## **INTERNET CAFÉS**

### **I. Current Development of Internet Cafés**

There are 35 Internet cafés in Guangshui city. Among them, 29 are located in the area of the Yin San and GuangShui sub district offices (15 in Yin San and 14 in Guangshui). The other six Internet cafés are located in Changling, Mapping, Pingling, Yudian, Chenxiang and Wudian repectively. These six villages are relatively large in scale and have comparatively large populations. Their economies are well developed. Internet cafés were approved for establishment in these villages so local people could retrieve information. *"We don't want people to have to go Guangshui city to search for the information they need."* According to the re-

quirement of the Cultural Bureau, 20 computers are required in order to set up a café in the downtown area; in the villages. Today, there are about 700 computers in Internet cafés.

Strictly speaking, the first Internet café in Guangshui city appeared in 1990. It was located upstairs from the post office (it is now a sales department for the local Telecom Bureau). It used a dial-up connection to the Internet and it only had five computers. Originally, this Internet café was established as a *"Net friend salon, and its intention was to promote business... At that time, we defined it as a base to spread training. Because each Internet user had an account, we could make demos for them; its main function was to spread, demonstrate, and train our staff."*<sup>4</sup> After the emergence of commercial Internet cafés, this first café changed its name to *"Guangxin Internet Café"* and it now belongs to the local Telecom Bureau.

The first commercial Internet cafés appeared during May-June 2000. Some of them emerged from the original computer game houses. But most of them were newly established entities. Their computers and equipment were purchased in Wuhan. The founders of the early Internet cafés were those who had knowledge about computers and the Internet. By 2001, more than 30 Internet cafés in the downtown area had been established. Most were on a small scale. Their number of computers was in the dozens. There were few rules to regulate them; and connections were backward, mainly by dialing up or ISDN. The speed was relatively slow and only a few people used the Internet. Most computer games were played on a single computer. In 2002, the government no longer registered new Internet cafés. In September 2002, under the local Cultural Bureau, the government re-registered the local Internet cafés according to the *"Regulations for Business Site Management"* and established requirements for the number of the computers, for the working for each computer, and for the business hours and scope, etc. At the same time, the government merged some of the Internet cafés. Several neighborhood small Internet cafés were integrated into a larger one and they adopted a joint stock system. Therefore, they could satisfy the requirements mandated by the new rules. They could thus save on administration fees, taxes, and registration fees etc., and they could also share the ADSL portals. But they could keep their own assets and run their businesses independently. Many small Internet café owners accepted this regulation.

## II. The Business Situation for Internet Cafés

### Income

Usually, business hours are from 08:00 am to 12:00 pm. Customers are charged US\$ 0.25 per hour. Except for some incorporated Internet cafés after they re-registered, the others are all owned by individuals. The head of the investigation group of the cultural market, Mr. Huang, told us: given that each Internet cafés has 20 computers, the cost of running an Internet café is about US\$ 8.75-10 each day, and given that each computer is used for about five hours, the total income will be about US\$ 25 each day. Therefore, gross profits can reach several hundred U.S.dollars each month. This is the reason why even though the government does not permit new Internet cafés to be opened in the downtown area, many people are still applying to the local Cultrual Bureau to set up new ones. Presently there are about 20 applications that have not been approved but have been filed in the Cultrual Bureau. Why do so many people want to run an Internet café? *"Because the local economy is in a depression and there is no better way to make money. No matter how much you earn, running*

<sup>4</sup> Based on the record of an interview with the Telecom Bureau Staff.

*an Internet café is a way to make money.*"<sup>5</sup> According to information provided by the owners of Internet café and our field observations, in some popular areas, the daily income from running an Internet café can reach over US\$ 25. However, in the same district of the downtown area, the situation may vary. According to an owner of an Internet café, daily gross income is just US\$5-6.25 during the off-season. During weekends, daily gross income can be US\$ 15. Only on lucky days, can gross income reach US\$ 25. On the other hand, the daily costs do not change. They include broadband fee, the electronic bill, rents and tax etc., totaling about US\$ 8.75 -10 per day. So the owners can only make money during the weekends, and on holidays.

### **Management of Daily Operations**

Most Internet cafés adopt a family-style management. They are usually managed by the young males in the family. Other family members serve as assistants. Most Internet cafés set up beds in their shops. The bosses usually sleep in the cafés at night. Some owners, who have no time or who are not familiar with the Internet technologies, may hire administrators to manage daily operations. These administrators usually sleep and eat in the cafés. Most of their customers are fixed. Due to their long-term relationship, these customers, generally males with no full-time jobs, become the friends of the owner, and as they spend much time in the establishments. When the owners have to leave on errands, they may help the owners collect the fees, write the online records, and solve problems. When there are only a few customers in the café, they go online for fun. When there are many customers, they just do nothing. Because of their experience with computers and the Internet, they can help the owners solve many problems. Usually the owners do not charge them.

### **Computer Configurations**

The newly established Internet cafés have advanced computer configurations. The computers in the older Internet cafés are usually backward. Several Internet cafés have not updated their equipment since their establishment. Half of the Internet cafés computer configurations are as follows: the CPU is similar to a Pentium 600, Memory 64 M, Hard Disk 10G, and 15 Inch monitors. Compared with current popular configurations, they lag behind by about two generations. Only a few computers (2-3 sets) have a CD-ROM and FD. None of the Internet café provide a Scanner, printer, or CD-RW. If the owners of the cafés have familiarity with computers and the Internet, their computers are usually better because they usually update the equipment and maintain the computers. If they hire Internet administrators, they usually make some repairs if there are problems. Their daily job is to keep the establishment clean and to maintain Internet security.

### **Competition**

Because the government limits the scale of Internet café development, competition is not intense. As more people are using the Internet, and since the downtown area is small and the Internet cafés are densely distributed within a small area, during peak times, all the cafés are full of people. As long as the cafés are busy during the peak times, they can make money. There are only a few customers in the morning. The working hours are short, but running the business is difficult. Most owners prefer to rest or do other things in the mornings. They do not have any specific plans to increase profits or to plan to enhance their capabilities of increasing their profit and attract more customers. They only update their computer con-

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<sup>5</sup> Record of an interview with the head of the investigation group of the cultural market, Mr. Huang.

figurations when the old computers break down.

### Understanding the Internet Cafés

Since most people frequent the cafés for entertainment, the owners install many kinds of entertainment software (like video players and downloads). If they have enough hard disk space, they will install software such as miracles, legends, Munchausen, Lianzhong and games of China online etc. QQ is installed on every computer. In addition, all computers have anti virus software and "*Huangping Anti Pornagraphy Expert*." The local public security bureau installs "*Internet Café Supervisor*" on every computer to supervise the information flow. "*Internet Café Supervisor*" will affect the net speed. For convenience, some Internet cafés use special Internet café management software. This software can strictly limit the rights of users. It can guarantee the security of the computers. But it will also prevent users from doing other things, such as downloading, and visiting hard disk and other unauthorized software. The Internet cafés are convenient places for users to surf online but non-users think that the Internet café is "*another form of game house*." It leads students in the wrong direction. In addition, spending too much time on the Internet will affect their studies.

### III. The Functions of Internet Café

In the survey, the Internet café was often the target of criticism. Its primary role is to cultivate all the Internet users in Guangshui city and provide an arena for users to access the Internet. During the interviews, almost all the interviewees said that they first learned to use the Internet in an Internet café.

The second function of the Internet cafés is to "*enrich spare-time life*"<sup>6</sup>. In Guangshui the economy is not well developed, and there is a lack of entertainment facilities. There is only one library in the city, with some tens of thousands of books and a few readers. There is only one public sports center, but there are no sports facilities. Only a few schools have basketball courts. There are four cinemas in the downtown area; almost all video parlors were closed after the new regulations were implemented. Along with the popularization of family cinemas and the development of cable TV, few people go to the movies in public cinemas. The main forms of entertainment are playing cards or eating local delicacies. However, these activities are not appealing to young people. Therefore, the Internet cafés were immediately accepted by the young people and became their favorite form.

The third function of the Internet cafés is to provide a space for jobless young people. Among the users of the Internet cafés, "*especially those people who often chat online, the majority are between 18 and 22 years old, from 16, 17, and 18 to 22. They have nothing to do every day.*" The Internet cafés provide a place for them to spend their time. Since the Internet is appealing for entertainment and games, it keeps these people from getting into trouble.

Internet cafés have no obvious influence on the development of the local economy. The head of the investigation group of the Cultural Bureau, Mr. Huang, pointed out: "*The Internet applications in the Internet cafés are mainly for entertainment rather than for life or work. They do not exert the influence they should.*"

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<sup>6</sup> *ibid.*

#### IV. The Future of Internet Cafés

As to the future of the Internet cafés, there are differing views. The head of the investigation group of the cultural market, Mr. Huang, said that the influence of the Internet café, will gradually decrease. *"As more and more people have their own computers, the number of public Internet cafés will decrease."*

In contrast, the interviewees from the local Broadcasting and Television Bureau said: *"The popularization of computers is limited, but Internet users are unlimited. So the number of Internet cafés that provide Internet services to the public will not decrease, and the future development of the Internet is promising."*

Owners of Internet cafés also hold differing views about the future of the Cafés. One owner said that if business continues, he may move into a large house to expand the scale of his business and to update his computers; another owner is contemplating selling his Internet café to others.

Although the number of individual broadband users has increased dramatically, due to the slow pace of local economic development, we find that growth in the number of individual Internet users is slow. Users cannot afford the high prices. But if the prices are too low, the owners cannot make profits. It is expected that cafés will continue to prosper for a long time.

#### SUMMARY

In Guangshui city, due to income constraints, few families can afford to buy home computers. The annual average income of local residents is about US\$ 500. Buying a computer and connecting to the Internet is considered a luxury. Under such circumstance, Internet cafés provide a convenient and cheap place to access the Internet.

Due to the constraints of local economic development and lack of revenue, the government is not able to promote the development of the Internet. For both the government and the common people, the top priority is to develop the economy and increase incomes. As to the Internet, as long as it develops according to the regulations, it can develop freely. People feel that it should be allowed to develop naturally. The speed of Internet development in Guangshui city, especially in early 2003 has been relatively fast. However, generally speaking, its development lacks planning and guidance from the city government. Different regions have their own policies for the development of the Internet, and they can do whatever they want. This leads to the current situation where there is no local content to the Internet, even though the number of users has increased. In terms of Internet cafés, due to historical reasons, and because the related government agencies are short of hardware and software (the local Cultural Bureau lacks funds and it is not connected to the Internet), there is poor management and many problems have emerged.

The Internet was originally developed as a tool for entertainment. The average education

level of the local population is relatively low, and university students do not want to return to the city after they leave. Thus, the Internet has not been paid a lot of attention. The schools do not have computer centers. The Internet is spread through word of mouth. Most Internet users learn about the Internet from friends. As a result, the spread of the Internet is limited and there are frequent misunderstanding about it.

In addition, the economic depression and low level of education have increased the jobless young people in the city. Internet cafés have become their gathering places. Many have turned to the Internet cafés for "*another type of game houses*".

In order to popularize the Internet in small cities such as Guangshui, there should be first a strong economic foundation and a high computer popularization rate; second, the effort should be supported and promoted by the local government and include rich local contents related to the people's life and work; third, it must attract the attention of and support from the common people, so that they can understand the Internet; last, there should be a well-organized Internet business operation environment, with complete supervision and guidance. However, in Guangshui city, the above conditions have not yet materialized, and the development of the Internet in this city is still at its initial stage.





## **INTERNET DEVELOPMENT IN FENGNAN**

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Located in the east of China's northeast plain, at the bank of the Bohai Sea, Fengnan district is 185 kilometers west of the capital city of Beijing, 150 kilometers east of Qinhuangdao, and 9 kilometers south of Bohai. Its coastline is 23.5 kilometers long. Fengnan is under the jurisdiction of Tangshan, Hebei province, and it covers 1,568 square kilometers, 17 counties and 497 administrative villages. Its population is 518,000, among whom 610,000 are living in the urban areas. In May 1994, Fengnan was upgraded from a county to a county-level city, and in 2002, its city government was dissolved and it became a district of Tangshan, with the areas under its jurisdiction the same as those of the original city.

Fengnan boasts a long history. According to textual research, human beings have been living in the area since the New Stone Era. It is also the cradle of modern Chinese industry. Early in the Northern Wei dynasty, there were a considerable number of saltworks in the area, and during the Qianlong and Jiaqing periods of the Qing dynasty, Daodi town alone owned 24 breweries and 30 woollen blanket factories. During Xianfeng period, the "Tianjin Mane" made in Daodi was world renowned, and in the seventh Guangxu year (1881), the first Chinese-made railway - the Tangxu Railway was completed.

Fengnan is rich in many natural resources, such as coal, petrol, sea salt, gas, mineral water, etc. It owns the largest modern silo coal mines in China, Kailuan Qianjiaying Coal Mining; and the largest salt works in Asia, Nanbu Saltern; as well as one of the three largest alkali factories in China, Tangshan Alkali Factory.

Since the adoption of the open-door and reform policy in 1978, Fengnan's economy has been developing rapidly. At the end of the "Seventh Five-year Plan" and during the "Eighth Five-year Plans," Fengnan ranked the No.1 on three occasions among the "Top Ten Counties of Comprehensive Economies" in Hebei province, and on two occasions among the "Top 100 Counties of National Rural Comprehensive Economies". In 2002, Fengnan's GDP reached RMB 10.47 billion (US\$ 1.31 billion), financial revenue was RMB 349 million (US\$ 43.6 million), and the agricultural revenue per person was RMB 3,602 (US\$ 450.2).

It is worth mentioning that these achievements grew up from ashes. During the world-shaking Tangshan earthquake in 1976, Tangshan was completely destroyed; 36,884 people died and 23,683 people were seriously injured. The number of injured and dead accounted for 13.3 percent of the total population in Tangshan, and the direct losses to the economy reached RMB 328 million (US\$ 41 million).

Since the earthquake, Fengnan's economy has been developing rapidly, but educational and cultural developments are comparatively backward. First, due to the resource-oriented old industrial legacy, many traditional enterprises, including coal-mining, steel, electricity, magnets and so on, which are called "foolish, big, dark, and coarse," continue to serve as pillar industries for the area, and second, both government and the ordinary people have a spirit to rapidly develop the economy through arduous efforts, which is coincidentally in line with the country's policy of promoting the development of market economy but it is hard to avoid to some contradictory problems. Therefore, some local intellectuals sarcastically call Fengnan a "cultural desert." This also can be explained by the following table about Fengnan's investment structure in recent years:

**Table 1: Fengnan's investment in recent years (Source: Fengnan Statistics Bureau)**

Investment Item	Amount	% in total investment
Accumulated investments for secondary industry between 1998 and 2002	RMB 5.03201 billion (US\$ 630 million)	61.99
Accumulated investments for tertiary industry between 1998 and 2002	RMB 2.94427 billion (US\$ 370 million)	36.27
Accumulated investment for culture, education, sanitation, and sports between 1998 and 2002	RMB 140 million (US\$17.5 million)	1.72
Total investment	RMB 8.11628 billion (US\$1.02 billion)	100

## METHODOLOGY

The field survey on Fengnan district of Tangshan was conducted from February 10 through February 28, 2003, lasting 18 days. The survey methodologies included archive and documentary research, interviews, focus group discussions, Internet cafés and enterprise field observations and a questionnaire survey.

### Archival And Documentary Research

Before the field survey, we obtained some basic information and some brief data about Internet development in Fengnan through the Internet. During the field observation, we collected resources from time to time from the relevant local authorities, including the Fengnan Statistics Manual, the Fengnan Administrative Map, the Fengnan local newspaper, promotional materials of the local governments, and annual report of the local information center, etc.

Internet usage and development overview: When was the Internet connected? Means of current Internet access, number of registered Internet users, estimated number of Internet users and Internet cafés, etc.

### **Questionnaire survey**

There are 18,152 non-rural residents in Fengnan, distributed in three sub-district offices and 22 local residential committees. Because of the restructuring of the old cities, a large number of the comparatively rich farmers have bought non-rural residential hukous and moved into the city. Therefore, The Fengnan statistics are not accurate. We did not adopt the method of equidistant sampling in the computer information base data before going to field due to the confused hukou management, uneven distribution of houses and buildings, and unclear street addresses.

After the field observations, 200 samples were distributed to all the local residential committees. Since some committees have a large number of vacant houses because of restructuring, and some new residential districts have not yet established their committees, we integrated those committees that are geographically close to each other, and had our the researchers visit them to clarify their actual coverage. At the same time, in order to minimize the possibility of errors, our researchers also tried to do the sampling as equidistant as possible, with a consideration of the population densities in the buildings and houses.

We received 186 valid questionnaires at the end of the survey. According to the equation of "the number of Internet users = the number of people connected to the Internet in a family/ the total number of people in a family x the total population in the city," we calculated that Internet users in Fengnan account for 25.4 percent of the total population.

### **Interview**

Based on the archive and documentary research results, we conducted interviews to the following: local government officials, local administrative authorities, local key enterprises, managers of local IT firms, owners of Internet cafés, and Internet users.

### **Focus Groups**

In order to maintain the diversity of the focus group members, we have asked for participation from different districts, units, and families. There were four groups totaling 24 persons, including male Internet users (6 persons, 21-35 years old), male non-users (6 persons, 29-50 years old), female Internet users (6 persons, 20-54 years old) and female non-users (6 persons, 20-55 year-old). The male and female Internet users group held a 110-minute discussion, and the non-users group held a 100-minute discussion.

### **Internet café**

During the interviews at Internet cafés, we observed and recorded their distribution, size, facilities, and customers, etc. No illegal Internet cafés were found during our survey.

## **FENGNAN AND THE INTERNET**

### **I. Government**

The Fengnan government established an information center in 1996, in an attempt to provide effective information services to the local people. This was done by:

- (1) collection and distribution of outside information, i.e., collecting all kinds of economic information from the ministries, universities and colleges, research and development institutes, newspapers, magazines, TVs, computer networks as well as informational exchange conferences and project promotion fairs, and circulating it through the local newspapers, magazines, TV, networks, information release conferences, etc. after filtering and editing. The Internet is also a means of circulation for the government. However, 85 percent of the internal circulation is still dominated by the traditional media.
- (2) Local information collection and circulation. In recent years, thousands of pieces of information have been circulated, among which, more than 3,000 pieces were sent out of Fengnan. The content mainly included economic-related fields, such as market trends, commodity supply and demand, high-tech projects, investment and cooperation projects, agricultural information, international trade and commerce information, etc. About 90 percent of the information was sent out of Fengnan through the Internet, thus revealing the importance of the Internet to communicate with other places in China and even with the outside world. Since the traditional media are more difficult to use in small cities like Fengnan, the creation of the Internet has helped the small cities break the information bottleneck to enter the traditional media and to gain a voice during the information wars. For Fengnan, this voice was mainly related to economic information.

**Case 1:** The Internet helps with agricultural planting. Yuqian is a village specializing in carrots. Fengnan red-ginseng, the long-term local carrot in the village, was not selling very well in recent years due to its poor quality. After the information was posted on the Internet, Yuqian began to plant the Japanese five-inch red-heart which was imported from South Korea. As a result, there were a considerable number of sales contracts with overseas customers, which led to a 20 percent revenue increase. This led to improvements in other agricultural industries as well as the entire village economy.

**Case 2:** E-commerce experimentation. One of the farmers in Binhai town posted seed supply information on the center's website. This led to cooperative agreements with several firms in Dalian. One of the contracts amounted to several hundred US dollars and a long-term supply agreement.

**Case 3:** A state-owned enterprise sold inventory goods online. Fengnan Cotton and Flax Company had a large inventory of khaki and black woolen cloth, which caused problems for management because there was no sales channel, no dedicated warehouses and it was the rainy season. The information center posted this information on its website, and in less than one month, all the cloth was sold, generating over RMB 1.5 million (US\$ 190 thousand) for the company.

Fengnan government officials admit that the development and utilization of the Internet is still insufficient, and at present it mainly focuses on the distribution of economic information and the promotion of government affairs. The informatization of Fengnan is still in the infancy stage.

It is particularly worth mentioning that due to the increase in the number of hackers, 90

percent of the interviewed officials worried that the government websites might be attacked during politically sensitive periods (e.g., during the 16th National People's Congress). Therefore, each year during the period of *"the major political meetings"*, the website managed by the Fengnan Information Center closes down. One of the branch heads in Fengnan said: "The Internet is a double-edged sword, and local governments worry very much about the potential danger caused by it very much."

## II. Enterprises

### Industrial and commercial enterprises

Founded in 1982, Tangshan Huida Pottery and Porcelain (Group) Co., Ltd. has grown into a large-sized national bathroom supply and porcelain enterprise with total assets of RMB 400 million (US\$ 50 million), 5,500 employees, and an annual output of 4.5 million "Huida" bathroom supplies and porcelain products. Its manufacturing capacity and economic efficiency all rank at the top among its counterparts in China. In 1998, Huida began to build a website, with management paying great attention to website construction and investment. The network is managed by the Export Department, and the server is trusted to a company in Tianjin. The management of the Export Department thinks that there are many benefits from using the Internet:

- (1) it assists in management work. Huida began to use e-commerce in 1998, currently, 80 percent of sales conducted through the Internet, and 20 percent through faxes. The popular use of e-mail has reduced the transaction cost. But Huida has never compiled statistics about the detailed savings via the Internet.
- (2) It is convenient and fast, which helps Huida capture business opportunities. The Internet expanded the sales market of the company, and also promoted the company image. For instance, several transactions were carried out with European customers directly online. At the same time, a manager also agrees that the volume of e-commerce only accounts for a tiny proportion of the total amount of transactions. The reason he remembers the online deals very clearly is that they only represent a very small portion of total sales. The latest website of Huida was established in 2001, and was connected to the Internet through a broadband connection. However, because the telecom operators are not controlling the broadband very well, the network is not particularly stable.

Huida's management team also attaches great importance to establishment of the network. It is said that this year is the "Internet connection year" for Huida, and it will establish interconnection with its 21 direct sales networks nationwide. However, it is clear that Huida lacks-knowledge about how to use the Internet. During the interview, we often heard words like "pay great attentions", "try to establish," "key importance," etc, but there was no detailed plan for implementation.

Huida is a strong company eager to compete with others. Whatever others have, they want to have too. For example, since everyone is interested in the Internet and the electronics business, Huida wants to proceed quickly as well. But Huida has only idealist expectations to engage in the electronics business. Huida has not found a practical way to realize this ideal.

In fact, Huida is representative of the other enterprises in Fengnan. One of the government officials in the district said *"Most enterprises connected to the Internet in Fengnan only use e-commerce for symbolic reasons, and the website address on the business cards of the managers is only to show they are keeping up with social developments"*. In other words, it is a token to show that they are taking part in the informatization fashion. However, some of their websites actually are always under construction, and some can never be accessed. "

### **Internet Service Provider (ISP)**

At present the most important ISP in Fengnan is China Netcom Fengnan Branch, short as Fengnan Netcom. It has signed up 100,000 telephone subscribers, and has a switching capacity of 138,000. The telephone line deployment rate in the urban areas is almost 100 percent, and telephone lines are also deployed in the rural areas. The data services of Fengnan Netcom rank at the top among all districts in Tangshan, and also rank the top among the counties in Hebei province. Good hardware infrastructure has laid a foundation for the Internet development, which experienced three phases: first, in 1997 developing dial-up users; second, from 2000 to 2002, 600 users were connected to the Internet via ISDN, and third, from 2002 to present, 400 subscribers were connected to the Internet via broadband (ADSL or LAN). There are many advantages of using broadband, such as faster speed, more content and low costs. It is estimated that among the Internet users of Fengnan Netcom, the government represents 5 percent, and the enterprises represents 30 percent, and individuals represent 65 percent. There are 3,600 registered individual users, and 3,200 non-registered users (calculated based on telephone bills that have data services, not including users that access the Internet by purchasing Internet cards).

China Unicom Fengnan Branch was set up in 2002. Initially, it used 165 dial-up services, mainly targeting the Internet café and enterprise users. At present, among the Internet users of Fengnan Unicom, the government represents 20 percent, enterprises represent 40 percent, and Internet cafés represent 40 percent. Due to poor infrastructure, Unicom's individual market is developing slowly. It can only get a small bowl of rice from Netcom in the urban areas. There is still a long way to go before Unicom will have the potential to become a competitor to Netcom.

### **Internet Content Provider (ICP)**

The difficult development of the Internet in Fengnan is a typical example of how the Internet has developed in China's small cities. In addition to the Fengnan Information Center established in 1996, which has become a major information distributor for the local contents, Fengnan Netcom also established a Fengnan Hotline in 1999 by recruiting eight professionals. Due to its attractive and comprehensive content, it once was listed among the top ten websites in Hebei province. However, it was terminated in early 2002 for the following reasons:

- (1) There was no source of investment. It could not make a profit so Netcom reluctantly had to close it.
- (2) The technical skills of the IT professionals was poor. They could not prevent it from being attacked by hackers and they could not control erotic and unhealthy contents.
- (3) Loss of professionals.

Therefore, today the official Fengnan Information Center is the only system provider for local content. However, because of fears of erotic and retroactive contents, the Fengnan government website is closed from time to time. Therefore, strictly speaking, there is actually no real Internet Content Provider in Fengnan.

During the focus group discussions, almost every interviewee expressed dissatisfaction with the shortage of local content on the website.

### **III. Common people**

Common people have different views about the Internet. In a focus group, a female non-user who had never used the Internet assumed that the Internet was a connection between wires, just like a spider net. But people who have used the Internet regard the Internet as the boundless universe. Not only does it provide information, software, and entertainment, it is also a very good communication tool. It is indispensable in daily life. In a word, the Internet has entered the people's daily life in Fengnan. It has become a topic of conversation in the people's spare time. Regardless of whether one is a user or a non-user, each person has his/her own views about the Internet.

#### **Internet behavior**

With regard to the behavior of Internet users, browsing information is their main activity both in the office and at home. Most interviewees in the focus Groups claimed that they mainly use the Internet for browsing the news and sports information etc. they reported being interested in movies, TV programs, literature and art, etc. A 54 year-old female Internet user said: "Each time when I use Internet, I briefly browse the news but just the headlines. I usually do not read the news in detail but just the titles. I only read the unusual news in detail. The first website I visit is SINA. I read the international news and I feel that the content is comprehensive. Most the content- is new to me. I find it appealing me. I like to read the domestic entertainment news and news about foreign wars. I like to watch the news broadcasts over the network. I also visit <http://www.inhe.net>. I have a daughter who has grown up. I want to find a young man suitable for her." A university student said: "When I first used the Internet, I found that the information on the Internet was beyond my imagination. In the future, it became very natural for me to search on the Internet if I needed some information. Therefore, I now rarely go to libraries."

Most civil servants claim that they pay attention to the political comments on the Internet. One of them said: "I like to visit the online forum of <http://www.people.com.cn>. There is a lot of information that is difficult to get from other channels, especially about conflicts between different points of views. It can inspire our thoughts." Another interviewee noted that the two advantages of browsing on the Internet are to search for information easily and to find updated and comprehensive information: "The main advantage of using the Internet is to utilize the increased information and to make it convenient for our work. It is a very good channel to help obtain useful information in our work." A primary school student said: "I have a computer in my home. During the time I was writing article, my father would let me use the Internet to search for some related information. Sometimes, before I take a geogra-

phy class, I search for some information about the class. Therefore, I can prepare to answer the teacher's questions."

A Minority of Internet café users use the Internet to browse information, "I go to an Internet café to find out some information because I can't use the Internet in the office or at home. The Internet café is my information base. I like to read news that is different from that reported in the newspapers and on TV. Not only is it different, it is also faster. They are often different from and are faster than those in newspapers and TV. For example, Kunming explosion case. We could not read about the Kunming explosion in the newspapers but it was reported on the Internet." "Sometimes, some international news that I am interested in is reported in the newspapers and on TV. However, I usually go to the Internet for more information so that I can make a comprehensive analysis."

The browsing approach of the interviewees can be divided into two types: one is only to browse fixed columns of several websites. "Like all people have their own habits, I have my own habit to use the Internet. I often visit China.com, baidu.com, and sohu.com to collect information. I also like to learn updated information about hardware configurations in Zhongguancun. I am familiar with these, but I don't have much time for further browsing." Another type visits the sites they are interested in. "I like to use search engines such as google, baidu, and sohu to search for the content that I am interested in. For example, recently I typed Bush, space, and Saddam onto google, and all the related information appeared .....

A second Internet activity is playing games. This is the activity of most Internet café users. A middle school student said: "We go to the Internet café, of course, to play games. Eight percent of Internet café users play games. Both adults and children play games, and sometimes the adults consult us about how to play the games. Now there are cultural elements in the games. There is a gap between them [the adults] and the games." A jobless youth who usually surfs online in an Internet café drew the following analogy: "No games in an Internet café is like no air in space. I have my dreams only in the games." A female Internet user who often goes to an Internet café said: "Playing games in an Internet café is as natural as swimming in the water." It is worth mentioning that in the interviews, many non-users regarded the Internet café as another form of game house. From the above, we can appreciate the position of the games in the minds of the Internet users and in the Internet café. With regard to the behavior of family Internet users, playing games is also the important. An interviewee said: "The purpose in buying a computer is to use it as a game machine. Playing online games is more exciting than playing traditional games." "When talking about computers, I will associate them with games because all of my family members play games on the Internet." "The time that I spend on the Internet is not very long. It is mainly to amuse my child. Sometimes I visit the websites of games ( my child is 5 years old). Sometimes he learns some English letters and he is very receptive to this. He likes some small games on the Internet. As for me, I mainly kill time on the Internet. The Internet is for entertainment, such as playing mah-jong and Chinese chess."

Among the interviewees, more than half have played Internet games. Forty percent said that they often play Internet games; another 30 percent said that they played Internet games once



in a while. Those who said that they had no clue or that they did not clearly understand the Internet games only accounted for 10 percent of the total interviewees. Internet games thus have an extraordinary broad influence on the Internet users.

Views about adult game players: Among the Internet users in the interviews, the majority felt that adult game playing is one's personal taste and it is not harmful to the public. Basically, most people held a positive attitude about it and they regarded it a good form of entertainment; a minority felt that adult game playing is a bad hobby. The interviewees felt that the positive influences of adult game playing on the Internet included: it can relax minds, and entertain both their minds and their bodies. In addition, it can increase knowledge, practice response capabilities and broaden ideas, etc. Other views included: it can help people give vent to some negative moods, it can satisfy the need for communication among people. Some interviewees commented on the negative influences of Internet games including: It is easy to become addicted to the Internet games and to be distracted from their proper work or duties; It wastes too much time on the computer and detracts from physical exercise. It is harmful to their eyesight, and it makes people indulge in virtual reality and escapism. In addition, some violent games can cause social problems.

In terms of the problems of teenagers playing Internet games, there were three different views: most of the interviewees thought that control should be strengthened and there should be proper contact with the Internet games. A teacher said: "In the family and at schools, they should be allowed to use the Internet or play games under effective control." In addition, most interviewees thought that teenagers should be forbidden from playing Internet games. For example, a long-time Internet user in Fengnan said: "The government should prohibit teenagers from playing games on the Internet, because it is harmful to their minds, eyes and studies." During the interviews, only two interviewees thought that the government should allow teenagers to play Internet games, accounting for a small proportion of the interviewees. An owner of an Internet café said: "Playing games is in the children' nature . The approach and content of games change over time. We cannot say that playing in the mud is healthy but playing Internet games is unhealthy. Even adults need games, to say nothing of children. Furthermore, currently, most games are the crystallization of high-techs. Playing games needs to match the pace of the times. Just as there are fake, ugly, and evil things in the society, the children should learn from the games to discriminate between good and bad.. Second, it will give them experience in social life and will help to develop their ability for discussion." With respect to the problem of addiction, he said: "It is possible that addiction to something can lead to the emergence of experts in different fields. I think that a good education will prevent the learner from getting addicted. In some sense, Internet games have the effect of integrating teaching with fun, which is realized in traditional education.

Furthermore, an addiction has a time limit; they may be addicted for only a certain period of time. Sometimes, parents' and teachers' intense intervention might lead to addiction. Sometimes the more something is prohibited, the more interesting it is. This is a function of a reverse psychology. For example, like the problem of puppy love, the more you forbid it, the more interesting it is. You forbid people to watch the TV series 'Carrison's Gorillas,' then people pass the message on to one another: Wow, that TV series is forbidden, which leads many people to watch it. Among the young interviewees, a relatively higher proportion held

a positive attitude. However, even among the middle-school students, few felt that teenagers should be allowed to play Internet games freely. One high school student said: "Playing freely? I even cannot imagine what that freedom is! Don't mention playing games. It is sufficient if we can play them under control. My dream is that when I grow up and get a job, I will be able to during my spare time." Among the older interviewees, a higher proportion felt that teenagers should be prohibited from playing games.

Among the interviewees, the most interesting categories of Internet games are: those games which benefit one's intelligence and those that have role playing, shooting, and wrestling, etc. Interviewees mainly play games in Internet cafés and at home. Few people play Internet games in their offices.

Other Internet activities include: enjoying and downloading music and videos, chatting and making friends, using e-mail and downloading tools or anti virus software etc. The number of young Internet users who play games and chat is greater than the number of older users.

### **Obstacles to using the Internet**

In the focus group interviews, the following problems in using the Internet were noted: user fees are too high; lack of technology; transmission speed is too slow; lack of time; and worries about that they will be misunderstood if they use the Internet just to browse erotic sites etc. " Sometimes, I cannot access the Internet by using a dial-up," " the speed of the dial-up access is too slow." "The bandwidth is not broad enough; for example, I cannot access online during Spring Festival," "I think it is a problem of time and Internet speed and it is very slow to download something." "The main problem is that it is too expensive to go online. It seems that the unit price is ok but when I pay the bill I feel it is too high". A female Internet user said: "Sometimes, when I am using the Internet in my office, people try to see what I am doing and whether I am at pornography. So I never use the Internet in my office." "I think that it is relatively expensive if we use the Internet every day. It is easy to become addicted. I have to spend a lot of money on it. I use a dial-up to access the Internet, but I feel it is too expensive."

Some Internet users noted the cultural barriers. A man who was working as an insurance agent said: "I have never had this kind of feeling. I feel that I am living in a small place. There is a huge gap between what I am thinking about and the fashion on the Internet. I feel that the Internet culture is a culture of the large cities; the consumption and entertainment, the language and way of expression. I feel I am living in a place that is backward and mediocre. I felt excited when I first used the Internet but later I felt self-humiliation. On the Internet I cannot find a community. I feel lonely and bored and I want to try new things. I feel like a bystander and a country-bumpkin." A civil servant who was working in the cultural department of the government said: "The Internet culture is very aggressive. It is easy for people around me who often use the Internet to feel disgruntled with reality. How to say it? People always hope they can be personally on the scene when they find some new things. If they cannot, it is easy for them to be depressed. After all, the Internet culture presents kinds of entertainment but in the small cities, the culture life is relatively bleak. Although using the Internet broadens their horizons, we still feel that we are missing out on many valuable things." However, he thought that the Internet still had a positive effect in enriching the

cultural life of the small cities. "The cultural resources in a small place are poor. Making reasonable use of the Internet can help."

### **Experiencing the Internet**

Most people have a deep impression about the first time they used the Internet. An employee of a company said: "Up to now, there are two things which have deeply impressed me: one is my first love, and the other is using the Internet. These two events changed my view about life. My first love made me feel that I had grown up in a physical sense; on the other hand, using the Internet made me feel I had grown up in my mind. I felt my mind was broadened and I could accept everything. I no longer considered myself always right and I am no longer a frog in a well". A 54 year old lady, after she saw her daughter using the Internet and started using the Internet herself on the sly, said: "The first time I used the Internet was in 1999. In the beginning, I dared not touch it since I was afraid of breaking it. After I knew that it could not be broken, I started to use it. I have a deep impression about my first time online. Before anything was displayed on the screen; I turned the computer off. And then I connected it again. Because I realized that it was not easy to break the computer, I was encouraged."

"The first time online was very confusing. Maybe it was the pressure from this new equipment. When I was successful I was very excited. I felt that a window was opening up in my mind," "My blood pressure went up the first time when I used the Internet. Friends told me about a chat room. When someone said hello to me, I was aghast and made no response. It was like a dream. Up to now, I still feel that using Internet is very mysterious. You know, people who are far away from each other can meet together there. If it is not a dream, How can it be so free?" "The first time online, I found everything was new. After accessing the Internet, I did not know what I should do. So I just read some news. Later, I registered for an e-mail account. I was surprised that there were so many things on the Internet."

A typical saying is: "Using the Internet changed our life, because our life sometimes is very boring. Fengnan is a small place; originally it was a county. By using the Internet we can learn something about what is happening in other regions and other countries and learn about their life styles so as to keep up with the fashions; it also can change our study style. I am a technical secondary school student and taking part in the college and university level self-taught examination courses. I learn many things from the Internet. It is also helpful to my work. After the start of e-government, it is easy for us to find information and become aware of new requirements." A serious high school student thought that the Internet provided a new and safe channel to release her mood. After her parents got divorced, she never confided with anyone: "You know, in this small place, if you tell your secrets to anyone, they will be spread all over the city. Therefore, I go to an Internet café and enter the chat room." "Using the Internet often brings surprises. Once I wanted to buy a book that I could not find in any bookstore. As before, I was afraid that I would have to beg someone to buy it in Beijing or Tianjin. However, I found it on the Internet, I immediately downloaded it. It was great!" Another person noted that the Internet was a tool for diversion "My mood becomes better after I touch the Internet. When I feel bored, I sit down in front of the computer. When I have no computer, I am just bored. I don't like to gossip." In general, there are many advantages to using the Internet. All Internet users have their own views about the advantages of the Internet.

### **Prospects for the development of the Internet**

Most people think that the computer, like TV and telephones, will be more and more widespread. Every family will have a computer, and each family will have access to the Internet. A minority of people feel that the development of the Internet, will replace TVs, radios and newspapers, and even the telephones. "The cost of obtaining information will decrease dramatically". However, the majority of people feel that traditional media will not be replaced, "Just as the emergence of the TV did not replace newspapers, the new thing will just provide another alternative form which to choose", "Using the Internet is becoming part of the living state of the people".

### **Cases of Internet users**

In the interviews, the youngest Internet user was an 8 year-old student, Ma Siyuan. His mother was an owner of an Internet café and she usually allows him to use the Internet. He has been playing Internet games since he was 6. This is how he spends most of his time. Sometimes he goes to other Internet cafés. According to Ma Siyuan, the difference between the LAN and the Internet are: the LAN can be used to play Internet games, but the Internet can be used to watch cartoons. Compared to traditional types of amusement-toys or watching TV, Ma Siyuan prefers to play the Internet games. We especially designed a game for him to note the most important things in his life in order of priority. The purpose was to see how he assessed the computer. We gave him three options each time and asked him to give up two and keep just one. The first three options were: a digital baby toy, a TV, and a computer. These were his most favored things. He firmly said: "First I will give up the digital baby and then the TV. I will keep the computer." In the second round the options were: a TV, a computer, and his father. He first gave up the TV first, but between the computer and his father, he hesitated for quite a while. Finally, he gave up his father and kept the computer. His reasoning was: "Father has bad a temper, and he never plays with me." In the third round the options were: a computer, school, and his mother. It was difficult for him to make a decision. He asked: "Can I refuse to choose?" meaning that he wanted to keep them all. But when he was told he had to choose, his final decision was to give up the computer. According to our observation, he was reluctant to give up the computer, but immediately gave up school and naturally kept his mother. Finally, we asked him to arrange how he would do three things freely within 8 hours. They were: studying, playing with toys and using the Internet. He decided to spend five hours studying, one hour playing with toys, and two hours using the Internet.

This case is quite representative. It involves the following problems: teenage use of the Internet, an Internet café, Internet games, and addiction to the Internet. Since we have already discussed the problems of Internet games and addiction to the Internet, and later we will analyze the Internet café, in the followings we focus on views about the teenagers using the Internet.

More than half of the interviewees held negative opinions about teenagers using the Internet. A minority was strongly negative. They insisted that the disadvantages outweighed the advantage. Others felt that we should allow teenagers to use the Internet under proper guidance. A parent said: "It is necessary that we properly guide our children. For example, all people

have a deep impression about their first time using the Internet. I have learned some lessons myself and I should let my child go to websites to learn things. It can have a deep impression, and it will be beneficial for him." "Using the Internet is good, but he needs to be properly guided. I should introduce him to some children's websites and other suitable websites for him."

### **Analysis of Internet non-users**

The focus group on Internet non-users suggested that the main problems that keep non-users away from the Internet are: no computer, no time, economic reasons, no knowledge about how to use or fears about the technology, no computer or too expensive and other economic reasons (repeat), prejudices and no interest. "Our unit has no resources to use the Internet. The reason might be that my boss knows nothing about it Usually we only use computers for printing and copying etc." "Because I don't know how to type, I feel I cannot use it. Furthermore, I don't know how to go about using the Internet." "Now I don't know how to use the Internet." A leader of a government bureau said: "Now I am enjoying the convenience of using the Internet. However, most things are done by others. Now I have to depend on others." "The reason is my job. My job consists of three shifts. There is no computer in my office and I have no time." "I want to use the Internet and want to have a computer, but I am short of money. This is the economic reason." "I have no time. I have used the Internet but I am not interested in it." "I don't have much spare time to use the Internet, and I am also afraid that it will be harmful to my eyes." "I feel that there are too many negative reports about the Internet and it has a bad effect on people. I don't want to bother to use the Internet. I feel that the Internet is a new thing and it is difficult to control. I will use the Internet when it is managed in an orderly fashion." Some people do not use Internet because of their prejudices: "There is too much rubbish on the Internet. I am not interested in it."

## **IV. Internet Cafés**

In 2000, a 25 year-old male driver liked using the Internet. At that time, his brother earned some money from his business. He persuaded his brother to set up an Internet café. His brother invested in the Internet café and ran the business. The Internet café was founded in 2001, with a total investment of US\$ 18,750 and 25 computers. Two years later, the young man who had managed the Café for about two years said sadly: "When I started in the business, I was full of enthusiasm. I felt that it is a new thing, civilized and noble. But now I have changed my mind." He had had a relatively good start. However, after half a year, government policy became more strict with regard to Internet café. There were more cafés in the neighborhood and the competition was fierce. Business was not very good. By now, he has earned back about half of the investment. He is dissatisfied with the government policies. For example: all Internet cafés are required to buy some alarm software, and are required to buy the newspapers related to the industry; they are not allowed to permit students to enter; they have to close at 12 p.m.; records have been kept for 60 days, etc. He said: "The rule about keeping 60 days records is difficult to abide by. If the customers unintentionally visit the pornographic sites, the alarm system will automatically notify the police and they will investigate the case and the Internet café will be fined. If you have friends in government, you will be fined less. But you don't, you will be fined a large amount

of money. If the Internet cafés cannot delete their records before 60 days, some customers might visit the pornographic sites via the record. Then the Internet café will be fined again. Furthermore, according to the new management ordinance, Internet cafés have to close at 12 p.m. At night, most customers are comprised of young workers who work in the nearby factories. They come to the Internet café to play games after their night shift. No one likes to leave at 12 p.m. Some of them come in just after their nightshifts. There is no reason to force them to leave. To deal with the regular check-ups, we have to pull down the metal doors. Sometimes, we lock the gate. Some customers ask us to lock the gate to protect them from the investigators. And we have to dim the lights and act furtively. It would be dangerous in case there is a fire. It is very difficult to evacuate the people. So there are many hidden troubles. Without the rule which forces us to close at 12pm, we could run our business normally. The hidden troubles would be reduced." Currently, competition among Internet cafés mainly focuses on computer configuration and management. If his family members agree, he will continue to increase his investment. He has to increase investment. If not, he will gradually lose his competitive advantage. He thinks that he himself is his core competitive advantage.

During the field observation, we noticed that almost all the customers at this Internet café have a friendly relationship with the boss. They talk with one another and it is like a club.

The above case involves many focused issues about Internet cafés: competition, management, composition of the Internet users, consumer behavior, and prospects for Internet cafés. We will analyze these issues independently below.

### **Competition Among Internet Cafés**

At the closing date of the survey, there were 25 Internet cafés, none of which was registered, in Fengnan district. Most of the Internet café owners think that the number of Internet café is a stiff gauge of the market. On average, if there are more than 25, the competitive pressures will be too great. In Fengnan, café's have gone bankrupt; on the other hand, if there are fewer than 25, the demand will be greater than the supply and this will lead to price increase. Then, many new Internet cafés will be set up and prices will decrease, producing a reshuffling in the market. The number of Internet cafés is in accordance with this basic rule. Thus, we can see that the number of consumers in Internet café is relatively stable. One owner of and Internet café said: "From my observation, most consumers in my shop are settled. The increase in new customers is very slow". That is why there is no space for an unregistered Internet café in Fengnan. Apart from the strict control by the government, the registered Internet café owners that the unregistered café's will take a share of their market, thus decreasing the space for registered cafés.

### **Internet Café Management**

The attitudes of the above-mentioned owners to the management ordinance are rebellious. However, it represents the attitude of many owners of Internet cafés. Another owner who just graduated from university said: " It is unreasonable for the government to forbid teenagers to use Internet. Children have the right to choose their form of entertainment. It is reasonable to supervise children using the Internet. However, we should not control them by force. For example, the government can permit children to use the Internet on holidays." On

the other hand, "In terms of ID cards, especially in small cities, most people are permanent residents and they rarely bring their ID cards with them. If we strictly implement the management ordinance, this will affect the Internet café business". During the interviews, a few owners of Internet cafés said that they can accept the management ordinance. An owner, whose Internet café has the best facilities and environment, said: "The management ordinance is reasonable, but because of insufficient supervision by related management agencies, it has not been implemented at all. If we act according to the ordinance, all Internet cafés can compete fairly."

In Fengnan, most people think that the management ordinance is strict and reasonable. However, people think the problem is one of management and implementation. People most strongly object to the unresolved problems teenagers playing Internet games and looking at unhealthy websites. In the interviews, we noted that many people referred to "playing" on the computer. Some interviewees even called the Internet café a "Game House". But the "Game Houses" aroused public anger several years ago and they are forbidden by the government. Most Fengnan people think that the problem that Internet cafés are becoming another form of Game House is due to the weakness of the supervisory measures by the government agencies.

The personnel in charge of the related government agencies such as Public Security Bureau, the Administration of Commerce and Industry, and the Telecom Bureau, said that management of Internet cafés involves system engineering. The current management problem of Internet cafés is the unclearly defined jurisdiction among these agencies. Recently, the government declared that the cultural department will take the leading role in managing the Internet cafés. However, the technical weaknesses of the cultural department are obvious. Managing the Internet cafés will be a big challenge for them.

### **Composition of Internet café users**

With regard to age, most consumers at Internet cafés are between the age of 15 and 35. According to statistical data from the Internet cafés and the government supervisory agencies, the proportion of males to females is about 4:1. In other words, the number of male users is absolutely dominant. In the Internet cafés in Fengnan, most customers are local college and professional school students, young workers at the factories in the downtown areas, jobless youths and some middle and primary school students. In terms of consumer behavior, the primary consuming mode is to play games (80 percent), chatting (10 percent), searching for information and using e-mail (10 percent). In terms of the problems of middle and primary school students, the government rules forbid them from entering the Internet cafés. Most owners of Internet cafés think that in fact, no single Internet café can fully implement the government rules to prevent students from using the Internet in their shops. There are two different views about middle and primary school students using the Internet: first, with regard to their profits, it is very difficult for Internet cafés to prevent these students from using the Internet; second, in terms of their social responsibility, the Internet cafés bear a heavy moral burden. The psychology of most owners of Internet cafés is paradoxical. One owner of an Internet café said: "With respect of profit, I would like to have middle and primary school students using the Internet. But as a parent, I think there should be control. However, let us carefully consider this matter, I don't think those students who use the

Internet perform poorly in their studies. Actually, performance depends on whether they make any efforts to learn. It is reasonable for them to take a rest during their spare time."

In the interview, only one Internet café owner said: "I am against middle and primary school students using the Internet, because they cannot afford the expense, and they are incapable of self-control. Nor do they have enough time." However, later he said that in terms of accepting new things, teenagers should be allowed to use the Internet on Saturdays and Sundays.

### **Prospects for Internet cafés**

There are many different views about the prospects for Internet cafés among the owners. One owner said: "In the beginning, I regarded that the Internet café as a place of public entertainment and as a source of information. But now I know that the understanding of society and government is full of bad feelings. The Internet cafés simply represent the epitome of social problems. They are the focus of accusations but their investments are not a direct ratio of their profits. My dream is to build my Internet café into a varied communication platform for the public. It should not just focus on entertainment, and we should ceaselessly develop other functions." Another powerful owner of an Internet café expressed his ambitious dream: "In the future, I plan to set up a large Internet café that has at least 200 computers and a very good environment. I will make efforts to build it into an aircraft carrier in the competition or we will consider aligning with other large Internet café chain stores, to utilize our brand name, to lead the consumers, and to be the market leader forever."

In an interview, a civil servant said: "In China, the living standard of the common people is not high enough for every family to afford one computer. Most people who want to get information have to go to an Internet café. The Internet café is an important arena to expedite the development of the Internet in the local areas. As the people become more familiar with the Internet, the usage modes of the Internet cafés will continuously be upgraded and their images will change from 'another form of a game house' into a real information collection and distribution platform".

In addition, in the interviews, half of the interviewees believed that the number and scale of Internet cafés will be increased. Few interviewees thought that along with the development of home computers, the Internet cafés will disappear.

## **CONCLUSION**

First, we note that both government agencies and enterprises regard the Internet as an important platform for their informatization construction. With the Internet as its core, the informatization of the city and the enterprises is expanding. The enthusiasm for informatization by government agencies and enterprises is unprecedented. However, on the other hand, there are still some problems, for example, the problem of "the hard is harder, the soft is softer". As in other middle and small sized-cities, the construction of informatization in Fengnan is more focused on network infrastructure and the hardware of business-operating technologies. It is often overlooked that the software construction and information that ex-



ists in electronic form could be centralized, managed, and shared on the Internet. Every enterprise and even government agencies invest money to buy a large amount of software and hardware. This is what we mean by "the hard is harder". They overlook the first step in the foundation of informatization construction, such as the collecting, processing, transforming, and utilizing of related internal information. The information system we have set up is useless because of poor information management. It wastes a large amount of money. Even though the city has broadband and a local website, due to the lack of local information, the website has become "a nude website". The lifespan of the local website is very short, with a very high death rate. Therefore, small cities should consolidate their construction of an information management system and strive to build a comprehensive electronic information database system. As opposed to only investing a large amount of money to build the infrastructure for the Internet and all kinds of websites but without useful information, or running some "Image Project" and "Achievement Project", construction of informatization management is more practical and strategically significant.

Second, some problems emerged in the course of using the Internet among Fengnan Internet users. The Internet in Fengnan focuses too much on its effect on the eyes, but it has a low level of application. This reflects the view of the Internet users about the development of the Internet as a process from the superficial to a deep understanding. At the same time, it demonstrates that the cultural environment for local Internet users is much different from that for users in large cities. Especially because of the lack of local content on the Internet, Internet users in small cities play a bystander role. In this survey, both the family users and Internet café users have the same opinions about this problem.

To sum up, the Internet in Fengnan is at its initial stage of development. We should continue to observe it and pay attention to it.



# APPENDIX I

## Interview Outline for Local Government Officials

### I. Introduction to the Project

About CASS and the WIP in China; why we are interested in small cities; no right or wrong answer as long as you're telling us your observations and opinions; protection of privacy.

### II. Warming -up Discussions

How do you use the Internet? What do you think the Internet is? What are the positive things that you expect Internet to do - in your work, your everyday life, and in society? Is there anything undesirable about the Internet?

### III. General Outlook of the City Informatization Processes

- a. When and how did you start developing the Internet? What was the historical background? Why did the government/CCP leaders decide to engage in informatization? What were their goals?
- b. What are the unique characteristics of Internet development in your city? What is the timeline and major events in the local informatization process? Who are the major players? What are the major achievements and barriers?
- c. To what extent did you borrow resources (experiences, funding, technology, personnel, etc.) from more advanced countries or regions like the U.S., Japan, Taiwan, and Hong Kong? How?

### IV Specific Projects and Policies

- a. How did you design and implement your e-government plan? What measures have been taken? Have you developed a suitable model considering your local environment?
- b. What is the situation for e-business in the city? Does the government have special measures to foster e-business or e-commerce? With what effects? Have there been any achievements, lessons learned, or barriers identified?
- c. Has the Internet exerted an impact on the economy, politics, and culture of the city?
- d. Are there any outstanding e-government or e-business models in the city? What are they and how are they especially interesting? Can we visit these model organizations?
- e. An increasingly contentious debate these days concerns the regulation of Internet cafés. What do you think of this issue? What is the situation for Internet cafés in your

city?

- f. Another popular topic concerns the influence of the Internet on children. Do you think this is a serious problem? Why or why not? Is there any past or future policy in your city designed to protect minors from online content?
- g. What are the most important lessons you've learned in the development of the Internet in your city? What are the most successful projects? And what are the most difficult problems?
- h. What are the future plans to develop the Internet in your city

**V. Additional comments, recommendations of other potential interviewees**

**VI. Thanks and plans for future collaboration**

## APPENDIX II

# Interview Outline for IT Entrepreneurs

### I. Introduction to the Project

About CASS and the Chinese WIP; why we are interested in small cities; no right or wrong answer as long as you're telling us your observations and opinions; protection of privacy; no commercial secrets should be released; feel free to refuse to answer a question, if you feel it is sensitive, or you can request that an answer remain off the record.

### II. General Information about the Company

- a. What types of Internet and telecom services does your company offer? Which divisions in your company are in charge of Internet businesses? What is the division of labor among them?
- b. When did your company start to provide Internet services? Were there any noteworthy events in the past years in your Internet business? What were these events? What are the major developmental phases? What is unique about each of these phases in the growth of your Internet business?
- c. Why did you start providing Internet services? How did you conceive of the Internet at that time? Where did you get information about the Internet? What were your expectations about while entering this new market?
- d. After all these years, have you changed your perceptions about computer networks, their commercial value and social influences? If so, how? And why?

### III. Market Competition and Corporate Strategies

- a. According to your observations, what are the characteristics of the Internet market in your city? Is market competition intense? What are the key issues in Internet market competition? How do other ISPs compete (e.g., lower prices, additional services, more official supports etc.)?
- b. What do you know about your target market? What proportion of your Internet revenue comes from government offices, business enterprises, and individual subscribers, respectively? What are the demographics of your subscribers (income, gender, age, education, urban or rural, etc.)?
- c. Do you know how your subscribers (officials, businesspeople, and individuals) use the Internet? What is the most popular way for your customers to retrieve informa-

tion about local news?

- d. What strategies have been taken in your company to face the market competition in your city? Were they successful? Were there any obstacles in the process of strategy implementation?

**IV. Additional comments, recommendations of other potential interviewees, plans for future collaboration, and thanks.**

## **APPENDIX III**

### **Interview Outline**

### **for Internet Café Owners/Managers**

#### **I. Self-introduction**

My name is... Introduce CASS and the Chinese WIP; why we are interested in small cities; no right or wrong answer as long as you're telling us your observations and opinions; protection of privacy; no commercial secrets will be released; feel free to refuse answer a question, if you feel it is sensitive, or to request that an answer be off the record.

#### **II. Background Information**

Are you the owner or manager of this Internet café? What is your age, education level, family background, and what did you do before opening the Internet café?

#### **III. Initial and Current Set-up**

- a. When did you open this Internet café? How did you learn about the Internet in the first place? Can you describe your first online experience? What expectations did you have when entering this new business?
- b. How did you get started? Where did you get the initial investment? Where did you buy the equipment? How did you find this location?
- c. Since then, have you changed your opinions about the value of Internet cafés? Why, or why not? Any specific examples to illustrate your point?
- d. Were there notable events in the development of this Internet café? (For instance, a major renovation, a change in the scale of the Internet café, or a temporary closedown.)
- e. How long did it take for you to get a license? Which government agencies were in charge? Have the licensing procedures changed? What do you think about these changes?
- f. How many online computers did you have initially? How many do you have now? What are the configurations of these machines (CPU, memory, display, etc.)? Do you handle technical problems by yourself or do you hire a tech-support personnel/team?

#### **IV. Management and Everyday Operations**

- a. How much does it cost to surf the net in this Internet café? What are your business hours? What are the busy times?

- b. Who are your clients? What is their average age, occupation, educations and income level? Do most of them live close by? Approximately what percentage is female?
- c. How long do you work here everyday? According to your observations, what are the most popular online activities among your clients? Games, chatrooms, streaming music/video, anything else?
- d. Are your computers equipped with floppy disk drives, rewritable CD drives, or USB storage devices so that users can upload and download materials on the Internet? Are these machines connected to printers if customers want to print out hard copies? How do you charge for these additional services?
- e. What technological and administrative measures have been taken to prevent access to harmful information in this Internet café? Among these measures, which are officially imposed? Does this lead to compulsory expenditures on hardware, software, or security updates?
- f. What is the greatest satisfaction in operating this Internet café? What is the greatest frustration or difficulty?
- g. Is market competition becoming more intense among Internet cafés in your city? What are your competitive advantages? What are the drawbacks? How do you maintain your business and allow for growth?

**V. Additional comments, recommendations of other potential interviewees, plans for future collaboration, and say thanks.**



## APPENDIX IV

### Interview Outline for Internet Users

#### I. Self-introduction

My name is... About CASS and the Chinese WIP; why we are interested in small-and medium-sized cities; no right or wrong answer as long as you're telling us your observations and opinions; protection of privacy; feel free to decline to answer a question, if you feel it is sensitive, or to request an answer be off the record.

#### II. Background Information

Do you use the Internet? What is your age, education level, family background, profession, income, interests and hobbies (including exposure to the media: watching TV, reading newspapers, etc.).

#### III. Initial Usage of Internet

For users who use the Internet at home:

- a. When did you begin to use the Internet? How did you know about the Internet and learn to use it? How did you prepare the computer and online connection? What is your proficiency in Internet techniques (what functions of the Internet can you use)?
- b. Why did you decide to use the Internet? What events prompted you to use it? Did you have any expectations from it? Have you ever encountered any difficulties?
- c. Do you use the Internet only at home? Do you also use the Internet in cafés, at the office, etc.?
- d. Can you describe your first experience of using the Internet? Do you like or dislike it? Why?

For users who use the Internet in Internet cafés:

- a. When did you begin to use the Internet? How did you know about the Internet and learn to use it? How did you prepare the computer and online connection? What is your proficiency in Internet techniques (what functions of the Internet can you use)?
- b. Why did you decide to use the Internet? Why do you use the Internet cafés rather than at home? What events prompted you to use it? Did you have any expectation from it? Have you ever encountered any difficulties?
- c. Do you use the Internet in only one cafés or in several? Do you use the Internet

elsewhere?

- d. Can you describe your first experience of using the Internet? Do you like or dislike it? Why?

#### **IV. Time Spent on the Internet**

How often do you go online at home or in Internet cafés? How long do you spend each time? Do you think you spend too much, too little, or an appropriate amount of time online?

#### **V. Online Content**

- a. What do you do first when you access the Internet (browse websites, check e-mail, etc.)? Which websites do you often visit? Why do you like it?
- b. What online content (news, entertainment, pornography, etc.) and services (downloading software, music, etc.) do you mainly use? Do you have a personal homepage?
- c. What online content do you like and dislike? What do you think of the difference between the online content and the content provided by traditional media such as TV, newspaper, etc.? What content can you access only from Internet?

#### **VI. Online Interpersonal Communication**

- a. Do you use the Internet for inter personal communications? Why?
- b. What kind of inter personal communications do you like to do online, such as discussions, making friends, shopping, chatting, OICQ, playing games, etc.? Do you have any special findings or feelings? What kind of Inter personal communications require relatively more time?
- c. Do you have friends made through the Internet? If yes, please introduce some basic information about them, where they live, gender, age, etc. Have you ever met them? Why? Do you believe falling in love through the Internet? Have you even heard of such events taking place?
- d. What is your most unforgettable online experience since you began to use the Internet? What touches you the most? Please give examples. What do you think are the differences between online inter personal communications and real communication in daily life? What aspects of online inter personal communications satisfy or dissatisfy you? What kind of inter personal communications can be achieved only through the Internet?

#### **VII. Attitudes about Using the Internet**

- a. Is it a good thing to use the Internet? Generally, do you think that the advantages outweigh the disadvantages, or the versa? Do you think the Internet should be managed and regulated? Why? To what extent?
- b. What do you think about credibility of online information (more specifically, e-mail, news websites, shopping sites, chat rooms, etc.)?
- c. What do you think about inter personal communications, making friends, pornography, and crime through the Internet?

- d. What do you think about children using the Internet?
- e. For users of Internet cafés, what do you think about the cafés? Are you satisfied with their services and prices?

## **VII .Effects of Using the Internet**

- a. Has your life changed since you began to use the Internet? What changes have been?
  - Work
  - Family life: family relationship, lifestyle, work and rest timetable
  - Interpersonal communications: making friends
  - Understanding of life
  - Time spent on traditional media-TV, newspapers, books, etc.
- b. Suppose, how you would feel if you could no longer use the Internet some day?
- c. Imagine what would happen if there were no Internet in the entire society

## **IX. Additional comments, recommendations of other potential interviewees, plans for future collaboration, and thanks.**

## APPENDIX V

### Focus Group Protocol for Local Residents

(Total time: 100 minutes for user groups; 75 minutes for non-user groups)

#### **I. Project Introduction (3 minutes)**

Why are we holding this focus group? (to study the development and influence of the Internet); there is no right or wrong answer as long as you're telling us your observations and opinions; protection of privacy; no commercial or political purposes, academic research only.

#### **II. Self-introduction (7 minutes)**

[Host/hostess first, then go around the table] What is your name; how do you want to be called in the discussion; age; occupation; family background; how long have you lived in your city; what is your general impression about your city.

#### **III. Semantic Associations (5 minutes)**

Now let's first play a game I'm handing out a sheet of paper that lists a few terms: 1. technology, 2. e-mail, 3. Internet café, 4. e-government, 5. online chatting, 6. openness, 7. Internet. What is the first word that occurs to you when you see each of these terms? This can be a noun, an adjective, a verb, a phrase, or anything random. Please write it down on the paper.

#### **IV. General Impression of the Internet (30 minutes)**

- a. Just now you used XXX to describe the Internet. Why? Can you explain your views about the Internet? In your opinion, what is this thing we call the Internet?
- b. Do you think the Internet is: useless, fun, stimulating... which adjective is best describes your overall impression of the Internet? Why?
- c. How do you think the Internet will make life better? What is good about going online? Why do you think so? How did you form this opinion?
- d. What problems does the Internet create for individuals and for society? Why? How do you know about this?
- e. In general, which do you think is more influential about the Internet: its positive effects or the negatives? Let's take a vote.

- f. Do you think the Internet should be regulated and controlled? If not, why? If yes, how should the Internet be regulated? By whom?
- g. How do you think the Internet is different from other media?
- h. What is your vision about the future of the Internet? If everyone were to use the Internet, Would your city be very different?

## **V. [For users only] Internet Usage Patterns (20 minutes)**

- a. (Quickly go through) How often do you go online? How long do you spend each time? Do you think you spend too much, too little, or an appropriate amount of time online?
- b. (Quickly go through) Where do you normally access the Internet access? At work? At home? At an Internet café? At school? Or by touch-screen computers in some public venues?
- c. When did you start using the Internet? How did you learn? What expectations did you have of it at that time?
- d. Did you get all that you anticipated from subsequent online experiences? Were there unexpected things - either good surprises or problems - that you encountered? Any examples?
- e. How did you solve these problems (technical, social, economic...)? What is the most serious problem that you have had to confront when going online?
- f. (Quickly go through) What is your major use of the Internet? Work, study, entertainment, reading news, checking e-mail, online chatting, playing games, making friends, keeping in touch with family members...
- g. Would you tell us the most impressive event that occurred to you during your online experiences? Such as getting in touch with an old friend, online shopping, or being infected by a computer virus... What is so special about this incident?

## **VI. [For non-users only] Reasons for not using the Internet (20 minutes)**

- a. Why do you not use the Internet?
  - i. At work: No need for it at your job? No other colleagues use it? Because there are secretaries and clerks who use the Internet for you?
  - ii. At home: too expensive? No place to learn how to use it? Afraid of harmful information?
  - iii. Other reasons: bad service? Security worries? Dislike the technology?
- b. Which of the above reasons is the most important?
- c. What major channels of information do you prefer? Newspapers, magazines, radio, TV, or interpersonal communications?
- d. Just now you said the Internet is (too expensive, too difficult) - From where did you learn about these characteristics of the Internet? Was it from a newspaper article or a TV program or was it from one of your friends? Do you remember the specific type of the outlet (e.g., a newspaper column, a TV station) and when did you see/hear

related coverage and comments?

**VII. [For users only] Online content (15 minutes)**

- a. Which website do you visit most frequently? Why do you like it?
- b. What do you think about the credibility of online information (more specifically, e-mail, news websites, shopping sites, chatrooms etc.)?
- c. Other than browsing and e-mail, do you also express yourself to the online public by posting articles on BBS? Do you know how to make a homepage? Do you have your own webpage? Do you download things from the Internet? What do you download most frequently?
- d. Are there some types of information that you cannot get from the traditional media (print or broadcasting) that you are now able to access to the Internet?
- e. If you had the power to delete some online information, what would you delete?
- f. If you want to learn about local affairs (e.g., the construction of a new road), which information channel would you use? (personal contacts, newspapers, radio etc. Do NOT read: e-government websites)
- g. Do you visit the government online or other websites of the local government and CCP organizations? How frequently? Normally which e-government websites do you go to? For what purposes?

**VIII. [For users only] Social influence and policy evaluation (10 minutes)**

- a. Are there obvious changes in your life after you started using the Internet?
  - i. Work
  - ii. Family life: family relationship, lifestyle, work and rest timetable
  - iii. Communication with friends
  - iv. Time spent on traditional media-TV, newspapers, books, etc.
- b. Suppose, how you would feel if you could no longer use the Internet some day?
- c. Imagine, what would happen if the Internet no longer existed in the entire society

**XI. [For both users and non-users] Final questions**

- a. An increasingly contentious debate these days is the regulation of Internet cafés. How do you think of the issue?
- b. Another hot topic concerns the influence of Internet on children. How do you think about this issue?

**X. Additional comments, recommendations of other potential interviewees, intention for future collaborations, and thanks.**











## **Approaching the Internet in Chinese Small Cities**

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