

The Present and Prospect of China IT industry

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Abstract China has been aware of the urgent need of developing electronic and information industry in order to improve its productivity. Since 1991, IT industry has been one of the main factors to influence China's economic growth. In the results of the efforts to develop its IT industry, China has achieved average 25% yearly growth rate of IT manufacturing industry since 1991. We will take a look at how the main IT products' performances was, how the role of IT industry was in China economy and in China's trade and how the prospect of China IT industry will be. However, we need to know that, depending on the different areas, the environment of the China's IT industry will be quite different. In China, the east coastal area has the better environment of technology, manpower, infrastructure, and fund for the development of IT industry and the IT industry of this area is very competitive, comparing with the middle and west area.

Key Words : IT industry, Software, Manufacturing electronic Products, IC, E commerce

Since 2003, the biggest trade partner of South Korea has not been America but China. China appears to be a strong competitor of South Korea in every field of international market and even in IT industry, which has been one of the most competitive section of Korean Economy. This IT Industry is now becoming a driving locomotive of economy not only in America, Japan, Germany, South Korea but also in China. IT industry is growing to be an influential and much more important sector in China economy. It is reported that the IT gap between South Korea and China is shorten to be 1.7 years in 2006, from 2.6 years in 2003 and will be within one year in 2010 [1].

At this time, in order to sustain the development in this 21st century's world economy, it is expected for Korean economy to re-examine its competitiveness specially comparing

with China. So this topic will focus on examining China IT industry. I will proceed this topic as follows:

1. The IT Industry in China Economy
2. The Role of IT Industry in China Economy
3. Conclusion: Prospect of China IT Industry

1. The IT Industry in China Economy

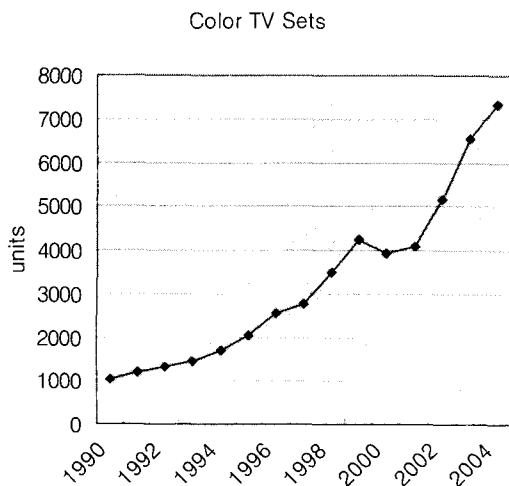
Since the various kinds of IC application from 1970's, the IT industry has been one of the main factors to influence the world economic growth. Since 1991, China has also been aware of the urgent need of developing electronic and information industry in order to improve its productivity. In the results of the efforts to develop its IT industry, China has achieved average 25% yearly growth rate of IT manufacturing industry since 1991. Now we will take a look at how the main IT products'

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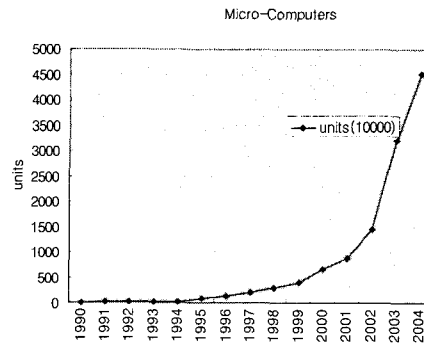
performances was.

1.1 TV and Computers

Since 1990, China has been the biggest manufacturing country to produce TV sets in the world. In 2005, China produced 82830 thousand color TV sets, which occupied 45% of World color TV sets production. There are several outstanding electronic companies in China such as Haier, Lianxiang, TCL, Konka, etc. The leading company in Color TV sets production is Haier, which occupies 11.98% of the 2005 China domestic Color TV market. The domestic Color TV market is becoming very competitive. However, as in the Graph 1, the China's Color TV production has increased more rapidly since 2001 and will continue to develop fast by 2010 because of the domestic demand increase from continuous economic growth, the 2008's Beijing Olympic and the 2010's Shanghai Expo.



Graph 1. China's Color TV Production(10 thousands)
Source: China Statistical Year Book(2005)

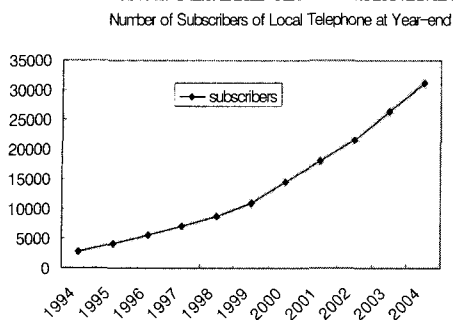


Graph 2. China's Computer Production
Source: China Statistical Year Book(2005)

Lianxiang Lenovo was chosen to be the first company of the 100 electronic companies of the year of 2006 by China Ministry of Information Industry and a representative computer producer, which took over the PC section of IBM in Dec. 2004. BOE, TCL, Huawei, Haier, etc. are also producing computers. Lianxiang Lenovo and Haier are expected soon to be a member of the world 500 Fortune companies. As can be seen in the Graph 2, the computer production in China has steeply increased since 2001 and, in 2004, China produced 45million computers. In 2005, China produced 80.84 million computers, of which 45.65 million computers were notebooks. In 2006, China is expected to produce 98 million computers and to export 58 million computers among 98 million computers.

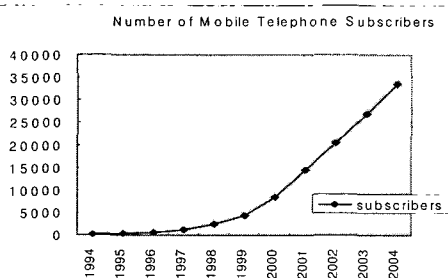
1.2 Telecommunication: Telephones and Mobile

In 1998, China combined Ministry of Post & Telecommunication with Ministry of Electronic Industry and established a new Ministry of Information Industry in order to leap into a new IT leading China economy.



Graph 3. China's Local Telephone Subscribers (10 Thousands)

Source: China Statistical Year Book(2005)



Graph 4. China's Mobile Telephone Subscribers (10 Thousands)

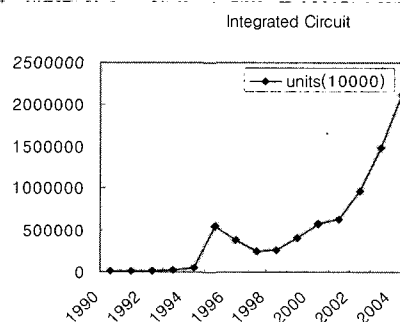
Source: China Statistical Year Book(2005)

As in Graph 3 & 4, the China's IT policy resulted in the about 320 million subscribers of local telephones and about 350 million subscribers of mobile telephones in 2004. Especially, the recent growth rate of mobile phones in China is noticeable. In china, subscribers of mobile telephones was about 393 million people in 2005 and will be about 530 million people in 2008 with average 10 % growth rate. China produced 279 million mobile phones in 2005 with 21% growth rate comparing with 2004 and will produce 340 million mobile phones in 2008 [2]. China Mobile of China Telecom ,as a main player of China Mobile market, is managing GSM system, while China Uni-Com is operating CDMA system. Nokia, Motorola, Ericson, Samsung, LG, Huawei, etc. are competing in the China Mobile market.

Nokia, the leading mobile phone company in China is occupying 30 % of mobile phone market in 2005. Samsung occupying 32.9% of the 2004 China's CDMA market is leading the CDMA market of China [3].

1.3 Semi Conductor: IC

Since 2002, along with the high growth rate of IT industry, the semi conductor and IC industry in China started to expand quickly as in Graph 5. However, although the sales amounts of the China's semi conductor in 2003 was 68.74 billion RMB(Renminbi) and was the 22.4% increase from the 2002's 56.16 billion RMB, it was just 4.98% of the 2003's world semi conductor market. In China, half of the semi conductor market is Separation Devices and another half IC. Anyhow, the China's semi conductor and IC industry is still in the underdevelopment status comparing with China's other electronic industry and with the world semi conductor and IC industry. It implies the positive prospect and potential of the development of China's semi conductor and IC industry.



Graph 5. China's IC production

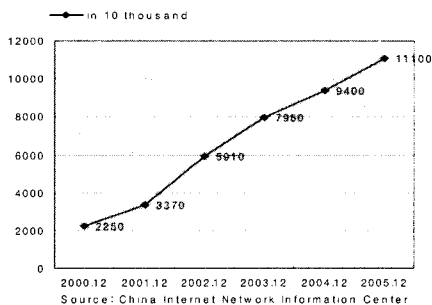
Source: China Statistical Year Book(2005)

The main players of China's semi conductor industry are still overseas multinational companies and located around Yangzhe River

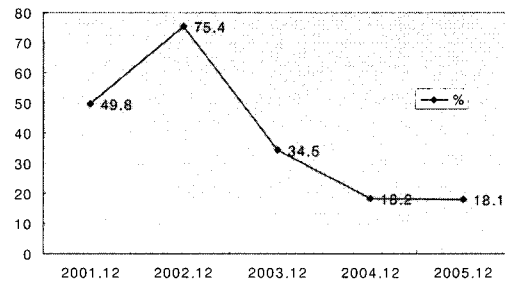
Delta area, Beijing, Tianjin and Zhu River Delta area. In 2005, China semiconductor industry produced total 26.577 billion units, exported 21.69 billion units, which was worth 13.75 billion US\$ and imported 75.37 billion units, which was worth 81 billion US \$. Recently, Zhongxin(SMIC, Semiconductor Manufacturing International Corporation), Huahong-NEC, Datang, etc. are appearing to be an influential semiconductor manufacturer in the world market.

1.4 Internet and E-commerce

CNINIC(China Internet Network Information Center) has produced 17 survey reports on the Internet Development in China since Oct. 1997 [4]. The 17th report announced that the number of users and computer hosts in the end of 2005 was respectively 110 million and 49.5 million(Graph 6). When comparing with South Korea, where 3/4 of the population are using computers, there are lots of potential to develop internet industry in China. When comparing with 2004, the ratio of increase is 18.1% and 19.0%(Graph 7). The number of Internet users has slow-downed since 2002(Graph7). There are top ten popular web sites such as sina.com.cn, sohu.com, NetEase.com, 263.net, cn.yahoo.com, 163.net, 21cn.com, china.com, chinaren.com and yesky.com. China's total domain names in 2005 is 2,592,410. The most preferred domain in



Graph 6. Internet Users



Graph 7. Growth Rates of Internet Population
Source: from Graph 6

China in 2005 is .CN, which exceeded one million.

Along with the growth of internet users, the e commerce and on line sales increased a lot. On line sales amounts was about 148 million RMB including 34.5 million RMB of B2C in 1999, 520 million RMB of B2C, 76.77 billion RMB of B2B in 2000 and 10.76 billion RMB of B2C, 35.6 billion RMB of B2B of 2001. Especially, 10.76 billion RMB of B2C in 2001 was 0.29 % of total retail sales in China, while 1.3 % of retail sales of the U.S.A was B2C in 2001. There were 1,665 e commerce firms in 2000 and 1,888 in 2001. The fast development of IT industry, the rapid increase of computer and internet users and the marketization of banking and financing system in China will result in the huge expansion of e commerce.

1.5 Software

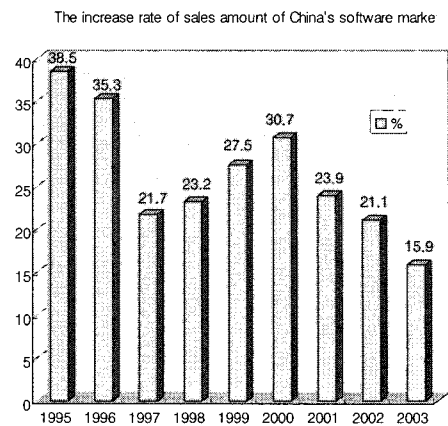
Ministry of Information Industry of China has announced the biggest 100 software companies in China since 2002. In 2005, the sales amount of the biggest 100 software companies in China was about 90.37 billion RMB, which was 21.4% increase from 2004's and was 37.6% of the total software market. But the biggest 10's revenue share of the biggest 100 software companies increased from 48.1% of 2004 to 49.9% of 2005. It seems that the top 10 software companies in

China software market are going to be stable and influential players. Microsoft, Oracle, IBM, Novell, UFsoft, Kingdee, Sybase, Informix, Computer Associates, Lotus, etc are competing in China software market. UFSoft and Kingdee are local Chinese companies and focusing on accounting and ERP.



Graph 8. China's Software Sales

Sales amounts of China's software market increased from 34.5 billion RMB of 2003 to 40 billion RMB of 2004(Graph 8). However, as in the Graph 9, the sales increase rate was going down from 30.7% of 2000 to 15.9% of 2004. China's government started an incentive strategy to upgrade its software and IC industry by 2010. The China's software industry is expected to face the international competition under the openness system of the WTO but can be given another momentum to greatly leap forward. The software export amount of 2004 was approximately 2.8 billion U.S. \$. The software industry's sales amount of 2005 was 6.61 billion RMB, which was 40.3% increase from 2004's, among which 3.59 billion U.S. \$ was exported.



Graph 9. Sales Increase Rates of China Software Market

Source: www.news.ccidnet.com

CCIDNET advisor predicted that the 2008 China's software market will be around 97.57 billion RMB with average 19.5% yearly growth rate.

2. The Role of IT Industry in China Economy

By the end of 2004, China induced and established 510 thousand contracts of the realized overseas investment, which was worth 745.31 billion US \$. These overseas companies resulted in 37%, 49.9% and 57.4% of the China's 1994, 2000 and 2004 total trade amounts. And, Multi national companies such as Motorola, GE, Microsoft, Oracle, Ericson, Nokia, etc. already established more than 100 R&D institutions in China. Motorola and Microsoft recently invested 200 million and 130 million US \$ to China market to proceed R & D within China [5].

LianXiang Lenovo developed Tera-Super Computer, which was supported by China Government. China government allowed again LianXiang to use the specialists and the name

brand of China Academy of Sciences for developing the super computers and negotiating with Overseas enterprises [6]. When Jilin Chemical Co. tried to expand production capacity for 1 million tons of Etilen, China Government provided the fund [7].

The technology transfer of the joint ventures, the strong sponsorship of fund and research outputs from government, the great domestic market, etc., stimulated the fast development of IT industry in China. China IT industry was benefited from the type of leapfrogging development, not the type of "step by step" development. As, in the beginning of 1980s, Samsung started D Ram production not from the development of 1k bite D Ram but from 16 bite D Ram [8], China leapfrogged from the production of mechanical switchboard to digital switchboard without analogue switchboard [9] from the assistances of technology transfer of the joint venture company such as Shanghai Bell and Bell. From the results of these advantages, IT industry has achieved average 30% of yearly growth rates in China for the recent 10 years and became a priority industry of China economy.

In 2003, IT industry including TV, computers, telephones, semi conductors, internet, e commerce, software, etc., realized sales revenue of 1888 billion RMB, which was 9.1% of the China's GDP. In 2004, the sales amount of IT industry was 2655 billion RMB, among which software industry resulted in 242.4 billion RMB, 48.4% increase from 2003's and IT manufacturing industry 2412.6 billion RMB, 40.3% increase from 2003's. In 2004, the IT industry contributed 13.9% to the GDP growth rate. The total China's trade amount of IT industry of 2005 was around 488.73 billion US \$, among which export amount was 268.17 billion US \$ and import amount 220.56 US \$. This IT industry trade amount of 2005 was 35.2

% of the China's 2005 total trade amount and 25.8% increase from the 2004's IT industry trade amount. The active trade of IT industry greatly stimulated the other trade sectors of China economy. The fast growth of IT industry has greatly contributed and is going to contribute to the development of trade and GDP in China economy.

However, in 2004, 97% of export of computers and office facilities and 87% of export of electronic & telecommunication industry was realized by overseas companies in China. In 2004, there were only two local(without accepting overseas investments) companies among the top 20 biggest export companies in China. Nine of the ten sets of DVD in the U.S.A. market was made in China. The average export price of those DVDs was 32 US \$, among which 13 US \$ is production cost, 18 US \$ loyalty expense and the profit only one US \$. The price of MP3 is 79 US \$, among which 32.5 US \$ is production cost, 45 US\$ loyalty expense and the profit only 1.5 US\$.

And, lots of China's electronic products are still produced in the type of OEM [10]. Since 1978, the trade structure of China shows that, as the amount of export increases, so the amount of import increases. Regarding this, Lardy explained that most of export products was assembled within China [11]. 4/5 of the exports products by overseas companies in China was assembled within China by importing intermediate products from home country. 38.5 % of 1280 Korean companies in China are proceeding the same assembling trade between South Korea and China [12].

It means that, although IT industry has been developing quickly, it has not been so influential and pervasive in driving the growth of China economy. China needs to improve and develop its own IT technology in order to really leapfrog into the IT driving China growth and

to compete with the other IT industries including South Korea [13].

3. Conclusion: Prospect of China IT Industry

If we do not deeply consider China's domestic geographical diversity, we sometimes will get a misconception on the facts. Of course, IT industry of China has been developed quickly. However, depending on the different areas, the environment of the IT industry will be quite different. Roughly speaking, in China, the east coastal area has the better environment of technology, manpower, infrastructure, and fund for the development of IT industry and the IT industry of this area is very competitive, comparing with the middle and west area. China needs to improve this geographical discrepancy of income, IT industry and economy in order to attain the continuous development of IT industry.

China started the EFYDP(Eleventh Five Years' Development Plan) from 2006. In order to prepare for the EFYDP, China government published the research outputs in 2005, which were proceeded by utilizing the most distinguished institutions and experts in China [14]. A part of this report analysed the China's IT industry, which say that China has a relative advantages such as easy access to technology transfer of multi national enterprises, WTO entry, breakthrough of China's own technology, the huge domestic market and the continuous market oriented strategy of China government. Based on these environment, China is planning to utilize the strategy of economy of scale, cluster of enterprises, institution and research centers, manpower development, domestic and overseas markets. modernized management system of companies, etc.

From 2006 to 2010, China's IT industry is expected to attain average 21 % yearly growth rate, 900 billion RMB of sales amount in 2010, 200 billion RMB of industrial value added in 2010 and 460 billion US \$ of exports in 2010 [15]. In 2010, the manufacturing and software IT industry is expected to respectively occupy 45% and 10 % of the world market. The industrial value added in 2010 is scheduled to be 9.54 % of GDP [16]. In order to attain those growth of IT industry, China is expected to develop its own IT technology and to take a different approach depending on the different area.

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