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## USITO Issue Paper

### China's Handset Industry: Losing the Technology Game

August 27, 2004

After seeing explosive growth in handset market share in 2002-2003, China's domestic cell phone manufacturers appear to be entering an early winter.

In June, China domestically branded handsets accounted for 38.8% share of the GSM handset market and 46% of overall handset market by sales volume, dropping from 55% overall last year. The first five placeholders were Nokia, Motorola, Samsung, Ningbo Bird, and TCL, according to Sino-Market Research (see table). Bird's share slumped to 8.2% in the past six months from the 12.1% last year. Bird's financial reports showed the same downward trend.

Ranking of China's GSM Handset Market Share in June 2004

Ranking	Brand	Market Share (June 2004)	Market Share (June of 2003)
1	Nokia	16.9%	11.64%
2	Motorola	14.5%	14.2%
3	Samsung	8.4%	
4	Bird	8.2%	12.1%
5	TCL	6.9%	9.7%
6	Amoi	4.4%	
7	Konka	4.1%	6.6%
8	Sony-Ericsson	3.9%	
9	Siemens	3.3%	
10	DBTEL	3.1%	
11	Phillips	2.7%	
12	Haier	2.6%	
13	Panasonic	2.3%	
14	Eastcom	2.3%	

15	Kejian	2.2%	
16	Lenovo	2.2%	
17	Panda	1.7%	
18	Capitel	1.7%	
19	Soutech	1.4%	
20	Telsda	1.1%	

Sources: MII, Sino-Market Research

According to the latest financial reports (1Q of 2004), revenues and profits for the three biggest Chinese handset manufacturers, Ningbo Bird, Amoi Electronics, and TCL, have dropped across the board. Ningbo Bird's revenues decreased by 19.97%, to RMB 2.51 billion, while profits dropped 18.3%, to RMB 425 million. TCL saw a tumble of 12.1% in its handset sales revenues, to RMB 2.03 billion from RMB 2.82 billion in the same period of 2003. Additionally, in June 2004, sales volume of TCL handsets sunk 22.7% compared to the previous June.

Konka sold 1.03 million handsets in the first quarter of 2004 with a profit of less than 25 RMB per set, working out to a gross profit of 12.59%. Amoi, which has recorded the biggest gross profit among the domestic handset makers, also posted a drop from 37.13% in the fourth quarter of 2003 to 28.48% in the first quarter of 2004.

#### Lacking core technology

Heavy dependence on technology imports is making China domestic players suffer. In 2003, Chinese imports of fully assembled handsets actually increased by nearly 29%, to 22.07 million handsets. The total value of imports hit US\$2.81 billion, increasing 18.3% over 2002. Korea is the biggest exporter of completed handsets to China. In 2003, China imported 14 million handsets with a value of US\$2.03 billion from Korea. Imports from Taiwan totaled 4 million handsets worth US\$490 million.

Core technology for handsets is generally imported from France, Korea, and Taiwan, with kits from these countries generally including chips imported from other nations. China's No.1 handset player, Bird, between 2000 and 2002 purchased 3 million handsets from Sewon, a Korean handset design company, with a value amounting to US\$500 million. In the same period, Pantech produced 800,000 CDMA and 740,000 GSM handsets for Bird, and another Korean company, Telson, produced 400,000 CDMA handsets for the company. The French company Sagem was also an Original Design Manufacturer (ODM) for Bird in 1999 and 2000. Bird also imports fully assembled handsets from Taiwan. Fully assembled sets accounted for around 50% of total Bird sales in 2002 and 2003. Bird brands the imported sets and markets them domestically and overseas, making Bird China's top handset vendor in terms of sales volume for the last four years.

The software that runs handset functions is becoming a more important portion of the value proposition, while hardware is relatively less valuable, and Chinese manufacturers contribute virtually none of the software. According to a report by Telecom Insider Research, in 2005, the

percentage of handset software by sales value will increase to 80% and the hardware value will decrease to 20%. Chinese handset manufacturers have virtually no software capabilities. This suggests decreasing profits for the Chinese industry.

The weak research and development capabilities of domestic players have impaired their margins. Few Chinese handset manufactures have their own standards, measurements and testing (SMT) production lines (see table). SMT capabilities allow manufacturers to produce handsets from “Complete Knock-Down” (CKD) kits, adding more of the final sale value within China. Instead, most Chinese handset makers assemble “Semi Knock-Down” (SKD) kits. Even those that have SMT lines, like Capital, Konka, Lenovo, Hisense, Southtec, Kejian, Haier, and CEC, usually have fewer than five SMT lines, so they still depend on importing SKD kits and assembled handsets.

Table: Chinese Handset Makers’ SMT Production Lines, 2003

Capitel	CEC	Hisense	Lenovo	Southtec	Konka	Kejian	haier	Sangfei	TCL	Amoi
1	1	1	2	3	3	3	4	5	8	21

Note: SMT lines are also used for other electronic products production, including by TCL, Haier, Amoi, and Lenovo.

Source: Telecom Insider Research, USITO

Industry observers agree that Chinese handset manufacturers have improved their capabilities in one area: appearance and non-essential design features, such as antenna, handset button, battery, and speaker.

Amoi has been a success story: in 2001, Amoi’s A8 series handsets sold 2.5 million units. The A8 represented Amoi’s rebranding of a model by Bellwave, a Korean ODM. Bellwave then contracted with Amoi, Panda, and Bird for total sales of US\$210 million in 2002 and US\$400 million in 2003.

Chinese handset manufacturers have developed core competency in brand management and distribution (see table).

Table: Chinese Handset Manufactures’ Technology Resources and OEM/ODM Partners

Company	Technology Resources	Design Company (China Domestic)	OEM/ODM Company (Taiwan)	OEM/ODM company (Japan, EU, US, Korea)
UTStarcom	UT Starcom			Foxconn
Amoi	Agere Systems		Arima Communication	Bellwave
Capitel	Agere Systems, Qualcomm,	Mei Bo	Chi Mei, DBTEL	Sewon, Intercube

China Bridge	Korean VK			InnoStream, LG
CEC	Qualcomm	CEC Cellon, CEC Mobile, Yuhua TelTech	Benq, Okwap	Pantech, Telson
Datang	Qualcomm		Compal Elec.	Sharp
DBTEL	Motorola			
Eastcom	Motorola, Agere Systems, Qualcomm			
Haier	Philips, Motorola, Qualcomm, Sendo	CEC Cellon CEC Mobile	Benq, Compal, Eliteon	Sewon Telecom
Hisense	Qualcomm			Telcom (CDMA), Panasonic
Kejian	Samsung, Wavecom, CommQuest, TTPcom	Holley Communication		EZZE
Konka	Agere Systems, Qualcomm	CEC Cellon	Compal, Huabao	
Langchao	Qualcomm			LG
Lenovo	Qualcomm, Wavecom	Hopen Mobile		
Bird	Siemens, Qualcomm		Benq, Quanta	Pantech (CDMA), Telcon (CDMA), Sewon (GSM), Bellwave, (GSM)
Panda	Ericsson		Foxconn	Sewon, Bellwave
Putian	Motorola		Benq, Compal	Sewon, Giga, Pantech, Telson
Sangfei	Philips		Okwap	
Southtec	Motorola, Qualcomm, Wavecom	Yuhua Teltech		Pantech, toplux, Samsung
TCL	Qualcomm, Wavecom, ADI, TTPcom		Compal, Foxconn	LG, Pantech
ZTE	Qualcomm, Samsung, CommQuest, TTPcom	Future Tel	Qi Ji	SK telecom

Sources: Telecom Insider Research, USITO

Chinese domestic companies are fully aware of their eroding margins. As Xu Lihua, CEO of Ningbo Bird, put it, “If we give up R&D and put too much effort into current market share, we will lose future market.” But how to master core technologies remains an open question.