

The Rapid Growth of the Smartphone Market in China and the “Business Ecosystem”

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Abstract

The rapid growth of the smartphone market in China has changed the structure of the Chinese mobile phone industry. The present paper analyzes this change using the concept of the “Business Ecosystem”. The world’s two big business ecosystems, Apple’s and Google’s, have developed as the dominant ecosystems, but telecom common carriers, mobile phone terminal vendors, and network service suppliers, while serving as part of the two big ecosystems, have at the same time promoted their own business ecosystems. As a result, business ecosystems in the smartphone industry have assumed a “nested” structure.

I. Introduction

Third-generation (3G) mobile phone services based on formal licenses started in China in 2009, following which the Chinese smartphone market made rapid growth based on 3G (and partly 2G) technology to become today the world’s biggest. At the same time, this growth led to structural change in the Chinese mobile phone market.

The purpose of this presentation is to analyze the structure of the Chinese smartphone market based on the “business ecosystem” concept, which was proposed by J. Moore and has become a popular concept in the business circles of advanced countries.

II. Concept of “Business Ecosystem” and the two big business ecosystems in the smartphone market

1. Concept of *Business Ecosystem*

Proposed by James F. Moore ([1],[2]), the concept of the *Business Ecosystem* introduced the concept of ecology to business theory. In Darwinist theory, creatures evolve through the struggle for existence. But many biologists have found that, besides the struggle for existence, the bio-ecosystem includes many kinds of symbiosis. In traditional neo-classical economics like Darwinist theory, competition among business entities is the major factor in the development of the economy. But in the modern economy, it is difficult for companies to adapt to the rapidly changing business environment based on their own resources alone.

Moore defined “business ecosystem” as:

“An economic community supported by a foundation of interacting organizations and individuals—the organisms of the business world. The economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organisms also include suppliers, lead producers, competitors, and other stakeholders. Over time, they coevolve their capabilities and roles, and tend to align themselves with the directions set by one or more central companies. Those companies holding leadership roles may change over time, but the function of ecosystem leader is valued by the community because it enables members to move toward shared visions to align their investments, and to find mutually supportive roles”([2]p. 26).

Nowadays, economies are supported by a foundation of interacting organizations and individuals, but these interacting organizations and individuals are not flat networks. There are ecosystem leaders, which offer shared visions and concepts and also lead the adaptation of the business ecosystem as a whole to changing business environments. Marco Iansiti and Roy Levien suggested the concept of *Keystone Advantage* to analyze the role of ecosystem leaders as keystones in the dynamics of the business ecosystem ([3]).

In recent years, the concept of business ecosystem (or ecosystem) has become a very popular concept in the high-tech business community. For example, when Google decided to merge with Motorola, Eric Schmidt, CEO of Google at the time, stated: “To play in this ecosystem, we had to buy Motorola.”¹⁾ Samsung and HTC, which both basically belong to Google’s business ecosystem, also declared that the merger would promote Google’s partners and its ecosystem. Nokia commented that the merger might assist its recovery by promoting the development of a Windows-based phone ecosystem.²⁾

2. Two big ecosystems in the world smartphone industry: Apple vs. Google (Android)

Many researchers and journalists have identified two big ecosystems, the Apple and Google business ecosystems, in the world smartphone industry and characterized them as a closed system (Apple) and an open system (Google). [For examples see [4] (US), [13] (Japan), and [7] (China)].

Apple’s ecosystem is characterized as closed. Lyons states: “Jobs is a relentless perfectionist whose company creates such beautifully designed products that they have changed our expectations about how everything around us should work...The closed system also lets Apple make more money, because it collects 30 percent of whatever customers spend on apps or content...This shift represents nothing less than a complete rethinking of the past 30 years of tech history, when we’ve had chips made by Intel and AMD; operating software like Windows made by Microsoft; computers made by Dell, HP, and others; and applications made by thousands of independent software companies.” ([4])

In contrast, the Google (Android) ecosystem is characterized as open. Google offers the Android OS to vendors free in order to transfer the Google business model from the PC to the mobile phone. Moreover, independent content providers can post content on this ecosystem relatively freely. Apple’s ecosystem thus has the advantage on profitability while Google’s ecosystem has the advantage on market share.

Some researchers however argue that this comparison is merely a relative evaluation. Although Apple subjects the supply chain to strict management, it does not make the chips

and other hardware by itself. The App Store offers content made by independent content suppliers and managed strictly by Apple alone. Google offers Android for free but there are technological restrictions in the way of Android’s bid for the position of smartphone portal site. Moreover, Google took over Motorola’s mobile phone division in 2012.

Where hardware is concerned, ecosystems are not so closed. In the case of LSI, Qualcomm dominates the market in baseband chips for smartphones, while in the market for the CPUs which control applications, alongside Qualcomm’s Snapdragon, competitors in the world market include Apple’s A series, Samsung’s Exynos, TI’s OMAP, and NVIDIA’s Tegra.

Japanese component suppliers provide about 40%³⁾ of smartphone devices and parts (small-size liquid crystal panels, touch panels, touch panel glass, flexible PCBs, flash memory, crystal devices, laminated ceramic capacitors, SAW filters, electromagnetic GPS compasses, many kinds of film, connector, small motor, and lithium-ion battery, etc.).

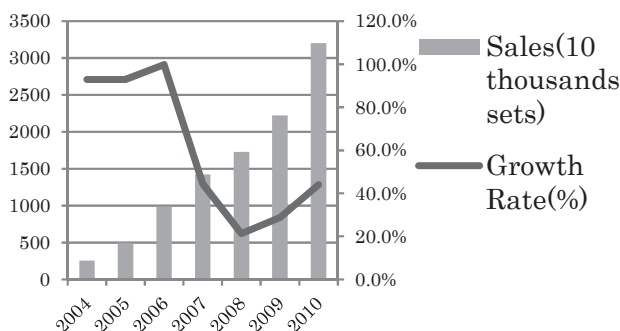
Like Japan, Taiwan has its own component supply chain, and it also has an advantage in the EMS (Electronics Manufacturing Service). Above all, Honhai and its subsidiary in China, Foxconn, monopolize the iPhone assembly process.

These two big business ecosystems have become the dominant models in the world smartphone industry and have excluded the Symbian OS, which was the dominant OS in the feature phone (non-smartphone) industry. At the same time, the two big business ecosystems have deprived the telecom common carriers of the leadership in the smartphone and smartphone-related market.

III. Rapid growth of Chinese smartphone market

At the end of 2008, after long and heated discussion, the Chinese government decided to reorganize China’s telecom carriers into three companies: China Mobile, China Telecom, and China Unicom, all of which are state-owned and managed by central government. After the reorganization, in January 2009, the Chinese government issued the official 3G mobile phone service licenses to three common carriers: TD-SCDMA for China Mobile,

Figure 1 2004-2010 Sales of Smart Phone in China



Source: CCID Consulting (2011) p.12

CDMA2000 for China Telecom, and W-CDMA for China Unicom. The three common carriers launched 3G services in 2009.

The number of 3G subscribers reached 4.075 million (5.5% of all mobile phone subscribers) at the end of 2010. It passed the 10 million mark (11.873 mill.) in November 2011, and reached 18.376 million (17.3% of all mobile phone subscribers) in July 2012.⁴⁾ The start of 3G services thus gave a boost to the Chinese smartphone market.

After ten months of bargaining, China Unicom and Apple reached an agreement to cooperate in the Chinese iPhone business from the fourth quarter of 2009.

In the iPhone business, China Unicom increased its sales and subscribers in 2011 (Table 1). At the same time, however, commercial incentives based on its agreement with Apple squeezed its profitability. China Mobile launched a smartphone business based on the TD-SCDMA technology that the Chinese government promotes as a Chinese 3G technology, and developed the “OPhone” based on Android, which was customized for the Chinese market, for example through the introduction of the Chinese mobile TV technology CMMB. Moreover, many iPhone users in China utilize the China Mobile GSM network informally.

China Telecom also began an iPhone service based on CDMA2000 from March 2012. Samsung and HTC, Apple’s rivals in the world smartphone market, and Chinese mobile phone terminal vendors entered the Chinese smartphone market on the Android OS.

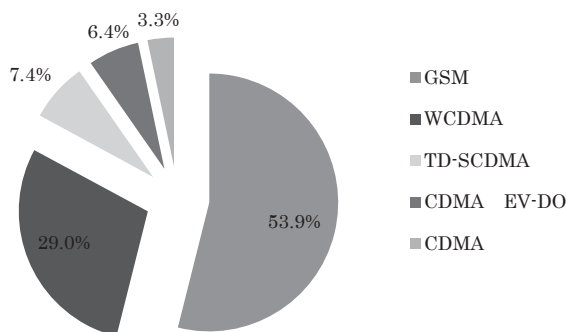
Its rapid growth resulted in special characteristics which distinguish the Chinese smartphone market from that of other advanced countries. One of these is that quite a large number of smartphones are based on 2G (GSM and CDMA, see Figure 2). The Symbian OS, which was the dominant OS in the 2G era, therefore had more than half the share of the Chinese smartphone market, at least in 2010. According to Yiguan Zhiku, shares of the Chinese smartphone market, classified by OS, are as follows: Symbian 56.5%, Android 16.3%, Windows Mobile 10.0%, iOS 6.2%, Blackberry OS 2.9%, Linux 0.8%, others 6.4%.⁵⁾ Mediatech (MTK), a Taiwanese company which offers turnkey solutions including chips and OS for illegal and legal low-end mobile phones in China, has delayed entry to the

Table 1 Business Performance of 3 Common Carriers in 2011

	Sales (million RMB) (Growth Rate)	Net Profit (million RMB) (Growth Rate)	ARPU (RMB) (Growth Rate)	Subscribers (10thousand RMB) (Growth Rate)
China Mobile	527,999 (9%)	125,870 (5%)	71.0 (-3%)	64,957 (11%)
China Telecom	245,041 (11%)	16,502 (8%)	52.4 (-3%)	12,647 (40%)
China Unicom	209,167 (22%)	4,227 (14%)	47.3 (8%)	19,966 (19%)

Notes: ARPU: Average Revenue per User
Source: Nihonkeizaishimbun Mar.23, 2012

Figure 2 smart phone sales classified by network technology in 2010



Notes: GSM and CDMA belong to 2G.
Source: CCID Consulting (2011) p.16

smartphone market. Judging from trends in the world and China, this special characteristic could be transitory.

IV. Business ecosystems in the Chinese smartphone market

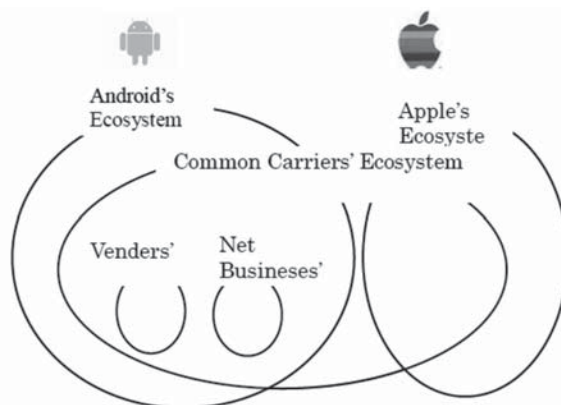
1. Apple vs. Google (Android)

Business ecosystems in the Chinese smartphone market can be characterized as having a “nested” structure (see Figure 3).

As mentioned above, the two big ecosystems have established a dominant position in smartphone operating systems. Moreover, the two big systems have recruited independent content providers for their respective application markets.

In 2011, the cumulative number of used applications in the Chinese App Store (Apple’s content market) doubled from the previous year to reach 503,138, of which 57.3% are

Figure 3 Business ecosystems in Chinese smart phone market



Source: Nakagawa (2012)

charged ⁶⁾. The number of organized developers increased from

53,346 in 2010 to 138,801 in 2011 ⁷⁾. Application developers, screened by Apple, sell applications through the App Store, with sales income divided at a 3:7 ratio between Apple and the developers. Apple announced that it had delivered 2.5 billion dollars to developers in the past years, of which 0.154 billion dollars had been delivered to Chinese developers. ⁸⁾ In terms of hardware, Apple's ecosystem is thus not very closed.

In the case of Android, the number of active applications in Android Market (renamed Google Play in 2012) had reached 400,000 worldwide, of which two-thirds were free and 270,000 could be utilized in China. Application developers can also sell applications based on the Android OS through channels other than Android Market. The number of such applications has been estimated at 40,000-50,000. In total, approximately 60% of App Store applications are Android-based.

A comparison with other systems (China Mobile MM: 7,000-8,000, China Unicom Wo Store: 20,000, Lenovo MM: 10,000) demonstrates that the number of apps offered by the two big systems is very large.

Regarding marketing channels, Apple also intends to enforce a relatively rigid management system. Previously, Apple depended on four sole agents, Fangzhengshiji, Changhongjiahua, Jiamukeji, and Hanlinhuizheng. However, to prevent illegal sales methods, for example installation of Windows, loading of illegal channels, or so-called "jail break" at the customer's request, Apple introduced a new system of Apple Premier Resellers (APR), to which role it appointed Yinglonghuazhen, Kudong, EBT, and Studio A. ⁹⁾

2. Telecom common carriers

The two big ecosystems place Chinese telecom common carriers in a contradictory position which is difficult to respond to. On the one hand, the increase in smartphone subscribers brings them increased revenue and ARPU. On the other hand, dependence on the two big business ecosystems results in loss of leadership in the mobile market and squeezes the common carriers' profitability. Consequently, while Chinese telecom common carriers cooperate with Apple and Google in acting as part of their business ecosystems, they nevertheless make efforts to build up their own business ecosystems.

As mentioned above, China Mobile uses Android as its basic platform, but at the same time has developed its own customized OPhone and set up its own application market, China Mobile MM. Sales of iPhones have contributed to China Unicom's performance and the company supplies mobile phone services based on Android, but, like China Mobile MM, it too has set up its own application market "Wo". China Telecom also supplies services for both Apple and Android, but has also set up its own application market, Tianyi Kongjian.

One example of a successful scheme from the Chinese common carriers is the so-called "1,000 RMB smartphone". The concept of the 1,000 RMB smartphone means not only that the price must be no more than 1,000 RMB but also that the spec must be enough to fulfill the minimum smartphone standard; specifically, CPU clock speed must be more than 600MHZ and the panel must be a capacitance touch panel.

The average price of smartphones sold in China has been declining year by year

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(Figure 4).

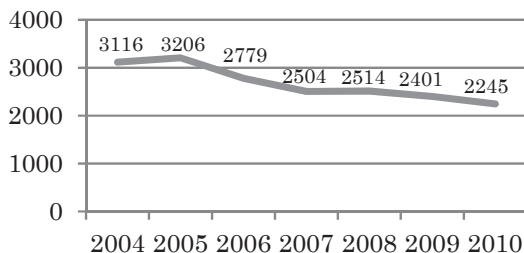
Apple however has the advantage in the high-end market and Samsung in the middle to high-end market (Table 2). Chinese vendors have opportunities in the low-end market.

Judging from their specs, the 1,000 RMB smartphone should cost around 1500 RMB¹⁰⁾. Chinese telecom common carriers supported mobile phone stores through sales incentives. As a result, some Chinese vendors, especially Huawei, have succeeded in gaining market share and, at the same time, telecom common carriers have been able to maintain their independence from the two big business ecosystems.

3. Mobile phone terminal vendors

Chinese mobile phone terminal vendors have promoted smartphones based on the

Figure 4 2004 – 2010 Average Price of Smart Phone in China(RMB)



Source: CCID Consulting (2011) p.13

Table 2 Market share of smart phone in China by price bands 2010

Brands	less than 2000 RMB	2001~ 3000 RMB	3001~ 4000 RMB	4001~ 5000 RMB	5001~ 6000 RMB	more than 6001 RMB	total
Nokia	78.7%	57.4%	42.4%	22.0%	1.4%	0.0%	63.0%
Motorola	13.7%	16.3%	7.5%	26.3%	13.1%	6.3%	14.2%
Coolpad	1.9%	4.4%	12.6%	7.4%	17.9%	0.0%	4.6%
Samsung	0.9%	7.0%	14.3%	7.2%	7.5%	11.0%	4.6%
Dopod	0.2%	5.9%	9.5%	18.8%	5.6%	1.9%	3.9%
Apple	0.0%	0.0%	0.0%	13.6%	48.1%	80.8%	2.9%
Sony-Erickson	1.0%	0.8%	2.7%	2.9%	3.1%	0.0%	1.3%
ZTE	1.3%	1.1%	1.7%	0.0%	0.0%	0.0%	1.2%
LG	0.0%	1.2%	4.3%	1.4%	0.0%	0.0%	0.9%
Lenovo	0.2%	2.0%	2.2%	0.0%	0.0%	0.0%	0.8%
others	2.1%	3.9%	2.8%	0.4%	3.3%	0.0%	2.6%
total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: CCID Consulting (2011) p.22

Android ecosystem (OS and Android Market) and on the telecom common carriers' ecosystems (application market, OPhone spec, 1000 RMB smartphone scheme), but have not been satisfied with this passive position.

Lenovo developed the spec of the Le-phone, which has popular applications preinstalled for China, for example Baidu as search engine, Lintutianxingzhe as map, Taobao as C2C, Sina.com as micro blog, QQ as SNS, Sogoshurufa as Chinese IME, and Netease as free mail. Lenovo has also set up its own application market, Lenovo MM.

The major communication equipment manufacturer Huawei, second only to Erickson in the world, has promoted a "Cloud, Pipe and Terminal" strategy to respond to environmental change. Its sales of terminals have reached 4.5 billion dollars, about 17% of total sales. The Huawei C8500 model became the first Chinese smartphone to pass the one-million sales mark. The C8500 and its successor, the C8650, are both based on the 1,000 RMB scheme.

Huawei has additionally also set up its own application market and set out a strategy for terminals linked with applications, named "Vision".

4. Network business companies

Network business companies which have dominant positions in each market—Tencent (QQ) in SNS, Baidu in search engines, and Alibaba in net commerce—have been promoting a smartphone strategy in order to prepare for the smartphone era, in which smartphones will replace PCs as the net business portal. To secure portal site positions, they have developed customized mobile terminals based on Android, named respectively QQ OS, Baidu-Yi, and Cloud-OS.

V. Conclusion

In the smartphone industry, companies compete on two levels, the company level and the business ecosystem level. The two big business ecosystems in the world smartphone industry have been implanted in China, but the industry structure retains features very characteristic of China. The business ecosystems of the Chinese smartphone industry have a "nested" structure which reflects the univalent positions of market actors.

So how can we analyze the dynamics of these business ecosystems? The first viewpoint suggested here is that of "positioning" in the business ecosystem. We must evaluate the cost, benefits, and risks of this positioning.

The second suggested viewpoint is the role of the "keystone", which offers shared value and concepts to other parts of the business ecosystem and provides leadership.

From the viewpoint of value and concepts, we recognize that the role of telecom common carriers is relatively weak and that network service companies are likely to play the key role for the time being.

NOTES

- 1) <http://www.readwriteweb.com/mobile/2012/09/the-new-motorola-googles-hardware-division-steps-into-the-future.php>

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- 2) <http://www.itmedia.co.jp/news/articles/1108/16/news016.html>
- 3) *Nihonkeizaishimbun* Sep.13, 2012
- 4) Data from Ministry of Industry and Information Technology of People's Republic of China, <http://www.miit.gov.cn/n11293472/n11293832/n11294132/n12858447/index.html>
- 5) <http://www.eguan.cn/>
- 6) Ruanjian Youji Lieshou (2012) *Report on Chinese App Store Data 2011*
- 7) <http://tech.sina.com.cn/i/2012-03-14/16536836691.shtml>
- 8) *21shijingjibaodao*, Oct.12, 2011
- 9) *21shijingjibaodao* Sep.26, 2011
- 10) *21shijingjibaodao* Oct.3, 2011

References

English

- [1] Moore, James F. “Predators and Prey: A New Ecology of Competition”, *Harvard Business Review*, 71-3, 1993, pp. 75-86.
- [2] -----*The Death of Competition: Leadership and Strategy in the Age of Business Ecosystems*, 1996, Harper Business
- [3] Iansiti, Marco and Roy Levien, *The Keystone Advantage: What the New Dynamics of Business Ecosystems Mean for Strategy, Innovation, and Sustainability*, 2004, Harvard Business School Press
- [4] Lyons, Daniel, “Think Really Different”, *Newsweek* Mar. 25, 2010 <http://www.thedailybeast.com/newsweek/2010/03/25/think-really-different.html>
- [5] Zhang Jing and Liang Xiong-Jian, “Business Ecosystem Strategies of Mobile Network Operators in the 3G Era: The Case of China Mobile”, *Telecommunications Policy* 35, 2011

Chinese

- [6] CCID Consulting, *2010-2011 Annual Report on the Smart Phone and OS Market in China*, 2012
- [7] Mugong, ““Closed+High-end” PK “Open+Multiple” Android’s Tight Encirclement Difficult to Win over Apple’s Lonely Battle” *Renminyoudian*, Aug.11, 2011

Japanese

- [8] JETRO, *Report on Chinese Mobile Contents Market in 2009*, 2009 <http://www.jetro.go.jp/jfile/report/07000107/chinamobile.pdf>
- [9] -----*Report on Chinese Contents Business in 2011*, 2011 <http://www.jetro.go.jp/jfile/report/07000683/report.pdf> <http://www.jetro.go.jp/jfile/report/07000767/report.pdf>
- [10] Marukawa, Tomoo, *Modern Chinese Industry*, Chuko-Shinsho, 2007
- [11] Nakagawa, Ryoji, *Chinese IT Industry: the Role for the Transformation of Economic Structure*, Kyoto, Minerva Publishing, 2007
- [12] -----“Rapid Growth of Chinese Smart Phone Market and “Business Ecosystem””, in Jin Chen and Masaki Mori eds., *Business Strategy in Chinese Market*, Tokyo, Shinzansha, 2012
- [13] Sakamura, Ken, “Post-Galapagos of Japanese mobile phone” *Nihonkeizaishimbun* Dec. 31, 2010

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中国スマートフォン市場の急成長と 「ビジネス・エコシステム」

中国のスマートフォン市場は急速に拡大している。それは携帯端末産業において、単なる商品の移行という以上に、構造的な変化をもたらしている。本稿は、この構造変化を世界のICT業界ではすでに一般化している「ビジネス・エコシステム」の概念を用いつつ、分析したものである。世界のスマートフォン産業の2大ビジネス・エコシステムは比較的クローズドなアップルのシステムと比較的オープンなグーグル (Android) のシステムであるが、それは、(世界市場とは若干のラグを持ちつつも) 中国スマートフォン市場を席卷しつつある。しかし、それに半ば包摂され、半ば独立する形で、電気通信キャリア、ネット事業者、携帯端末ベンダーが自らのビジネス・エコシステムを構築しようと独力しており、総体としてみた中国スマートフォン産業のビジネス・エコシステムは「入れ子構造」となっている。

キーワード (Keywords) : 中国 (China), スマートフォン (smartphone),
ビジネス・エコシステム (business ecosystem), アップル (Apple),
グーグル (Google), 入れ子構造 (nested structure)

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