The evolution of the Chinese online gaming industry

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Kshetri, Nir (2009) "The Evolution of the Chinese Online Gaming Industry," *Journal of Technology Management in China, 4(2), 158-179.*

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Abstract:
Purpose – This paper seeks to examine the growth of the Chinese online gaming industry and disentangle the mechanisms behind the emergence of unique online gaming culture in China.
Design/methodology/approach – This is a review paper that provides a detailed and state-of-the-art overview of the development of the Chinese online gaming Industry.
Findings – The findings indicate that online gaming is a remarkable example of an industry that is rapidly growing due to innovative business models of Chinese companies. Chinese companies are also working with the government to improve formal institutions to promote the growth of online gaming. Furthermore, we also found that Chinese online gaming industry resembles other technology industries in the country such as those related to handset and PC. Although Chinese companies were traditionally weak in creating new technologies, they have demonstrated success in some modern technologies in recent years. In the early stage of the growth, foreign players dominated the Chinese gaming industry. In recent years, this industry is characterized by the dominance of domestic players in the ecosystem catering to the full value chain of the industry.
Research limitations/implications – A lack of primary data and empirical documentation and a lack of in-depth treatment of some of the key issues are major limitations here.
Practical implications – The paper examines the implications of China's rapidly growing online gaming industry for high-technology businesses all over the world. The findings of this paper would help understand the opportunities for foreign multinational companies to enter the Chinese technology market or to intensify their operations in the country as well as the risks associated with China's unique institutions.
Originality/value – This paper's greatest value stems from the fact that it analyzes demand conditions, industry structure and transfer and export conditions from the standpoint of the Chinese online gaming industry and market.
Keyword(s): Culture; Video games; China.

Article:

Introduction

The blurring boundary between online games and real life has become an important global phenomenon. Online and video games are rapidly changing cultures and are creating "Synthetic Worlds" (Castronova, 2005). A unique culture has evolved around China's online gaming world. For most Chinese internet users, online game, which is considered to be the equivalent of the TV for American baby boomers, has become the dominant and popular form of cultural pastime and entertainment (Beijing Review, 2003; Flannery, 2003). A survey conducted by the China Internet Network Information Center in 2006 indicated that over 120 million Chinese played at least one online game. The survey found that Chinese gamers spent 7.3 hours per week on the average and 21 per cent of them played more than 10 hours a week (*Shanghai Daily*, 2008). It is also worth noting that China's online gaming culture is different from the popular TV-console-based games in the USA and Europe (Fowler and Guth, 2004). Online role-playing games are usually regarded as an insignificant pastime in the USA and Europe (Jennings, 2006).

Online games have also greatly impacted China's politics. For instance, China Communist Youth League (CCYL) are employing online games as platforms to generate “national spirit” among young players and achieve various political goals (newsgd.com, 2005). At the same time, analysts have noted “a genuine rise in nationalism” among Chinese youths (Liu, 2008), who have found online games as a platform to express nationalistic and patriotic longings. Online games have also shaped Chinese business culture. Foreign multinational companies (e.g. Coke and Volkswagen) and local Chinese companies (e.g. MasterKong) use online games to advertise their products (China Daily Online, 2006; Ewing, 2007; Hongjun, 2008). Selling online game-related virtual items has been a “mini-economy” with a unique and interesting culture (Nystedt, 2004).

Online games designed by Chinese companies are also exported to overseas markets, especially in Asia. It is reasonable to expect that Chinese gaming companies' presence in foreign markets is likely to change cultures in these markets and create new “Synthetic Worlds”.

What is the nature of the online gaming culture in China? What are the invisible and discrete forces that converged to create this culture? How are the government and businesses responding to the emergence of this culture? What is the potential global impact of this culture? These fundamental considerations are not fully addressed in the existing literature. The purpose of our study is to fill this void. This paper seeks to disentangle the mechanisms behind the emergence of unique online gaming culture in China.

The underlying notion in this paper is that there are important differences related to cultural, political and economic factors between gaming markets in China and the West. In the remainder of the paper, we first provide a brief survey of the Chinese online gaming industry. Next, we discuss a theoretical framework for the development of a technology industry. Then, we examine political, economic and social implications of online gaming. The final section provides discussion and conclusion.

	No. of online game players (million)	Revenue (US$ million)
2002		210[a]
2003		240[a]
2004	20.3[b]	298[b]
2005	25.5[c]	600 (iResearch estimate)[d]
2006	37.5[e] (at least one game a month).	817.5 (IDC estimate)[f] 970[a] – US$710 million (massive multiplayer, US$188 million casual games) 995 (Niko Partners' estimate)[g]
2007	48[h] 16 (mobile online game players)[j]	1660[i] 1300 (Credit Suisse estimate) 1800[k]
2008	59 (estimate)[k]	
2010	61[c](estimate)	3900(estimate)[l]
2012	85[m](estimate)	

Table I. Some indicators related to online gaming in China

Sources: [a]KPMG (2007); [b]Weitao (2005); [c]In-stat estimates (Burns 2006a, b); [d]Bhattacharya and Michael (2008); [e]Landreth (2007); [f]Chung (2007); [g]Ewing (2007); [h]Xinhua (2008); [i]Pearl Research (2008); [j]Xinhua News Agency (2007); [k]*China Daily* (2008); [l]Xinhua (2007); [m]Hongjun (2008)

A brief survey of the Chinese online gaming industry

China's online gaming market is rising meteorically. Estimates suggest that online games market in China will exceed US$3 billion in 2010 (Pearl Research, 2008) and US$6 billion by 2012 (gamasutra.com, 2008). The Shanghai-based research company iResearch's estimate suggests that there will be 81 million online gamers in China by 2010 (Yulei, 2007). Other studies suggested that India in 2006 was comparable to China in 2001 in the development of online gaming industry and market (Business Wire, 2006).

High entry costs for customers and piracy were among the biggest roadblocks for the development of online gaming industry in the 1990s. In 2001, Chinese gaming companies launched innovative business models to overcome these barriers (Ewing, 2007). Online games' rapid growth is also associated with and facilitated by the growth of fixed and mobile broadband networks (KPMG, 2007).

In 2006, China overtook South Korea and became Asia's biggest online gaming market (Table I; KPMG, 2007). A survey conducted by the China Internet Network Information Center in 2006 indicated that over 120 million internet users in the country played at least one online game that year. The survey found that Chinese gamers spent 7.3 hours per week on the average and 21 per cent of them played more than 10 hours a week (*Shanghai Daily*, 2008). In 2007, online gamers' average spending per month on games was about US$8 (Lee, 2007).

Online gaming has been a cornerstone of many Chinese technology companies. Game developers, operators and handset vendors are taking initiatives to tap the expected growth of this industry (Nystedt, 2004). Baidu, the largest Chinese search engine, is expected to launch an online game business (*Thomson Financial News*, 2008). Other Chinese internet companies such as Tencent and Alibaba have also started game divisions (Chinatechnews, 2008).

Motivations for playing games

According to *In-Stat*, the opportunity to interact and communicate with fellow gamers has been a key motivation for Chinese gamers. Interestingly, there are reports that online games have led to many relationships and marriages (Burns, 2006b). Most obviously, some online gamers are also motivated by financial gains (Burns, 2006b).

Types of games

In 2006, 90 per cent of gamers in China played online games (Ewing, 2007). According to the market research firm, Niko Partners, revenue from online games increased by 71 per cent in 2007 (gamasutra.com, 2008). Most online games are pay-to-play or free-to-play Massively[1] Multiplayer Online Role Playing Games (MMORPGs) or advanced casual games. A survey of Niko Partners revealed that casual and advanced casual titles accounted for 21 per cent of revenue in 2007 (gamasutra.com, 2008).

Some popular consoles in China include Nintendo Wii, the Microsoft Xbox 360 and the Sony PlayStation 2 (Takahashi, 2008). In 2006, only 10 per cent of gamers played games based on PCs, consoles and handhelds (Ewing, 2007). This has to be contrasted with console-oriented markets of Europe, Japan and the USA (Takahashi, 2008). Grey and illegal markets for game consoles are getting bigger. Illegal sales of game consoles increased by 75 per cent to reach 2.5 million units in 2007 (gamasutra.com, 2008). Most games sold in illegal and grey markets are Japanese-language versions.

Tapping the new technologies

Chinese companies involved in the gaming industry are also tapping the new technologies such as cellular and internet protocol television (IPTV). In 2007, mobile online games, which were mainly based on 2.5-generation platforms (e.g. JAVA and BREW) generated an estimated US$15 million, which is expected to reach US$51 million in 2008 (Xinhua News Agency, 2007). In April 2008, China Mobile made a soft launch of TD-SCDMA-based 3G services in eight cities including Beijing, Shanghai, Tianjin, Guangzhou and Shenzhen on a trial basis. China Mobile and other telecommunications operators are planning to launch advanced 3G services. The online gaming industry is expected to get a big boost from the 3G services. Gaming companies are gearing up to respond to the arrival 3G technology by launching mobile handset-based games (Bremner, 2006). Shanda is expected to launch mobile versions of its popular World of Legend and Magical Land games on customized Motorola handsets in the late 2008 (Bhattacharya and Michael, 2008). The company also has IPTV as its top priority (Weitao, 2005). Likewise, Electronic Arts' FIFA soccer games are sold as packaged products in Europe, but the company is working on mobile games for Chinese gamers (Frater, 2008).

A "mini-economy" and a culture built around the in-game currency

An important part of the online gaming culture is the currency used by players in the game (Castronova, 2005). The currency is used to trade items such as weapons, food and clothing for the game characters, magic spells, avatars and spaceships, which enhance the game experience (Barboza, 2005; M2 Presswire, 2006; Nystedt, 2004). Indeed, several currencies from popular online games are traded in the US dollar on auction sites such as eBay (Castronova, 2005).

Trading of virtual items has created a “mini-economy” with its own culture (Nystedt, 2004). Chinese gaming companies are generating additional profits by selling these items (M2 Presswire, 2006). Players also buy and sell such items to each other to move through a game faster (Nystedt, 2004). Consider, for instance, the karaoke game, O2Jam. This game allows players to create their cartoon characters. The players have to pay for clothing and other items for their characters (Nystedt, 2004). Many Chinese web sites are filled with classified ads from companies auctioning off their powerful figures – avatars – and individual gamers marketing virtual weapons (Barboza, 2005).

Factors driving the development of the Chinese Online Gaming Industry

Chinese video games market in the 1990s grew slowly. Starting 2001, firms in the gaming industry and the government took various measures, which facilitated the growth of this industry.

Three observations can be made regarding the slow growth of the Chinese gaming industry before 2001. The first observation is that in industrialized countries such as Japan, South Korea and the USA, PC and console-based platforms such as Sony's Playstation and PSP handhelds, Microsoft's Xbox and Nintendo's Wii dominate the gaming market (Ewing, 2007). Chinese are unable and unwilling to afford high-priced games based on consoles or PCs (Ewing, 2007; Nystedt, 2004). Indeed, retail packaged game sales are almost nonexistent in China (M2 Presswire, 2006). The business model used in developed countries does not work in China.

A second barrier was a high-piracy rate. Niko estimates that 90-95 per cent of packaged games sold in China are pirated (Takahashi, 2008). Because of widespread piracy, foreign companies such as Sony, Nintendo and Microsoft have limited presence in the Chinese gaming market (Bhattacharya and Michael, 2008; Becker, 2004; Schiesel, 2006; *The Economist*, 2008a). A related point is that peer-to-peer networks are being increasingly used to download games. Consequently, the sales of pirated packaged games reduced from 9.7 million units in 2006 to 6.8 million units in 2007 (Takahashi, 2008).

A third barrier was the government regulations in the industry. The Chinese government has an official ban on the sales of consoles because of the concerns about moral corruption (gamasutra.com, 2008; Takahashi, 2008). Online games “threatening state security, damaging the nation's glory, disturbing social order and infringing on other's legitimate rights” have been prohibited (bbc.co.uk, 2004).

An important question thus is: how are these barriers overcome? It is important to note that numerous factors influence a technology's ecosystem and environment. First, demand conditions such as consumer preferences, income, infrastructures and government regulations and technological economies of scope (a function of prior national experience with previous generations of technology) influence the diffusion of a technology (Linder, 1961; Vernon, 1966).

Second, the importance of industry structure on the performance of firms in the industry has been emphasized in the prior literature (Porter, 1990). Of special interest to this paper is the development of related and supporting industries (Porter, 1990) such as PC, broadband, IPTV and cellular networks. The industrial organization theory argues that industry structure determines strategy and performance of a firm in the industry (Bain, 1956; Porter, 1990). Competition level, size and distribution of online game suppliers as well as nature and structure of related industries fall under this category.

Finally, transfer and export conditions such as trade policy, export orientation of firms, strategic regulation and market size also affect an industry's growth (Beise, 2001; Tilton, 1971).

Below, we systematically consider these conditions in the context of the Chinese online gaming industry.

Demand and cost conditions in the Chinese online gaming industry

Consumers' propensity to play games

Online games have a strong appeal to the youth segment (Ewing, 2007). In this regard, the growth of Chinese online gaming industry is associated with and facilitated by a high proportion of young internet users. It is important to note that 70 per cent of China's internet users are younger than 30 (Bhattacharya and Michael, 2008). In terms of the depth of internet adoption, a study of Ipsos Insight in November-December 2005 indicated that Chinese internet users spent 17.9 hours online compared to Indian internet users' 4.4 hour (Burns, 2006a). Chinese youth, who are arguably among "the most committed and driven gamers on the planet" (Bremner, 2006), are driving the growth of the gaming market (Bhattacharya and Michael, 2008). According to IDC, in 2004, the 19-30 age group accounted for more than three-quarters of the gamers (Nystedt, 2004). Flannery (2003) put the issue this way: "For young guys [in China], online gaming is the same kind of entertainment that television was in America for baby boomers".

In a discussion of Chinese youth's attraction towards online games, an issue that deserves mention relates to Chinese gaming market's quick recovery following the massive earthquake of May 2008. CDC Games, for instance, reported that its online games revenues rebounded immediately after the three-day period of mourning following the earthquake (kotaku.com, 2008). Likewise, Sohu reported that its online-game revenue would not be affected by the mourning (Zhou, 2008).

The cost factor

As we mentioned earlier, games based on TV-consoles or PCs are beyond the reach of most Chinese internet users (Ewing, 2007; Nystedt, 2004; M2 Presswire, 2006). Online games, which are typically played in internet cafes, are more affordable. Gamers do not need to invest in hardware (Becker, 2004). It is important to note that while the number of internet cafes dropped from 225,000 in 2006 to 185,000 in the early 2008 due to a ban on new cafe licenses, the average size of cafes is growing (gamasutra.com, 2008). The total number of PCs available in cafes has not decreased.

At the same time, economies of scale are driving down costs of broadband services and related technologies to end-users. China's broadband prices are among the lowest in the world. An hour on a broadband connection in an internet cafe in a small Chinese town cost about 13 cents in the early 2006 (*The Economist*, 2006).

Broadband networks and technological economies of scope

The spread of broadband has been a major driving force behind China's online gaming business (Nystedt, 2004). By the end of 2006, China had 52 million broadband subscribers (Chan, 2007) which compared with 1.3 million connections in India at that time (Hindustan Times, 2006). China is expected to have 139 million broadband subscribers by 2010 (Morris, 2006). Especially, demand from firms with bandwidth-intensive businesses such as online gaming is growing rapidly[2]. As of 2005, in terms of internet users as well as broadband users, China ranked the second in the world – only after the USA. The proportion of Chinese internet-users with broadband access increased from 6.6 per cent at the end of 2002 to over 50 per cent by the early 2006 (*The Economist*, 2006) and about 66 per cent by July 2006 (msnbc.com, 2006). Paradoxical as it sounds, in 2006, a Chinese internet user was more likely to be on broadband connections than his/her US counterpart (Koprowski, 2006).

Mobile networks and the development of mobile games

The mobile gaming market is expected to grow rapidly. As of May 2008, China had about 600 million mobile subscribers (*The Economist*, 2008b). As noted above, handset vendors are launching new products to take advantage of the expected growth (Nystedt, 2004). For the past several years, global handset makers such as Motorola and Nokia are working to improve handset performance to handle games (Nystedt, 2004). In 2005, Pan Asia Games launched China's first mobile multiplayer role playing game, Age of Fantasy, on China Mobile's network (KPMG, 2007). Likewise, local portals such as Sina.com have expanded into mobile gaming and launched special gaming channels and columns in their sites (Nystedt, 2004). In the same vein, Shanda acquired the Chinese mobile device-based game developer, Digital-Red Mobile Software (Nystedt, 2004).

Domestic vs foreign games

Video and online gamers across the world differ drastically in their tastes. Even the world's top video games have limited success outside the countries that produce them. An obvious example is Grand Theft Auto, one of the most popular games in the USA, which performed poorly in Asia and Europe. Likewise, many top Japanese games are not popular in North America (Schiesel, 2006).

Note that most Chinese gamers are not familiar with western culture (*China Daily*, 2008). For instance, US-based Videogame Company, Electronic Arts' complex videogames based on popular US sports such as football and basketball did not sell well in China (Fowler and Guth, 2004). William Ding, NetEase founder put the issue this way: “For Chinese people, home-grown games are like tea and the imported ones are like coffee. Most Chinese will choose tea… ” (Chung, 2007).

A distinguishing feature of games developed by Chinese companies, on the other hand, is that they are based on Chinese culture (*China Daily*, 2008). They are thus more suited to local tastes. NetEase's Fantasy Westward Journey (FWJ), for instance, is based on the sixteenth-century Chinese classic Journey to the West (Chung, 2007). FWJ was the most popular MMORPG in China in 2006. As of 2006, FWJ had over 25 million registered player accounts, a peak concurrent user (PCU) count of 1.3 million players and an average concurrent user count of 458,000 players (Jenkins, 2006). A similar point can be made about Sohu's Tian Long Ba Bu, which is based on a popular historical martial arts novel (*China Daily*, 2008). Likewise, perfect World's ZhuXian contains elements of Chinese culture such as traditional Chinese arts, philosophy and history (*China Daily*, 2008). Another game, Zon/New Chengo, allows players to interact in a virtual world. In Zon/New Chengo's Chinese virtual environment, players can visit markets, read newspapers, watch TV and find employment (newsroom.msu.edu, 2008).

Note, too, that until the first half of this decade, China's online gaming market was dominated by foreign developers, mainly from South Korea and Taiwan (Chung, 2007). Games made in South Korea dominated the top ten list (Fowler and Guth, 2004; Nystedt, 2004). The Legend of Mir II, a game from South Korea that requires users to band together and fight off monsters as they try to rebuild human civilization, was the top revenue generator in 2004. Shanda marketed and operated Mir II. Shanda's own game, The World of Legend ranked 3 in 2004 (Nystedt, 2004). South Korean games' popularity can be attributed to their cultural similarity with China. In 2004, foreign games accounted for more than 80 per cent of the 140 plus game titles available in China (bbc.co.uk, 2004) and accounted for 70 per cent of revenue (Chung, 2007).

Gradually domestic companies became ready for frontal attack in the Chinese online gaming market. The import of foreign games reduced to 10-20 titles per year after 2005 compared to 40-50 titles before that (Chung, 2007). In 2006, domestic online games accounted for 64.8 per cent of the Chinese market (PR Newswire, 2007a). Chinese companies developed 218 online games in 2006, which was 26 games more than in 2005. Sales of domestic online games amounted US$529 million in 2006, an increase of 87.4 per cent compared to 2005 (PR Newswire, 2007a). In 2007, eight of the top ten games were from China (gamasutra.com, 2008). Most impressive of all, Giant Group's ZT Online game reached a PCUs level of over 2.1 million, the highest PCU level reported in the Chinese online game industry (Logan, 2008). The popularity of foreign games is thus declining (Chung, 2007).

Chinese operators, NetEase and Shanda focus on domestically developed games (Chung, 2007). The domestic online gaming industry has formed the complete business chain linking developers, operators and sellers (Hongjun, 2008).

In sum, availability of domestically developed games have created favorable demand conditions (Linder, 1961; Vernon, 1966) in China. Yet, having said this, it is apparent, too, that some foreign games are still performing well. For instance, in 2006, World of Warcraft had over three million players in China compared to fewer than two million in the USA (Schiesel, 2006).

Importance of Chineseness

At a higher level of analysis, many studies have shown that consumers have some degree of bias towards domestic products. Many factors may affect such dynamics (Balabanis *et al.*, 2001). The idea of "symbolic benefits" (Zhou and Hui, 2003) can be very helpful in understanding Chinese consumers' preference for local products. Past research has found that Chineseness in e-business related products and technologies co-varies positively with Chinese consumers' likelihood of doing business with a company. More broadly, a *McKinsey Quarterly* (2006) article notes: "Consumers in China … have strong national pride, so multinational companies could lose important segments by seeming too foreign".

In 2000, 78 per cent Chinese users viewed Chinese language information and 71 per cent viewed domestic information (CNNIC, 2001). A similar study conducted on Indian internet users indicated that only 41 per cent online Indians prefer native language web sites (Barnwal, 2006). Another survey found that in 2001, nine of the 10 most popular sites for Chinese surfers were China-based (Hormats, 2001). According to iResearch, 80 per cent of China's online population uses the local search engine, Baidu, compared to Google's shares of 36 per cent and Yahoo's 26 per cent (Ilett, 2007). Likewise, Alibaba.com, a Chinese B2B site, is the biggest e-commerce marketplace in China (Maidment, 2008). Zhou and Hui's (2003) study found that "symbolic benefits" associated with products offered by Chinese companies rather than improved quality were primary motivational forces behind Chinese consumers' preference to local products.

Indeed, Chinese-language content on the internet has been a major factor contributing to a rapid growth of overseas Chinese visiting Chinese language web sites (Hormats, 2001). Moreover, Chinese customers associate an organization with.CN address with a higher level of commitment and seriousness to do business in China (Tindal, 2003). A related point is that a software-based translation program tends to have a higher error rate for Chinese compared to other languages (Tindal, 2003). Companies outside China are increasingly realizing the importance of having locally built services to succeed in China (Secured Lender, 2004).

Influence of domestic development of online games on demand

China is becoming a major hub for game software development. In 2007, there were more than 100 video game development centres (Ewing, 2007). There is a huge pool of inexpensive talent to design game. The cost of online game development in China is estimated to be less than one-tenth that in most developed countries (*China Daily*, 2008). However, the lack of training and experience among newly recruited programmers and mainly imitation-based game design have been among the most glaring shortcomings of the domestic online gaming industry (Chung, 2007).

The government's measures to develop local gaming industry

There is a high level of advocacy for national self-reliance and domestic development of technology among Chinese policy makers, researchers, scientists and military leaders (Simon, 2001). Foreign technology imports and the outflow of intellectual property (IP) royalties have been a focus of concerns (Einhorn, 2004). They want to reverse the flow of fees[3] by exporting Chinese standards. To put things in context, in 2005, China paid US$117.4 million in royalty to Korean game developers (Bremner, 2006). There were other concerns mainly associated with foreign games such as violence, pornography and IP lawsuits related to pirated games (Beijing Review, 2003).

The government's policy is to develop the local online gaming industry and raise the standard of Chinese companies (KPMG, 2007). To achieve these goals, China has also launched a training program for online games developers and designers, which are considered to be in short supply (Fowler and Guth, 2004; Xinhua News Agency, 2006).

Industry structure and the Chinese online gaming industry

China's fast-growing gaming industry is highly competitive (Landreth, 2007). In 2007, there were about 150 domestic or joint-venture online-game operators, more than 100 video game development centres and 30 companies marketing and distributing foreign and domestic online games (Chung, 2007; Ewing, 2007). As is

the case of South Korea, Chinese online gaming companies have much higher profit margins than their Western counterparts (*The Economist*, 2008a). For instance, some Chinese online gaming companies' revenues in 2007 (Table II) were higher than those of the search engine company Baidu's US$239 million and media firm Sina's US$246 million (Pearl Research, 2008).

Player	Major games (no. of players)	Financial performance	Market share
Shanda	The World of Legend The Legend of Mir II	2007Q3 profit (US$31.8 million) 66% growth 2007Q3 revenue (US$87.4 million), up 50.3% from 2006Q3[a] Revenue: US$338 million (2007), 49% growth[b]	19.3% (2007)[a]
Netease	Fantasy Westward Journey (2007: 1.5 million PCUs) Westward Journey Online II (600,000 PCUs[c]	Revenue: US$265 million (2007)[b]	17.1% (2007)[a]
Sohu.com	Tian Long Ba Bu (early 2008: 600,000)[d]	Revenue: US$175 million (2007)[b] 30% growth	
Giant Interactive Group	Zhengtu Online (860,000 PCUs)[c]	Revenue: US$209 million (2007)[b] 274% growth	14% (2007)[e]
The9	World of Warcraft (680,000 PCUs)[c]		

Sources: [a]Landreth (2007); [b]Pearl Research (2008); [c]Chung (2007); [d]*China Daily* (2008); [e]Xinhua (2008)

Table II. Major competitors in the Chinese online gaming market

During 2005-2007, 11 Chinese online game companies were listed on foreign stock exchanges (*China Daily*, 2008). Game operators Giant, Perfect World, NetDragon and KingSoft went public in 2007 (Pearl Research, 2008). These can be taken as signs of local companies' increasing competitiveness.

Estimates suggest that about 85 per cent of China's gaming companies are not making a profit (Burns, 2006b). In 2005, Shanda, NetEase and The9 accounted for about 70 per cent of revenue (KPMG, 2007). Another study of iResearch indicated that, in the early 2008, ten big companies accounted for 80 per cent of Chinese online gaming market (De, 2008).

China is becoming an increasingly important market for global gaming companies. For instance, Australia and Japan are biggest markets in Asia Pacific for the US Company, Electronic Arts. The company expects that China will soon become the company's biggest market in the region (Frater, 2008). Foreign firms are also actively searching for opportunities in the Chinese gaming market. In May 2006, Walt Disney announced a partnership with Shanda to develop web-based games (PR Newswire, 2006). Similarly, Sony and Microsoft are seeking to develop game consoles for China. In 2006, Microsoft opened an Xbox 360 incubation centre in Sichuan to help game developers create games compatible with the Xbox Live Arcade platform. Sony is manufacturing new Playstation 3 in China for the global market and is also working with local companies to develop online games for China. In the same vein, in 2007, Vivendi Universal Games, Blizzard Entertainment's parent company, purchased a game development studio in Shanghai (Ewing, 2007). Likewise, Baidu is expected to form a partnership with a Nasdaq-listed online game operator (*Thomson Financial News*, 2008).

Business models to break the barriers

As noted above, starting 2001, Chinese gaming companies launched innovative business models. Shanda and other companies began selling online gaming time on pre-paid cards. Games are hosted on secure company servers and accessed from internet cafés. The new model also facilitated marketing research. Game developers and marketers have opportunities to interact directly with consumers, gain customer information and update game content based on input from customers (Ewing, 2007).

Addressing piracy problems

Under the current business model, game software is given away to attract players to sign up for a subscription-based online account (Becker, 2004). Gamers are charged hourly or monthly and have to pay additional charges to add-ons and accessories such as weapon to enhance gaming experience (Landreth, 2007; Schiesel, 2006; *The*

Economist, 2008a). This model made piracy irrelevant because it entailed creation of live experiences by linking many online players (Bhattacharya and Michael, 2008). While some online games are pirated, the problem is less serious compared to packaged games (Liu, 2005). An analyst of Pacific Epoch estimated that pirated online games accounted for 3-4 per cent of online games in 2005 (Liu, 2005).

Addressing the low credit card penetration problem

A lack of a credit card culture has been a major problem facing the Chinese e-business industry (Efendioglu and Yip, 2004; Gibbs *et al.*, 2003). Payments for online purchases are normally made by a mail check, cash on delivery or a wire transfer (Burns and Taylor, 2000). In the online gaming industry, Shanda and other companies have addressed this problem by taking transactions off-line. Gamers purchase prepaid cards from local merchants and scratch off to get a number, which allows them to play online game (Bhattacharya and Michael, 2008)[4].

Adaptation of business models

Chinese gaming companies are also rapidly adapting their business models to account for changes in consumer behavior (Bhattacharya and Michael, 2008; KPMG, 2007). For instance, in most cases, gamers are charged hourly or monthly (Schiesel, 2006). Customers pay only a few cents per hour (Ewing, 2007). However, online gaming companies have found that some segments of Chinese gamers are becoming less willing to pay for playing games. For instance, of the 25.5 million estimated online gamers in 2005, only 16 million paid to play (Burns, 2006b). Shanda and other companies are getting cleverer. They offer free access to old games and make money by selling virtual merchandise such as weapons and equipment (Burns, 2006b; Bhattacharya and Michael, 2008; Lee, 2007). Most gamers are willing to pay additional charges for add-ons and accessories such as weapon, which help increase points and enhance game play experience (Landreth, 2007; Lee, 2007; *The Economist*, 2008a).

Export conditions and the Chinese online gaming industry

Chinese technology companies are characterized by a high degree of export orientation. Since 2004, China has become the world's biggest exporter of ICT products. Chinese gaming companies have also started to flex their muscles in international markets, especially in Asia. For instance, Kingsoft's Perfect World, which is China's first self-developed online game, is sold in Japan and South Korea (Ewing, 2007; PR Newswire, 2007a). As of 2006, Perfect World was exported to over ten countries (PR Newswire, 2007a). In 2006, Kingsoft received US$ 2 million in license fees for Perfect World from Japan (PR Newswire, 2007a). Likewise, the Chinese company, Suzhou Snail Network Game Technology exported its game Navigation World to Europe and the US (Xinhua, 2007). China's online game export was US$ 20 million in 2006 (PR Newswire, 2007a). Government officials described Perfect World as a milestone for China's online gaming industry, which arguably helped the industry enter an “era of self-innovation” (PR Newswire, 2007a).

In the same vein, the Chinese game, Zheng Tu was launched in Malaysia in November 2007 (chinaview.cn, 2007). In June 2008, Perfect World announced that the company's licensing agreement with the Malaysian online game operator Cubinet to license its online game Chi Bi for Vietnam, Thailand, Malaysia and Singapore (*Business Week Online*, 2008). Cubinet also has licenses to operate Perfect World's other games such as 'Perfect World II, Legend of Martial Arts and Zhu Xian (rttnews.com, 2008).

Overseas Chinese population

It is important to note that there are about 40 million overseas Chinese (Wikipedia, 2008). Overseas Chinese have been the primary target markets for Chinese gaming companies. They are mainly focusing on markets with a high concentration of Chinese population such as Malaysia. Note that Chinese comprise of a quarter of the population in Malaysia (Wikipedia, 2008).

Political, economic and social impacts of online gaming in China

Online games' impact on the Chinese political culture

Some scholars suggest that the internet disconnects citizens from public life, while others argue that it provides a venue for participation in public life (Weber *et al.*, 2003). According to the latter camp, the internet has created a new space, which is an important new venue for stimulating civic participation and engagement (Yang, 2006). Political analysts have praised the internet for its ability to enhance public involvement and engagement through its interactivity (Corrado and Firestone, 1996; Milbank, 1999). Civil society and the internet arguably energize and facilitate the development of each other (Yang, 2006). In particular, in China, online games have facilitated the expression of nationalistic and patriotic longings. Analysts have noted "a genuine rise in nationalism" among Chinese youths (Liu, 2008). Online gaming has been an important platform to express nationalistic longings.

China's transition to market economy has followed a trajectory significantly different from those of Eastern Europe and the Soviet Union. While Russia followed the Western prescriptions, China has successfully blended nationalism with Marxism (Shlapentokh, 2002). The distinguishing mark of Chinese nationalism is the fact that it is state sponsored and an attempt to fill an "ideological vacuum" left by the weakening socialism (Oksenberg, 1987; Christensen, 1996; Sautman, 2001). Some argue that the Chinese Communist Party (CCP) regime has historically employed nationalism to bolster its legitimacy and public support and divert attention from domestic problems (Ding, 2007/2008; Kalathil, 2002).

In China, the state arguably bolsters its legitimacy through invoking a deep sense of "Chineseness" among citizens (Ong, 1997; Barme, 1999; Hansen, 1999). In a review of literature, Sautman (2001) concludes: "Nowhere is this more pronounced than in China, where these disciplines [Archaeology and paleoanthropology[5]] provide the conceptual warp and woof of China's 'racial' nationalism".

Yang's (2006) forcefully argued study on the internet -civic participation in China suggested a reinforcing effect of the internet and civil society development. The internet has facilitated the development of the civil society by providing new venues of civic participation. Civil society, on the other hand, promotes the development of the internet by providing a basis for social interaction (Yang, 2006). In China, the state exercises considerable control on the internet and uses it to mobilize social forces (Zheng, 2007).

Political culture is also infused in online games (Jenkins, 2006). In 2005, the Chinese online gaming firm, PowerNet Technology and CCYL collaborated to develop the game Anti-Japan War Online. The game was based on the Japanese invasion of China during 1937-1945. Gamers can play simulations of key battles. They can, however, play only as the Chinese side. The CCYL noted that the Chinese online gaming world suffers from a lack of games that generate a "national spirit" and educate young players. The CCYL announced its plan to actively partner with gaming companies to develop "patriotic" games (newsgd.com, 2005). In 2005, the CCYL spent US$6 million on another game, called National Spirit Online (McDonald, 2005). The CCYL was also working on games based on the Long March of the communist army in 1934-1936 (McDonald, 2005).

Similarly, in Chinese Heroes, which was developed by Shanda, players compete by doing good deeds. They can choose to be Lei Feng (a Maoist-era model soldier), Zheng Chenggong (a seventeenth-century sailor who seized Taiwan from the Dutch) or other Chinese heroes (Ewing, 2007). In another game created by the CCYL and Shanda, players become members of the Red Army, who fought against Japanese invaders during 1937-1945 (Chao and Ye, 2007).

Apart from promoting patriotism and combating foreign influences, government agencies are also using online games to fight social problems such as corruption. A case in point is the Incorruptible Warrior, which was an online game launched by Ningbo city officials. The game's goal was to fight government corruption. In Incorruptible Warrior, players with weapons and supernatural powers possess capability to kill corrupt government officials, their mistresses and even family members (Chao and Ye, 2007).

While response to some of the games with political themes appear to lack emotional warmth and enthusiasm (Ewing, 2007), some are more successful. For instance, within eight days of its launch, the game, Incorruptible Warrior was downloaded more than 100,000 times (BBC News, 2007).

That is not to say that players' expression of nationalistic and patriotic longings are always entirely driven by political actors' involvement. For instance, in July 2006, the Fantasy Westward Journey's administrators placed a high-level player with an anti-Japanese name ("Kill the little Japs") in an in-game virtual jail. They asked the gamer to change the name because of political sensitivity and the offending nature, but he refused to do so (Jenkins, 2006).

In highlighting the state's role to infuse nationalism and patriotism among the citizen in China, it would be helpful to consider the approach towards Taiwan and Japan. In the past, Taiwanese independence and Japanese nationalism were played to maintain control over domestic and international agenda (Restall, 2007). In recent years, with the diluting control and power (Kshetri, 2007), the state has been a "prisoner" of its past (Restall, 2007) and it has proven hard to undo its effects. To put things in context, the state has little control over online game players' behaviors (e.g. anti-Japanese sentiment in Fantasy Westward Journey as noted above).

Online games' impact on businesses

It is argued that China's mainstream and traditional media are boring, fail to discover new talent and are unconnected with target audiences (Ewing, 2007; Madden, 2006). As to the effectiveness of internet as an entertainment channel, it is important to note that the Great Firewall cuts off access to a large number of web sites. Most accessible sites are those related to "pro-Beijing, anti-Western" positions (Liu, 2008). Online and video games have thus become important forms of entertainment means. Because of their strong appeal to the youth segment, advertisers are exploring online games to attract this segment. Major advertisers are employing this new media for in-game advertising and cross-promotional linkages (Ewing, 2007). Gaming companies generate revenue from in-game advertising (Burns, 2006b).

An estimate of iResearch suggested that revenues from the in-game advertising was US$17 million in 2007, which is expected to reach US$35 million in 2008 (*Shanghai Daily*, 2008). For instance, in 2007, The9 formed a marketing partnership with Coca-Cola to include in-game advertising in the World of Warcraft (Ewing, 2007). The internet game "Monster World" is related to the "monster" seen in Coke's TV commercial. internet game time, virtual rewards and real Coke products are tied together to stimulate Coke sales (Hongjun, 2008). While in-game advertising is in infancy, if this form of advertising becomes a more popular and viable marketing medium, other companies (e.g. Pepsi) are expected to follow suit.

A second example comes from Shanghai Volkswagen's integration of its Polo series into an online car racing game. In the game, players can drive the virtual car and get an idea of the company's product (*Shanghai Daily*, 2008). Likewise, NetEase and the drinks maker MasterKong have formed a reciprocal promotional partnership. NetEase plaster ads for the new game on millions of bottles of MasterKong's tea products. MasterKong uses NetEase's online game Datang to promote its products among gamers with in-game ads. NetEase's virtual settings, items and characters in the game are related to MasterKong's bottled tea products (China Daily Online, 2006).

Online games' social impacts

Some unintended downsides to the rapid development of the Chinese online gaming industry are negative social and economic effects. Online games' negative impacts on health, productivity and children's education have been a big concern for the government (Ewing, 2007; *The Economist*, 2008a). The Chinese government has taken some measures to address these problems. For instance, the duration of game play has been limited. A 2007 law requires games to have "fatigue" controls and monitoring software. The time limit is five hours for adults and three hours for under-18 gamers (Lee, 2007). Under-18 gamers are also prompted to "do suitable exercise" after three hours. If they continue to play without the exercise, half of their points are taken away and

after five hours all of them are taken away[6]. The government has also helped establish treatment centres and hotlines for game addicts (Wagner, 2008).

The government has also announced that it may regulate the sale of virtual items (that is, items that exist only in virtual reality but are sold for real money) and the exchange of in-game currency for real money (Ewing, 2007). Note that these are increasingly important sources of revenue for players and gaming companies.

Online games and cybercrimes

Crimes target sources of value, and for this reason, digitization of value is tightly linked with digitization of crime (Clements *et al.*, 2004). Most obviously, Chinese businesses in the online gaming industry and gamers have been attractive targets for cyber-criminals and hackers. China has a high percentage of online gaming spyware (*Internet Weekly News*, 2008). A large proportion of the malware found in China is password-stealing Trojans, which are designed to steal users' identities (passwords and login information for games such as World of Warcraft) in online games and their credentials for virtual currency accounts (PR Newswire, 2008). The stolen virtual items, identities and currency are then auctioned online (Greenberg, 2007).

Online games' impact on network growth and on the innovation ecosystem

The rapidly growing gaming market has also forced telecom carriers and network providers to change their business models (KPMG, 2007). The popularity of online games has led to the growth of related networks. IPTV is such an example. Surveys have, for instance, shown that the Internet component of IPTV rather than the video entertainment is likely to be popular in China (Wilson, 2007).

Of equal importance is the development of innovation ecosystem related to online gaming. Chinese gaming companies have developed online payment methods, which are likely to improve user experience and cut transaction costs. In 2007, 99Bill Corporation and Beijing Perfect World announced a strategic alliance to promote online game and online payment markets (PR Newswire, 2007b).

Summary

This paper provided a clearer picture of the growth of the Chinese online gaming industry and examined its growth from various angles, perspectives and focal points. Online gaming has been an important part of culture for many Chinese internet users and has impacted the politics and business cultures in the country. The domestic creation of online gaming has helped reduce the piracy rate.

As we have demonstrated, online gaming is a remarkable example of an industry that is rapidly growing thanks to innovative business models of Chinese companies. Domestic companies have continued to gain strength in this industry. Domestic online companies have a better understanding of local tastes. Chinese companies are also using localized marketing tactics. In addition, Chinese companies such as Shanda are also working with the government to improve formal institutions to facilitate the growth of the online gaming industry. One example is these companies' collaborations with the government in anti-piracy campaigns (Liu, 2005).

In terms of the rivalry between domestic and foreign players, Chinese online gaming industry resembles other technology industries in the country such as those related to handset and PC. In the early stage of the growth, foreign players dominated Chinese gaming industry. Although Chinese companies were traditionally weak in creating new technologies, they have demonstrated success in some modern technologies in recent years. In recent years, this industry is characterized by the dominance of domestic players in the ecosystem catering to the full value chain of the industry. There are thus reasons to believe that in the gaming industry, for foreign companies, it remains difficult to wage successful war against Chinese companies.

An issue that deserves mention relates to the shift in the computing model towards cloud computing. In cloud computing, personal and business computing services are delivered online remote, centralized servers– “cloud” (Bonasia, 2009). For purely internet -based games, cloud computing eliminates the need to sell software or download programs (Bhanoo, 2009). Analysts have predicted that cloud-based paid, online services are likely to

replace downloadable games and game discs (Bhanoo, 2009). Cloud computing would thus help fight piracy of online games.

It is also important to note that there are two significant one-sided perspectives on the current debate on entrepreneurship in China. One view is that China is "shifting from top-down, state-directed technology policies to more flexible, market-oriented approaches that foster innovation and entrepreneurship" (Segal, 2004) and is adopting policies that actively encourage entrepreneurship (Schramm, 2004). The opposite argument is that China's emerging entrepreneurs are far from free market ones and are generally supportive of the CCP's authoritarian agenda of "unity and stability" (Pei, 2006). An examination of entrepreneurial firms presented in this paper suggests that both views are right but incomplete. Online gaming companies are largely operating as free market enterprises. At the same time, companies such as Shanda and PowerNet Technology have collaborated with political entities to create games such as Chinese Heroes and Anti-Japan War Online. As noted above, responses to some of these games lack emotional warmth and enthusiasm.

Finally, while Chinese technology companies operate in developed countries, their most impressive performances have been in developing markets (Kshetri, 2008). Experts have suggested that China's current technology, know-how and capabilities are more effective for competing in developing countries than in industrialized countries (Laschinger, 2005). While online gaming markets in most developing countries such as India are currently small (Business Wire, 2006), they are growing rapidly. Chinese companies are thus in a privileged position to take advantage of the online gaming market of the developing world.

Notes

1. The "massive" refers to the fact that thousands and even millions of players simultaneously occupy the virtual 3D world. Note that in traditional online games such as Quake and Counter-Strike, there are generally fewer than a dozen people in an arena (Schiesel, 2006).
2. See, "A China Telecom Play With A Quiet Ring," available at: www.businessweek.com/magazine/content/06_25/b3989116.htm
3. For instance, China is the world's largest maker of DVD players. Adopting its own technology, it can save $2 billion a year in royalties being paid to an 18-company consortium (Calbreath, 2004).
4. Baidu, for example, travels door to door to sell ads to local businesses because of cost-effectiveness and the value of personal relationship. Likewise, because of inefficient postal service the country's largest travel Web site, Ctrip, delivers tickets via bicycle courier (Kapoor, 2006)
5. Archaeology is the study of ancient societies and cultures. Paleoanthropology is the study of the human fossil record.
6. See, "China Rules Limit Teenage Online Gameplay", available at: http://news.filefront.com/china-rules-limit-teenage-online-gameplay/

References

Bain, J.S. (1956), *Barriers to New Competition, their Character and Consequences in Manufacturing Industries*, Harvard University Press, Cambridge, MA, .

Balabanis, G., Diamantopoulos, A., Mueller, R.D., Melewar, T.C. (2001), "The impact of nationalism, patriotism and internationalism on consumer ethnocentric tendencies", *Journal of International Business Studies*, Vol. 32 No.1, pp.157-75.

Barboza, D. (2005), "Ogre to slay? Outsource it to Chinese", *New York Times*, available at: www.nytimes.com/2005/12/09/technology/09gaming.html (accessed December 9, 2006), .

Barme, G. (1999), *In the Red: On Contemporary Chinese Culture*, Columbia University Press, New York, NY, .

Barnwal, R. (2006), 41% Online Indians Prefer Indian Language Website, 6 July, available at: http://alootechie.com/News/1192.asp (accessed December 11, 2006), .

bbc.co.uk (2004), "China censors online video games", June 1, available at: http://news.bbc.co.uk/1/hi/technology/3766023.stm, .

BBC News (2007), "China enjoys anti-corruption game", August 2, available at: http://news.bbc.co.uk/2/hi/asia-pacific/6928279.stm, .

Becker, D. (2004), "Online-game developers eye China market", *CNET News.com*, 14 May, available at: www.news.com/Online-game-developers-eye-China-market/2100-1043_3-5212499.html, .
Beijing Review (2003), "Administration of Online gaming", *Beijing Review*, July 17, Vol. 46 No.29, .
Beise, M. (2001), *Lead Markets: Country-Specific Success Factors of the Global Diffusion of Innovations*, Physica-Verlag, Heidelberg, .
Bhanoo, S. (2009), "Cloud computing may curb video game piracy", *CIO*, March 26, 2009, available at: www.cio.com/article/486979/Cloud_Computing_May_Curb_Video_Game_Piracy, .
Bhattacharya, A., Michael, D.C. (2008), "How local companies keep multinationals at bay", *Harvard Business Review*, Vol. 86 No.3, pp.84-95.
Bonasia, J. (2009), "Getting down to business", *Investor's Business Daily*, March 6, available at: www.investors.com/editorial/IBDArticles.asp?artsec=23&issue=20090306, .
Bremner, B. (2006), "China's online gaming craze: the mainland market for online games is set to surpass $2 billion by the end of the decade and beat out South Korea as king", *Business Week Online*, July 24, .
Burns, E. (2006a), "Global Internet adoption slows while involvement deepens", April 3, available at: www.clickz.com/stats/sectors/geographics/article.php/3596131, .
Burns, S. (2006b), "Love and money lure Chinese to online games: millions of gamers find romance online, but most games companies are losing money", *vnunet.com*, April 27, available at: www.infomaticsonline.co.uk/vnunet/news/2154888/china-online-games-forecast?page=2, .
Burns, S., Taylor, C. (2000), "Promises, promises", *Far Eastern Economic Review*, Vol. 163 No.14, pp.42-4.
Business Week Online (2008), "Movers: Goldman Sachs, Zions, Best Buy, La-Z-Boy, Elan", *Business Week Online*, June 18, pp.17.
Business Wire (2006), "The online games market in India is starting to heat up due to an increase in internet users and broadband penetration", *Business Wire*, April 21, .
Calbreath, D. (2004), "China invents ways to avoid paying royalties to tech companies", *Knight Ridder Tribune Business News*, 23 February, pp.1.
Castronova, E. (2005), *Worlds to Conquer Online: Multiplayer Gaming Comes of Age Synthetic Worlds: The Business and Culture of Online Games*, University of Chicago Press, Chicago, IL, .
Chan, W. (2007), "The Chinese telecom/IT outsourcing market and Infosys' experience", paper presented at ChinaTel Summit and VC Forum 2007, Honolulu, HI, January 13-14, .
Chao, L., Ye, J. (2007), "Game over for a corruption-battling videogame in China", *Wall Street Journal*, (eastern edition), pp.B1.
China Daily (2008), "China gets its game on", 5 May, available at: www.chinadaily.com.cn/bizchina/2008-05/05/content_6661519.htm, .
China Daily Online (2006), "In-game ad deal tests new medium", June 23, available at: www1.cei.gov.cn/ce/doc/cenl/200606231468.htm, .
Chinatechnews (2008), "Baidu brewing plans to enter online games market", 21 April, available at: http://chinamarket.ccidnet.com/market/article/content/505/200804/179910.html, .
chinaview.cn (2007), "Chinese online game to be launched in Malaysia", *chinaview.cn*, November 2, available at: http://news.xinhuanet.com/english/2007-11/02/content_6999597.htm, Vol. 17 pp.56-9.
Christensen, T. (1996), "Chinese Realpolitik", *Foreign Affairs*, Vol. 75 No.5, pp.37-52.
Chung, O. (2007), "China scores in online games battle", available at: www.atimes.com/atimes/china_business/ie19cb02.html, .
Clements, B., Beslay, L., Gilson, D. (2004), "Cyber-security issues", available at: www.jrc.es/home/report/english/articles/vol57/EDI1E576.htm, .
CNNIC (2001), "Semi-annual survey report on the development of China's Internet", China Internet Network Information Centre, available at: www.cnnic.gov.cn/develst/e-cnnic200101.shtml (accessed May 26, 2001), .
(1996), in Corrado, A., Firestone, C. (Eds),*Elections in Cyberspace: Toward a New Era in American Politics*, Aspen Institute, Washington, DC, .
De, Y. (2008), "Online game industry deals paralyzed", *The Economic Observer Online*, February 20, available at: www.eeo.com.cn/ens/Industry/2008/02/20/92646.html, .
Ding, S. (2007/2008), "Digital diaspora and national image building: a new perspective on Chinese diaspora study in the age of China's rise", *Pacific Affairs*, Vol. 80 No.4, pp.627-50.

(The) Economist (2006), "Special report: the party, the people and the power of cyber-talk – China and the internet", *The Economist*, April 29, pp.28.
(The) Economist (2008a), "Business: alternative reality: the internet in China", February 2, pp.70.
(The) Economist (2008b), "Rewired", *The Economist*, Vol. 387 No.8582, pp.69.
Efendioglu, A.M., Yip, V.F. (2004), "Chinese culture and e-commerce: an exploratory study", *Interacting with Computers*, Vol. 16 No.1, pp.45-62.
Einhorn, B. (2004), "Why Beijing has 3G on hold", available at: http://yahoo.businessweek.com/bwdaily/dnflash/nov2004/nf20041123_6420_db065.htm, .
Ewing, R.D. (2007), "China's online video game wars", *The China Business Review*, Vol. 34 No.4, pp.45-9.
Flannery, R. (2003), "Fun and games in China", October 30, available at: www.forbes.com/2003/10/30/cz_rf_1030gaming.html, .
Fowler, G.A., Guth, R.A. (2004), "Electronic arts aims for Chinese gamers with plans for studio", *Wall Street Journal*, (eastern edition), pp.B1.
Frater, P. (2008), "Electronic arts scores regional goal with 'FIFA Online' game", March 7, available at: www.varietyasiaonline.com/content/view/5642/, .
gamasutra.com (2008), "Interview: Niko's Hanson on Chinese game biz growth", May 2, available at: www.gamasutra.com/php-bin/news_index.php?story=18473, .
Gibbs, J., Kraemer, K.L., Dedrick, J. (2003), "Environment and policy factors shaping global e-commerce diffusion: a cross-country comparison", *Information Society*, Vol. 19 No.1, pp.5-18.
Greenberg, A. (2007), "The top countries for cybercrime", *Forbes.com*, July 17, available at: www.forbes.com/2007/07/13/cybercrime-world-regions-tech-cx_ag_0716cybercrime.html (accessed 9 April 2008), .
Hansen, M. (1999), *Lessons in Being Chinese: Minority Education and Ethnic Identity in Southwest China*, University of Washington Press, Seattle, .
Hindustan Times (2006), *Rise and Shine*, November 22, .
Hongjun, H. (2008), "Domestic online game industry on fast track", *China Economic Net*, March 3, available at: http://en.ce.cn/Insight/200803/03/t20080303_14705054.shtml, .
Hormats, R.D. (2001), "Asian connection", *Across the Board*, Vol. 38 No.1, pp.47-50.
Ilett, D. (2007), "China's very different online world around the world: Ebay's auction model is turned upside down; Dollars 35bn is spent on online services; and users live with censorship", *Financial Times*, February 12, pp.10.
Internet Weekly News (2008), "Trend micro incorporated: the most dangerous malware of 2008 came from the internet", *According to Trend Micro Threat Research Analysis*, December 29, pp.5.
Jenkins, H. (2006), "National politics within virtual game worlds: the case of China", August 2, available at: www.henryjenkins.org/2006/08/national_politics_within_virtu_1.html, .
Jennings, L. (2006), "Worlds to conquer online: multiplayer gaming comes of age", *The Futurist*, Vol. 40 No.4, pp.60-1.
Kalathil, S. (2002), "Community and communalism in the information age", *Brown Journal of World Affairs*, Vol. 4 No.1, pp.347-54.
Kapoor, R. (2006), "Online ventures: lessons from China", *Business Week Online*, October 10, pp.19.
Koprowski, G.J. (2006), "China internet use catching up with US", TechNewsWorld, .
kotaku.com (2008), "Chinese online gaming rebounds after earthquake", May 28, available at: www.kotaku.com.au/games/2008/05/28 (accessed 19 September 2008), .
KPMG (2007), "The video games market in China: moving online", *KPMG*, available at: www.kpmg.com.sg/publications/ICE_VideoGamesMarket2008.pdf, .
Kshetri, N. (2007), "Institutional changes affecting entrepreneurship in China", *Journal of Developmental Entrepreneurship*, Vol. 12 No.4, pp.415-32.
Kshetri, N. (2008), *The Rapidly Transforming Chinese High Technology Industry and Market: Institutions, Ingredients, Mechanisms and Modus Operandi*, Chandos Publishing, Oxford, .
Landreth, J. (2007), "Game demand injects Shanda's big Q3", *Hollywood Reporter*, November 29, Vol. 402 pp.11.
Laschinger, K. (2005), "Enter the dragon", *Finance Week*, 17 January, pp.8-10.

Lee, M. (2007), "Online gaming reaches a frenzy in China: addiction issues push government to further regulate the booming market", August 10, available at: www.msnbc.msn.com/id/20197378/, .
Linder, S.B. (1961), *An Essay on Trade and Transformation*, Almqvist & Wiksells, Uppsala, .
Liu, J. (2005), "Pirates pillage China's online game industry", *USA Today*, May 13, available at: www.usatoday.com/tech/world/2004-05-13-china-game-piracy_x.htm, .
Liu, M. (2008), "Mao to now: China is thousands of years old but has been made anew in the last three decades, and my family with it", *Newsweek*, Vol. 151 No.1, pp.40.
Logan, C. (2008), "Giant Interactive shares soar after ZT Online game users top 2.1 million", *Thomson Financial News*, April 28, available at: www.forbes.com/markets/feeds/afx/2008/04/28/afx4941072.html, .
McDonald, H. (2005), "Chinese take on Japan in 'patriotic' game", 1 September, available at: www.theage.com.au/news/technology/chinese-take-on-japan-in-patriotic-game/2005/08/31/1125302629627.html, .
McKinsey Quarterly (2006), "Building brands in China", *McKinsey Quarterly*, available at: www.mckinseyquarterly.com/article_abstract.aspx?ar=1795&L2=16&L3=14 (accessed December 11, 2006), .
Madden, N. (2006), "Marketers in China 'grab the sofa'", *Advertising Age*, Vol. 77 No.40, pp.16.
Maidment, P. (2008), "China.com", 9 January, available at: www.forbes.com/business/2008/01/09/china-internet-media-biz-media-cx_pm_0109notes.html (accessed January 26, 2008), .
Milbank, D. (1999), "Virtual politics", *The New Republic*, July 5, pp.22-7.
Morris, I. (2006), "China's broadband boom", *Telecommunications – International Edition*, Vol. 40 No.11, pp.16-18.
msnbc.com (2006), "China says number of web users hits 123M: jump of nearly 20 percent is past year; broadband use soars", July 19, available at: www.msnbc.msn.com/id/13931834 (accessed 19 September 2006).
M2 Presswire (2006), "Research and markets: almost all of the revenues generated by game companies in China comes from the online games industry", *M2 Presswire*, 12 December, .
newsgd.com (2005), "'Anti-Japan war online' game to hit the market", September 1, available at: www.newsgd.com/Specials/60thanniversaryofwaragainstjapaneseaggression/anniversarynews/200509010026.htm, .
newsroom.msu.edu (2008), "Virtual China: online game teaches Chinese culture and language", Michigan State University Division of University Relations, June 24, available at: www.newsroom.msu.edu/site/indexer/3423/content.htm, .
Nystedt, D. (2004), "Online gaming growing fast in China, study says", available at: http://archive.thestandard.com/movabletype/datadigest/archives/003210.php, .
Oksenberg, M. (1987), "China's confident nationalism", *Foreign Affairs*, Vol. 65 No.3, pp.501-23.
Ong, A. (1997), "Chinese modernities: narratives of nation and of capitalism", in Ong, A., Nonini, D. (Eds),*Underground Empires: The Cultural Politics of Modern Chinese Transformation*, Routledge, New York, NY, .
Pearl Research (2008), "China's online games market: grab a joystick and enjoy the ride", April, available at: http://seekingalpha.com/article/71533-china-s-online-games-market-grab-a-joystick-and-enjoy-the-ride, .
Pei, M. (2006), *China's Trapped Transition: The Limits of Developmental Autocracy*, Harvard University Press, Cambridge, MA, .
Porter, M. (1990), *The Competitive Advantage of Nations*, Macmillan, London, .
PR Newswire (2006), "US Walt Disney internet group and Shanda to bring Disney content to China's online game market", PR Newswire, May 24, .
PR Newswire (2007a), "China's online games demonstrate originality in new era of export", PR Newswire, January 24, available at: www.tmcnet.com/usubmit/2007/01/24/2280420.htm, .
PR Newswire (2007b), "99Bill and perfect world to promote online payment", PR Newswire, October 30, .
PR Newswire (2008), "New McAfee research shows regionalized malware rising: more attacks tailored to different cultures and technologies", PR Newswire, February 21, .
Restall, H. (2007), "China: fragile superpower: how China's internal politics could derail its peaceful rise", *Far Eastern Economic Review*, Vol. 170 No.5, pp.72-5.
rttnews.com (2008), "Perfect world signs agreement with Cubinet Interactive to license 'Chi Bi' in Southeast Asia – Upda", June 17, available at: www.rttnews.com/ArticleView.aspx?Id=632800&SMap=1, .

Sautman, B. (2001), "Peking man and the politics of paleoanthropological nationalism in China", *The Journal of Asian Studies*, Vol. 60 No.1, pp.95-124.
Schiesel, S. (2006), "An online game, made in America, seizes the globe", *New York Times*, September 5, pp.A1.
Schramm, C.J. (2004), "Building entrepreneurial economies", *Foreign Affairs*, Vol. 83 No.4, pp.104.
Secured Lender (2004), "E-commerce news", *Secured Lender*, Vol. 60 No.5, pp.62-4.
Segal, A. (2004), "Is America losing its edge?", *Foreign Affairs*, Vol. 83 No.6, pp.2.
Shanghai Daily (2008), "In-game advertising market to double this year", Shanghai Daily, available at: www.csc.mofcom-mti.gov.cn/csweb/scc/info/Article.jsp?a_no=113257&col_no=156 (accessed February 21, 2008), .
Shlapentokh, D. (2002), "Post-Mao China: an alternative to 'the end of history'?", *Communist and Post – Communist Studies*, Vol. 35 No.3, pp.237.
Simon, D. (2001), "The microelectronics industry crosses a critical threshold", *The China Business Review*, Vol. 28 No.6, pp.8-20.
Takahashi, D. (2008), "Chinese online game market forecast to more than triple in five years", May 2, available at: http://venturebeat.com/2008/05/02/chinese-online-game-market-forecast-to-more-than-triple-in-five-years/, .
Thomson Financial News (2008), "China's Baidu to launch online game business – report", April 17, available at: www.forbes.com/markets/feeds/afx/2008/04/17/afx4905264.html, .
Tilton, J.E. (1971), *International Diffusion of Technology: The Case of Semiconductors*, Brookings Institution, Washington, DC, .
Tindal, R. (2003), "Building guanxi on the Web: 10 tips for creating an online presence in China", *Public Relations Tactics*, Vol. 10 No.7, pp.6.
Vernon, R. (1966), "International investment and international trade in the product cycle", *Quarterly Journal of Economics*, Vol. 80 pp.190-207.
Wagner, J.S. (2008), "When play turns to trouble", *US News & World Report*, May 19, Vol. 144 No.14, pp.51-3.
Weber, L.M., Loumakis, A., Bergman, J. (2003), "Who participates and why? An analysis of citizens on the Internet and the mass public", *Social Science Computer Review*, Vol. 21 No.1, pp.26-42.
Wikipedia (2008), "Overseas Chinese", available at: http://en.wikipedia.org/wiki/Overseas_Chinese, .
Wilson, C. (2007), "IPTV lessons from China", *Prism Insight*, May 10, .
Weitao, L. (2005), "China tuning into IPTV biz", *China Daily*, 31 March, available at: www.chinadaily.com.cn/english/doc/2005-03/31/content_429829.htm, .
Xinhua (2007), "China's online game industry on a roll", 13 April, available at: www.chinadaily.com.cn/china/2007-04/13/content_850411.htm, .
Xinhua (2008), "China's online game players to reach 59 million in 2008, survey finds", January 22, available at: http://english.people.com.cn/90001/90776/90882/6342378.html, .
Xinhua News Agency (2006), "China to train online game developers", June 30, available at: http://english.hanban.edu.cn/english/2006/Jun/173274.htm, .
Xinhua News Agency (2007), "China's mobile online game sales surge", October 19, available at: www.china.org.cn/english/entertainment/228880.htm, .
Yang, G. (2006), "The internet and civil society in China: co-evolutionary dynamics and digital formations", in Dittmer, Lowell, Liu, Guoli (Eds),*China's Deep Reform: Domestic Politics in Transition*, Rowman & Littlefield, Lanham, MD, pp.303-18.
Yulei, G. (2007), "Prospecting for internet gaming gold in China: Chinese online game portals roll the dice on the future", *www.bjreview.com.cn/business/txt/2007-04/13/content_61619.htm*, .
Zheng, Y. (2007), *Technological Empowerment: The Internet, State, and Society in China*, Stanford University Press, Stanford, .
Zhou, L., Hui, M.K. (2003), "Symbolic value of foreign products in the People's Republic of China", *Journal of International Marketing*, Vol. 11 No.2, pp.36-58.
Zhou, M. (2008), "Mourning China halts gaming sites, darkens portals", May 19, available at: www.marketwatch.com/news/story/mourning-china-game-sites-shutter/story.aspx?guid=%7BB6712C71-14C4-47FE-BAA6-930D5893D2FE%7D&dist=msr_4, .

Further Reading

Fest, G. (2005), "Offshoring: feds take fresh look at India BPOs: major theft has raised more than a few eyebrows", *Bank Technology News*, Vol. 18 No.9, pp.1.

Schiesel, S. (2007), "In a new merger, evidence of how much the gaming world has changed", *New York Times*, 5 December, pp.E3.

Schiesel, S. (2008), "The video game may be free, but to be a winner can cost money", *New York Times*, January 21, pp.C1.

Schwartz, K.D. (2005), "The background-check challenge", *InformationWeek*, Vol. 1048 pp.59-61.

tribuneindia.com (2005), "Outsourcing crime call centre expose can wreak havoc", June 25, available at: www.tribuneindia.com/2005/20050625/edit.htm, .