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PPS.tv and China's Online Video Distribution Market

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As Kevin Anthony, Roger Chen, Aaron Rackoff, and Wai Yan Wong—members of a G-Lab team from MIT Sloan—sat on the steps of the crowded terminal at Hongqiao Airport in Shanghai, China, Chen broke the silence: "There's no easy way out."

Chen was referring both to the jam-packed airport exits and to the strategic dilemma facing one of the team's project clients, PPS.tv (PPS), a Chinese peer-to-peer (P2P) online video provider with venture capital backing from Qiming Venture Partners. By January 2008, PPS had reached a pivotal stage of its expansion, and was under significant pressure to deliver both profitability and a larger user base. In order to do so, the small start-up had to decide which strategic direction made the most sense.

The first option was to focus on the small and relatively immature online advertising market in China, dominated by much larger and more established portal sites. Another option was to attempt to internationalize PPS' service offerings in the United States and other countries where more money was available, notwithstanding the company's lack of expertise, customers, or extensive content provider relationships. Third, the firm could shift its focus to its technical strong suit and patent the company's highly innovative streaming protocol technology, licensing its technology to leading content distributors abroad.

With China's online video space becoming more and more competitive by the day, PPS could not waste time in choosing a direction.

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The Online Video Market in China

Inspired by Google's $1.65 billion acquisition of YouTube in October 2006, investors had made big bets on the web video space in China, which had the world's second largest Internet user base as of year-end 2007 and was projected to eclipse the United States in 2008.[1] (See **Exhibit 1** for Chinese Internet user growth projections.) According to iResearch, Inc., revenue from the online video business in China totaled about $64.7 million in 2006 and was expected to rise to $500 million by 2010.[2] Large investments had been poured into this blossoming market. China's online video industry had received $120 million in venture investment since 2005,[3] and in 2007, 11 online video firms received a combined $52.7 million in venture capital funding, up almost 40% over 2005.[4] In 2006 alone, the number of video sharing websites in China had sky-rocketed from 30 to 300.

By January 2008, when the MIT Sloan G-Lab team arrived in China, hundreds of online video sharing sites were competing for advertising dollars and, therefore, users. Advertisers were particularly interested in traffic statistics, viewing and click-through rates, and user demographics. In order to attract more and more Internet users, video sharing sites had to excel in three ways:

1. *Speed*. In China, multiple independent Internet networks (China Telecom, China Netcom, and CERNET) serving different regions provided dramatically different user experiences. Upload and download speed varied enormously, depending on the origin and destination of the server and the type of computer being used. As a result, online video sites needed to work extensively with telecom companies that served the geographical areas of their target users.

2. *Viewing Experience*. Viewing experience depended on the quality of the media, how up-to-date the content was, and the client's software and relevant technologies. In terms of content and product offerings, many of the online video sites had up-to-date TV drama shows as well as user-generated videos. For example, UUSee had expanded to allow users to watch TV as well as videos online. It also worked with large television programmers and TV broadcasters, such as CCTV and Shanghai Media Group, to get the most updated programs. Many of the online video sites also fed into blogging and other social networking services.

   In terms of format and technologies, online video sites in China could be divided into three big categories:
   - Peer-to-Peer (P2P) broadcasting and downloading
   - Web 2.0 video sharing
   - Video on demand downloading

[1] *The Economist*, "Alternative Reality" (January 31, 2008).

[2] iResearch, Inc., "China Online Advertising Annual Research Report" (2006).

[3] iResearch, Inc., "China Online Advertising Annual Research Report" (2006).

[4] http://www.ChinaVenture.com.cn/cvac2007_cn (as of February 2, 2008).

Measured in terms of user traffic, PPS was the top video site in the P2P broadcasting category. Tudou was the top Chinese site for Web 2.0 video sharing. Xunlei, VeryCD and BitTorrent were the most popular video downloading sites. Most of these sites had their own client software to enrich the user experience.

3. *User Community*. Because community was an essential part of Chinese culture, online video sites provided easy ways for viewers to form groups and connect with others with similar interests. Tudou.com, China's first video sharing site, offered social-networking services such as wikis and forums to its more than 30 million users. In general, the users of these online video sites were younger people in the 16-25 age range.

The competition in China's online video business was fierce. It was hard to create a group of loyal customers because of low switching costs and the vast selection of offline and online video content, much of which was pirated. Roughly 90% of music consumed was pirated and illegal copies of Hollywood blockbusters could be purchased on the streets of major cities for as little as US$1 each, sometimes before they had been released in Asian cinemas.[5] Because many video sites provided popular, pirated content, an entire generation of users was accustomed to consuming it for free, making it difficult to grow a user base without providing illegitimate content. Faced with such competition, a video site in China would struggle to acquire and keep viewers if fees were involved – particularly fees as high as, say, the iTunes rate of US$9.99 for an entire film.

One of the biggest challenges facing online video startups was the entry of some of the large, well-established online portals, such as SINA, Sohu.com, Baidu.com, and Netease.com. Having high levels of user traffic, established relationships in the advertising industry, and deep pockets, these companies had a higher chance of success in the online video business, as well as in gaining advertising dollars.

Online Advertising in China

Because the Chinese consumer had become used to getting online music and video content for free, online video sites like PPS viewed the expanding online advertising market as a critical source of revenue. (See **Exhibit 2** for data on online marketing in China.) Consequently, it was essential that PPS understood the fundamentals of the Chinese online advertising market, which, historically, had been motivated by two key objectives:

- Brand Awareness: promotion to build a firm's trademark.
- Product/Service Awareness: marketing to endorse a company's new and existing offerings.

Online advertisers in China's market were made up of large global conglomerates, small, domestic concerns, and everything in between. The more desirable "majors" included global conglomerates

[5] Tim Culpan, "Industry Awaits IP Court in China," *Billboard* 118:16 (April 22, 2006); Economist Intelligence Unit (EIU), "Country Commerce: China" (2008), 56.

looking to expand or gain a foothold in China (Procter & Gamble, Nokia, et al.) as well as China's largest firms (Bank of China, China Life Insurance, China Mobile, etc.). However, the millions of relatively low-profile Chinese Small-to-Medium Enterprises (SMEs) that continued to proliferate remained a potentially attractive segment for PPS. Industry experts interviewed by the G-Lab team indicated that approximately 70% of advertising expenditures went toward traditional media (TV), with the balance (30%) spent on non-traditional mediums. PPS' management team estimated that online advertising revenues in China were around 1% of those in the United States.

China's most successful online media distributors executed on a technically advanced platform, capable of delivering advertisements via a wide variety of forms targeted to select users in a manner that was minimally intrusive to the end user. Though users had grown accustomed to six primary means of online advertising (**Exhibit 3**), two promising hybrid methods had recently emerged:

- *Contextual Overlay Ads*. Arguably the most promising of online ad forms, in this method the marketer plugged in its brand or product/service in the middle of content viewing only at relevant times. For example, when a movie heroine complained of a "pounding headache," Novartis paid the content distributor for a small screen window (typically in the bottom fifth of the viewing area) to remind users that Excedrin® was "The Headache Medicine."™

- *Product Placement Ads*. Merchants paid for their products to appear in video content viewed onscreen by users. For example, Coca-Cola would pay for its PowerAde® logo to appear on the beverage container of a thirsty star athlete. This method of advertising was more easily implemented by content producers than content distributors.

Advertisers' Needs

Field research conducted by the MIT Sloan G-lab team – including interviews with senior advertising executives, veteran online media venture capital investors, and startups successful at courting advertisement revenues – indicated that in order to build firm value, a successful online video provider would have to deliver as much of the following as possible:

- *Critical Scale of Advertising Platform*. The content provider had to be large enough to generate a volume of users sufficient to attract new product consumers.
- *Attractive Audience Demographics*. The provider needed to reach consumers that were aligned with the advertiser's products or services.
- *Ability to Target Relevant (Potential) Customers*. The provider had to have the technology or capability to segment and select the *desirable* customers.
- *Quality of User Experience*. Advertisers wanted professionally produced, broadcast- and cinema-quality media that was delivered to users via a reliable and consistent interface. They did not want their brand and products associated with a substandard content provider that delivered poor quality productions or unreliable streaming services.

- *Capability to Utilize Different Ad Formats*. The content provider had to provide multiple format options.
- *Ad Effectiveness*, as measured by:
    - Viewership
    - Click through rate
    - Conversion statistics
    - Free trial. The demonstrated value had proven compelling to potential customers and allowed them to test and refine consumer delivery strategies.
- *Third Party Audits*. Advertisers wanted statistics on all the criteria above, and they wanted to know that those statistics were reliable.

But even if all these needs were met, advertisers continued to face the large stumbling block of piracy. Big multinational brands and advertisers that had money to spend online in China and understood the value proposition of online advertising were loath to advertise with companies providing illegitimate content, for fear of lawsuits and PR trouble. Chinese advertisers, on the other hand, were less sensitive to intellectual propery rights (IPR) issues, but had very small advertising budgets (particularly for online advertising), were much less Internet-savvy, and did not yet trust Internet advertising companies and metrics – similar to what advertisers experienced in the United States in the mid- to late-1990s. And both the advertisers and the sites themselves were wary of the periodic government crackdowns on IPR violations, reflected both in civil IPR cases – more than 17,000 in 2007, a nearly three-fold jump since China joined the World Trade Organization six years earlier – and in harsher sentences for violators, ranging from fines to jail time to even capital punishment. It was true that China had long been known for its inability and/or reluctance to enforce its Internet regulations. However, Chinese IPR enforcement seemed likely to increase, both because China had more of its own patents to protect (over 350,000 in 2007 alone) and because the government wanted to safeguard both reputations and broadcasts during the 2008 Beijing Olympics.[6]

PPS.tv

History and Technology

Based in Shanghai, China, PPS.tv provided Chinese Internet consumers with professionally-produced online video content in the form of movies, TV shows, and sports, for free. The company's founders, Vincent Xu, Lei Liang, and Zhang Hongyu, and VC firm Qiming Venture Partners, the Chinese arm of Seattle's Ignition Partners, decided to focus on this segment to avoid the crowded (100+ companies in China alone) user-generated content space, where content was uploaded by individual users. In addition, they avoided the content risk posed by unpredictable user-generated videos. (See **Exhibits 4** and **5** for PPS's founder biographies and recent history.)

[6] Culpan; EIU, 56, 126; "China vows harsher punishment on piracy," *China Daily* (June 27, 2008); "The week in review," *Interfax-China IT Weekly* (June 27, 2008).

PPS had also avoided one of the major handicaps faced by its competitors: slow and expensive technology. In order to successfully compete in China's online video space, where PPS and Qiming had found that operating costs were almost four times those of the United States, an online video distributor had to make significant investments in a nation-wide video-uploading and downloading system and in bandwidth, data storage, server support, and licensing, just to achieve the scale necessary for users in different parts of China to access Internet videos with high quality. Technical engineers at PPS had developed proprietary streaming software that provided content distributors a complete suite of services, including P2P speed-up, content distribution, and a video on demand (VOD) network solution. This suite had three core competitive advantages:

1. *Low Operation Costs*. PPS needed only 1/100 of the conventional bandwidth to provide its VOD service. In contrast, its competitors had to pay more to ISPs for high bandwidth user traffic.

2. *Superb User Experience*. The PPS P2P video serving technology provided users the best service all around the world. On PPS.tv, users could start watching a video as soon as they clicked on the relevant link and did not have to wait for buffering and downloading. Moreover, PPS.tv improved with scale. The more people that watched the PPS service, the faster it became.

3. *Comprehensive Multimedia Format Support*. The PPS service supported all popular formats, including wmv, rm, rmvb, mp3, avi, wma, asf, mpg, flv, and mid, allowing users to consume a wide range of videos, cartoons and music content.

PPS was seeking to promote its server software and transmission protocol as the standard for video serving and transportation by working with companies in the video industry, including hardware providers, service providers, content providers, and browser providers (Internet Explorer, Firefox, etc). PPS management believed that if it could build the right partnerships and set the industry standard, the company could build a lucrative business licensing its technology.

But in order to do so, PPS management knew it would have to protect its intellectual property (IP), not an easy undertaking in China. By patenting its streaming technology, PPS felt it could increase its product marketing and acquire users from partner websites and content providers that chose to use the PPS server software. Proprietary IP would also give PPS new opportunities to expand revenue and cash flow, more safely monetize and license superior VOD stream technology to multiple media distributors, and diversify into international markets where consumers would likely be more willing to pay for content**.**

Yet PPS' founders were also wary of investing in a lengthy and expensive patent process that could distract them from their core business. Moreover, even if the technology received a patent, the patent would not prevent others from stealing the technology; it would only allow PPS to sue for compensation after a successful and potentially drawn-out legal process. And because the patent process would require PPS to publish its code, its competitors would be able to use VOD stream

technology without permission in countries with weak IP enforcement – China included. Indeed, even if it were to win a suit in a Chinese court, unless it could prove its business losses or the infringer's ill-gotten gains (often the case), PPS would end up with an award of no more than RMB500,000 (US$70,000).[7]

Strategic Position and Options Going Forward

By the time the G-Lab team arrived in Shanghai for its 3-week onsite internship, PPS had a user base of 50+ million users, surpassing its rival PPLive as the top P2P online video space in China. Users flocked to the service for superior streaming technology as well as a wide variety of licensed entertainment media, including NBA basketball game broadcasts (where viewers could see China's Yao Ming, for example), for which PPS paid considerable access fees. Maintaining its lead position would not be easy. In addition to competing in the cutthroat online video space, PPS competed for user attention with other forms of entertainment such as online games, and lagged far behind large portals and search engines such as Sina, Sohu, and Baidu, which each boasted 150 million users.

And then there was a more nagging issue. PPS needed to start generating revenues. As a venture-backed company in China, where the M&A market for online companies was tiny and big online portal companies preferred to build their own products, an IPO was the only major exit opportunity. However, Chinese law required three consecutive years of profitability before a company could apply for an IPO, after which it took another year to be approved for an IPO. This timeline would not likely be an attractive option for PPS' VC investor, Qiming.

Thus PPS faced dual, sometimes conflicting, challenges. The first challenge was growing its user base. PPS needed the user base not only to beat its P2P video rivals, but more importantly to match the user bases of the portals with which it competed for advertising dollars, and to enable targeted advertising to groups that were still large enough to be attractive to advertisers. PPS' users expected to watch professionally produced, national and international content and pay nothing to do so, and PPS could not afford to under-serve on these expectations. The second challenge was building revenues. PPS struggled to attract advertisers in the difficult and relatively immature Chinese online advertising market, where advertisers spent only 3% of their advertising budget online, and allocated most of that 3% to more established portals and search engines which they considered to be less of a financial risk.[8] If advertising was not possible, PPS would have to develop an alternate revenue model.

After a long and hard look at the company and its competitive environment, PPS, Qiming, and the G-Lab team identified three options for PPS' growth strategy and business model.

[7] "Mainland companies wise up to their intellectual property rights," *South China Morning Post* (July 7, 2008).

[8] iResearch, Inc., "China Online Advertising Annual Research Report" (2006).

1. *Focus on attracting advertisers in China*. With over 50 million users, PPS could court advertisers for its product in China. However, advertisers in China, both large corporations and SMEs, required significant education in online advertising, having historically focused almost exclusively on traditional media. Advertisers also distrusted most online companies' metrics. As one advertising executive interviewed by the G-Lab team put it, "there are lies, damn lies, and Chinese Internet statistics." Advertisers were also wary of sites whose users were predominantly young people who had minimal purchasing power. Furthermore, even large companies in China had small budgets for online advertising, and had focused that limited money on more established portals with three times the user base of PPS.

   If PPS and Qiming chose to be patient, they could wait for the market to develop further and then recruit more users, enabling them to compete more effectively with the big portals for advertising dollars. On the other hand, if PPS wanted to hold an IPO (the only real exit opportunity), it needed to be profitable as soon as possible to demonstrate the three consecutive years of profitability required by government IPO regulations. SMEs had done very little online advertising, and almost all of the online advertising they paid for was with one site, Alibaba. It was very difficult to build a good sales force and hire an experienced sales director in China, particularly given how early the online advertising market was in its development. Pursuing this strategy would also require a very large sales force, because each sale would likely be small, particularly for SMEs, who were spread across the country and focused more on local promotion than national advertising.

2. *Expand internationally to markets with more developed online advertising industries and/or where users were willing to pay for content*. PPS could expand into other countries (like the United States), where users were used to paying for content (e.g., on iTunes). In the United States, PPS might be able to sign on big international advertisers who understood the value of online advertising, had large online advertising budgets, and valued the kind of targeted advertising a company like PPS offered, faster than in China.

   However, PPS was based in China, had exclusively Chinese-speaking staff unfamiliar with foreign markets, had never marketed its product outside of China, and had not yet established its business model and profitability in its home country. It would face many entrenched competitors in the United States like Joost, YouTube, and BitTorrent, all with deeper pockets and more experience and relationships with respect to licensing U.S. content. In addition, licensing content in the United States and Europe might be extremely costly for a small Chinese venture-backed startup. International expansion could also prove to be a significant distraction from the Chinese market for the company's limited management attention.

3. *Patent PPS' superior technology in the United States and worldwide, and make money as a technology platform internationally*. An alternative option was to internationally patent PPS VOD streaming technology, which allowed for better quality, faster initialization of video, and lower

operating costs. PPS could then license the technology platform in the United States, Japan, and Europe, where there was a higher willingness to pay for video content and where the online advertising markets were more developed. This strategy, which would allow PPS to make money regardless of which online video brand provider dominated in each country, was analogous to the "General Store" strategy during the California gold rush, where the General Store that sold pick-axes always made money, whether or not prospectors struck gold.

While this strategy seemed attractive, it was also risky. If PPS disclosed its technology in public patent filings, its competitors in China could copy its technology, and PPS would likely lose its cost and quality advantage in its home market, where it would have limited legal recourse. Patent applicants could petition the USPTO to stop their filings from being displayed until they were issued, but these petitions were not always approved, and if the patents were granted, they would definitely be on display for all PPS competitors to analyze. It could take four years or more to have a patent issued, there was no guarantee that customers would want the technology four years later, and patent applications took significant time and money to be prepared. Additionally, the entire application process would potentially be a major distraction for the management team.

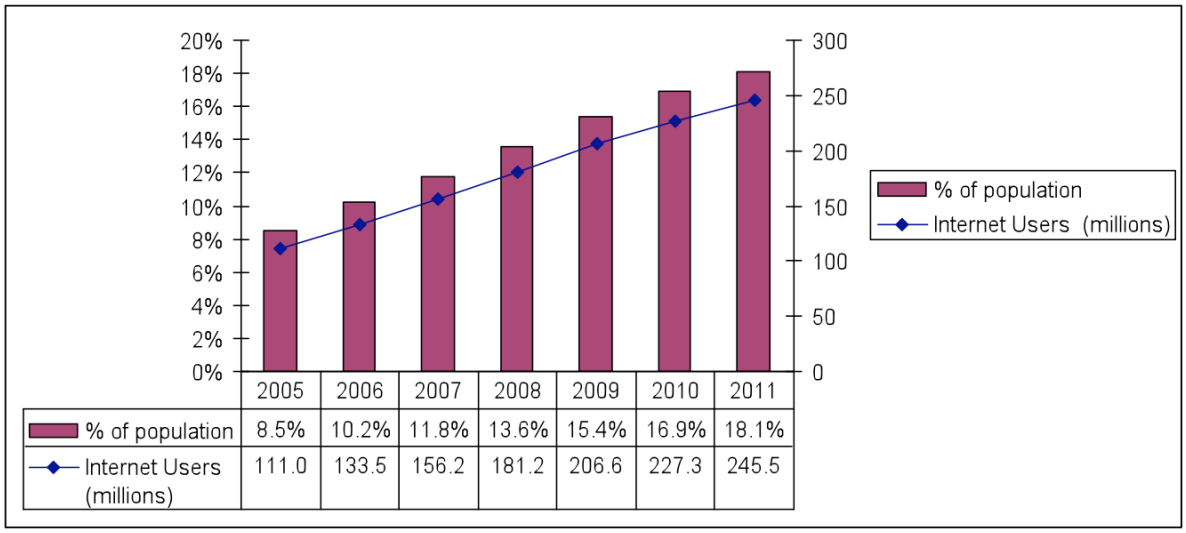
Conclusion

The PPS founders, along with Qiming, had to decide which strategy, or combination of strategies, made the most sense for PPS. What were the execution risks for each scenario? Would PPS be able to acquire advertisers in China and beyond? Should PPS attempt to internationalize its service and advertising sales, or change its business model to be a technology provider? PPS needed to raise its next round of financing in the coming months, and potential investors would be asking these questions. PPS needed answers.

Study Questions

1. If you were on the G-Lab project team, how would you evaluate the strategic options? What factors would be critical to consider?
2. What would you recommend to PPS? Why?

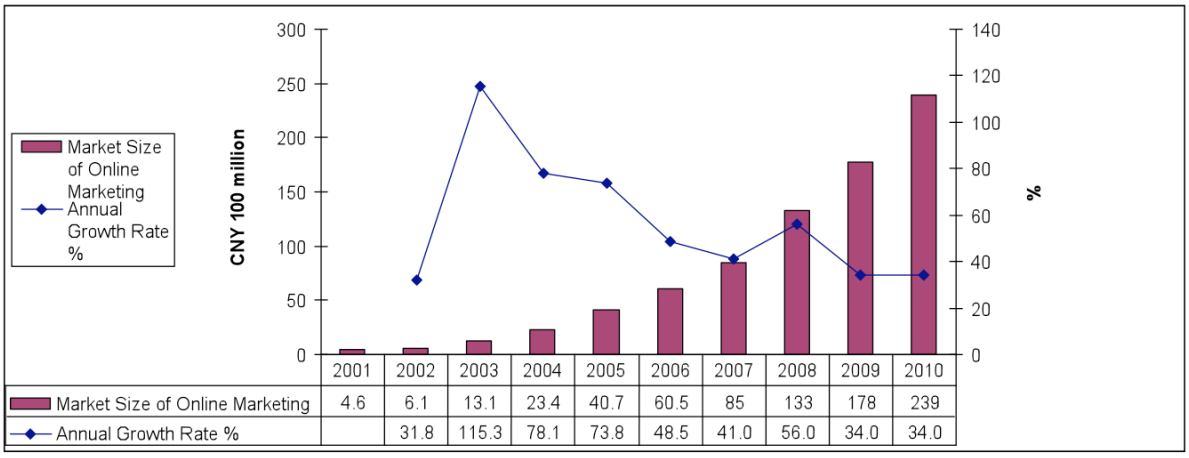
Exhibit 1 China's Internet User Growth Projections



	2005	2006	2007	2008	2009	2010	2011
% of population	8.5%	10.2%	11.8%	13.6%	15.4%	16.9%	18.1%
Internet Users (millions)	111.0	133.5	156.2	181.2	206.6	227.3	245.5

Source: emarketer, January 2007.

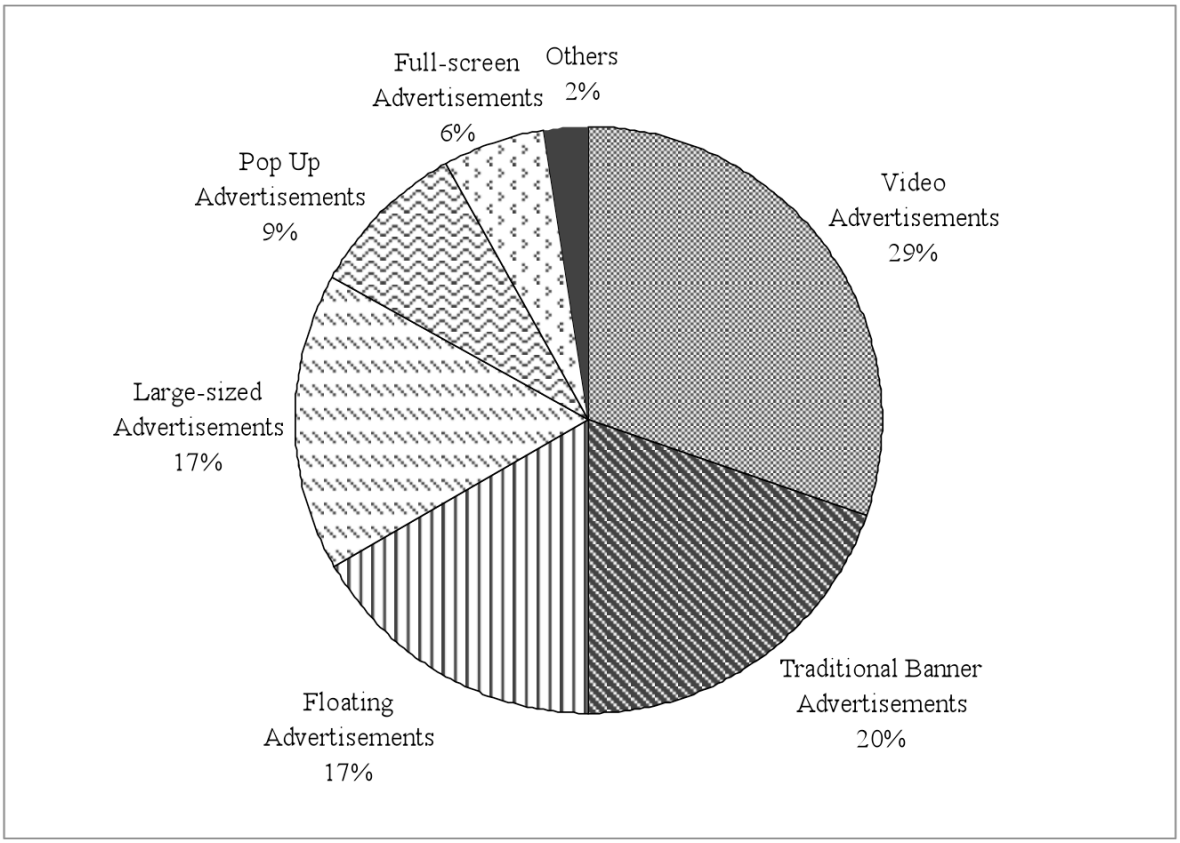
Exhibit 2 Online Marketing in China



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Market Size of Online Marketing	4.6	6.1	13.1	23.4	40.7	60.5	85	133	178	239
Annual Growth Rate %		31.8	115.3	78.1	73.8	48.5	41.0	56.0	34.0	34.0

Source: iResearch, Inc. China Online Advertising Annual Research Report (2006).

Exhibit 3 Advertisement Varieties Most Popular with End-Users



Sample description: n=2,883. iUserSurvey (November-December 2006)

Source: iResearch, Inc. China Online Advertising Annual Research Report (2006).

Exhibit 4 PPS.tv Founder Biographies

President: Vincent (Weifeng) Xu
Prior to PPS, he was General Manager of a famous P2P network company called EZpeer China. He led P2P software development and operation for EZpeer, Muper, and Mxie. He had also served as Marketing Manager and Vice General Manager.

CEO: Liang Lei; President: Hongyu Zhang
Liang Lei and Hongyu Zhang were champions of China's "2004 Yahoo Online Assistant," an original software competition. Their proprietary MP3 music hunter software demonstrated their abilities to innovate in the online media space.

Exhibit 5 PPS.tv History, 2005-2006

- June 2005: Initial Service Release.
- September 2005: The number of PCUs (peak concurrent users) exceeds 100K. Awarded first round of funding.
- October 2005: PCUs reach 250K. Awarded Best Potential Internet Service Prize for 2005.
- January 2006: PCUs exceed 400K (250K on a single channel). Reach 1 million unique IP addresses in a day.
- May 2006: Exclusive P2P streaming partnership established with Sina.com.
- July 2006: Exclusive technology provider for Shanghai Media Group for 2006 World Cup. Received content rights from Enlight Media, Pegasus & Taihe, and Entertainment International. PCU exceeds 2 million (700K on a single channel).
- August 2006: Obtained IPTV license. Received content rights for ESPN European Champion Cup, Hong Kong Phoenix TV, Shanghai Media, and Chinese Super Soccer Matches.