Explore the Future of China's Mobile Internet
Deloitte Technology, Media, Telecom Center of Excellence (TCOE) is the first TMT Center of Excellence established in China by an international renowned accounting and consulting firm. TCOE is also Deloitte's third regional TMT Center of Excellence following North America and Europe.

TCOE's vision and objectives are: leverage Deloitte's years of TMT service experiences, act in global perspective but at local basis to set up a think tank and research team. TCOE consists of strong global industry experts, research consultants and professional local research groups in China. TCOE will provide proactive thought leadership to service providers, upstream and downstream enterprises, industry authorities and regulators in China TMT industry.
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Introduction

In 2012, the global market size of mobile internet reached $1.5 trillion, accounting for 2% of the global GDP. Nowadays, the world is undergoing a shift from the internet era to a more mobile one. Mobile internet brings about huge opportunities and will create more than ten-fold the value created by traditional internet. However, mobile internet also presents tremendous challenges, faced even by the former industry tycoon Microsoft, which lost its leading advantage due to its ill-planned strategic position for mobile internet. Therefore, all industrial practitioners need to address the issues of how to grasp the opportunities in mobile internet and boost economic development.

Chengdu Hi-tech Industrial Development Zone (CDHT) worked with Deloitte China to co-publish the Explore the Future of China Mobile Internet report, which provides an overview of the global landscape of mobile internet and analyses its development among various industries, future opportunities, challenges and responses in a global perspective. In the course of writing this report, we interviewed a number of leading practitioners in finance, education, media and publication, games and medical care sectors to deeply discuss their strategic layouts and solutions in coping with the imminent era of mobile internet, and to propose new business models applicable to these industries. Parts of the report content were obtained from two large questionnaire surveys released by Deloitte in more than 20 countries including China.

The report marked the start of our collaboration with CDHT and is also the first issue of our series report (to be published regularly on an annual basis) regarding the development of the mobile internet industry. The report will continue tracing development trends, collecting the experiences of global leading figures and jointly exploring the industry development path of the mobile internet industry.

Deloitte Touche Tohmatsu Certified Public Accountants LLP

The Administrative Committee of Chengdu Hi-Tech Industrial Development Zone
I. The development trends of the global mobile internet industry

The world has entered the era of mobile internet from traditional internet between 2010-2012.

The world has entered the era of mobile internet from that of traditional internet between 2010-2012, during which, the shipments of mobile devices (including smartphones and tablets) have increased from 350 million to 1 billion; meanwhile, the shipments of traditional PCs (including desktop computers and laptops) have risen only slightly from 350 million to 353 million. Mobile devices have overwhelmingly surpassed PCs to become an indispensable key facility in our lives.

According to IDC's data, mobile devices have replaced PCs and have become the main portal for people to access the internet, particularly in the Asia Pacific region (See Figure 1):

**Figure 1:** Global proportion of internet-connected devices

![Chart showing proportions of internet-connected devices in APEC, US, and EMEA regions.]

Source: IDC, Q2 2012

According to a report released by Chetan Sharma Consulting, the market size of the global mobile industry reached USD1.5 trillion in 2012, accounting for nearly 2% of the global GDP. A prevailing prediction within the industry indicates that the future output value to be created by mobile internet will exceed that of the traditional internet by more than tenfold, thereby making the mobile sector the most promising emerging industry that may grow at the fastest rate to the largest size.

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1 The definition of smartphone for this report refers to phones with operating systems of iOS, Android and Windows Mobile.

2 Source: 2013 Deloitte TMT Predictions
1. Global mobile internet industry: US, South Korea and Japan leading the race

The earliest and most mature adopters of mobile internet are Japan and South Korea, topping the list with a smartphone penetration rate of 65% and 59% respectively. Following closely behind are Canada (55%), Sweden (54%), and Australia (50%); US (48%) and Hong Kong (48%) also did a good job in this respect.² (See Figure 1)

Figure 1: Smartphone penetration rate ranking

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Country/region</th>
<th>Smartphone penetration rate (%)</th>
<th>Smartphones in use (million)</th>
<th>Growth rate of smartphones in use (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Japan</td>
<td>65</td>
<td>78</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>South Korea</td>
<td>59</td>
<td>32</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>Canada</td>
<td>55</td>
<td>15</td>
<td>38</td>
</tr>
<tr>
<td>4</td>
<td>Sweden</td>
<td>54</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>5</td>
<td>Australia</td>
<td>50</td>
<td>16</td>
<td>44</td>
</tr>
<tr>
<td>6</td>
<td>US</td>
<td>48</td>
<td>172</td>
<td>50</td>
</tr>
<tr>
<td>7</td>
<td>Hong Kong</td>
<td>48</td>
<td>6</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: Informa, 2012

Figure 2: Distribution map of smartphones in use (list of global top 30 locations)

Source: Informa, 2012
In terms of the distribution of smartphones in use, Asia takes up nearly half of the global shares while North America accounts for nearly 20%. The remaining 30% is distributed among other countries and regions. Apart from early mobile internet adopters like Japan and South Korea, Asia also has emerging markets including China and India, which have large populations and are in the process of building a mobile network. These are the core regions of global mobile sector development. (See Figure 2)

In terms of the layout and implementation of 4G LTE, US, South Korea and Japan will continue to lead the mobile arena in the next few years. By Q2 2012, the market share of 4G in US reached 47%, making it the highest across the globe; South Korea (27%) and Japan (13%) were following behind, but at a great distance from the US. (See Figure 3)

**Figure 3: LTE market share by countries/regions**

![LTE market share by countries/regions](image)

Source: Wireless Intelligence, 2012

Though Japan and South Korea are the two earliest adopters of mobile internet, the US is and will continue to lead this market in the next few years with respect to number of smartphone users, penetration rate and telecom infrastructure, etc.

Apart from early mobile internet adopters like Japan and South Korea, Asia also has emerging markets including China and India, which have large populations and are in the process of building a mobile network. They are the core regions of global mobile sector development.

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3 Source: The statistics here were put together from Informa’s data of global top 30 countries/regions regarding the no. of smartphones in use.

4 Emerging market refers to high growth developing nations including China, India, Russia and Brazil, etc.
2. Emerging markets are to become the principal arena of mobile internet

Emerging markets led by China will become the principal market for mobile internet development. In terms of the overall number of smartphones in use, China topped the world with 270 million smartphone units by Q4 2012. Brazil (55 million) and India (44 million) ranked fourth and fifth respectively. Meanwhile, the number of smartphone users in China, India and Russia are increasing at an annual growth rate of nearly or more than 50% - India (52%), China (50%) and Russia (44%). Along with a large population base, emerging markets also hold the world’s highest number of smartphones in use and a growth rate close to 50%. Altogether, these factors will assure the future development of mobile internet. (See Figure 2)

Figure 2: Smartphone development in emerging markets

<table>
<thead>
<tr>
<th>Country</th>
<th>Smartphones in use (million)</th>
<th>Global ranking by smartphones in use</th>
<th>Growth rate of smartphones in use (%)</th>
<th>Smartphone penetration rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>270</td>
<td>1</td>
<td>50</td>
<td>24</td>
</tr>
<tr>
<td>Brazil</td>
<td>55</td>
<td>4</td>
<td>35</td>
<td>20</td>
</tr>
<tr>
<td>India</td>
<td>44</td>
<td>5</td>
<td>52</td>
<td>4</td>
</tr>
<tr>
<td>Russia</td>
<td>22</td>
<td>11</td>
<td>44</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Informa, 2012

In terms of the revenue of mobile operators, the shares of emerging markets in the global mobile market are consistently increasing. In 2008, China, India, Brazil and Russia contributed merely 25% to the global revenue of mobile business, whereas in 2012, this percentage rose to 42%. Emerging markets have played a key role in the development of the global mobile business. (See Figure 4)

Figure 4: Mobile revenue of operators on emerging markets

Source: Wireless Intelligence, Global and regional mobile revenue trends, 2012

Emerging markets led by China will become the principal market of mobile internet development.

Among the emerging markets, China has clear advantages in developing mobile internet. Led by Huawei and ZTE, Chinese manufacturers have become the global leaders in the manufacture of both hardware equipment and mobile terminal products. India has an advantage in demographic dividend, which can be used to develop mobile internet. In India, more than 50% of the population is under 26 years of age, making India the youngest nation with regards to age structure. These young people can quickly grasp the techniques and skills that mobile internet requires, thereby easily transforming them into mobile internet users and bringing about great market potential.
To developed countries, the mobile industry is an extension of the internet, or added benefits.

However, to developing countries, mobile internet is an essential conversion from no access to internet to affordable online services at any time, which is undoubtedly a timely help.

In this regard, mobile internet is of great significance in boosting the overall economy of developing countries.

3. Developing countries can make leapfrog developments in mobile internet

Developing countries can make leapfrog developments in mobile internet. In the early developing phases of the internet, the substantial investment required for infrastructures such as the internet main road and household broadband was unfit for developing countries and rural areas in particular. The mobile internet has significantly reduced these costs, thus allowing under-developed areas to easily access the internet. Smartphones under the price of RMB1000 have played a key role in increasing the penetration rate of mobile internet among developing countries.

In rural areas of developing nations, mobile internet offers local residents a leapfrog development opportunity, i.e.: skipping over the developing and thriving phases of traditional internet, and directly embracing the development of mobile internet, thus reducing the developing cost of traditional internet. This is what we call the "leapfrog" for developing nations to drive mobile industry growth.

Looking through the development trends of the global mobile industry, the 5 fastest-growing nations are all developing countries: respectively Mexico (55%), Argentina (55%), Iran (53%), India (52%) and Turkey (52%).

To developed countries, the mobile internet industry is an extension of the internet, or added benefits. However, to developing countries, mobile internet is an essential conversion from no access to internet to affordable online services at any time, which is undoubtedly a timely help. In this regard, mobile internet is of great significance in boosting the overall economy of developing countries. (See Figure 3)

### Figure 3: Ranking of countries with fastest growing mobile internet

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Country</th>
<th>Growth rate of smartphones in use</th>
<th>Smartphones in use (million)</th>
<th>Smartphone penetration rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mexico</td>
<td>55</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>Argentina</td>
<td>55</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>Iran</td>
<td>53</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>India</td>
<td>52</td>
<td>44</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Turkey</td>
<td>52</td>
<td>13</td>
<td>19</td>
</tr>
</tbody>
</table>

Source: Informa, 2012

In developing countries, the roadmap for mobile internet promotion is from cities to rural areas and from professionals of higher education backgrounds to the mass people.
According to the Deloitte Survey on Mobile Consumer Behavior 2012, the proportion of urban professionals using mobile internet in developing countries, such as Turkey, Croatia, South Africa, Argentina, Mexico and Russia, is slightly higher than the proportion of normal users of mobile internet in developed countries, including Japan, US, UK, France, Finland, Germany, Canada and Belgium, etc. (See Figure 5 and 6)

**Figure 5**  Proportion of urban professionals using mobile internet in developing countries

![Graph showing the proportion of urban professionals using mobile internet in developing countries.]

Source: Deloitte Survey on Mobile Consumer Behavior 2012

**Figure 6: Proportion of normal users of mobile internet in developed countries**

![Graph showing the proportion of normal users of mobile internet in developed countries.]

Source: Deloitte Survey on Mobile Consumer Behavior 2012

On present development trends, the growth rate of telecom operators' mobile revenue in developing countries is clearly higher than that of developed countries. In 2012, the revenue of telecom operators in developing countries totalled USD488 billion, whereas the revenue in developed countries was USD676 billion. The revenue gap between developed and developing countries in this sector is continuously narrowing. (See Figure 7)

The growth rate of telecom operators' mobile revenue in developing countries is clearly higher than that of developed countries.
Figure 7: Revenue comparison between telecom operators in developed and developing countries

Source: Wireless Intelligence, 2012

4. China’s mobile industry is on the rise

As a major economy in the Asia Pacific region, China is aligned with its region regarding overall developing trends of the mobile internet industry, with the exception of a faster growth rate. IDC data shows that China’s shipments of smart terminal exports in Q4 2012 reached 90.65 million units, in which smartphones accounted for 70.4 million. This represents a year-on-year increase of 112.1% and plays a key role in driving the rapid market development on an overall basis.

The popularity of terminal devices, maturity of the 3G network, market layout of the 4G network in advance, and the explosive growth of apps have gradually attracted Chinese netizens to place a greater focus on tablets instead of PCs. As of December 2012, Chinese mobile netizens amounted to 420 million (including users accessing internet with smartphones and feature phones) and accounted for 74.5% of China’s total netizens, representing an increase from last year’s 69.3%. Mobile netizens have become the main body of Chinese netizens. (See Figure 8).

Figure 8: Number of Chinese mobile netizens and their proportion to the total netizens (Unit: ten thousand)

http://www.cnnic.cn/gywm/shzr/shzrdt/201301/t20130115_38518.htm
II. Impact of mobile internet industry

People's lives will change just as much as how the internet has changed our lives over the past two decades.

The mobile internet does not simply move online content to mobile terminals like cell phones and tablets. By virtue of the easy access and real-time connection of mobile devices, mobile internet provides us with infinite possibilities for innovation and burgeoning new business models. In various industry segments, mobile internet may overturn and restructure, or replace and extend past business models. It is difficult to predict how the future will change; however, we can assure that people's lives will change just as much as how the internet has changed our lives over the past two decades.

To some extent, mobile internet is likely to bring about all-round changes across all industries. Where will this new technology take us? Deloitte selected a number of representative industries such as finance, games, publication, education and medical industry, and interviewed the leading enterprises within each industry in order to share their insights on how the mobile industry will restrict the industrial layout and their predictions for future development directions.

1. Financial industry: mobile payment drives the development of mobile finance

State of mobile finance in the world

Mobile financial services, led by mobile payment, are rising across the globe. According to the latest data from Gartner, the number of mobile payment users in the world will reach 212 million by the end of 2012 - three times the size in 2009 (70 million) and with a compound annual growth rate of 44.73%. It is expected that this growth momentum will continue in the coming years, and the number of mobile payment users in the world will reach 384 million by 2015. As the user base increases, the total value of global mobile payment transactions keeps rising. While the value of global mobile transactions was only USD 25,559 million in 2009, this value will amount to USD 171,520 million by the end of 2012. It is expected that the value of global mobile payment transactions will be USD472, 805 million by 2015, which indicates that the average value of a mobile payment transaction per user will be above USD1, 000. (See Figure 9 and 10)
At present, the development and penetration of mobile payment varies from country to country, and each region has adopted different business models that apply to their own business environment. On a global scale, Japan and Korea have the most mature mobile payment sector; while the proximity payment is growing at a relatively slow pace in West Europe and the United States. (See Figure 4)

**Figure 4. Business models of mobile finance in major countries**

<table>
<thead>
<tr>
<th>Country</th>
<th>Business model of mobile finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>Operators have a dominant position in the industrial chain. For instance, NTT DoCoMo, a mobile network operator in Japan, relying on its large subscriber base, extended its control along upstream and downstream of the value chain by various means such as conducting mixed operations and holding equities of banks and credit card companies. It has achieved tremendous success.</td>
</tr>
<tr>
<td>South Korea</td>
<td>The industry is led by operators and banks. The three major operators in Korea have a firm control over the industrial chain of mobile finance and enjoy a dominant position in the value chain. Meanwhile, banks are actively investing in the mobile finance industry. The government promulgated a series of policy incentives to support the mobile finance industry and provided sound conditions for the development of mobile finance industry.</td>
</tr>
<tr>
<td>West Europe</td>
<td>The industry is jointly developed and operated by European operators from multiple nations, in partnership with banks which do not engage in operational activities. In Europe, the biggest road-blocker for mobile finance is the difficulties in changing consumer habits.</td>
</tr>
<tr>
<td>US</td>
<td>An industry with the participation of multiple players including financial institutions, mobile carriers, TPP providers and other technology providers. The major stakeholders in the entire ecosystem have divergent views on the development and execution of mobile payment, thus constraining rapid growth of mobile finance (for instance, the promotion of NFC).</td>
</tr>
</tbody>
</table>
In the present mobile finance market in China, there are three major participants respectively the banks, operators and TPP (third party payment) providers led by Alipay. They have formed disparate business models.

**State-quo in China: coexistence of multiple business models**

In the present mobile finance market in China, there are three major participants: the banks, operators and TPP (third party payment) providers led by Alipay. They have formed disparate business models.

At present, most banks in China have rolled out WAP-based mobile banking and client-based mobile banking. Banks have all integrated traditional online banking functions and also developed innovative services customized for mobile handsets, such as "roaming remittance" of the Agricultural Bank of China (ABC), and "mobile number money transfer" of China Merchants Bank (CMB). Financial institutions such as banks possess complete and mature capital settlement systems, build up trust with their clients and hold huge client information and data. Therefore, when selecting business models for developing mobile finance, banks should center on professional financial services, integrating and utilizing the existing financial network, settlement system, client and merchant resources to migrate to mobile terminals.

The three domestic telecom operators all established wholly-owned subsidiaries engaging mainly in payment business: China Mobile E-Commerce Co. Ltd., Unicom payment Ltd. and Tianyi e-Commerce Limited. By the end of 2011, they acquired the license by People's Bank of China (PBC) for the operation of non-financial payment services. The above payment companies entered the PC-based payment business later than TPP providers and banks; however, by leveraging their advantages in mobile network resources, their mobile payment businesses are likely to thrive. Especially in the proximity payment area, telecom operators are able to use cell phones as tools for proximity payment and they also possess great cost advantage in the reconstruction of proximity payment terminal devices.

Since Alipay became China's first TPP provider in 2004, the TPP industry has increased rapidly with more than 300 enterprises in this sector. The issuance of license for operation of non-financial payment services by PBC is also a sign of the beginning of a standard and regulated TPP industry. As the PC-based web payment in the era of internet laid the foundation for the rising TPP companies, many companies transplanted the web-based payment to mobile phones and achieved the remote payment by WAP and mobile client products. At present, TPP companies mainly engage in the remote payment business, with fewer attempts in the proximity payment sector.
Opportunities and challenges

The mobile payment market in China is still in the initial stage of development. The adoption as a whole is still low as most mobile payment products and services are still in the pre-commercial stage, and players in the value chain haven't yet developed mature business models. In general, the players are still exploring various options. Judging from the development of the mobile payment industry, proximity payment is relatively slow in contrast with remote payment, with financial institutions, operators and TPP providers conducting commercial pilots in cities.

The 1st: Lack of policy support and lack of standard alignment

There are many different participants involved in the mobile finance industry, including financial institutions and telecom operators. From a regulatory point of view, it is a very complex issue. A number of government agencies including the Ministry of Industry and Information Technology (MIIT), the People's Bank of China (PBC), and China Banking Regulatory Commission (CBRT) are involved in the development of polices, standards and industry specifications. Due to uncertainties at the policy level, the companies were relatively conservative in technical, human resources and capital inputs, which to a certain degree hindered the development of the industry. Therefore, lack of policy support and standard alignment is the biggest challenge to the industry. (See Figure 11)
Lack of policy support and lack of standard alignment are the biggest challenges mobile finance faces in the future.

Figure 11: Please rank the challenges facing your company when developing mobile payment strategies in order of severity according to your knowledge

The 2nd: Security issues

Players in the mobile finance chain are also exploring ways to improve the security. Take a TPP company - Guangzhou Easylink Commercial Services Co., Ltd. (PayEco) for instance, it is actively constructing risk-control systems under which transactions are subject to a series of verification processes, and it is also setting different limits for users and businesses so as to assure the safety of users’ capital.

The 3rd: How to develop user habits

The user habits of mobile financial services have not yet been full established. At present, most consumers are still inclined to check out or pay fees by cash or traditional bank cards. Therefore, the major tasks at hand for mobile finance players are to enhance market promotion of mobile financial services, convert the bank users’ concept of smart terminals and integrate mobile financial services into the users’ daily life.

The 4th: Alignment and improvement of the industrial chain

The players and partners in the mobile finance industry have divergent opinions over areas such as profit distribution and accountability, which will certainly affect the promotion and development of mobile financial services in China. In the future, the cooperation and win-win situation among all participants will be essential for the development of the mobile finance industry. The main objective is to construct an open and innovative ecosystem for the mobile finance industry in China. It is impossible for anyone to dominate the entire industry by itself; only cooperation can drive the development of mobile financial services in China.
The business development of the three web portals - Sohu, NetEase and Tencent is diversified, but on average, more than 50% of their revenues comes from online games. In particular, online games contributed 80% of total revenue for NetEase.

2. Game industry: a polarized industry accelerated by mobile internet

The game industry has played an important role throughout the course of development of the internet in China. The business development of the three web portals - Sohu, NetEase and Tencent is diversified, but on average, more than 50% of their revenues come from online games. In particular, online games contributed 80% of total revenue for NetEase. (See Figure 12)

![Figure12: Business revenue of major internet companies by sources in 2012](image)

Apart from these web portals, other well-known internet companies also regard games as a crucial part of their strategic development. For instance, in Q4 2012, revenue from value-added internet services (mainly web games) contributed 34.2% of the total revenue of Qihu360 - China’s leading internet company and mobile security products & services provider. Meanwhile, in the case of China's social network leader Renren, its revenue from online games in Q4 2012 amounted to USD25.9 million, a yearly increase of 103.8%, accounting for 53% of the net operating revenue.

Undoubtedly, the game industry has become a main driving force in the revenue growth of Chinese internet companies. It is natural to imagine that when mobile internet comes, the migration of games to mobile platforms will become the focus for people.
Mobile games have a great prospect of future development, but the biggest constraint at present lies in the business model that should be improved as a sustainably profitable one along with the maturity of market.

Mobile game users experienced an explosive increase in a short period of time. As the data from iResearch Consulting shows, by the end of 2012, the market size of China smartphone games reached RMB1.25 billion, representing an increase of 140.9% from 2011. As a pillar of the internet industry, will the game industry continue its impact on mobile platforms and make mobile games the pillar of mobile internet in the future? Where can we find the business value of mobile games?

Deloitte interviewed George Lai, CFO of The9 Limited - a leading game company in China. With regards to the disparities between mobile games and PC games, he thinks mobile games opened up a new era of "light games" and attracted new users in addition to traditional PC games. Light game players distinguish themselves from PC game players because they are not as addicted to games as PC game players are. Light game players need simple and easy games to kill time fragments. Urban white-collar workers, in particular ladies, are typical players in this game category. Light games have become the new favourite among mobile game players since they are easy to play at anytime and anywhere, taking up just time fragments instead of an entire time block.

In George's opinion, generally speaking, mobile games have a great prospect of future development, but the biggest constraint at present lies in the business model that should be improved as a sustainably profitable one along with the maturity of market. After years of market evolution, most online PC games are free but sell game props to make profits. However, the future of this model on mobile phones is not clear. The relatively small screens and stand-by time make mobile phones not the ideal terminal for playing big games. Currently, mobile games mostly adopt the operational model with imbedded ads, which had been proved to be unlikely to succeed in the PC era.

Mobile games will not replace PC ones in the future. They will develop in two different directions as per game players' diverged demand. Professional game players attach great importance to the real experience of games. For example, shooter game players may require more intricate graphics and more real experience. They pursue bigger screens, higher definition, better sound effect and faster processing speed. They are hard-core fans of PC games.

Light game players prefer the easy, convenient and fast-food recreation manner of mobile terminals. Games that can be played simply with finger tips are more popular among these players.

Will mobile games bring great profits and become the pillar of mobile internet companies? It depends on whether the user habit of paying for mobile games can be cultivated as soon as possible. However, in perspective to the industry's current development, mobile games are unlikely to play the same role for the mobile internet industry as PC games did for the internet industry.
3. Publishing industry: The counterattack by alternative media in virtue of mobile internet

The impact of the information era on a traditional medium-publishing industry is evident. Since the 1990s, the traditional publishing industry has been gradually shifting to e-publishing. Though some people think printed books will never be completely replaced by e-books, undoubtedly, the latter has brought a great impact on sales of the former. (See Figure 13)

Figure 13: Encyclopaedia Britannica Hard Copy Sales vs. Wikipedia Monthly Active Users, 1990-2012

The competition pattern among China's four news portals formed during the internet era will be transferring to mobile terminals. The competition over mobile terminals will be much fiercer. Those who can see through to the future trends are likely to take a step ahead with first mover advantages.
In the era of information, traditional media is facing a transition to e-publishing. During China’s early developing stages of the internet, the four web portals were oriented around news media and established a solid and balanced user base in a short time. This is the first milestone of internet development in China.

What are the impacts of mobile internet on e-media and traditional media that made transitions during the internet era? In the future, how will mobile internet affect the media and publishing industry?

Deloitte interviewed Ms. Zhao Ying, Vice President of NetEase. In her opinion, mobile internet offers an opportunity for mass media to transit its medium from PCs to mobile phones. The pace of mobile internet transition in China is faster than what the industry expected. As of 2012 year-end, the NetEase News app had 50 million users, with daily active users of more than 22 million. It only took about 600 days for NetEase News mobile app to reach such a high penetration rate and the number of users is continuing to increase rapidly.

Referring to future development trends, Ms. Zhao regarded mobile internet as a development opportunity for traditional news website such as NetEase, and a competition pattern among China's four news portals formed during the internet era that will be transferring to mobile terminals. The competition over mobile terminals will be much fiercer. Those who can see through to the future trends are likely to take a step ahead with first mover advantages.

Who will be the final winner in the future? Established internet tycoons in the past internet era are undoubtedly superior in content, resources and user base, and these aspects cannot be matched by apps of smaller or newer companies overnight. Therefore, the ultimate winner of mass media at mobile terminals is likely traditional internet tycoons.

In contrast, mobile internet has made more evident changes to alternative media. Deloitte interviewed China’s Gruner+Jahr’s CEO Owen Shi and CFO Wang Yun. Gruner+Jahr is the largest publishing group in Europe. By analysing the group’s mobile internet strategy, we see that mobile internet has brought huge opportunities for the publishing industry and can be a powerful tool for alternative media to offer professional and customized services.

Mobile internet has brought huge opportunities for the publishing industry and can be a powerful tool for alternative media to offer professional and customized services.
**Case 2**

**Gruner+Jahr provides customized niche services through mobile internet to firmly grasp target users**

In 2012, Gruner+Jahr (the “Company”) developed a new strategy of “Go Mobile”. A few years ago, the Company piloted the electronic business model including the construction of a website to support the charging model which collected fees from e-magazine subscribers. However, as the habit of paying for e-magazines among Chinese readers hadn’t been cultivated yet, the website could not sustain its profitability by relying solely on paid content downloads.

At present, mobile internet is the biggest business opportunity brought by the growing prevalence of electronics. Publishing companies are rushing to this arena; for example, the Company has developed multiple versions of apps based on its advantage in contents accumulated by its magazines, such as the Parents. It adopted the profit model of “free downloads + imbedded ads”. According to the market performance of established products within the sector, this model has proven to be profitable.

For instance, the reader base of the Company’s Parents magazine is a niche group of people – the parents of 0-6 year-old children. However, the readers’ demand may differ from one another; that is to say, in a certain period, what parents are interested in are driven by the needs of their children at a specific moment. Due to the limitations of printed magazines, if they make any further market segmentation, the cost of sales and promotion will increase accordingly.

But the coming of mobile internet provides convenience for managers. Mobile apps can subdivide the market into any possible segments, e.g. 0-1 year-old, 1-3 year-old, 3-6 year-old children.

In addition to subdividing the market as one wishes, mobile apps can also easily customize services for clients. For instance, the parents of a 0-1 year-old child are new fathers and mothers who encounter new problems every day. Limited by time and energy, they cannot predict what they should know in advance. With regards to these specific requirements of the user base, Gruner+Jahr designed a special push edition of the app service that can alert users at a designated time. For example, new born babies in general will suffer from exanthem subitum and get a fever six months after their birth. New mothers may become sickly worried about their baby and panic, when in reality, no special treatment is needed and all that needs to be done is lowering of the body temperature. This app will deliver related knowledge to users at the right time so as to prevent panic and fears.

Through these personalized and customized services, the app can reach a deeper depth that could not have been achieved by printed media, both in timeliness and knowledge accumulated. Mobile apps can utilize the professional magazines’ years of content to build up a considerable knowledge base and provide full-range services at time points specific to each user.

It is understandable how these app services have immediately attracted many potential users. As apps can offer more complete and relevant services, they have successfully enhanced user loyalty.

Meanwhile, the representation form of new media such as apps can achieve accurate market segmentation, thereby attracting advertisers to use apps as outlets and thus reinforcing the advertising supported business model.
The internet greatly lowered the threshold of education, while mobile internet helped move education further

4. Education industry: mobile internet brings about subversive changes

In the past 5 years, e-textbooks and e-books on mobile devices have started to prevail in the United States. Mobile terminals are so powerful that teachers can easily collect all available resources relating to subjects in a few touches, and adequately explain the material to students by leveraging videos and 3D model demonstrations. Teachers can hold mobile devices such as the bbbPads and make demonstrations in class, while the students can use connected mobile devices to listen to lessons by remote logins. Other than these educational infrastructure reconstructions, what is the far-reaching effect of mobile internet on education?

Deloitte interviewed Ms. Mei Wang, Vice President for a leading education company - McGraw Hill Education services in Asia Pacific. She contended that there are two subversive changes made by mobile internet to educational industry:

First, the internet greatly lowered the threshold of education, while mobile internet helped move education further

MIT Open Courses, e-courses on Ted video, Khan Academy and NetEase Open Class etc., have all transformed professional education. It has gone from being scarce resources to becoming the most valuable free online information. The threshold of education has been greatly lowered. Courses by top professors from world class universities are now available to the mass people through the internet with unlimited access. Education can be moved even further with the help of mobile internet. Especially in underdeveloped areas, mobile internet can help promote education to people whom did not have access before.

Case 3: Mobile internet in India

McGraw-Hill and IT technology service provider Wipro jointly developed mConnect -- a mobile learning Platform with open standards -- to offer a number of basic education courses for poor rural community populations in developing countries. Initial pilots in India started in the summer of 2011 and the courses were planned to roll out in other countries in Asia and Africa.

The reason why McGraw-Hill selected India as their pilot location was because the Company saw huge potential in India's 800 million mobile phone users. Even in poor rural communities, where high-end devices such as laptops are seldom seen, mobile phones prevail nonetheless. The mConnect platform started from English learning -- India's most universal education demand, in order to help users prepare for exams and promote education.

Education is the foundation for people to live in society. Society must address issues such as how to provide fair opportunities, good education and life changes to those in underserved areas. Up to date, mobile internet is the most feasible approach that can be implemented on a massive scale to change the state quo of education. Low-end smartphones, which costs several hundreds of yuan, are affordable by populations in most of the developing countries. A connected mobile phone can provide people in the most remote areas with access to infinite educational resources.
Secondly, mobile internet subverted the all-time one-to-many learning pattern in the educational industry, and achieved the one-to-one self-adaptive learning at ease.

The educational industry pioneer McGraw-Hill and education leading companies such as Pearson Education Group succeeded in launching a self-adaptive learning system on the mobile internet. Take McGraw-Hill for instance: after the Group collected learning behaviour data of students, it analyses students' learning level and blind spots of knowledge, and designs future scheduled plans that can be achieved on a customized one-to-one basis.

**Case 4: The SmartBook of McGraw-Hill**

McGraw-Hill released the SmartBook on iOS and Android platforms. The SmartBook works like this: in the first 5 minutes of reading, all readers are learning the same textbook content. Then, as readers answer the questions in the books for review purposes, text lines will be highlighted differently by each student so as to remind them where to pay more attention. In fact, the SmartBook will automatically adjust the future learning contents according to students' performance of answering the questions. If the evaluation results show that students had a sound grasp of the present knowledge points, the system will automatically generate more difficult content for further study; conversely, if the results are opposite, the system will automatically dumb down the contents to adapt to students' learning pace. McGraw-Hill contends that this product will "break hundreds of years of traditional reading ways of people".

The self-adaptive learning system based on mobile devices has lifted the boundaries of a classroom, while also enabling students to completely control their learning schedule no matter where they are. In contrast to cramming education and rigid one-for-all courses, a tailored education can improve the learning efficiency and mobilize students' initiative, avoiding students giving up from frustration.

Due to limited resource of teachers, traditional education cannot achieve one-to-one teaching, while mobile internet brings a self-adaptive one-to-one learning pattern which better suit people's learning habits.
There are different mobile healthcare business models emerging in the US.

They are making profits by charging pharmaceutical companies, hospitals, doctors and even insurance companies.

5. Medical care industry: Little spark of mobile internet to ignite the wildfire

The mobile internet brings about great opportunities for the healthcare industry to visualize the future. Any mobile healthcare apps such as remote registering, telemedicine, real-time monitoring and integrated medical treatment solutions provided with big data, is capable of changing the current healthcare industry and improving the lives of humans as a result of technological advance.

Investors and entrepreneurs are flocking to the healthcare industry for its great development prospect. According to a report released by Global System for Mobile Communications Association (GSMA) in 2012, the global mobile healthcare service apps will bring USD11.5 billion in revenue for mobile operators in the next 5 years, while the parties across the industrial chain, i.e. medical device manufacturers, content and app providers and medical care service vendors will obtain revenues of USD6.6 billion, USD2.6 billion and USD2.4 billion respectively.

Diversified mobile healthcare business models in the United States

At present, there are different mobile healthcare business models emerging in the US. They are making profits by charging pharmaceutical companies, hospitals, doctors and even insurance companies (See Figure 5).
<table>
<thead>
<tr>
<th>Mobile apps</th>
<th>Value created</th>
<th>Profit model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Epocrates</strong></td>
<td>It is the top materia medica dictionary app in the US healthcare industry that includes information of the efficacy, usage, dosage and alternative medicines of thousands of drugs; Doctors or patients can find the aetiology and medication advises by searching the symptoms with mobile phones;</td>
<td>Making profits by providing services such as precision advertising to pharmaceutical companies; Revenue from pharmaceutical companies accounts for more than 75% of the total revenue.</td>
</tr>
<tr>
<td><strong>Zocdoc</strong></td>
<td>Patients log in to the Zocdoc platform with mobile phones and select their needs (for instance, making a reservation with a dentist); The platform will identify the most suitable doctor and timetable as per patients’ location and the schedule and qualifications of doctors; Patients await the notice to be sent by ZocDoc and go to the doctor at the specified time.</td>
<td>Free trial for patients; making profits by charging the doctors; USD250 for using Zocdoc platform per doctor on a monthly basis; The platform recommends quality patients (those with sound insurance guarantee) to doctors to increase their income</td>
</tr>
<tr>
<td><strong>WellDoc</strong></td>
<td>Patients can input blood glucose information with mobile phones on a real-time basis; When WellDoc receives the information of low-level blood glucose, it will advise patients on the best food to eat; If the level exceeds the critical value, WellDoc will send clinical recommendations to doctors.</td>
<td>WellDoc makes profits by charging insurance companies; This system has passed FDA’s approval on medical devices and has been accepted by two medical insurance companies which will cover the expense of such devices to be provided to insured diabetic patients.</td>
</tr>
<tr>
<td><strong>Vocera</strong></td>
<td>Vocera provides mobile communication solutions to hospitals; Its core product is a mobile device that can be worn around the necks or pinned on the chest of doctors and nurses. The device can send and receive information at anytime and anywhere, make calls and set reminders, thereby replacing pagers used by hospitals in the past.</td>
<td>Making profits by charging the hospitals; Vocera fits well for big clients such as hospitals to reconstruct their mobile healthcare infrastructure. Currently it has more than 300 US hospital clients with an annual revenue close to USD100 million.</td>
</tr>
</tbody>
</table>
Mobile healthcare kicks off in China

Comparing the development status of mobile healthcare in China with that of the US, we can see that China hasn't found a defined profit model. Due to the limitations of medical care systems and national conditions, many emerging business models in the US cannot be adopted in China. For instance, the model of Zocdoc which charges the doctors is not in line with China's conditions. In China, doctors will not pay fees to pursue quality patients except a few private hospitals, the profits of which are closely linked to the source of patients.

Furthermore, it is much more difficult to adopt the model of WellDoc that charges insurance companies. The medical care insurance system in US is well developed and insurance companies are willing to spend on real-time monitoring and prevention of diabetes and heart diseases in their early stages at relatively lower prices, in order to avoid paying expensive treatment fees or high compensation for medical accidents in the future. In China, even commercial health insurance can hardly provide long-term insurance to specific diseases. Therefore, the model of charging insurance companies cannot be sustained in China.

Although the above mobile healthcare services with innovative models haven't been commercialized in China, the Chinese Hospital Information System (HIS) has started the over shift based on mobile terminals. The top 3A level hospitals in China, led by Peking Union Medical College Hospital (PUMCH), Chinese PLA General Hospital (PLAGH or 301 Hospital) and the General Hospital of Armed Police Forces, have started implementing HIS. Take 301 Hospital for example: it has installed the wireless application in its in-patient department. Medical staff can finish the ward-round, provide medical advice and transmit information at patients' bedsides with PDAs.

According to the 2013 China's Healthcare Industry IT Market Predictions released by IDC recently, more and more top 3A level hospitals will construct mobile application systems. IDC pointed that as early as in 2012, some top 3A level hospitals in developed regions had launched pilot mobile application projects. In 2013, hospitals that have deployed pilot projects will solve the existing problems in the application and expand the pilot service lines.

Besides the implementation of HIS, basic healthcare facilities that adopt the "mobile terminal + mobile devices" model such as the Nike pedometer, have a bright future in China. Since Nike's star pedometer product "Nike + Fuelband", companies like Fitbit and Jawbone UP successively launched wristband products that can read body information and upload such information to social media sites through wireless terminals. This experience captured the hearts of young consumers. In addition to calculating calories consumed per day and recording health conditions, the most fascinating function for young people is the easy import of data to social media. This allows users to share information with other friends and check on each other's performance, thus enhancing the experience of sports. For instance, based on the app, Jawbone Up can calculate the quantity of exercise and calories...
absorbed by a person per day. Furthermore, when you sleep, you can also use it to monitor sleeping conditions, such as how deeply you sleep, and use it as an alarm clock as well.

In the future, the somatosensory identification technology of terminal devices will continue to make breakthroughs and more useful information can be collected. This technology has room for development in areas of remote medical care, chronic disease monitoring and daily health maintenance, etc.

Along with the cultivation of user habit by industrial leaders as Spring Rain Software and DXY (Dingxiangyuan), more mobile apps will emerge on the desktop of users and become prevail.

Challenges facing mobile healthcare industry in China

Despite the above changes brought by mobile terminal devices, what breakthroughs will mobile internet make regarding the business model development in China? What are the potential challenges facing innovative business models in the future?

Deloitte interviewed Mr. Zhang Rui, Founder of Spring Rain Software Co., Ltd., which is a leading enterprise in China’s mobile healthcare app industry. He contended that the mobile healthcare industry in China has a great development prospect. China has the largest population, from which we can assure that the demand of Chinese patients will top the world. However, the healthcare resources in China are in critical shortage, and the difficulty of seeing a doctor has become a prevailing social problem. Any difficulties in the value chain create great business opportunities.

For example, to many people, seeing a doctor requires much time and effort in consideration of various factors such as time or distance. As a result, many prefer to take care of themselves at home instead of going to hospitals when they have small ailments. Mobile internet can tie the time fragments of doctors with the demand of remote patients together so as to create great value. Spring Rain Software found the huge commercial value therein and built up Spring Rain Palm Doctor – a pioneering app in this sector. Just log in to the app and input your symptom, then professional doctors who joined Spring Rain platform will diagnose your disease. In addition, you can also dial the phone through this platform, paying for a voice inquiry service. Spring Rain app has begun to cooperate with some hospitals to build up online triage platforms which enable online registration and triage. According to Zhang Rui, the paying users of Spring Rain app account for more than 30% of the total users, which is an impressive achievement among apps.

Referring to the future prospect of mobile healthcare, Zhang Rui indicated that the trend of mobile healthcare is inevitable. However, in light of domestic conditions, this promising sector is still in its early developing stages. Mobile healthcare devices have to gather significant levels of adoption in a short time in order to allocate cost and reduce unit prices, thereby achieving larger penetration. Furthermore, the mobile healthcare industry both at home and abroad is facing the below development problems:
First, it is hard to change doctors’ use habits

It is natural that patients wish to improve their medical conditions at all levels. However, new mobile terminals can completely change a doctor's working habits, and adapting to these changes may be difficult as the doctor may not be willing to change his or her old habits. To a doctor, the various emerging apps can be a disruptive force to their daily work if they do not have adequate time to address the sudden information inflow.

Secondly, multi-level approval procedures will constrain the application and development of apps of solution category

In contrast with traditional healthcare solutions, the application value of mobile healthcare devices lies in its effectiveness and lower cost. However, the approval procedures and certification cost a lot of time and money. With the exception of mobile apps that target measurements where effectiveness can be justified by defined indicators (such as blood pressure and glucose monitoring), other kinds of mobile apps have to go through a long march of approval procedures, which hamper the promotion of mobile apps.

Thirdly, problems occur in execution and application

Technically, the medical industry is always optimistic about the great prospect to be brought by lots of data. By utilising the accumulated data from same or similar symptoms and treatment solutions, doctors are able to diagnose patients within a short time and provide treatment schemes with the help of data tools.

But in real practice, it is a critical challenge for all doctors to decide whether the response of a patient aligns with conventional therapies because each individual is unique. In addition, when and to what extent a doctor can rely on the schemes provided by new technologies also pose a problem. The aftermath of a misdiagnosis is a topic that no app developers would like to mention. This is the biggest hurdle hampering large-scale distribution of such apps in the future.

The mobile healthcare industry faces more hurdles in its development than any other industry. It is gratifying that the industry in China has started out. In the future, along with the cultivation of user habit by industrial leaders such as Spring Rain Software and DXY (Dingxiangyuan), more mobile apps will emerge on the desktop of users and become increasingly prevalent.
II. Challenges and opportunities faced by China's mobile internet

The spatial distribution pattern of China’s mobile internet industry has formed preliminarily, i.e. equally strong in the South and the North, and a rise in the West.

In 2012, China’s mobile internet industry recorded an output value of over RMB900 billion, equivalent to 1.8% of GDP (The data includes output value of mobile terminals and other devices) 7.

According to the White Paper on China’s Mobile Internet Industry Map released by CCID Consulting in 2011, the spatial distribution pattern of China’s mobile internet industry has formed preliminarily, i.e. equally strong in the South and the North and a rise in the West. While the industry is mainly focused around the Pearl River Delta, the Circum-Bohai Sea Region and the Yangtze River Delta, the West, mainly represented by Chengdu, is also rising quickly. The output value of these four regions contributed to over 90% of the total in the nation 8.

In the coming years, China’s mobile internet industry will be centered around core cities in these four primary regions, and gradually expand further out to other cities – thus, first-tier cities will lead the way and shape the development patterns for second-tier cities.

Currently, China’s mobile internet industry is in its initial stage of development, which promises great potential for individuals, enterprises, municipal administrations and the state as a whole. The Pearl River Delta centered in Guangzhou and Shenzhen enjoys a great advantage in mobile terminal manufacturing and possesses a relatively integrated industry chain, making it the champion in the mobile internet industry in China. The Circum-Bohai Sea Region is China’s second center for the mobile internet industry as well as R&D, design and manufacturing base of mobile terminals, software and applications. The Yangtze River Delta, with Shanghai at the center, is also of great importance to China’s mobile internet industry, with strong R&D and design of mobile software and applications. These three regions are all centered in first-tier cities: Beijing, Shanghai and Guangzhou, and all demonstrate great strengths in the mobile internet industry. Meanwhile, the West, centered in Chengdu, saw game apps as a breakthrough point and a quick rise in the area of mobile internet content contribution, thus demonstrating significant potential 9.


9 In 2012, market data analysis service provider, App Annie, released Top 52 Global App Developer in terms of revenue. Among which, 2 are from Chengdu Hi-tech Zone: Chengdu Digital Sky Technology Co., Ltd. and Chengdu Nibirutech Co., Ltd. In addition, in the Samsung 2012 Global Smart Application Challenge, Defend the Earth and Seven Stars II from Chengdu Hi-tech Zone and Camera360 from Chengdu Pinguo Technology were shortlisted. At present, among the top 50 Chinese App in Apple App Store bestseller list, 8-10 are from Chengdu Hi-tech Zone.
Factors restraining the development of China’s mobile internet industry include backward infrastructure, underdeveloped innovation capabilities, unresolved security problem and immature business model.

1. Factors restraining the development of China’s mobile internet industry

Although China’s mobile internet industry achieved explosive growth in terms of output value, the number of enterprises and user scale, while promising a grand prospect in the future, is still currently in its initial stage of development. Using the Hype Cycle, a famous development model for newly emerging technological companies, the present situation of China's mobile internet industry can clearly be explained. (See Figure 14).

Figure 14: The development stages of Chinese internet industry

Figure 14 shows us clearly that China’s mobile internet industry in general is still in the early stage of development. Although many market leaders see future opportunities and entered the market, the development path that lies ahead is full of twists and turns. Factors restraining the development of China’s mobile internet industry include backward infrastructure, underdeveloped innovation capabilities, unresolved security problems and an immature business model.

1.1. Backward Infrastructure

As of the end of December 2012, the number of netizens in China amounted to 564 million and the Internet penetration rate was up to 42.1%. Mobile netizens were at 420 million, an increase of 18.1% compared with 2011. Users accessing the Internet through mobile phones increased to 74.5% from 69.3% of the end of the
China has the largest number of netizens in the world, thus providing a very favourable foundation for the development of China’s mobile internet industry.

However, the huge base of netizens needs to be supported by a strong infrastructure. At present, for most families in China, the bandwidth is only 1M-2Mbps (the real transmission speed may be slower). Many rural areas and remote regions have no access to the Internet at all. According to 2012 3Q data released by the world’s largest CDN provider – Akamai (USA), the Internet speed in China is on average 1.6 Mbps, far below the world average of 2.8 Mbps, and only one-ninth of that in Korea, currently ranked as No.1 in internet speed. Furthermore, the Internet speed through mobile phones in China is the second slowest in the world (just faster than that of India). The latest report released by GSMA indicates that the average mobile internet speed of China was only 50 kbps in 2012, only one twenty-eighth of that of Japan. The backward information network infrastructure directly restrains the application of new technologies and the development of the emerging industry.

1.2. Underdeveloped innovation capabilities

Innovation is the basic driver for the mobile internet industry’s development. At present, global internet tycoons are leading the technological innovation in the mobile internet industry, followed by Chinese companies. Analysed by Xu Zhiyuan, Associate Director of the Information and Network Research Department in the Planning and Design Institute of the China Academy of Telecommunication Research under the Ministry of Industry and Information Technology of China, the patents of smart phones cover the four most important technological areas of the information industry: mobile telecommunications, operating system, mobile terminals and the internet. The tycoons of smart mobile terminals possess nearly all the core technology patents concerning to the whole information industry. By utilizing the development of open-source operating systems, Chinese terminal manufactures like Huawei and ZTE expanded its scale of smartphone products, increased market share and enhanced the global influence in a short time; there is also a number of excellent teams of Chinese app developers that have release globally influential products. However, generally speaking, China’s innovation ability is still far behind that of developed countries.

As a result of the underdeveloped basic innovation capabilities, Chinese companies have suffered “patent blocks” by foreign competitors several times on the global market. Upon the request by FlashPoint, USITC initiated a survey on the suspected patent infringement by Huawei and ZTE, investigating electronic imaging devices in mobile phones and tablet products sold to the US.

Currently, Google, Apple and Microsoft have purchased a large number of patents from IBM, MOTO, Nortel, Ericsson and Xerox and obtained a head start in the development of mobile internet. But as the development direction and industry rules have yet to be established, the global dynamics are still uncertain. China thus still has the time and room to seek breakthrough innovations in the industry.

1.3. Unresolved security problem

Similar to the internet, mobile internet should also stand up to the challenge of information security. Mobile devices provide an alternative access to the internet, but also offer sites for crimes to criminals. The pervasive network, convenient information posts and distribution channels, intelligent mobile terminals and increasingly personalized online behaviour, have all made the security management of mobile internet more complicated. In recent years, mobile phone viruses have
accelerated. As shown by statistics of NQ Mobile Inc., as of 2008, there were only more than 400 virus categories; while the number of antivirus software in Q3 2012 reached 23375.\textsuperscript{14}

Besides the virus epidemics, other illegal deeds such as mobile phone frauds and malicious charges are constantly exposed and attract extensive attention.\textsuperscript{15} At the same time, rising mobile social apps like Weibo and Weixin accelerate the distribution of messages and bring about critical challenges to information security since they are much more uncontrollable. In addition, differing from the traditional internet, users may save more personal information on their mobile phones (such as through the phone book, photo album and recordings), thus highlighting the high security risks of privacy disclosure.

1.4. Immature business model

Exploring a sustainable business model is a common research subject within the global mobile internet industry. To date, there still isn’t a set of applicable business models that works perfectly and that has been widely recognized by mobile internet companies. Even the industry legend Facebook has yet to earn profit from its users. Seven years since its founding, Facebook at present has more than 1 billion MAUs and officially went public on NASDAQ in May 2012.\textsuperscript{16} Facebook has significant traffic, but is still questioning how to convert traffic into revenue. John Shinal, a columnist at MarketWatch, wrote an article saying that Facebook shareholders shouldn’t expect the company to operate in the black anytime soon.\textsuperscript{17}

Chinese companies have also encountered the same problem as Facebook. For instance, the instant messaging app Momo has been launched for over a year with more than 10 million registered users, nearly 5 million weekly active users, and the valuation is more than USD100 million. However, the app itself has not generated any revenue and still needs funding.\textsuperscript{18} In an interview, Mr Tang Yan, founder of Momo Tech said, “I have no idea how to make money from Momo and will not even consider that in the next 2-3 years. Our investors are also not concerned about the money-making matter.”

Mobile internet companies are well established in terms of number of active users, but having users does not necessarily mean they are successful. Up to date, Chinese mobile internet companies have not yet explored a clear road to sustainable development.

The fundamental reason for Japan's rising in the mobile internet market in such a short time is that Japan has established a mature mobile internet ecosystem dominated by operators.
2. Global experience of mobile internet development which China can learn from

The experiences of foreign nations provide great benefits. Looking at the global development of mobile internet in locations like Japan and South Korea, the strong mobile operators are the ones planning the future of the entire mobile internet. The form of customized services requires hardware vendors and content vendors to provide required services within the ecosystem driven by operators. In the United States, innovative internet leaders such as Apple and Google are building up new business models for mobile internet in order to attract hardware manufacturers and content vendors to transform the behaviour of consumers.

2.1. The successful experience of mobile internet in Japan

Differing from China, who started developing the mobile sector after developing the internet, Japan’s popularity of the mobile internet was earlier than that of the internet. Japan is one of the world’s first adopters of the mobile internet and can be called the “original ancestor” of mobile internet.

In 1999, NTT DoCoMo, the largest mobile operator in Japan launched the mobile internet service “i-mode”, thereafter formally marking the rise of mobile internet in Japan. In October 2001, NTT DoCoMo launched the world’s first commercial 3G WCDMA network, thus accelerating Japan’s development of mobile internet. Then, Japan’s second largest mobile communication operator KDDI obtained the 3G license of CDMA2000 in 2002; and Softbank Mobile acquired the same license in 2005, making a three-way race on the 3G market. As of the year-end of 2012, there were 129 million mobile users in total, in which the users of mobile internet were 109 million, accounting for 84.65%. (See Figure 15)

Figure 15: User base of Japan’s mobile communications market and the proportion of mobile internet users

Source: Compiled by the Telecommunications Carriers Association (TCA)

The fundamental reason for Japan’s rising in the mobile internet market in such a short time is that Japan has established a mature mobile internet ecosystem dominated by operators. In this ecosystem, telecom operators play a key role: they provide quality and affordable services to consumers and also an incentive and win-win cooperation model to content providers; furthermore, they are continually improving their services and have explored a set of profitable and sustainable business models, therefore benefiting the whole industrial chain.
Quality services and affordable fees

There are more than 100 million mobile internet users in Japan, but only three operators, NTT DoCoMo, au KDDI and Softbank respectively (See Figure 16 for detailed information of subscribers). The biggest mark of these operators is the high customer loyalty, which can be seen from the churn rate (See Figure 17). Looking at Figure 18, it is clear that customer loyalty in Japan is much higher than other Asian countries. In terms of churn rate, DoCoMo, au KDDI and Softbank are in leading positions among global telecom operators, respectively ranking first, second and fifth place.

Figure 16: No. of subscribers by mobile operators in Japan

Source: Compiled by Deloitte on publicly available data

Figure 17: Customer churn rate by mobile operators in Japan

Source: Portio Research

Figure 18: Customer churn rate by mobile operators in Asian countries and regions

Source: ROA Holding Analysis
Japanese mobile operators provide quality services at affordable prices to their subscribers. As GSMA’s latest report shows, the average mobile access speed of Japan in 2012 was 1400kbps, and it is expected to rise to near 7000kbps by 2015. Meanwhile, China’s average mobile access speed is 50 kilobits per second, much slower than that of Japan by almost 28 times. Mobile broadband speed in China is expected to hit 1,384kbps in 2015 but it will still be one-fifth the speed of Japan’s. In addition, Japanese operators provide post-paid services to most of their consumers and offer reasonable and flexible data services. At present, Japanese operators in general adopt a biplanar charging standard – the minimum consumption per month is merely JPY900, with a cap of about JPY4, 900 (about RMB370). That is to say, Japanese mobile internet users can use the high-speed network as they wish by paying JPY4, 900 per month at the most, with no surprises of hefty bills at the end of each month. (See Figure 19)

**Figure 19**: The median value of mobile access speed on global smartphones

![Figure 19: The median value of mobile access speed on global smartphones](source: Ericsson’s analysis, 2012)

**Win-win cooperation models**

While the high-speed network has paved a solid foundation for the prosperity of the Japanese mobile internet market, it is the considerable content that has firmly grasped consumers. The cooperation between SPs (service provider) and CPs (content provider) in Japan is close and successful, evident from the thriving Japanese mobile internet market. Furthermore, both parties shared the profits behind the prosperity. This cooperation stemmed from the "sacrifice" of operators. In terms of revenue-sharing, Japanese operators first adopted the model where SPs take away 10% while CPs can take away 90% of the total revenue. In contrast, CPs in most of the European and American countries can obtain merely 50% of the revenue. Therefore, an increasing number of CPs was attracted to join this collaboration. Through healthy competition, CPs can provide more personalized and innovative contents to users, while the high-speed and low-cost data services can ensure users experiences to new content.

**Sustainable business models**

Despite the recent decrease, the ARPU among Japanese SPs is still at a relatively high level (see Figure 20): in 2011, the average APRU of Japanese SPs was JPY4, 510 (about RMB292), while the figure for China Mobile in 2012 was only RMB66. As previously mentioned, Japanese SPs only acquire 10% of the revenue by the cooperation with CPs. So this raises the question: how do Japanese SPs make money?
Japanese mobile operators started from the mobile terminals. Most Japanese buy mobile phones directly from the channel of operators which are sure to have strong control over mobile phones and can unify key standards (for instance, they can pre-installed mobile payment modules, the single QR code identification software and operators' online stores in mobile phones).

After the standard was unified, Japanese SPs began efforts to maintain the normal operation of the whole ecosystem. Next, we will elaborate on the business models of Japanese SPs by taking the example of mobile payment.

In order to facilitate the promotion of mobile payment, Japanese operators pre-installed the single standard payment hardware, payment application and system in the subsidized mobile phones, and also allocated capital to purchase stakes of upstream and downstream enterprises such as banks and convenience stores. For instance, NTT DoCoMo invested JPY100 billion (USD945 million) and acquired a 34% stake in Sumitomo Mitsui Card Company in April 2005 to jointly launch the sub-branded “ID” mobile payment services. It then injected JPY10 billion to UC Card, a company associated to Mizuho Financial Group, and acquired 18% stake of UC Card in March 2006. In March 2006, NTT DoCoMo spent USD76.9 million to acquire 2% equity of Lawson—the second largest convenience chain store in Japan, in order to make mobile payment service available to DoCoMo users across Lawson’s 100 stores. These movements are great forces driving the popularity of mobile payment. In Japan, it has become an integral part of people’s life. As early as 2010, the registered users on McDonald’s Japan’s Wap site had exceeded 16 million (more than 12% of Japan’s total population), and the mobile coupons used per year reached 45 billion.

As shown in the promotion of mobile payment, the main profit model of Japanese SPs is to get through the whole industrial chain and capture every section on this chain. From upstream players such as banks and convenience stores to sections like mobile phone terminals, mobile payment services, data rates and after-sale services, operators can make money from every section. Thus, operators will be committed to attract CPs by sharing more revenue with them, and jointly construct the mobile internet market.
The US has surpassed the first mover Japan and become a leader in the global mobile internet market.

### 2.2. Successful experience of US mobile internet

At the beginning of this century, many US mobile experts went to Japan for a "gold rush" and they were stunned by the speed and functions that the wireless devices of DoCoMo and Nintendo could provide. In contrast with Japan, the early adopter of mobile internet, US at that time was not recognized in this sector.

However, the tables have turned. Nowadays, if you mention mobile internet, it is natural for people to think of Apple, Google, Microsoft, and Amazon – the top three internet enterprises and e-commerce tycoon respectively. Coincidently, the above four mobile internet tycoons are all from US. In fact, the United States is not only the birthplace for the aforementioned companies, but it is also cultivating many more excellent mobile internet start-ups, such as Instagram, Zynga, Pandora, Square, etc. At present, the mobile internet market in US is at the time of prosperity, demonstrating great diversity.  

It is clear that the US has surpassed the first mover Japan and become a leader in the global mobile internet market. Additionally, US mobile internet giants can be seen at every key section of the industrial chain (e.g. mobile operating system, mobile terminal manufacture and mobile shops, etc.). To date, the US has become a key stakeholder that can drive the development of mobile internet. In contrast with Japanese operators who are dedicated to serving local users, US players are making a much more profound impact on the global mobile internet industry.

What are the factors driving the US to surpass Japan in the mobile sector? First, let’s take a look at the basic landscape of mobile internet in the US.

**The basic landscape of mobile internet in US**

In recent years, the number of US mobile phone users is continuing to rise. (See Figure 21). As of June 2012, the US had 321 million mobile phone users with a penetration rate of 103.3%, which means that the number of mobile phones has exceeded the total population of US. By 2012, there were 156 million smartphones in US, with a market penetration rate of 47% (exceeding the 35% penetration rate of feature phones for the first time). It is expected that by 2016, the penetration rate of smartphones in US will reach 74.1%. (See Figure 22)

**Figure 21:** No. of users and the penetration rate of mobile phones in US

Source: Data of the World Bank

Source: Infinita, 2010

Let’s take a look at the status of US mobile operators. Differing from China and Japan, which have merely three major mobile operators, the US holds a large number of operators, the top two of which are Verizon and AT&T with neither of them exceeding 35% in market share (See Figure 23).

Figure 23: Market share of US wireless operators in Q3 2012

The US has a number of operators varying in size. Despite the larger number of mobile operators compared with Japan, the downloading speed and expense provided by US operators are far from perfect. In Q3 2012, the average connection speed of US was 7.2Mbps, ranking 9th across the globe. The connection speed of mobile phones ranged from 163k to 5m, with an average speed of 1Mbps.

Even though US operators are inferior to Japanese operators in terms of connection speed and expenses, their performance is nonetheless outstanding. In terms of churn rate, US operators have maintained relatively low levels; while in terms of revenue, their ARPU values are at relatively high levels (See Figure 6). From the revenue mix, data services contributed a significant part, accounting for about 40%.
An established ecosystem dominated by innovative enterprises is the success factor for US mobile internet

The mobile internet market in US has a lot in common with that in Japan, i.e. the high penetration of mobile phone users, fast connection speed and the adoption of subsidiaries to attract customers to use smartphones, etc. Both countries have a relatively mature ecosystem; however, the biggest difference is who dominates the system – in Japan, the answer is larger operators, while in the US, it is the enterprises of strong innovative power, including Apple, Google and Microsoft. This is the key to why US has become the leader in the mobile sector.

In Japan, mobile operators have contributed a lot to the prosperity of mobile internet. However, it is the extreme control that stifled the innovation enthusiasm. Japanese operators and mobile phone manufacturers work together to launch single-standards and customized types. But this cooperation is better referred to as "orders" given by the operators, as the operators will give an extremely detailed list to the manufacturers, specifying materials, design patterns and software to be installed. As a result, mobile phone manufacturers have descended to the position of production function for operators. The strong control by operators over mobile phone terminals has led to the lack of creativity among Japanese mobile phone manufacturers.

On the mobile internet market in the US, there are no such controllers: even a company as strong as Apple, with footprints on all sections of the internet industrial chain and its own established ecosystem, is unable to become the one and only superpower. In its every business, Apple is facing competitors such as Google, Microsoft and even Amazon, which is a cross-industry tycoon. That is to say, in the greater ecosystem of the US, there are many smaller ecosystems dominated by major industrial giants who compete and develop with each other. For instance, Apple, Google and Amazon have an independent and mature ecosystem. Such a form of free competition can fully stimulate the creativity of practitioners and help the industry maintain its momentum.

The biggest difference between the mobile internet industry in US and Japan is who dominates the ecosystem – in Japan the answer is larger operators while in the US it is the enterprises of strong innovative power.
The US mobile internet industry has become a global leader thanks to the innovation-inspiring mechanism. At present, the world’s most prevailing mobile operating systems are iOS, Android and Windows Mobile, developed by Apple, Google and Microsoft respectively. Since the founding of the first app store in July 2008, the US mobile market today can now offer more than 500,000 apps through various stores and platforms. The number of mobile websites is increasing at an 11% year-over-year growth rate and by December 2012, mobile websites in US had already reached 286,000. 

The well-established venture capital (VC) mechanism in the US can secure the capital for mobile internet start-ups to develop

In addition to the ecosystem, the soul of mobile internet lies in the infinite creativity of apps, which may stem from the unconventional thinking of students, or from the young ‘up and coming’ practitioners who understand the industrial rules but are not willing to play cards according to available rules. For such people, capital is what they need most. The well-established VC mechanism in US and the energetic mobile internet start-up culture are the perfect match. Such mechanism can secure the capital for mobile internet entrepreneurs to develop a business.

As the cradle of VC, the US has formed an integrated investment chain ranging from angel investment to the mid or post VC investment. The formation of this well-established VC mechanism has benefited from the strong support of the US government, which enacted and approved more than 200 orders pertaining to VC development, and provided tax incentives to stimulate and encourage VC development. Meanwhile, the US also has a relatively complete VC exit mechanism with active mergers and acquisitions. Its stock market can provide a safe exit for value-added VCs to quit.

VCs often seek for high returns that cannot be achieved in traditional fields of investment. Therefore, VCs are likely to flow to high-tech industries including the internet sector. In recent years, the internet industry has been moving to mobile connections which have become the most pursued field by VC investors.

In 2012, the investments and transaction volume of the US internet industry dropped slightly (decreased by about 5% over 2011), but VC investments and transaction volume were still at high levels. (See Figure 24)

The well-established VC mechanism in the US and the energetic mobile internet start-up culture are the perfect match. Such a mechanism can secure the capital for mobile internet entrepreneurs to develop a business.

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24 Source: CTIA’s Semi-Annual Wireless Industry Survey
In contrast with the US, the overall investments in China’s internet industry were in the winter of 2012. In 2011, the "money-burning" model began to dominate the development of the e-commerce sector and brought a new round of financing peak for China’s internet industry, and the financing scale demonstrated explosive growth. But since 2012, the financing vitality of the internet industry and e-commerce sector in particular has dropped dramatically.

According to statistics from ChinaVenture, there were 133 announced investment cases in China’s internet industry in 2012, with the total value at USD3.95 billion, presenting a year-on-year decrease of 57.1% and 55.5% respectively. The VC/PE ROI also sharply decreased. Meanwhile, the IPO market experienced stagnancy with just 5 new IPOs during the whole year. A number of enterprises that proposed a listing before then had cancelled or postponed such plans. Two major reasons for depression in the internet industry are the narrow exit channel and the continuous decrease in ROI, which are the common challenges faced by investors within the whole industry. (See Figure 25)

In the early development stages, the government can help some leading players set up industry rules.
The lack of well-established financing channels forces app developers in China to compromise in terms of insisting on innovation or survival first. Many app developers have given up their first choice and chosen to instead copy the apps with proved performances in US market. The innovation and vitality of China’s mobile industry are severely impaired by such practice.

3. The way for China to break through

3.1. In the early development stage, the government can help some leading players set up industry rules

Telecom operators in China are not as strong as their Japanese counterparts who dominate and design the whole industry chain. Additionally, China also lacks the innovative business models initiated by the top US internet companies. The mobile internet ecosystem in China needs to set up standards and rules, distribute interest and attract participants along each point of the industry chain.

Take mobile payment for instance, at a technical level, it could have been commercialized since long ago; however, in the promotion and real application, many industry tycoons such as telecom operators, banks and third-party payment companies have obtained the mobile payment operation license and entered this market, resulting in verified standards for different industry chain sections. The biggest obstacle doesn’t lie in technology and implementation, but in the isolated and independent operations of each party, as a result of the uneven distribution of benefits among them. Comparing the development road of Japan and South Korea, we noted that the strong telecom operators in both countries have opened the way through sectors such as banks, retail, telecommunications and content provision so as to easily achieve the unified standards for the whole industry chain. Thus, both countries established their global leading positions in mobile payment development.

Let’s take a look at the 3G and 4G development in China. During the times of 3G, China’s three major telecom operators chose three different communication systems respectively, resulting in a fragmented industry layout in which hardware manufacturers and software providers could only form cliques and work for different operators. Consumers are also confused when making choices. Because the standards are not unified, a lot of hardware equipment has to be remanufactured as per varied standards, resulting in tremendous waste of social resources.

In order to unify the industry standards and cultivate synergy development, the government can focus on maximizing social benefits at the early development stages of mobile internet, and support a number of industry leaders so as to develop unified standards and establish industry rules as early as possible. The above approach can help concentrate social resources at the early development stages and position the whole industry chain from an overall perspective, thereby enabling participants at different sections of the industry chain to find their positions as soon as possible and avoid wasting resources.
In the middle development stage of mobile internet, the government should properly guide the industry and create an open competition environment in order to avoid the emergence of a dominant player.

3.2. In the middle development stage of mobile internet, the government should properly guide the industry and create an open competition environment in order to avoid the emergence of a dominant player

In comparing the development process and results of the mobile internet industry in Japan and South Korea, we find that in the early development stage in both countries, telecom operators played a strong and leading role in forming the whole industry chain. In the late development stages in Japan, operators have become the absolute controller and have created an extremely closed competitive environment that lacks momentum. On the other hand, in the late development stages in South Korea, the government began to play a more active role in developing the industry rules in order to maintain the healthy development of the mobile internet ecosystem. We should learn from the South Korean government.

In 2011, the South Korean government asked operators to reduce the charges on mobile application, and encouraged consumers to use more data services from mobile internet. Recently, Korea Communications Commission (KCC) made a plan to cancel their network access fees for mobile businesses of operators, and also adopted other measures in order to diversify choices for consumers, including enriching service packages and reducing their charges. KCC launched a series of measures to encourage competition among mobile internet operators and increased the number of low-pricing mobile phones and related products.

In addition, the South Korean government enacted related laws to set limitations on terminal subsidiaries, in order to address the high marketing spending in the telecommunications industry and prevent the formation of a monopoly on the mobile communications market. In early 2012, KCC fined three major operators including SK Telecom and issued an injunction order on business development in order to limit the excessive subsidies provided by operators to seize customers, and to encourage them to focus on providing quality services and reducing expenses.

Meanwhile, the South Korean government requested operators to transition from the enclosed, unified business format and single network support to a platform providing open and diversified contents as well as a business model that attracts multiple parties to cooperate under business operation. In 2010, a portal website of games led by the Korean government officially went online so as to provide support to medium and small sized game developers.

Through a series of initiatives that opened the ecosystem of mobile internet, encouraged a large number of service providers to participate in network construction, and facilitated the formation of a mobile internet industry chain, the South Korean government eventually eliminated the same risk faced by Japan, namely, the dominance of mobile operators over the whole industry chain. This risk was substantial in that it was preventing its mobile internet industry from becoming an isolated island like its Japanese counterpart that lacked competition and is customized by telecom operators.
3.3 Enhance intellectual property management and improve the payment section which is key to the industry chain

The weak awareness of intellectual protection in China may bring fatal damages to tech-centric industries such as mobile internet. In the US, Apple has built up a successful platform centered on iTunes and gathered a large number of app developers. But the habit of paying for apps has yet to be established among Chinese users. In comparing the prices of iOS applications in China and US stores, we find that the prices in the US store are generally around USD1, while in China, they are often as high as dozens of RMB Yuan. The reason is simple: for the same app, the large number of paying users in US can share the cost, thus leading to a relatively cheap price; while in China, the small number of paying users means developers need to set higher prices in order to cover their costs. Furthermore, the high prices will result in deterioration of the industry ecosystem: the high prices will decrease the number of users with paying intentions, making it difficult for app developers to recover costs, causing them to quit the market, leaving the interest of free trial users impaired, thus ultimately leaving the mobile internet industry to be a failure.

The improvement of the overall ecosystem cannot be accomplished overnight; however, the government’s inadequate regulation is a main cause for rampant piracy. The corresponding punishment is far from deterring piracy. Piracy is extremely attractive because it allows for users to obtain countless apps with no cost at all. Considering the small number of paying users in China’s mobile app market, most of the app developers adopt the operation model of “free trial + advertisements”. If the government does not crack down on piracy effectively, app developers may lose their motivation and the payment section may not be formed within the industry chain.

Source: http://www.c114.net/news/116/a740535.html
IV. Conclusion

The real mobile internet will not be confined to the connection between a mobile phone/PAD with the internet. The core of mobile internet has two factors—people in motion and the non-stop online data services.

How will mobile internet develop in the future? In a broad sense, the real mobile internet will not be confined to the connection between a mobile phone/PAD with the internet. The core of mobile internet has two factors—people in motion and the non-stop online data services. The future development of this sector lies in its deepest understanding of what a person really needs under different conditions and at various moments. What technology can do is not only help meet people's needs, but also predict the potential demands in future and provide relevant solutions.

1. The core value system of mobile internet

Mobile internet in the future will be lighter to carry around, simpler to use, and more accessible. Technologies such as Google Glass enable people to move away from the screen; the evolution of biometric identification (by gesture and pupil changes) and voice technologies is helping people to wean from the dependence on keyboard and mouse; cloud technology ensures the data stored in the cloud can be always connected to; big data can quantify people's potential needs, facilitate the observation, dig out the hidden demand and transform it to explicit demand more easily. No matter how peripherals develop, the core value created by mobile internet will not change.

1.1 Connect physical interest groups to the ecological environment of mobile internet by ubiquitous links

One of the core merits created by mobile internet is the online connection at all times, which opens the door for new business models. A typical application of this is Online to Offline (O2O) business model. Prior to the rise of mobile internet, traditional businesses and offline services had rare access to the internet. However, because mobile internet can be connected at anytime and anywhere, it brought about new development room for those businesses. Consumers can buy things online and pay for them with mobile phones or online payment platform; they can go to stores to fetch products with verification codes on mobile phones. Mobile internet blurred the online and offline boundary, and as a result, created new values in extending the online border to physical offline stores.

Therefore, one of the profit-making directions for mobile internet is to include physical economic circles into the value ecosystem of mobile internet as often as possible. Serving as a pitch point, mobile internet will accelerate, facilitate and smooth the original business models of the physical economy.
1.2 Connection at all times can reduce communication cost while communication creates new demands

A second merit created by mobile internet is the elimination of a communication barrier. The highly accessible yet low-cost communication has created new business models. A number of apps have greatly reduced communication costs, and people with common interests, hobbies or needs can be clustered together through mobile terminals.

Imagine that on a Saturday afternoon, someone in a shopping center sends a movie-watching invitation to all users of the app. If the number is high enough, they can book a whole theatre and arrange a showing of the movie. Such business models that used to be impossible are turning into reality by leveraging mobile internet’s feature of all-time connection.

Mobile internet can cluster widely distributed consumers and aggregate their demands together. When the total demands reach to a certain amount, the vendor can make profits. When potential demands are transformed to executable real demands, new business values will be created accordingly.

1.3 The personalized and customized information services with mobile internet are rich in commercial value

The third merit of mobile internet is the lowered threshold of personalized and customized services. A principle demonstrated in the media and publishing, education, and healthcare industry: the information value for the mass people is inestimable, but such information services will not bring huge commercial value. The right development direction of information service in the future is to provide personalized and customized services through mobile terminals.

Hard copied encyclopaedias are being replaced by Wikipedia. In the education industry, there are abundant free e-resources that can be leveraged. In the healthcare industry, apps like Spring Rain provide basic information on various diseases and symptoms for free. One-sided communication of public information services are increasingly inclined to serve users for free.

The one-to-one customized information services as per users’ real needs can achieve the commercial value of information. Through the terminals of mobile internet, vendors can understand what users need and build a two-way information communication with users, so as to enable the customized services. This is the commercial value point created by mobile internet and is also the base for future profitability. The customizable app in the media and publishing industry, the self-adaptive learning abilities in the education industry and the one-to-one diagnose in the health care industry are all tailor-made services achieved under mobile internet which created business models that are profitable and sustainable.
In the era of mobile internet, the simple platform migration may completely change the operating systems and application software and reshuffle the landscape.

2. The crucial development period of mobile internet has come

Based on the platform of mobile phones and PDAs, mobile apps are showing great capabilities. However, the future technological upgrades may completely change the current landscape of mobile internet. The Google Glass and iWatch have established their initial step of commercialization, supporting SDK open to software developers. The case in the future will be similar to the mobile terminal migration from PCs to mobile phones and Pads, in other words, the migration to wearable devices may also happen on Pads and mobile phones, or even the flexible embedded platform may become the inevitable development trend.

Undoubtedly, the tide of a new technology revolution is higher than ever before. The development pace of mobile internet is much faster than computers and desktop internet: within a short period of 5 years, it has achieved the target made by the latter in over 10 years. Even the internet giants may carelessly miss great development opportunities. Take Microsoft for instance, its sluggish movement from PC to mobile phones and Pads resulted in its still-tepid development at present. Another example is Baidu, yet another company that underestimated the developing pace of mobile internet before 2012, a turning point for mobile internet. Baidu had to make big merges and acquisitions thereafter so as to correct strategic mistakes.

Who will be the winner in future? It is still a mystery. But what can be assured is that any of the old tycoons are unlikely to easily maintain their momentum, as traditional industries that have sustained their hundred years of inheritance. In the era of mobile internet, the simple platform migration may completely change the operating systems and application software and reshuffle the landscape. The old industrial tycoons of course have accumulated advantages, but even a small predictive error in future trends may result in crisis of development.

The mobile internet ecosystem in China is by no means perfect at present and the industrial chain sections need to make further improvements. It is the crucial development period with challenges and opportunities. In the next 5 years, countless products will emerge on each segmented market, grow and evolve themselves in the competition. The cost for survival is expensive – there can only be one final winner in each segment. However, the reward for such survival is also considerable: the last enterprises standing will hold the largest user base across the globe, and will have the biggest impacts on the internet with the potential to live on.
We wish to thank all of the leading enterprises and professionals within the mobile internet industry for their great support and generous contribution to this report. In composition of the report, they accepted our interviews and shared their years of experience to our readers. They are (in the order that they appear in this report): Mr. George Lai, CFO of The9 Limited; Ms. Zhao Ying, Vice president of NetEase; Owen Shi, CEO of China Gruner+Jahr and Ms. Wang Yun, CFO of China Gruner+Jahr; Ms. Wang Mei, Vice President of the McGraw-Hill Companies and Mr. Zhang Rui, Founder of Spring Rain Software Co., Ltd.
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