The race to make virtual experience a business reality

In view of recent global trends and the state’s policy, the VR market in China is expected to thrive. Prospects are favourable for each and every part of the industry’s value chain. Following the advances in hardware technology, VR is being applied to more aspects, among which entertainment, especially VR games, is believed to have enormous potential.

2016 is known as Year Zero for the VR industry. The industry is developing and flourishing. It is expected that global VR production of both software and hardware will reach USD6.7 billion, which will increase to USD70 billion in 2020. There will be a surge specifically for VR hardware in the next 5 years, leading to a compound growth of 80% in the VR product market. Following the rapid growth of the global VR market, the value of China’s VR industry would increase from 1.54 billion yuan in 2015 to 56.63 billion yuan in 2020, reaching a compound annual growth rate of 105%, which is higher than the global growth rate1.

China’s market growth is mainly driven by three factors: increasing demand for entertainment due to growth in disposable income; smooth VR experience arising from stable and fast 4G and wifi network access made possible by a sound internet infrastructure; and development of a new generation of mobile GPU that allows consumers to enjoy VR on the move rather than being anchored to a fixed location.

China’s VR industry would increase from **15.4 billion yuan** to **556.3 billion yuan** in 2020, reaching a compound annual growth rate of **105%**

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1. Industrial Security, Nov 2015
Another significant factor is the government’s policies supporting the development of the VR industry. The Ministry of Industry and Information Technology has emphasised the importance of the VR industry to the development of artificial intelligence and Internet Plus in China. The ministry has released a white paper on the VR industry highlighting policy support. Additionally, social capital is being introduced to promote VR development.

It’s worth noting that there are substantial differences in approval requirements for VR games in China and elsewhere. Content restrictions in China can be stringent and consequently, savvy local manufacturers, with their own distribution channels and attuned understanding of the operational and policy landscape are well positioned to navigate complications and react quickly to changes in the market. The result is a competitive edge for local VR manufacturers.

The game industry is a pioneer of digital entertainment, and games are very capable of leveraging core benefits of VR, which include interactivity, a sense of immersion and ambiance. In China, the game industry is mature, with a large number of users who are willing to spend. VR brings an advanced and extraordinary experience, which will make it an influential driver of the game market’s future growth. It will be the first VR related consumer market to flourish.

According to a consumer purchasing study, 11% of consumers are willing to purchase VR, indicating their high acceptance of VR, intention to pay and eagerness to try new technology and entertainment. It is expected that by 2020, the number of VR gamers will increase to 70 million people, and software turnover will reach 40 billion yuan. By 2025, the numbers of gamers and software revenue are expected to reach 216 million and USD70 billion, respectively\(^2\).

Like smartphones, VR devices can be used for various applications. For example, consumers can play video games, watch videos and live streaming, and even shop using a VR device. There will be huge potential for a wide range of applications of VR devices in the TMT and Retail, leading to VR having a significant influence on the industry.

Firstly, VR will bring commercial advertisements into a new era. VR provides a new platform for advertising. The immersive experience brought by VR provides consumers with brand new sensory experiences of target products and services. VR advertisement consumers are no longer simply bystanders. They can participate, enhancing their connection with advertisements. VR technology can turn ideas and innovations that may not have been possible before. Enterprises and brands that have tried to apply VR/AR in promotions include Pepsi, Volkswagen, Toyota, Ray Ban, Heinz, Pizza Hut and Coca Cola. Looking to the future, the dynamic and innovative VR advertisement industry will certainly rise.

Secondly, VR technology can enable collection of a huge volumes of information on users via the interaction that occurs. This means VR can be used to precisely target an audience, collect and analyse information, as well as interact with that audience. In the future, VR manufacturers will be able to provide accurate information on content browsing and sources of visitors, provide information on users and their profiles, and track consumer gazes across various broadcasting platforms. Information collected in this way can not only be used for studying users’ consumption behaviours and interests, but also for providing strategic recommendations to VR content developers and related services.

What makes VR attractive is not only the growth of the VR game market, but also its overwhelming influence on the TMT (technology, media and telecom) industry. VR will exert a deep influence on advertisements, user interactions, licensing businesses of information and content suppliers, and related services. Major companies are seeking opportunities in the VR market, and drawing up strategies and plans, which only adding to the intensity of competition.

2. ARinChina
3. Technavio
Thirdly, VR will bring more licensing and cooperation opportunities for content providers. The other main applications of VR in the future relate to live streaming and audio visual entertainment, such as sport, film, music and global event programmes. Headway in this area can help tackle the problem of inadequate seating in live shows, or allow a show to be opened to the entire audience in a given target area. Currently, radio broadcasting transmits audio frequencies, while television broadcasting transmits 2D images with sound, but VR has the potential to forge a bold new experience. VR films and television shows differ from screening 2D images in the way they are watched, with VR offering an experience that lets audiences become immersed in a film’s scenes. VR platforms will provide enormous licensing opportunities for content providers.

Fourthly, VR will bring network traffic and diversified content services to new heights. When using VR online, wifi or a 4G mobile network are needed. When VR develops to a large scale, bandwidth demands will rise, and the fees paid for network traffic will be attractive to companies. Future VR operators and manufacturers will look to provide a seamless one-stop service by selling customised packages of network bandwidth, hardware, software, content and other services. Business models will be more flexible and diverse, and more popular with users, resulting in speedy market penetration. In the future, when users purchase bandwidth packages, other than getting a mobile phone, a set-top box and television programmes, there will be options for VR products and applicable content. Users can look forward to a wider range of choices.

Understanding the huge potential of VR, global technology giants are trying to mirror the success of Apple by developing their own VR systems, and fostering them at an early stage of development. Facebook has set up a closed loop system with a core combining hardware (Oculus Rift), content (major content suppliers and Oculus Store) and social feature (Facebook). Companies such as Sony, Microsoft, Google and Samsung have similarly established their own VR systems. With global technology giants entering China’s VR market, the country’s internet giants have reacted by devoting resources to strategic development of VR businesses. The competition likely going to intensify in China’s VR market.
The VR mobile device market is considered to be a highly promising prospect, albeit with relatively low levels of technological development. Still, it is attractive in terms of costs, marketing channels and increasing mobility, leading to serious competition within the market. Nearly 20 mobile phone manufacturers have announced development of VR device businesses. Google's Daydream project marks the new industry benchmark. China's mobile phone manufacturers, such as HTC, Lenovo, Huawei and LeTV, have also entered the VR market. Huawei announced in its P9 Shanghai launch its first generation of VR products, Huawei VR. This is expected to compete with Samsung's Gear VR. Xiaomi has also launched its own VR product, which is compatible with Google's Daydream platform.

VR games and traditional games differ in terms of input, output, control and interactivity. VR emphasises immersion and panoramic effects, which place high demands on device performance. VR game devices can be divided into three categories: mobile, game console and PC.

VR game devices can be divided into

| Mobile | Game Console | PC |

Based on analyses and findings, the potential of VR games for PCs will be limited by three main factors:

**VR games for PCs will be limited by three main factors:**

- **Growth of the general PC game market in China is slow.**
- **Advanced, expensive technology is required for developing VR games for PCs, which increases the threshold for producing quality content.**
- **VR games for PCs impose high requirements on PC performance, limiting market penetration.**

Statistic shows that there only 1% of PCs have sufficiently advanced hardware to support the information processing requirement of VR computer games. Moreover, requirements of VR systems for playing computer games are also high. Currently, prices for major VR devices, such as Oculus Rift, are around 4,000 yuan, while the price of HTC’s Vive is as high as 5,300 yuan. Those made by manufacturers headquartered on the mainland can cost 1,500 to 2,100 yuan, which is still very expensive.

Substantial requirements for computer performance and high costs of VR devices can inhibit the public appeal. The weight of VR systems for PCs also can be uncomfortable for users, and that also means the devices are harder to carry around. As a result, VR systems for PCs may become “exclusive toys” specifically for PC game fans and high-end consumers.

Similarly, there are major constraints on the development of VR technology for game consoles, with pricing being the biggest challenge. Consumers may need to spend USD1500 to USD2000 to experience VR on their consoles, and that excludes purchasing game content.
Another factor is that games developed with heavy investment may not effectively attract general players. At present, while there are some “cool” applications, none of the games effectively appeal to casual gamers. Data shows 550,000 Xbox and PS4 sets were sold in 2015. While 30% of the PS4 and XboxOne players have indicated interest in purchasing VR games, there are many uncertainties due to the small base number.

Further, console-based VR has low compatibility. The incompatibility between different consoles adds to users’ cost for VR, which can dampen enthusiasm. The issue of low compatibility also leaves high-quality games in a dilemma. Quality game producers are keeping a close eye on which VR console has the biggest user base, to determine which platform they are best placed to invest in. On the other hand, it would be difficult to popularise console-based VR without high quality games.

A final consideration to note is that it was not until 2015 that the prohibition on game consoles within mainland China was lifted. The future development of game consoles including Xbox, PlayStation, Wii and PS in the market remains uncertain.

In comparison, there is a lot of scope for collaboration on and development of VR games on mobile devices (mobile phones and tablets). From a market perspective, the target player base of mobile games is much broader than for computer or console games. Consequently, this segment will account for higher growth in China’s game market in the future. It is estimated that the compound growth rate of the mobile game market from 2015 to 2020 will be 9.3%, notably higher than figure of 7% for PC games.

The technological threshold and investment cost for developing VR games on mobile devices are lower, and the price of hardware is more reasonable. The expectations of general users regarding the graphics, gameplay and plots of mobile games are much lower than those of hardcore computer game fans. Hence, the development cost and technological threshold of mobile games are much lower than for computer games. High technological specifications are not required for VR headsets for mobile devices, and the production costs are much lower than those of VR headsets for PCs. In China, a mobile VR headset costs only a few hundred yuan. The Gear VR of Samsung, a renowned overseas hardware producer, is sold for 600 yuan, while the local Baofeng Mojing 4 costs 259 yuan, which is 1/5 of the price for PC-based VR hardware.

Weight-wise, VR headsets for mobile phones are light and portable, and are not confined to indoor use like VR headsets for PCs.

Surfing the wave of technological progress, the graphics of mobile phones have improved dramatically, and mobile phones may take the place of PCs as the dominant gaming platform in the future. Regarding VR mobile games, the current hardware specifications of mobile phones cannot fully meet the requirements for arithmetic calculations of massive data in VR games. However, as the performance of mobile phones improves, users can expect to have an incredible VR gaming experience with their mobile phones without having to purchase an extra high-performance PC. This will open up an even bigger potential customer base for VR games on mobile phones.

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4. Niko Partner
5. PwC Global Entertainment & Media Outlook 2015 - 2020
Despite the enthusiasm for VR, it still lacks the conditions to surge and spread in the consumer market, due to its current stage of development in terms of hardware, software and the overall environment. It is subject to four major constraints. One of these is that VR devices look awkward, have poor portability and are pricey. Another reason is the prevailing VR system is incomplete, lacking an immersive conversation mode. Currently, interaction within the virtual reality environment is undertaken through keyboard and gamepad control, eye rolling and gestures, which differ markedly from interactions in reality. This significantly lowers people’s sense of immersion and the impact of VR.

Furthermore, the lack of quality content in the VR gaming field is a fundamental problem that has remained unsolved. There is little mature application of VR gaming at present, and most of the games are in their “Demo” stage, with crude production quality. The main reasons are: existing games cannot be directly ported to VR platforms and need to be developed from scratch; the development cost of VR games remains high; non-standardised hardware specifications and poor compatibility, which all hinder the development of VR gaming products. Finally, the current development situation of VR is insufficient to stimulate the public appetite to purchase. In the light of the aforesaid development problems related to hardware, software and systems, VR creates no rigid demands, has high costs as an entertainment experience, low content stickiness, limited scenarios for its application, as well as discomfort for users resulting from prolonged wearing. It cannot be popularised in the consumer market.

Although augmented reality (AR) is not attracting much attention, it compensates in some ways for aspects lacking in the development of VR and has advantages in terms of user experience, social impact and application in daily life. The success of Pokemon Go is the best example of VR/AR games successfully implemented through IP, and has inspired other enterprises.

At present, the virtual experience and sense of immersion created by VR outshine those of AR and are more entertaining. Influenced by the global trend, AR has attracted relatively little attention in China. VR has benefited from focused technological progress and currently boasts a more comprehensive environment than AR. But AR has advantages in terms of user experience, socialising and everyday life applications, which go some way in making up for the comparative weaknesses to VR.
AR devices are comfortable to wear and convenient to use. For example, Microsoft Hololens devices for AR can be used independently, without a cable connection, and do not require synchronisation with computers or smartphones. This differs from VR devices such as HTC Vive and Oculus Rift headsets, which are heavy and require cable connections, imposing spatial constraints on their users. Also, AR allows users to experience virtual objects in the real world, offering more interactivity. This prospect of remaining fully connected with reality can be preferable to some users.

AR has little influence on users’ social activities and is more readily popularised. VR offers users a virtual world separated from reality. This not only restricts the application of VR, but also affects users’ socialising and popularisation of VR. In contrast with the closed virtual reality created by VR, AR emphasises interaction with people nearby, including eye contact with them and their facial expressions. Users can see the real environment and people while enjoying the games, making AR more interactive and more readily popularised.

AR can also be applied readily to daily life, which bodes well for nurturing more promising prospects for development than VR in the near future. AR related technology is superior to virtual reality in terms of depth and scope, as it establishes an environment that combines virtual and real objects. This makes it easier for AR to go hand-in-hand with everyday life and commerce. In addition, compared to VR, AR’s selective digitalised augmentation embodies the advantages of a better sense of reality and smaller modelling workload, which can in turn shorten the time required for development and production costs.

Pokemon Go leverages these advantages of AR in a real-life application, and successfully utilises IP to attract a huge number of players, triggering a boom in the market. Nintendo, the Pokemon Company and Google’s Niantic Labs developed Pokemon Go through the application of AR technology.

In the game, players only need to turn on GPS and a camera to see cute Pokemons everywhere, as if they really came into reality. This fully realises the advantages of AR in terms of user experience, interactive gameplay and universality. Another major factor behind Pokemon Go’s success is the powerful IP of Pokemon.

It has been more than 20 years since Pokemon’s first appearance. It has a gigantic player community all over the globe, and has launched a series of film and television products and accessories, making it a premier global IP. The triumph of Pokemon Go demonstrates the significance and tremendous market influence of IP on VR/AR game operations.

Inspired by the success of Pokemon Go, many enterprises in China are following in its footsteps by strengthening the effective operation of IP. For example, Tencent launched a mobile game with the solid IP of Naruto, aiming to grab a share of the ACG market using the major Japanese manga title. NetEase introduced the Kungfu Panda mobile game, which appeals to core users through tracking IP collaboration. Through a solid combination of VR technology and the quality IP of Audition Online, Baofeng Mojing is working with Hanbitsoft from Korea in rolling out the industry’s first massive mobile VR gestural interactive game – Audition VR. Ubisoft is launching Raving Rabbids as a VR game.

In the future, VR producers, particularly the major players in the internet industry, will put similar emphasis on establishing and developing IP in their VR operations. They will actively engage in extensive cross-industry cooperation, boost the user conversion rate, enhance their brand competitiveness and linkage, and increase the popularity of VR.

Developers should devote extra effort to producing superior game content or making effective use of quality IP to stimulate consumers’ desire to buy their products, in order to popularise VR games in the consumer market and allow VR to truly shine.

Quality content is of utmost importance for the development of VR. For example, many classic Sony Playstation games have been incorporated into PlayStation virtual reality games. HTC Vive relies on Steam VR and attempts to achieve VR compatibility with Steam’s game library, allowing consumers to play 204 VR games.

Quality game content drives device sales. When newer devices are introduced to replace the old ones, the high quality games will be swiftly ported to the new platforms. This is equivalent to a strong IP effect. VR devices are the medium through which users access a better experience. What truly attracts users and arouses their desire to purchase is high quality content.
In the current VR industry, games are the content favoured by producers. It is true that many VR hardware manufacturers in China have started strategising content, and establishing distribution platforms to gain headway in the core business of game distribution. A business environment is established through integrating hardware and content to further consolidate user loyalty.

Pan entertainment is a very common business model in the game industry, and the sector with the largest scale and most mature business model. In 2015, the value of the industry reached 140.7 billion yuan. It is growing rapidly, with a five-year compound growth rate of 33.3%, and its share of the overall game industry is increasing year by year, growing from 24% in 2011 to 33% in 2015.\(^6\)

In 2011, Tencent introduced the “pan entertainment” concept, centred around IP, more cross-sector fan based products that are marketed across various fields – including games, anime, drama, film and television and text – have been produced. This has resulted in a substantial integration of cultural and entertainment industries, delivering all-round entertainment to the target audience. Pan entertainment is a very common business model in the game industry, and the sector with the largest scale and most mature business model. In 2015, the value of the industry reached 140.7 billion yuan. It is growing rapidly, with a five-year compound growth rate of 33.3%, and its share of the overall game industry is increasing year by year, growing from 24% in 2011 to 33% in 2015.\(^7\) The liquidity of the game business remains very strong. In addition, prospects are incredibly attractive for a combination of the two current mainstream modes of entertainment – games, and film and television. Against this background, linkage and interaction between film and television and games have become a common and fairly mature business model with pan entertainment.

Centred on IP, pan entertainment aims to maximise the diversity and business benefits of IP by creating links between industry sectors related to IP. Within the framework of pan entertainment, the gaming industry is the sector with the largest scale and most mature business model.

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6. PwC Global Entertainment & Media Outlook 2015 - 2020
7. PwC Global Entertainment & Media Outlook 2015 - 2020
There are cases in which game industry products are transformed towards pan entertainment. For example, 37 Interactive Entertainment has engaged in various sectors of the pan entertainment industry, including video game and broadcasting business, film and television, and anime. Its web-based game that is produced and published with the same title as the TV drama Nirvana in Fire has set a monthly sales record of over 40 million yuan. In 2016, the renowned game King of Fighters will be adapted into anime and a live-action movie. Adaptation into a TV drama is also being considered.

As for cases of transformations from film and television into pan entertainment, the TV drama Legend of Zu by Jiangsu Straw Bear Pictures stands out as a successful case of cross-industry collaboration.

In late September 2015, the e-book novel Legend of Zu was launched at around the same time as the TV drama with the same title that was broadcast online by LeTV. In view of the enthusiastic responses from the novel readers and online drama audience, the production company launched a web-based game and a mobile game of the same title in November and December 2015, respectively. Falling under the role playing genre, these games give fans of the drama a sense of immersion into the story and characters, and have become huge successes.

In January the following year, Straw Bear Pictures cooperated with Anhui Satellite TV in launching another version of the TV drama. As the audiences of the two media do not overlap, Jiangsu Straw Bear Pictures has taken different approaches to editing the two versions, leading to different plot developments and even different endings for the same drama. The huge profits have motivated the production of a sequel to the TV drama of Legend of Zu and collaboration with Alibaba Pictures in releasing the movie version of the title in 2016. Under the “pan entertainment” strategy adopted by Straw Bear Pictures, the IP of Legend of Zu has covered nearly all forms of entertainment and attracted countless fans for its novels, drama and games.

From the perspective of enterprises, the pan entertainment model can reduce risks at early stage, lower marginal costs, widen target audience base and increase investment returns, which would then realise the long tail value of the products and achieve economies of scale.
If you would like to further discuss with our team, please contact us.

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