

Trends & Predictions For China's Tech industry In 2017

40 Top Chinese Tech Executives
Make Predictions for the Future of the
Chinese Tech Industry



► About China Tech Insights

China Tech Insights is Tencent Online Media Group's newly launched research project.

The Chinese internet industry is drawing increasing attention from the rest of the world. Not only is it a fast rising entity in the tech sphere globally, but it also offers unparalleled opportunity as a huge market unto itself. Curious observers however, likely find it challenging given the limited availability of high-quality insight into the Chinese tech industry, especially in the English language. The cultural barrier serves as yet another hindrance that stops outsiders from further understanding this market.

China Tech Insights was launched in 2016 with an aim to share the most accurate and precise interpretations and analyses of the Chinese tech industry, with input from overseas investors, entrepreneurs and fellow analysts.

Our reports are based on meticulous interviewing, surveys and research, fueled by professional opinion from business insiders. This is where we decode the truth of the Chinese tech industry bit by bit.

► Disclosure

Tencent Online Media Group, a division of Tencent Holdings established in 2003, hosts China's biggest online news portal and publishes one of the most popular mobile news apps in China. With a team of over 40 media professionals from Tencent Online Media Group, some of whom have decades of journalistic experience, this project aims to tap the most brilliant minds in the industry.

► Statement of Ethics

Though part of the Tencent Holdings group, projects undertaken by Tencent Online Media Group, China Tech Insights in particular, operate independently from the company's other businesses. Information pertinent to Tencent is treated on an equal footing with that of any other company.

At the same time, views and insights presented here are solely those of the China Tech Insights team, based on independent research and analysis, and do not in any way represent the views of Tencent.

As a leading tech company in China, Tencent will inevitably be involved in some of our future analyses. The conflict of interest will not interfere with our editorial process.

Data utilized for this project is primarily collected from Tencent Online Media Group's consumer survey system. Other data channels used include those provided by our partner institutes, top-notch financial organizations and research units. Only data from credible sources will be included in our data sets.

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Introduction

China is the world's biggest smartphone market, is one of the most active mobile application markets globally and is a front-runner in mobile product and services innovation.

Annual shipments of smartphones in the Chinese market grew from 120 million units in 2011 to 434.1 million units in 2015. In addition, according to the 38th semi-annual report by China Internet Network Information Center, as of June 2016, the number of China's mobile internet users has reached 656 million, accounting for 92.5% of China's total web user population.

These numbers show China's achievements in mobile internet in the past few years, but at the same time, they also imply that China's mobile internet market is reaching a plateau. This state of affairs has also proven to be a struggle for Chinese competitors in the mobile internet market.

The Chinese mobile market is converging. We see leading players merging with each other to optimize finite resources amid a drying up of capital. The average number of apps used per day dropped to 15 in the first quarter of 2016 according to Chinese app tracking firm QuestMobile.

One of the reasons for this phenomenon is that mega apps backed by China's tech giants, like WeChat by Tencent and Alipay by Alibaba, are becoming the almighty aggregators for many of the frequently used functions in Chinese users' daily lives. From social networking to mobile payments, these mega apps leave little space for smaller players in niche markets.

Under these circumstances, Chinese tech companies have begun to seek new opportunities in other markets. Venturing into less saturated overseas markets is one of the options. Chinese smartphone makers are now having an increasingly stronger presence in the global market. India, predicted to be the second biggest smartphone market in the world for 2017, has become the primary target for Chinese smartphone makers. Brands including Lenovo (Motorola), Xiaomi, Gionee, OPPO and vivo have shown great ambition for this market. Other brands like Huawei, are also enjoying increasing market share in markets such as Europe and South America.

But the question remains: What will be the technological breakthrough leading to the next multi-trillion dollar market for China after the mobile internet market has reached its peak? Venture capitalists, industry leaders, researchers, and entrepreneurs are all making bets. After a full transition from desktop to smartphone, where will the next

point of growth be for a saturated Chinese mobile internet? Which niche will be the next billion dollar market, VR/AR, AI or biotech?

To answer these questions, China Tech Insights team interviewed over 40 top tech executives for their opinions and projections into the future of China's tech industry. These insights have been compiled, along with solid and exclusive data on the current development of the Chinese tech market, in this end-of-year report on China's tech industry.

If we're entering the age of uncertainty after the Chinese tech industry's prime era, we hope this report can be your torch on the road.

Overview

1.1
The Chinese Internet Is
Close to Complete Mobilization

1.2
The Impact of Baidu,
Alibaba and Tencent

1.3
The Global Competence of
Chinese companies

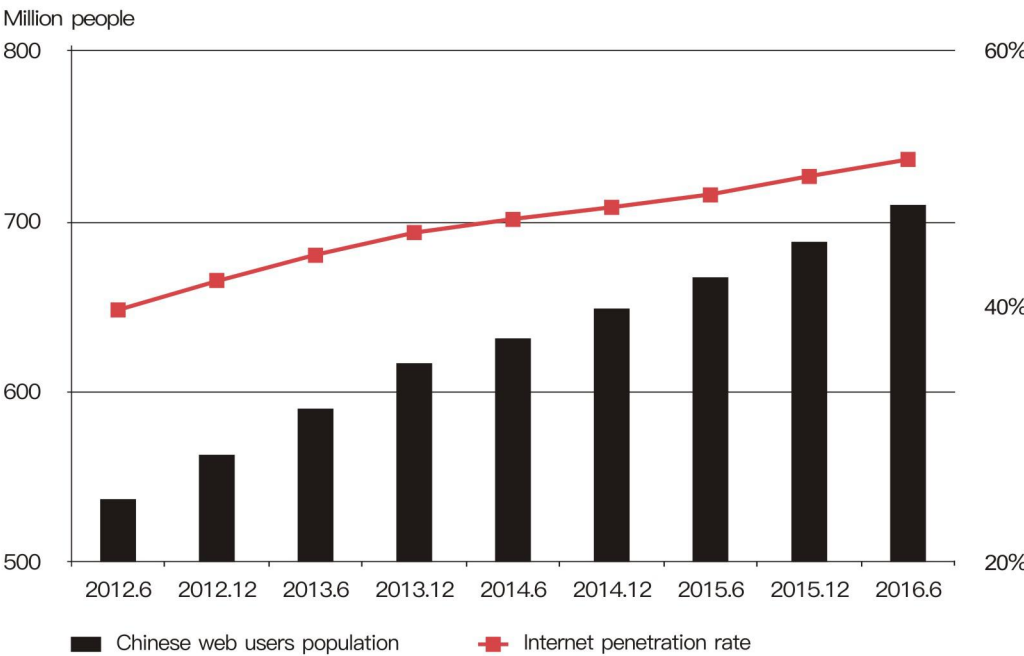
1.4
Opportunities in
China's Consumer Market

The Chinese Internet Is Close to Complete Mobilization

The theme for China's economy in 2016 may be a slow down. In the first three quarters of 2016, China saw an average quarterly GDP Growth of only 6.7% year over year.

In the tech industry, though still growing at rocket speed and leading the world, China's mobile internet has also reached a tipping point. According to CNNIC's 38th China Internet Development Report, as of June 2016, China had 710 million web users with an internet penetration rate at 51.7%.

Chinese web user population and internet penetration rate

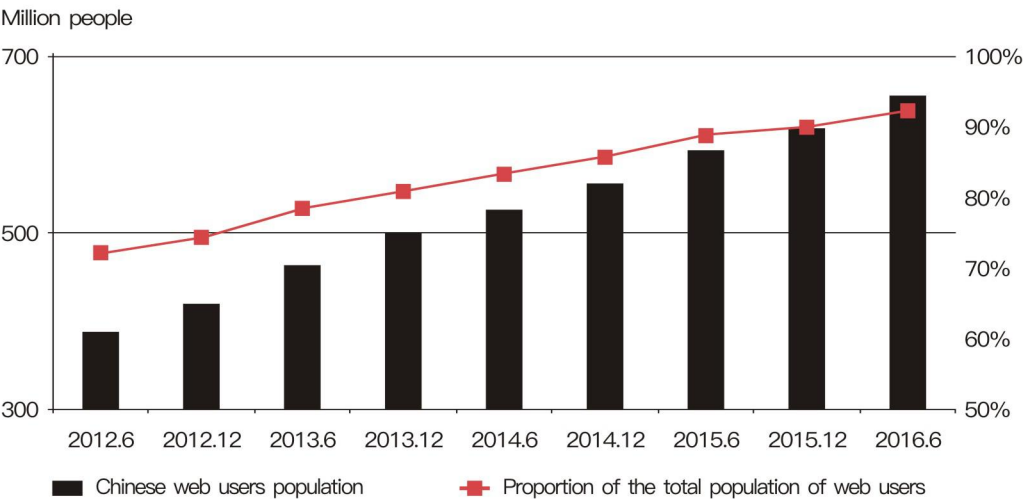


Data source: CNNIC



The vast potential of the internet is making a full adaption to the mobile era. As of September 2016, 92.5% of Chinese web users accessed the internet via smartphone. The popularity of mobile e-commerce and mobile payments with users has grown rapidly to 401 million and 424 million users respectively.

Chinese mobile internet user population and its proportion of the total population of web users

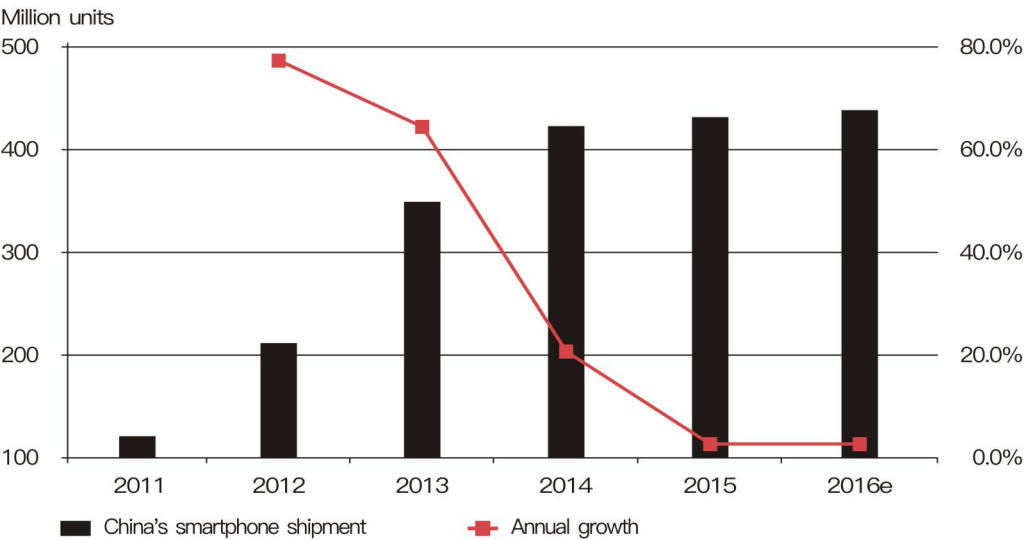


Data source: CNNIC



After five years of frantic growth, shipments of Chinese smartphones have grown from 120 million units per year in 2011 to 434 million units in 2015. However, China's smartphone market is nearing saturation, held back by the internet penetration rate and the impact of an economic slowdown.

China's smartphone shipments and annual growth

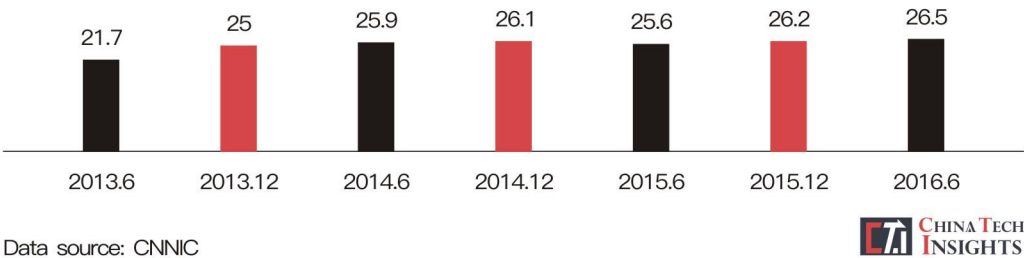


Data source: Statista, May 2016



At the same time, though Chinese people spend a considerable amount of time online, the growth of average time spent online is slowing. According to CNNIC, Chinese users’ average time spent online for the first half of 2016 increased slightly compared with that of 2015 to 26.2 hours per week. The number hasn’t seen much growth since the latter half of 2013.

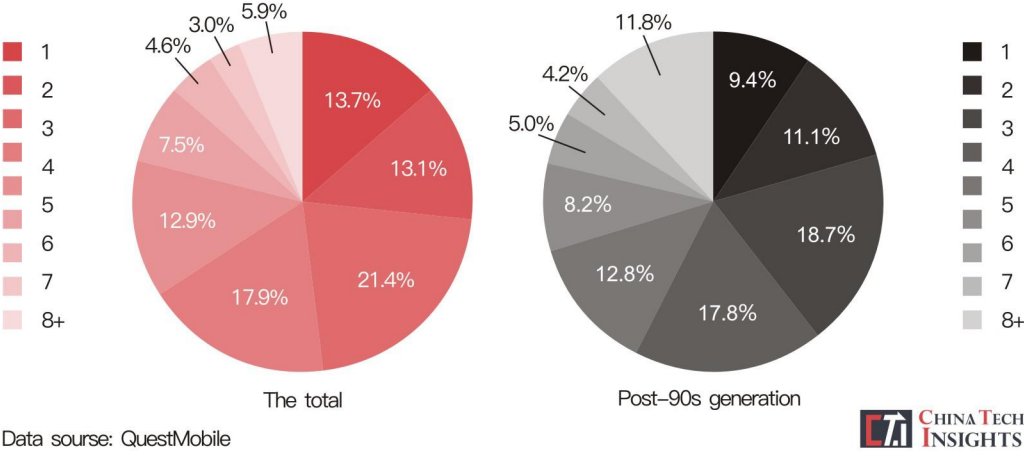
Average time Chinese web users spent online weekly (Unit: Hour)



All the while, it’s getting harder for players operating in the mobile internet space to achieve substantial growth. According to data from Chinese mobile app tracking company QuestMobile, as of October 2016, 48.2% of Chinese smartphone users installed no more than two apps per month. The number of apps used daily stabilized at around 15, while the average number of apps installed on devices was only 45 in first-tier cities, with even fewer in lower-tier regions. This indicates greater difficulty acquiring new users in China, with higher costs attached accordingly.

The Chinese mobile internet market is entering into the latter half of its journey, where frantic growth is ending and the Long Tail Effect is beginning to exert its influence.

Percentage of users by number of new apps installed per device in October 2016



The Impact of Baidu, Alibaba and Tencent

Three major Chinese internet-based companies, Baidu, Alibaba and Tencent (often referred to as BAT), command the leadership of China’s Internet industry.

Each of these three companies have core products with hundreds of millions of registered users and over 200 million monthly active users — the daily active users of some of these core products have even surpassed 100 million.

Tencent’s social applications see the highest usage frequency within the group. According to data monitored by QuestMobile, in September 2016, WeChat’s monthly usage frequency per capita was 596.5 times.

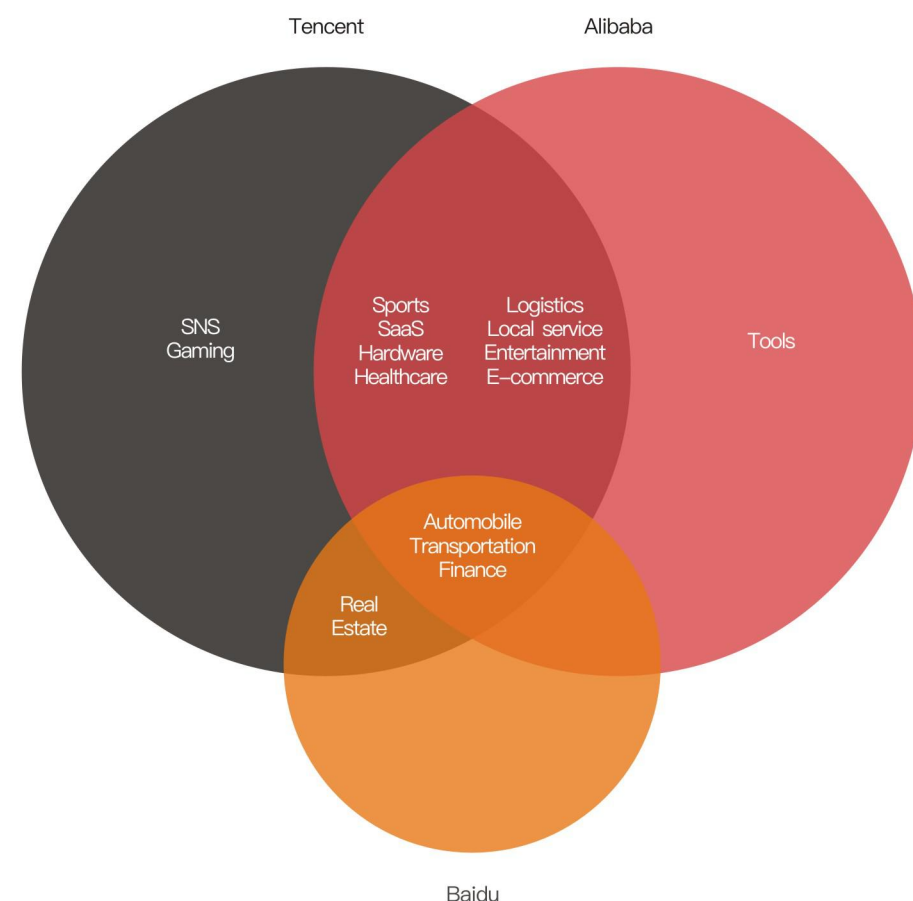
Core applications from Baidu, Alibaba and Tencent

	Core Product	MAU (Million)	DAU(Million)	Monthly Usage Frequency per capita
Baidu	Mobile Baidu	358.35	104.55	53.7
	Baidu Map	226.57	25.84	10.8
Alibaba	Mobile Taobao	433.28	152.85	63.3
	Alipay	374.10	84.36	21.3
Tencent	WeChat	817.77	625.16	569.5
	Mobile QQ	565.39	292.33	229.0

Data source: Financial releases, QuestMobile Top 2000 App (September 2016)

These three companies are also actively involved in mergers and acquisitions both at home and overseas. The three getting into a variety of areas with apparent overlaps is indicated in the chart below.

BAT investment distribution by sector, 2016 H1



Data source: IT Juzi



Baidu was once regarded as the Chinese equivalent of Google in China but has since been left behind in the mobile age, falling into a disadvantageous position over the past few years. In 2016, though its paid listing business was attacked fiercely by the public in the middle of the year, Baidu's continuous investment in technology distinguished it as one of the most noteworthy companies in China for the year. In the past three years, the investment ratio of research to revenue at Baidu has closely resembled that of Google's. With its research into new technologies such as deep learning, artificial intelligence and autonomous driving, Baidu may possibly reverse its fortunes and be the first to seize the opportunities of the next technological era.

In the past few years, we have also seen Alibaba become more than just an e-

commerce company. Though e-commerce is still its primary business and the most prominent label attached to this company, Alibaba also shows strong competence in sectors including fintech, cloud computing, big data, and even entertainment. Alibaba's also actively attempting to launch new products in social, such as the Circle function in Alipay. Taking into consideration Alibaba and its e-commerce platforms, helped along by Taobao's leading position in the consumption end of the value chain, Alibaba has achieved considerable advancements in data storage, data concurrency and data security.

The last of the BAT, Tencent, is the indisputable leader of social in China. Through QQ and WeChat, Tencent has established China's highest quality social ecosystem, developing abundant scenarios for consumption and other daily services. Tencent's other focus is gaming. There is enormous market demand for gaming services, with user consumption habits reflecting that of other social networks in China. In the mobile gaming era, Tencent's fast pivot to mobilization via R&D and investments in quality assets such as Riot Games, has earned it a leading position in the industry.

The Global Competence of Chinese Companies

Looking beyond the Chinese market, tech companies from China have shown their ambition as well as capacity to compete in the global market.

In the early stages of the internet, Chinese internet companies were in an inferior position in the global internet ecosystem led by American and European conglomerates. But in the mobile internet age, new models have originated in the Chinese market which are now spreading to other parts of the world. The idea of duplicating successful Chinese models for other markets is emerging as a new trend in the Chinese market.

Globalization used to require significant localization, but in the mobile internet age because of a universal ecosystem built on global social giants like Facebook, Twitter and LinkedIn, the advertising channels have been standardized for competitors from all over the world. This makes it comparatively easier for Chinese outfits, especially developers of productivity apps, to compete in the global battlefield.

As the Chinese smartphone market reaches a saturation point, many Chinese smartphone brands are also considering globalization as a primary strategy for their next stage of growth. Confronted with fierce competition in China’s domestic market, venturing into emerging markets like Africa and Southeast Asia has become a more and more tenable strategy.

At the same time, entrepreneurs and investors from emerging markets are becoming interested in Chinese models as well. Since 2011, visits from emerging market company representatives to China’s top tech companies have become more frequent. Kunal Bahl, the founder of Indian e-commerce portal Snapdeal, revealed in an interview that his visit to Chinese companies, including Alibaba in 2012, eventually led to a shift in the company’s strategy, a change of focus from group buying to e-commerce.

Chinese companies are boosting their presence in the emerging market through heavy investments. Significant cases include Alibaba’s investment in Paytm, Tencent’s investment in Indian social app Hike, and Didi’s investment in Ola and Grab. It’s becoming common practice for Chinese companies to import their models to emerging markets through investment and acquisitions.

	India	Indonesia
News	Dailyhunt, UC News, Hotoday, News Republic, NewsDog	Baca, Babe, Kurio, UC News
Video	QuVideo, Hotstar	QuVideo, Musical.ly, cliponyou, Netflix, HOOQ, VIU, iFlix
Gaming	Elex, IGG, Supercell	Elex, Cheetah Mobile, Garena
Music	Saavn, Gaana, Wynk, Hungama, Apple Music	Spotify, Apple Music, JOOX, Yonder Music, Deezer

In red are those developed or invested in by Chinese companies.
Data source: App Annie, public information



Opportunities in China’s Consumer Market

Consumption is still strong in China, especially in travel, automobiles and smartphones.

By the end of 2015, Chinese travellers had been leading the world in terms of outbound travel consumption per capita for four consecutive years. China’s automobile production and sales figures have been number one globally for seven years in a row. Though the growth of China’s smartphone market is slowing down, it is still the biggest smartphone market in the world.

However, Chinese consumer needs are changing.

The Chinese government’s 2014 end-of-year economic performance summary described Chinese consumption habits as “having a strong tendency to follow trends including buying what other people are buying,” which has led to intensive consumption of certain commodities over a short period of time.

But since 2015, Chinese consumers have begun to switch away from “swarm buy” purchase preferences, instead, pursuing quality, personality and diversity in consumption. Individual choices and the pursuit of differentiation are becoming more prominent for Chinese consumers.

1 Chinese Consumption Continues to Shift Online

Several features stand out in the domestic trend towards upgrades. The trend of a full switch to online channels is one of the most prominent.

The Chinese consumer preference for online purchases keeps increasing. Aside from the well-known 448 million user strong e-commerce market, the popularity of online food deliveries (150 million), online travel agencies (264 million), online personal finance (101 million) and mobile payments (424 million) are all increasing. In the first half of 2016, online sales of material goods increased 26.6% year over year, 16.3% higher than the total growth of China’s overall consumer spending.

Meanwhile, Chinese consumers have become highly dependent on social networks for information. China has the most active social networks in the world. The impact of social networks on Chinese consumption behavior is also tremendous. Especially in

invoking the consumption impulse, the effectiveness of social marketing has begun to surpass traditional advertising channels.

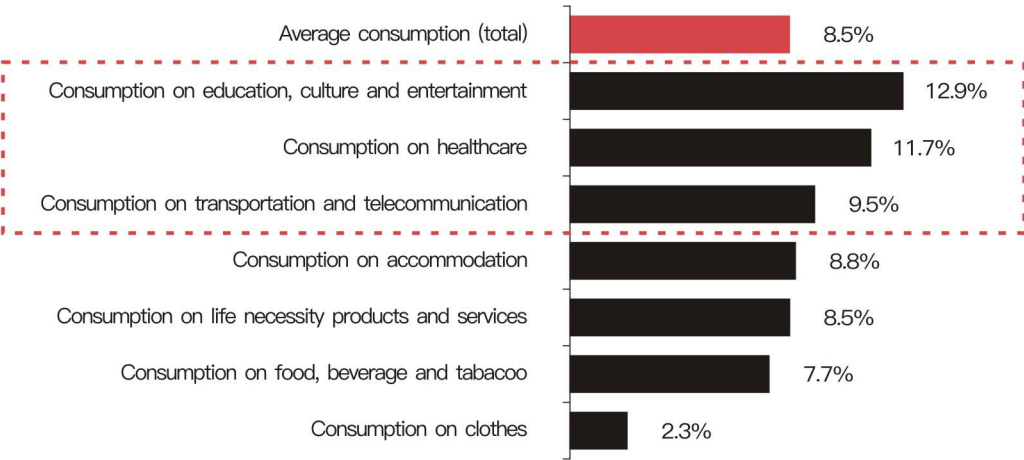
Information acquired via social channels is more important to Chinese consumers in terms of decision-making processes. Social media accounts that provide product reviews and related information are popular among Chinese consumers. Average buyer reviews and recommendations are also deemed more reliable for purchases in comparison to conventional ads. Chinese consumers also have a high willingness to share their own buying experiences. Additionally, the great diversity of social information available is changing the pattern of social marketing in this country.

The rising trend towards upgrades has attracted a great number of startups and investment. A few products and services have been launched to meet the needs of people looking to improve their quality of life. Typical areas influenced by the concept include mobile payments, cross-border e-commerce, online food deliveries and online travel booking.

2 Niche Markets Benefit from a Trend towards Upgrades

According to China’s Bureau of Statistics, Chinese average consumption has increased 8.5% year over year for Q3 2016. Education, entertainment, healthcare, transportation and telecommunications have seen the fastest growth recorded, with an increase at or more than 9.5%.

Chinese residents’ average consumption in each category and YoY growth(Q3 2016)

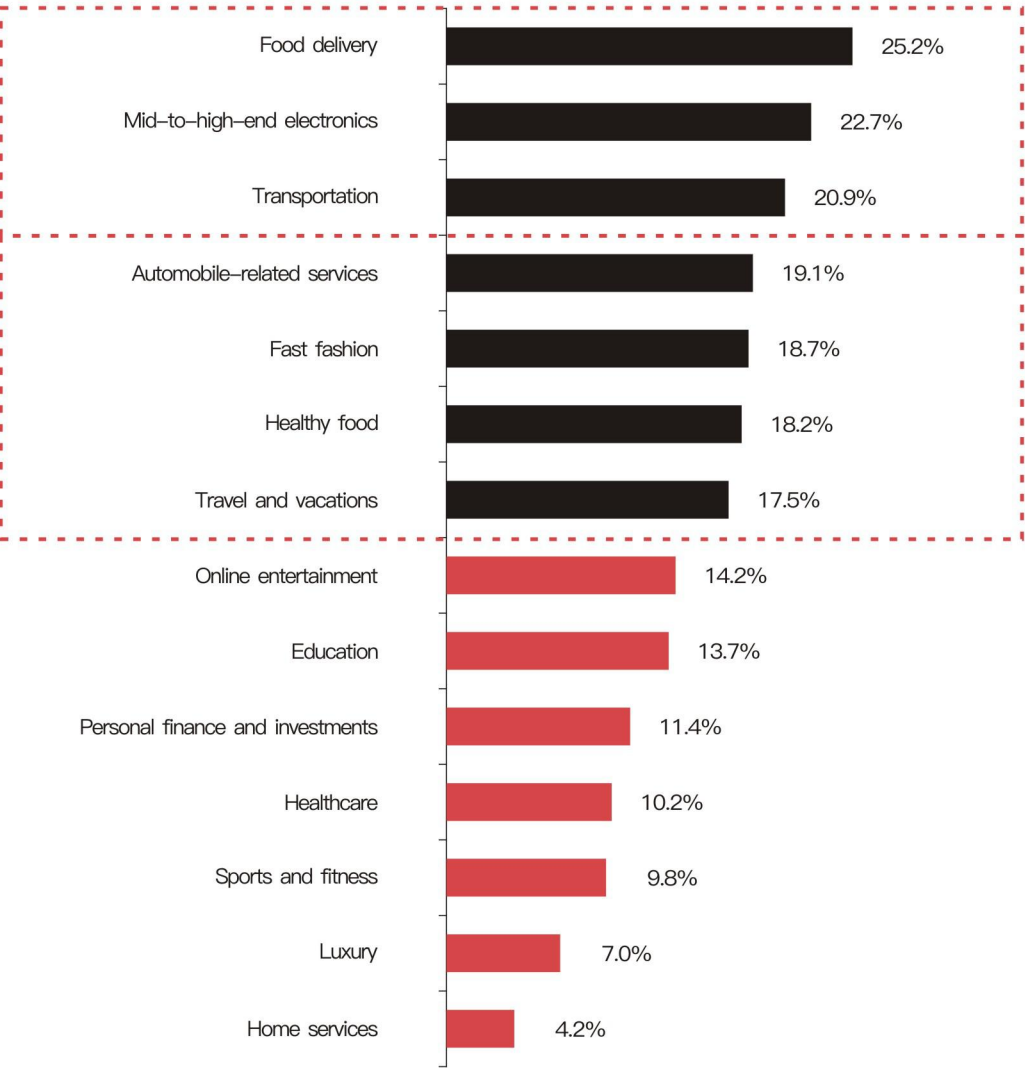


Data source: China’s National Bureau of Statistics



Food deliveries, mid-to-high-end electronic devices and personal transport have also seen significant growth. According to our survey, food deliveries top the growth charts with 25.2% of web users increasing their consumption in this area. Following that lead are mid-to-high-end electronic devices (22.7%) and personal transport (20.9%). Food deliveries and personal transport purchases have seen a swift shift to online channels in the past two years with high adoption of new purchase methods from web users.

“In the past two years, in which category of consumption have you found significant growth?”



Data source: China Tech Insights Sept. 2016



The increase in consumption of mid-to-high-end electronic devices shows that Chinese consumers are more willing to pay a higher price for gadgets, especially smartphones. According to data from Nielsen in September, the market share of mid-to-high-end smartphones above RMB 2,000 has increased 7.2% compared with last December, while the market share of smartphones priced between RMB 1,000 and RMB 1,999 decreased 2.05%, and shares of smartphones priced under RMB 1,000 dropped 5.15%.

About 18% of consumers surveyed reported an increase in outlays on automobile-related areas, fast fashion (outlets like Zara and Uniqlo), healthy food and vacations. This shows user changes in terms of categories and the motivations behind consumption — a strengthening emphasis on fashion, health and leisure.

Consumers in different regions also present different patterns of consumption. Consumers in first-tier cities tend to consume more in almost all categories but because of government policies and congestion, these consumers tend to spend less on the purchase and maintenance of automobiles compared with other regions. Apart from that, the gap in consumption for healthy food and travel by different region is narrowing down.

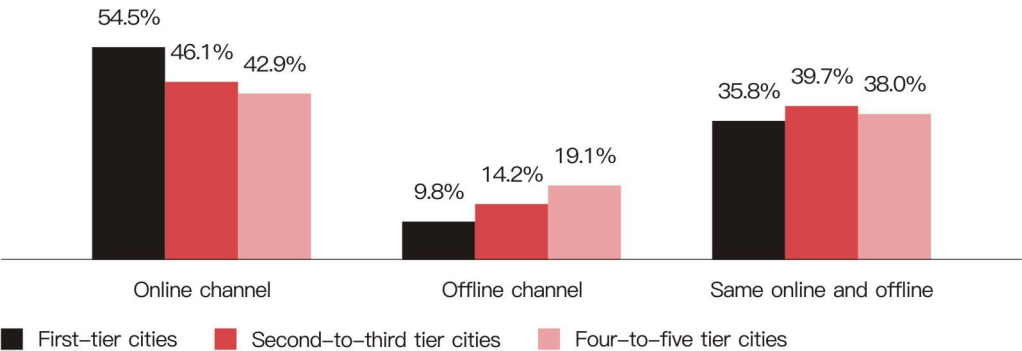
③ Opportunities Presented by Online Channels

Trading up, or upgrading among Chinese consumers is generally done to a greater extent through online channels. 47.7% of Chinese web users surveyed demonstrated a higher dependence on online channels in their pursuit of higher-quality products and services.

Two significant age groups stand out in the trend towards upgrades facilitated by online services. An increasing amount of web users both below ten years old and above 40 years old are increasing. The internet penetration rate for these two groups is also increasing.

At the same time, the ratio of those over 65 years old compared with the working population in China has increased from 12.3% in 2011 to 13.7% in 2014. The aging phenomenon of China is becoming increasingly severe. Whether consumption will be conducted by elderly groups themselves, or on behalf of the group, the elderly population of China will play an important role in the upgrade trend.

The proportion of offline consumption increases as the city development level decreases



Data source: China Tech Insights Oct. 2016

Venture Investment in China

2.1
Positive Growth in
a More Rational Market

2.2
Predictions for China's Venture
Investment Market in 2017

Investor opinions:

“Venture investments in China for 2016 have in fact been pretty steady due in large part to a sufficient supply of great innovation. This is a very positive phenomenon. The problem is the growth of the entire Chinese economy is slowing down with the devaluation of the currency. For those companies planning on listing in overseas stock markets and investors planning on investing overseas, this will certainly have an impact.”

——Wei Zhou, Managing Partner at Kleiner Perkins Caufield & Byers China

“At the moment, USD funds are relatively neutral in China with later-stage funds more reserved, and growth-stage funds more aggressive. RMB investment is still growing slowly and will see more intense competition later this year. As the system of RMB funds becomes more established, the competition in growth and later stage funds will become more intense. Renminbi is still pouring into the equity investment market under the guidance of policy and industry trends, bit by bit, but it will take some time to fully mature.”

—— Feng Li, Founder and Partner at FreeS

Positive Growth in a More Rational Market

China is the second largest venture investment destination, receiving a total of USD 53.8 billion, very close to the USD 58.8 billion received by the U.S. In terms of the size of angel investments and the total amount and volume of angel investments, from 2015 there has been an increase of 217.95% and 209.94% year over year respectively, leading to a tripling of growth over the past two years.

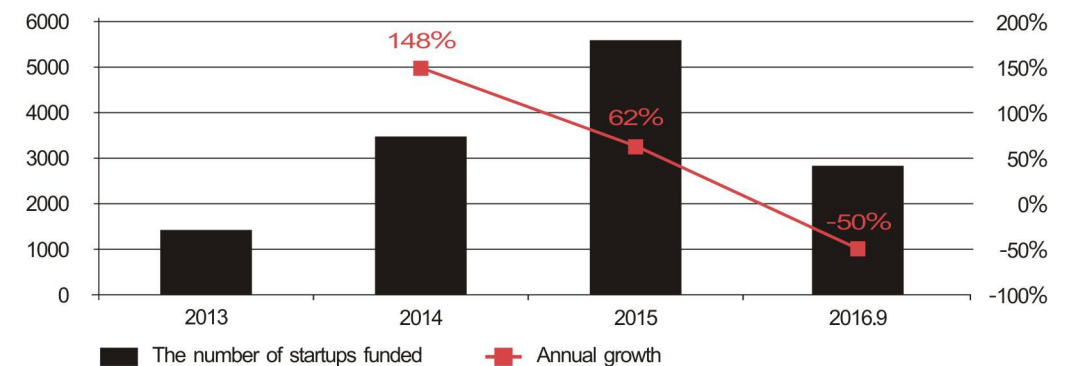
The number of coworking spaces in China has increased from 50 to over 2,300, 46 times the amount of spaces observed in 2014. According to the 2016 Internet Innovation and Entrepreneurship Whitebook by Tencent Open Platform, the total number of co-working spaces in China would grow to around 4,000 by the end of 2016. Incubators have also seen an increase from 2011 with numbers increasing from 1,034 in 2011 to 2,500 in 2015.

Another trend is that an increasing number of entrepreneurs from traditional industries have begun to prioritize the mobile internet. Many dedicate themselves to the development of mobile products, including entrepreneurs previously engaged in the education, media, real estate and retailing industries.

From 2015 to Q1 2016, over 5.5 million new companies were registered in China, among which around 481,500 belonged to internet-related areas. In 2015, China had 33 unicorns; as of Q2 2016, 79. 95% of those unicorns were from the internet or related sectors. Internet finance, e-commerce, automobiles and transportation, and online-to-offline services, comprise more than half of all unicorn companies.

1 The Chinese Capital Market Cools Down in 2016

The number of startups funded and the annual growth from 2013–2016



Data source: IT Juzi, Sept. 2016

CHINA TECH INSIGHTS

After the explosive growth seen in 2014, China's equity market became more rational in 2016. Figures have definitely dipped compared with the performance of the past few years.

The most obvious symptom of the sluggish Chinese market is the overvalued projects from 2014 and 2015 finding it harder to attract investors in 2016.

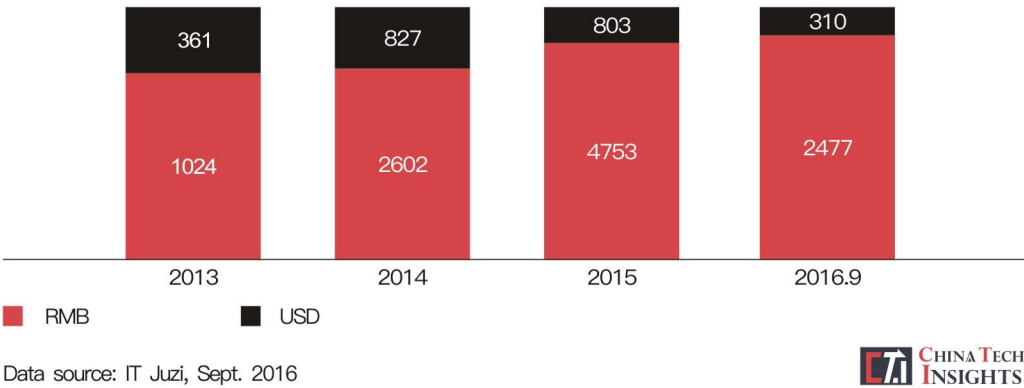
According to our interviews with first-tier investors in China, compared with a couple of years ago, venture funds are seeing differences in the quantity as well as quality of investments. This year, the number of investments has been cut in half. Though similar amounts have been raised, they are coming at a slower pace. Valuations of early stage projects (angel rounds to A-series) are reaching sensible prices, but valuations of growth stage investments (B-series and later) are still relatively high in general.

Rather than primarily focusing on KPI's and operational data, investors now place a higher priority on company profitability and key health metrics. For entrepreneurs, it means stable cash flow has become more important than before.

For institutes, mainstream funds see sufficient capital with active investment in angel rounds. But because of a declining ratio of funding success in later rounds, middle and later stage funds emphasize profits more and an absolute leading market position.

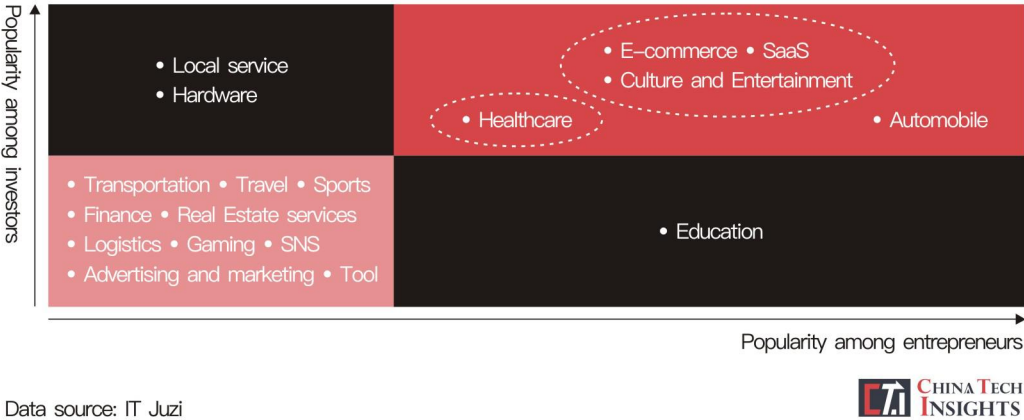
In terms of categories, the most popular types for the capital market in the first half of 2016 were AR/VR and content production; the latter half of the year has seen the rising popularity of artificial intelligence and other hi-tech projects.

Number of projects invested in RMB vs USD



2 China Investment Matrix

China venture investment matrix 2016



In 2015, e-commerce, SaaS, local services and fintech were the most popular sectors among venture capitalists. But in 2016, only e-commerce, the entertainment sector and SaaS have kept strong momentum going. These three sectors have captivated much of the attention for this year, while fintech and local services suffer from declining interest.

Predictions for China's Venture Investment Market in 2017

Investor opinions:

“In general I’m optimistic about the general investment environment in China in the coming year. Opportunities for exits in the secondary market will be better in 2017. Things have already been shifting in a positive direction, such that you see companies listed on boards every month, with the third board also now providing a different channel.

For now, valuation of Chinese companies is still higher than the overall situation in the U.S. and this encourages more companies to still consider the domestic market first. All of this aside, I think tech companies are still rare in China’s secondary market and worth their price.”

— Dr. Kai-fu Lee, Founder of Sinovation Ventures

“2017 will see the investment trends of 2016 continue with opportunities in cutting-edge technology, AI, AR and so on. But companies must globalize, because these sectors require integration of hardware and software. These specific requirements will lead to further global competition. This will also prove demanding for startups interested in these areas – they will need to have access to resources both in the U.S. and in China.”

— Hans Tung, Managing Partner at GGV Capital

① 2017 will See Stable Venture Investment

Most investors interviewed agreed that the Chinese venture capital market will see stable and continuous momentum into 2017, due to the following reasons:

- ① Chinese tech giants are dominating the market with their own products, active investment and acquisitions in the field.
- ② China's mobile internet users have surpassed 500 million and are entering into the latter half of development. Incumbent players have seized upon the first round of opportunities, while new opportunities are yet to emerge.

However, some investors also think companies will need to pay attention to a few variables in the market, like the IPO window period in 2017, the situation of China's Main Board and possible new policies by China's Securities Regulatory Commission. China's domestic Renminbi funds are becoming increasingly active and that may prove to be a strong stimulus for China's venture market as well.

② Things to be Cautious of

● The Traffic Acquisition Cost of Local Services is too High

The traffic acquisition cost of local services (or online-to-offline services) is presently too high resulting in very slim profits. This also has the added effect of diminishing returns on investment, making the maintenance and survival of companies very difficult. For some companies, it's barely possible to turn a profit. Thus, after venture capital ceases, most businesses find it hard to survive.

● The VR/AR Business: Better for Tech Giants than Startups

VR and AR have been trending over the past two years with a number of entrepreneurs flooding into the area. However, investors are more cautious of the field. Some investors think this sector won't see explosive growth. The VR/AR business requires in-depth integration of both hardware and software, which will be challenging for many startups. Companies in these two areas must be able to develop a comprehensive content generation eco-system to achieve real success. Opportunities for startups in this field may prove out of reach.

③ Bubbles and Risk

Compared with the venture market globally, valuations in China overall are reasonable. The valuation bubble of China is bigger than that of the U.S. but it is still more favourable than that of Israel and India. At the same time, because the volume of investments take up a relatively small amount of China's economy as a whole, investors think the impact of a slowdown won't be that significant.

The valuation of China's startups is cooling down in general. 2014 and 2015 saw total valuation of Chinese startups almost double compared with two years before, but total valuations for 2016 decreased 50% compared with the peak period. Investor Xu Xiaoping from ZhenFund thinks the valuation of Chinese startups has dropped to relatively reasonable levels, and predicts that valuations in 2017 will follow the momentum of 2016.

Though a few specific niches see high valuations for high quality companies, the future potential of these companies rationalizes current risks. Investor Hans Tung from GGV Capital thinks that this is a gamble of whether niches will keep growing at present speed; for growing niches, investors may have to pay up a year earlier, but many will find this acceptable.

④ Predictions for Trends in 2017

● AI Will be the Indisputable Trend

Most investors interviewed agree that the AI revolution will be disruptive. AI companies in applicable areas will likely create real value for the market. AI projects in face recognition, autonomous driving, finance and healthcare are worth the attention from both investors and entrepreneurs.

● Upgrades Will Prove to be a Long-term Outlet for Investment

Because of information overload, the decentralizing influence of social networks, and the fierce growth of Chinese brands, present brands that have formed an established and mature image among Chinese consumers are rare. These factors will usher in new possibilities for brand creation and upgrade potential.

Considering this, the upgrade phenomenon will be a long-term investment theme that will lead to the birth of new unicorns in the future. The overall trend towards upgrades is still progressing. Though e-commerce has satisfied user requirements for diversity,

information overload has lead to a demand for filters, including identifiable brands.

● The Cross-border Services Sector Still Worthy of Investment

Chinese companies venturing into the global market will see unprecedented growth and potential. The U.S. is at a leading position compared with China in enterprise services, but this won’t stop established Chinese companies from likely buying products, acquiring companies, or bringing established American companies into the Chinese market, rather than developing new services themselves.

Though the concept of cross-border services is overheated right now, the sector will still see great opportunities in the future. The key to growth in the sector will be whether players can successfully connect American and Chinese resources. For both enterprise services and cross-border e-commerce sectors, as long as there’s a globalization possibility, there’s a potential for investment.

● A Promising Future for Fintech

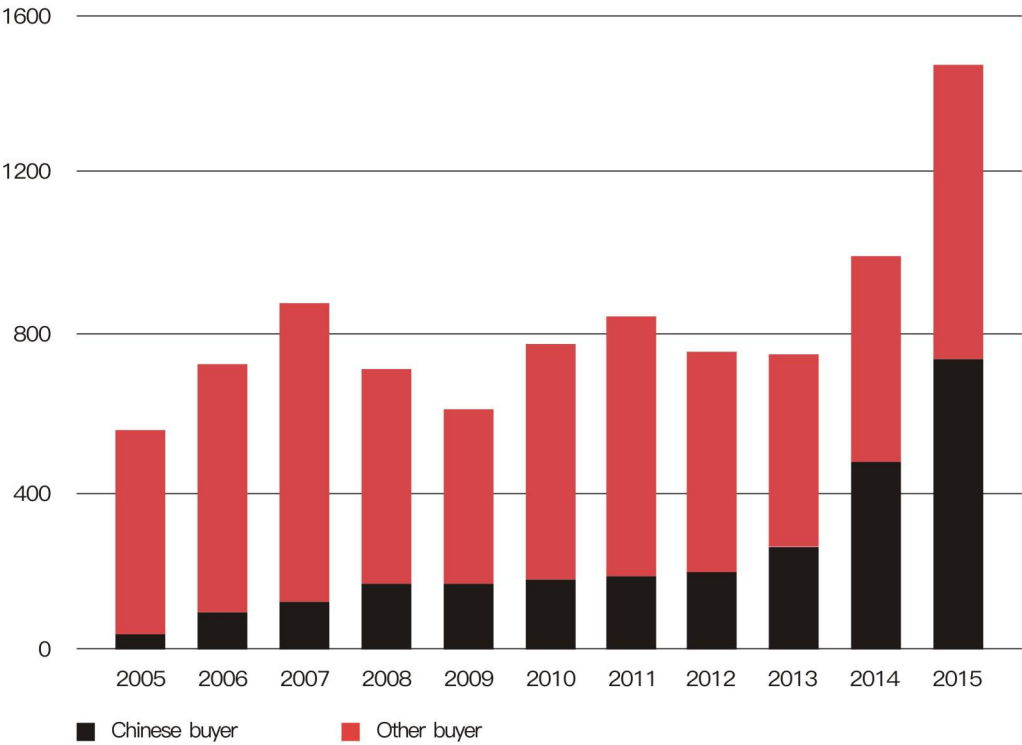
As regulations and policies in the fintech sector become more clear, this niche market will enjoy more opportunities in the future. The sector will see several different types of innovations in the future. The first will be new channels for existing financial products. The second will be to create a new model for more effective capital flow. The third will be inventing innovative products similar to Bitcoin. Wei Zhou, partner at KPCB, thinks, in the future, there will be more unicorns emerging in China’s fintech area.

5 Chinese Capital Ventures Overseas

Chinese internet companies are competent in terms of innovating in business models and are capable of duplicating Chinese models for emerging markets. However, thanks in part to low technical barriers, innovations in business models normally lead to blunt duplications and homogeneity in products. In contrast, most global tech giants are still built upon both technical and research capacity.

Chinese companies are still inferior in contrast to leading players in terms of technical development as a whole. In the past few years, Chinese capital has become active globally with mergers and acquisitions in pursuit of technical capacity. Chinese companies hope to attain international talent from global brands, and leading technologies via investments and acquisitions from all around the world. This will lead to having better integration of global resources to facilitate competition in and out of China.

2005–2015 Mergers and acquisitions in Asia Pacific (billion USD)



Data source: Dealogic

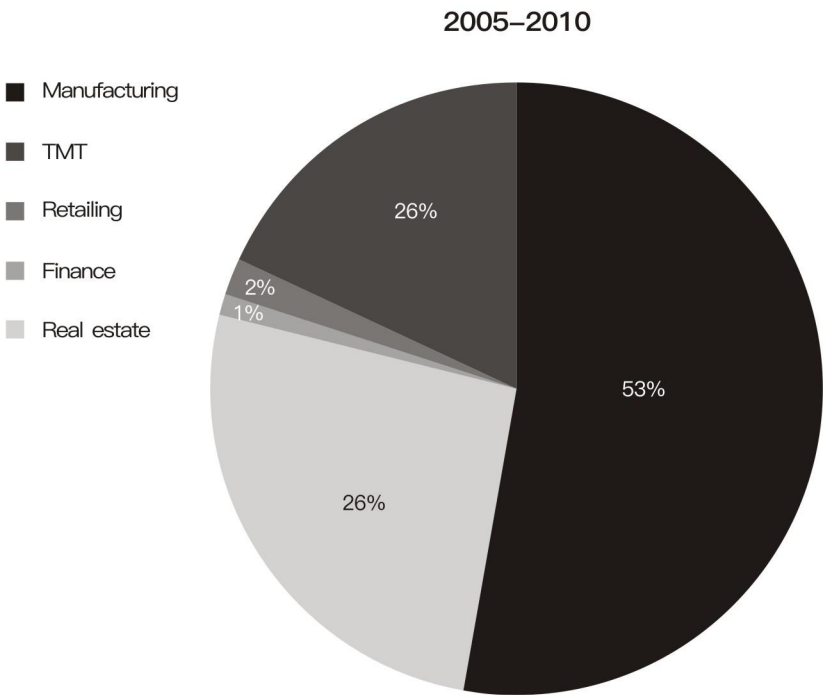


According to American financial data monitor Dealogic, in 2016, one third of cross-border acquisitions were conducted by Chinese companies. Asia is one of the primary targets for Chinese outbound investment. In 2015, total deal volumes closed by Chinese buyers were the same as the total deal volumes of buyers from all other regions combined.

At the same time, Chinese outbound investment has presented some new patterns.

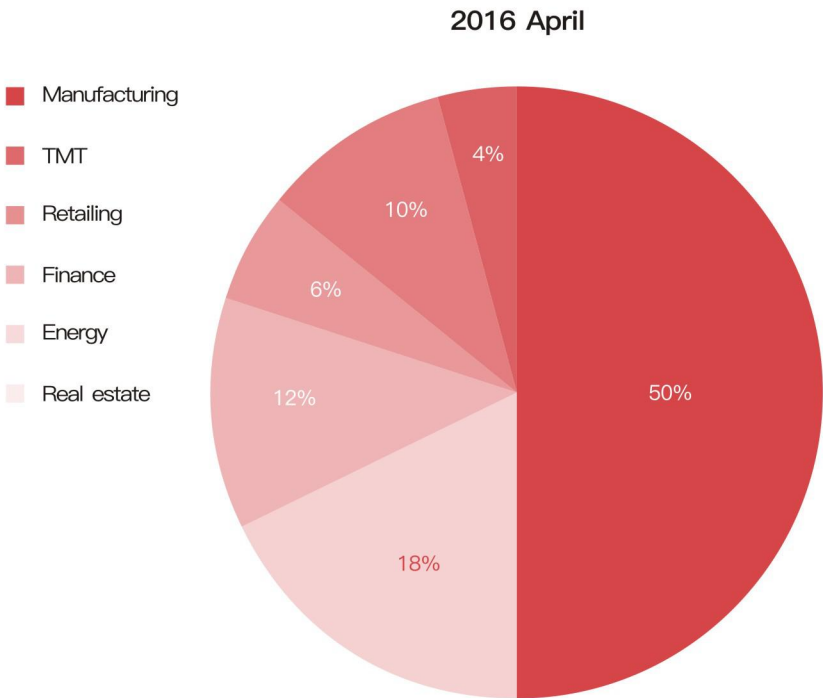
The first notable trend is that of private companies, instead of state-backed Chinese enterprises, becoming the leading forces of investment overseas. A second feature of this phenomenon is that primary destinations for Chinese investments are also shifting from developing countries to developed countries: the U.S., Germany, and Israel in particular. A third feature sees targeted categories changing from energy to hi-tech, agriculture and real estate. According to Dealogic, China’s investment in TMT (Technology, Media and Telecommunications) has increased from 1% in 2010 to 18% in 2016. The corresponding proportion of investment in energy decreased from 53% to 10% in 2016.

Percentage of China's overseas M&A by category



However, Chinese investments overseas are not proceeding without challenges. One of the primary challenges is the integration of companies post-acquisition. Chinese buyers focus primarily on negotiation and acquisition strategies before the deal, but lack experience with post-deal management.

Compared with years past, Chinese companies have engaged in and become more experienced with mergers and acquisitions; however, some companies still treat technology acquisition deals solely as acquisitions of assets and copyright. Neglecting the human resources aspect, ranging from management to R&D, manufacturing and sales, is diminishing the value of these deals in essence.



Data source: Dealogic

Smartphone Industry

3.1
Status Quo of 2016

3.2
User Characteristics

3.3
Predictions into 2017

Insights from industry leaders

“Many smartphone brands in China are now in a losing position, and in the future, only one to two brands will survive. Huawei’s goal is to be number two globally in two years.”

—— Richard Yu, CEO at Huawei Consumer BG

“The biggest change in 2016 for the smartphone market is that the industry is returning to the essence of competition, for instance competing in brand reputation, sales channels, team management and user experience. The essence of such competition is creating value.”

—— Lirong Liu, Chairman of Gionee Smartphone

“Smartphone sales through online channels saw a boom from a period starting three years ago. But they encountered a plateau from mid-2015. This is because consumers now value quality over a low price; on the other hand, online marketing and sales costs are surpassing offline costs.”

—— Xin Jin, President of DIGITONE, a top mobile device retail chain in China

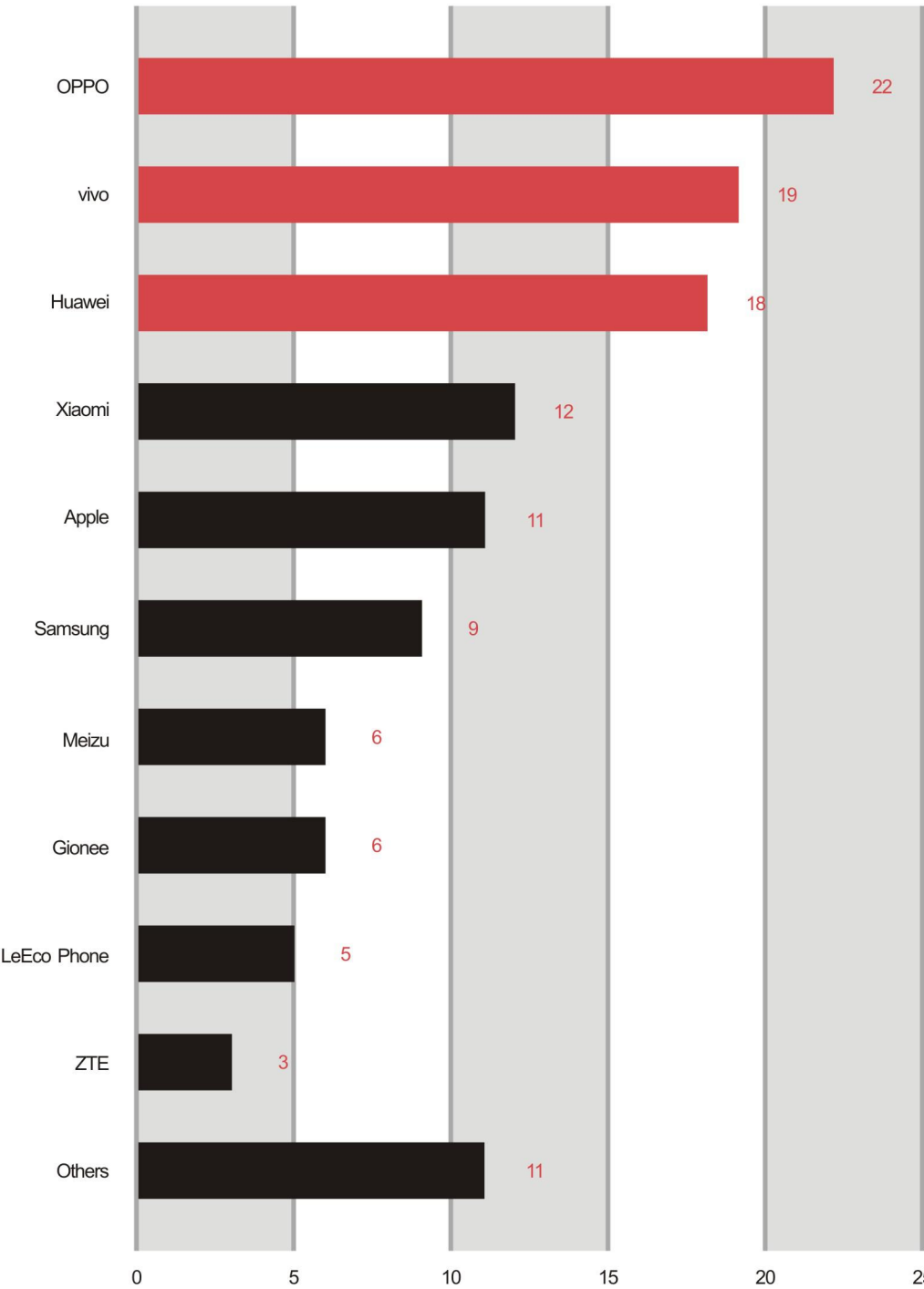
Status Quo of the Industry

1 Major Players

2016 witnessed an explosion in shipments from Chinese smartphone vendors. Local brands are shrinking the gap with smartphone giants Samsung and Apple. Of the top 12 smartphone brands globally, 8 are Chinese brands.

According to IHS Technology, in Q3 2016, the smartphone sales volume in China was 123 million, a 15% YoY growth. Domestically, competition among Chinese players is still fierce. The smartphone landscape has changed with OPPO and vivo now taking the lead in shipments. OPPO topped the list for the first time in Q3 2016, followed by vivo, Huawei and Xiaomi.

Landscape of Chinese smartphone market in 2016 Q3 (in Million)



Source: IHS Technology, Oct. 2016

2 Market Trends of the Year

● Sales from Online Channels Dwindling, Pure E-Retailing Does Not Work

Smartphone sales from online channels have been sluggish since 2015. According to German market research institute GfK, there were 19 million smartphones shipped through online channels in the first quarter of 2015, a quarter over quarter decrease of 22.6%. Xiaomi, the innovator in adopting an online sales and marketing model, was among those that suffered from the change. The increase rate of Xiaomi's smartphone shipments plummeted from 224% in 2014 to 15% in 2015. Apart from the descent of Xiaomi, some young brands that boasted only online sales have simply gone out of business in recent years.

● Chinese Brands Go Abroad; Patents Become the Biggest Barrier

When the domestic market becomes saturated, Chinese smartphone makers eye overseas markets. India is now the hottest destination, where domestic brands Lenovo, Xiaomi, Gionee, OPPO and vivo have all grabbed a share. Besides India, other sought-after countries include Russia, Turkey and Brazil. TCL, ZTE and Lenovo have made inroads into the North American market. Some have also expanded their presence in Southeast Asia, Europe and Africa.

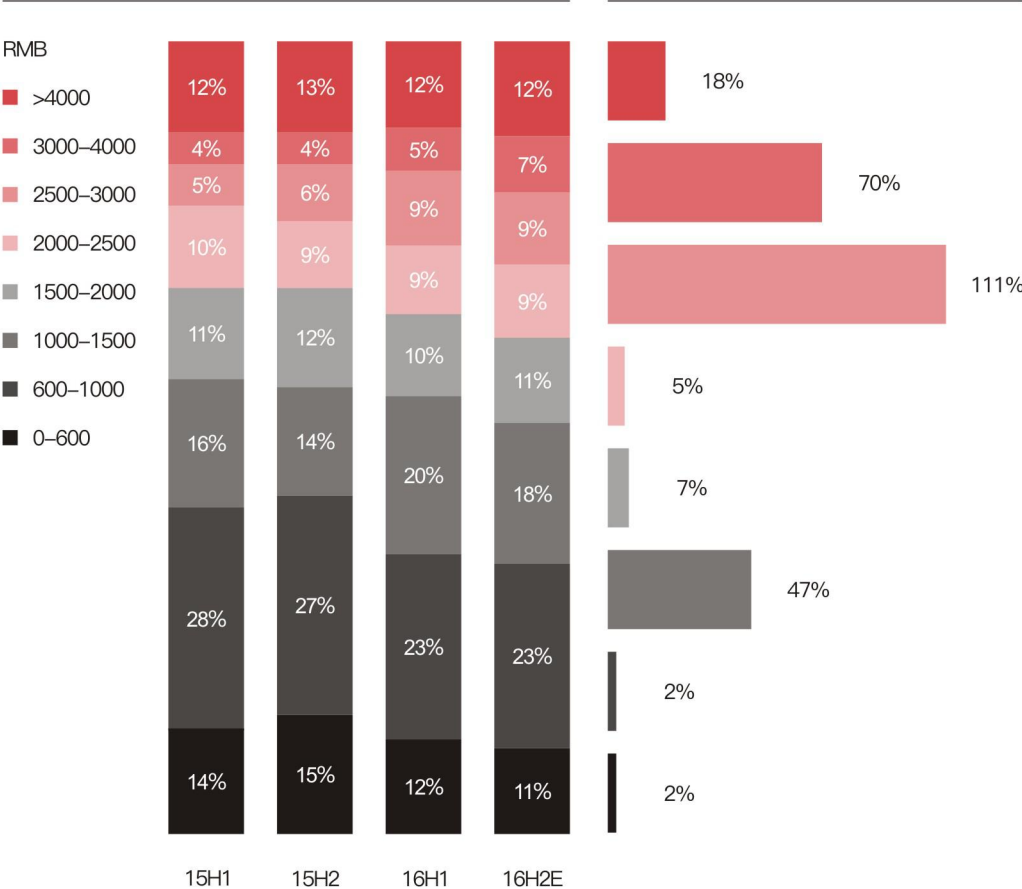
However, a lack of patents sees local brands fall into unfavorable positions when expanding abroad. Except for companies like Huawei and ZTE, Chinese brands on the whole are vulnerable in patent battles. Xiaomi and Meizu have both been locked in patent disputes. To tackle this, Chinese brands choose to reinforce R&D, acquire companies with patents or team up with local companies. For instance, Xiaomi has struck up a partnership with Bharti Airtel, the biggest carrier in India, to avoid being the target of a patent battle.

User Characteristics

1 Consumption Upgrading– Chinese Demand for Higher-Range Smartphones Rises

From the latter half of 2015, the market for low-end models that sell for below the price of RMB 1,000 has been shrinking. China is experiencing a round of consumption upgrades where cost is no longer the primary metric for choosing a new phone, and consumers tend to pay more attention to other elements including performance, memory storage and design.

The market share of smartphones of different price range from 15H1 to 16H2



The YoY change of smartphone sales of different price range (16H1/15H1)

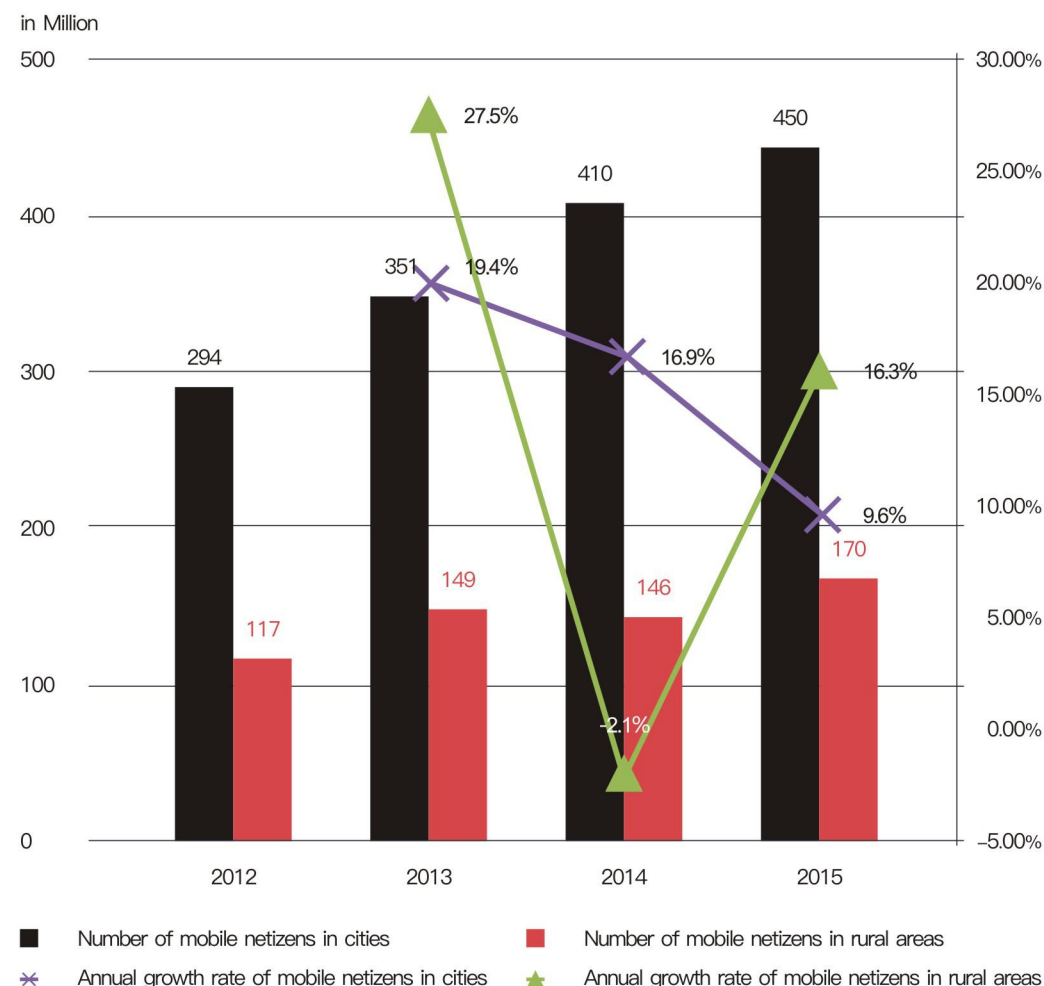
Source: GfK, July 2016



2 Hope Pinned On Third-Tier Cities And Below

The smartphone market in first- and second-tier Chinese cities has reached a point of saturation. According to CNNIC, the growth rate of mobile netizens in cities decreased year by year from 2013 to 2015, while the rate in rural areas was as high as 16.3% in 2015. Owing to the large population base in lower-tier cities and rural places, this market has tremendous potential with its growing need from consumers and has become the new battleground for domestic smartphone brands in 2016.

Growth of mobile netizens in cities and rural areas



Data source: CNNIC



Prediction into 2017

● Differentiation Key to Competition: Micro-Innovation In Functions And Designs

Beyond basic functions, consumers are looking for more personalized needs to be met in their smartphone. Differentiation either in design or function based on new technologies is the new card being played by smartphone makers. Bezel-less displays,

ceramic bodies and curved screens are trendy in terms of new designs. Innovations and new ideas are also being made in function upgrades, including dual cameras, fast and wireless charging solutions and HIFI sound technology.

● Distinction in Brand Positioning is of Growing Importance

Smartphone makers in China are all trying to position themselves distinctively in terms of brand. Huawei has a dual-brand strategy, with the Huawei brand targeting business professionals while their Honor brand eyes a younger demographic. OPPO, known for its photography quality and fast-charging function, defines its target user group as young fashion followers.

● Rivalry in Offline Distribution Channels Scales Up

Since 2015, smartphone sales through online channels have been flat. At the same time, OPPO and vivo, two local brands with a long history of building strong offline distribution channels, vaulted to the top of the Chinese smartphone brand list in Q3 2016. Major players will race to expand and reinforce offline channels in the coming years. However, in the short term, it will be hard for players like Xiaomi to challenge OPPO and vivo in terms of offline distribution capability.

● Online Word-Of-Mouth Marketing is Far from Enough

Xiaomi once touted its low-cost online word-of-mouth marketing as its key to success. However, in 2016, it began to throw big money at hiring celebrities as brand ambassadors and rolled out ad posters in elevators, malls and at bus-stop billboards. Other popular marketing methods include television advertising, sponsoring variety shows, embedded ads in trending TV series and enlarging brick-and-mortar stores.

● New Battlegrounds: Lower-Tier Cities and Overseas

The trend of reinforcing penetration in lower-tier cities and rural areas will extend into 2017. Chinese brands will also continue to go abroad, from emerging to developed markets including Europe and America. In the near future, the most intense competition will happen in India and Southeast Asia.

● Intensified Trend of Going Intelligent

In the future, smartphones will be armed with more applications of biometric technologies on top of face and fingerprint recognition. Man-machine interaction will be further intensified with virtual personal assistants becoming a major medium. According to Gartner's estimation, smart agents will facilitate 40 percent of mobile interactions by 2020.

Content Business

4.1 —————
Media Industry

4.2 —————
Entertainment Industry: Film,
Television and Music

2016 has witnessed a boom in the content business in China with surging interest from both entrepreneurs and the capital market. In a narrow sense, content business means “We Media”, i.e., bloggers. In a broad sense, it encompasses all entrepreneurship that creates content to attract an audience. Entrepreneurs aggregate certain audience groups through their content and monetize the traffic accumulated.

Media Industry

Insights from industry leaders

There are now abundant kinds of “We Media” * but a mature system has yet to form. Quality content creators from each segment will survive after a round of sifting. If content platforms can better connect and empower these content providers, they’ll see a greater chance of business in the future.

—— Chen Juhong, Vice President of Tencent

Forms of content will become more and more diversified, from text, audio, short videos and live streams to even VR. The long tail effect will also occur in the content business so that even very niche markets will have significant value. Personalized and customized information services will be more and more prevalent as knowledge and expertise is sold as merchandise to bring direct profit to knowledge distributors.

—— Zhou Yuan, Founder of Zhihu

1 Status Quo of the Industry

* Definition of “We Media”: grassroots journalism, citizen media, bloggers, content creators; hereinafter “blogger” will be used in alternation.

Active users of media platforms by city level (2016.9)

Type	App	First-tier	Second-tier	Third-tier	Fourth-tier and below
Social media	Weibo	17.66%	38.63%	17.84%	25.86%
	Zhihu	30.76%	41.31%	12.28%	15.66%
	WeChat	16.55%	35.22%	19.44%	28.79%
	Baidu Tieba	17.01%	42.10%	17.18%	23.70%
Verticals	The Paper	34.18%	32.83%	14.05%	18.93%
	Huxiu	54.64%	40.98%	2.48%	1.90%
	Hupu.com	29.85%	39.51%	14.66%	15.97%
	Xueqiu.com	45.40%	33.58%	11.73%	9.30%
Personalized news apps	Toutiao	18.35%	33.76%	19.32%	28.58%
	Kuaibao	16.79%	36.43%	18.86%	27.93%
	Yidian	22.17%	31.77%	17.80%	28.27%
News portals	Tencent News	17.78%	35.30%	19.38%	27.54%
	NetEase News	20.26%	33.49%	20.00%	26.25%
	Sina News	21.03%	37.26%	17.85%	23.87%
	Sohu News	21.10%	33.27%	18.32%	27.32%

● **Print Media Continues Its Decline; News Portals Encounter a Bottleneck**

In 2014, around 10 renowned newspapers in China announced their closures. 30 more closed in 2015. Print media continued its decline in 2016. The reading habits of consumers are trending away from magazines and newspapers. This is an irreversible trend.

It is worth mentioning that, despite the decline, some print media has been making efforts to go digital by selling copyrights to online media or shifting focus to online -- setting up websites and WeChat public accounts. These strategies have enabled some quality print media to gain a footprint online.

Online news portals also have experienced some turbulence because of the transition from PC to smartphones. According to TalkingData, as of the end of 2015, there were 900 million mobile news and info readers, accounting for 70.3% of all mobile netizens. Those who didn’t keep up with the wave of mobile internet and conduct timely transformations have lagged behind.

● **“We Media” Continues Its Boom**

At the beginning of 2016, vlogger Papi Jiang received RMB 12 million (around USD 1.7 million) in venture capital investment, which demonstrated the possibility of monetizing individual content creators, thus encouraging the further prosperity of all forms of “We Media”.

Take WeChat Official Account (OA)*as an example. As of June 2016, there were already 20 million WeChat OAs, and over 10,000 account applications are approved every day.

● **Prosperous Live Streaming and Short Video Businesses**

Further penetration of mobile internet, upgrading of smart devices and shrinking mobile bills are making content creation and transmission easier for everyone with a smartphone. The line between content supplier and consumer is blurred, and digital consumption is enriched in terms of forms of content, bringing prosperity to live streaming and short videos.

According to QuestMobile, the total MAU of mobile live streaming apps skyrocketed from 52.71 million last October to 109.16 million this September. Chinese tech giants BAT (Baidu, Alibaba and Tencent) are all well-armed for competition in the live streaming industry by launching their own products, investing in startups or embedding live streaming into apps. Apps like Tencent news, Sina Weibo and Taobao, with huge traffic, have all added a live streaming option to gain new users, at the same time attracting users to spend more time on their platforms.

* WeChat OA is a platform built into the WeChat app where users can subscribe to official accounts of bloggers to access content.

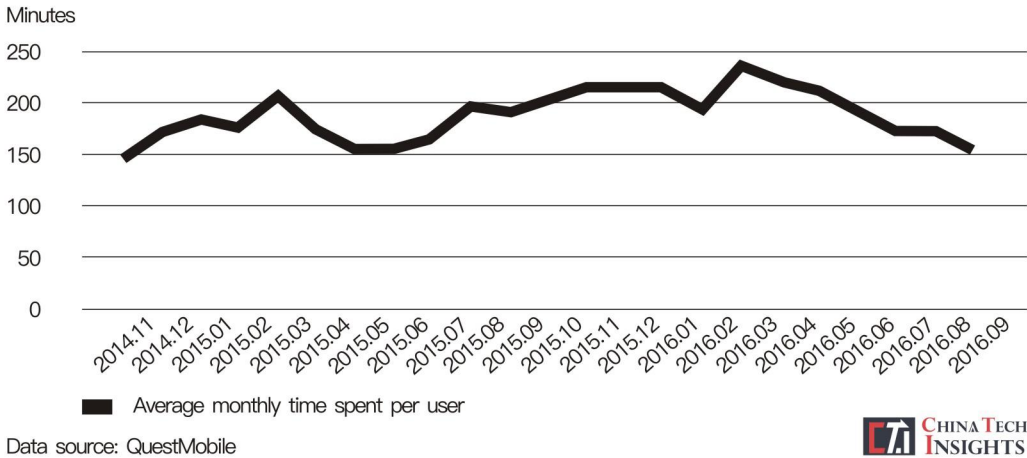
Live streaming layout by BATs (either self-owned or invested in)

Company	Form	Product
Tencent	Embed-in function	Live streaming page in Tencent news
		Live streaming function in Qzone of QQ
	Apps	Huayang
		Now
		Tencent Live
		Penguin Live
		Douyu TV
Alibaba	Embed-in function	Live streaming page on Taobao
		Live streaming page on Tmall
		Live streaming function in Alipay
		Momo live streaming
	Apps	Laifeng Live
Baidu	Embed-in function	Live streaming page on iQiyi
	Apps	Baixiu Live
		Ala Live
Weibo	Embed-in function	Live streaming page on Weibo



After a year of overheated development since 2015, the live streaming market has seen a cooldown in the later half of 2016. This is evidenced from the average monthly time spent on live streaming apps per user. From March 2016, the average time spent on live streaming decreased into September.

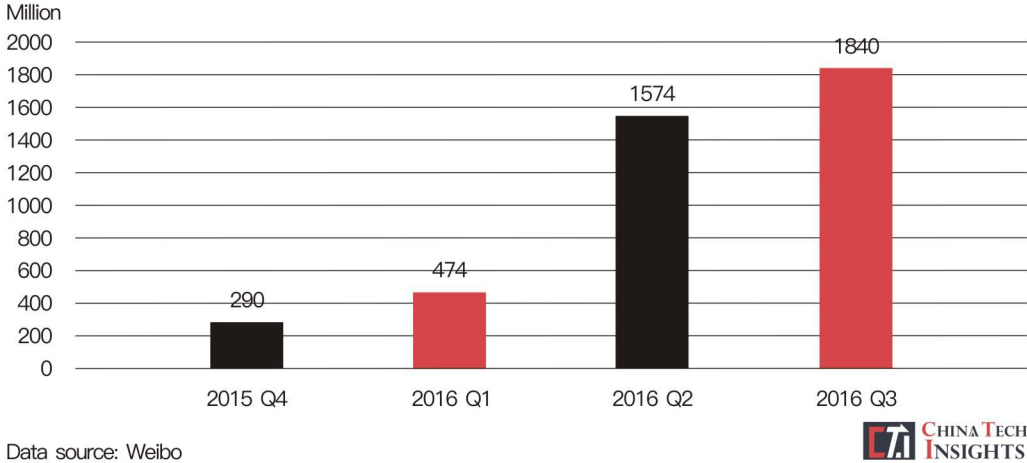
Average time spent on live streaming apps per month Nov. 2014 to Sept. 2016



At the same time, the landscape of the live streaming industry has stabilized. Among all players, Inke has grown the fastest, with its MAU numbers soaring from 660,000 last October to 30 million in August.

Similar to live streaming, short video has been another phenomenal business segment in 2016. From the perspective of users, short video ranks among the most popular forms of digital content in the era of mobile internet. According to Toutiao, one of China’s top three news apps, daily views of short videos on its platform have surpassed daily views of text and image articles as of September, amounting to one billion views each day. It has been just over one year since Toutiao added the choice of a short video category. Short video consumption on the biggest social media platform, Weibo, has also been skyrocketing.

Daily views of short videos on Weibo



Riding the booming trend of short video in the consumer market, startups producing short-video content are sprouting. These are the main players that are participating in the short-video market.

Different types of players in the short video industry in China

Type	Name	Time	Content
Social Platform	Meipai	2014	UGC+social, female community
	Xiao Ying(Viva Video)	2013	UGC+social, featuring diversified functions
	Miaopai	2011	UGC+social, embedded in Weibo
	Kuaishou	2011	UGC+social, targeting lower tier cities
	Xiao Hong Chun(Little Red Lip)	2015	UGC+social+e-commerce: female community
Content Producing Company	Pear video	2016	PGC+UGC: news, entertainment, media platform
	Er Geng	2014	PGC: lifestyle, culture
	Yi Tiao	2014	PGC: lifestyle
	Papi Jiang	2016	PGC: entertainment
	UniMedia	2012	PGC: entertainment
	Shizhi	2016	PGC: knowledge sharing
	JK video	2016	PGC: life, commercial, knowledge
Traditional Media	Arrow Factory by Jiemian News	2016	PGC: original short documentaries
	Wevideo by The Beijing News	2016	PGC: news
	Pumpkin Pictures by Southern Weekly	2016	PGC: culture and entertainment

Short-video producers, as a category of content business participants, are being pursued by social and other media platforms. These platforms, with the advantage of possessing huge traffic, are in need of professional content to keep users on their platforms. Toutiao, Baidu Video, Tencent’s QQ, Weibo and the parent company of Miaopai have all launched projects where hundreds of millions of RMB is being utilized to support professional short-video-content producers.

2 User Characteristics

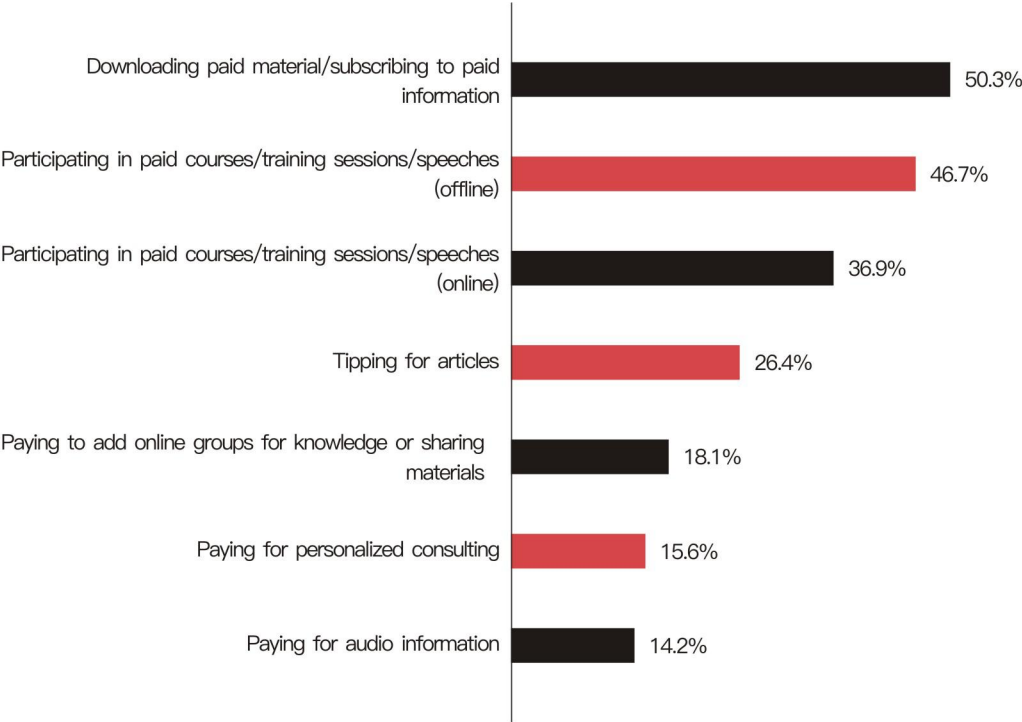
● Consumers Are Overloaded by Excessive Content

A scarcity of attention from users has developed due to the increasing abundance of content. Taking WeChat Official Account as an example, according to a survey by China Tech Insights, 90% respondents subscribe to less than 50 accounts. At the same time, users do not read every post from every account they have subscribed to, and even if they click an article, they may not necessarily read it in its entirety.

● Users Are Paying For Content in Various Ways

Overwhelmed with excessive content, users are finding that the need to access useful information efficiently has become a priority. Thus, paying for content has become a method to select valuable information and to access it efficiently. According to the same survey, 55.3% of respondents have paid for content or knowledge.

Usage of different approaches to pay for content



Apart from wanting more efficient access to useful information, users are paying for content because there is a craving for high-value content that will help users accelerate their self-enhancement. The typical user group is made up of young professionals with a high educational background. They want to pay to improve themselves either for career or for self-development. This group of consumers is expanding.

● On Live Streaming Sites, Users Want to Pay for Professional Consulting More Than Entertainment

A survey by China Tech Insights in October 2016 says that 62.5% of users are willing to pay to watch live streaming content. For them, professional consulting (25.1%) and online education (23.3%) are the top two categories that they want to spend money on, which could be a great potential revenue stream for live streaming platforms.

3 Prediction into 2017

In 2017, the development of “We Media” will further mature in that the potential of long tail content will be further explored and many niche segments will see the emergence of top content providers.

● Quality Content Creators Become the Core Resource

In the next three to five years, technology will further optimize the process of content production and transmission; however, the core role is still human. For media platforms, humans, serving in the main role as content providers, are irreplaceable no matter how quickly technology is evolving.

● “We Media” and Platforms Mutually Facilitate; Platforms Race To Draw Bloggers

The relationships between platforms and “We Media” are interdependent and mutually beneficial in 2017. “We Media” supplies quality content, while platforms reinforce their role as service providers, helping them grow readership and make profit. The battle between personalized news platforms to snatch up “We Media” escalates.

As the need for quality and original content from the market is growing, the scale is now tipped towards “We Media” so that platforms are racing to either attract bloggers to be based on their platforms or nurture bloggers that already write for their platforms. Participants in this battle include news aggregators that do not create content but only distribute content, news portals that produce their own content and at

the same time distribute content from quality bloggers, and also platforms with huge traffic, for instance social apps and browsers.

Platforms also launch favorable policies to attract bloggers, including ad revenue splits, subsidies, cash rewards and even investment.

Incentive policies already launched by platforms to attract bloggers and vloggers

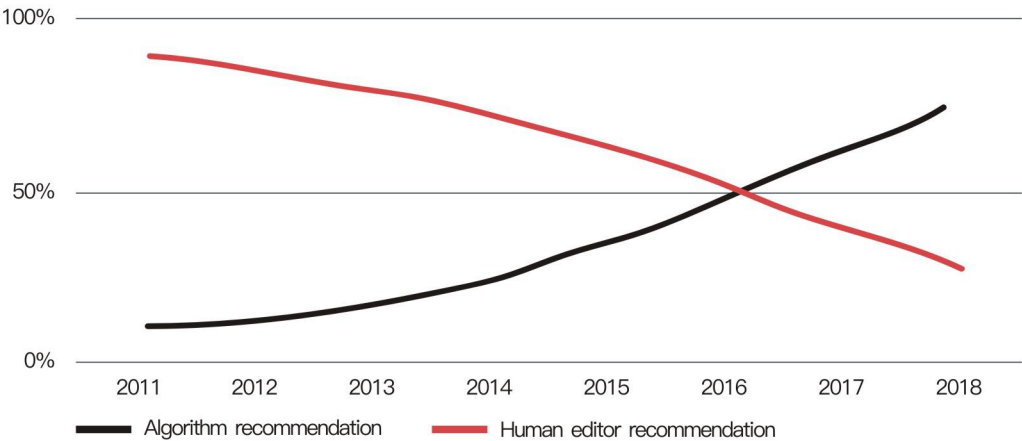
Platform	Project	Time	Incentive policies
Tencent	Mangzhong Plan – om.qq.com	2016.3	<ul style="list-style-type: none">• content distribution on multiple platforms owned by Tencent, including news apps Kuaibao and Tencent news, mobile QQ news, QQ official accounts, QQ browser, etc• ad revenue split• subsidy: RMB 200m in total
NetEase	Open platform –dy.163.com	2016.4	<ul style="list-style-type: none">• content distribution on multiple platforms(web portal and mobile app of NetEase News)• subsidy: RMB 200m in total
	Tianwang Plan	2016.8	<ul style="list-style-type: none">• to select and partner with “ Top 100 live streaming PGC ” in promoting them and helping generate revenue
Toutiao	Quality bloggers supportive plan –mp.toutiao.com	2015.9	<ul style="list-style-type: none">• draw at least 1,000 bloggers to set up accounts on Toutiao and guaranteed them a minimum monthly income of RMB 10,000
	Incubator for content creators–space.toutiao.com	2016.3	<ul style="list-style-type: none">• invest in content creators (RMB 200m in total)• entrepreneurship training
	Supportive plan for short video producers	2016.9	<ul style="list-style-type: none">• subsidy: RMB 1b in total
Weibo	Weibo We Media Platform	2014.6	<ul style="list-style-type: none">• upgrading its plan to sign contracts with bloggers by investing RMB 150m in June 2015
Yixia Technology	Incentive plan for mobile videocreators	2016.11	<ul style="list-style-type: none">• subsidy: RMB 1b in total• initiate video producing supporting project for college students by partnering with 100 colleges
UC browser	toutiao.uc.cn	2016.12	<ul style="list-style-type: none">• subsidy: RMB 1b in total• support bloggers(subscription accounts on their platform)with cash rewards and ad revenue splits

● The Era of Smart Media Is Dawning

Media is going intelligent. News aggregators Toutiao and Kuaibao, featuring personalized automated news recommendations, are gaining increasing popularity. Algorithms are more accurate in making recommendations according to different readers’ interests.

In a report released by big data service provider Analysys in August, 2016 will be a milestone in that content distributed directly via algorithm will equal more than 50% of all distributed content, surpassing content recommended by human editors.

More than 50% of content will have been distributed by algorithm in 2016



Source: Analysys



Recommendation via algorithm can, to some extent, optimize the distribution of content, for instance, algorithms can help certain content reach audiences guaranteed to show interest in it but who would otherwise not have been reached due to information overload. In this sense, it does a good job matching readers with the content they want. However, there are some concerns that recommendation through algorithms can cause information silos where readers can be confined to only a few certain types of information they’re interested in. Thus, algorithms need to be optimized to strike a balance between the depth and breadth of content recommended.

Furthermore, machine writing empowered by big data has been adopted or is included as an alternative method to produce content. Currently, machine writing is in its initial phase, mainly delivering news and articles of data-intensive facts, including financial



statements, stock info, weather forecasts, etc. The robot writer Dreamwriter wrote 40,000 pieces of news in the 2016.

Machine writing in the future will be the integration of human power and AI that could potentially help break news stories, automatically capture information for writing and even forecast the public’s reception and appetite for certain news.

The best-case scenario is information always flowing to readers who are looking for it and readers always being able to quickly find the exact information they want. Need-driven content production and distribution are what the smart media era is for.

● The Integration of Content Services and E-Commerce

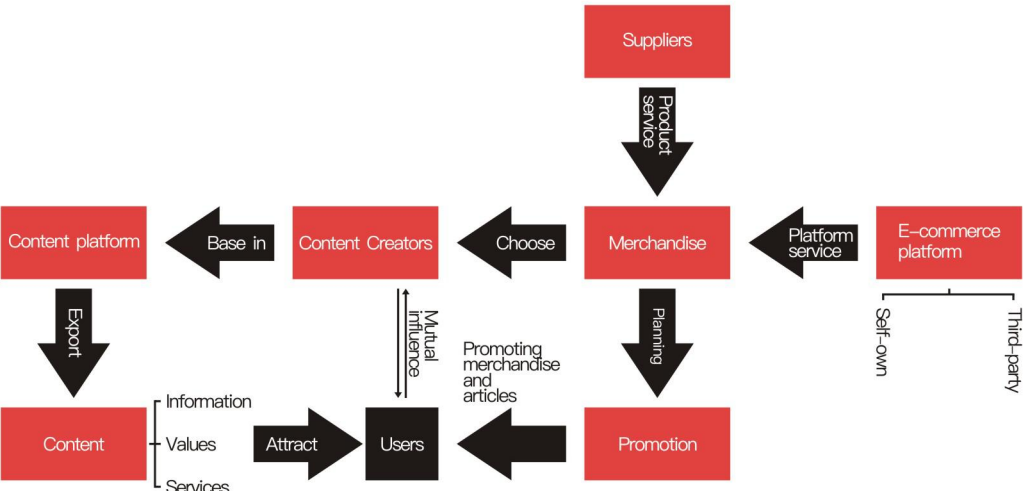
There is a growing trend for content creators to monetize through e-commerce. Top bloggers or professional content creators accumulate a vast audience through their content with some going on to build a social community around it.

These communities either pivot to becoming e-commerce platforms that sell things related to the content they’ve been producing, or import e-commerce to their platforms as a method to monetize.

Cases of integration of content services and e-commerce

Type	Name	Business model
Pivoting to an e-commerce platform	Xiaohongshu (Little Red Book)	From shopping guide UGC to cross-border e-commerce platform
	Eqingdan(List)	From personalized shopping list PGC to shopping guide platform that links to other e-commerce sites and profits from it
Using e-commerce as a method to monetize	Yi Tiao	a short video content producer that has an e-commerce page selling things recommended in the videos
	Xiachufang	A community for people who love cooking with its e-commerce page selling kitchenware and food
	Luojiwei (Logical thinking)	A knowledge community set by a well-known influencer that has its e-commerce store selling books, etc.

A monetization map of e-commerce platforms that start as content providers



Source: NewRank

There is also another trend towards more and more e-commerce platforms producing their own content on their platforms to better engage with their users and bring users quicker and closer to quality merchants. For example, in September 2015, Taobao launched its content opening-up program, encouraging bloggers to join in and write shopping guides, reviews, recommendations, etc., which would later be distributed to different users via algorithm. Not only does the introduction of content enrich the shopping experience for customers, as a marketing tool, it also enhances the sales of commodities, while at the same time strengthening user loyalty for merchants.

● Virtual Service: Paid Content and The Knowledge Economy

The business model of the content business is maturing, represented by paid content/knowledge. Content providers are not only tapping into the profit potential of charging users for content, but also attempting to provide paid services, for instance online education and personal consulting.

The emergence of apps including Fenda, a viral app that gets people to pay for answers to questions, and Zhihu Live, a paid online knowledge sharing service, meets the needs of users seeking to better achieve self-improvement.

China Tech Insights’ survey shows that personalized consulting is a knowledge product of great commercializing potential in that users do have interest in it and a genuine need for it. The scarcity of this kind of product also offers a foundation on which to develop an appropriate price for paid knowledge.

Cases of innovative models of paying for content

Type	Product	Launch time	Model
Paid Q&A	Zhihu Live	2016.5	A live session held within Zhihu ’ s app where users pay to get in and speakers deliver their expertise via voice messages
	Fenda	2016.5	A mobile app that enables users to pay to ask celebrities questions and get voice responses from the celebrities; users are charged to be able to listen
	Weibo Q&A	2016.12	KOLs on Weibo can set the price for their answers and users who are willing to pay the price get to ask the questions that interest them; celebrities then write an article as a response
Paid Subscription	Dedao	2015.11	KOLs will be invited as columnists to be based on Dedao and users will pay to subscribe to their accounts
	Ximalaya FM	2016.6 (Paid content)	Users can pay for a yearly subscription to accounts that provide audio content
Paid Personal Consulting	Zaihang	2015.3	Users can pay for a set price by experts based on the platform to book online or offline consultation
Paid Online Sessions	Sanjieke	2016.1	Users, mainly who want to work in the tech industry can pay to access online classes launched by tech professionals
	Disruptive Innovation University	2015.12	Users, mainly those who want to or are working in the tech industry, can pay a yearly fee of RMB1,000 to access member-only regularly-scheduled classes every week

Entertainment Industry: Film, Television and Music

Insights from industry leaders

“Using the metric of daily active user numbers, we can tell that three first-echelon online video streaming sites are now way ahead of the rest. But the players in the market will have to compete for another two years through paid subscriptions. This is too cruel a battle that very few will survive in the end.”

—— Gong Yu, Founder and CEO of iQiyi

“The video streaming industry has passed the phase of competing to grow new users, but rather, is now competing to grow the retention rate. This lays bare both the quality of content you can provide and your operational abilities.”

—— Suman Wang, General Manager & Editor-in-chief, Film/Drama Department, Tencent Video

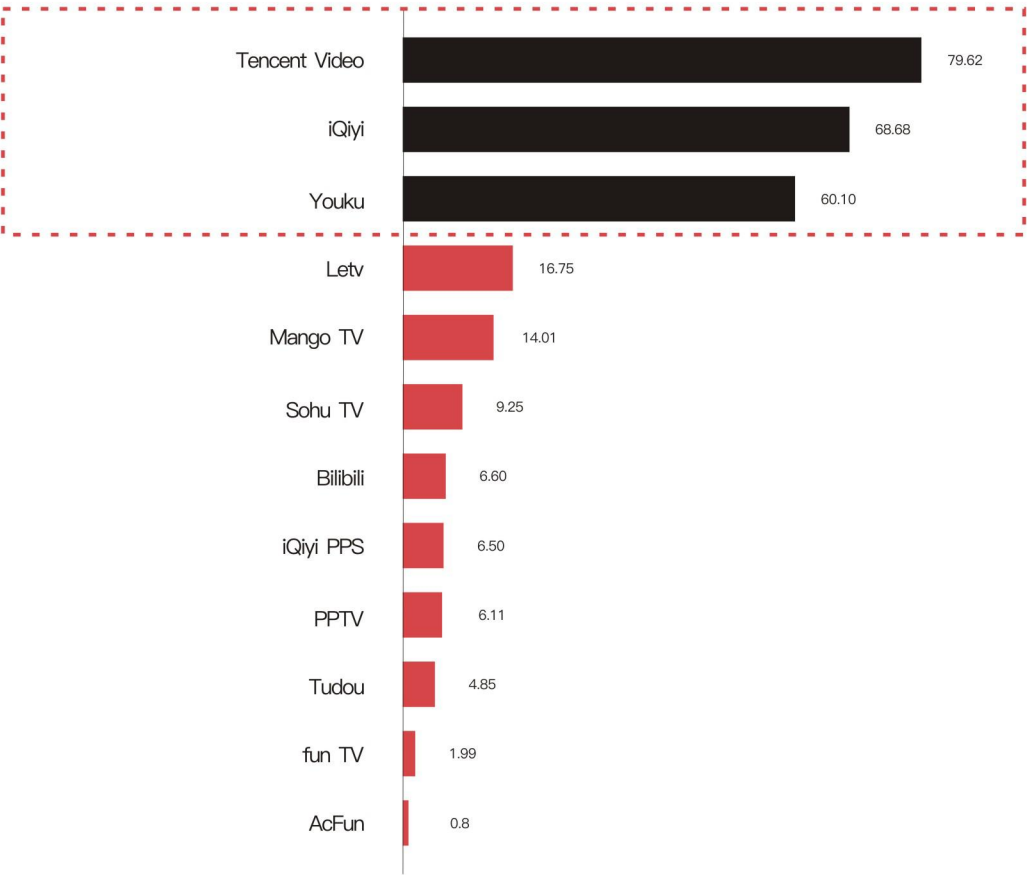
1 Status Quo of the Industry

Since Alibaba bought Youku Tudou, the online video streaming industry has been dominated by three giants, iQiyi (backed by Baidu), Tencent Video and Youku Tudou. Their market share combined and their scale of revenue has been increasing, leaving players in the second league further behind.

Rivalry over content, both in the purchase of distribution rights and in self-production, has always been the focus of competition between video streaming sites.

The price for the rights to air TV dramas and variety shows is getting higher. Tencent Video bought the exclusive online streaming rights to TV drama Ruyi’s Royal Love in the Palace, which will air in 2017, for the price of RMB nine million per episode, setting a record for the highest amount paid for the rights to a full TV drama at RMB 810 million in total. The rise in price is making it even harder for second-tier video streaming sites to compete by purchasing content, resulting in users and advertisers

DAU ranking of online video streaming sites in September 2016(Unit:Million)



Source: QuestMobile Sept. 2016



further flowing up towards top video sites.

Video sites are also competing via a newly emerged form of content – online dramas and movies that are solely and specifically produced for online distribution. Compared with traditional TV dramas and movies meant for broadcast television or cinemas, these have lower production costs and are of an inferior quality. This kind of content is either produced by professional media companies or video sites themselves, and the source of the content is usually adaptations of pop novels.

Chinese video sites have been making inroads in drama production, both through self-production and investment. 2016 saw these sites become more proactive in self-producing online dramas. An example is the self-made drama by iQiyi, 2016’s The Mystic Nine. It is the first original online drama to be viewed more than ten billion

times. Its popularity even attracted a Chinese TV channel to acquire the broadcast rights and become one of its distribution channels.

Meanwhile, because online ticket selling platforms and e-commerce sites have sharply reduced subsidies on movie tickets, 2016 hit the brakes after five years of China’s film industry ‘s high-speed development. Multiple industry insiders have said this factor could lead to a box office revenue decrease of RMB five to fifteen billion.

Amid the sluggish market, internet companies begin to participate in reforming this industry. For example, Alibaba Pictures, the film arm of Alibaba, invested RMB one billion in the second largest theatre chain, China Dadi Cinema, in May.

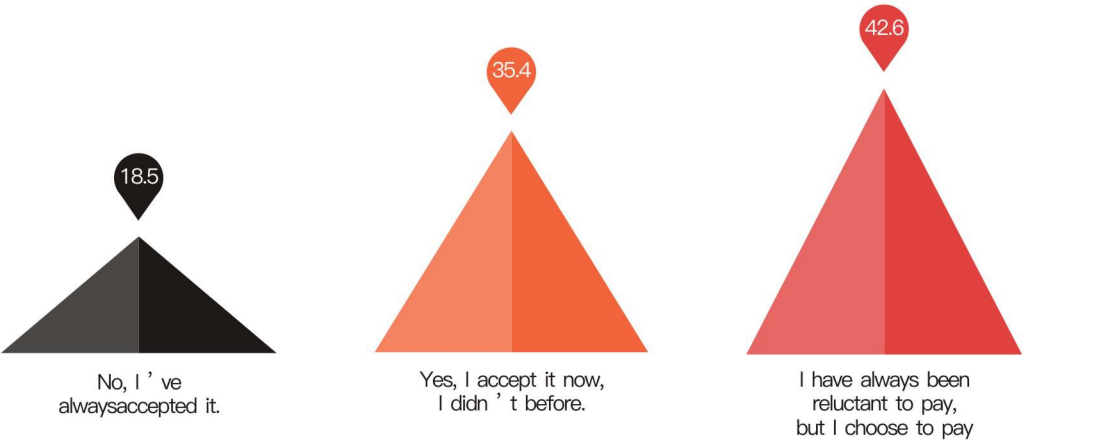
2 User Characteristics

● The Number of Paid Users Is Growing

In 2016, iQiyi and Tencent both announced that they have more than 20 million paying members. It is estimated that the whole industry sees over RMB five billion in revenue from paid membership.

According to a survey by China Tech Insights in June, 35.4% of respondents had changed their attitude compared with before towards paid membership on video streaming sites to acceptance.

“ Compared with before, has your attitude towards paid membership of video streaming sites changed? ”

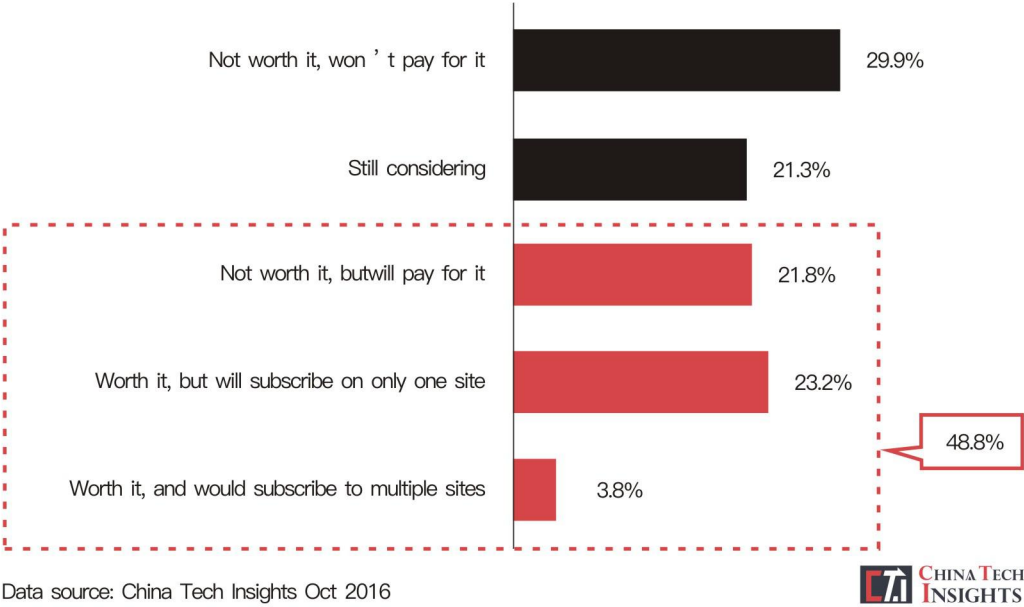


*All respondents are paying members of video streaming sites.
Data source: China Tech Insights June 2016



According to another survey conducted in October, 48.8% of respondents choose to pay for a membership on a video streaming site.

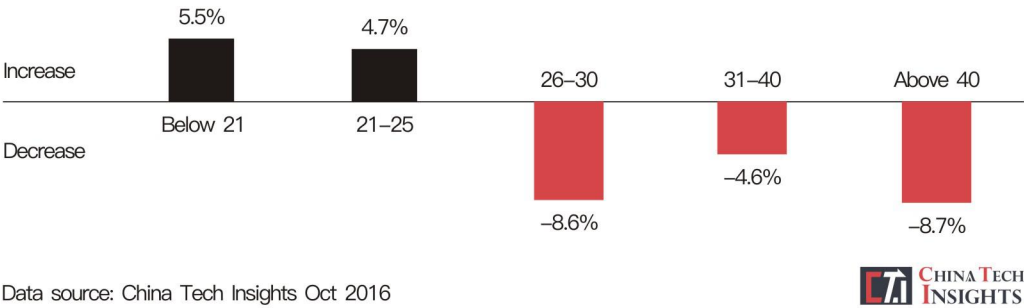
Netizens' attitudes towards paid membership of video streaming sites



The survey shows a positive trend for video streaming sites to grow their paying members in the next year. But only 3.8% of the surveyed say they would buy memberships to multiple sites, demonstrating that competition between video sites is going to be more intense. After two years, it is estimated that only two major players will dominate the paid membership market.

● Video Streaming Sites Becoming a More Favorable Choice for Moviegoers

Times visiting a cinema for people of different age groups (2016 vs. 2015)

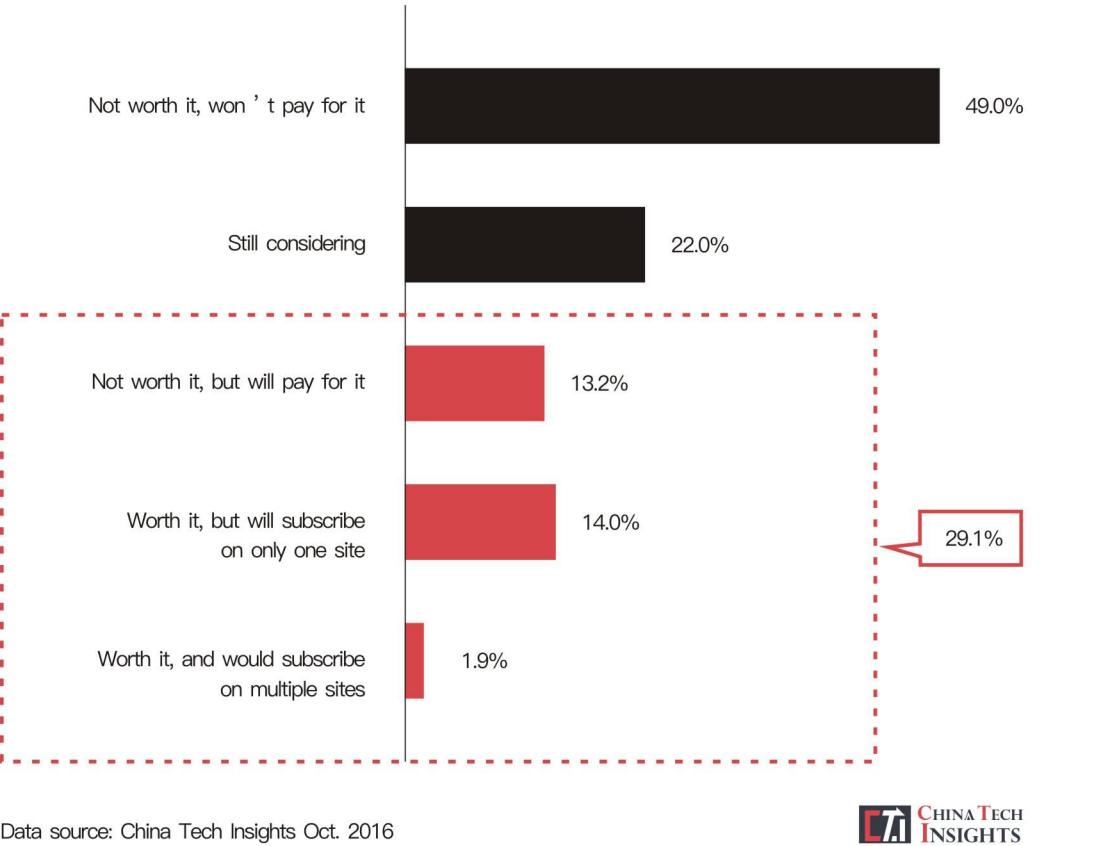


As part of the film market cooldown in 2016, the number of trips to the cinema for people above the age of 26 decreased in 2016 compared to last year. While in contrast, video sites like iQiyi are seeing more people watch movies on their sites. According to iQiyi, each user watched an average of eight movies a month on its site in 2016, doubling the number from 2015.

● The Young Are More Willing to Pay for Music

According to the same survey in October 2016, there were only 29.1% of respondents who would consider becoming paying members of a music streaming service.

Netizens' attitude towards paid membership of music streaming sites



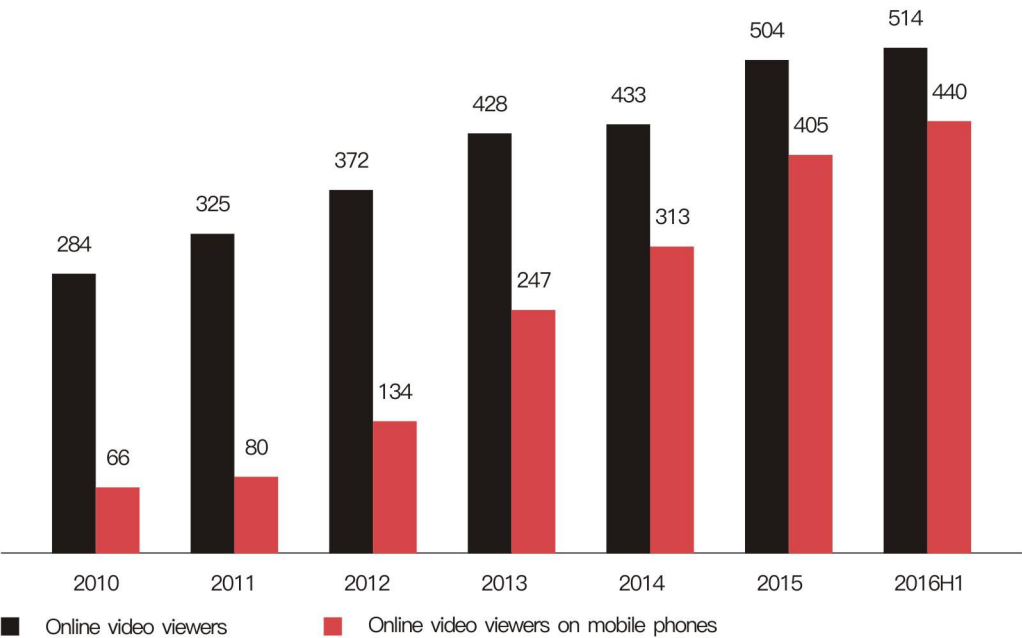
According to data provided by Tencent's music arm, QQ Music, among their 10 million paying members, 90% are between the age of 15 and 25. Today, the young demographic, especially fans of pop star singers, is the primary consumer group as well as main target of music streaming sites.

3 Prediction into 2017

● Video Sites Vying for Growth in User Retention Rates

Growth of online video viewers in China slows down

Million



Data source: CNNIC July 2016



With smartphone user growth reaching a plateau, video sites are also finding it harder to grow new user numbers. The focus of competition is now shifting towards retention rate.

● Rivalry over Paid Membership Intensifies

As growth in the cost to purchase content outpaces the growth in ad revenue, video sites are in urgent need to explore other sources of income. Revenue from paid memberships becomes a timely supplement.

It's notable that, compared with other online entertainment, users of video sites are less loyal to a particular platform. A prominent feature of paying members on video sites is their high mobility between platforms – users tend to buy short-term memberships for a popular drama. The key is therefore to turn short-term members

into long-term members through methods such as exclusive content, quality self-made content, and better scheduling of air times.

● Internet Companies Further Participate in Film and Drama Production

Conglomerates like Wanda Group have set foot in every chain of the film industry while internet giants like Tencent and Alibaba are playing bigger roles in content production. Self-made content, instead of acquired content, will play a more essential role for video streaming sites.

Meanwhile, for media companies, online channels will be another major source of revenue besides the cinema, and they are going to attach more importance to producing web-only dramas and films for video streaming sites.

● Music Streaming Landscape is Settled, Prices for Music Distribution Rights Rising

After rounds of mergers and acquisitions, the music streaming market is basically dominated by BAT. Tencent's music affiliates (QQ Music, Kugou Music and Kuwo Music) now take the biggest market share. NetEase Music, Xiami Music (belonging to Alibaba) and Baidu Music (merged with Taihe Music Group) have all announced bigger investments in content. This all points to a trend towards rising content prices.

● Application of Big Data: Personalized Recommendation Of Video Content Plus Commercial Efficiency

Big data can be mainly used to make personalized recommendations for video content to ease the situation in which traffic becomes concentrated on a very small amount of the most popular content. It can also be used to raise the efficiency of commercial decisions, for instance to help estimate the commercial value of a drama that costs RMB five million per episode, including how many users and paying users it would attract, or the scale of box office revenue.

Technological Development

5.1
Status Quo of 2016

5.2
Artificial Intelligence

5.3
VR/AR

5.4
Other Highlights

Technology: Where is the Next Technological Revolution in China?

Insights from industry leaders

“I don't think in the area of Artificial Intelligence China has caught up with the U.S., because the number of people who can lead in new directions in China is still too limited. In most areas, we see scholars in other countries initiate a new direction with Chinese researchers improving their studies on this basis, such as elevating the accuracy of voice recognition by 1% or the accuracy of computer vision by 2%. We still lack the kind of people who can make breakthroughs in brand-new areas and build up new areas from scratch.”

—— Professor Qiang Yang, Hong Kong University of Science and Technology

“The gap between China and the U.S. is narrowing right now. But we should be aware that the existing competitive advantages for us are diminishing, and in the future, technical barriers will be even higher. We are still behind the U.S. in technology and theoretical computer science. Only two universities in China make it into the top 100 in the world. So it will be necessary for us to invest in more companies overseas and engage in the transformation of research results into real products.”

—— Xiaochuan Wang, CEO of Sogou

Status Quo of 2016:

As the smartphone market gets close to a saturated state in China, players in the tech industry are increasing investment in research and development, seeking the next multi-billion dollar market.

It may, however, still take a while for Chinese companies to catch up in the global competition. On Thomson Reuters' Top 100 Global Innovators 2015 list, 40 companies

are from Japan, 35 are from the U.S. while none are from China. Insufficient investment in research and development is one of the primary reasons.

According to China's State Bureau of Statistics, in 2015, expenditure on research and development (R&D) in China was RMB 1.4 trillion (USD 977.8 million), an 8.9% growth year over year. R&D expenditure by enterprises, state-backed research institutes and educational institutes accounted for 76.8%, 15.1% and 7.0% of the total respectively.

Though all parties involved are increasing their investment in R&D, it accounted for only 2.07% of China's national GDP in 2015, while the average expenditure of R&D in High-income Economies[According to World Bank, High-income economies here are those in which 2015 GNI per capita was \$12,476 or more.] already accounted for 2.46% in 2013, according to the World Bank.

According to World Intellectual Property Organization, China is the most active country in IP filing activities, with applicants filing 1,101,864 patent applications worldwide during 2015, 38% of all patents globally for that period. However, only 4% of these patents are filed in overseas markets, implying a relatively low competence in the global market. It also implies holders of Chinese IP see little potential for good returns on IP used to create commercial products or services in overseas markets.

Both enterprises and universities are making changes to their R&D practices and have regulatory support. Though still in a preliminary stage, Chinese companies have begun to collaborate with universities in building up industry research labs, such as the joint-project by Tsinghua University and Sogou to create an artificial intelligence lab. Collaborations like this may accelerate the growth and transformation of technology in China.

Artificial Intelligence

According to the U.S. National Artificial Intelligence Research and Development Strategic Plan, the number of publications related to deep learning from China surpassed that of the U.S. to be number one in the world in 2014. This figure continued to rise in 2015. It shows Chinese researchers are actively engaged in the development of artificial intelligence.

Nevertheless, Chinese researchers in the field have a different opinion towards the current situation. Professor Yang Qiang from Hong Kong University of Technology and Science thinks the number of Chinese researchers who can be the leaders in pioneering new research directions is still far fewer than that of the U.S., though

Chinese researchers have had quite a few achievements in improving existing research.

Apart from a lack of breakthroughs in academia, the transformation of research results into real products is also relatively rare in China. Collaboration between China's academia and industry is also in its initial stages. A case like Andrew Ng's leadership at Baidu's Institute of Deep Learning is not the norm in China, though a few leading companies are beginning to connect with research labs in universities via sponsorship or joint initiatives.

In terms of business development, artificial intelligence has seen application in China in areas including education, finance, cyber security, legal services, IoT interface, etc. The industry leader in voice recognition, iFlyTek, as an example, is working on machine review of oral English tests for English learners in China, and automatic dictation at court with 95% accuracy.

China, though still lagged behind at the moment, has laid fertile ground for the future development of artificial intelligence. The 863 plan, or China High Technology Research and Development Plan by China's Ministry of Science, incubates several essential projects on preliminary research for artificial intelligence. China's fast advancements in internet infrastructure, mobile internet and smart manufacturing also supply the research into artificial intelligence with a large amount of data and necessary frameworks. Along with Chinese companies' investments in labs and projects globally, the field of artificial intelligence will be more likely to see accelerating development in China.

VR/AR

The popularity of Pokemon Go earlier this year shows people the potential of augmented reality (AR). Meanwhile, virtual reality (VR) has also seen a leap in performance. According to BI Intelligence predictions, the global shipment of VR headsets will have increased 1047% in 2016 year over year to a total amount of 8.2 million.

Globally, the VR/AR hardware market is dominated by tech giants including Google, Microsoft, Samsung, HTC and Sony. Chinese players mostly focus on the low-end cardboard-type VR headsets and offline experience stores, such as Chinese motion capture technology provider Noitom which is working on a multiplayer VR theme park.

Leading Chinese tech companies, including Alibaba and Tencent, have begun to

increase their investment in the market, but concentrate mostly on peripheral fields related to their primary business. For example, Alibaba's VR project Buy+ is concentrated on content production for its e-commerce platform; Tencent is exploring more possibilities of VR systems for game consoles.

A few Chinese smartphone makers, including Xiaomi, have announced their initiatives in the VR/AR field without further details. So far, none of these manufacturers have revealed independently built VR/AR products. Most of their attempts stay within labs. Huawei, in particular, may have more comparative advantages in future VR development considering its R&D capacity in computing elements.

In contrast to the sluggish hardware market, Chinese players are active in VR/AR content production. Among all 1,200 applicants for the HTC Vive X Accelerator program for VR content providers, half were from China. A number of Chinese enterprise-oriented projects interviewed by China Tech Insights have achieved a profit this year, some of which have revenues close to USD two million. Different industry segments are seeing an increasing demand for VR/AR content include interior design, real estate, city planning, exhibition/museum, construction and education.

In 2017, as the global shipment of VR headsets increases, content providers in VR consumer markets may possibly see more opportunities with games and feature videos. Chinese video platforms including Tencent Video and Youku Tudou have launched their content provider sponsorship programs, in both of which sponsorship toward VR content has been addressed specifically.

Though 2016 hasn't seen a boom in the VR industry, 2017 will be more likely to see the steady growth of VR content in China.

Other Highlights

● Biotech

Gene detection has experienced a boost in the past couple of years in China. In 2015 alone, there were over 35 companies related to gene detection established in China, with the industry seeing an accumulative funding amount over USD one billion.

Key players in the field include The Beijing Genomics Institute (BGI) and a group of companies founded by former employees of BGI, such as iCarbonX by BGI's former CEO Wang Jun.

However, Chinese enterprises in the field still have a high dependence on imported technology, which means their competitiveness and impact in the global market is still limited.

● Space Tech

The development of China's space technology was primarily led by government and academia. In the past couple of years however, state-funded companies have begun to enter the industry with a primary focus on commercial, small and micro satellites.

Primary players in the field including the Lenovo-funded startup Tian Yi Space Technology and Chang Guang Satellite Technology. Both companies have state funds as main investors. Established in 2015, Tian Yi announced its plan to build 20 satellites by 2018. Chang Guang also has a plan to launch 60 satellites by 2020.

Space technology is just budding in China and it will be a long time before we see companies the size of SpaceX.

● Robotics

According to China Robotics Industry Alliance, in the first half of 2016, the sales performance of domestically-made robots surpassed 190,000, up 70.8% YoY. The total sales revenue of the market exceeds RMB 2.66 billion (USD 382.7 million), up 40%. It's also estimated that the total amount of enterprises in the industry increased 26% YoY.

Apart from the rising sales numbers, China's robotics industry has also seen a shift from mid- and low-end robots to high-end robots with the growth of articulated robots. Considering China's State Council's support for the China Smart Manufacturing Plan 2025, the robotics market in China may see accelerating growth in the next decade.

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