

HRI Report

- Digital Service Innovation Rising on the Back of Huge Consumer Markets

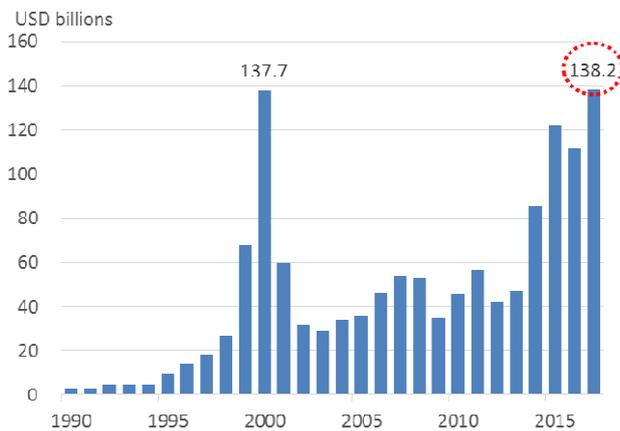
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Investments by the world's venture capital in startup companies (hereinafter, "venture capital investments") that were concentrated in Silicon Valley until around 2010 are beginning to spread to cities in emerging countries, mainly in China and India. This paper will focus on Chinese and Indian startup companies receiving venture capital investments and engaging in the development and provision of innovative digital services. It will also discuss the characteristics of innovation these startups bring about on the back of huge consumer markets and the mechanism which promotes innovation.

1. Venture capital investments target cities in emerging countries

Global venture capital investments amounted to USD 138.2 billion in 2017, surpassing the 2000 level (USD 137.7 billion) during the dot-com bubble period, and marked a record high (Figure 1). This was attributable to the birth of numerous new Internet-based businesses and the public-private initiatives taken to enhance systems and support for developing startups in various countries.



Source: Prepared by Hitachi Research Institute based on data from Thomson Reuters

Figure 1: Investments in startup companies by venture capital

Looking at investments by region, the world's venture capitals had been concentrating their investments in companies that operate in an area known as Silicon Valley in California for many years. Since the latter half of the 2000's, however, emerging countries have been increasing their presence as targets of investments. Taking a look at investments by country of head office of startup companies (Table 1), the U.S. continues to be

ranked first each year in the country ranking, but its percentage against the total amount of venture capital investments worldwide has been declining year after year. What was 78% in 2000 has dipped below half to 47% in 2017. Meanwhile, emerging countries, such as China and India, are moving up notches each year. Particularly in China, venture capital investments have been rapidly increasing since 2015, making the country account for 31% (2nd in rank) of the world's venture capital investments in 2017 and quickly gain momentum behind the U.S. Similarly, in India, investments are expanding year by year and the country accounted for 5% (3rd in rank) of total global venture capital investments in 2017.

Table 1: Country ranking & ratio of venture capital investments

Rank	2000		2010		2017	
	Country	% of total	Country	% of total	Country	% of total
1	U.S.A.	78	U.S.A.	53	U.S.A.	47
2	U.K.	5	China	17	China	31
3	Canada	3	U.K.	5	India	5
4	Germany	2	India	4	U.K.	5
5	France	2	France	3	Singapore	2

Note: Venture capital investment amounts are compiled by country where the head office of each venture company is located for years 2000, 2010 and 2017, and the countries are ranked by the size of investment. Percentage is the percentage of the total amount of global venture capital investments.

Source: Prepared by Hitachi Research Institute based on data from Thomson Reuter

In developing countries, places like Silicon Valley where the people (and their skills), funds, etc. necessary for startup companies are emerging in urban areas and surrounding regions. In China, many startups are born in Zhongguancun in Beijing City and in the communities around Tsinghua University which is referred to as the "MIT¹ of China." Investments in startup companies headquartered in Beijing account for approximately 60% of total investments in China. The city has become one major target site for venture capital investments even at the global level. In addition to Beijing, startups cluster in Chinese cities such as Shanghai, Dalian, Shenzhen, and Hangzhou. Meanwhile, in India, many startup companies have been established in Bangalore, which is known as the "Silicon Valley of India," and they account for half of venture capital investments in India. Investments in

¹ Massachusetts Institute of Technology, the most prestigious technology university in the U.S.

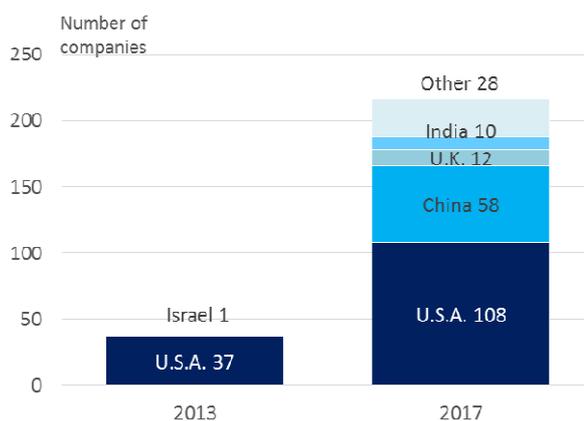
startups are also active in cities such as Mumbai, New Delhi, and Chennai.

2. Rising digital service companies in emerging countries

The digital services field, including e-commerce operation and software for automobile dispatch, is the field that has been particularly growing with support from investments in startup companies of emerging countries, such as China and India. Particularly in China, the amount of investment in startups that belong to this field surged from an annual average of USD 3.8 billion between 2000 and 2010 to an annual average of USD 31.5 billion between 2014 and 2017, and in 2017 accounted for 80% of the total investment made in this field. Investments in the digital services field are also increasing rapidly in India, and jumped from an annual average of USD 0.2 billion to USD 3.3 billion in the same time period.

Among the numerous digital service companies founded one after another mainly in China and India are firms that have grown to become the world's leading companies. For example, in China, JD.com (Beijing; founded in 2004) and Alibaba (Hangzhou; founded in 1999), which operate e-commerce transactions between individuals and companies, and Tencent (Shenzhen; founded in 1998), a social media operator, have succeeded in expanding their businesses in a short period of time, executed an IPO, and achieved growth to be one of the world's top 500 firms in net sales.

In China and India, many unlisted firms referred to as "unicorns" with high growth potential and a valuation of over USD 1 billion are also being established. The number of unicorn companies in the world increased from 38 in 2013 to 216 in 2017. Increases are evident not only in the U.S. but also in China (58 companies) and India (10 companies) (Figure 2). Unicorn companies that are attracting keen attention in China include Didi Chuxing (Beijing) engaging in the dispatch of taxis and other automobiles, and Mobike (Beijing; founded in Shanghai) in the bicycle sharing business. Those in India include Flipkart (Bangalore) engaging in the operation of e-commerce transactions, Ola (Bangalore) which runs a taxi dispatch business and Paytm (New Delhi) which is a provider of mobile payment services.



Source: Prepared by Hitachi Research Institute based on data from CB Insights

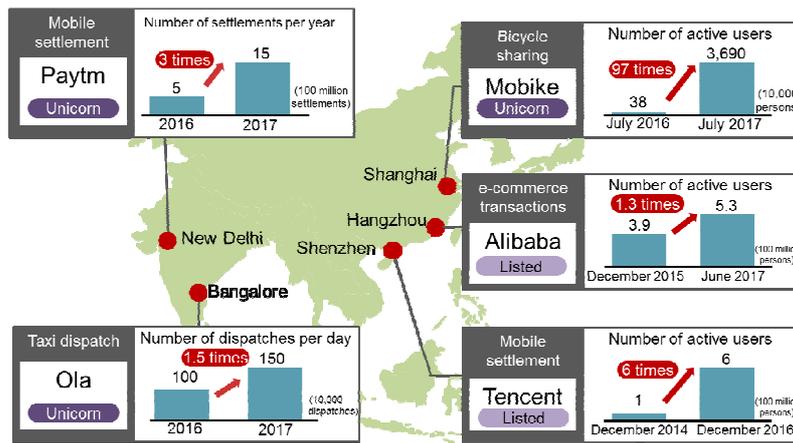
Figure 2: Number of unicorn firms by country

3. Innovation hotspots forming in the cities of emerging countries

There is a common feature among the rising listed firms and unicorn companies in emerging countries such as China and India. This is that all of these companies began providing services in the city of their founding and have managed to expand their businesses in a short period of time, as evident from the number of users and transaction volumes of the digital services they offer (Figure 3).

For example, Mobike, which was founded in Shanghai in January 2015, began offering a bicycle sharing service in the city in April 2016. In July 2016, soon after the service was launched, the number of active users was approximately 380,000. Mobike subsequently deployed the service in other cities, including Beijing, Guangzhou, and Shenzhen, and succeeded in expanding the user population by roughly 97 times in only one year to 36.9 million by July 2017.

Looking at the mechanism of this service, a user first searches for a bicycle in the vicinity on his or her smartphone application, and when the bicycle is located the user scans the QR code sealed on the bike to unlock and use it. When returning the bicycle after use, the lock is secured manually. The usage fee is calculated based on the hours of usage from the time of unlocking to resetting the lock and users may pay by credit card or other payment methods as registered in advance on the smartphone application.



Source: Prepared by Hitachi Research Institute based on various materials available

Figure 3: Digital services in emerging cities of India and China – Transaction volumes and number of users

The rapid growth of Mobike was clearly possible because of the supporting technology, including the software for bicycle search and payment, and GPS for identifying the location of an available bicycle. However, we should pay attention instead to the fact that these companies imported from the U.S. and other developed countries the service concept of sharing assets and managed to establish a business using the overwhelming power of their country's market in a short period of time. In fact, Mobike pursued the provision of the convenience of using bicycles for commuting or moving about the city on days off and avoiding traffic jams to over 24 million people (what's more, a population with a high smartphone penetration rate and mobile payment usage rate) in the city of Shanghai where traffic congestion had become a chronic issue. This is a good example of innovation achieved by successfully unearthing a significant dormant consumer demand.

Such innovation derived from a digital service can be seen not only in Shanghai where Mobike bases its services but also in other cities. And these cities, with a concentration of skilled talent from China and other countries, have been experiencing the birth of many startup companies that are developing and introducing innovative digital services to the huge consumer market in an extremely short period of time. As described in Chapters 1 and 2, primarily U.S. venture capitals are expanding and concentrating their investments in these startup companies and forming a financing market in anticipation of attaining high returns in the future. Furthermore, their moves are generating a cycle of attracting other very talented individuals who are contemplating making a quick fortune. A city that experiences such a trend is referred to as an "innovation hotspot."

4. Accelerator that promotes creation of innovation

Innovation hotspots have a high concentration of talented individuals who have innovative business ideas and funds from venture capitals that anticipate high

returns from those ideas. At the same time, the presence of firms referred to as "accelerators" is increasing.

Based on the original meaning that denotes a party which adds speed, "accelerator" refers to a company which assists a startup company to grow by providing the necessary funds and/or management know-how. While an accelerator also functions as an investor, the amount of investment it makes is generally smaller than that of a venture capital. Rather, an accelerator focuses on other forms of support, such as recommending investors or providing the management know-how to a startup company. The activities of companies serving solely as an accelerator began spreading in Silicon Valley in the mid-2000s. Well-known accelerators that have had a strong track record in supporting firms and making notable investments include Y Combinator and 500 Startups that supported Airbnb (San Francisco) which operates vacation rental services.

The Silicon Valley-based accelerator HAX entered Shenzhen, China in 2011, established its site in a building in the city's electronics quarter, and has since been supporting startup companies engaging in the development of drones and other types of hardware. In the trial phase, HAX provides product ideas, rents out designing tools and provides listings of shops in the electronics district and of components. In the mass-production stage, HAX offers comprehensive support for activities of startups, such as helping in formulating business plans and recommending venture capitals.

Over the last few years, not only such firms specializing in the accelerator function but also large companies such as Microsoft are proactively serving as accelerators to sponsor startup companies and taking initiatives to pursue the co-creation of businesses with startups.

The activities of large companies serving as accelerators are expanding quickly also in the innovation hotspots of emerging countries. Tencent of Shenzhen in China, a company mentioned in Chapter 1, was founded as a startup company in 1998 and achieved growth in the

areas of social media, electronic payment, and game/content distribution. Following its listing on the market in 2004, it continued to expand its services in e-commerce transactions, food delivery services, ride sharing, etc. As a result, Tencent grew to become a leading firm that maintains several billions of users, records net sales equivalent to approximately JPY 4 trillion (FY2017 result) and has a market capitalization of approximately JPY 56 trillion (as of November 2017; ranked 5th in the world)². Tencent has been more actively serving as an accelerator. The firm has established Tencent Public Space – a facility for developing applicants wishing to become entrepreneurs – in 22 cities³ in China, including Shenzhen, Hangzhou, Beijing, and Tianjin, and proactively takes initiatives to actively discover and develop startup companies. A startup company iCarbonX, which also originated in Shenzhen, was established in October 2015 and has been providing genomic analysis services. Based on biological samples obtained from users, iCarbonX analyzes genetic data using AI and provides users with advice on leading healthy lives, including advice relating to meals, bedtime, and exercise via a smartphone application. Right after the founding of iCarbonX, Tencent invested USD 200 million in the startup as well as mediated investment from a third-party venture capital in April 2016 as part of its support for iCarbonX to procure funds of approximately USD 150 million⁴. The support by Tencent is not limited to securing funds. The firm provides iCarbonX with the data it maintains on users' behavioral characteristics, including message logs on social media and purchases made via e-commerce, thereby contributing to enhancing the accuracy of genomic analysis. Tencent intends to incorporate the genomic analysis service of iCarbonX as part of its own smartphone-based service. Eyeing the huge latent consumer demand amid the heightened health-consciousness among Chinese people, Tencent is eager to expand its services not only in the entertainment field but also into the user health management segment by leveraging its existing user platform of 1 billion individuals. Hence, the activities of Tencent as an accelerator are the means to pursue expansion of its business.

Tencent's activities as an accelerator are initiatives taken to promote co-creation with third parties in reinforcing, developing, and expanding the innovation assets the firm has built based on its digital services established in the huge consumer market. Similar initiatives can also be seen in other cities. Alibaba based in Hangzhou provides funds to Paytm, a startup company operating mobile payment services in New Delhi as a way of assisting Paytm to expand its e-commerce transaction services. This can be recognized as part of

Alibaba's initiative aimed at expanding users for its own e-commerce transaction service. The move taken by Alibaba is also worth paying attention to from the viewpoint that this large company which has made its way from a startup is entering another innovation hotspot beyond the border as an accelerator to jointly create innovation.

5. Conclusion

Considering that an innovation hotspot is formed on the back of a large population, robust consumer demand and rapid penetration of digital tools, e.g. smartphones, such innovation hotspots are likely to come about not only in China and India but also in other parts of the world going forward. According to the U.S.-based McKinsey Global Institute, 47% of worldwide GDP growth between 2010 and 2025 is expected to be generated by 440 cities in emerging countries⁵. These 440 cities include cities we often hear of, such as Jakarta (Indonesia) and São Paulo (Brazil), as well as cities that are not as familiar to us, such as Porto Alegre (Brazil), Lagos (Nigeria) and Kumasi (Ghana). In the next 7 years, we can expect highly-talented individuals and investment funds to gather in these cities, backing the emergence of startup companies providing innovative digital services and driving the formation of new innovation hotspots. It is also possible that companies operating in existing innovation hotspots of China, India, etc. will serve as accelerators and enter the newly formed innovation hotspots bringing along investors to pursue co-creation of digital service-based innovation with local startup companies. Innovation hotspots expanding in emerging countries will likely attract increasing attention going ahead.

² Tencent and Bloomberg websites. JPY 17/CNY, JPY 108/USD

³ Website of Tencent

⁴ This funds procurement enabled iCarbonX to secure valuation of over USD 1 billion in a period of only 6 months, reflecting the fastest business to become a unicorn company.

⁵ McKinsey Global Institute; "Urban World: Cities and the rise of the consuming class"