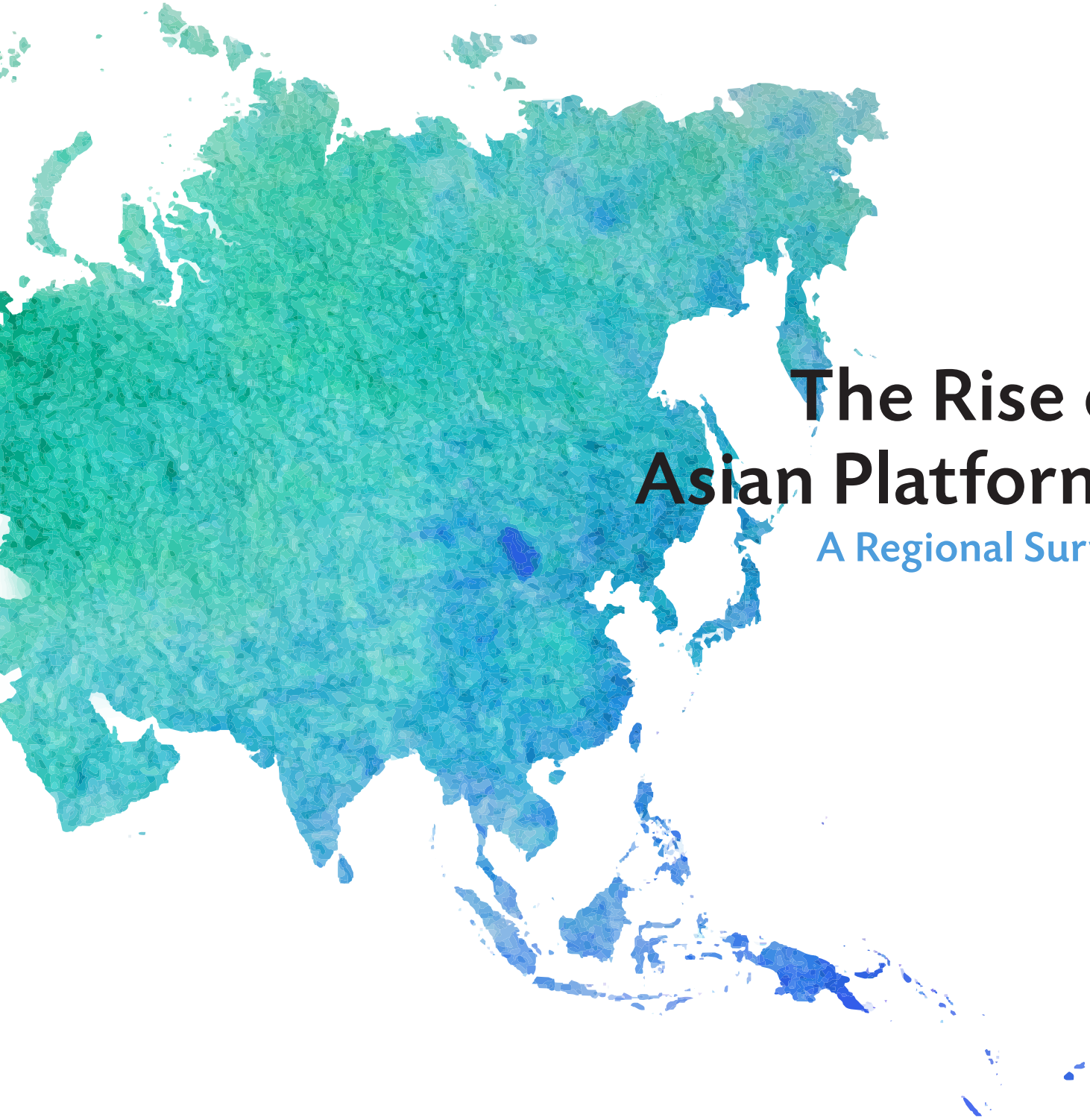
The Emerging Platform Economy Series **No. 3**



The Rise of Asian Platforms

A Regional Survey

The Center for Global Enterprise

About The Center for Global Enterprise

The Center for Global Enterprise (CGE) is a nonprofit, nonpartisan research institution devoted to the study of global management best practices, the contemporary corporation, economic integration, and their impact on society. The CGE is dedicated to management engagement, bold research, open education, and building a global community of executives, scholars, practitioners and students interested to developing and sharing applied management practices. Fundamental to the Center's research and educational efforts is to identify the many ways in which the world has been transformed by global business and to foster leadership practices and innovation that will support even greater opportunity and prosperity.

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1. Introduction

Asia has emerged as a major area of growth for enterprises that harness platform business models.[1] Globally, Asia is second only to North America in generating large successful platform companies. The growing significance of platform companies is perhaps inevitable, given the size and scale of Asia in the global economy, a large and growing middle class, rapidly growing internet usage and a knack for quickly trying and adapting new business models.[2] Platforms such as Tencent, Alibaba, Naver, Flipkart and Garena — to name but a few — are becoming important vehicles to efficiently provide services to the region's large and growing middle class as it embraces digital technology. As in other parts of the world, Asian platform companies leverage digital infrastructure to facilitate the creation of interactive ecosystems that enhance the efficiency of aggregation, matching, exchange and innovation.[3] Through increasingly sophisticated networks, recommendation engines and online-offline linkages, platform companies are both benefiting from and enabling consumers and businesses to find and purchase goods, get rides, find accommodations, book travel, access media, make payments, locate jobs, find mates and much more.

This report provides an overview of the most significant platform enterprises operating in Asia today. While Asian markets remain far from integrated, there are advantages in taking a broad regional approach that includes Northeast Asia, China, Southeast Asia and India. There are important linkages between many of the platforms based in the region. There are investment linkages, such as the early-stage funding and cross-shareholding that has occurred between Japanese and Chinese platform companies; Chinese platforms and Southeast Asian and Indian platforms; as well as Korean companies and Japanese platform companies. There are also tacit exchanges of knowledge at conferences and seminars such as the management know-how about designing and governing the unique aspects of the platforms. A regional view also provides insight into the relative scale of these companies and how one subregion compares to another.

This report identified 62 major platform companies operating across Asia, with a market capitalization of $800 million or more. The final list of companies is diverse. The companies serve 10 major industry sectors, with headquarters in 18 different cities. They have grown dramatically in the past decade, with a significant number of platforms now servicing hundreds of millions of users. These companies have also attracted significant investor attention. The market value of the 62 companies now exceeds $1.1 trillion, and they are having a growing influence on shaping markets throughout the region.

Asian platform companies are more than efficient matchmakers bringing together two sides of a market. They are integrating in new ways that cross and often disrupt traditional industry structures. This is particularly true in e-commerce, banking, travel, media and transportation. Asian platforms are becoming an important source of innovation, taking a lead in messaging technology, online payments and, more recently, artificial intelligence. While primarily focused on Asian markets,

there have been growing moves to build global linkages, especially to connect buyers within Asia to goods and services outside the region.

The survey also reveals a complex regulatory environment in which governments have at times worked to promote platform growth and innovation, but have intervened in ways that stifled development. Most of all, the survey lends support to the notion that in Asia, like elsewhere in the world, everywhere that there can be a platform, there will be a platform.

2. Survey Background and Objectives

As part of its research initiative on the emerging platform economy, The Center for Global Enterprise launched a global survey of platform enterprises. Central to this survey has been the development of a global database of platform companies. To capture the largest companies, a threshold of $1 billion market cap or valuation is required to be included in the dataset. This analysis undertaken with experts from Africa, China, Europe, India and the U.S. uncovered 176 platform companies operating across the world in a wide range of sectors. The results are summarized in the report "The Rise of the Platform Enterprise: A Global Survey." [4]

The Asia platform survey deepens the global survey by providing a closer look at platform companies operating across Northeast Asia, China, Southeast Asia and India. These companies were revealed through a process of reviewing a large number of digital/tech companies and selecting those that have a market capitalization of $800 million or above and met key platform criteria. Before turning to the survey methodology and results in greater detail, we turn first to our definition of a platform enterprise.

3. Platform Definition

The Asia survey adopts the definition set forth in the CGE's broader "Rise of the Platform Enterprise" project. As in the global survey, we are concerned with platform business models and the design choices that allow these business models to grow. We find the term platform, which is well-established in economic and management literature, offers a more useful and accurate term than some of the terms that have been used such as "share economy companies," "internet companies" or, even more broadly, "tech companies."

Network effects are a key characteristic that distinguish platforms from other business models. As more users engage with a platform, the more attractive the platform becomes to potential new users. When more users attract more users, a dynamic is created that in turn triggers a self-reinforcing cycle of growth. There are two kinds of network effects: direct network effects (where more users attract more users) and indirect network effects (where more users of one side of the platform attract more users on the other side of the platform). Platforms can be two-sided, as in the case of freelancers being matched with projects. They can also be multisided, as in the case of media platforms, which serve viewers, content providers and advertisers.[5]

The conditions for platform creation have grown with the expansion of the internet, mobile devices and software development. Digital technologies greatly facilitate the establishment of interactive networks and efficient matching. A key result is the ability to aggregate and match one side of a market to the other side with a level of efficiency and speed that was not possible in the past. Greater scale contributes to attracting more users, which creates more value, producing a virtuous feedback mechanism.

Another dimension of platforms is the ability to accelerate innovation and the contributions of third parties. This is achieved by opening the platform to external innovators. Instead of seeking to maximize the value of a particular product or service, platforms grow and innovate faster when they concentrate on maximizing value across the entire ecosystem, which often involves third parties outside the traditional boundaries of the enterprise.[6] Successful platform entrepreneurs have found that establishing open interfaces, such as Software Developer Kits and Application Programming Interfaces (APIs), can enhance complementary innovation. In these ways, platforms often result in better business models that are disruptive to existing industries.

4. Survey Methodology

The data for this study was collected through several means. First, a review was conducted of known Asian platform company websites. Searches were also performed using various keywords or combinations of keywords (e.g., digital, e-commerce, platform and marketplace) on both open-source search engines as well as paid services such as Quid Web Intelligence.[7] Additional information was collected directly from companies by phone or via an email survey questionnaire. These approaches yielded a list of more than 1,000 candidate public and private companies.

To narrow the list and reveal the most significant platforms, the candidate companies were screened against the platform definitions already discussed. In addition, the list was narrowed by selecting companies that had: 1) secured investment funding of at least $1 million, or 2) were companies that operated a portfolio of platform companies in Asia. This resulted in a final list of 62 platform companies.

For each company in the final list, we collected specific information. This included the location of company headquarters, the industry in which it operates, the number of countries in which it operates and whether the company is public or private. We also made an effort to collect information on investment trends; however, because the majority of Asian platform companies are privately owned, it was difficult to obtain even basic financial data for each platform.

Although they are not a focus of this report, there are, of course, large multinational platform companies that have established extensive operations in Asia. U.S. platforms in particular have seen Asia as an important growth market for their platform services. Google, Facebook, Amazon, Microsoft, Apple, Salesforce, Uber, Airbnb and many others have invested in Asian expansion. While some Western platforms have been successful in extending their platform services into Asia, they have faced a range of competitive and regulatory challenges across the region.

5. Survey Results

The survey identified 62 major platform companies now operating in Asia (see Figure 1). Collectively, these companies have a market capitalization of over $1.1 trillion.[8] Thirty of the companies are public and trade on various Asian stock exchanges; a few are listed in the United States. The public platforms have a combined market capitalization of $883 billion. Thirty-two of the companies are privately held. The exact market value of the private platform companies is difficult to determine precisely, but can be estimated from available data to be just over $200 billion. Chinese platforms dominate, with nearly three-quarters of the collective market value of the companies identified in the survey. Platform companies located in Northeast Asia have 22 percent, followed by India, with just 4 percent, and ASEAN, with 1 percent.

The rest of this report examines the results of the survey in greater detail. We focus in particular on the location of platform clusters, indicated by platform headquarters and/or important centers for regional operations, the sectors in which the platform companies compete and the type of platforms they operate.

Platform Geography

Unlike North America, where the largest platforms are heavily concentrated in the greater San Francisco Bay Area, platform companies are relatively dispersed across Asia. As shown in Figure 1, they fall into four major clusters: Northeast Asia, China, India and Southeast Asia. Within each of these regions, four cities stand out: Beijing, with 16 platforms, Tokyo, with 11, Shanghai, with six, and greater New Delhi, with five.

ASIA'S PLATFORM ECONOMY: $1.1 TRILLION IN MARKET CAP

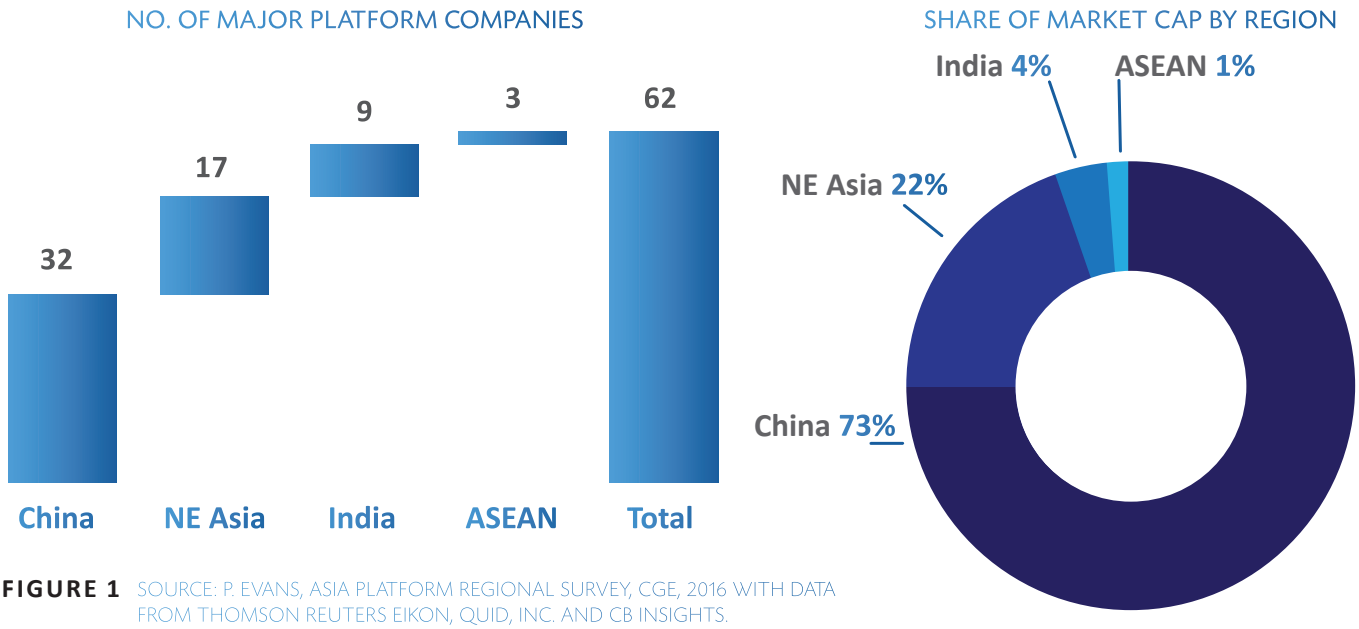


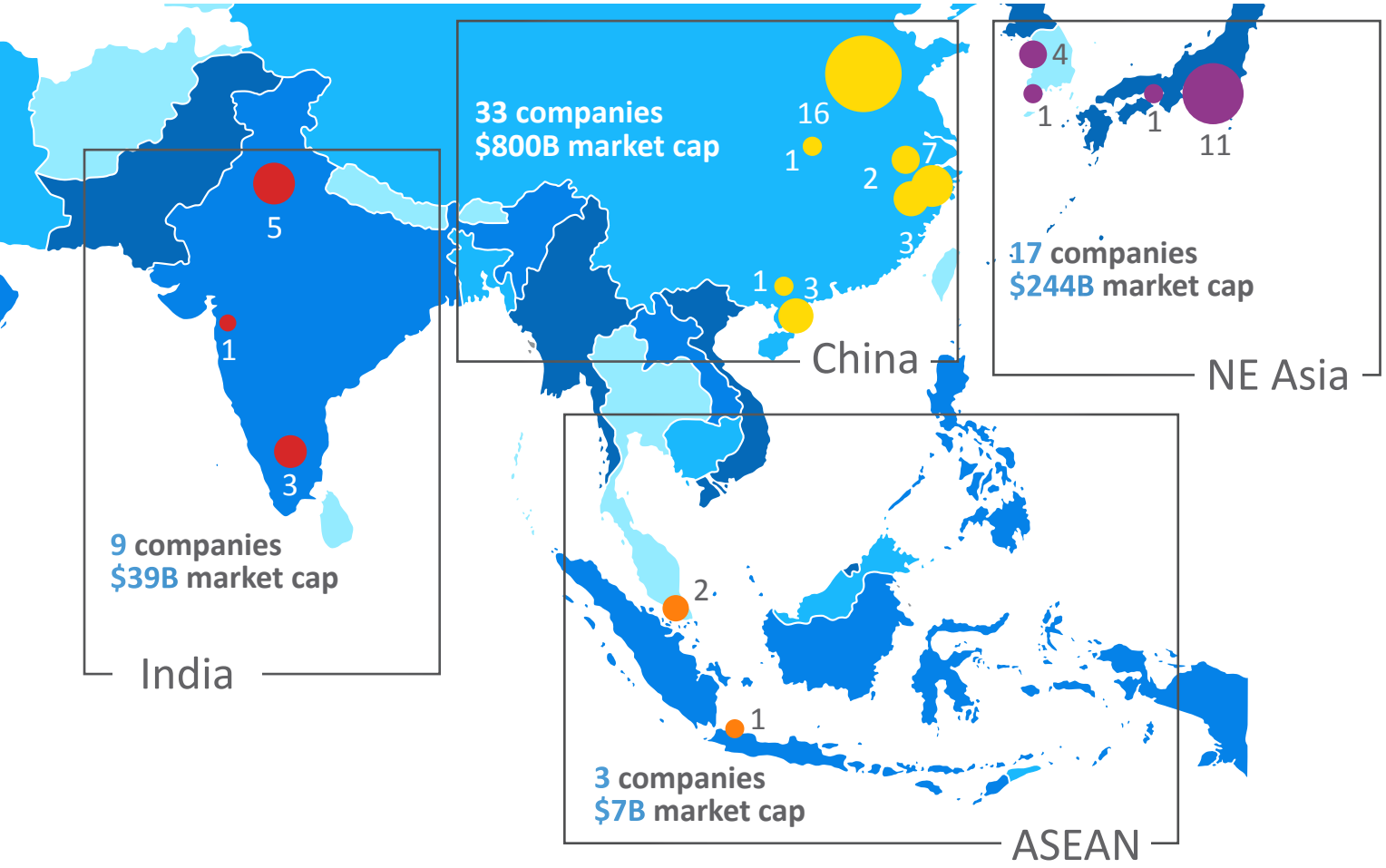
FIGURE 1 SOURCE: P. EVANS, ASIA PLATFORM REGIONAL SURVEY, CGE, 2016 WITH DATA FROM THOMSON REUTERS EIKON, QUID, INC. AND CB INSIGHTS.

NORTHEAST ASIA

Northeast Asia (Japan and Korea) is home to 17 platform companies, with a collective market capitalization of $244 billion (See Table 1). Tokyo has the largest number of platform companies, with a total of 11. The largest and most well-established platform companies are Japan's SoftBank, Yahoo Japan and Rakuten. There are also a number of more recently established platforms that are gaining in scale, including LINE, which recently IPOed, M3.com, DeNA and Gree.

South Korea also has successful platform companies. These include Navier and Kakao, which are publicly traded, as well as companies like Coupag, Yellow Mobile and CJ Games, which are privately held. The region has produced a growing number of platform companies that organize communities and transactions across e-commerce, gaming, messaging and social media. In South Korea, home-grown platforms have blocked or nudged out foreign contenders, at times with superior local offerings but also at times with the backing of protective regulations. As a result, Naver holds more than 70 percent of Korea's internet search market and Kakao controls the majority of Korea's on-demand rideshare market with its app Kakao Taxi.[9]

ASIA'S PLATFORM ECONOMY: REGIONAL PLATFORM CLUSTERS*



*There are 62 platform companies with market value of $800M or above operating in Asia.

FIGURE 2 SOURCE: P. EVANS, ASIA PLATFORM REGIONAL SURVEY, CGE, 2016 WITH DATA FROM THOMSON REUTERS EIKON, QUID, INC. AND CB INSIGHTS.

NORTHEAST ASIA'S TOP PLATFORM COMPANIES

Company	Type	Country	City
SOFTBANK	Public	Japan	Tokyo
YAHOO JAPAN	Public	Japan	Tokyo
NINTENDO	Public	Japan	Tokyo
NAVER	Public	South Korea	Seongnam
RAKUTEN	Public	Japan	Tokyo
M3.COM	Public	Japan	Tokyo
LINE	Public	Japan	Tokyo
ZOZOTOWN.COM	Public	Japan	Tokyo
COUPANG	Private	South Korea	Seoul
KAKAO	Public	South Korea	Jeju City
DENA	Public	Japan	Tokyo
YELLO MOBILE	Private	South Korea	Seoul
KAKAKU.COM	Public	Japan	Tokyo
COLOPL	Private	Japan	Tokyo
CJ GAMES	Private	South Korea	Seoul
GREE	Public	Japan	Tokyo
MERCARI	Private	Japan	Tokyo

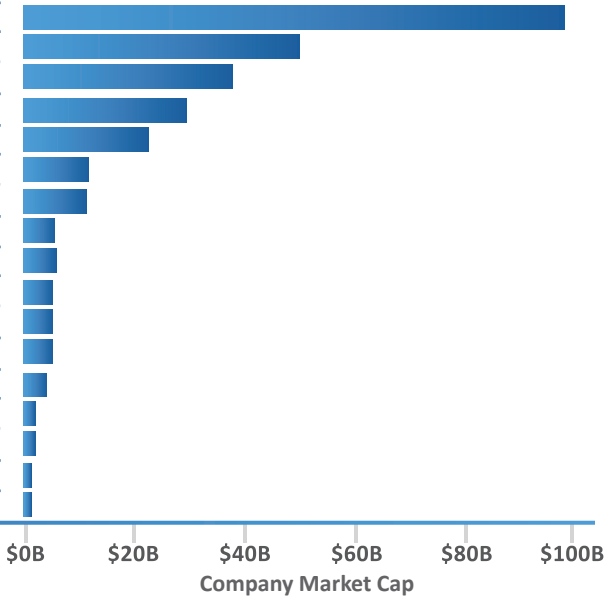


TABLE 1 SOURCE: CGE GLOBAL PLATFORM DATABASE, 2016

CHINA

China has by far the largest number and diversity of platform companies. The survey identified 32 platforms, with a total market capitalization of $800 billion, as illustrated in Figure 2. The 20 largest platform companies within this group are listed in Table 2. By far the two largest platform companies are Tencent and Alibaba, which have market caps of $248 billion and $235 billion, respectively. A second tier of companies that range between $20 billion and $60 billion includes Baidu, Ant Financial, JD.com, Didi Chuxing and Ctrip.com. A third tier of companies with a valuation of between $800 million and $20 billion includes e-commerce companies like China Internet Plus Holdings (Meituan and Dianping), Vipshop and Vancl; social media companies like LESHI, SINA and MOMO; fintech companies like Lufax and classified ad companies like 58.com; travel companies like Qunar; gaming companies like YY Inc.; and on-demand transportation/logistics companies like Dada.

Platform companies have emerged in eight Chinese cities. Beijing has the largest number at 16 platforms, with a collective market cap of nearly $190 billion. Baidu is the largest platform company. Shanghai has six platform companies, including the travel site Ctrip and the fintech company Lufax. Guangzhou has three companies, with a combined market cap of $12 billion — the largest is the e-commerce company VipShop. Hangzhou has three platforms, but also the distinction of having the headquarters of Alibaba, which alone has a market cap of $235 billion. Shenzhen only has one platform, but is the home of Tencent, which has grown to be China's largest platform with a current market cap of $248 billion. The remaining cities are Nanjing, with two platforms, and Jeju and Tianjin, with one each.

Platform creation in China has benefited from an active startup community. China has been a cauldron of activity, but the mortality rate has also been high. One example is so-called "group buy" companies, where a company matches a volume discount with a buyer (typically a group) that agrees to purchase a specific volume of goods. Surveys indicate a boom in new companies rushed into the multibillion-dollar group-buying market, followed quickly by a bust in which 3,000 sites closed within the span of months.[10]

CHINA'S TOP 20 PLATFORM COMPANIES

Company	Type	Country	City
TENCENT	Public	China	Shenzen
ALIBABA	Public	China	Hangzhou
BAIDU	Public	China	Beijing
ANT FINANCIAL	Private	China	Jeju City
JD.COM	Public	China	Beijing
DIDI CHUXING	Private	China	Beijing
CTRIP.COM	Public	China	Shanghai
LUFAX	Private	China	Shanghai
CHINA INTERNET PLUS HLDGS.	Private	China	Beijing
LESHI	Public	China	Beijing
VIPSHOP	Public	China	Guangzhou
58.COM	Public	China	Beijing
LIANJIA (HOME LINK)	Private	China	Beijing
SINA CORP	Public	China	Shanghai
QUNAR	Public	China	Beijing
MOMO	Public	China	Beijing
VANCL	Private	China	Tianjin
YY INC.	Private	China	Guangzhou
SOUFUN	Public	China	Beijing
MIA.COM	Private	China	Beijing

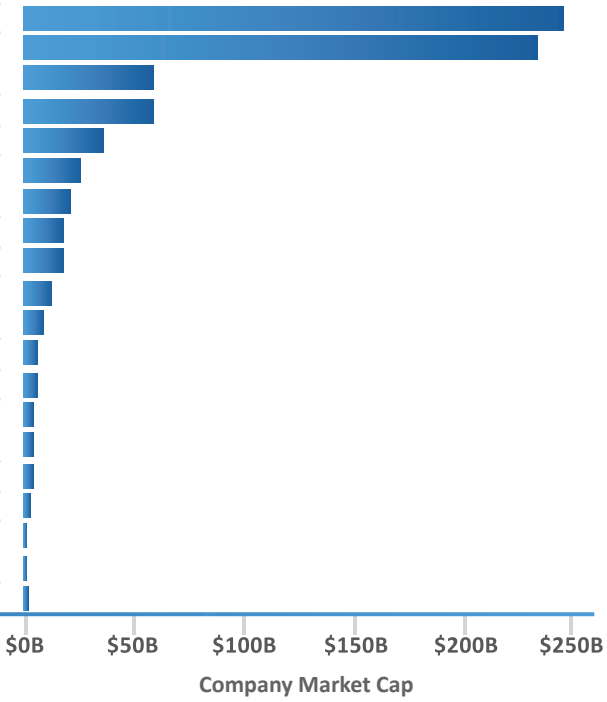


TABLE 2 SOURCE: CGE GLOBAL PLATFORM DATABASE, 2016

CHINA INTERNET PLUS HLDGS.

Company	Type	Country	City
FLIPKART	Private	India	Bengaluru
SNAPDEAL	Private	India	New Delhi
OLACABS	Private	India	Bengaluru
PAYTM	Private	India	New Delhi
QUIKR	Private	India	Mumbai
HIKE	Private	India	New Delhi
SHOPCLUES	Private	India	New Delhi
INMOBI	Private	India	Bengaluru
ZOMATO	Private	India	New Delhi

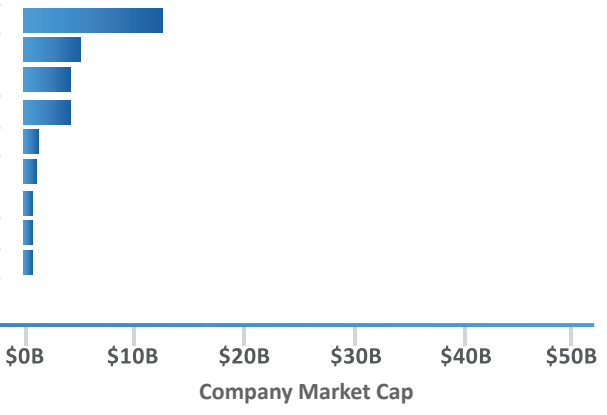


TABLE 3 SOURCE: CGE GLOBAL PLATFORM DATABASE, 2016

INDIA

India has a smaller number of platforms, with a total of nine major companies with a combined market cap of $39 billion. In contrast to China and Northeast Asia, all the platforms identified in India are still privately held. The largest platforms are the two e-commerce companies Flipkart and Snapdeal. Platform activity is concentrated in three hubs. Greater New Delhi has the largest number, with five platforms (Snapdeal and Shopclues, e-commerce companies; Paytm, a fintech company; Hike, a messaging/ad tech platform; and Zomato, a classifieds and restaurant platform). Bengaluru has three (FlipKart, Olacabs and the messaging/ad tech company InMobi). Mumbai has one platform, Quikr, a classified advertising platform with more than 12 million listings.

The relatively small scale of India's platform companies points to contrasting conditions. India has valuable advantages in creating platforms, such as a large talent pool of skilled programmers, proficiency in English and strong ties to the United States and Europe, but these advantages have not been sufficient to overcome competing headwinds. Entrepreneurs face difficulty in raising funds to scale their businesses. When they do get going, a weak public market for tech IPOs has prevented local platform companies from going public. An uneven digital infrastructure presents business risks. Uncertain and/or restrictive regulatory policies have limited the establishment and scaling of platforms. Finally, traditional public companies (Reliance, FutureGroup, Apollo, Aditya Birla Group) are exploring platform implementations, but without any demonstrable documented success so far.

SOUTHEAST ASIA

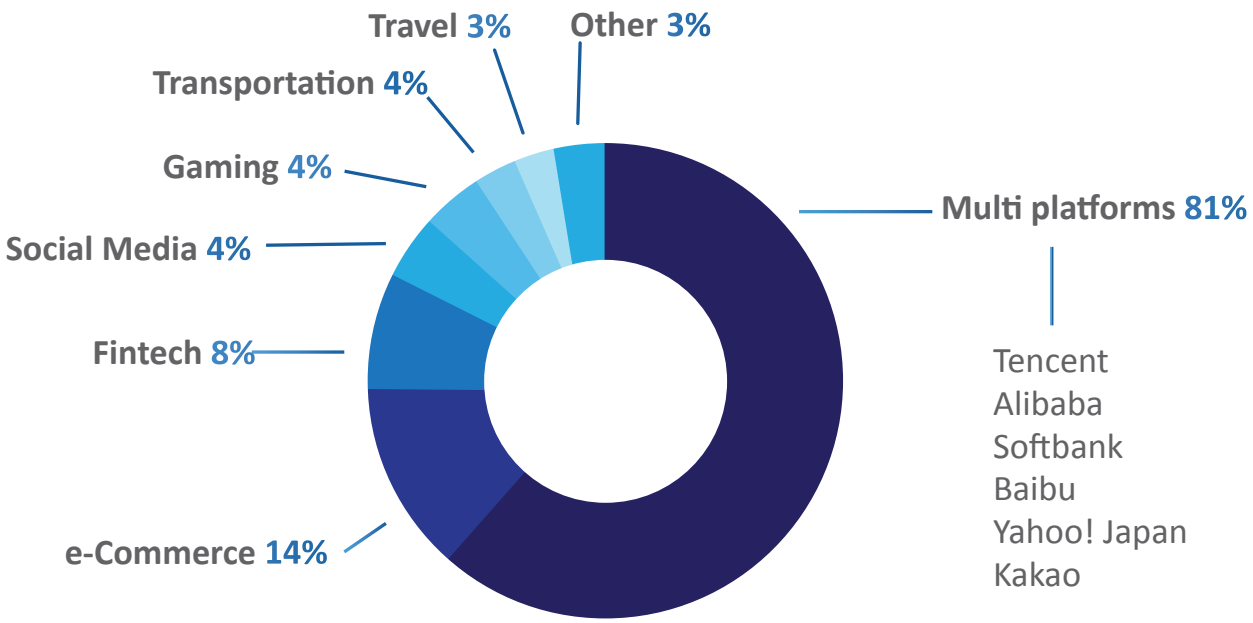
The ASEAN region has a smaller share of platform companies. A total of three companies were identified with a collective market cap of just over $7 billion, not including Lazada, the e-commerce platform acquired by Alibaba. The largest platform is the Singapore-based private gaming company Garena, which was founded in 2009. The company has launched a series of successful multiplayer online games, such as League of Legends, Heroes of Newerth and FIFA Online. GrabTaxi (recently simplified to just Grab) has established a wide range of ridesharing and logistics services. Since its founding in Malaysia in 2011, it has since moved its headquarters to Singapore and expanded to Thailand, Vietnam, Indonesia and the Philippines through a network of more than 350,000 drivers.[11] The third platform is GO-JEK, an Indonesian transport, logistics and payments startup founded in 2010. The company has built out a network of more than 200,000 drivers operating motorcycles, cars and trucks. The company has also recently branched out into car maintenance service, where it will match mechanics with car owners looking for repair services.

While platforms have been largely concentrated on serving the largest cities, there have been recent efforts to attract platforms to more rural areas of the region. An alliance of platform companies and government trade promotion entities formed in mid-2016 aims to advance cross-border trade through e-commerce in the Greater Mekong subregion covering Cambodia, China, Laos, Myanmar, Thailand and Vietnam.[12]

Platform Sectors and Types

It is common to think of a company and a platform as one and the same. However, experience shows that as platforms grow in size and scale, they often branch out into new areas, either organically or through acquisitions. As a consequence, they can come to manage many platforms at once. This is indeed the case in Asia, where a number of platform companies have grown to become diverse multiplatform enterprises. This survey identifies six companies in this category. The companies are among the largest platforms in Asia, so together these six companies have a combined market value of $666 billion, or 61 percent of the region's major platforms (see Figure 3).

SHARE OF INDUSTRY SECTOR(S) BY MARKET VALUE



SOURCE: CGE GLOBAL PLATFORM DATABASE, 2016

FIGURE 3

In addition to the multiplatform companies, the survey identified Asian platforms operating across 10 different sectors. The largest number of platform companies can be found in the area of e-commerce. There are 22 companies in this sector with a total market value of $148 billion. Gaming platforms total six, not including the multiplatform companies, with a collective market value of $44 billion. There are five social media companies, not including the multiplatform companies. These social media companies have a total value of $48 billion. There are fewer fintech companies — we identified four — but they have a higher market value of $85 billion. Transportation has been a growing sector. Four companies fall into this category, with a total value of $36 billion. There are four messaging/ad tech companies worth $16 billion. Only three large travel companies were identified, but they have a higher market cap worth $27 billion. The remaining sectors — real estate, classifieds and workplace — have between two and three companies apiece and have market values of $9 billion, in the case of real estate and classifieds, and $2 billion, in the case of workplace matchings platforms.

Linkages: Asian platform establishment and growth has not been confined to the countries in which they were established. There are significant regional and increasingly global linkages.

Regional: There is more cross-border investment between Asian platforms than is widely recognized. Japanese platforms made early strategic investments in Chinese and Indian platforms. For example, SoftBank was an early investor in Alibaba, with an initial investment of $20 million in 2000. By the time of Alibaba's record IPO in 2014, SoftBank owned 34 percent of the company, a stake that had grown to more than $50 billion. SoftBank has also made other strategic investments in platforms such as Ola, India's ridesharing company, and Grab, founded in Malaysia and serving 17 cities across six countries in Southeast Asia: Malaysia, Philippines, Thailand, Singapore, Vietnam and Indonesia.[13]

As they have grown in size and scale, Chinese platforms have also been active regional investors. Part of these investments have flowed to India. This includes Alibaba's investment in Paytm, the online payment company, as well as Tencent's investment in the messaging platform Hike.[14] They have also gone to Korea and Japan. Tencent invested in South Korea's gaming platform CJ Games. Biadu has successfully looked to Korea and Japan for streaming video content. For example, deals to stream popular Korean dramas (*My Love from the Star* and *Descendants of the Sun*) generated a massive following, with the number of hits registering in the billions.[15] Baidu co-produced a drama with Japanese broadcaster Fuji TV called Mysterious Summer that also garnered a huge following.

Finally, Korean platform companies have also made important cross-border bets. One of the most successful is Naver's investment in the Japanese messaging platform LINE in 2006.[16] Naver held 80 percent of LINE after the IPO, which reached a market cap of more than $9 billion when it debuted in July 2016.[17] Other linkages include the joint venture established between Kakao and Yahoo Japan to operate Kakao Japan.[18] The joint venture helped to expand Kakao's mobile messaging apps outside of Korea and support Yahoo Japan's effort to adapt to the shift to mobile ecosystems.

Global: Asian platforms have helped to build connections between Asia and the rest of the world. One effort has been to position platforms to become inbound gateways for U.S. and European goods. For foreign businesses, especially smaller ones, selling into Asia can be a daunting challenge. E-commerce platforms make the process easier by overcoming many of the challenges associated with cross-border trade, such as access to millions of customers, artificial-intelligence-enabled advertising and secure payment systems.[19]

Foreign trade offices have even come to recognize the opportunity. U.K. Trade and Investment signed a Memorandum of Understanding with Alibaba aimed at helping U.K. companies sell goods in China on 1688.com, one of Alibaba's e-commerce platforms. Similar deals have subsequently been inked with Italy, New Zealand and Canada.[20] Alibaba rival JD.com has announced its own plans to attract foreign merchants to sell a wide range of goods on its platform.[21]

A variety of Indian platforms have made a mark on the global platform space. InMobi, one of the leading independent mobile ad networks globally, started in India and expanded to all continents, with particularly strong access to mobile eyeballs in emerging markets. More recently, platforms like Zomato are starting to expand beyond India.

But not all of these outbound efforts have been successful. After a strong global push, the Japanese e-commerce platform Rakuten announced in early 2016 that it was retrenching from England and Spain to concentrate on Germany and France.[22] The company subsequently announced that it would withdraw from Indonesia, Malaysia and Singapore and band together with eBay to serve South Korea.[23]

Platform Consolidation

Asian platforms have been engaged in a wave of mergers and takeovers. A review of some of the deals provides a perspective on the pace and scale of the consolidation that is taking place.

E-commerce: E-commerce has been an active area of consolidation. In 2015, Meituan and Dianping, two private companies serving China's large group-buying market, merged in a deal estimated at $15 billion. The newly formed company, called Internet Plus Holdings, now claims to have 600 million users on the demand side of its platform, which it matches up with more than 4 million local merchants on the supply side offering an array of products and services, ranging from group buying and ticket booking to online ordering from physical businesses.[24] In another deal, the platform company 58.com, sometimes referred to as "China's Craigslist," acquired Ganji.com, which had built a significant digital marketplace for secondhand cars and other goods and services across more than a dozen major cities.[25] In a subsequent transaction, 58.com took a 70 percent equity stake in AutoComment, a major automotive information website and service platform in China. These were two of a string of investments aimed at building platform scale and direct and indirect network effects across transportation, real state, on-demand services and recruitment.[26]

Other Asian markets have also experienced consolidation. In India in 2014, for example, FlipKart bought Myntra, an online retail platform. More recently, it took advantage of a cash crunch to acquire Jabong, another large online retailer.[27] Snapdel, FlipKart's main rival, has contributed to the consolidation wave with the acquisitions of Doozton.com, Wishpicker.com and Exclusively.in.[28] There have also been large cross-border deals that have begun to consolidate the e-commerce market in Southeast Asia. In April 2016, Alibaba acquired a controlling interest in the privately held Lazada Group, investing $500 million for new shares and buying $500 million worth of shares from existing investors. Lazada.com is a Singaporean e-commerce company founded by Rocket Internet in 2011. By 2014, Lazada's operations had extended to Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam.

Streaming Video Media: There have been large deals in the online video market. Time spent watching online videos has exploded across Asia, with hundreds of millions of viewers gravitating to mobile platforms. The new revenue opportunities from advertising and cross-platform linkages to "buy what you watch" shopping, travel and other areas of interest created strong incentives, built large integrated platforms and recouped the costs of providing content. China has seen the largest growth as well as the most significant move toward consolidation. Momentum began in 2012 with the acquisition of Tudou by Youku in a deal estimated at $1 billion. Then in 2015, Alibaba announced that it would purchase the combined Youku-Tudou platform valued at $4.8 billion with a user base of approximately 570 million.[29] Meanwhile, in 2013, Baidu bought PPStream Inc. for $370 million and integrated it with IQiyi.com to create China's largest online-video platform. The platform now has 20 million paying users.

Transportation: Asian transportation platforms have also seen their share of consolidation. In India, Ola Cabs acquired TaxiForSure in 2015, adding an additional 15,000 cabs to its network. The deal was reported to be worth $200 million and helped Ola grow to 750,000 rides per day for an estimated 75 percent to 80 percent share of India's rideshare market. It also helped to bolster its position against Uber, which remains a formidable competitor.

China's much larger rideshare market has also seen major consolidation. The rideshare market began with the establishment of Didi Dache, founded in 2012 with support from Tencent and Kuaidi Dache, founded the same year with backing from Alibaba. Didi Dache and Kuaidi Dache quickly emerged as the two largest players in China. In 2015, the two companies announced they were merging in a $6 billion deal and renamed the company Didi Chuxing. The merger was widely seen as motivated in no small measure by pressure from Uber, which entered the Chinese market in August 2013. A pitched battle for the Chinese ride share market ensued between Didi Chuxing and Uber. However, after losing a reported $1 billion per year in cutthroat competition, Uber made a deal with its rival. Uber agreed to exit the market in return for a stake in Didi Chuxing.[30] This left Didi Chuxing with a dominant position in China's rideshare market but also gave Uber a portion of China's dominant rideshare platform and the ability to pursue other markets.[31]

6. Innovation

Asian platforms are driving innovation in a number of different areas. Often accused of mimicking Western counterparts, a deeper look at Asian platforms demonstrates innovation and creativity. Three noteworthy areas are third-party payments, visual language and artificial intelligence.

Third-Party Payments: Finally, Asian platforms were not the first to introduce third-party payments; however, they have contributed to important innovations resolving acute local market conditions. One example is the payment system Alipay, established by Alibaba. Launched in 2004, Alipay developed solutions to not only overcome the limitations of China's banking system, but also weak consumer protection laws and regulations. To attract users, no transaction fees were imposed. To build confidence, it also went a step further than other payment systems like PayPal and introduced an escrow service. Payments were held until the buyers verified whether they were satisfied with goods before payment was transferred to the seller, guarantees that helped to build confidence in making online transactions. Additional confidence in the identity and legitimacy of suppliers was gained by introducing TrustPass. In order to become a TrustPass member, a supplier was subject to verification and certification by a third-party credit reporting agency. Finally, significant attention was made on integrating diverse functions, such as mobile games and movies, so that users had a one-stop, multiuser-friendly experience. Recognizing the value of becoming an approved vendor on a rapidly growing platform, many local governments provided public funding to small local companies in order to help them obtain TrustPass certification.[32] Alibaba eventually spun off Alipay, which now falls under Ant Financial, a full-service financial services enterprise with a valuation of $60 billion.[33]

Visual Language: Emojis and other pictograms have created rich new modes of communication on the web.[34] It is estimated that more than 6 billion pictograms are sent around the world every day on mobile messaging apps.[35] Emojis were first developed in Japan by the telecom and mobile phone company NTT DoCoMo in the late 1990s. Emoji, which means "picture letter" in Japanese, won immediate popularity, especially with young mobile phone users. DoCoMo's decision not to copyright or trademark the picture language contributed to their adoption by other carriers, as did its incorporation in the Unicode standard, which supports the worldwide exchange and display of text and pictographs on computers and mobile devices.[36] Emojis received a further boost when SoftBank convinced Apple to add emojis to the iPhone, which it did for Japan and then globally.[37] As their popularity grew, emojis were embraced by messaging platforms. Facebook Messenger, WhatsApp, LINE, Viber and WeChat now have hundreds of millions of users communicating through a combination of text and visual language capability. As these pictorial representations have grown in sophistication and scale, they have all but displaced internet slang shortcuts (e.g., LOL). Surveys indicate that upward of 90 percent of internet users now use them.[38]

Recently, emojis have expanded from personal communication to being integrated into the enterprise strategy. Seeking to tap a shift toward a more visual and creative forms of communication, global brands have started to experiment with using emojis to reach target audiences in a more fun and

expressive manner. Ikea, Spotify, Nikon and Coca-Cola are among a growing list of companies that are working branded emojis into their marketing strategies.[39] The size and scale of emojis have even spawned new analytic services that provide volume and sentiment analysis that can be used to tweak campaigns or target new promising audience segments.[40] Graphical imagery requires a different approach than text analysis, which historically has been the basis of corporate social listening programs.

Finally, Asian platform companies continue to innovate around the supply side. The Japanese messaging platform LINE has been at the forefront of creating significant revenue streams by moving beyond emojis to a broad range of "stickers," some free and others for purchase. The company has even set up a Creators Market to crowdsource and incentivize new sticker creation.[41]

Artificial Intelligence: Asian platforms have demonstrated a growing commitment to artificial intelligence (AI) and machine learning (see Table 4). Robin Li, CEO of Baidu, has called artificial intelligence "the next big development in the internet industry." Not surprisingly, Baidu has been one of the region's major investors in developing AI capabilities. The company has been developing AI systems to enhance its platform in areas such as advertising, search ranking, large-scale image classification, image character recognition and natural language machine translation. The company recently announced that it would open its deep learning architecture to developers outside of the company.[42]

Other Chinese platform companies also have AI projects. Alibaba, through Aliyun, its cloud computing unit, has begun an artificial intelligence service called DT PAI. The initiative draws on deep learning techniques and a simple drag-and-drop interface. Like Baidu's offering, developers can use DT PAI to build predictive models without having to write new code. Meanwhile, Tencent has invested in Diffbot, a technology that visually recognizes, reads, understands and monitors web pages and components, including product pages, news articles, discussion forums, videos and images. Each element of the web page is extracted, organized, tagged, cross-referenced and stored as an "object" in the Global Index with billions of objects.

Japanese and Korean platforms have also announced AI programs. SoftBank has made substantial investments in the AI-enabled humanoid robot called Pepper. In May 2016, the company opened its software platform to third-party software developers with the goal of growing its application platform with larger offerings of "roboapps," including those that leverage artificial intelligence.[43] SoftBank also joined with Honda Motors to develop a system that uses artificial intelligence to analyze speech and offer information and recommendations tailored to drivers. The cloud-based AI software will learn drivers' habits and interact with drivers based on input from cameras and other sensors, including facial expressions and tone of voice. Rakuten is building AI capabilities to help shoppers better navigate online stores and linkages to Viber, a major messaging platform that it acquired in 2014.[44] Rakuten acquired additional capabilities through its acquisition of Nextperf, a company with advanced machine learning for real-time ad optimization and smarter recommendation engines. Not to be outdone, Korean platforms have also joined the rush to develop AI capabilities. Naver has developed a program called "LAON," which uses an AI speech-recognition program that is able to engage in intelligent search and human dialogue to enhance customer queries and shopping experiences.

No single approach to innovation has emerged across Asian platform companies. The degree of collaboration varies. While many have internally focused R&D efforts, others have joined a consortium. For example, Navier and Kakao recently joined in a Korean government's initiative on artificial intelligence led by the Ministry of Science, ICT and Future Planning.[45] Geographic focus has also varied. While there has been a strong domestic focus among most Asian platforms, others have sought to build a more global R&D network. The Rakuten Institute of Technology has set up R&D labs not only in Tokyo but also in New York, Paris, Singapore and Boston. In addition to Japan, the company has recruited a diverse research staff from Argentina, China, France, Germany, Indonesia, Korea, Norway, Poland, Sri Lanka, Turkey and the United States.[46]

ASIAN PLATFORM COMPANIES WITH ARTIFICIAL INTELLIGENCE PROJECTS

Company	Country	AI Project	Focus
ALIBABA	China	DT PAI	e-Commerce, marketing
BAIDU	China	Baidu IDL	Basic research
		Paddle Paddle	Open-source AI Tools
TENCENT	China	Diffbot	Web search, indexing
RAKUTEN	Japan	Nextperf	e-Commerce, marketing
SOFTBANK	Japan	Emotion engine	Assisted vehicles
		Pepper	Humanoid robot
NAVER	South Korea	LAON	e-Commerce, marketing

SOURCE: COMPANY WEBSITES AND VARIOUS NEWS MEDIA REPORTS, 2016

TABLE 4

7. Platform Regulation

The regulatory environment for platforms in Asia is not easy to succinctly summarize. As might be imagined, there is significant regional as well as sectoral variation. In some cases, governments have helped to facilitate platform creation and growth. In other cases, the regulatory environment has been a significant constraint. Still, there are some high-level observations that can be made regarding regulatory tail winds and head winds.

Facilitation: Government policy has helped to enable platform establishment and growth in Asia in a number of ways. One has been to give these businesses the freedom to operate and let digital marketplaces experiment and evolve. For example, Asian platforms have generally faced less stringent rules regarding data privacy than their counterparts in Europe and the U.S. Steps to create greater legal certainty have helped. For example, the Chinese government helped to resolve uncertainty by approving ridesharing apps as legal and establishing procedures to formerly license drivers. Likewise, India has taken measures to clarify ambiguous rules over taxes levied on platforms.

Asian platforms have also benefited from government initiatives aimed at promoting digital technology more generally as enablers of economic transformation and growth. South Korea was among the first governments to actively back the development of ubiquitous high-speed broadband internet connectivity. The vision of creating a "knowledge-based society" and the infrastructure to make it happen helped to bring about the conditions for the establishment of e-commerce and other platform companies.[47] Although somewhat later and more diffuse in its effects, Japan also established a similar vision and agenda with i-Japan strategy and its precursors, e-Japan and u-Japan (u-universal, u-user-oriented and u-unique). China's government, for its part, has also backed enabling internet infrastructure policy and investment as a way to transition from export and investment-led growth to more domestic-led, consumer-driven growth. These policies and similar promotional initiatives in India and Southeast Asia generally have been positive for platform business models.[48]

Impediments: There have also been policy conditions that have worked against platforms. Legal uncertainty regarding ridesharing and home rentals has been one well-covered issue.[49] Inadequate infrastructure and the general challenges of starting and growing a business have been another. Beyond uncertainty and enabling conditions, there are also more direct impediments. One concerns policy around payments. For example, platform companies have complained about India's decision to mandate two-factor authentication for all online transactions. The rule was issued by The Reserve

Bank of India (RBI) and required that online transactions in India using credit cards be processed through a local bank in local currency. This was considered a burden on foreign platforms that had previously been sending credit card transactions through an international payment gateway.[50] China's censorship rules have also been another area of contention, particularly for search and social media companies.[51] China's so-called "Great Firewall" has blocked or severely restricted certain foreign platform companies from operating.

In some cases, platforms have adjusted their governance rules in an attempt to stave off regulatory action. Airbnb Japan offers one example. Within a year of launching in Japan in 2014, the platform attracted more than 20,000 listings and matched more than 500,000 guests with private lodgings (Minpaku). In response to rising complaints and looming regulatory pressures against Minpaku, Airbnb Japan announced that it would make it possible for neighbors to lodge comments and complaints on the website.[52] While this measure alone is likely not enough to placate critics, it does show that platforms can and do adjust platform governance rules in response to social concerns.

Self-governance may be helpful for some policy concerns, but not all. Deeper regulatory challenges can require collective government effort that is codified through international trade agreements. One of the most significant efforts of relevance to platforms operating in Asia is the Trans-Pacific Partnership (TPP).[53] The provisions of the agreement require that member governments allow full cross-border transfer of information. It bans forced localization of computing facilities and services. It prohibits requirements to transfer technology as a condition of conducting business. It also bans the imposition of customs duties or taxes on internet traffic. TPP's e-commerce and other digital trade-related provisions are unique among international trade agreements. Twelve countries signed the agreement in February 2016, including the United States, China, Japan, Singapore, Vietnam and Malaysia. However, the agreement requires ratification before it can enter into force and the prospects for this final step, especially for the U.S., have grown increasingly bleak.[54]

8. Conclusion

Platform business models are playing a growing role in Asia's economy. As this survey illustrates, platforms have grown rapidly in size and scale, facilitating interactions among hundreds of millions of users and transactions worth hundreds of billions of dollars. If the underlying demographic, economic and technology trends driving the so-called Asian Century hold, then the region promises to be particularly fertile ground for continued Asian platform growth. Indeed, a useful area of further research would examine the contribution that platform companies can make in realizing the continued growth and prosperity of the region.[55] Recent economic analysis of platforms in the U.S. indicate that they can have a positive impact on consumer welfare.[56] It would be useful to explore if similar results can be found in Asian markets with platform entry, not only for ridesharing, but across the range of sectors in which platforms are now active. It would also be useful to have a better understanding of the economic implications across different levels of economic development, given the significant diversity of Asia, which includes high-income developed economies, faster-growing middle income economics and modest-growth emerging economies.

In addition, platforms advance productivity, welfare, growth and contribute to innovation. This report explored three areas in which Asian platforms have made a mark: third-party payment systems; introducing a new and rich area of visual language in messaging apps; and the rapidly growing role in artificial intelligence. There are likely other areas in which Asian platforms are making unique contributions not only to technology innovation, but also to business-model innovation. The size, scale and dynamics of Asian economies provides a rich basis for new platform breakthroughs. Looking to the future, it would not be a surprise to see Asian platforms playing an increasingly important role in the region's national systems of innovation. Little systematic analysis has been undertaken to date on the interaction among platform enterprises, startups, universities and government institutions, including national R&D programs. Given the growth of their growing research investment and their often cutting-edge role in harnessing and driving digital innovation, the ties between Asian platforms and innovation is another rich area to pursue.

Finally, there is the area of policy and regulation. Policy regarding platforms is neither consistent nor necessarily well-developed across Asia. In some cases, policymakers have been champions of platforms and have taken measures to clarify rules and other actions that have helped to boost platform establishment and growth. In other cases, platforms are such a new phenomenon that regulators have often been caught playing regulatory catch-up. Still, interventions have had a detrimental implication for platform operations. This is true not only for domestic companies, but also for foreign platforms, which have faced a range of competitive barriers. It is unlikely that we will see consistent rules emerge across the region, given the wide variety of institutions and regulatory approaches. At the same time, it would be a mistake to discount the ability of Asian regulators to identify best practices and find workable balances between consumer interests and those of platform enterprises. Experience shows Asia is adept at reshaping the regulatory landscape to advance innovation, competitiveness and growth. There is little reason to believe that this will not be true for shaping the conditions for Asian platforms as well.

Links

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A Regional Survey

The Rise of Asian Platforms