



The Rise of the Platform Enterprise

A Global Survey

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The Rise of the Platform Enterprise: A Global Survey

1. The Age of Platforms

Enterprises that leverage the power of platform business models have grown dramatically in size and scale over the past decade. No longer the sole domain of social media, travel, books or music, platform business models have made inroads into transportation, banking and even healthcare and energy. Platforms are now active in North America, Europe, Asia, Africa and Latin America. Some platforms are household names such as Amazon, Apple, Google and Alibaba. Others have emerged more recently or hail from parts of the world that get less attention such as Rakuten (Japan), Delivery Hero (Germany), Naspers (South Africa), Flipkart (India) or Javago (Nigeria). Platform ecosystems are gaining ground through the digitalization of products, services and businesses processes and in the process are reshaping the global landscape.

Platform companies contribute importantly to the economy. They have driven up productivity in multiple ways. One source of productivity has been achieved through highly efficient matching. E-commerce marketplaces like eBay provide one example. Professional networks like LinkedIn provide another. Platforms have also improved productivity by supporting more efficient asset utilization. The ability of platforms to better utilize houses, cars, workspaces among other assets has

spawned considerable interest and passion around the potential of the so-called “share economy.”¹ In addition, platforms have been important sources of innovation. For example, in 2014, nine U.S. platforms were awarded 11,585 patents.² Finally, many start-up platforms have been successful in attracting significant investment from venture funds. Most so-called “unicorns” are in fact platform companies.³

At the same time, platform companies have been disruptive. Online platforms have upended numerous brick and mortar chains and are making deep inroads into other industries from television to transportation. Although it is still early days, they have the potential to be equally disruptive to traditional approaches to banking, healthcare and energy services. Platforms have also attracted regulatory controversy. There have been concerns over the ability of platforms to dominate markets and undermine competition.⁴ There have also been concerns that it may be easier for platform companies to avoid tax and insurance obligations.⁵ Finally, there has been a range of concerns about how platform companies classify workers as independent contractors in ways that unfairly squeeze wages and benefits.⁶

¹ “The rise of the sharing economy: On the Internet, everything is for hire,” *The Economist*, March 9, 2013.

² The companies are Microsoft, Google, Apple, Intel, Amazon, Yahoo!, Facebook, eBay and Salesforce. The patent data is from “2014 Top Patent Owners,” Intellectual Property Owners Association, June 2015.

³ Unicorns are private startup companies that have achieved a valuation of \$1 billion or more without going to public capital markets. A review we conducted of the 115 companies listed as Unicorns by CB Insights in June 2015 found that 80 of these companies or 70 percent are platform companies.

⁴ David S. Evans, “Attention to Rivalry among Online Platforms and Its Implications for Antitrust Analysis”, Coase-Sandor Institute for Law & Economics Working Paper No. 627, 2013.

⁵ See, for example, Pierre Collin, and Nicolas Colin. “Task Force on Taxation of the Digital Economy.” Report to the French Minister for the Economy and Finance, the Minister for Industrial Recovery, Minister Delegate for the Budget and the Minister Delegate for Small and Medium-sized Enterprises, Innovation and the Digital Economy 2013.

⁶ Greg Bensinger, “Startups Scramble to Define ‘Employee’,” *Wall Street Journal*, July 30, 2015; and Naom Scheiber, “Growth in the ‘Gig Economy’ Fuels Work Force Anxieties,” *New York Times*, July 12, 2015.

2. Survey Objectives

While a few platforms have garnered significant attention both in the popular press and among academic scholars, there is much we do not know. How many large platforms are operating around the world? Where are they based? What sectors do they populate? How many people do they employ?

To better understand the global growth and scope of platform companies, this study has sought to provide the first comprehensive global survey of platform companies. Through collaboration with

scholars and experts with expertise in platform companies in Europe, Africa, India, and China, the study focused on identifying companies with a market valuation of at least \$1 billion. To ensure broad coverage of types and location of companies, the study included privately owned platform companies as well as those that are publicly traded on stock exchanges around the world. Finally, the study examined a broad range of industries to reveal where platform business activity has become established across sectors.

3. Defining Platforms

The term platform has been used in a variety of ways.⁷ In this survey, we are concerned with platform business models and the design choices that allow these business models to be successful. Platforms have unique characteristics, with a central feature being the presence of network effects. Network effects are prevalent in platforms, and they mean that more users beget more users, a dynamic which in turn triggers a self-reinforcing cycle of growth. Further, most of today's platforms are digital: they capture, transmit and monetize data, including personal data, over the Internet. They may not be purely digital; in that they

may have physical elements included in the product offering, but most successful platforms today take advantage of the power of pervasive Internet connectivity in the hand of billions of users and have at their heart a software engine.⁸

Platforms create value in two principal ways. The first way, which corresponds to what we call transaction platforms, facilitates transactions between different types of individuals and organizations that would otherwise have difficulty finding each other. Obvious examples include Uber, Google Search, Amazon Marketplace, and eBay. This type of platform is sometimes called a multi-sided market.⁹

⁷ See Annabelle Gawer and Michael Cusumano, *Platform Leadership: How Intel, Microsoft and Cisco Drive Industry Innovation*, Harvard Business School Press, Boston, MA, 2002, for one of the first treatments of platforms. For a more recent treatment of platforms, see Annabelle Gawer (Ed.), *Platforms, Markets and Innovation*, Edward Elgar Publishing Ltd, Cheltenham, 2009.

⁸ David S. Evans, Andrei Hagiu and Richard Schmalensee, *Invisible Engines: How Software Platforms Drive Innovation and Transform Industries*, MIT Press, Cambridge, MA, 2006.

⁹ Jean-Claude Rochet and Jean Tirole, "Platform Competition in Two-Sided Markets", *Journal of the European Economic Association* 1, no. 4, 2003, pp. 990-1029.

There are also innovation platforms, which consist of technological building blocks that are used as a foundation on top of which a large number of innovators can develop complementary services or products. These complementary innovators can be anyone, anywhere in the world, and together they form what is called an innovation ecosystem around the platform. An example is the iPhone, which has hundreds of thousands of applications. Those applications are developed by innovators all over the world, who use Apple technology the company makes available through software connectors sometimes called APIs—application programming interfaces—or software developer kits, which will in effect continue the cycle of innovation and growth.

A fundamental feature of platforms is the presence of network effects: platforms become more valuable as more users use them.¹⁰ As more users engage with the platform, the platform becomes more attractive to potential new users. This goes a long way toward explaining why some platforms have had viral growth. There are two kinds of network effects: direct network effects (where more users beget more users, as in more Facebook users will beget more Facebook users) and indirect network effects where more users of one side of the platform (for example, video game users) attracts more users on the other side of the platform (in this example, video game developers). Jeff Bezos, the founder and CEO of Amazon, refers to this reinforcing virtuous dynamic as the “Amazon flywheel.”¹¹

It is important to understand that with platforms, scale is both the outcome of initial success and the engine for the further growth. Network effects existed before online platforms, for example, the telephone network. But today, where individuals have access to pervasive connectivity that is facilitated by the Internet, and where there are 7 billion mobile phones in the hands of users—this ease of communication has increased the network effects. With platforms, scale creates value and attracts additional users. This dynamic creates a self-sustaining momentum for growth.

As mentioned earlier, an important feature of platforms is the ability to efficiently match buyers and sellers in the market. While there is always friction associated with transactions between buyers and sellers, by building new software and harnessing the speed and scale of the Internet, platforms help reduce that friction. Innovative platform entrepreneurs have discovered that there are ways to get the flywheel going faster if one side of the market is incentivized to join, for example, by being subsidized. This is why it is not uncommon to see platforms offering deep discounts to one side of a market or even provide “freemium” goods or services to third parties to induce them to join, contribute and even innovate on the platform.

Platforms also present different strategic objectives than traditional frameworks for corporate strategy, which will often emphasize concepts like “lean” and “just-in-time” supply chain delivery. Platforms change what it means to lead organizations, forcing them to re-think their strategies, business models, leadership, organizational structures, and approaches to value creation and capture systems. Aiming to become a platform leader entails a vision that extends beyond one’s own firm, and aims to build and sustain an ecosystem of partners, where the platform leader has to be the equivalent of a captain. And just as any “team captain” would have to, a platform leader must maintain some degree of neutrality and benevolence over its business partners, failing which, it would damage its own legitimacy.¹²

Platforms excel across a number of different dimensions, which has helped to set them apart from traditional business models. These include the way they foster efficient and productive interaction, speed and scale of innovation. Platforms are highly successful at efficient matching. The largest in the world, such as Facebook, Amazon, and Alibaba, facilitate hundreds of millions or even billions of interactions per day.

¹⁰ See Geoffrey Parker and Marshall Van Alstyne, “Two-Sided Network Effect: A Theory of Information Product Design,” *Management Science*; 51, no. 10, 2005; Mark Armstrong (in “Competition in Two-Sided Market”, *RAND Journal of Economics*; 2006, p. 66) defines two-sided markets as “markets involving two groups of agents interacting via ‘platforms’ where one group’s benefit from joining a platform depends on the size of the other group that joins the platform”. They have also been defined as “businesses in which pricing and other strategies are strongly affected by the indirect network effects between the two sides of the platform” according to: David S. Evans and Richard Schmalensee, “Markets with Two-Sided Platforms,” *Issues in Competition Law and Policy* (ABA section of antitrust law) 1, 2008. p. 667.

¹¹ Brad Stone, *The Everything Store: Jeff Bezos and the Age of Amazon*, Random House, 2013, p. 126.

PLATFORM TYPES

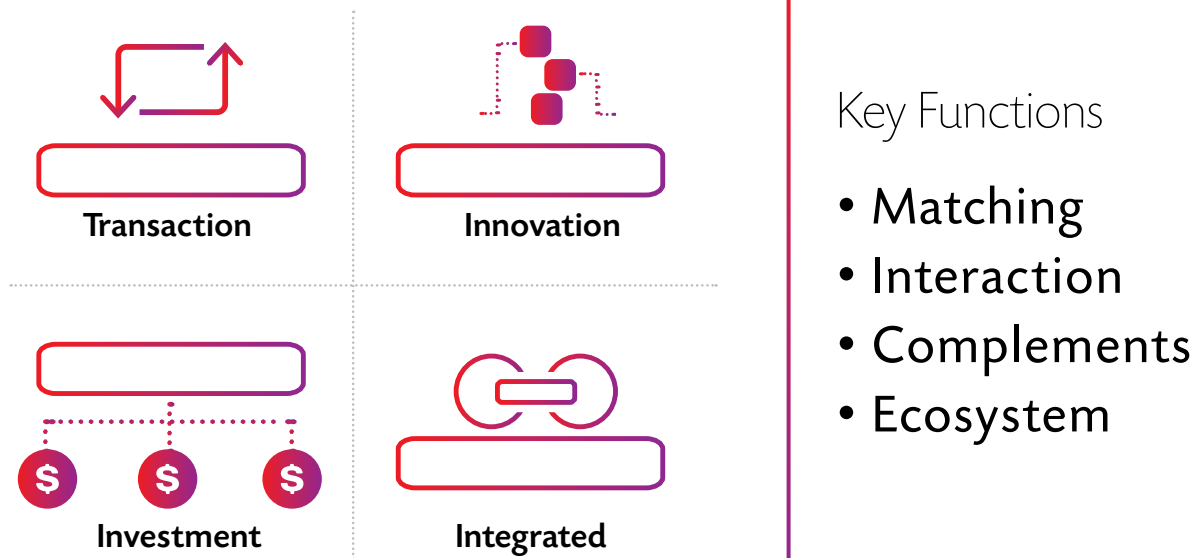


FIGURE 1

In addition to the ability to efficiently and imaginatively match, they also have an amazing ability to accelerate innovation. One way is to open up to third-party applications. Apple created an innovation machine facilitated by the App Store. The company readily admits that third-party developers came up with ideas at a speed and scale that Apple could not have achieved with internal developers alone. Specific programs give developers promotional credits to assist in advertising apps and access to its App Store network of millions of customers in nearly 200 countries.

One key feature of innovation platforms is that they allow platform owners to tap into a potentially unlimited pool of external innovators, in what is called an innovation ecosystem. Contrary to what happens within a traditional supply-chain, platform owners do not have to know in advance who or where the external innovators might be: it is these external innovators themselves (the developers of complementary products or services) who seek the platform and attempt to connect to it: The platform becomes a magnet for complementary innovators. The

degree of openness, which the platform owner will design the interfaces (often associated with Software Developer Kits and Application Programming Interfaces, coupled with relatively low fees of access) will encourage and stimulate complementary innovation, which will allow the ecosystem to thrive.

Finally, there is the matter of governance of the platform ecosystem, which considers who has access to the platform, how to divide value between ecosystem members, and how to resolve conflicts or manage sometimes increasingly divergent objectives.¹³ The goal is to arrange complementors and consumer rules to create and sustain vibrant ecosystems. Policies must ensure value creation and also high-quality participation on the platform. At the same time, the right mix of incentives is required to encourage joining and good behavior. While traditional business models lead managers to frown on giving product or services away for free, such practices can be highly successful from a platform perspective, especially when one side of a market is needed to attract the participation of another.

¹² Annabelle Gawer and Michael Cusumano. "Industry Platforms and Ecosystem Innovation." *Journal of Product Innovation Management* 31 no. 3, 2014, pp. 417-433.

¹³ Kevin Boudreau and Andrei Hagiu, "Platform Rules: Multi-sided Platforms as Regulators," in A. Gawer (Ed.), **Platforms, Markets and Innovation**, Edward Elgar, Cheltenham, UK and Northampton, Mass (2009), pp. 163-191.

4. Survey Methodology

In 2015, the Center for Global Enterprise launched an initiative to build a global database of platform companies as part of the Emerging Platform Economy project.¹⁴ A detailed review of the existing platform literature revealed rich theoretical body of knowledge and strong case studies, but no comprehensive empirical dataset, especially for companies outside of the United States. To fill this gap, an effort was launched to build a database that covered platform companies from all regions of the world and all sectors in which platforms are active. To capture the most significant companies, a threshold of \$1 billion market cap or valuation is required to be included in the dataset.

To assist in building the global database, CGE collaborated with platform experts from Africa, China, Europe, India and the U.S. These experts included Weiru Chen, China Europe International Business School; Sangeet Paul Choudary, Platform Thinking Lab; Olayinka David-West, Lagos Business School; Annabelle Gawer, University of Surrey Business School; Geoffrey Parker, A. B. Freeman School of Business, Tulane University; and Marshall Van Alstyne, Questrom School of Business, Boston University. Each of these scholars contributed to the process of identifying and reviewing candidate platform companies.

In addition to engaging with leading scholars and professionals, we also employed advanced search tools. A number of platform company candidates surfaced using the Quid Web Intelligence tool.¹⁵ This tool draws on the S&P Capital IQ database as well as a variety

of other sources along with natural language processing techniques. A different algorithm filters the data down to only the connections relevant to inquiry. A variety of search queries were conducted including “platform AND ecommerce”, “platform AND on-demand” and “platform AND marketplace.” This tool helped in finding information about the smaller privately owned platform startups. This information was also cross referenced with the publically available list of unicorn companies maintained by CB Insights.¹⁶

Data for the publically traded platform companies was obtained through Thomson Reuters Eikon financial database.¹⁷ This database provides detailed information on market capital, the number of employees and other information about publicly traded companies.

The preliminary results of the regional platform survey were presented at the Platform Strategy Research Symposium, held on July 9, 2015, at Boston University Questrom School of Business.¹⁸ This meeting was attended 40 of the world’s leading scholars and professionals focused on platforms. This meeting resulted in valuable feedback, which was used to further refine the companies selected for inclusion in the global data set.

Further iterations with the core survey team produced a final global list of 135 platform companies. These companies were then coded for platform type, location, industry, and other useful parameters.

¹⁴ For a description of the project see: <http://thecge.net/category/research/the-emerging-platform-economy/>

¹⁵ For details regarding the Quid Web Intelligence tool see: <http://quid.com/product/>

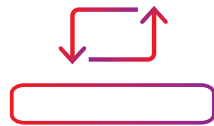
¹⁶ More on CB Insights and its approach to identifying unicorn companies can be found at <https://www.cbinsights.com/blog/private-company-financing-data-sources-cruncher/>

¹⁷ See: <http://thomsonreuters.com/en/products-services/financial/trading-platforms/thomson-reuters-eikon.html>

¹⁸ Platform Strategy Research Symposium, Questrom School of Business, Boston, July 9, 2015. <http://questromworld.bu.edu/platformstrategy/>

5. Platform Typology

While platforms have common underlying dynamics these are expressed differently as firms organize and apply them in the market. As a result, it makes sense to separate platform companies into four types: transaction platforms, innovation platforms, integrated platforms and investment platforms. We define each of these platforms types as follows:



Transaction platforms

A transaction platform is a technology, product or service that acts as a conduit (or intermediary) facilitating exchange or transactions between different users, buyers, or suppliers.



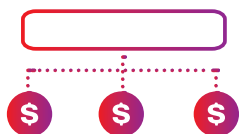
Innovation platforms

An innovation platform is a technology, product or service that serves as a foundation on top of which other firms (loosely organized into an innovative ecosystem) develop complementary technologies, products or services.



Integrated platforms

An integrated platform is a technology, product or service that is both a transaction platform and an innovation platform. This category includes companies such as Apple, which has both matching platforms like the App Store and a large third-party developer ecosystem that supports content creation on the platform.



Investment platforms

Investment platforms consist of companies that have developed a platform portfolio strategy and act as a holding company, active platform investor or both.

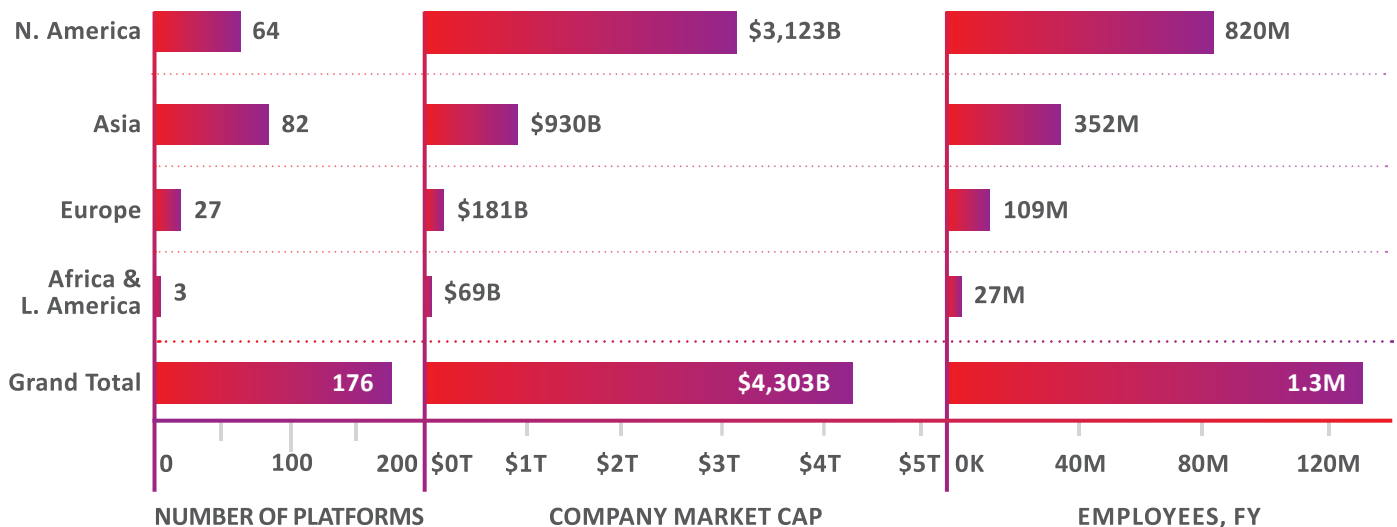
6. Survey Results

The project identified a total of 176 platform companies. The list includes large publically traded companies as well as smaller private companies, such as Uber and Airbnb that have burst onto the scene in the past few years. The total value of these companies exceeds \$4.3 trillion demonstrating the size and scale that platform companies have achieved in recent years.

The location and value of platform companies vary substantially across the world. Asia now has the largest number of platforms with 82. This is followed by N. America with 64. However,

while Asia has a larger number, the value of the platform companies in N. America is collectively much larger. N. America has over 72 percent of the value compared to 22 percent for Asia. Surprisingly, while Europe has emerged as a major consumer of platform services, it has generated relatively few platform companies. Only 27 or 15 percent of the platforms hail from Europe and collectively they represent a little over 4 percent by market value. Africa and Latin America have produced a number of platforms, but so far they tend to be relatively small and therefore only three meet the threshold set by this global survey.

PLATFORM COMPANIES BY REGION



SOURCE: Global Platform Survey, The Center for Global Enterprise, 2015

FIGURE 2

The employment impact of platform companies is substantial. The publicly traded platforms directly employ at least 1.3 million. However, this is not a full picture of platform employment. A complete accounting of information on privately owned platform companies is not available and so the employment figures presented here only cover the publicly traded platform companies. The omission is likely to be marginal since the private platforms make up a relatively small proportion of the market value of the survey list (approximately 10 percent by market value). It was also not possible to obtain complete information on the indirect employment effects even though this figure is likely to be quite large

since implicit in a platform business is the idea of building vibrant third-party ecosystems. For example, the software platform SAP boasts more than 13,000 partners around the world.¹⁹

The following sections provide additional details revealed through this survey. We will review in more detail the geography of platform companies by headquarter location, the number and size of publicly traded platform companies compared to privately owned startup companies; the distribution of platform companies by types (transaction, innovation, integrated and investment); as well as the industry sectors where platforms are found.

Headquarters Geography: Platforms by Country and City

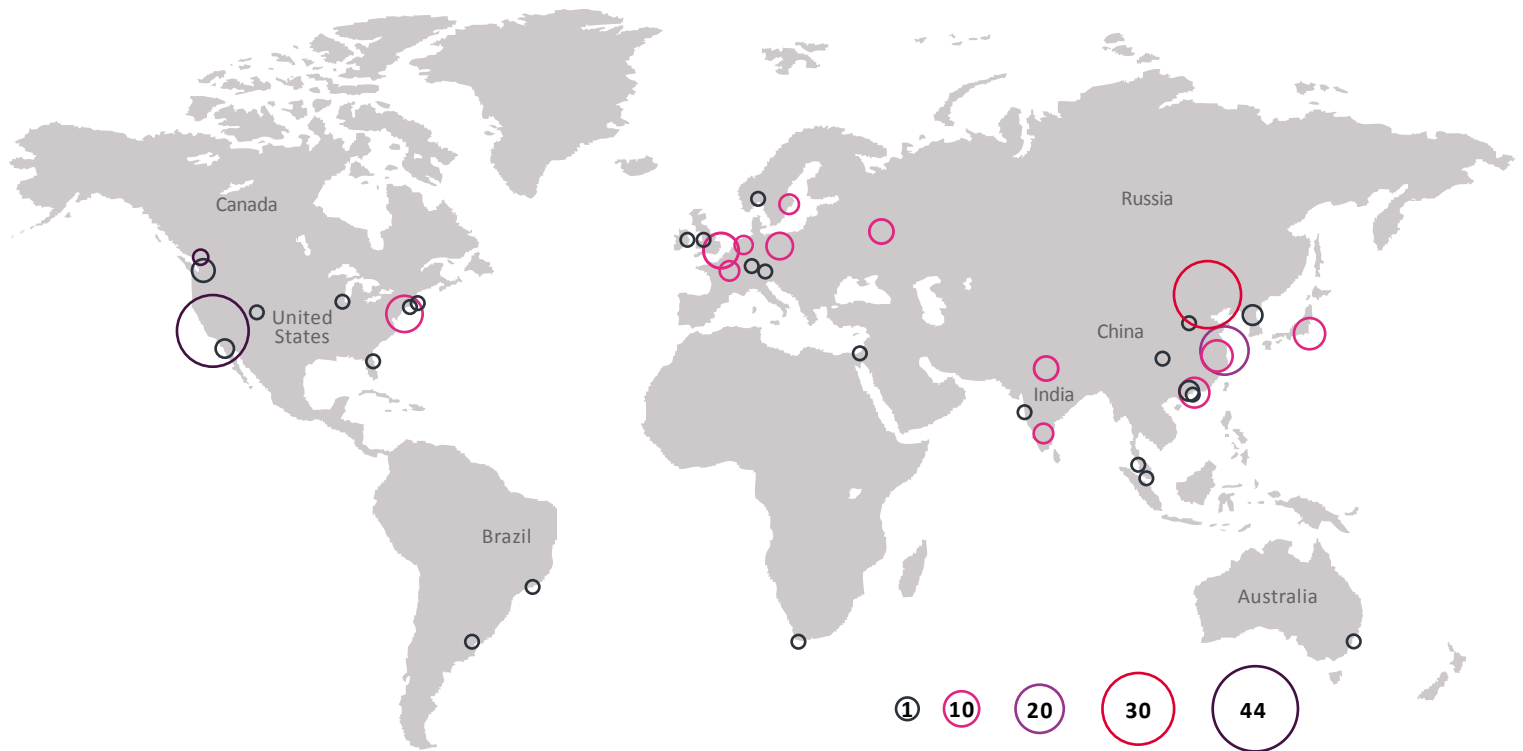
Platform companies are now found throughout the world. The survey identified platforms from five regions and 22 countries. As noted above, Asia now has the largest number of platform companies. Within Asia, China dominates with 64 platform companies. India has 8 and Japan 5. The remaining Asian platforms are split between South Korea, Australia, Malaysia and Singapore. In the case of N. America, 63 platforms are based in the United States and one in Canada. In the case of Europe, there is a total of 27 platform companies found across 10 countries. The UK has the largest number with nine followed by Germany with five, Russia with three, and France, the Netherlands and Sweden with two each. The remaining four European platforms are located in Ireland, Israel, Luxembourg, and Norway, respectively. The survey also revealed two platform companies in Latin America with one based in Argentina and Brazil. The one Africa-based platform that made it on the list is based in South Africa.

Another perspective is to look beyond the regional level to the cities there the platforms are based. The highest concentration of platform headquarters is found in the San Francisco Bay Area.²⁰ A quarter of the platforms (44) in this survey have their headquarters based within the Bay Area. The second highest concentration of platforms is Beijing with a total of 30. Shanghai has a total of 15 followed by London and New York with 8 apiece. The Chinese cities of Hangzhou, southwest of Shanghai and Shenzhen near Hong Kong have spawned from 5 to 6 platform companies. Other cities that have a cluster of platforms ranging from three to five include Tokyo, Berlin, New Delhi, Seattle, Bangalore, Moscow and Nanjing. Six cities have two platforms including Amsterdam, Guangzhou, Moscow, Paris, Seoul and Stockholm. The remaining 22 cities host one platform headquarters.

¹⁹ CJ Arlotta, "SAP Global Partner Summit 2015: 'Value Drives Volume,'" *Talkin'Cloud*, May 4, 2015 available at <http://talkincloud.com/cloud-computing-events/05042015/sap-global-partner-summit-2015-value-drives-volume>

²⁰ Given the close proximity, cities around the San Francisco Bay Area include, Cupertino, Los Gatos, Menlo Park, Mountain View, Oakland, Palo Alto, Redwood City, San Jose, Santa Clara and Sunnyvale.

GEOGRAPHY OF PLATFORMS: CITIES BY NUMBER OF COMPANY HEADQUARTERS



SOURCE: Global Platforms Survey, The Center for Global Enterprise, 2015

FIGURE 3

TOP 10 CITIES BY PLATFORM HEADQUARTERS

RANK	HQ CITY 2	Country	Region	No. of Platform Companies	Company Market Cap
1	San Francisco Bay Area	Country	N. America	44	\$2,229B
2	Seattle	US	N. America	4	\$767B
3	Beijing	US	Asia	30	\$246B
4	Hangzhou	China	Asia	6	\$242B
5	Shenzhen	China	Asia	5	\$191B
6	Tokyo	Japan	Asia	5	\$109B
7	Walldorf	Germany	Europe	1	\$97B
8	Cape Town	S. Africa	Africa	1	\$63B
9	Norwalk	US	N. America	1	\$62B
10	Shanghai	China	Asia	14	\$55B

SOURCE: Global Platform Survey, The Center for Global Enterprise, 2015

FIGURE 4

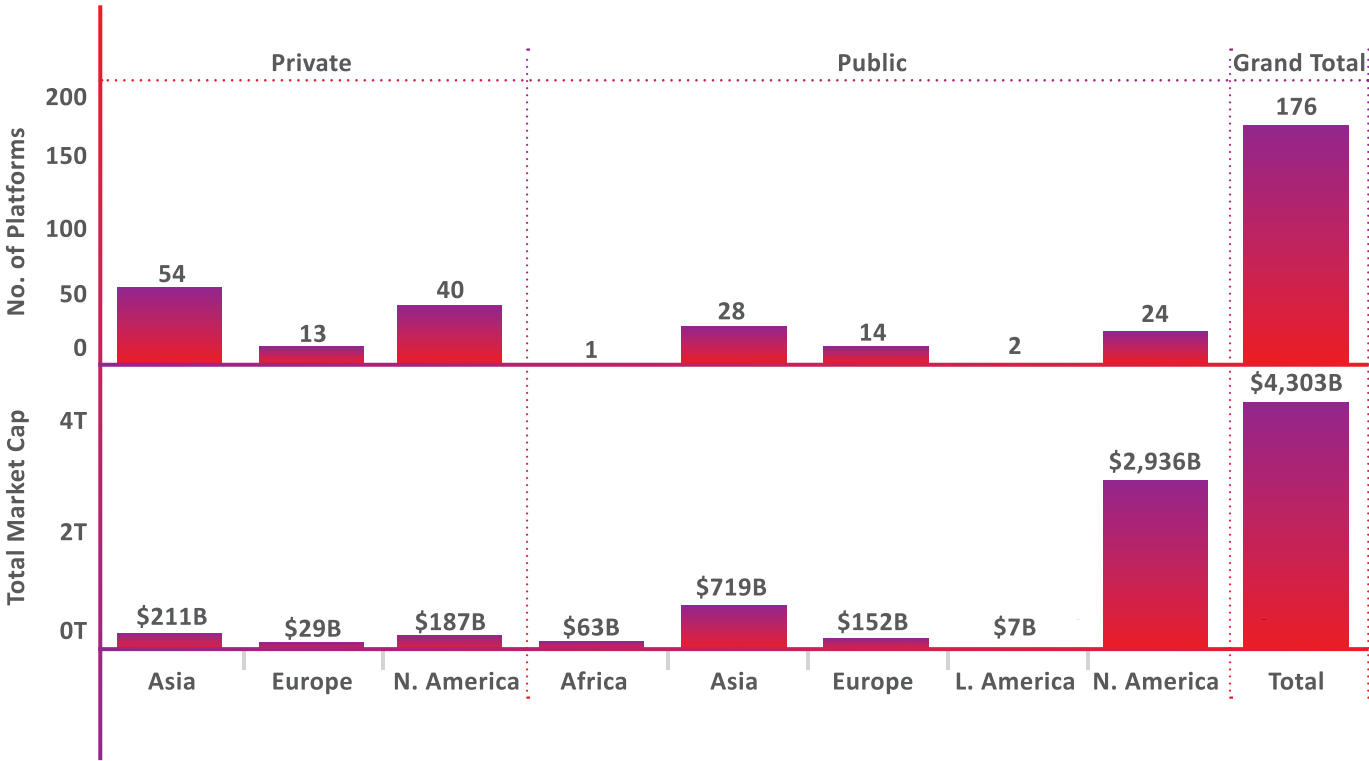
A different perspective is gained by examining the aggregate market cap of the platform companies surveyed in this study. The platform companies found in the Bay Area have a collective market cap of \$2.2 trillion dollars or 52 percent of the value of all the companies surveyed. Seattle ranks second with four platform companies worth \$767 billion. Chinese cities also rank highly with four cities making populating the top 10 list: Beijing No. 3; Hangzhou No. 4; Shenzhen No. 5 and Shanghai

No. 10. Tokyo's five platform headquarters place it No. 8 in market cap. The only European city to make the top 10 is Walldorf, Germany, which is the home for the software company SAP. Norwalk and Cape Town make the list are a result of Priceline and Naspers, respectively. While New York and London host a relatively large number of platform companies, the market value of the companies is not large enough to place either city in the top 10.

Ownership Structure: Public vs. Private Platforms

Both publicly-traded and privately held platforms satisfied the criteria to be included in the global platform survey. A careful review of companies across Africa, Asia, Europe and North America revealed a total of 69 public companies and 107 private companies. While private companies are more numerous, most are relatively young companies and have recently passed the \$1 billion market in valuation. Collectively, private platform companies have an estimated market value of just shy of \$300 billion. As illustrated in Figure 5, 54 of the private companies were founded in Asia, 40 in N. America and 13 in Europe. Public platform companies are fewer in number but typically run much larger operations. The 69 public companies have a collective market value of \$3.9 trillion. Figure 5, shows that 28 of the public companies are based in Asia, 24 in N. America, 14 in Europe and two Latin America and one in Africa.

PLATFORM OWNERSHIP STRUCTURE: PUBLIC VS. PRIVATE



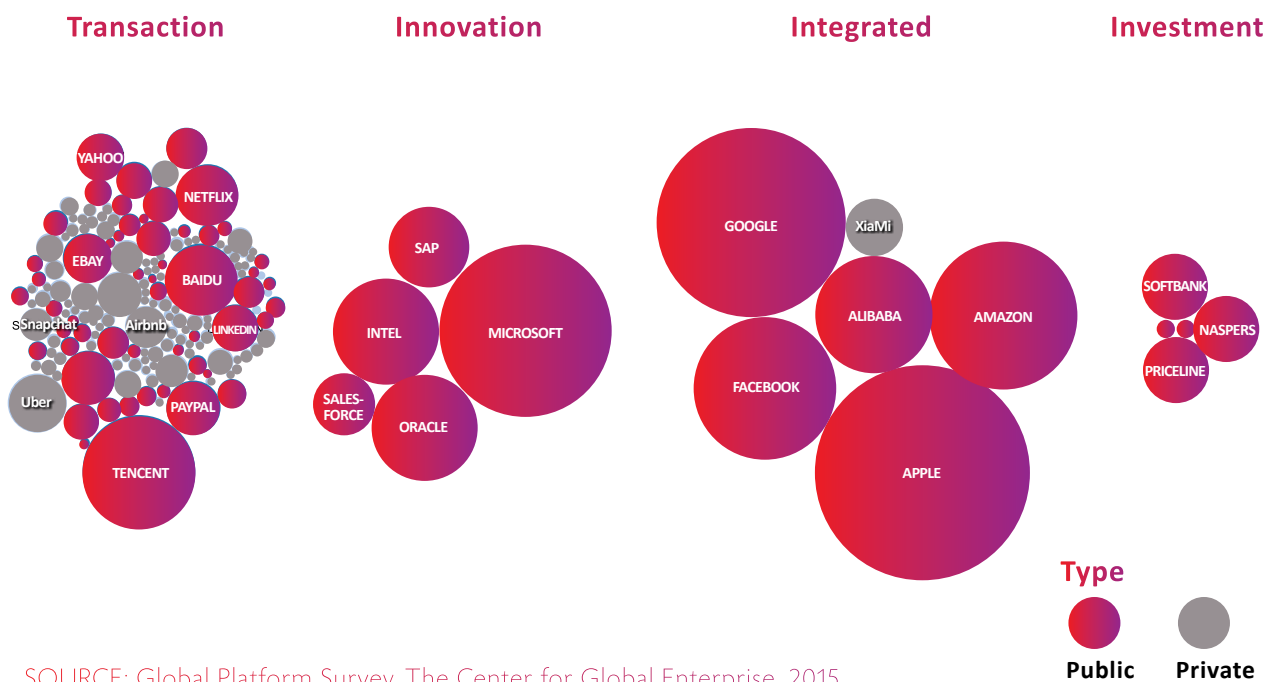
SOURCE: Global Platform Survey, The Center for Global Enterprise, 2015

FIGURE 5

Platforms Types

As noted at the outset, platform business models and the network effect are manifested in four types: transaction platforms, innovation platforms, integrated platforms and investment platforms. As shown in Figure 6, most of the companies in the survey are transaction platforms. There are 160 transaction platforms with a total market cap of \$1.1 trillion. Interesting, nearly all the private companies are transaction platforms, whereas a nearly a quarter of the publically traded platforms fall into this category. Platform enterprises in this category include social media platforms, marketplaces, media, music, money, financial technology (fintech) and gaming.

PLATFORM COMPANIES BY TYPE



SOURCE: Global Platform Survey, The Center for Global Enterprise, 2015

FIGURE 6

Note: Each bubble represents a company sized by market cap as of December 1, 2015

There are five innovation platforms, which have a total market cap of \$911 billion. This category includes companies with large third party developer networks: Microsoft, Oracle, Intel, SAP and Salesforce. These companies, which are all U.S.-based except for SAP, derive much of their value and innovation by co-creating products and services with other firms in their platform ecosystems. Studies of SAP, for example, show that partnership programs that encourage complementary invention and leveraging indirect network effects generate significant value.²¹

There are six platform companies that make up the integrated platform category. These companies—Apple, Google, Facebook, Amazon, Alibaba and XiaoMi--have a market cap of \$2 trillion. The companies in this category combine aspects of transaction platforms in that they facilitate double-sided markets and integrated platforms in that they govern sizable third party developer networks. In contrast to most platform companies that have few assets, they may have manufacturing supply chains such as Apple with its family of computers, tablets and smartphones or large physical fulfillment

facilities as is true for Amazon and Alibaba. These companies have multiple platforms and, therefore, can also be considered platform conglomerates. For example, Alibaba now operates 10 platform businesses including Taobao.com, Tmall.com, Aliyun.com, and Cainiao. Likewise, Google, in addition to its primary search and targeting advertising has moved into other areas like home automation and energy demand response with its acquisition of Nest Labs.

Finally, there are five companies that make up the investment platform category. This category includes Priceline Group (U.S.), Softbank (Japan), Naspers (South Africa), IAC Interactive (U.S.) and Rocket Internet (Germany). While it can be argued that these companies are not platforms per se, they have a clear strategy of early stage investment in platform companies, acting as a holding company for a portfolio or a combination of both. For example, the Priceline Group includes Booking.com, Priceline.com, Kayak.com, rentalcars.com, and OpenTable. SoftBank, which began as a telecom company has diversified into platforms with large stakes in Yahoo! Japan, Alibaba Group and GungHo Online. More recently, SoftBank has invested in Indian platforms OlaCabs, Snapdeal, and Housing.com. Naspers, which made an early, highly successful bet on the Chinese platform Tencent, is now diversifying with investments in over 30 platforms. Its investments around the world include such companies as OLX and PayU (Global); Allegro, Fashion Days, Ceneo (Central and Eastern Europe), Konga and Souq (Africa and North Africa) Latin America and Redbus, Myntra and Flipkart (India).²²

The most recent investment platform company to emerge, Rocket Internet, has a bold goal of becoming the world's largest Internet platform outside the United States and China.²³ To this end, the company set out to build a portfolio of companies in underserved or untapped markets through regional investment groups focused on Africa, Asia, Latin America, and the Middle East. For example, the Africa Internet Group, Rocket's investments arm in Sub-Saharan Africa, spans e-commerce (Jumia), fashion (Zando), real estate (Lamudi), hotel bookings (Javago), jobs market (Everjobs), and ride-sourcing (Easy Taxi). To support rapid growth, the company has adopted standard business processes that enable repeatability and common IT infrastructure across the portfolio of companies in which it invests.

While the investment platforms each have a different strategic focus they have the advantage of providing back-end infrastructure and the front-end user experience across the brands that they hold. They also promise if not to eliminate then at least reduce the classic tension that multinational companies face between providing global consistency and efficiency while at the same time being able to tailor services to local tastes and requirements. A portfolio approach also offers a way to more efficiently share best management practices, business model innovation, as well as grow a specialized talent pool. In case of the latter, Rocket Internet has established an entrepreneur-in-residence program designed to create a pipeline for management talent not only geared specifically to platform management but also to cultivate talent with exposure to diverse work environments across multiple countries.²⁴ Over a period of 6-18 months, the program rotates promising candidates to early-phase platform startups and gives them exposure to a variety of key functional roles such as online marketing, product development, supply chain management and operations.

²¹ Marco Ceccagnoli, Chris Forman, Peng Huang, and D. J. Wu. "CO-CREATION of value in a platform ecosystem: The case of enterprise software." *MIS Quarterly*, Vol. 36, No. 1, 2012.

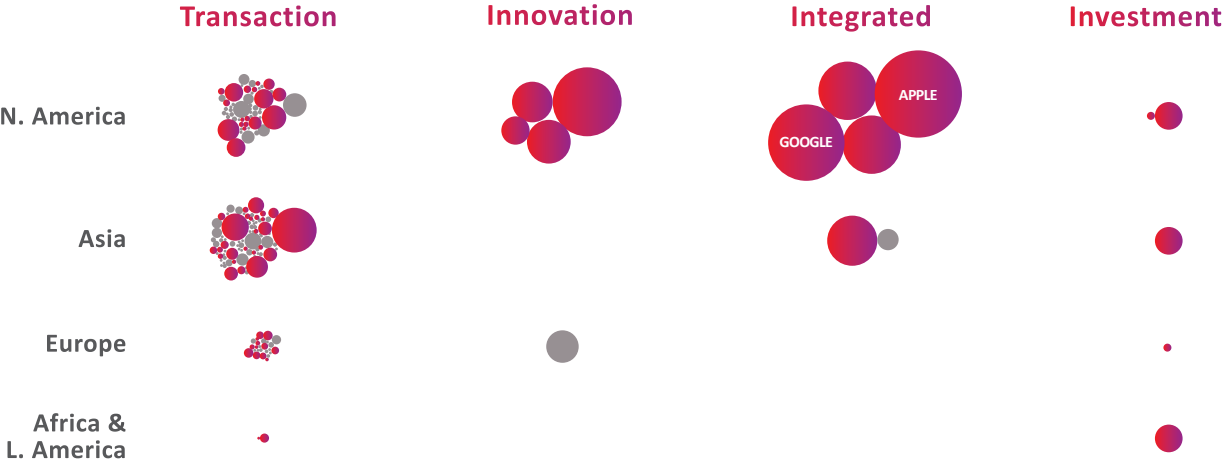
²² Naspers Group Profile <http://www.naspers.com/where-we-operate.html>

²³ See Rocket Internet's homepage, which states: "Our Mission: To Become the World's Largest Internet Platform Outside the United States and China": <https://www.rocket-internet.com/>

²⁴ Rocket Internet, Entrepreneur in Residence program <http://rocketinternet.theresumator.com/apply/hfIMeG>

Additional insight on global platform dynamics can be gained by segmenting the four types of platforms by the five major regions examined in this survey as shown in Figure 7. There is significant variation across the regions. Asia leads in the number of transaction platforms with over half the world’s total by market cap, driven by the growth of ecommerce in China, Japan and most recently India. N. America follows with 39 percent. While Europe is a large and growing location for transaction platforms our survey revealed that only 7 percent are headquartered in Europe. What N. America may lack in transaction platforms it more than makes up for in innovation and integrated platforms. It dominates the world with 88 percent and 89 percent of the platform identified in this survey. Perhaps due to its focus on manufacturing over software and nurturing extensive software developer ecosystems, Asia lacks innovation platforms. Europe was found to have 11 percent of the innovation type platforms but no integrated platforms. Latin American and Africa are very small representing 1% or less of the platforms by number and market cap.

PLATFORM COMPANIES BY TYPE



SOURCE: Global Platform Survey, The Center for Global Enterprise, 2015

FIGURE 7
 Note: Each bubble represents a company sized by market cap as of December 1, 2015

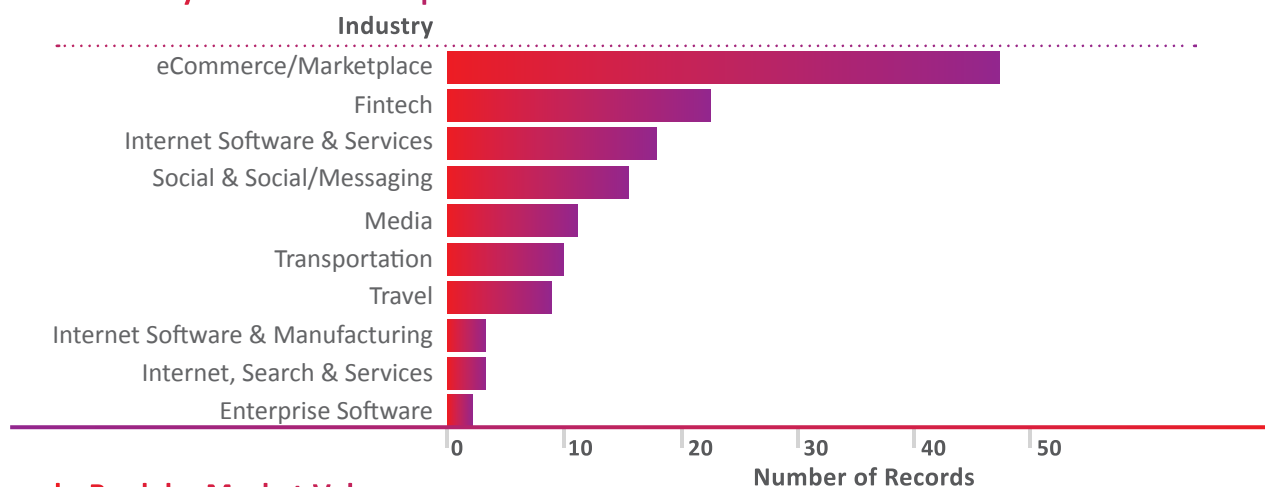
In what sectors are the top platform companies most active? There are different ways to answer this question. One way is to rank them by the number of platforms operating in the sector. Another is rank them by market value within the sector.

If we apply the first approach and limit the sample to the top 10 sectors, we find that ecommerce comes in first place followed by fintech and internet software & services. There are also a significant number of social networking, media companies. Rounding out the top ten are transportation, travel real estate, adtech and mobile related platforms.

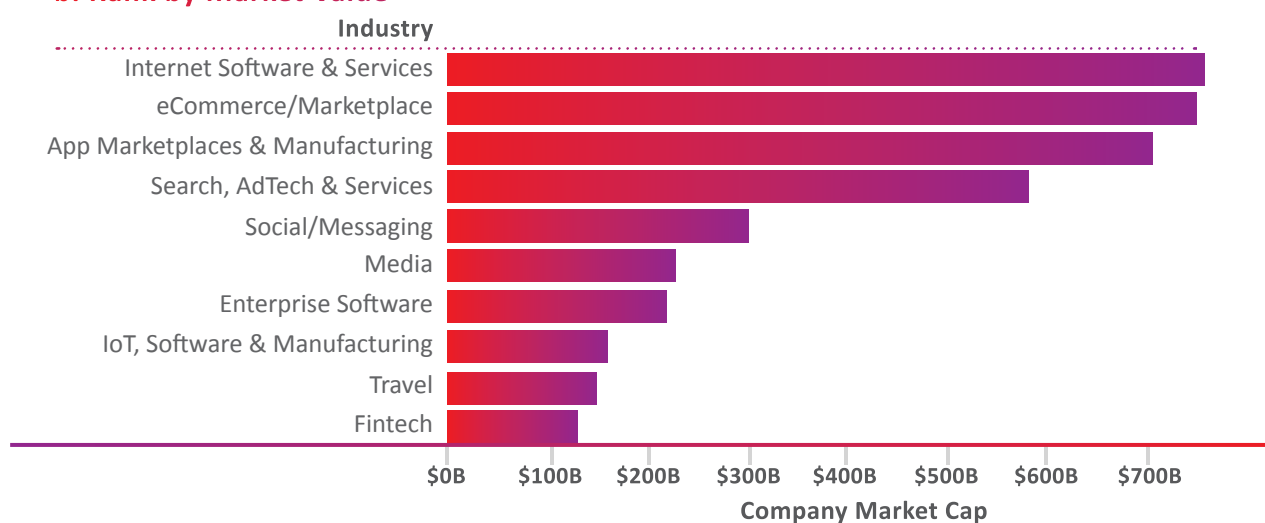
If, by contrast, we rank sectors by market cap then a different picture emerges. Internet software & services rises to the top as a result of the size of companies like Microsoft, Tencent and SAP. Second is ecommerce through the weight of companies like Amazon and Alibaba. Ranked third are device manufacturers with large app marketplaces and developer networks like Apple and XiaoMi. In the middle ranks, 4th, 5th and 6th are companies that offer either search, adtech, social and/or media, such as Google, Facebook, Yahoo! and Naver. Enterprise software ranks 7th and Internet of Things (IoT) and chip manufacturing come in 8th. Rounding out the list at 9 and 10 respectively are travel and fintech companies.

TOP 10 SECTOR RANK BY MARKET VALUE AND BY NUMBER OF COMPANIES

a. Rank by Number of Companies



b. Rank by Market Value



SOURCE: Global Platform Survey, The Center for Global Enterprise, 2015

FIGURE 8

Some sectors one might expect to be represented are largely absent from the global survey. Two that stand out are workplace and healthcare. This is surprising given the amount of attention given to platforms in both sectors. Some see the future of work increasingly shaped by the ability of freelancers to efficiently identify work on one side of the market and firms and individuals on the other side to identify needed skills at a reasonable cost. By some estimates, there are as many as 300 workplace platforms operating around the world such as Upwork, Freelancer, Guru, Witmart, TaskRabbit, Fiverr, and Gigwalk.²⁵ However, inherent fragmentation by type of work and by geography may have caused a lack of scaling which has limited the potential of businesses operating in this space to achieve valuations of \$1 billion or more.

A similar situation holds for connected health platforms. A combination of falling costs and improvements in online video conferencing, rising demand for solutions to spiraling healthcare costs and changing insurance reimbursement policies have contributed to a growing number of connected

²⁵ Andrew Karpie, "The Future of Talent Acquisition in the Emerging Platform Economy," The Research Platform blog, September 23, 2015. <http://blog.theresearchplatform.com/?p=2969>

health platforms. There has been a surge in startups--MDLive, America Well, Doctor.com, 1DocWay, Specialists on Call, NuPhysicia are some of the companies that have responded. Some, such as Teladoc, have successfully gone public.²⁶ However, like workplace platforms, none of these firms have yet achieved significant size and scale. As a result, no healthcare platforms met the threshold to be included in this global survey.

7. Incumbent Company Platforms

The global platform survey has focused on companies that are either pure play platforms or mixed companies that may have manufacturing facilities such as Apple or large physical fulfillment centers such as Amazon. It would be naive to expect incumbent firms to stand still in the face of disruptive platform competition. Indeed, they are not. We are beginning to see incumbent firms across a wide range of sectors move to establish their own platforms. While a comprehensive survey was not undertaken, a few examples illustrate the growing trend.

Incumbent firms have taken several approaches to building platforms. One approach has been organic. Johnson Controls provides one example of an effort to build a platform from scratch. In 2012, the company announced Panopix, an apps marketplace intended to help commercial building owners and operators save energy and money.²⁷ The objective has been to establish an open platform, cloud-hosted app store similar to the innovation platform found in the consumer area but targeted at the managers of commercial buildings. The applications and analytics apps offered are designed to identify ways to improve energy savings and building performance. Apps developed by third parties are made available through a subscription-based model. The Panoptix platform provides a new channel to provide applications that enhance the existing portfolio of Johnson Controls building and energy management services as well as leverage the innovation of third-party developers.

Another approach has been to build platform capabilities through acquisitions. One of the first movers in the transportation sector is Daimler. In 2014, the automaker made two acquisitions aimed at building out platform capabilities that enhance the company's ability to expand from manufacturing to offering a broader array of mobility solutions.²⁸ It purchased US-based RideScout, a transaction-based platform that aggregates transportation and parking options permitting search and comparison of options in real time. It also acquired the German-based MyTaxi, a ride-sourcing platform similar to Uber, founded in 2009, which had grown in a few short years to 7 million downloads and 35,000 connected vehicles. These purchases gave Daimler a larger transaction based platform presence in the U.S. as well as 40 German cities along with, Madrid, Barcelona, Warsaw, Vienna, Graz, Salzburg, and Zurich.

Finally, some incumbents have focused building platforms through alliances as a way to build out their installed base of users as quickly as possible. One example is the drugstore retail company Walgreens. In June 2015, the company announced it was partnering with MDLIVE to extend telehealth visits to patients living in Colorado, Illinois and Washington state. MDLIVE operates a transaction-based platform that connects patients with board-certified physicians for web-based consultations. By tapping a large network of doctors, it is available

²⁶ Jim Landers, "Dallas-based Teladoc launches successful IPO," *Dallas Morning News*, July 1, 2015.

²⁷ Jennifer Kho, "Johnson Controls opens energy-efficiency app marketplace," *GreenBiz*, November 13, 2012.

²⁸ Katie Fehrenbacher, "Daimler acquires transportation apps RideScout and myTaxi," *Gigaom*, September 3, 2014.

twenty-four hours a day seven days a week via desktop, tablet or smart phones. The two companies announced a goal of jointly establishing telehealth capabilities to 25 states by the end of 2015.²⁹

It is not only incumbent North American and European firms that are developing platform strategies. Innovation is also taking place in emerging markets. In India Chennai based Apollo Hospitals is building out a platform to support digital healthcare delivery.³⁰ Apollo Hospitals, which owns or manages 51 hospitals and approximately 8,500 beds, has launched Ask Apollo, a connected health platform to facilitate remote patient care.³¹ Likewise, device makers

such as Samsung and Xiami are looking at actively building more platforms to shift from a position of providing devices to companies managing platforms to establishing their own platform. In a move to reduce its dependency on Google's platform Samsung has begun an effort to build out its own platform called Tizen. This platform consists of devices including netbooks, tablets, TVs, and intelligent vehicle systems and an operating system to power and integrate them. It also involves building out an app store and creating incentives for third party developers to creating high-quality apps that attract a large user-base.³² Integrated platforms bring together features of transaction platform and the innovation platform.

8. Platforms and the Enterprise

The observations above highlight that there are important variations in how platforms relate to the firm and the firm to the platforms they manage. These relationships can be grouped into one of three types. The first are the asset heavy platform enterprises. As discussed above these are typically incumbent companies that operate traditional hierarchal organizations with significant physical assets and often a large number of direct employees.

The variation in the relationship between platforms and organizational structure of the enterprise opens up a variety of important management questions. One concerns the ability of asset-heavy incumbent firms to successfully launch platforms. This will depend in part on the ability of incumbents to master the more demanding governance requirements than found with most business models. Governance considers who has access to the platform, how to

divide value, and how to resolve a conflict. The goal is to arrange complementors and consumer rules to maximize ecosystem profits. Policies must ensure value creation and also high quality of participation on the platform. At the same time, the right mix of incentives is required to encourage joining and good behavior. All of this must be done recognizing that the platform leader is orchestrating free agents rather than directing employees in a hierarchical command-and-control structure.³³

Approaches to platform governance must also consider the way value is created. While traditional business models would incent managers to maximize the price of each product or services, different approaches are needed to manage platform. Greater value may be created by offering low or even offering products or services for free to one side of a market if it can attract the participation of another valuable customers.

²⁹ Rajiv Leventhal, "Walgreens, MDLIVE announce expansion of telehealth platform," *Healthcare Informatics*, June 19, 2015.

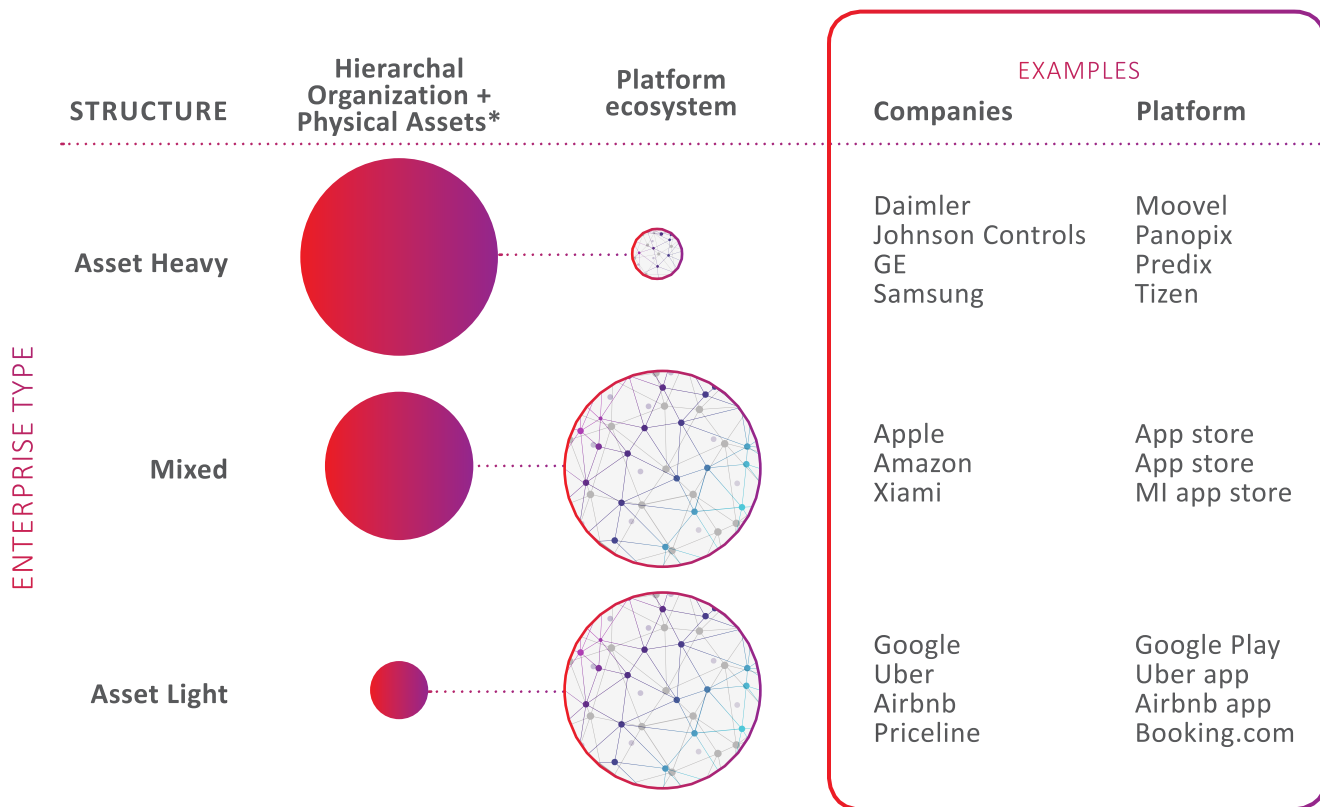
³⁰ Sneha Jha, "How Arivind Sivaramakrishnan is driving the digital agenda at Apollo Hospitals," *The Economic Times India*, ETCIO.Com, May 18, 2015.

³¹ Apollo Hospitals launches Ask Apollo - a first of its kind medical platform in the country for remote patient care, October 19, 2015. <https://www.apollohospitals.com/news/apollo-hospitals-launches-ask-apollo-a-first-of-its-kind-medical-platform>

³² Dean Quinn, "Tizen: The operating system that could thwart Android?" *Techradar*, January 21, 2014.

³³ Geoffrey Parker, Marshall Van Alstyne and Sangeet Paul Choudary, *Platform Revolution, How Networked Markets are Transforming the Economy*, W. W. Norton & Co. forthcoming.

PLATFORM BY ENTERPRISE TYPE



SOURCE: Authors, 2015

FIGURE 9

* Includes HQ, other rooftops, retail outlets, manufacturing plants, service shops, etc.

Pursuing broader ecosystem profits over specific products and services may only be achieved with significant changes to managerial incentives and organizational culture.

The asset-light platforms face a different set of challenges. Once early stage chicken and egg issues of establishing a platform are overcome, a platform can grow very quickly. Rapid growth can outstrip the business processes, expertise and other key elements that make up the firm’s organizational capital. The asset-light companies face the challenge of building organizational capital across the wider ecosystem that they do not fully control. The risk is underinvestment in intangible assets that are needed to support governance. The risk is that the asset light

platforms focus too much on software systems and technical talent at the expense of investing in the development of a broader array of human talent and values and norms. The challenge is that this is not easy achieved when it must be accomplished outside conventional organizational boundaries³⁴

The mixed enterprises sit somewhere in the middle. They typically have large traditional enterprises with significant manufacturing, supply chains, and other assets that they must manage. At the same time, they also have large platforms to govern. These mixed enterprises face the challenge of blending the traditional operations and optimization with traditional controls points while also managing large ecosystems where ownership and control points are more diffuse.

³⁴ Baruch Lev, Suresh Radhakrishnan and Peter C. Evans, “Organizational Capital: A CEOs Guide to Measuring and Managing Enterprise Intangibles”, The Center for Global Enterprise, New York, NY, January 2016.

9. Conclusion and Outlook

This global survey of platform companies has yielded a number of important insights. One regards the sheer scale of these companies. With a total market value of \$4.3 trillion and an employment base of at least 1.3 million direct employees and millions of others indirectly employed, platforms have become an important economic force. Platform companies are now clearly a global phenomenon. They are found not only in advanced industrial markets, but throughout the entire world thanks to the growing availability of mobile digital technologies. Not only are platform companies starting in all corners of the world with established hubs in places like Hangzhou, China, Bangalore, India and Cape Town South Africa, but a growing number of platforms are expanding beyond their home countries. Indeed, many platforms are best recognized as the multinational enterprises that they have become with large global footprints.

As we have explained, not all platforms are the same. They come in different types, including transaction, innovation, integrated and investment platforms. This survey shows that the integrated platforms, while small in number, have become dominant. Indeed, this is not lost on platform executives. We see signs that both transaction and innovation platforms are evolving towards trying to become integrated. It is the ability to facilitate efficient transactions coupled with large developer ecosystems that build complements on the platform.

The survey reveals the significant disparity between regions. While North America and increasingly Asia are home to a large and diverse group of platform companies, Europe is significantly lagging behind. This finding leads to further important questions about what are the right conditions for starting and growing platforms. The lead of the US platforms, together with the aggressive growth of Indian and Chinese platforms, indicates that beyond the well-documented availability of venture capital in the US stemming in particular from the Silicon Valley, it is the access to a large demand and the associated possibility of scaling that differentiates the regions that have given birth to flourishing platforms and those that do not. In addition, the rise of home-grown platforms has been facilitated in large markets such as China, by local regulation that effectively close off their markets to foreign platforms (invoking censorship and other restriction but sometimes interpreted as pure protectionism).³⁵ Some smaller countries such as Israel, which do not have access to large demand but do possess superior technological capabilities and a startup culture, have given rise to a number of successful platforms, some of which have been bought up by US platforms, as in the case of Waze being bought for over \$1 billion by Google in 2013.³⁶ More research is needed to articulate the extent to which the conditions necessary for platform emergence and growth depend on availability of capital, talent, legal institutions, large demand, and a startup or innovation culture.

The rise of platforms is creating various opportunities and challenges for regions, for nations, for industries, for companies and individual innovators. At the industry level, there is growing competition between platforms. For example, platforms that did not compete in the past are increasingly beginning to do so, for example as can be seen with Google and Amazon, with Amazon declaring in October 2015 that it will stop selling Apple TV and Google Chromecast.³⁷ There is also strong incentives to

³⁵ See Peter Schadbolt, "Play a Game, Get a Date: The social apps taking China by Storm", *CNN*, September 16, 2014. <http://edition.cnn.com/2014/09/16/business/inside-china-social-media-landscape/>

³⁶ See Peter Cohan, "Four reasons why Google bought Waze", *Forbes*, June 11, 2013.

consolidate through platform mergers and acquisitions, as we have seen in travel, ridesharing, food delivery, classifieds and several other sectors where platforms are prominent. We expect both trends continuing if not intensifying.

Not surprisingly, the rise of platforms is engendering strong reactions. As noted in this survey, a growing number of traditional firms are beginning to explore platform business models through a variety of strategies. Some are attempting to grow them organically while others are using acquisitions to speed growth. We expect these trends to intensify.

The rise of platforms worldwide is triggering reactions from governments both at the international and national level. In many cases, governments see platforms as vehicles for positive change, as spurring innovation, driving greater productivity captured through better asset utilization and the ideas of the “sharing economy.” However, in other cases they are creating challenges across a range of policy issues including labor, tax, competition, and disparities in insurance coverage.³⁸ They also highlight a discrepancy in regional and international competitiveness.³⁹ There starts to be widespread concerns (in Europe in particular) over the dominance (and the hotly contested possibility of abuse of dominance) of a few US platforms which, combined with the less-than-transparent way these are dealing with private personal data, which is likely to bring about increased regulatory scrutiny or even perhaps new regulations on digital platforms, and in the digital space in general.

Implications for Managers

At the firm level, platform companies face specific challenges, which are associated with either creating platforms from scratch as well as how to grow them and how to manage them when they become increasingly global. Some challenges faced by these firms will be common to any enterprise, but let us highlight those that are unique in which executives are writing new playbooks. Technology is central to platform design and platform business success, and building successful platform will require being at the cutting edge of building large complex IT systems, machine learning and increasingly advanced artificial intelligence. Platforms firms also face the formidable task to orchestrating complex ecosystems, and to design and develop the governance systems and organizational capital needed to make them succeed. The traditional levers of action of controlling centrally what is done within the firm or exerting power over suppliers will not be sufficient, as much of the value is created outside the traditional boundaries of the firm.

³⁷ For some early commentary on this increasing competition see: George Baroudi, “Google’s Competition is Amazon, Not Apple,” *InformationWeek*, January 24, 2014 and Seth Fiegerman, “Google’s ‘Rivalry’ with Amazon? It’s Complicated,” *Mashable*, October, 14, 2014. See also David Streitfeld and Katie Benner, “Amazon to Stop Selling Apple TV and Chromecast,” *The New York Times*, October 1, 2015.

³⁸ For example, some have complained that UberX can offer passengers low prices because it drivers are not required to purchase commercial insurance that is mandatory for cabs. See: Sean Silcoff and Jacqueline Nelson, “Insurance Bureau of Canada Pushing to Get Uber Drivers Covered,” *The Globe and Mail*, October 13, 2015.

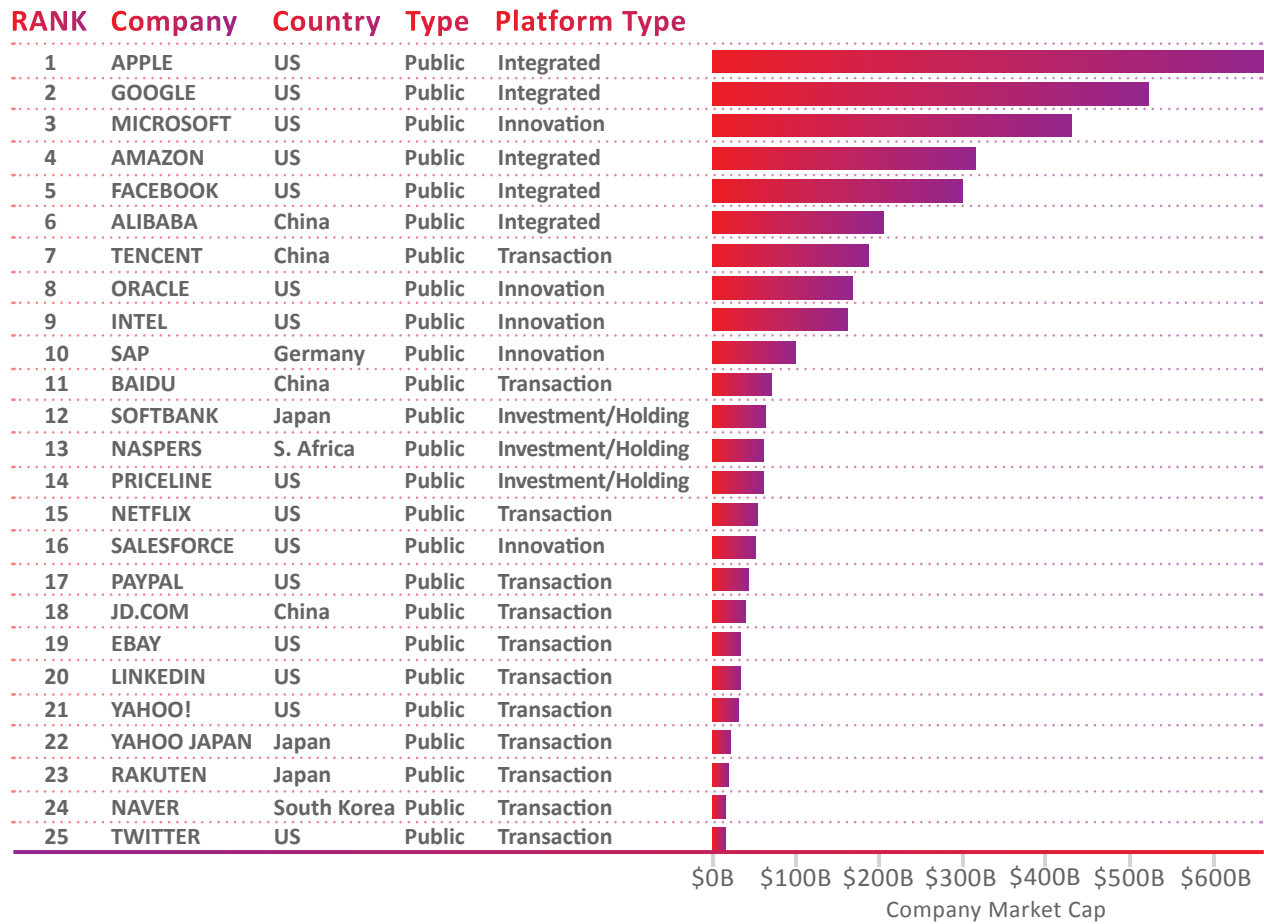
³⁹ See remarks by Günther H. Oettinger, “A Digital Single Market: The Key to Europe’s Industrial Leadership in the Digital Economy,” speech at ICT2015, October 20, 2015.

There are a few simple rules that managers need to learn when they aim to build successful platforms.⁴⁰ Managers who aim to develop new platform business models or to create new platform companies need to have a vision for what problem their platform will solve for a variety of not only consumers but also for other firms, which may develop complementary products or services, as well as for other firms or individuals who they may facilitate exchange or transactions with other members of the ecosystems. A more integrated understanding of technology and business will be fundamental to the success of platform firms, or the success of platform business units within traditional firms. Where and how to design technological interfaces, how open or closed should they be, how to price them, who will the complementors be, how to govern the ecosystems, will become as fundamental and as routine to business strategy and management as the well-honed traditional questions of product segmentation, pricing of products, management of the supply chain, and how to design distribution channels. A fundamental new capability for firms will be the ability to articulate business models not just for themselves but for members of their ecosystems, which are mutually compatible and even self-reinforcing. At the organizational level, silo-ed organizations will fare worse than those who can harness cooperation across technological divisions and business divisions. And at the level of individual skills, narrow specialists will fare worse than those who can combine technological skills and business skills.

There is clearly a rising platform economy shaping our global business landscape and affecting the lives of citizens worldwide. This new form of organization seems to be a robust – some would even say dominant -- form of business enterprise in the digital economy. This report has highlighted important patterns and insights for the global distribution of platforms, the sectors in which they appear, the geography in which they operate. It has also explained the fundamentals of the economics of platforms and has highlighted key success factors that contribute to a competitive advantage of platform firms. It has also highlighted the ways in which platforms spur innovation, and has indicated how private enterprise with the help of platforms can have a private interest in stimulating innovation by others. We have established that the governance of the platform ecosystems, combined with the design of technologies and business models which take advantage of network effects, and which allow scaling, are crucial to the success of platforms. While significant challenges lie ahead, the opportunities that platforms reveal are enormous, tapping into an unprecedented level of global Internet connectivity, and a large supply of talent and software skills, which can be tapped to develop the platforms of tomorrow.

⁴⁰See Annabelle Gawer, “What Managers Need to Know about Platforms”, *European Business Review*, Fall 2011.

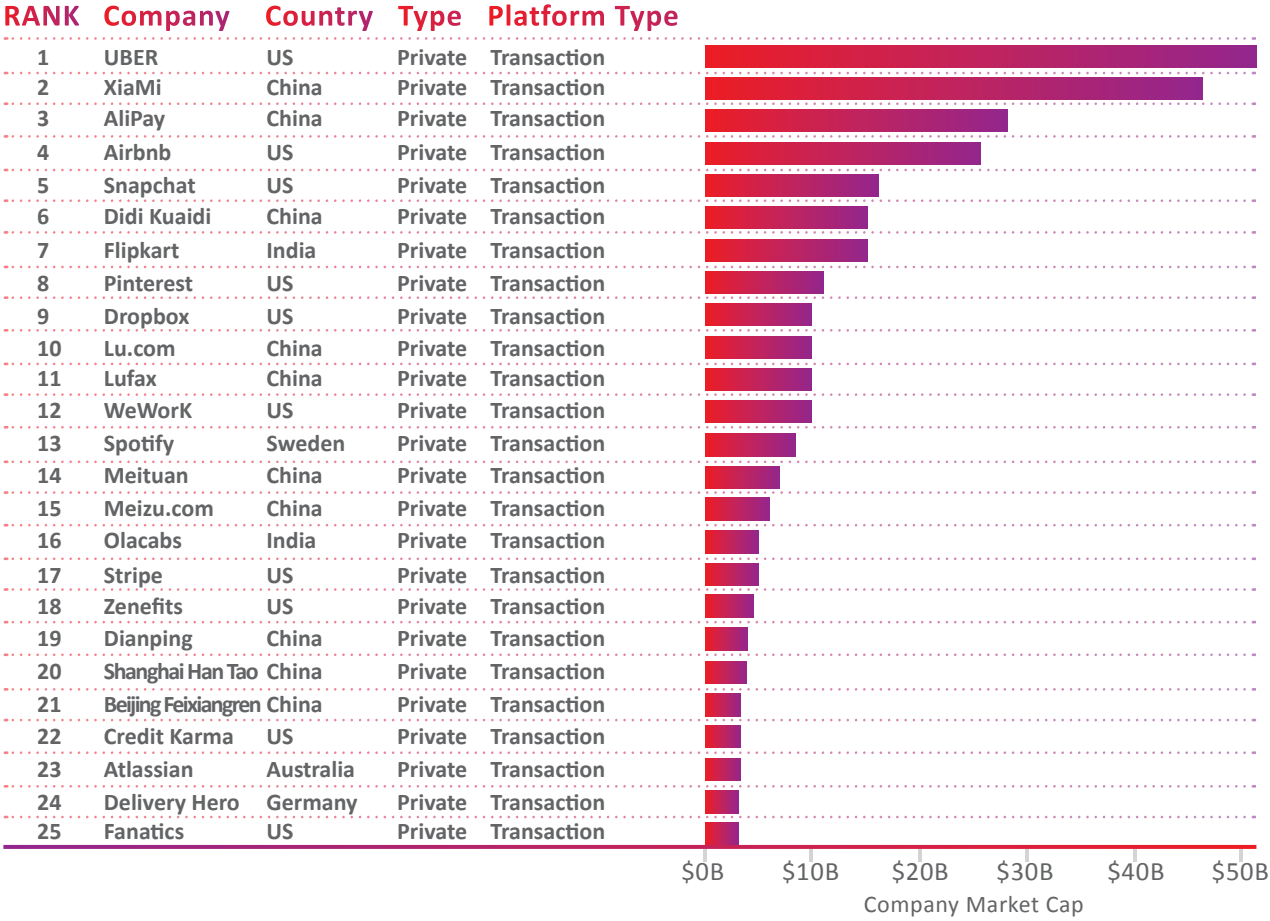
ANNEX A. TOP 25 PUBLICLY TRADED PLATFORMS



SOURCE: Global Platform Survey, The Center for Global Enterprise.

Note: A full list of the companies identified in the survey can be obtained by contacting CGE.

ANNEX B. TOP 25 PRIVATELY OWNED PLATFORMS



SOURCE: Global Platform Survey, The Center for Global Enterprise.

Note: A full list of the companies identified in the survey can be obtained by contacting CGE.

authors bios



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Peter C. Evans is the Vice President at the Center for Global Enterprise where he leads the Center's global research on the emerging platform economy. Deeply interested in the forces that are shaping the 21st Century enterprise, he seeks to bridge leading academic research with practical real-world application, particularly as it relates to corporate strategy. Prior to joining CGE, Dr. Evans held key strategy and market intelligence roles at General Electric. He was Director of GE Corporate's Global Strategy and Analytics team. He also led GE Energy's Global Strategy and Planning team for five years.

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Professor Gawer is the author of two important books *Platform Leadership*, and *Platform, Markets and Innovation*. She also authored more than a dozen articles on platforms in top international research journals including *Research Policy*, *the MIT Sloan Management Review*, *Organization Studies*, *the Journal of Product Innovation Management*, and the *Journal of Economics and Management Strategy*.

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A Global Survey

The Rise of the Platform Enterprise