



ASIA AS A TIME MACHINE TO THE FUTURE

Seven Areas Where Asia Gives Interesting Insights Into the Future

Citi GPS: Global Perspectives & Solutions

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We estimate Asia adopts new technologies 8-12 years ahead of the West, making it much like a time machine to the future.

While its infrastructure has historically been underdeveloped relative to the West's, Asia's high internet connectivity, young and increasingly affluent and urban demographics, and entrepreneurial spirit have driven the region to adopt many technologies at a faster pace. In doing so, Asia provides a glimpse of what the future could look like in more developed, Western economies.

In the report that follows, we explore how Asia acts as a time machine that can transport other regions into a new world of commerce, entertainment, and healthcare. We look specifically at seven areas — super apps, mobile payment, social commerce, short-form videos, eSports, webtoons, and digital health — that are currently essential elements in the Asia marketplace.

We hope the report provides fresh insights on current differences in technological adoption between Asia and the West as well as a potential path for how these same technologies will shape markets in the West in the future.

LOOK TO ASIA FOR THE FUTURE

TRANSFORMING COMMERCE

Early adoption of mobile technologies has enabled Asia to explore and develop new forms of digital commerce before other regions. Super apps – mobile apps that integrate multiple functions under one umbrella – have developed in Asia at a scale unseen in other regions. Asia is also ahead of the curve in an emerging area known as “social commerce.”

Super Apps

Top five super apps in Asia have over **2.8 billion** aggregate active users.




Top Chinese super app recorded **1.3 billion users** with **25%** in China spending more than **4 hours** daily on the app.

Revenue of Indonesia's top super app was equivalent to **2%** of the country's GDP in 2020.

1 in 20 people in SE Asia eat, ride, or pay with the region's top super app monthly.

Social Commerce

Includes livestreaming e-commerce, gamification, team purchase, community purchase, and shoppable content.

	Asia	U.S.
 Number of Users	>1.1bn	~100mn
 Adoption	~50%	~30%
 Market Size	>\$400bn	~\$40bn

Source: Statista, Live Mint, Campaign Asia, WEF, EIU, Insider Intelligence, Straits Research, Tinuiti

Note: Data is as of 2021 or 2022 depending on the source. APAC data used to calculate Asia adoption and market size.

Social Commerce Formats

Entertainment Driven

- Livestreaming e-commerce
- Gamification

Network Driven

- Team purchase
- Community purchase

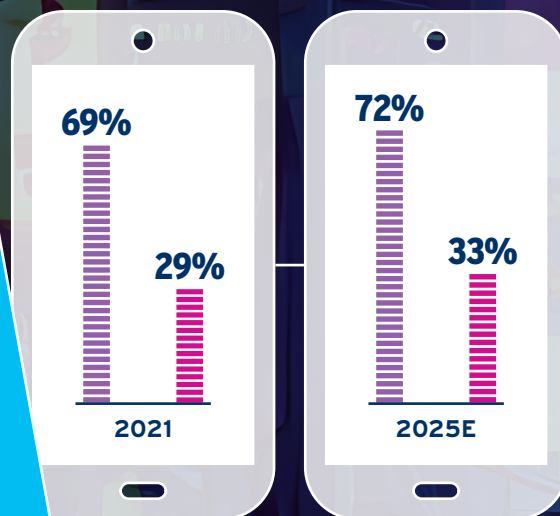
Content Driven

- Shoppable Content

Mobile Payments

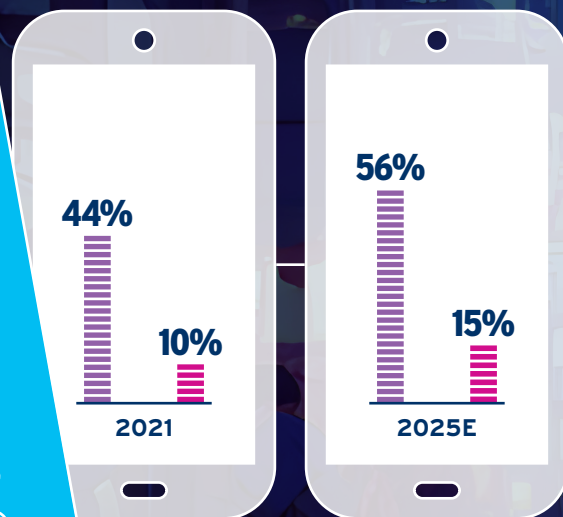
Asia is a leader in using digital/mobile wallets for e-commerce and point-of-sale (POS) payment, with North America still expected to lag in 2025.

Digital/Mobile Wallets as % of E-Commerce Payments



● Asia-Pacific ● North America

Digital/Mobile Wallets as % of POS Payments



● Asia-Pacific ● North America

Source: FIS

Note: E-commerce includes online purchases; POS includes transactions at physical points-of-sale.

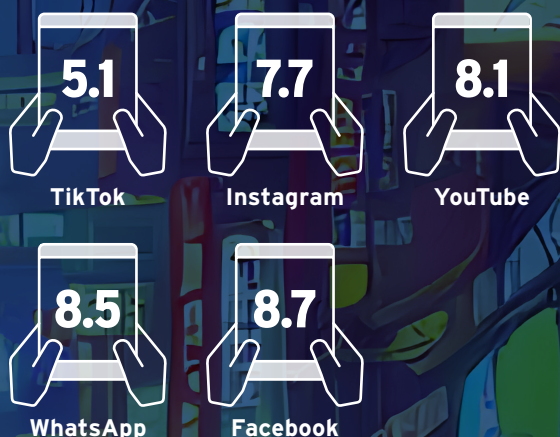
SPURRING NEW FORMS OF DIGITAL ENTERTAINMENT

Asia's mobile-first focus, combined with its strong youth culture, has opened new pathways for digital entertainment through short-form videos, eSports, and webtoons. These innovations are ushering new monetization opportunities, increasingly influencing how the rest of the world consumes media.

Short-Form Video

Years to Reach 1 Billion Monthly Active Users

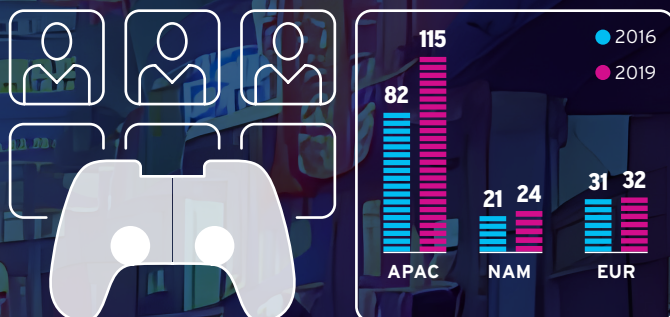
Source: Axios



Esports

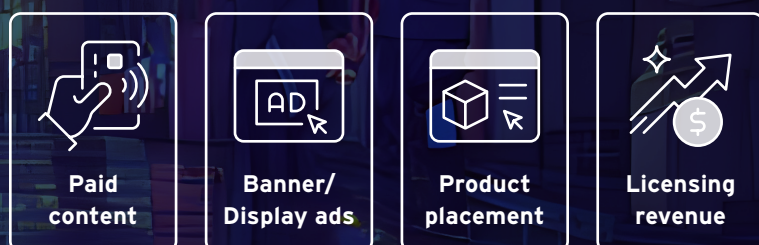
Number of eSports Viewers Watching Content More Than Once a Month (millions of people)

Source: Newzoo



Webtoons

Key Revenue Sources



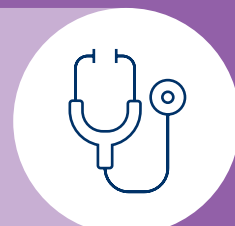
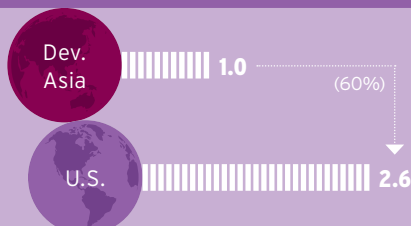
SCALING DIGITAL HEALTHCARE

A shortage of medical resources to serve Asia's large population has contributed to fast adoption of digital healthcare, especially in developing Asia, as well as the development of a comprehensive digital healthcare ecosystem.

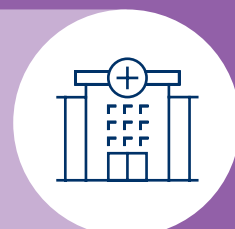
Total Physician and Hospital Bed Density per 1,000 People

Source: World Bank

Physician density



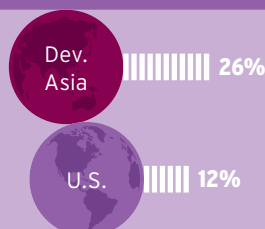
Hospital bed density



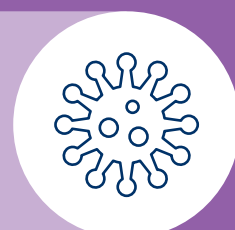
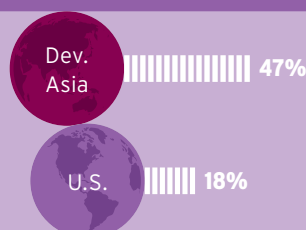
Digital Healthcare Adoption Before and After COVID-19

Source: Bain, EY, Digital Adoption

Pre-COVID-19



Post-COVID-19



Note: Pre- and post-COVID-19 figures for developing Asia are as of 2019 and 2021, respectively. U.S. data is as of a 2020 study asking about the likelihood of using digital healthcare in the future.

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A Conversation With Lawrence H. Summers



Lawrence H. Summers is the Charles W. Eliot University Professor and President Emeritus of Harvard University. During the past three decades, he has served in a series of senior policy positions in Washington, D.C., including the 71st Secretary of the Treasury for President Clinton, Director of the National Economic Council for President Obama, and Vice President of Development Economics and Chief Economist of the World Bank.

He received a bachelor of science degree from the Massachusetts Institute of Technology in 1975 and was awarded a Ph.D. from Harvard in 1982. In 1983, he became one of the youngest individuals in recent history to be named as a tenured member of the Harvard University faculty. In 1987, Mr. Summers became the first social scientist ever to receive the annual Alan T. Waterman Award of the National Science Foundation (NSF), and in 1993 he was awarded the John Bates Clark Medal, given every two years to the outstanding American economist under the age of 40.

He is currently the Charles W. Eliot University Professor at Harvard University and the Weil Director of the Mossavar-Rahmani Center for Business & Government at Harvard's Kennedy School. He and his wife Elisa New, a professor of English at Harvard, reside in Brookline and have six children.

Q: *To kick things off, we wanted to know what your thoughts and personal observations are on Asia's tendency to leapfrog technologies.*

Lawrence: What has happened in Asia over the last 50 years is, by far, the greatest economic story in the history of mankind. For the first time in human history, standards of living changed by a visible amount within a single human lifespan.

In China, growth has occurred at a rate close to 6%-7% per year on average for 40 years. We know from mathematics, at a 6% rate, a quantity doubles every 12 years. That means living standards have increased by about tenfold over 40 years. Even if one assumes that there is a substantial slowing in growth over the next period, it is reasonable to think that for those born around 1980, living standards over their lifetime will have increased close to fiftyfold in a single human lifespan.

When historians look back at our times from the perspective of several hundred years from now, I think the dramatic increase in economic strength in Asia centered on China will be the biggest story.

What has enabled this kind of profound change? I think there are two things: Firstly, it is the application of technology, and secondly, it is the centrality of mechanisms that allow incentives, which allow and motivate people to do things in new ways with ever greater efficiency.

Of course, those things are going to operate more strongly for places that are not at the frontier of knowledge. When you have to import ideas and when you can pick and choose what innovations you are going to emulate, you get a variety of advantages as a second mover. You get advantages because you can see what worked well and what worked poorly the first time. You get the advantage of seeing the cost of developing the original innovation. Emulation is much cheaper than discovery, and sometimes by doing it the new way rather than the old way, you are able to avoid what would otherwise be a very substantial cost.

Alexander Gerschenkron, who was a great Harvard historian of the third quarter of the 20th century, in his heyday, famously spoke of a term that at first seems ironic: the economic advantage of backwardness. But his point was a very powerful one about leapfrogging.

This is a very pervasive phenomenon in an economic light that I suspect many of us have seen. Those of us who live cosmopolitan existences and travel a great deal probably have seen hotels in Asia turn out to be vastly nicer than hotels in New York or Chicago, even though New York and Chicago are richer cities than most Asian cities. Why is that? It's because the hotels in New York or Chicago are often built to an earlier specification and given that the capacity exists, it is not economical to build new hotels, but it is also certainly not economical to destroy the existing hotels for a substantial interval for the process of renovation.

So as a consequence of being behind and being motivated, you can end up well ahead. It is interesting to look around at different sectors. There are a variety of them where you can see this phenomenon of economic leapfrogging, and while there are many, many problems ahead for Chinese economy and Asian economies generally, that capacity to leapfrog certainly has to rank as an advantage.

Q: One of the things that you mentioned is that second movers have a cheaper way of driving something forward. Some of these activities have led to changes in culture such as texting as a primary mode of communications over calls. Another interesting example is eSports, as competitive gaming is very well established in Asia and is now spreading around the world. Could we gauge your thoughts on the interplay between economics and culture?

Lawrence: In some ways, I suspect that both may be shaped by natural resources or the lack thereof and may be shaped by deeper aspects of culture. For example, perhaps the popularity of eSports has something to do with the fact that there is much less room for fields on which regular sports can be played. And the urge to compete as a part of human nature, to practice and to triumph therefore gets channeled into eSports. So in a way, being ahead in the future and the cultural aspects may come together in that respect.

I don't know or feel like I precisely understand the differences in telecommunications habits, though I do look forward to reading about technology in Citi TMT Content Sunday each week. To use a very simple metric, when I visit Asia, I am struck that pretty much everyone I meet seems to be carrying multiple smart devices or phones with them at all times. I am not sure exactly why that is, but it may be a case where we are going to see our future by looking at Asia — we may all be doing that here. It may be driven by different preferences. In general, density in Asia is high and when density is higher, people are living in less space; therefore, one may prefer not to use a landline or a desktop computer because of the room they consume, relative to carrying a smart device.

Q: Flipping topics, we are about to see artificial intelligence further explode opportunities around the world. Do you think Asia would have a data advantage in the AI race?

Lawrence: I suspect there are two different parts to that. I would be surprised if the greater population conferred an enormous data advantage. It would confer some data advantage, but I think it's a general mathematical property that the benefit of data rises as the square root of its quantity. So if you have 4x the data, it's 2x as good. Well, that's a significant difference, but it is not a monumental one.

I think there is often less of an assertion of privacy rights in Asia, and that lack of privacy may facilitate the collection on very different scales of various kinds of data than they are collected in the West. That could be a quite powerful source of advantage.

Q: In your view, is there a difference in the entrepreneurial spirit in the U.S. vs. Europe vs. Asia?

Lawrence: I don't know the answer to that, and I don't know how much of it is cultural, how much of it is formed by the way the economy is formed, but I am certainly struck by the extent of entrepreneurship and hustle whenever I visit Asia. I think it's a profound question on why there is so much entrepreneurial spirit.

Q: *In Asia, there seems to be a trend called Super Apps — one app that can be used to communicate, make payments, play games, book restaurants, etc., — whereas the West has a more pointed solution, an app that has one function. Any thoughts on that, or if Asia will revert to more point solutions?*

Lawrence: I wonder whether this is another example of leapfrogging and the economic advantage of backwardness, or whether it's a fact that some of these apps or activities may have come a bit late to Asia and people weren't accustomed to using apps for different purposes. So therefore, when one came that could do everything, it was easier for it to take over the field than it would have been in a place where people had to become habituated to using several different apps for several different purposes.

Q: *Are there any final thoughts you'd like to share with our readers?*

Lawrence: My first visit to Shanghai was in the summer of 1979. At that time, it was impossible to get a Coca Cola, it was impossible to make a phone call to the U.S., and it was the case that walking in the city was like walking in Boston during a blizzard. You could walk right down the middle of the street undisturbed by vehicular traffic. Walking to the curb, a single vehicle came along only every couple of minutes. The profound transformation of that city in 40 years is one of the great miracles of human history.

Asia as a Time Machine to the Future

We estimate Asia adopts new technologies 8-12 years ahead of the West, making it much like a time machine to the future.

While its infrastructure has historically been underdeveloped relative to the West's, Asia's high internet connectivity, young and increasingly affluent and urban demographics, and entrepreneurial spirit have driven the region to adopt many technologies at a faster pace. In doing so, Asia provides a glimpse of what the future could look like in more developed, Western economies.

This report explores how Asia acts as a time machine that can transport other regions into a new world of commerce, entertainment, and healthcare.¹

Key Drivers Behind Asia's Faster Adoption of Technology

1. Underdeveloped Infrastructure

Asia's rapid technology adoption has been propelled by underdeveloped infrastructure — in retail, banking, and healthcare, to name a few areas — relative to the region's outsized population. As demand for services grows and puts a strain on limited resources, people across Asia are turning to digital solutions. Some examples include:

- **Retail infrastructure:** Asia has fewer than 5 square feet of retail space per person, compared with the U.S. at 24 square feet.²

The e-commerce sector has evolved especially fast in Asia to mitigate the lack of physical retail space and to satisfy growing consumer demand. Moreover, as we discuss later in the report, new forms of e-commerce have emerged from Asia, such as livestream broadcasts by influencers and integrated "super app" shopping.

- **Banking infrastructure:** Asia's number of commercial bank branches per adult is less than half that of the U.S., while the number of credit cards per adult is nearly one-tenth.³

With limited access to traditional physical bank branches and banking services like credit cards, the unbanked and underbanked population in Asia has gone straight to fintech solutions for payments and wealth management. This has empowered the growth of mobile payments, including through digital/mobile wallets, which account for a larger share of transactions at both e-commerce and physical points-of-sale than in Western markets.

¹ We largely discuss Asia excluding the Pacific region but have made best efforts to indicate where the broader region (Asia-Pacific or "APAC," including Asia and Oceania) applies. As Asia is highly diverse, we also indicate when we refer to countries grouped by economic development (e.g., developing Asia) or subregion (e.g., Southeast Asia).

² Mark Cooper, "Asia Moves Ahead of the Retail Curve," PERE, July 10, 2019; Statista, "[Retail Space Per Capita in Selected Countries Worldwide in 2018](#)," accessed January 30, 2023.

³ IMF, "[Financial Access Survey](#)," accessed January 30, 2023; Money Transfers, "[24 Eye-Opening Credit Card Statistics for 2022](#)," updated November 21, 2022.

- **Healthcare infrastructure:** The numbers of physicians and hospital beds per person in Asia are approximately 39% and 40% lower than the global average figures, respectively.⁴

With limited capacity to deliver in-person care, the region has been quick to adopt telemedicine and digital healthcare services. As discussed in this report, Asia is at the forefront in developing digital healthcare ecosystems.

Paradoxically, limited pre-existing infrastructure has served as a catalyst for technology adoption across Asia.

2. High Internet Penetration

Asia is home to half of the world's total internet users and leads in the adoption of various digital and mobile technologies. Nearly two-thirds of Asia's population are online through either fixed or mobile networks.⁵ South Korea, Singapore, and Malaysia have among the highest internet penetration rates in the world, with each at least at 97%, higher than in the U.S. and Germany (each at 92%).⁶ South Korea, due to decades of investment in broadband and mobile infrastructure, stands out as having one of the fastest average mobile internet connection speeds globally.⁷

Indeed, connectivity is a key driver behind Asia's adoption of new technologies. Many in the region leapfrogged from traditional landline telecommunication directly to mobile connectivity, instilling a mobile-first or mobile-only mentality and enabling the development of mobile services such as digital payments at a scale unlike that in other regions. This rate of adoption is further exacerbated by the continued reduction in costs of mobile devices and data.

High internet penetration and early mobile adoption — coupled with a young, digital-savvy population — have enabled faster uptake of digital services, which in turn fosters more digital innovation and transformation across the region.

3. Young Digital Natives

Asia is home to 1.1 billion people in the 15-29 age group, who tend to be most adept at using mobile and digital technologies. In Asia, the sheer size of this population segment has enabled youth-driven industries such as eSports and webtoons to flourish. In addition, Asia's youths have disrupted the social media industry through their use of short-form videos and social commerce — both of which are also gaining traction globally, compelling Western tech giants to enter these fields.

Furthermore, the young population in Asia stands out for its skills in science, technology, engineering, and mathematics (STEM), with the region producing 76% of the world's STEM graduates from 2016 to 2018.⁸

⁴ World Bank, "[Physicians \(per 1,000 people\)](#)," January 30, 2023; World Bank, "[Hospital beds \(per 1,000 people\)](#)," January 30, 2023.

⁵ Refers to the Asia-Pacific region. International Telecommunication Union, "[Asia & Pacific: Individuals Using the Internet](#)," accessed February 16, 2023.

⁶ Ibid.

⁷ Isla Mcketta, "Despite All Odds, Global Internet Speeds Continue Impressive Increase," Ookla, September 8, 2021.

⁸ McKinsey & Company, "[The Asian Century, Two Years on: What's Changed and What's Next](#)," October 18, 2021.

With a young demographic that is both highly skilled in STEM and large enough to influence global consumer preferences, Asia is well-positioned to expand its digital economy and further develop technology-driven industries.

4. Urbanization and a Rising Middle Class

People are moving from rural areas to cities at a faster pace than ever, especially in Asia, which represents more than half of the world's urban population and is expected to add 1.2 billion new city residents by 2050.⁹

In addition, the think tank Brookings cites data from World Data Lab projecting that by 2024, over half the population of Asia will be middle class or rich. With this continued rise in wealth comes higher demand for goods and services. The region will then reach a “consumer tipping point” — when the consumer class will outnumber the poor and vulnerable for the first time in the region's history.¹⁰ This rise in affluence is not expected to subside anytime soon, as Asia is predicted to contribute nearly 90% of the next 1 billion consumers globally.¹¹ This will continue to increase pressure on existing infrastructure and hence, create a greater need for innovative solutions.

5. Entrepreneurial Spirit

Asia is home to a vibrant start-up community that is driving innovation and digital adoption. The region accounts for 40% of global unicorns (i.e., start-up companies valued at \$1 billion or more) with a combined valuation of more than \$1 trillion, 56% of the world's small and medium-sized enterprises (SMEs), and 68% of global patent applications.¹²

Coupled with its talent, capacity for innovation, and ability to leapfrog technology, Asia has displayed a strong willingness to experiment and find alternatives to traditional solutions. Throughout this report, we discuss Asia's ability to innovate (e.g., super apps), build on earlier innovations (e.g., social commerce), and scale up advancements with more cost-effective solutions (e.g., digital healthcare).

Investors are increasingly taking notice of Asia's advantages in entrepreneurship. The region represented 36% of global private equity deals in 2021. This made it the top region by deal count, surpassing the U.S. for the first time in seven years of available tracking data from CB Insights.¹³

⁹ UN Habitat, [“Asia and the Pacific Region,”](#) accessed January 30, 2023.

¹⁰ Wolfgang Fengler, Homi Kharas, and Juan Caballero, “Asia's Tipping Point in the Consumer Class,” Brookings, June 2, 2022.

¹¹ Homi Kharas, “The Unprecedented Expansion of the Global Middle Class,” Brookings, February 28, 2017.

¹² SMEs are defined as having fewer than 250 employees. Statista, [“Number of Unicorns in Selected Countries in the Asia-Pacific Region as of 2021,”](#) released December 2021; Takuro Hosoda, Tomoko Wakasugi And Ryosuke Hanada, “Tighter Monetary Conditions Rein in Asian Unicorns,” Nikkei Asia, August 19, 2022; WIPO (World Intellectual Property Organization), World Intellectual Property Indicators 2022, 2022; Statista, [“Estimated Number of Small And Medium Sized Enterprises \(SMEs\) Worldwide From 2000 to 2021, by Region,”](#) accessed February 10, 2023.

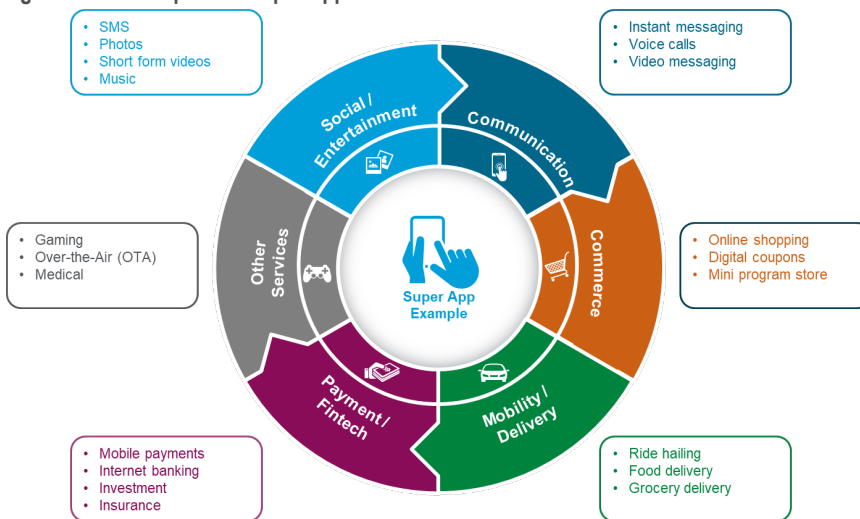
¹³ CB Insights, *State of Venture 2021*, 2022.

Super Apps

A super app is “an application that provides end users with a set of core features plus access to independently created mini apps,” according to Gartner.¹⁴ As opposed to a single-purpose app, the all-in-one super app offers a one-stop, comprehensive ecosystem of different apps, together providing an extensive suite of services.

Super apps are largely unique to Asia, yet they are ubiquitous across the region. Driven by younger demographics and high digital adoption, Asian users are immersed in super apps and enjoy the convenience, ease of use, and multitude of services they provide. The products and services offered by super apps are closely tied to the everyday life of a consumer. From instant messaging and e-commerce to food delivery and ride-hailing, a super app's suite of services is devoted to enhancing every minute of the user's day.

Figure 1. An Example of a Super App



Source: Citi GPS

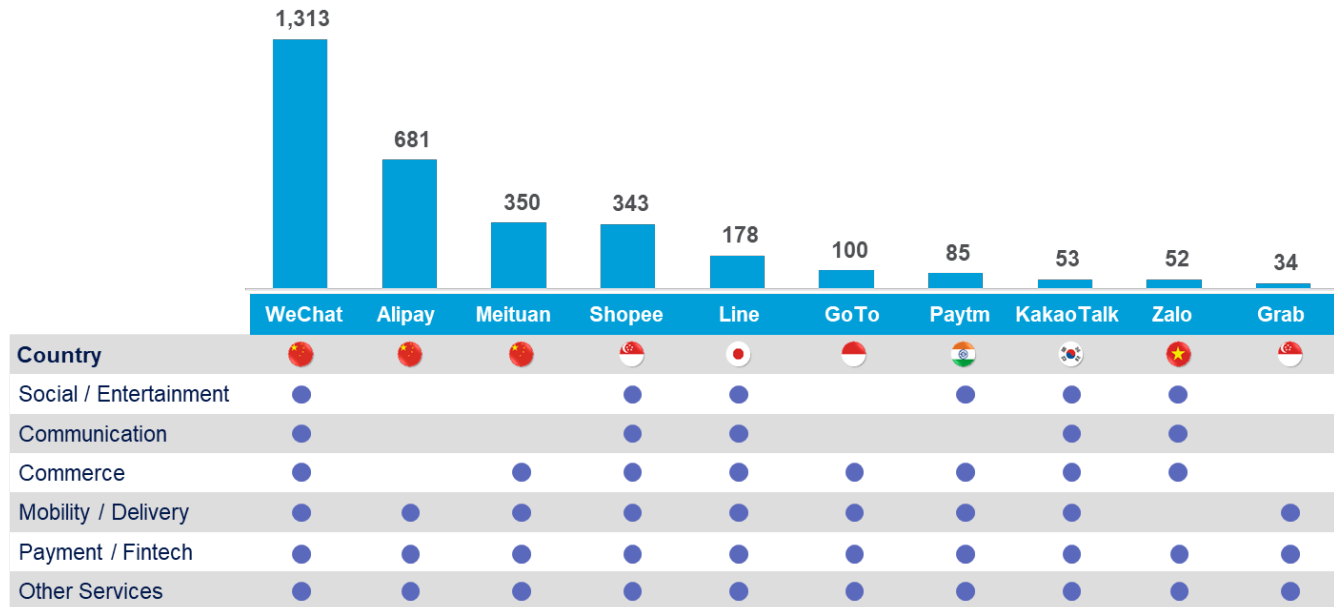
Key drivers behind the rise of super apps are as follows:

- **Mobile-first internet users:** The majority of internet users in Asia have come in contact with the internet first via mobile or only through mobile. As a result, Asia's internet culture is largely centered around smartphones.
- **Wide distribution of cost-efficient mobile phones:** Relatively more affordable brands — such as Oppo and Vivo — that have lower memory storage occupy considerable market shares across Asia.
- **Trust, brand, and scale:** Super apps in Asia often entail mature ecosystems comprised of affiliated apps or mini programs, each with expertise within a specific vertical.

In Asia, the top five super apps — which we define as offering services across at least three verticals — have more than 2.8 billion aggregate active users (prior to accounting for overlaps).

¹⁴ Lori Perri, “[What Is a Superapp?](#)” Gartner, September 28, 2022.

Figure 2. Asian Super Apps Spanning Across Three or More Verticals (millions of users)



Note: Number of users are based on monthly average users (MAUs) as of 2022, unless indicated otherwise. Figures for Meituan, Shopee, Line, GoTo, and Zalo are as of dates in 2021. User numbers for Shopee are based on monthly web visits; those for Paytm and Grab reflect monthly transacting users.

Source: Company Information, Wallstreet Research, Statista, BusinessofApps, Webretailer, Citi GPS

The top super app in Asia is Tencent's WeChat, which recorded 1.3 billion monthly active users (MAUs) as of the end of 2022 — this means approximately 92% of China's population and 17% of the world's population regularly visit the app.¹⁵ In fact, there are more WeChat users than there are active iPhone users in the world.¹⁶ WeChat is the dominant leader in instant messaging within China, but it is also a major player in online games, music, and mobile payments. Alipay and Meituan are two other leading super apps that originated in China.

Outside of China, regional and local champions are powering rapid adoption of super apps. KakaoTalk is not only South Korea's dominant instant messaging app, but also the platform to the nation's most-used taxi-hailing app, leading mobile banking app, and music streaming service.¹⁷ Likewise, Line is the leader in instant messaging and various other services in Japan.

In Southeast Asia, the Indonesian giant GoTo offers a multitude of services including e-commerce, ride-hailing, and food delivery, as well as payments and logistics. To provide a sense of scale and importance to the local economy, GoTo's revenue was equivalent to approximately 2% of Indonesia's GDP in 2020, whereas revenues at Meta and Twitter were equivalent to 0.5% and 0.02%, respectively, of U.S. GDP in 2021.¹⁸

¹⁵ Company reports.

¹⁶ SortaTechy, "[How Many iPhone Users Are There?](#)" accessed January 30, 2023.

¹⁷ Businesswatch [website](#) (Korean language), accessed January 30, 2023.

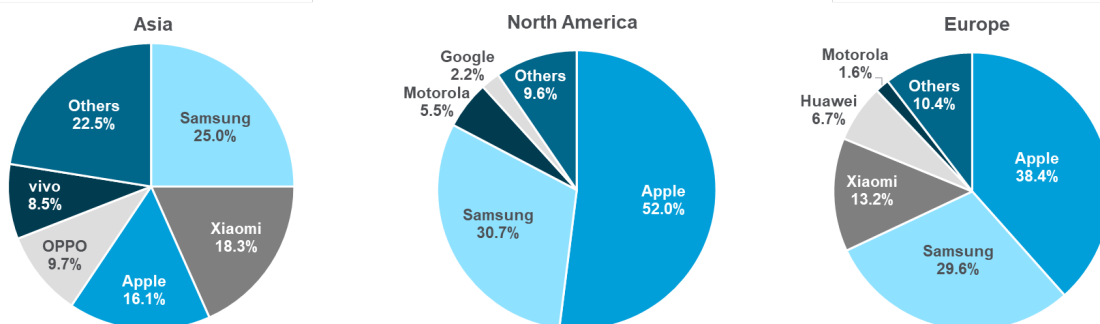
¹⁸ Gojek Tech, "[Gojek and Tokopedia Combine to Form Goto, the Largest Technology Group in Indonesia and the 'Go To' Ecosystem for Daily Life](#)," May 17, 2021; Meta,

The other major super app of Southeast Asia, Grab, boasted regional market shares of 71% and 51% in the ride-hailing and the food delivery verticals, respectively, in 2021.¹⁹ In fact, 1 in 20 people in Southeast Asia eat, ride, or pay with Grab monthly.²⁰ Such figures — unimaginable in the West — are key features of super apps in Asia.

Key Drivers Behind the Rise of Asian Super Apps

- **Mobile-first internet users:** The majority of internet users in Asia, especially in developing Asia, came in contact with the internet first via mobile or only through mobile; this helped create an internet culture largely centered around smartphones. Strong demand from Asian consumers seeking to access online services via their mobile phones has further encouraged companies to provide more services via mobile apps.
- **Wide distribution of cost-efficient mobile phones:** In a mobile-first culture, access to smartphones is critical not only for communication, but also for overall daily activities. As such, more affordable brands of smartphones, such as Oppo and Vivo, have quickly gained market share across Asia. These devices are designed to have lower memory storage due to their focus on cost efficiency. Hence, super apps, which occupy the memory space of a single app while performing the functions of many, have become widely popular relative to single-purpose apps.

Figure 3. Top Five Mobile Phone Manufacturers' Market Share by Region (October 2022)



Source: Statcounter

- **Trust, brand, and scale:** By offering a variety of services shaped around consumers' everyday needs on a single platform, super apps in Asia have developed into mature ecosystems of affiliated apps or mini programs (also known as mini apps), each with expertise within a specific vertical. As a super app secures a large user base, the platform is able to attract more mini programs, thereby establishing a virtuous cycle of adding more functionality and users based on reliable brand power. As super apps grow, they benefit further from economies of scale and customer stickiness.

¹⁹ "Meta Reports Fourth Quarter and Full Year 2021 Results," February 2, 2022; company reports; GDP data from the World Bank.

²⁰ Grab, "Q4 Earnings Call," presentation, March 2022.

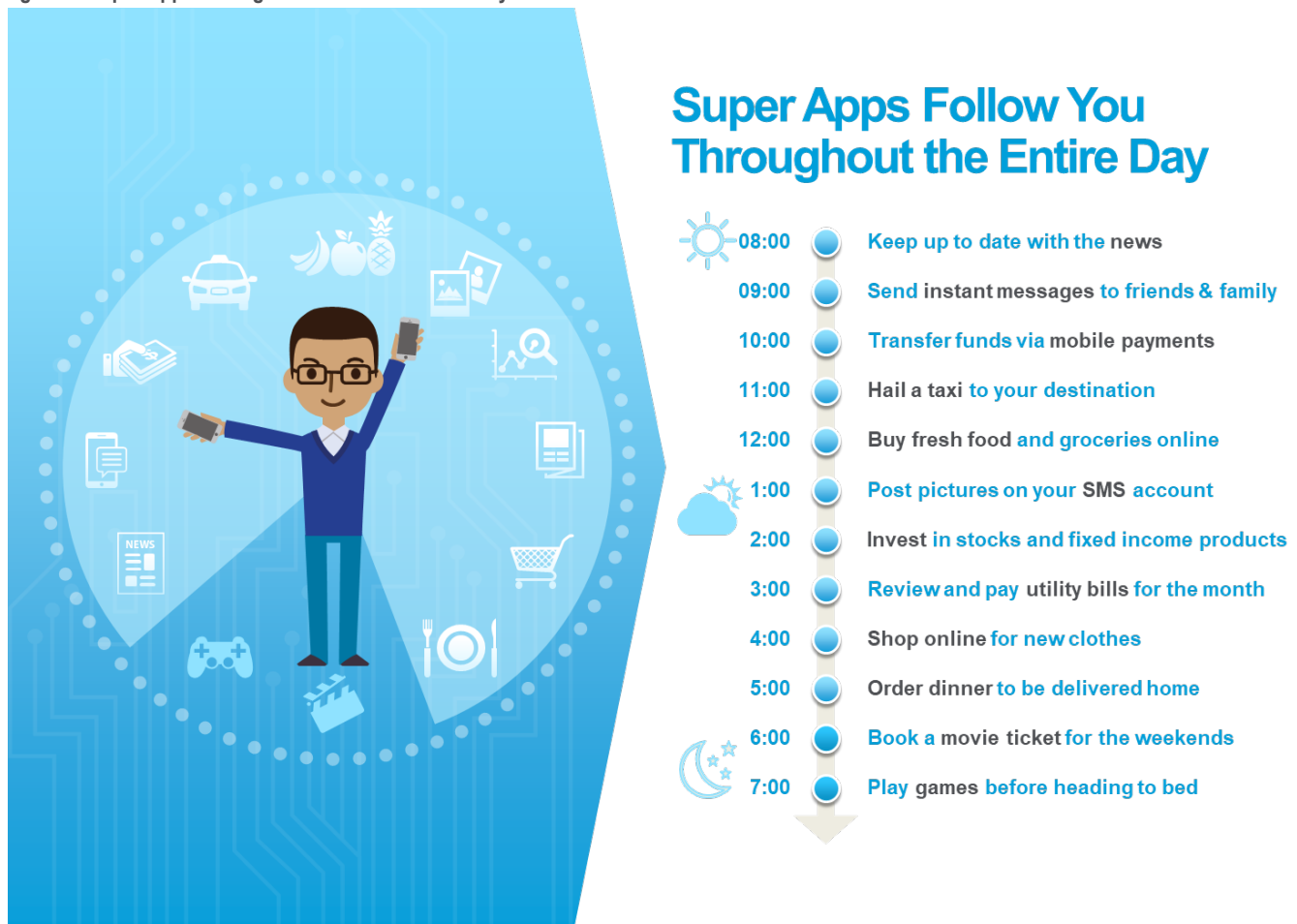
²¹ Grab, "Investor Day 2022," presentation, September 2022.

How Super Apps in Asia Are Unique

Integration Into Consumers' Daily Life

The strength of Asian super apps is in their deep integration into users' daily lives by offering convenient services that can be used multiple times a day. As an example, in a typical day, a super app user could transfer money to a friend, hail a ride to a restaurant for lunch, order groceries for delivery to make dinner, and look at their investment portfolio before going to bed — all in one app. As we illustrate in Figure 4, users in Asia consume services offered by super apps throughout the day across numerous verticals. This is why 25% of WeChat users in China spend more than four hours on the app each day and why users visit South Korea's KakaoTalk an average of 72 times a day.²¹

Figure 4. Super Apps Are Ingrained in Consumers' Daily Life



Source: Citi GPS

²¹ Statista, "[Average Amount of Time Spent on WeChat Per Day in China as of July 2021](#)," released July 2021.

Incorporation of a Mobile Payment Function

Most Asian super apps offer an in-house mobile payment function, which enables customers to complete a transaction without ever leaving the app. This feature provides several benefits: a seamless customer experience, customer stickiness, greater monetization of services (e.g., in-app purchasing), and valuable insights on consumer behavior that can be used to enhance the super app's value proposition.

Third-Party Mini Programs

What makes Asian super apps truly unique is their integration of millions of lightweight mini programs developed by third-party companies — such as a weather widget or GPS-powered navigation app. These miniature “apps within an app” can be used directly within a super app without additional downloads or installations. By enabling third-party companies to develop their own mini apps and integrating them into a super app's interface, super apps can offer more services without having to develop their own business verticals, while enhancing user stickiness.²² Third-party development is beneficial for the developers as well, as they can immediately gain access to millions of users through the super app's platform.

Mini apps are found primarily in Chinese super apps like WeChat, Alipay, and Meituan, but the concept is being adopted elsewhere. In 2021, the 3.5 million mini programs integrated within WeChat transacted approximately \$400 billion.²³ Likewise, Alipay had 3 million mini programs on its platform that year.²⁴

True Omni-Channel Experience Merging Online and Offline Realms

Super apps in Asia are not limited to online channels; instead, they are “phygital” — incorporating both physical and digital elements — and are actively used in offline activities through online-to-offline (O2O) business models. One example is the ubiquitous, physical QR codes on retailers' counters, which customers can scan with their mobile phones to pay for their purchases via the payment function in the super app.

Asia as a Time Machine to the Future of Super Apps

Asian super apps are continuously looking to expand into more geographies to capture a larger addressable market and user base. However, with each new market comes different, local regulations and customer dynamics. Super apps are learning to become flexible — another benefit of integrating mini programs — to adapt to local market needs.

Increasing Global Appetite for Super App Services

Although Asia has a commanding lead in super apps, the rest of the world is hungry for similar multi-function products of its own. According to a 2022 survey of nearly 10,000 people conducted by PYMNTS and PayPal, 7 out of 10 respondents in the U.S., the UK, Germany, and Australia reported an interest in super apps.²⁵

²² Julber Osio, “Mobile Payments, Mini-Programs Are Key Features of Chinese Super Apps,” S&P Global Market Intelligence, October 20, 2020.

²³ Mansoor Iqbal, “WeChat Revenue and Usage Statistics (2022),” Business of Apps, updated September 6, 2022.

²⁴ Oceanpayment, “[Alipay Mini-Program Introduction](#),” October 15, 2021.

²⁵ PYMNTS, “[72% of Global Consumers Are Interested in a Super App](#),” July 22, 2022.

Moreover, Gartner expects more than 50% of the global population to be daily active users of multiple super apps by 2027.²⁶

After seeing the huge success of super apps in Asia, many Western companies have recently expressed an interest in following suit — one of the most notable examples is PayPal. Dan Schulman, the company's CEO has expressed his aspiration to create a seamless experience through a “mega app” that encompasses a range of digital payment offerings, both online and offline, and includes “not just any financial institution, credit card, debit card, or ACH (Automated Clearing House), but also rewards points redemption, utilizing cryptocurrency as a funding instrument, utilizing central bank issued digital currencies.”²⁷ Essentially, he seeks to combine all financial services that can be offered via mobile into one super app.

Another emerging super app player, Argentina's Mercado Libre, is an e-commerce marketplace that also offers financial services such as online and offline payments, bill payments, and investments. While Mercado Libre primarily focuses on e-commerce and fintech, it plans to expand into other verticals such as credit services and logistics, among other functions.

All considered, adoption of super apps in the West is not without some reservations. According to a *Forbes* piece, Americans do not want a single portal for financial services or shopping. The article notes: “The ‘walled garden’ approach is too limiting to most U.S. consumers.”²⁸ There have been concerns over a single app having too much information about a person's interests or online activity, as well as questions raised about antitrust regulation.

Despite these concerns, it seems inevitable that both companies and consumers in the West will continue to understand the benefits of a one-stop platform, although no Western platform has yet succeeded in achieving a comparable scale of adoption and offering a similar scope of services as super apps in Asia.

²⁶ Gartner, *Top Strategic Technology Trends 2023*, 2022.

²⁷ Tomio Geron, “PayPal Wants to Be an All-in-One Super App. It has Its Work Cut Out,” Protocol, February 11, 2021.

²⁸ Ron Shevlin, “Super Apps Aren't Going to Make It in America,” *Forbes*, August 1, 2022.

Mobile Payment

With the advent of numerous mobile fintech solutions, including mobile banking, mobile internet payment, embedded finance, direct carrier billing, and perhaps most notably, mobile wallets, Asia leads in mobile payment adoption. These features, coupled with the high prevalence of QR code purchasing and point-of-sale (POS) systems across Asia, mean consumers can instantly pay for almost everything through their mobile devices. Mobile payments have become an integral part of Asian consumers' daily lives.

Several drivers have helped support the meaningful development and growth of mobile payment in Asia:

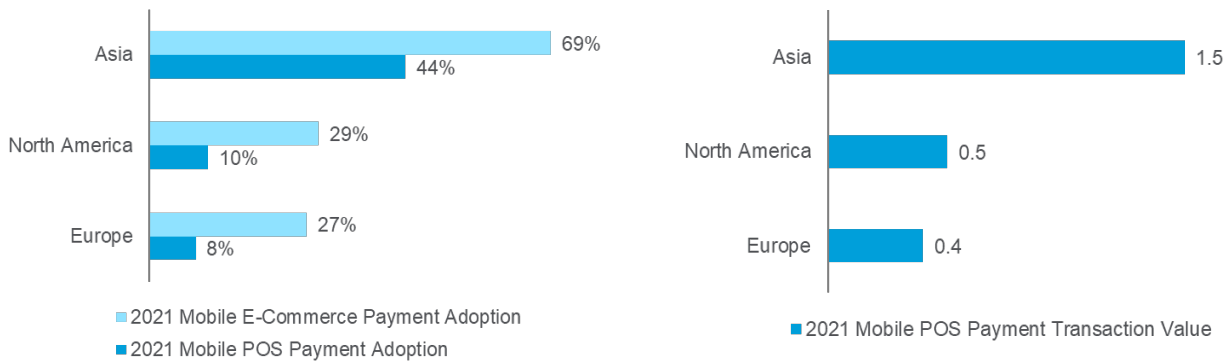
- **Less access to traditional financial services:** Asia has a relatively larger underbanked and unbanked population combined with lower bank branch penetration than the West, leading to higher demand for fintech solutions such as mobile payment.
- **Growth of e-commerce:** E-commerce has been rapidly growing in Asia, and a significant portion of the payments for e-commerce transactions are made through mobile devices.
- **Super app / Fintech ecosystem:** Large ecosystem players in Asia have been integrating mobile payment functions into their own super apps. This has facilitated mobile payment adoption by users as well as merchants.
- **Lower transaction fees for higher merchant adoption:** Asian super apps and fintech players generally charge lower transaction fees than alternatives such as credit cards, thereby encouraging more merchants to accept mobile payment as a payment method.
- **Favorable regulatory environment:** Regulators in Asia have generally been more welcoming toward fintech companies than regulators in other regions, as well as more open to the changes brought by mobile payment technology.

Meanwhile, Western players have been actively trying to catch up to Asian players by updating their mobile wallets, diversifying mobile payment offerings, and increasing QR code usage to better serve both merchants and users, as discussed further in this chapter.

Asia Is the Region With the Highest Mobile Payment Penetration

Asia clearly leads the rest of the world in both online and offline mobile payment penetration, as shown in Figure 5 below. According to FIS, in 2021, digital/mobile wallets accounted for nearly 70% of the e-commerce transaction value in Asia, more than double the share in North America or Europe. Likewise, for purchases at physical POS, nearly half (44%) of transactions in Asia were done via digital/mobile wallets, a share 4-5x larger than in the West.²⁹ According to Statista, mobile POS purchases in Asia totaled an estimated \$1.5 trillion, more than North America and Europe combined, as shown in Figure 6.³⁰

Figure 5. Digital/Mobile Wallet Adoption (2021, % of Regional Spending by Transaction Type) **Figure 6. Mobile POS Payment Transaction Value (2021, \$ trillions)**



Note: Based on Asia-Pacific (APAC). According to FIS, e-commerce includes online purchases of goods and services such as those made on e-commerce websites, while POS refers to transactions made at the physical point of sale.

Source: FIS, Citi GPS

Source: Statista, Citi GPS

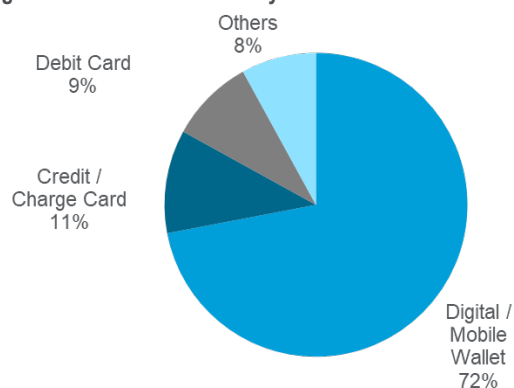
By 2025, FIS expects digital/mobile wallets to account for 72% of the e-commerce transaction value in Asia, as shown in Figure 7. In North America, the use of digital/mobile wallets could surpass that of credit and charge cards to account for one-third of e-commerce transactions, as shown in Figure 8.³¹

²⁹ According to FIS, "Digital and mobile wallets allow consumers to securely store payment credentials to pay for purchases virtually everywhere commerce takes place: online, in-app or in-store. Wallets can be funded directly via cash, cards, bank transfer or other methods like cryptocurrencies, or wallets act as pass-through mechanism and are linked to cards or bank accounts." FIS, *The Global Payments Report*, 2022.

³⁰ Statista, "[Mobile POS Payments – Worldwide](#)," accessed January 31, 2023.

³¹ FIS, *The Global Payments Report*, 2022.

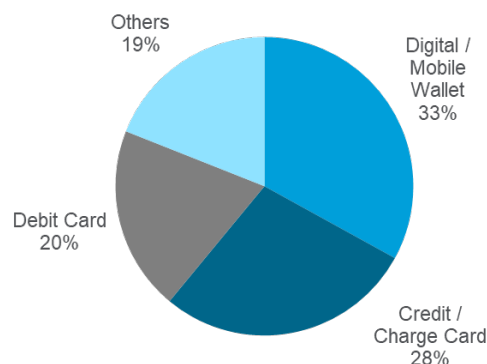
Figure 7. 2025 E-commerce Payment Methods: Asia



Note: APAC represented. E-commerce includes all digital payments transacted through a mobile device.

Source: FIS, Citi GPS

Figure 8. 2025 E-commerce Payment Methods: North America

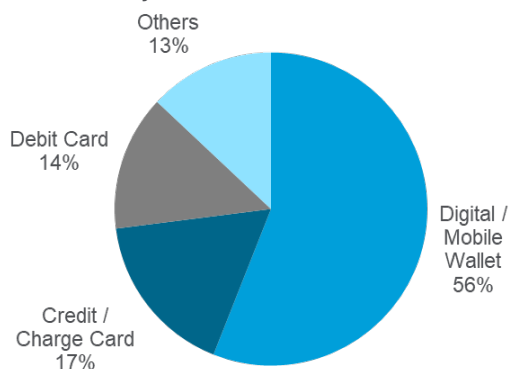


Note: E-commerce includes all digital payments transacted through a mobile device.

Source: FIS, Citi GPS

At physical POS, FIS expects digital/mobile wallets to account for more than half (56%) of transaction value in Asia by 2025, as shown in Figure 9. This is almost 4x the share estimated for North America (15%), where FIS expects credit cards and debit cards to remain the dominant methods for offline POS payments, per Figure 10.³²

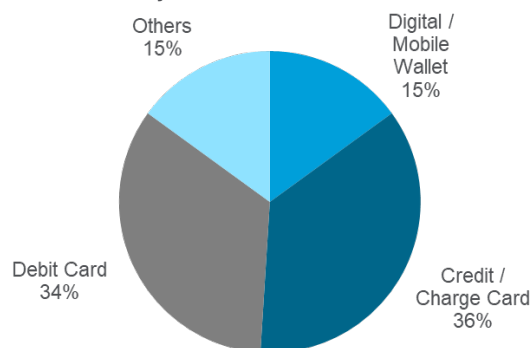
Figure 9. 2025 POS Payment Methods: Asia



Note: APAC represented.

Source: FIS, Citi GPS

Figure 10. 2025 POS Payment Methods: North America



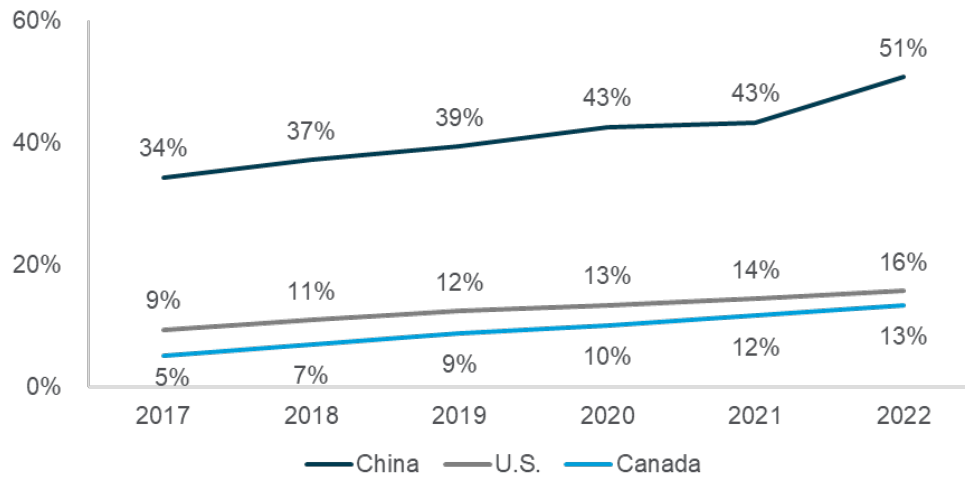
Source: FIS, Citi GPS

The U.S. and Canada have higher levels of both personal disposable income per person and POS mobile payment transaction value per user. However, when taking both metrics together, the typical person in China spent the equivalent of over half their disposable income through mobile payment transactions in 2022. This was over triple the share spent by the typical American or Canadian, a gap that has persisted for several years, as shown in Figure 11.³³

³² Ibid.

³³ Calculated using data from the Economist Intelligence Unit (EIU). Statista, "[Mobile POS Payments – Worldwide](#)," accessed January 31, 2023.

Figure 11. Proportion of Mobile Payment Transaction Value as a Share of Disposable Income



Note: Calculated as the estimated mobile POS payment transaction value per user in U.S. dollars divided by the personal disposable income per head in U.S. dollars. According to Statista, mobile POS payments include POS transactions processed through mobile wallets and excludes payments made through physical credit or debit cards at contactless terminals and mobile POS systems.

Source: Economist Intelligence Unit, Statista, Citi GPS

Brief History and Latest Trends

In 1997, when Coca Cola first let customers purchase drinks from the company's vending machines in Helsinki, Finland through mobile text messages, it was hard to imagine how widespread mobile payments would become.³⁴ It was not until around two years later that PayPal launched its electronic payment system. In the same year, Ericsson developed a technology that enabled paying for movie tickets through mobile phones in Norway.³⁵ While mobile payment was first developed by companies in North America and Europe, Asia has already surpassed the West in terms of mobile payment scale, adoption, and usage frequency.

Asian mobile payment platforms have grown into comprehensive financial service platforms for both users and merchants, offering insurance, credit, and wealth management services on top of traditional mobile payment functionality. In this way, users can easily link their bank accounts to their mobile payment apps to manage their personal wealth. Asian mobile payment apps have also been developing mini programs for users to purchase bus and train tickets, rent a bike, buy groceries, and pay bills, among other things.

In addition to helping with users' personal finances and day-to-day purchases, these fintech ecosystems have enabled merchants to grow further through the provision of lending solutions. They have also developed cutting-edge blockchain-based solutions such as traceability services for merchants to improve visibility of their products and authentication throughout the supply chain process, while also preventing fraud.³⁶ Lastly, these fintech ecosystems have been enabling merchants to access a massive user base through targeted marketing. These initiatives have allowed fintech ecosystems to amass a large user base with high usage frequency and strong customer loyalty.

³⁴ Prime Indexes, "[Mobile Payments Industry Overview](#)," PDF, accessed February 2, 2022.

³⁵ "[Telenor and Ericsson Launch the 'Mobile Wallet'](#)," March 18, 1999.

³⁶ [TaaS](#), accessed February 2, 2023.

Key Drivers Behind the High Mobile Payment Adoption in Asia

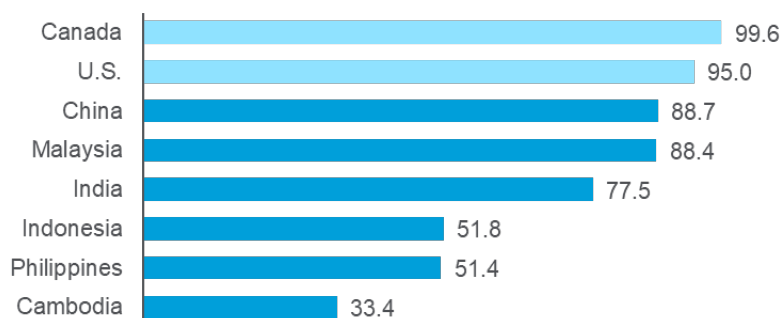
Less Access to Traditional Financial Services

In Asia, low levels of access to traditional financial services have played an important role in the development of fintech solutions such as mobile payment. Asia has historically had a large underbanked and unbanked population. Bank account ownership levels are lower in Asia than in North America and are much lower in certain Southeast Asian countries in particular, according to the World Bank (see Figure 12 below).³⁷ For example, whereas bank account ownership is nearly universal in the U.S. and Canada, only one-third of people in Cambodia have an account.

Furthermore, as shown in Figure 13, Asian markets generally have weaker banking infrastructure and fewer commercial bank branches available relative to the population than in North America. In fact, in 2021, the U.S. had more than triple the number of commercial bank branches per 100,000 people as China.³⁸

Figure 12. Banked Population by Market

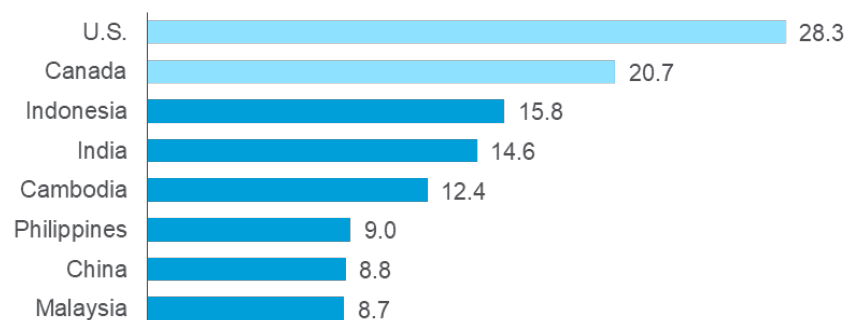
Account Ownership, % of Adults with an Account (2021)



Source: World Bank

Figure 13. Bank Branch Penetration by Market

Number of Commercial Bank Branches per 100,000 Adults (2021)



Source: Citi GPS, IMF, Citi GPS

³⁷ World Bank, "[The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19](#)," accessed January 31, 2023.

³⁸ IMF, "[Financial Access Survey](#)," accessed January 31, 2023.

At the same time, Asian markets also tend to have lower credit card penetration rates, averaging 13% in 2021. Japan has the highest rate in the region at 68%, although this is still lower than the U.S. at 84%.³⁹ Lower penetration of traditional payment methods (e.g., credit cards) in Asia enabled alternative digital payment solutions to gain a strong foothold in the region.

Growth of E-commerce

The global mobile payment market grew exponentially in conjunction with the development of global e-commerce, and the world is moving away from traditional payment methods. According to FIS, mobile e-commerce surpassed desktop e-commerce in 2021, accounting for over half of the global e-commerce transactions.⁴⁰ As a result, traditional payment methods including credit and debit card purchasing lost share to mobile solutions.

In Asia, the adoption of mobile payments for e-commerce transactions is even more profound. FIS expects 75% of the e-commerce transaction value in China in 2025 to take place on mobile devices, up from 69% in 2021. While the U.S. is also expected to make gains in mobile commerce, 42% of its e-commerce transactions are estimated to be made via mobile in 2025, up from 37% in 2021.⁴¹

Super App / Fintech Ecosystem

Super apps are another reason for Asia's lead in mobile payments. The apps' broad range of function enables them to act as a one-stop platform for multiple services, helping attract a wide array of users with different needs. As noted earlier, the majority of Asian super apps have integrated mobile payment functionality within their ecosystems. This negates the need to download a standalone mobile payment app; instead, users can easily tap the "pay" function in their super app for mobile payment. In China, more than 90% of mobile payments are made through the two major super apps, Alipay and WeChat Pay.⁴²

Super apps have also helped expand mobile payment adoption rates and transaction volume. While China leads in super app usage, there are rising platforms in Japan, South Korea, India, and Southeast Asia that are expanding and dominating in their respective markets. Additionally, Asian social platforms are able to effectively leverage their "social" element in promoting broader mobile payment adoption. For example, in 2014, WeChat Pay initiated a "red packet" campaign during China's annual Spring Festival in a nod to the Chinese gift-giving tradition. The company quickly seized market share and become a major mobile payment player in the country.⁴³ Mobile payment is mostly associated with relatively small transactions in offline payment scenarios, making it very compatible with social platforms (see the chapter "Super Apps" earlier in the report for more detail).

³⁹ Statista, "[Credit Card Penetration in the Asia-Pacific Region in 2021, by Country or Region](#)," released November 2021; Money Transfers, "[24 Eye-Opening Credit Card Statistics for 2022](#)," updated November 21, 2022.

⁴⁰ FIS, *The Global Payments Report*, 2022.

⁴¹ Ibid.

⁴² Coco Feng, "Alipay Test of Money Transfers via WeChat Seen as First Breach of Mobile Payments 'Walled Garden,'" *South China Morning Post*, October 17, 2022.

⁴³ Tencent, "[Old Traditions Meet New Technology: The Spring Festival Celebration Goes Virtual](#)," February 26, 2021.

Lower Transaction Fees for Higher Merchant Adoption

Lower transaction fees have encouraged merchants in Asia, especially small-scale businesses, to accept mobile payments over alternatives such as credit cards. As a result, mobile payments are more commonly accepted than credit cards in the region, which in turn has helped create more opportunities for consumers to use mobile payments.

In Asia, mobile payment processing fees are usually priced at 1.0% or lower.⁴⁴ This is much lower than the fees charged by U.S. credit card providers, which range from 1.5% to 3.5%.⁴⁵ Looking only at physical POS transactions, digital/mobile wallets were the leading form of payment in China in 2021 (making up 54% of POS transaction value vs. 11% in the U.S.), but credit cards were the top payment method in the U.S. (40% vs. 14% in China).⁴⁶

Favorable Regulatory Environment

Relatively favorable government support also plays an important role in mobile payment's development in Asia. Initially, the rapid development of the mobile payment market had outpaced Asia's regulatory frameworks, thus offering a wide range of options and opportunities for third-party mobile payment providers. In 2011, China's central bank, the People's Bank of China (PBOC), issued the first batch of electronic payment licenses to 27 qualified third-party online payment platforms, including Alipay — long after the app's initial launch in 2004.⁴⁷ Similarly, a decade ago, Singapore was advanced in smartphone adoption but not mobile payments; however, Singapore's Sandbox framework, issued in 2016 and updated in 2022, has enabled fintech players to experiment with innovative financial products and services to increase mobile payment adoption.⁴⁸

Other Asian governments have also been showing strong support for mobile payments to drive digitalization. For instance, Taiwan is aiming for 90% mobile payment penetration by 2025, and the Philippines is targeting 50% of transactions to be digital by 2023.⁴⁹ Moreover, Asian governments are issuing official digital currencies that could help further drive mobile payment adoption. In China, the PBOC has partnered with mobile payment players to promote the official digital currency, e-CNY.⁵⁰ In addition, Cambodia's central bank-issued digital currency has reached almost half of its population.⁵¹

⁴⁴ Oceanpayment, "[WeChat Pay/Alipay Fees for Merchants](#)," September 9, 2021.

⁴⁵ Billie Anne Grigg and Whitney Vandiver, "How Much Are Credit Card Processing Fees?" NerdWallet, September 20, 2022.

⁴⁶ FIS, *The Global Payments Report*, 2022.

⁴⁷ Xinhua, "[China Issues New Rule on Online Third-Party Payment](#)," *China Daily*, May 28, 2011.

⁴⁸ Tarik Husain, "Is Singapore Next on the List of Mobile Payments Leadership?" *Singapore Business Review*, accessed January 31, 2023.

⁴⁹ Executive Yuan, "[Mobile Payment Platform Targets 90% Penetration by 2025](#)," December 6, 2018; International Trade Administration, "[The Philippine Digital Payments Sector](#)," accessed January 31, 2023.

⁵⁰ Bloomberg, "[China to Make Digital Yuan and Payment Apps More Connected](#)," accessed January 31, 2023.

⁵¹ Kentaro Iwamoto, "Cambodia's digital Currency Reaches Nearly Half the Population," *Nikkei Asia*, January 4, 2022.

Asia as a Time Machine to the Future of Mobile Payments

We believe Asia will continue to be a leader in mobile payments driven by continuous innovation in business models and technologies. To illustrate the extent of Asia's lead, we take the example of China, which is estimated to be at least eight years ahead of the U.S. in terms of mobile payment penetration.⁵² Nearly 46% of China's population had used mobile payments in 2018, a level the U.S. could come close to reaching by 2026.

Players in North America have been actively catching up to Asian players by increasingly adopting innovative business models in the mobile payments space, especially mobile wallets and QR code applications. As an example, the ride-sharing company Uber has its own mobile wallet for drivers to review account balances and make necessary payments.⁵³ Other tech giants such as Google have also been launching or updating their mobile wallet apps to provide a more convenient and comprehensive mobile payment experience for users.⁵⁴ Additionally, PayPal has been expanding its service offerings beyond simple mobile payments to help merchants — from little boutiques to big brands — manage risk with fraud monitoring and streamline their operations.⁵⁵

The COVID-19 pandemic helped to accelerate the adoption of some technologies in the West, such as QR codes, which have been prevalent in Asia for many years. In a September 2020 survey, nearly 20% of U.S. and UK users strongly agreed that they had noticed an increase in QR code usage since pandemic-related lockdowns began earlier that March.⁵⁶ Contactless payments overall, including QR code-enabled payment methods, increased by 150% in the U.S. between March 2019 and March 2021, according to PYMNTS.⁵⁷

Existing and growing fintech ecosystems are also allowing new forms of offerings and services to thrive, making both users' and merchants' mobile payment experiences more convenient, efficient, and comprehensive. These benefits have been well noted across Asia for several years, and we thus expect to see a continued increase in the adoption of mobile payment ecosystems in the West.

⁵² Estimated using data from Insider Intelligence.

⁵³ Uber, "[What Is Uber Wallet?](#)" accessed January 31, 2023.

⁵⁴ PYMNTS, "[Google Wallet Launches as Google Pay Sidekick](#)," July 19, 2022.

⁵⁵ PayPal [website](#), accessed January 31, 2023.

⁵⁶ Statista, "[Increase of QR Codes Usage Since Shelter-in-Place Began According to Consumers in the United States and United Kingdom as of September 2020](#)," accessed February 1, 2023.

⁵⁷ PYMNTS, "[QR Code Technology Finds New Digital-First Use Cases](#)," March 26, 2021.

Social Commerce

Social commerce is a subset of e-commerce that offers consumers an integrated platform with social features, providing a more immersive and interactive shopping experience. It captures the offline experience of going to a mall with friends, for example, where customers can interact, try out products, and encourage one another to make purchases.

Yahoo! first introduced the concept of social commerce in 2005 when it enabled users to share and discuss items from its online shopping catalog.⁵⁸ Since then, social commerce has evolved into a more mature business model that encompasses multiple formats:

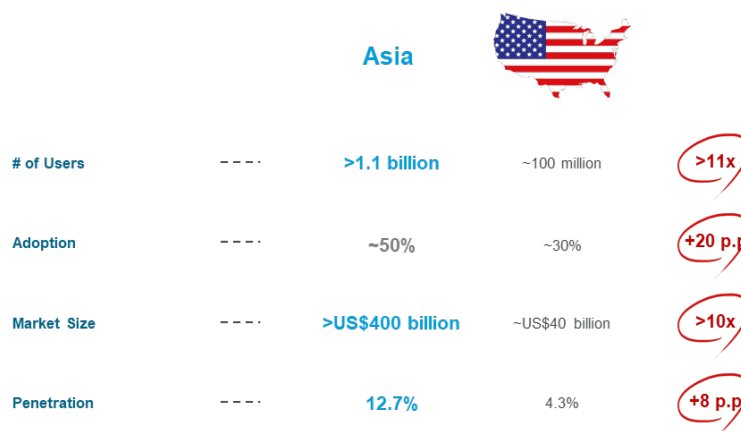
- **Livestreaming e-commerce:** Product promotions are broadcast on e-commerce platforms, allowing consumers to shop, interact with livestreaming hosts, and place orders in real time.
- **Gamification:** Games, such as competitions that offer rewards, are integrated into e-commerce platforms to attract and retain customers, as well as to activate users by delivering value and deepening engagement.
- **Team purchase:** Consumers team up with friends within their social networks to obtain discounts from e-commerce platforms once the number of consumers buying a product reaches a certain threshold.
- **Community purchase:** E-commerce platforms deliver the products to “heads” or representatives of each community, who then distribute the products to consumers who have placed orders in their community.
- **Shoppable content:** Online content — including posts, pictures, and videos — directs consumers to products found online.

Asia was the first region to introduce several of these formats, such as livestreaming e-commerce, helping it to become the undisputed “time machine” for social commerce globally. According to Insider Intelligence (formerly known as eMarketer), the U.S. is expected to reach China’s 2018 level of social commerce penetration in 2026, indicating that China is roughly at least eight years ahead in social commerce.

Figure 14 below broadly compares the state of social commerce between Asia and the U.S.

⁵⁸ Kadi Arula, “The Evolution of Social Commerce: What, When, How, and Why?” Insights For Professionals, December 1, 2011.

Figure 14. Asia Leads in Social Commerce



Note: Data is as of 2021 or 2022 depending on the source. User data based on China, India, and Southeast Asia. Adoption, market size, and penetration data for Asia refer to APAC. Adoption is based on social commerce users as a share of consumers; for the U.S., population serves as a proxy for consumers. Penetration is based on the social commerce market as a share of the overall e-commerce market size.

Source: Statista, Live Mint, Campaign Asia, Insider Intelligence, WEF, EIU, Straits Research, Tinuiti, Citi GPS

Multiple drivers underpin the growth of social commerce:

- **Better user engagement:** With more transparent, real-time interactions and more tailored recommendations, social commerce creates a closer relationship between buyers and sellers.
- **Immersive shopping experience:** Technologies such as livestreaming, augmented reality (AR), and virtual reality (VR) in social commerce enable merchants to enhance product demos and real-time customer service.
- **Better price offerings:** Merchants are able to aggregate order volume to obtain more bargaining power against suppliers, and consequently pass along better consumer prices through the community and team purchase models.
- **Lower customer acquisition cost:** “Word of mouth” referrals from within social networks lead to improved customer conversion rates and lower marketing spend.

Outside of Asia, social commerce is still at an early stage. For example, U.S. social commerce is expected to grow to around \$100 billion in 2025, while Asia already reached over \$400 billion in 2021.⁵⁹ Major tech players in the West, such as Instagram, Snapchat, and YouTube, are beginning to roll out features like livestreaming and AR filters to capture the growth opportunities in this field, further reshaping the e-commerce industry worldwide.

⁵⁹ Refers to market size of Asia-Pacific, according to Straits Research. Citi GPS, [Disruptive Innovations IX: Ten More Things to Stop and Think About](#), December 2022; GlobeNewswire, [“Social Commerce Market Size Is Projected to Reach USD 6191 Billion by 2030, Growing at a CAGR of 30.2%: Straits Research,”](#) September 27, 2022.

Asia's Social Commerce Is Massive

E-commerce has become an integral part of consumers' daily lives across the world, but no region has seen the sheer size of adoption and promotion that Asia has. This has enabled the region to launch different types of promotional campaigns that are further amplified through social commerce. For example, "Singles' Day" (or "Double 11" or 11/11) — an online social shopping event created by China's Alibaba that is akin to Black Friday or Cyber Monday and heavily promoted on social media — garnered a record \$14 billion in average daily Gross Merchandise Value (GMV) in 2022, despite the looming economic downturn.⁶⁰ This figure is more than 50% greater than the Black Friday promotion achieved just a few weeks later in the U.S. and equates to enough parcels to wrap around the globe 42 times if stacked side by side.⁶¹ Such campaigns are not unique to China; in India, a similar commercial holiday resulted in \$9.3 billion of sales in 2022.⁶²

Beyond promotional periods or "shopping carnivals," Asia represents more than half of the world's e-commerce market. By 2026, e-commerce in Asia is expected to reach \$4.9 trillion, representing a compound annual growth rate (CAGR) of 8.8% in 2022-26.⁶³

Meanwhile, technological advancements in logistics have enabled faster delivery, shorter inventory cycles, and more efficient cost management in e-commerce.⁶⁴ The relatively cheaper labor costs in Asia and advanced logistics infrastructure in the top-tier cities across the region have enabled exponential growth in on-demand and last-mile delivery services. Such growth and innovation in e-commerce in Asia has paved the way for new shopping channels and experiences, like social commerce.

Straits Research estimates the size of the global social commerce market was \$576 billion in 2021 and forecasts it to grow to \$6.2 trillion by 2030, implying a growth rate of over 30% per year.⁶⁵ Asia represents a staggering 70% of this market, and within Asia, China represents most of the regional share.⁶⁶ Within China, social commerce accounted for 14% of overall e-commerce in the country in 2021, based on Insider Intelligence data. Livestreaming e-commerce, in particular, first took hold in China when Alibaba introduced Taobao Live in 2016. The business model is undergoing global expansion, with major overseas players Amazon and Facebook entering the space in 2019 and 2020, respectively.⁶⁷

⁶⁰ Weixin [website](#) (Chinese language), accessed January 31, 2023.

⁶¹ Assuming average length of 0.4 meters per parcel. Mike Snider, "\$9.12 Billion Spent in a Day: New Black Friday Online Spending Record Set in 2022, Report Says," *USA Today*, November 26, 2022; Chinese government [website](#) (Chinese language), accessed January 31, 2023.

⁶² Peerzada Abrar, "2022 E-Commerce Festival Sales Almost 2x of 2019: Redseer Report," *Business Standard*, November 17, 2022.

⁶³ The \$4.9 trillion refers to the market size of Asia-Pacific, according to Insider Intelligence. Insider Intelligence, "[Retail & Ecommerce Sales, Asia-Pacific](#)," accessed January 31, 2023.

⁶⁴ BEST Inc., "[Amendment No. 6 to Form F-1](#)," accessed January 31, 2023.

⁶⁵ GlobeNewswire, "[Social Commerce Market Size Is Projected to Reach USD 6191 Billion by 2030, Growing at a CAGR of 30.2%: Straits Research](#)," September 27, 2022.

⁶⁶ Refers to the market size of Asia-Pacific, according to Straits Research. China's regional share is based on Insider Intelligence data.

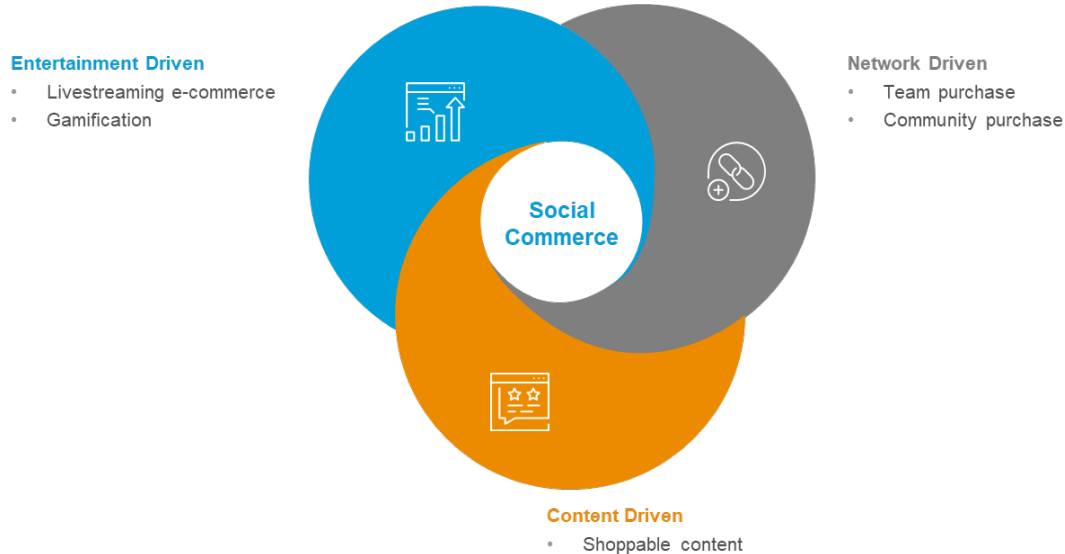
⁶⁷ McKinsey Digital, "[It's Showtime! How Live Commerce Is Transforming the Shopping Experience](#)," July 1, 2021; McKinsey & Company, "[Social Commerce: The Future of How Consumers Interact With Brands](#)," October 19, 2022; Arghanshu Bose, "[Explained](#):"

We are witnessing a paradigm shift in shopping models, both in China and more broadly across Asia, that may hint at what we can expect to see in other parts of the world in the future.

The Diversified Formats of Asia's Social Commerce

Social commerce has evolved into multiple formats, which fall under three non-mutually exclusive categories: entertainment-driven, network-driven, and content-driven — each of which are growing rapidly in Asia.

Figure 15. Major Formats Within Social Commerce



Source: Accenture, Citi GPS

Livestreaming E-Commerce

Since Alibaba first launched Taobao Live in 2016, livestreaming e-commerce has become a vital component of e-commerce in Asia. China's livestreaming e-commerce grew from \$18 billion in 2019 to an estimated \$203 billion in 2022, representing triple-digit growth per year.⁶⁸ This compares to about \$20 billion in the U.S. in 2022, according to Coresight Research.⁶⁹

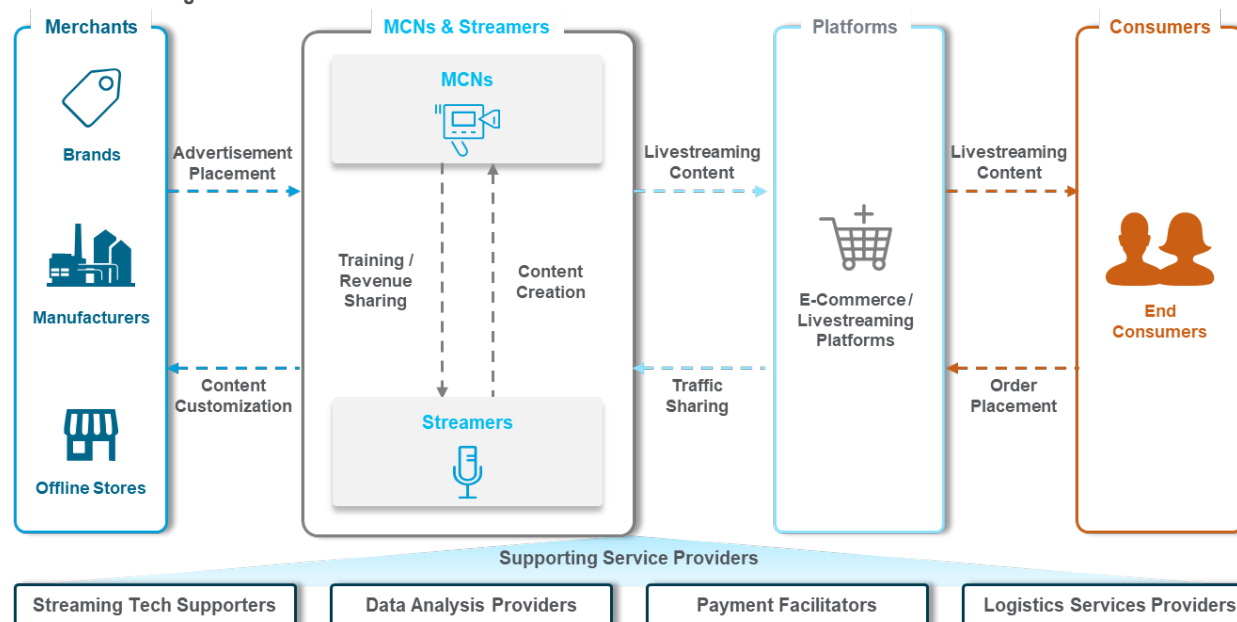
Under the model of livestreaming e-commerce, Key Opinion Leaders (KOLs, also known as influencers) can leverage livestreaming broadcasts to promote merchandise and interact with their audiences to answer questions and provide real-time discounts. Platforms receive commissions based on a certain percentage of GMV, as well as payment for user traffic from merchants, KOLs, and Multi-Channel Networks (MCNs, or professional agencies that connect KOLs with brands and platforms and provide services for KOLs such as marketing and training). Figure 16 below outlines the key participants in livestreaming e-commerce.

[What Is Facebook's Live Shopping Feature and Why Is It Shutting Down?](#), *Times of India*, August 5, 2022.

⁶⁸ McKinsey & Company, ["Social Commerce: The Future of How Consumers Interact With Brands."](#) October 19, 2022.

⁶⁹ Cristina Criddle and Hannah Murphy, ["Social Media's Big Bet: The Shopping Revolution Will Be Livestreamed."](#) *Financial Times*, August 11, 2022.

Figure 16. Livestreaming E-commerce Value Chain



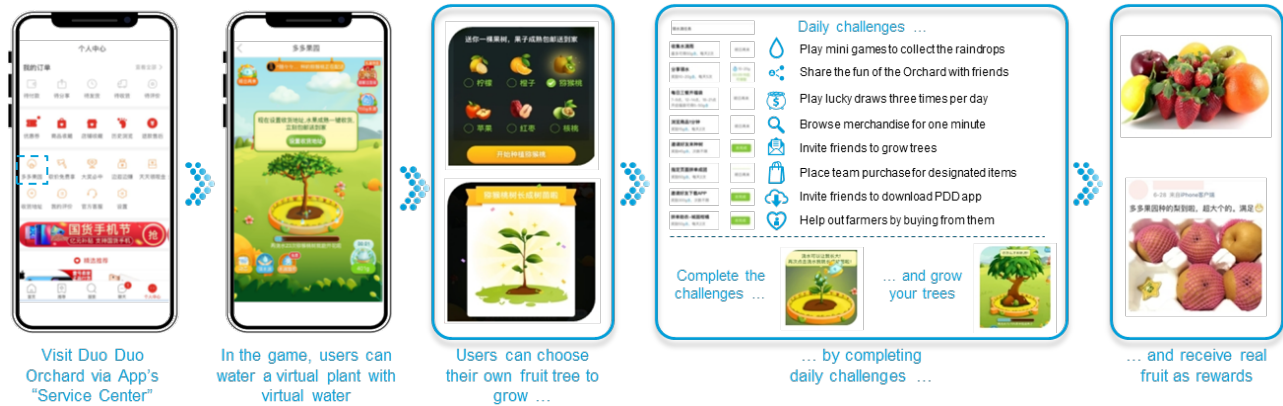
Source: Citi GPS

Gamification

Gamification refers to a strategy that leverages game features to attract, retain, and engage with users. The strategy is widely used in Asia, with the most famous example being Alibaba's Ant Forest, a carbon-saving and tree-planting game that has accumulated over 600 million users.⁷⁰ Although the concept of gamification has been around for a long time, it has been increasingly adopted in the e-commerce sector, where platforms may add certain casual, simplified gaming features within their app or website — such as a farm or an orchard — that allow users to earn discounts or points after completing certain objectives, including placing orders and inviting friends to those platforms. Users might also interact with each other in the games, enhancing the experience. With those appealing features, the games have become an important tool for e-commerce platforms to improve user engagement and retention levels. Figure 17 below provides an illustration of this gamification model, taking the example of Pinduoduo.

⁷⁰ Bloomberg, "[Over 600 Million People Planted More Than 326 Million Trees via Alipay Ant Forest in Five Years](#)," August 25, 2021.

Figure 17. Illustration of Gamification



Source: Company reports, PDD app, Citi GPS

Team Purchase

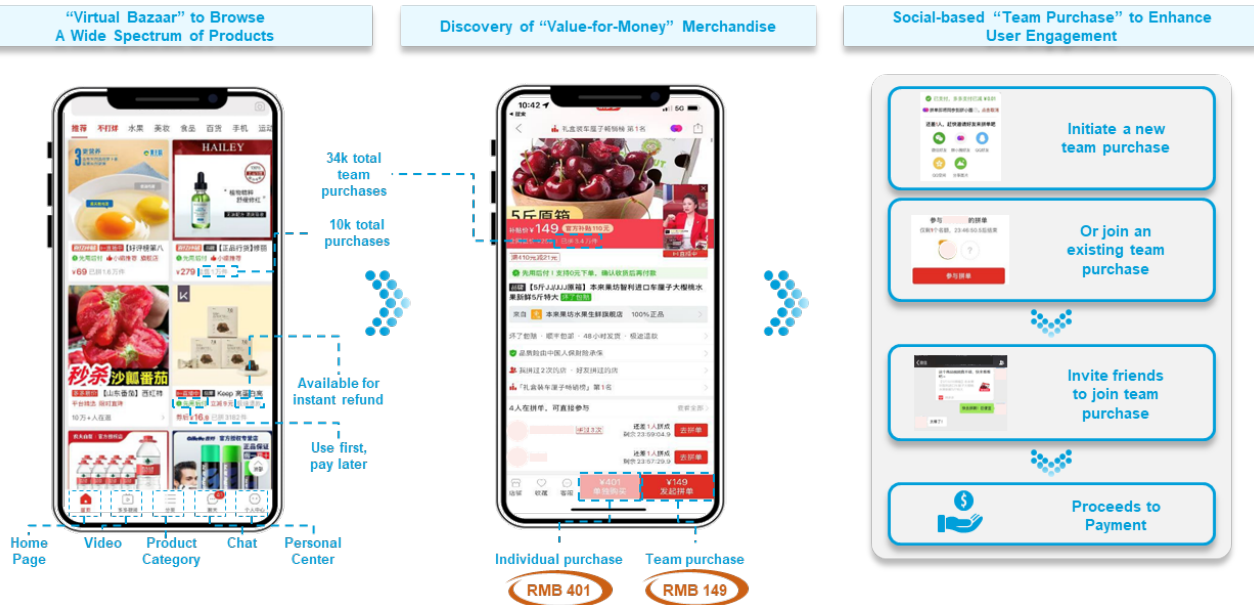
The concept of "group buying" — a business model that offers products at a discount if a predefined number of customers place an order — has existed for a long time. However, recent innovations of "team purchase" in Asia, such as allowing consumers to team up with others in their social network to obtain bargains provided by platforms, have significantly increased group buying's popularity.

Thanks to the large user base of team purchase platforms, merchants receive orders in high volume, which lowers inventory costs and allows the merchants to offer attractive pricing to customers. As the minimum purchasing threshold must be met to obtain discounted pricing, users are incentivized to invite friends to the team purchase, which helps promote products through referrals, encouraging further purchasing and in turn attracting more merchants.

As an example, Pinduoduo incorporated team purchase with mini games and interactive referral mechanisms, which gained popularity in a relatively short time frame. The company reported a 3.5x increase in active users and 17x increase in GMV from 2017 to 2021, driven largely by team purchase features like recommendations and referrals.

Figure 18 below provides an illustration of the team purchase model.

Figure 18. Illustration of Team Purchase

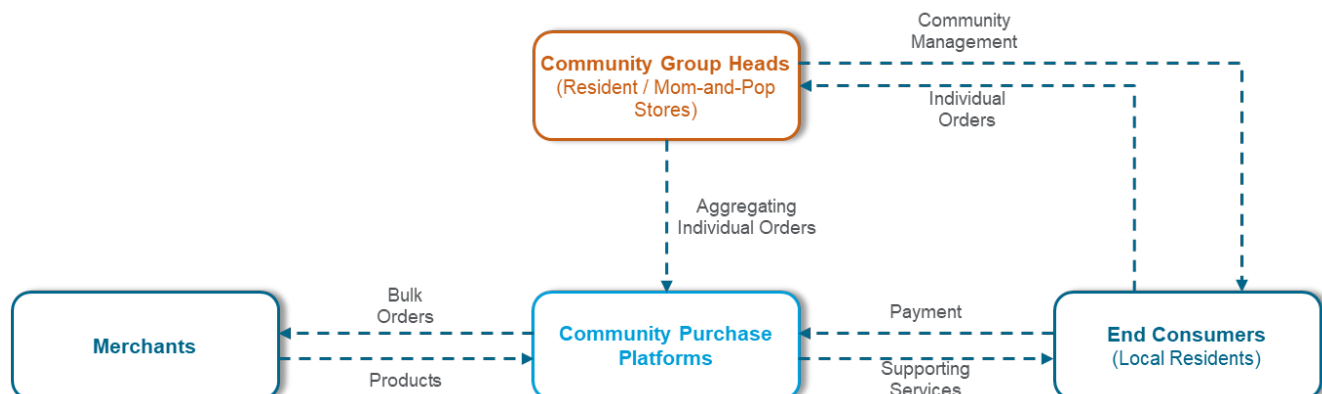


Source: Company Reports, Citi GPS

Community Purchase

With its dense population, Asia has been an early innovator of community purchase. In the community purchase model, consumers in the same community place orders online, and e-commerce platforms deliver the products to “heads” or representatives of each community, who then distribute the products to those who placed the order. These heads are usually residents or mom-and-pop stores within a community who take the role of last-mile delivery and storage. Figure 19 below outlines the key participants in the community purchase value chain.

Figure 19. Community Purchase Value Chain



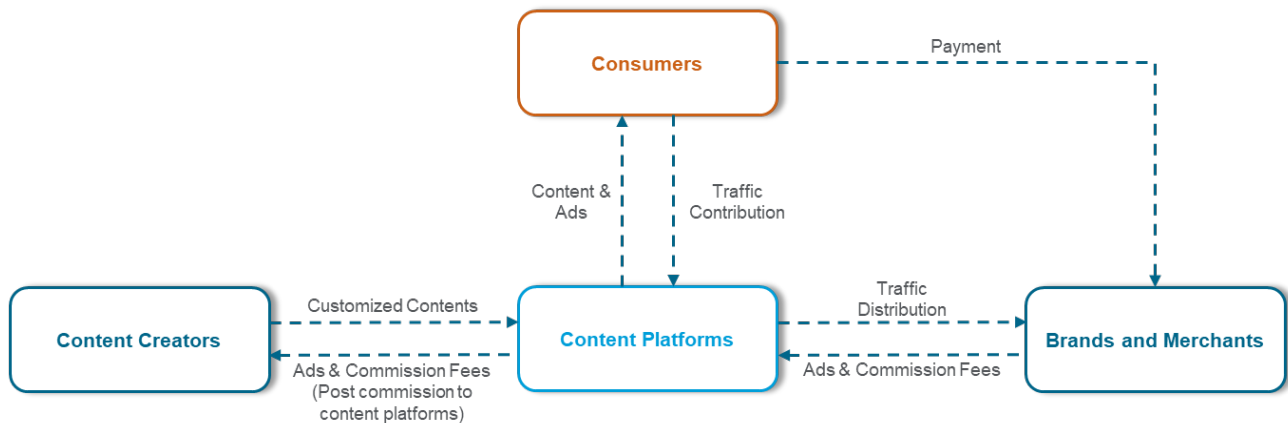
Source: iResearch, Citi GPS

A successful example in the community purchase space is Xingsheng Youxuan, a grocery shopping platform in China that offers customers the convenience of picking up orders at nearby locations. It can also provide a wider range of offerings than brick-and-mortar grocers, thus creating a better shopping experience at a lower operating cost. Community purchase offerings have been a key contributor to Xingsheng Youxuan's 1,400x growth in GMV since 2017.⁷¹

Shoppable Content

Shoppable content — including posts, pictures, and videos — directs consumers to products found online. Typically produced by brands and KOLs, shoppable content generates commission and advertising revenue for the platforms (usually social media-based) on which it is featured. Some social media platforms might also build their own e-commerce platforms to further monetize their traffic. Figure 20 below illustrates the key participants in the shoppable content value chain.

Figure 20. Shoppable Content Value Chain



Source: Citi GPS

After years of development, platforms in Asia have accumulated a prolific and diversified base of high-quality content, which increases their credibility and makes these communities the go-to place for consumers looking to shop online. A survey from BCG in 2021 notes that 87% of searches on a leading content platform in China are directly related to shopping, suggesting that users do not merely kill time on these content platforms, but also often view them as channels for finding or discovering products.⁷²

⁷¹ Xingsheng Youxuan [website](#) (Chinese language), accessed February 1, 2023.

⁷² 100EC [website](#) (Chinese language), accessed February 1, 2023.

Key Drivers Behind the Growth of Social Commerce in Asia

Better user engagement

Social commerce deepens engagement with users by improving transparency, enhancing real-time interaction, and providing more tailored recommendations, thereby creating a closer relationship between buyers and sellers. In Asia, internet users spend on average 39.7% of their online time using social media, compared to the global average of 38.0%.⁷³ The time spent on social commerce in turn helps raise the likelihood of purchasing, as well as building trust and improving customer stickiness.

In Asia, KOLs do not need to be celebrities — any individual can become a content provider for others to buy products on the commerce platform. According to iiMedia Research, 61.7% of Chinese livestreaming users gain satisfaction from such interactive media platforms, which could result in increased spending, customer retention, and referrals.⁷⁴ Likewise, merchants can receive immediate feedback and adjust their customer acquisition, merchandising, or marketing strategies simultaneously.

Immersive shopping experience

Consumers want a more immersive experience like they can get from physically going to a store, but with the convenience and accessibility of being virtual.

Technologies such as livestreaming and AR/VR in social commerce enable merchants to enhance their product demos and real-time customer service. For instance, Alibaba utilizes “Fashion AI” technology with over 500,000 pieces of data on fashion tips from stylists to create curated and personalized recommendations. Rising Asian brands such as Lotte Home Shopping, Gentle Monster, and POP MART have gained popularity around the world using trendy digital art, AR, and VR. Based on a consumer survey conducted by the Korea Federation of Textile Industries, 1 out of 4 Korean consumers has used either an AR or VR-based fitting services to virtually “try-on” clothes using their mobile phone.

Better price offerings

Merchants can aggregate order volume and gain bargaining power against suppliers, resulting in better prices being passed along to consumers through community and team purchase models. Also, in the team purchase model, users can share links to the products they wish to purchase within their social networks and form teams with other users. As long as the formed team surpasses a certain number of team members and they purchase together, they can enjoy a significant discount on those products.

⁷³ Refers to India, Indonesia, the Philippines, Vietnam, China, and Malaysia. Datareportal, “[Digital 2023 Deep-Dive: How Much Time Do We Spend On Social Media?](#),” January 26, 2023.

⁷⁴ Sohu [website](#) (Chinese language), accessed February 1, 2023.

Lower customer acquisition costs

Social commerce models can provide improved customer conversion rates and lower marketing spend. For example, China's Pinduoduo uses gamification strategies for customer referrals, producing customer acquisition costs of \$89 per user in 2022. This is much lower than many traditional e-commerce companies in the West, such as Amazon (\$160) and eBay (\$180).⁷⁵ In addition, the rise of super apps in Asia accelerates organic growth within the spending ecosystem, which helps the marginal decrease of customer acquisition costs.

Asia as a Time Machine to the Future of Social Commerce

With over 1.1 billion users, high market penetration, and multiple innovative formats, Asia is currently the undisputed leader in social commerce.⁷⁶ However, we do expect adoption to continue to grow in the West. Insider Intelligence anticipates that social commerce adoption will reach roughly one-third of the population in the U.S. and one-quarter in the UK by 2025.⁷⁷

This global growth will be driven by active participation by each party in the value chain, including consumers, brands, and platforms:

- **Large base of young, tech-savvy users:** In a 2019 McKinsey survey, adult-age Gen Z respondents ranked social media as having the most influence on product or brand recommendations.⁷⁸ A 2022 survey by the same company noted that 75% of U.S. consumers who have previously live-shopped want to attend more live-shopping shows going forward.⁷⁹
- **More attention from brands and retailers:** Nearly 40% of fashion executives ranked social commerce among the top three themes expected to have an impact on their business in 2022.⁸⁰ Mega-retailers are also launching more initiatives in livestreaming e-commerce — for example, Walmart held a livestreaming e-commerce event in 2020 that expanded its TikTok follower base by 25%.⁸¹
- **Tech giants catching up:** Various U.S. tech giants — including leaders of social media, traditional e-commerce, and content platforms — have been rolling out social commerce capabilities since 2019.⁸²

⁷⁵ CE.cn [website](#) (Chinese language), accessed April 3, 2023; HuntClub [website](#), accessed April 3, 2023.

⁷⁶ Social commerce penetration is defined as retail social commerce sales as a share of retail e-commerce sales.

⁷⁷ Sara Lebow, "Social Commerce to Surpass 100 Million US Buyers," Insider Intelligence, October 5, 2022; Carina Perkins, "UK Social Commerce 2022," Insider Intelligence, November 3, 2022.

⁷⁸ McKinsey Digital, "[It's Showtime! How Live Commerce Is Transforming the Shopping Experience](#)," July 1, 2021.

⁷⁹ McKinsey & Company, "[Social Commerce: The Future of How Consumers Interact With Brands](#)," October 19, 2022.

⁸⁰ McKinsey & Company, "[A Better Way to Build a Brand: The Community Flywheel](#)," September 28, 2021.

⁸¹ McKinsey Digital, "[It's Showtime! How Live Commerce Is Transforming the Shopping Experience](#)," July 1, 2021.

⁸² McKinsey & Company, "[Social Commerce: The Future of How Consumers Interact With Brands](#)," October 19, 2022.

Nevertheless, early social commerce endeavors in the U.S. and Europe have had mixed results — the model is still nascent in these geographies relative to Asia, and experimentation is still underway. Whereas Asia stands out for its well-developed ecosystem supporting social commerce, the West may face the following challenges in developing its own social commerce markets:

- **Consumers still exploring, but not necessarily purchasing:** Consumers in Western markets may not be fully ready to adopt social commerce models like livestreaming commerce, though staying indoors during the pandemic may have made them more curious and open to exploration.⁸³ Even so, the move from discovery to purchasing through social platforms appears somewhat slow, at least in the U.S. A June 2022 survey found that only 38% of U.S. social media users had placed an order on social media in the past 12 months.⁸⁴ Another 2022 survey found that 71% of U.S. social commerce consumers prefer to make purchases on brand websites after discovering products on social networks, while only 13% prefer to buy directly on social media platforms.⁸⁵
- **Brands facing challenges over having less direct interaction with consumers:** Under the new paradigm of social commerce, as consumers stay within social platforms, influencers will play a bigger role in interacting with consumers, while brands might have less control over consumer traffic. This could pose a potential challenge for Western brands.
- **Platforms equipped with limited ecosystem infrastructure:** Unlike in Asia, social commerce in the rest of the world is not always supported by a well-developed ecosystem that includes multiple service providers, ranging from influencer agencies (such as MCNs) to well-trained content creators, as well as infrastructure that supports payments and logistics networks for merchandise delivery.⁸⁶

Insider Intelligence predicts social commerce in the U.S. will reach an 8.1% share of e-commerce sales by 2026 — a figure that China achieved in 2018. While Asia may be several years ahead of the West — eight years based on the Insider Intelligence statistic — in social commerce, the consumer-centric and highly-engaging qualities of social commerce should continue to draw wider interest globally.

Once again, the social commerce model suggests how the trends that we see in Asia today are what we can expect to prevail in other regions in the future.

⁸³ Rimma Kats, "How Livestreaming Commerce Can Be a Phenomenon in the US, Like It Is in China," Insider Intelligence, February 2, 2022.

⁸⁴ Jasmine Enberg, "Social Commerce and the Path to Purchase," Insider Intelligence, October 26, 2022.

⁸⁵ SimplicityDX, "[The State of Social Commerce 2022](#)," PDF, accessed February 1, 2023.

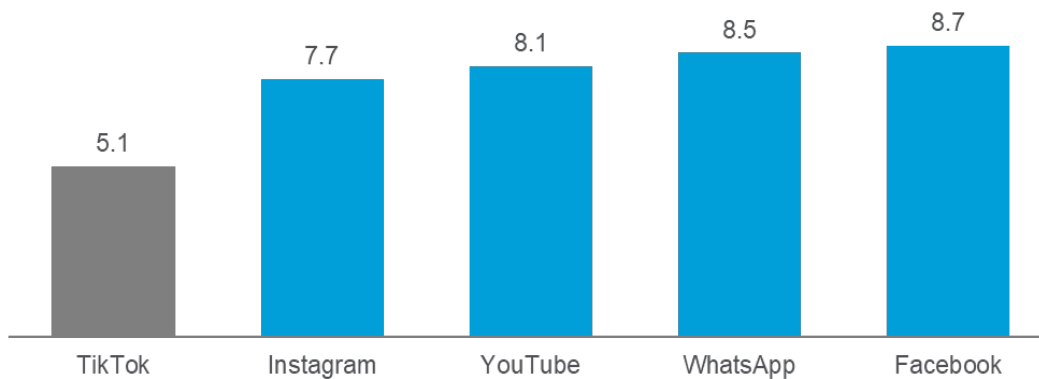
⁸⁶ Cristina Criddle and Hannah Murphy, "[Social Media's Big Bet: The Shopping Revolution Will Be Livestreamed](#)," *Financial Times*, August 11, 2022.

Short-Form Videos

Short-form videos have revolutionized the way people consume and creators develop video content. Typically shorter than 60 seconds (and frequently just 10-15 seconds long), short-form videos are shaping the future of modern entertainment, advertising models, and social engagement.

Short-form videos are credited to several different origins, including ad clips that preceded traditional, long-form videos. However, the commercialization of short-form videos really took off with the launches of the Kuaishou and Douyin platforms in China in 2011 and 2016, respectively. In 2017, Douyin's parent company ByteDance launched its international version, TikTok, ultimately surpassing Google.com as the most visited domain globally for a period in 2021.⁸⁷ In the same year, TikTok reached 1 billion monthly active users (MAUs) — reaching that milestone several years faster than Facebook, WhatsApp, YouTube, or Instagram, as shown in Figure 20 below.⁸⁸

Figure 21. Number of Years It Took for Select Social Media Services to Reach 1 Billion MAUs



Source: Axios, Citi GPS

Over the past decade, China's short-form video platforms have taken the world by storm. There are several drivers underpinning this extraordinary rise:

■ **Underdeveloped media and entertainment in China in the early 2010s:**

China's media and entertainment industry was relatively underdeveloped a decade ago, and people had less access to options like movie theaters and streaming services. Short-form videos — which require little-to-no production resources and are easily accessible via mobile phones — have helped fill this entertainment void.

■ **Ease of creating content:** Short-form video platforms have drastically democratized the content creation process, offering simple video editing tools.

■ **Virtuous cycle that empowers content creators and brands:** Chinese short-form video platforms empower creators and brands with tools to monetize their content. This incentivizes the production of more content, which attracts more viewers and more sponsorship, in a virtuous cycle.

⁸⁷ Joao Tome and Sofia Cardita, "In 2021, the Internet Went for TikTok, Space and Beyond," Cloudflare, December 20, 2021.

⁸⁸ Sara Fischer, "TikTok Hits 1 Billion Users," Axios, September 28, 2021.

- **Appealing format for younger generations:** Similar to webtoons discussed later in this report, short-form videos complement the “snack culture” trend among younger audiences, who prefer to consume entertainment in brief periods and/or in quick forms, typically during short and idle time in between activities.⁸⁹

Thanks to the mesmerizing appeal of endless, “snackable,” and algorithmically-tailored content, billions of users around the world have gravitated toward this new form of media. Taking note of the success in China, Western tech giants, such as Meta and Alphabet, have been racing to create their own products with similar features, as the competition for users and advertising budgets intensifies.

Key Drivers Behind the Rise of Short-Form Videos in Asia

Underdeveloped Media and Entertainment in China in the Early 2010s

China’s underdeveloped media and entertainment industry a decade ago was an important driver behind the rise of short-form videos in the country. In 2010, there were only five movie screens per 1 million people in China, compared to 128 screens per 1 million people in the U.S.⁹⁰ Similarly for over-the-top television (OTT) services, or online television, the number of Internet Protocol Television (IPTV) subscriptions in China in early 2010 was only 5.8 million, lower than the 6.1 million subscriber base in the U.S. despite China having more than quadruple the population.⁹¹ Against this backdrop, coupled with the advancement and increased affordability of smartphones, short-form videos emerged in China as a highly accessible entertainment option, not to mention an easy-to-use creative outlet, which we turn to next.

Ease of Creating Content

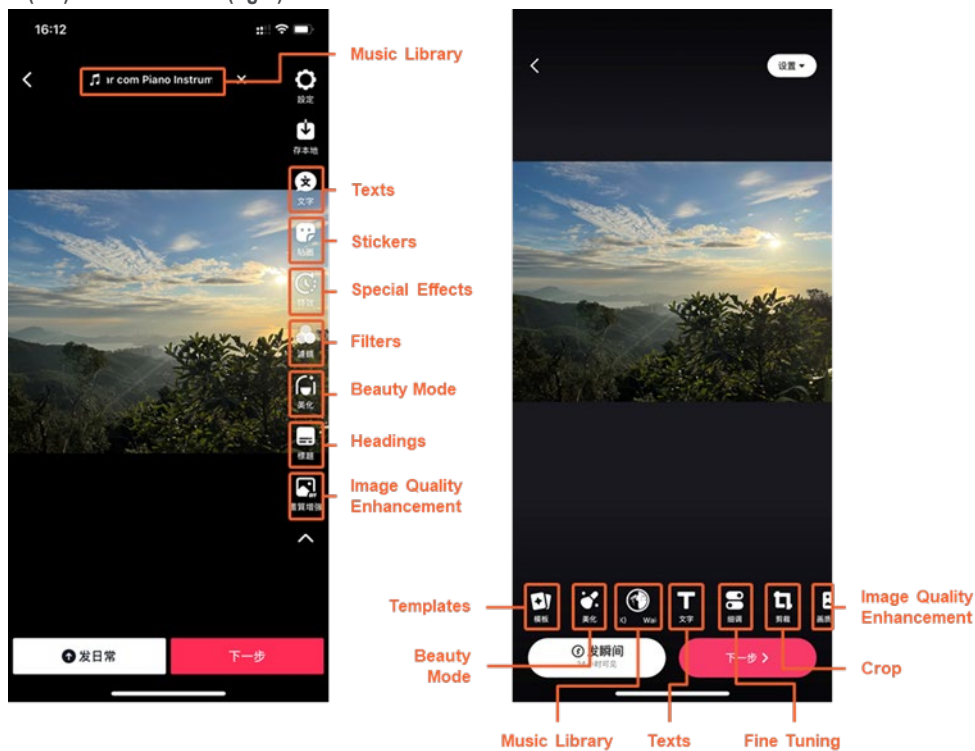
Short-form video apps have made it extremely easy for ordinary users to create videos by offering editing tools — such as extensive libraries of free music clips, special effects, and AR filters — in an easy-to-use interface. Another tool includes a built-in “green screen” feature, allowing users to superimpose themselves over a dynamic image or background (for example, mimicking a TV news report). With such tools, the entire content creation process has been dramatically democratized — anyone with a smartphone and internet access can produce videos in the palms of their hands without relying on professional equipment or video editing skills. Likewise, the apps provide a social platform for sharing videos with family and friends, or even to a broader audience with the hope of the content going viral.

⁸⁹ “Snack culture” is a social term used to describe the tendency to consume various forms of entertainment in brief periods and/or in quick forms, typically during short and idle time in between activities.

⁹⁰ Calculated using population data from the World Bank, and theater data from: EntGroup, *China Film Industry Report 2012-2013 (In Brief)*, 2013; National Association of Theatre Owners, “[Number of U.S. Movie Screens](#),” accessed February 1, 2023.

⁹¹ Digital TV News, “[Global IPTV Subscribers Grow 8% in Q1 2010](#),” June 16, 2010.

Figure 22. Douyin's (left) and Kuaishou's (right) Video Creation Interfaces



Source: Douyin app, Kuaishou app, Citi GPS

Virtuous Cycle That Empowers Content Creators and Brands

The popularity of short-form videos and the accessibility of editing tools have led to a huge influx of content creators, both professional and amateur, on content platforms. Coupled with advertising tools on short-form video platforms, notably in China, content creators and brands can easily monetize their production. This has resulted in an ever-growing and diversifying supply of content that, in turn, attracts more viewers to join and more brands looking for marketing opportunities — spurring a virtuous cycle of content creation, viewer engagement, and brand sponsorship on the platforms. This contrasts with the trajectory of Vine, a U.S. company that is widely viewed as the first to launch short-form video services but was shut down in 2017 due to insufficient monetization opportunities for content creators, a lack of advertising tools for brands, and rising competition.⁹²

Appealing Format for Younger Generations

Short-form videos are, by definition, short and therefore quick to consume. Users can watch the content on the go or in between other activities, making it highly convenient and in many cases, preferred. This snackable content is widely popular among younger audiences, who are the largest users on social media platforms and are accustomed to a mobile-only culture.

⁹² Viktor Hendelmann, “[What Happened to Vine? Why the One-Popular App Shut Down.](#)” Productmint, accessed February 1, 2023.

Asia as a Time Machine to the Future of Short-Form Videos

With Chinese short-form video platforms gaining significant traction in the social media space, traditional internet companies are facing increasingly fierce competition. Aside from their enormous popularity among users and content creators, short-form videos are becoming a key marketing tool that brands can hardly afford to ignore. One recent survey indicated that 30% of social media marketers planned on investing in short-form video above all other mediums, and suggested it provides the highest return on investment (ROI) of any social media marketing strategy.⁹³ As an example, technology research firm Omdia expects TikTok's advertising revenue to exceed that of Meta and YouTube combined by 2027.⁹⁴ Meanwhile, the Western tech giants, who rely heavily on advertising revenue, have started to follow suit. Meta introduced Reels on its Instagram platform in 2020, Snapchat added Spotlight in 2020, and Alphabet launched YouTube Shorts in 2021 — all of which share similar features with their Chinese rivals developed five to ten years earlier.

From Chinese short-form video platforms' early success in the domestic market to their global leadership today, Asia has been the time machine to the future of short-form videos.

⁹³ Martina Bretous, "6 Short-Form Video Trends Marketers Should Watch in 2022 [New Data]," HubSpot, July 18, 2022.

⁹⁴ Patricia Nilsson, "Advertisers Binge on Online Video," *Financial Times*, November 23, 2022.

eSports

eSports, or multi-player video game competitions, is one of the fastest growing industries worldwide. The global market size was estimated to be nearly \$1.4 billion in 2022, and is projected to grow at more than 10% per year through 2025; nowhere has adoption been greater over the past two decades than in Asia.⁹⁵ Viewership of eSports tournaments — such as the 2018 *League of Legends* World Championship in South Korea with approximately 100 million unique online viewers — has even surpassed some of the world's largest traditional sporting events like the NFL's Super Bowl as shown in Figure 23.⁹⁶

Figure 23. Viewership of 2018 *League of Legends* World Championship vs. 2018 NFL Super Bowl



Source: CNBC, Citi GPS

Although South Korea was not the first country to develop eSports, it is widely regarded as the “home of eSports” due to its role in popularizing it around the world. This began with the release of *StarCraft* by Blizzard in 1998; already a massive hit worldwide, South Korea took the game to the next level.⁹⁷ The popular game was not only ubiquitous across South Korea, but *StarCraft* competitions were also broadcast on national television through dedicated channels viewed by millions of fans.⁹⁸ As early as 2000, the South Korean government formed the Korea e-Sports Association (KeSPA) to formally promote eSports, turning it into a new entertainment format and leading the world in the standardization of eSports as a professional sport.⁹⁹ In 2001, South Korea hosted the world's first World Cyber Games, often dubbed the Olympics of eSports.¹⁰⁰ For each of the first ten years of the event, South Korean players took home the gold medal for *StarCraft: Brood War*.¹⁰¹

⁹⁵ Newzoo, “[Newzoo's Global Esports & Live Streaming Market Report 2022 | Free Version](#)”, April 19, 2022.

⁹⁶ Austen Goslin, “The League of Legends World Finals Had Nearly 100 Million Viewers,” *Rift Herald*, December 11, 2018; The Game Haus, “[Top 5 Biggest eSports Tournaments](#),” May 12, 2022.

⁹⁷ Kevin Hovdestad, “The Rise and Fall of StarCraft II as an eSport,” *IGN*, March 22, 2016.

⁹⁸ Dal Yong Jin, “Historiography of Korean Esports: Perspectives on Spectatorship,” *International Journal of Communication*, Vol. 14, 2020.

⁹⁹ Jae Chang, “Esports Rises as a Viable Career Field for Young South Koreans,” *Korea Economic Institute*, September 2, 2022.

¹⁰⁰ Seth Suncho, “An Exhaustive Guide on World Cyber Games: WCG History, Hall of Fame & Winners,” *eSports Lane*, accessed January 30, 2023.

¹⁰¹ Based on a compilation of tournament winners.

The eSports boom in South Korea quickly spread to other Asian countries, making the region the world's hub of competitive gaming in terms of viewership, as well as producing top-rated eSports teams and pro gamers and developing a highly lucrative ecosystem around the industry. In 2021, Asia represented 57% of the global market by revenue, as well as roughly half of the world gaming population, by number of gamers and spectators.¹⁰²

There are several drivers that have helped fuel the boom of eSports in Asia:

- **Developed internet infrastructure and fast connection speeds:** As early as 2000, South Korea was the first country in the world to widely adopt the fastest broadband infrastructure available at the time.¹⁰³
- **Vibrant gaming culture:** Asia's internet users spend more time gaming than those in other regions.
- **Government support to professionalize eSports:** Many Asian governments have supported the recognition of eSports as a professional sport, standardizing the industry and positioning it for long-term growth.
- **Track record of innovative entertainment formats:** As noted in other sections of this report, such as the discussions of short-form videos and webtoons, Asia has a track record of being a global innovator in new entertainment formats, enabling the popularization and commercialization of eSports.

eSports in Asia

An eSports Ecosystem

With *StarCraft*, South Korea effectively developed the first complete eSports ecosystem, which consists of four key components: (1) tournament organizers, which were originally TV channels but have since become game developers or publishers; (2) content distributors, which were also once largely TV channels but are now various streaming platforms; (3) professional teams that participate to win prize money; and (4) brands that sponsor the tournaments or partner with teams as a way to advertise. This eSports ecosystem presents lucrative opportunities for all four parties.

In the meantime, Asia continues to innovate in the eSports value chain. South Korea has a unique edge in talent development and team management that has given rise to many legendary players. In addition, eSports is regarded as a legitimate career option in the country. According to a survey from South Korea's Education Ministry in 2020, eSports was the fifth-most popular career option among South Korean students.¹⁰⁴ South Korean eSports organizations have also established academies to systematically train gamers under strict schedules just like professional athletes.¹⁰⁵

¹⁰² Niko Partners, "[eSports in Asia](#)," accessed January 30, 2023; Asia Sports Tech, "[What Makes Asia an eSports Powerhouse](#)," accessed May 4, 2023. Data from the latter source refers to the Asia-Pacific region.

¹⁰³ Dong-Hee Shin and Sang Hee Kweon, "Evaluation of Korean Information Infrastructure Policy 2000–2010: Focusing on Broadband Ecosystem Change," *Government Information Quarterly*, Vol. 28, No. 3, July 2011.

¹⁰⁴ Choe Sang-Hun, "Inside the 'Deadly Serious' World of E-Sports in South Korea," *New York Times*, June 19, 2021.

¹⁰⁵ Ibid.

Organizations are equipped with nutritionists, doctors, and coaches, providing a comprehensive and sustainable development environment for professional gamers. eSports education in South Korea also extends to team management, as high schools and universities have launched curriculums on the inner workings of the eSports industry.¹⁰⁶ The advanced level of training is developing world-leading eSports gamers as well as highly mature eSports management teams, with South Korean players and coaches being highly sought after by Western eSports teams.

Mobile eSports

Driven by high mobile penetration and a large mobile-first culture, Asia has widely popularized mobile eSports, launching mobile events at a scale and viewership unseen in the West. The success of mobile eSports is largely linked to the high penetration of the broader mobile gaming market in Asia. Globally, more than 80% of gamers play on mobile, and approximately half of mobile gamers are in Asia.¹⁰⁷

Mobile gaming is also the highest-grossing gaming segment globally.¹⁰⁸ According to Sensor Tower, four out of the eight highest revenue-generating mobile games in 2021 were from Asia.¹⁰⁹ The attractive economics of mobile games — benefiting from relatively low distribution and development costs, virality of content, and convenience — has led to significant investment across the full eSports value chain of advertising, merchandising, sponsorships, and media rights, among others. In 2022, Malaysia's Minister of Youth and Sports made an appearance at the *Mobile Legends: Bang Bang* Southeast Asia Cup eSports tournament to speak on the impact that hosting such tournaments has had in the country.¹¹⁰ In Japan, the Call of the Abyss tournament — the highest level of competition for the widely popular mobile game *Identity V* by NetEase, reached 22 million views in 2021 — becoming the “most influential” eSports competition on YouTube in the country.¹¹¹

Beyond Gaming: Entertainment Hubs

Asia's eSports industry is unique in its ambition to expand beyond tournaments toward monetization through a larger eSports ecosystem. eSports teams are expanding their businesses into themed eSports hubs, which are usually comprised of spaces such as shopping malls or amusement parks that can attract huge numbers of visitors. For example, the founder of Edward Gaming, a team that won the *League of Legends* World Championship title in 2021, invested RMB15 billion (approximately \$2.2 billion) in Shanghai to build a one-stop platform combining social interaction and entertainment for the young generation of eSports fans and gamers, as well as offering workspace.¹¹²

¹⁰⁶ Im Eun-byel, “Hanshin University Offers Advanced Education in eSports,” *Korea Herald*, October 13, 2022.

¹⁰⁷ TransPerfect Gaming Solutions, “[Esports in 2022 and What It Means for Developers](#),” May 24, 2022.

¹⁰⁸ Ibid.

¹⁰⁹ Mobile games with revenue over \$1 billion. Sensor Tower, “[Record-Breaking Eight Mobile Games Surpass \\$1 Billion in Global Player Spending During 2021](#),” accessed May 5, 2023.

¹¹⁰ Tom Daniels, “Mobile Miracles: The Rise and Reign of Mobile eSports in Southeast Asia,” *eSports Insider*, July 7, 2022.

¹¹¹ Ibid.

¹¹² Currency conversions as of May 5, 2023.

In Malaysia, the world's first mobile game-themed eSports hub is under talks to launch in the near future.¹¹³ Supported by the popularity of *Mobile Legends: Bang Bang* in Southeast Asia, the game developer Moonton announced a partnership with the real estate developer Hatten Land in August 2022 to launch an eSports hub with a five-star eSports hotel and a *Mobile Legends*-themed mall in Melaka, Malaysia. The partners plan to run eSports events using an existing 1,200-capacity eSports arena.¹¹⁴

The expansion of eSports tournaments into eSports hubs not only serves as a way to monetize increased traffic, but also turns eSports into a bigger entertainment format, enabling more people to participate in it while creating more value for all members of the eSports value chain.

Key Drivers Behind the Rise of eSports in Asia

Developed Internet Infrastructure and Fast Connection Speeds

South Korea has been a leader in the adoption of high-speed internet since 2000, with the development of broadband infrastructure in the country starting as early as the 1990s.¹¹⁵ By 2002, fixed broadband subscriptions covered nearly one-quarter of South Korea's population (22%), notably higher than in the U.S. (6.9%) and the UK (2.3%) at the time, according to the International Telecommunication Union (ITU). The extraordinary speed at which South Korea adopted broadband infrastructure led to the development of PC bangs (internet cafes in South Korea associated with gaming), which facilitated the growth of eSports in South Korea.

World-leading internet speeds in South Korea further helped the development of eSports. In fixed broadband speed, the country was in the top ten each year in 2019-21, according to Ookla. However, as shown in Figure 24 below, South Korea has been a leader in this area for far longer than that. Moreover, for mobile internet speeds, South Korea was in the top three globally each year from 2019-21.¹¹⁶ At the same time, other markets in Asia such as Singapore have also developed high-speed internet infrastructure, laying the foundation for gaming (and more specifically, eSports) development.

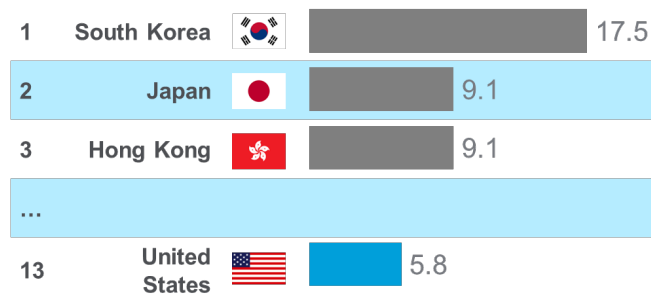
¹¹³ Claudia Khaw, "This Mall & Hotel in Melaka Will Be Transformed Into a Mobile Legends-Themed eSports Hub," *Vulcan Post*, August 19, 2022.

¹¹⁴ Hatten Land, "[Project Element](#)," accessed January 31, 2023.

¹¹⁵ Dong-Hee Shin and Sang Hee Kweon, "Evaluation of Korean Information Infrastructure Policy 2000–2010: Focusing on Broadband Ecosystem Change," *Government Information Quarterly*, Vol. 28, No. 3, July 2011.

¹¹⁶ Isla Mcketta, "Despite All Odds, Global Internet Speeds Continue Impressive Increase," Ookla, September 8, 2021.

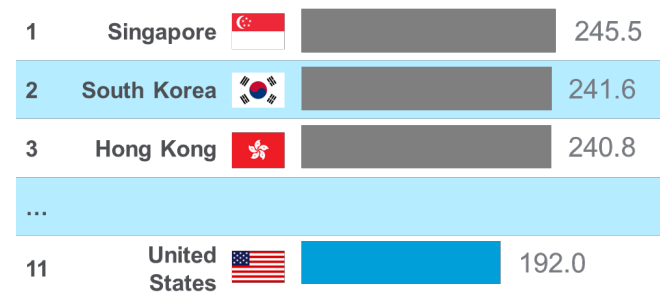
Figure 24. Internet Speed Ranking in 2011 (Mbps)



Note: As of 4Q 2011.

Source: Akamai, Citi GPS

Figure 25. Internet Speed Ranking in 2021 (Mbps)



Note: As of April 2021.

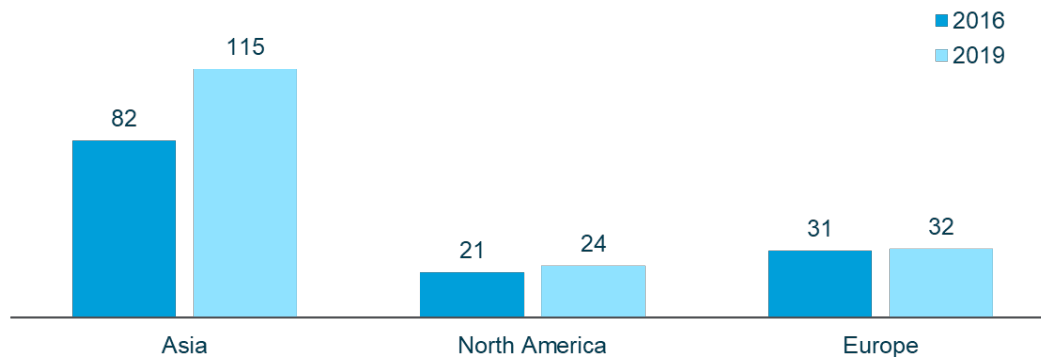
Source: Ookla, Citi GPS

Vibrant Gaming Culture

In part thanks to South Korea's popularization of eSports as a form of entertainment, eSports has become more ingrained in the region's culture than in any other region. Arguably, eSports is to parts of Asia as soccer is to Brazil. By its sheer number of frequent eSports viewers, Asia exhibits a significantly more vibrant gaming culture compared to North America and Europe, helping shape the region into the global center of eSports innovation and development.

Figure 26. Number of Frequent eSports Viewers in Asia Outnumbered Those in North America and Europe Combined

Number of eSports Enthusiasts (million people)



Note: Refers to Asia-Pacific. eSports enthusiasts are defined as those who watch eSports content more than once a month.

Source: Newzoo, Citi GPS

Asian gamers spend more time gaming than their Western counterparts. According to a 2021 survey, gamers in China, Vietnam, India, and Indonesia spent 12.4 hours, 10.2 hours, 8.6 hours, and 8.5 hours on gaming every week, respectively, much more time than those in the U.S. (7.7 hours) and the UK (7.2 hours).¹¹⁷

¹¹⁷ Statista, "[Average Weekly Hours Spent Playing Video Games in Selected Countries Worldwide as of January 2021](#)," accessed January 30, 2023.

In South Korea, gaming and eSports have become a way to socialize with other people. PC bangs underwent a drastic boom in 2000 attributable to the popularity of *StarCraft*. In 1998, South Korea had only 100 PC bangs, but this number spiked to over 23,000 just three years later.¹¹⁸ Ultimately, PC bangs became ubiquitous on nearly every street corner, with the younger generation using them not only as a venue to play games, but also as a place to socialize.¹¹⁹ This culture is nearly non-existent in the West — at least not since the arcade era of the 1980s, before console games took over in popularity, which did not occur on a similar scale in Asia.

Government Support to Professionalize eSports

Asia embraced eSports as a professional sport early in its development. South Korea recognized eSports as an official sport in 2000, and China followed in 2003. In contrast, the U.S. only recognized professional gamers as athletes and started granting them sporting visas to compete in 2013.¹²⁰ Since 2019, some eSports have been included as official events in the biennial Southeast Asian Games, garnering significant viewership.¹²¹ eSports will also be making a debut as one of the 37 sports to be played at the 2022 Asian Games, taking place in 2023.¹²²

In China, the local governments of Guangzhou, Beijing, Jiangsu, Shanghai, and Fujian all have launched supporting policies for eSports in 2021, pushing for the hosting of tournaments and encouraging companies to participate in and sponsor eSports events.¹²³ Over 100,000 professional eSports players are registered under professional teams in China.¹²⁴

Track Record of Innovative Entertainment Formats

As noted in other sections of this report, such as the discussions of short-form videos and webtoons, Asia has a successful history of creating new forms of media and entertainment that exert global influence. Japan introduced anime culture, shaping the world's entertainment industry with manga and anime that has achieved global popularity. South Korea has also introduced many innovative entertainment forms to the world, including K-pop (Korean popular music, such as the boy band BTS) and K-drama (Korean drama). In 2020, South Korea's exports of cultural goods amounted to around \$10 billion, of which games constituted around \$8 billion; this speaks to South Korea's ability to popularize new forms of entertainment.¹²⁵

¹¹⁸ Max S. Kim, "Video Games Are Dividing South Korea," *MIT Technology Review*, December 23, 2019.

¹¹⁹ Michael Baker, "Korea's PC 'Bangs' Are the New Place to Socialize," *Christian Science Monitor*, May 3, 2000.

¹²⁰ eSports Insider, "[Esports Around The World: South Korea](#)," May 3, 2022; Yi Wu, "More Than a Hobby: Understanding the Esports Market in China," China Briefing, October 28, 2022; eSports Insider, "[Esports Around The World: United States of America](#)," March 22, 2022.

¹²¹ Takeru Ito, Takashi Yakano, and Yuichi Shiga, "Southeast Asia's Red-Hot eSports Scene Draws Global Brands as Sponsors," *Nikkei Asia*, October 21, 2022.

¹²² The 2022 Asian Games will be held from September 2023 to October 2023.

¹²³ iResearch [PDF](#) (Chinese language), accessed February 22, 2023.

¹²⁴ Chen Yuxi Qin Sheng, "E-sports Life: 1 in 10,000 Debut Rate, 24-Year-Old Retirement Curse," [Guoqing.china.com.cn](#) (Chinese language), July 7, 2021; [tjj.jl.gov.cn website](#) (Chinese language), accessed February 1, 2023.

¹²⁵ Jimmyn Park, "Korea's Cultural Exports and Soft Power: Understanding the True Scale of This Trend," *Asialink*, August 9, 2022.

Some eSports players have even become celebrities. Lee Sang-hyeok, a South Korean professional player known as “Faker” and often dubbed the most respected player in *League of Legends*, has over 564,000 followers on Twitter. Asia’s success in promoting new entertainment formats is helping to drive eSports into the mainstream, triggering a shift from smaller-scale playership to larger-scale viewership.

Asia as a Time Machine to the Future of eSports

As a global powerhouse of new entertainment and home to a vibrant gaming culture supported by infrastructure and policy, Asia continues to lead the world in eSports. The development and adoption of eSports in Asia, and the recognition of its place among traditional sports and entertainment, has far outpaced the Western market.

Government agencies, as well as large corporations in both the tech and media/entertainment sectors, have taken Asia’s lead globally to professionalize eSports. However, the U.S. was a decade or more behind leaders in Asia, like South Korea and China, in drafting policy around the sport. Since then, we have seen other countries, notably in Europe, begin to recognize eSports on a professional level, not only encouraging participation in the broader ecosystem, but also driving funding to the sport through sponsorships, training academies, game development, merchandising, and media rights, among other things.¹²⁶

Both the viewership and market share of eSports in Asia have far surpassed the levels seen in the West. The COVID-19 pandemic also accelerated global adoption of eSports — both gaming and spectating — as people stayed at home while social distancing and sought alternative forms of entertainment.

The U.S. is establishing an eSports ecosystem in some ways similar to South Korea’s, just a decade or more later. U.S. game developers have organized many widely popular eSports series themselves — for example, the 2022 *League of Legends* World Championship, which was broadcast to millions of viewers on livestreaming platforms such as Twitch, Facebook Gaming, and YouTube. Sports media juggernaut ESPN launched dedicated eSports coverage in 2016; while ESPN saw some early success, ultimately the venture was shut down in 2020, with some key senior staff suggesting they missed an opportunity to expand into this audience for the longer term.¹²⁷ Lastly, we have seen a number of successful professional American eSports teams emerge, such as TSM, 100 Thieves, and Team Liquid.¹²⁸ These teams have become strong contenders in various global eSports tournaments, winning prize money and attracting sponsors like Nike.

Over the past decade, countries in the West have followed in Asia’s footsteps by professionalizing eSports, organizing eSports tournaments, developing successful eSports teams, attracting sponsorships, and supporting a growing livestreaming market. Meanwhile, Asia continues to explore new frontiers in eSports: refining the eSports value chain, popularizing and scaling the mobile eSports ecosystem, and creating eSports hubs. From the origination of eSports ecosystems in the early 2000s to the progress made today, Asia has been a time machine to the future of eSports for the rest of the world.

¹²⁶ Jake Nordland, “EU Parliament Passes Vote to Recognise and Fund Esports, Video Games in Europe,” *eSports Insider*, November 10, 2022.

¹²⁷ Noah Smith, “The Rise, Fall and Resonance of Esports,” *Washington Post*, February 16, 2021.

¹²⁸ Brett Knight, “The Most Valuable Esports Companies 2022,” *Forbes*, May 6, 2022.

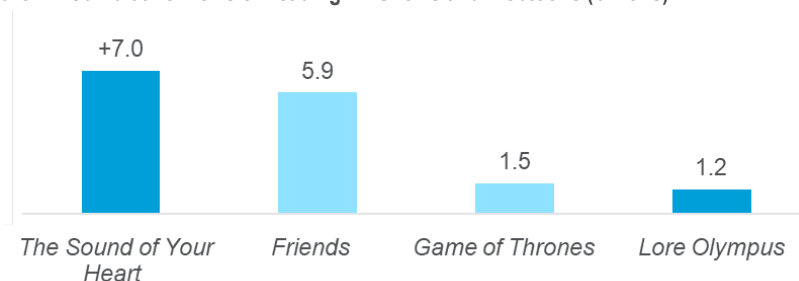
Webtoons

The formats and mediums in which we consume entertainment have evolved as the world has become more digital and mobile-centric. We now listen to music via streaming (instead of with discs or digital files), watch videos via video on-demand and over-the-top media services (as opposed to on broadcast TV), and play games online (rather than in arcades and dedicated home consoles). In line with such trends, comics are now undergoing a similar transition in the form of “webtoons.”

Webtoons are digital comics optimized for viewing on mobile devices by their vertical format. They are intended directly for digital consumption, unlike traditional comics, which are physically printed or displayed in a book or “strip” format.

The popularity of several webtoons is already eclipsing that of traditional on-demand content, such as TV shows. The longest-running webtoon, *The Sound of Your Heart* — a South Korean comedy series about everyday life — ran for over 14 years from 2006 to 2020, with over 1,200 episodes (one released per week) and approximately 7 billion cumulative views.¹²⁹ Among the more recent webtoons, *Lore Olympus*, a modern retelling of the romance between the Greek goddess Persephone and the god Hades, has garnered 1.2 billion cumulative views and 6.1 million registered subscribers on WEBTOON — a leading platform for webtoons — since March 2018.

Figure 27. Cumulative Views of Leading TV Shows and Webtoons (billions)



Note: For *Game of Thrones*, cumulative views were calculated based on average views per season. For *Friends*, cumulative views refer to the sum of views of every episode broadcast in the series' regular timeslot in the U.S.

Source: WEBTOON, *Forbes*, Nielsen, Citi GPS

Multiple drivers underpin the rise of webtoons:

- **Ease of production and distribution:** Webtoons are created using art software and distributed digitally.
- **Appealing format for younger generations:** Webtoons are intended to be viewed in a short time span.
- **Accessibility and convenience:** Webtoons are viewable online anywhere and anytime.
- **Portability:** Webtoons are an ideal “snack-size” entertainment to consume while using public transportation.

¹²⁹ Sujin Lee, “The Longest-Running Webtoon ‘Sound of the Heart’ Nearing Completion on the 30th...Records Set over 14 Years,” Interview 365 (Korean language), June 29, 2020.

- **High user engagement:** Webtoon platforms have an interactive comments section at the end of each episode.
- **Low cost structure:** Webtoons have no printing or retail distribution costs.
- **Ease of monetization:** In-app purchasing allows webtoon platforms to generate higher average revenue per paying user than a monthly subscription model.

Webtoons originated in Asia, where the industry continues to dominate, but they are quickly gaining global popularity. In certain countries like South Korea, they have become a cultural phenomenon as a new genre of entertainment. In Western markets, webtoon adoption is beginning to pick up, especially as webtoon content expands into other entertainment verticals, such as TV shows, based on original IP.

Webtoons: A New Form of Entertainment

While webtoons are not the first type of digital comics, they are unique in that they are designed specifically for mobile devices. Their vertically displayed content has ample gutter space (i.e., white space between illustrations) for a more convenient, top-to-bottom scrolling experience. Webtoons also have embedded animations and sound effects that help readers immerse themselves in the storyline.

Webcomics, on the other hand, are generally formatted like pages of a book or newspaper strips and are intended to be read from left to right like printed comics. This enables them to ultimately be printed, but they are not natively designed for mobile devices.¹³⁰ Also, white gutter space is rarely found in webcomics, as it would lead to higher printing costs.

A Brief History of Webtoons

While the concept of webtoons is relatively new in the broader media and entertainment industry, their history can be traced back to 2000, when the term “webtoon” was first coined by a South Korean terminal-based portal site called Chollian as a combination of the words “web” and “cartoons.”¹³¹ Webtoons were popularized by South Korean internet portals like Naver initially as free content to drive site traffic. The portals signed distribution contracts with webtoon authors directly and had separate webtoon editing and production teams.

As webtoons’ popularity grew, dedicated webtoon studios emerged to expand the development and production of unique characters and storylines.¹³² By the 2010s, webtoon platforms began to monetize content via a “freemium” pricing model.¹³³ And more recently, studios have begun to adopt one source, multi-use (OSMU) strategies and expand their IP to TV shows, merchandise, and other formats.

¹³⁰ Sticky Pencils, “[Webcomics vs. Webtoons](#),” December 25, 2016.

¹³¹ Ji Hyeon Yun, “What Is Webtoon?” Medium, August 30, 2019.

¹³² Park Joon-yong, “A Webtoon Writer Uses Talent... 90% of Sales Are Ripped Off by 'Toll Tax',” *The Hankyoreh* (Korean language), November 16, 2020.

¹³³ A revenue model where basic products or services are offered free of charge, while additional features or services are paid..

Figure 28. Globally Available, Webtoon-Based Netflix Original Series

Release Year	Netflix Original Based on Webtoons
2019	Kingdom Season 1
2020	Kingdom Season 2
2020	Sweet Home
2021	D.P
2021	Hellbound
2022	All of Us Are Dead
2022	Black Knight
2022	The Sound of Magic

Note: As of year-end 2022.

Source: Wikipedia (Korean language), Citi GPS

Figure 29. Globally Available, Webtoon-Based Shows on Netflix

Release Year	Top Webtoon-based Contents Available on Netflix ⁽¹⁾
2022	Tomorrow
2022	Business Proposal
2021	Nevertheless
2021	Navillera
2020	The Uncanny Counter
2020	Mystic Pop-Up Bar
2019	Extraordinary You
2018	My ID is Gangnam Beauty
2018	What's Wrong With Secretary Kim
2016	The Sound Of Your Heart
2014	Misaeng: Incomplete Life

Note: Excludes Netflix Originals.

Source: Kdrama World, Citi GPS

Monetization of Webtoons

Webtoon platforms typically operate on a freemium and ad-based revenue model. Their main sources of revenue are:

- **Paid content:** Typically published weekly, webtoon episodes are free to view initially, then remaining episodes are charged either by the episode or as a lump sum that grants access to all episodes.
- **Banner and display ads:** Webtoon platforms typically place banner advertisements at the end of episodes in different formats (e.g., 16:9 video, 1:1 video, swipe image, etc.), which generate revenues based on views.
- **Product placement:** A marketed product or brand is incorporated into the webtoon, appearing naturally as part of the storyboard.
- **Licensing revenue:** Studios license IP to third parties, allowing them to be featured in animations, movies, shows, games, emoticons, and merchandise, for example, expanding the addressable market of the industry.

Key Drivers Behind the Rise of Webtoons

- **Ease of production and distribution:** Unlike traditional comics, webtoons are digitally created with the assistance of art software and distributed online via webtoon platforms, thus eliminating printing time and costs while creating the potential to reach a broader audience of readers.
- **Appealing format for younger generations:** Similar to the short-form videos discussed earlier in the report, webtoons are intended to be viewed in a short time span (typically within 15 minutes), which complements the “snack culture” trend among users in their teens to thirties. This age group is the main viewer base of webtoons and tends to be more open to new digital formats and accustomed to a mobile-only culture.¹³⁴

¹³⁴ “Snack culture” is a social term used to describe the tendency to consume various forms of entertainment in brief periods and/or in quick forms, typically during short and idle time in between activities; Statista, [“User Distribution of Mobile Applications for Webtoons and Web Novels South Korea as of May 2022, by Age Group,”](#) accessed January 31, 2023.

- **Accessibility and convenience:** Online reading via mobile and PC has increased the accessibility of webtoons. With simple internet access, users can enjoy content from anywhere and even download webtoons on their mobile phones via in-app purchases of individual webtoon episodes.¹³⁵
- **Portability:** Webtoons are ideal “snack-size” entertainment to consume while using public transportation, which accounts for around 70% of urban passenger trips in Asian cities, together with walking and cycling.¹³⁶
- **High user engagement:** Each webtoon has a comments section at the end of each episode, similar to those on YouTube videos and other social platforms. This feature, which does not exist for traditional comic books, allows artists to receive direct feedback and support from readers.
- **Low-cost structure:** Other than costs paid to authors, there are no major expenses from the platform’s perspective.
- **Ease of monetization:** Embedding in-app purchasing to unlock new content allows webtoon platforms to generate higher average revenue per paying user than a monthly subscription model. Furthermore, as proven by Marvel and DC Comics, original and verified webtoon intellectual property (IP) can be featured in other content formats, such as movies or merchandise, allowing for diversified monetization methods. Such a strategy is known as one source, multi-use (OSMU).

The Current Webtoon Market: Overview by Region

The global webtoon market is still relatively underpenetrated, but it is growing quickly. According to market researcher Spherical Insights, the global webtoon market was valued at \$4.7 billion in 2021 and is expected to grow to \$60.1 billion (approximately 40% per year) by 2030.¹³⁷

South Korea

Due to favorable regulatory support for developing the creator economy, as well as the comics industry’s rapid mobile transition, webtoons have become a well-established form of entertainment in South Korea. In a 2021 survey of 2,500 Korean consumers ages 15-49 conducted by the Korea Creative Content Agency (KOCCA), 66.9% of participants indicated viewing webtoons at least once per week, and 44.3% of webtoon viewers had a history of in-app webtoon purchases.¹³⁸ Additionally, viewers on average watch webtoons 4.6 days per week and follow 9.6 webtoon series, according to Opensurvey’s *Webtoon Trend Report 2022*.¹³⁹

¹³⁵ *Korea JoongAng Daily*, “Allez Les Webtoons! Korean Content Sees Success in France,” May 5, 2021.

¹³⁶ James Leather, “Asia’s Cities Need Quality Public Transport,” Asian Development Blog, March 25, 2022.

¹³⁷ GlobeNewsWire, “[Global Webtoons Market Size to Grow by 2030 | CAGR of 37.9%](#),” November 14, 2022.

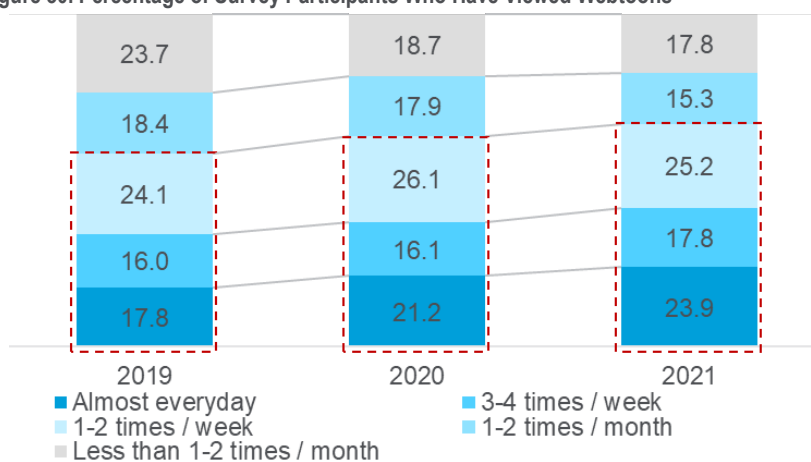
¹³⁸ KOCCA [report](#), PDF (Korean language), accessed April 5, 2023.

¹³⁹ Opensurvey, “[How Much Do You Spend per Month on Webtoons? Webtoon Appreciation Trend 4 Points to Note](#),” (Korean language), August 5, 2022.

KOCCA estimates that the South Korean webtoon industry's combined sales reached over KRW 1 trillion (or approximately \$760 million) as of 2020, up 64.6% from the previous year.¹⁴⁰ The top two webtoon creators hold a combined domestic market share of about 90%, according to KOCCA's *Manwha Webtoon User Status Survey Report 2021*.¹⁴¹

Leveraging their first-mover advantage and resources within their respective parent groups, Korean webtoon platforms are expanding their presence in overseas markets, notably Japan, where they controlled over 70% of the webtoon market in 2021.¹⁴² They are also targeting expansion in Europe and the U.S. by launching services in local languages, establishing local subsidiaries, and acquiring existing platforms. They already offer content in English, Spanish, French, German, and other languages.

Figure 30. Percentage of Survey Participants Who Have Viewed Webtoons



Source: Korea Creative Content Agency, Citi GPS

Japan

Japan is the world's largest comics market and home to many successful comic and manga (Japanese graphic novel) franchises. According to the Japanese National Publishing Association and Publishing Science Institute, the Japanese domestic comics market value reached \$5.9 billion in 2021, with 10.3% year-over-year growth from 2020.¹⁴³ However, the Japanese print-based comic book market size experienced a decline of 2.3% in 2021, while digital comics, which surpassed print-based comics in market size in 2019, are driving the overall industry growth.¹⁴⁴

With Japan's shift toward digital comic distribution, webtoons are expected to be a key beneficiary, as evidenced by recent webtoon adoption by Japanese media and entertainment companies. In 2021, Kadokawa, a traditional Japanese publisher of manga, established a Tatesc-Comic Department responsible for webtoon

¹⁴⁰ Nam Kyung-don, "S. Korean Webtoon Market Jumps to Top W1tr in Sales," *Korea Herald*, January 14, 2022.

¹⁴¹ Shin Chang-geun, "The Most Popular Webtoons in Korea," *Soko Vibes*, updated December 23, 2022.

¹⁴² DataSpring, "[The Global Appeal of Korean Webtoons | EYE ON ASIA](#)," accessed January 31, 2023.

¹⁴³ Alex Mateo, "Japanese Comic Market Grows to 675.9 Billion Yen," *Anime News Network*, February 28, 2022.

¹⁴⁴ Ibid.

production. As of August 2022, they have published 38 original webtoons and converted 60 legacy comics into webtoon format.¹⁴⁵ Additionally, Naver signed a joint venture partnership with TBS, a Japanese commercial television network, in May 2022 to remake popular webtoons as films, dramas, and other types of content.¹⁴⁶

Other Asia-Pacific Regions (China and Southeast Asia)

Chinese audiences embraced webtoons later than South Korean and Japanese ones did; nevertheless, China's webtoons market is growing quickly and remains important due to its economic size and attractiveness for licensing opportunities. Despite being later entrants to the market, Chinese webtoon players have been quick to scale, backed by large investments. They have sourced content from third-party platforms like Naver, while publishing their own webtoons. China's largest webtoon platform, Kuaikan, reached over 40 million MAUs within its first eight years, growing into a diversified content platform that now also offers video clips and games, among other things.¹⁴⁷

Although Southeast Asia's webtoon market size is estimated to be relatively small compared to other developed regions, webtoons are becoming popular there. A decade ago, Japanese manga was the predominant form of comics consumed, but webtoons soon became popular among Millennials and Generation Z. Webtoon demand is now accelerating even further, driven by interest in Korean pop culture across Southeast Asia, as well as by localized webtoon content (for example, Islamic-tailored content in Indonesia).

United States

The U.S. comics market, the largest such market outside of Asia, has long been dominated by the Marvel and DC Comics franchises. The two publishers have historically produced approximately 80% of domestically consumed comics in the U.S., where Superheroes and Action have been the most popular genres, but more recently, Asian comics — especially Japanese manga — have gained popularity.

¹⁴⁵ Mark Schilling, "Japan's Media Firms Embrace the Webtoon Phenomenon from Korea," *Variety*, October 28, 2022; Crystalyn Hodgkins, "BookWalker Global Launches TATESC Comics Vertical-Scrolling Webcomic Brand in English," *Anime News Network*, November 15, 2022.

¹⁴⁶ Crystalyn Hodgkins, "BookWalker Global Launches TATESC Comics Vertical-Scrolling Webcomic Brand in English," *Anime News Network*, November 15, 2022; Park Sae-jin, "Naver's Webtoon Wing Partners with Japanese Media Companies to Launch Joint Venture," *Aju Business Daily*, March 16, 2022.

¹⁴⁷ News Directory 3, "[The Two-Dimensional Event KK WORLD Is Coming](#)," July 15, 2022.

Similar to Japan's shift toward digital content, U.S. companies have increasingly turned to online channels to deliver comics, including webtoons. In 2021, Naver and DC Comics announced a partnership; not long after, the two companies' first jointly created webtoon series, *Batman: Wayne Family Adventures*, was released globally on the WEBTOON platform.¹⁴⁸ Three more DC original webtoon series followed — *Vixen: NYC* (May 2022), *Red Hood: Outlaws* (July 2022), and *Zatanna & the Ripper* (August 2022). All feature new episodes on WEBTOON weekly.

Amid rising consumption of Asian comics and COVID-19 stay-at-home tailwinds, U.S. comics and graphic novel sales witnessed explosive growth of 62% from 2020 to 2021, reaching a historic high of nearly \$2.1 billion. According to an Insider interview with Milton Griepp — the founder of *ICv2*, an online trade magazine focused on comic books, anime, gaming, and show business products — the comics industry could continue to follow a similar growth trajectory. And within the broader comics segment, there is ample room for growth of digital formats like webtoons — in 2021, digital only represented 8.2% of the comics market in the U.S. versus 60.9% in Japan.¹⁴⁹

Asia as a Time Machine to the Future of Webtoon Entertainment

Webtoons have rapidly expanded, gaining popularity from South Korea to Japan and Southeast Asian countries, and are now making inroads into Western markets. South Korean companies, such as Naver, have launched local-language versions of existing webtoons, venturing outside of Asian markets. Naver launched Line Webtoon, its global webtoon platform, in 2014; the platform later rebranded to simply "WEBTOON" and now offers translations and original webtoons in over 100 countries.¹⁵⁰ Other Korean companies have acquired local Western players, exporting their own original webtoon content via the acquired platforms.

- Naver acquired Wattpad, a Canadian user-generated fiction platform and entertainment company, for over \$600 million in May 2021.¹⁵¹
- Kidari Studio acquired a 98.82% stake in Delitoon, a French webtoon platform, through a series of stake acquisitions.¹⁵²

¹⁴⁸ Baek Bong-sam, "Naver Webtoon-DC Comics, First Serialization of 'Batman' Webtoon," *ZDNET Korea*, September 9, 2021; Bae Han-nim, "Batman's New Work from DC Comics to Be Released on Naver Webtoon," *Money Today*, June 26, 2022.

¹⁴⁹ Travis Clark, "Comic-Book Sales Had Their Best Year Ever in 2021 — and This Year Is on Pace to Be Even Better," *Insider*, July 13, 2022; Alex Mateo, "Japanese Comic Market Grows to 675.9 Billion Yen," *Anime News Network*, February 28, 2022.

¹⁵⁰ Choi Moon-hee, "Naver Webtoon Secures 82 Million Monthly Active Users around the World," *BusinessKorea*, February 17, 2022.

¹⁵¹ Wattpad, "[Naver Completes Wattpad Acquisition](#)," May 10, 2021.

¹⁵² Kidari Studio Co., Ltd, 2021 [Financial Statements](#).

While webtoons have been popular in Asia for more than two decades, they are now seeing increased consumption in the West, especially by younger generations, as a result of Asian players' Western expansion efforts. For example, since the launch of its U.S. service in 2014, Naver's WEBTOON has gradually accumulated 15 million U.S. MAUs, of which 80% are younger than 25 years old.¹⁵³ Its U.S. operations quickly accumulated an user base comparable to that in South Korea (20.4 million) and Japan (21.2 million), Naver's key webtoon markets.¹⁵⁴ Additionally, global partnerships to create original content, such as the recent Naver-DC Comic partnership, are facilitating increased webtoon consumption in the West by sourcing more globally known IPs from mega-entertainment companies. Like anime, manga, and K-pop, webtoons are softly permeating into Western media and entertainment.

Beyond Traditional Boundaries: Crossover of Webtoons to Other Media Forms

Just like novels and books, popular and unique webtoons have long been recreated for television in Asia. The first South Korean webtoon-based film, called *Apt*, was released in 2006. However, Asian webtoon-based proprietary IP and content, such as in the form of TV shows and dramas, has gained traction among a global audience only in the past several years. As an example, *Kingdom: Land of the Gods*, a webtoon about a zombie apocalypse during the Joseon dynasty, has been recreated as the first Korean Netflix Original Series and released as *Kingdom* in January 2019. Amid the global success of this series due to its originality, Netflix released the second season a year later in March 2020, making it available for streaming in approximately 190 countries. Two weeks after its global release, *Kingdom's* second season ranked as the ninth-most popular TV show globally on IMDb as of March 27, 2022, above the iconic series *Games of Thrones*. With the success of the *Kingdom* series, many other shows based on webtoons have followed, proving that Asian webtoons are a strong and competitive multi-use source of original content.

Figure 31. IMDb Most Popular TV Shows Ranking

Most Popular TV Shows (as determined by IMDb Users)

Ranking	TV Show	Rating
1	Westworld (2016)	8.7
2	The Walking Dead (2010)	8.2
3	Elite (2018)	7.6
4	Hunters (2020)	7.2
5	The Outsider (2020)	8.1
6	Altered Carbon (2018)	8.1
7	Better Call Saul (2015)	8.7
8	Star Trek: Picard (2020)	7.9
9	Kingdom (2019)	8.3
10	Game of Thrones (2011)	9.3

Note: As of March 27, 2022.

Source: IMDb

¹⁵³ *Pulse News*, "Naver Webtoon Ready to Make Money Out of Burgeoning Global Audience," September 20, 2022.

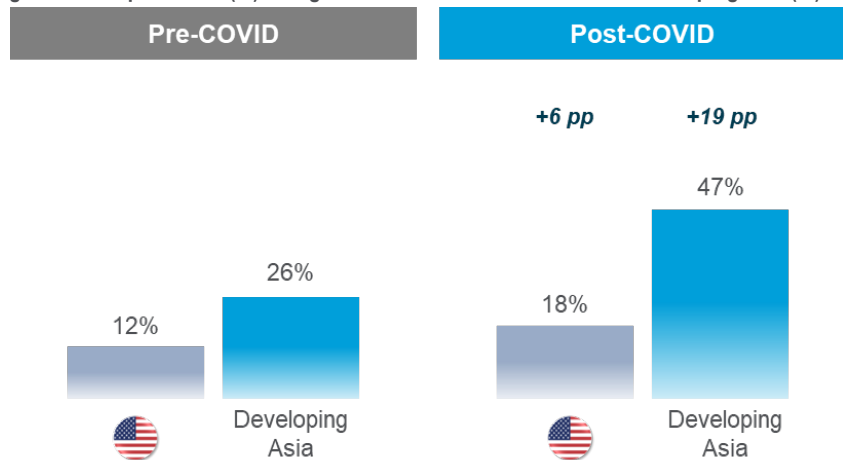
¹⁵⁴ *Ibid.*

Given their ability to expand into different media formats and monetization channels, as well as their growing viewership globally, we believe webtoons will become more mainstream. As we have seen with other forms of digital entertainment, webtoons' popularity in Asia is another example of how the region can be a time machine to the future of what we may see in the West.

Digital Healthcare

The integration of technology platforms, sensors, big data, and mobile connectivity is driving a rapid digital transformation in healthcare. In Asia, digital healthcare is significant in terms of both scale and penetration. According to McKinsey, digital healthcare has touched the lives of around 1.5 billion people in Asia (in terms of registered users across emerging healthcare platforms), and its user base is continuing to grow.¹⁵⁵ Furthermore, studies suggest the adoption rate of digital healthcare in developing Asia is 2.5 times the rate in the U.S.¹⁵⁶ The COVID-19 pandemic accelerated digital healthcare adoption in Asia by 21 percentage points, further widening the gap with the U.S., which increased adoption by six percentage points (see Figure 32).

Figure 32. Adoption Rate (%) of Digital Healthcare in the U.S. Versus Developing Asia (%)



Note: U.S. data as of a 2020 study where "after COVID-19" measured the likelihood of respondents using digital healthcare technologies in the future. Developing Asia reflects India, Indonesia, the Philippines, China, and Malaysia based on the latest data available for 2019 and 2021.

Source: Bain, EY, Digital Adoption, Citi GPS

Given this fast-growing adoption rate, there is clearly enormous digital healthcare market potential in Asia. According to Statista, the region's digital healthcare revenues totaled \$73.8 billion in 2022, accounting for over 50% of the global total, and they are expected to continue growing at a 14% compound annual growth rate (CAGR) in 2022-27, compared with the global CAGR of 12%.¹⁵⁷

¹⁵⁵ Aggregate estimate as of 2020. Axel Baur, Hann Yew, and Mengwei Xin, "The Future of Healthcare in Asia: Digital Health Ecosystems," McKinsey & Company, July 21, 2021.

¹⁵⁶ Asia's adoption rate reflects India, Indonesia, the Philippines, China, and Malaysia.

The U.S. adoption rate is measured by average of the percentage of U.S. consumers who have used telephone and video consultations, online scheduling, prescription refills by phone, online bill pay, and online forms. Vikram Kapur et al., *Asia-Pacific Front Line of Healthcare Report 2022*, Bain & Company, January 14, 2022; Digital Adoption, "Digital Adoption Healthcare Statistics in the U.S.," updated November 16, 2022; Aloha McBride, "How COVID-19 Has Triggered a Sprint Toward Smarter Health Care," EY, October 5, 2020.

¹⁵⁷ Statista, "Digital Health – United States," accessed January 31, 2023.

Several drivers have helped support the paradigm shift in digital healthcare in Asia:

- Inadequate supply of healthcare services.
- Uneven distribution of healthcare resources.
- Rising focus on health awareness.
- Aging population.
- Development of digital healthcare ecosystems.

Modern healthcare will continue to evolve with the aim of improving the quality and distribution of services and making care more personalized and efficient. In Asia, the formation of consumer-centric digital healthcare ecosystems is impacting the entire health system, making information between patients and physicians more transparent and the delivery of resources more seamless.

Key Drivers Behind the Rise of Digital Healthcare Adoption in Asia

Inadequate supply of healthcare services

There is a significant shortage of medical resources to serve Asia's large population. According to the International Labour Organization (ILO), around 40% of people in Asia are unable to access medical care, in large part due to the shortage of healthcare professionals and services.¹⁵⁸ The average densities of physicians and hospitals (referring to the number of each per 1,000 people) in developing Asian countries are significantly below those of the U.S. by 60% and 40%, respectively, according to the World Bank, as shown in Figure 33 below.¹⁵⁹ Furthermore, in terms of primary care services such as family doctors, China lags significantly behind the U.S. — China had 181 registered general practitioners (GPs) per million people in 2020, around half of the 357 GPs per million in the U.S., as shown in Figure 34 below.¹⁶⁰

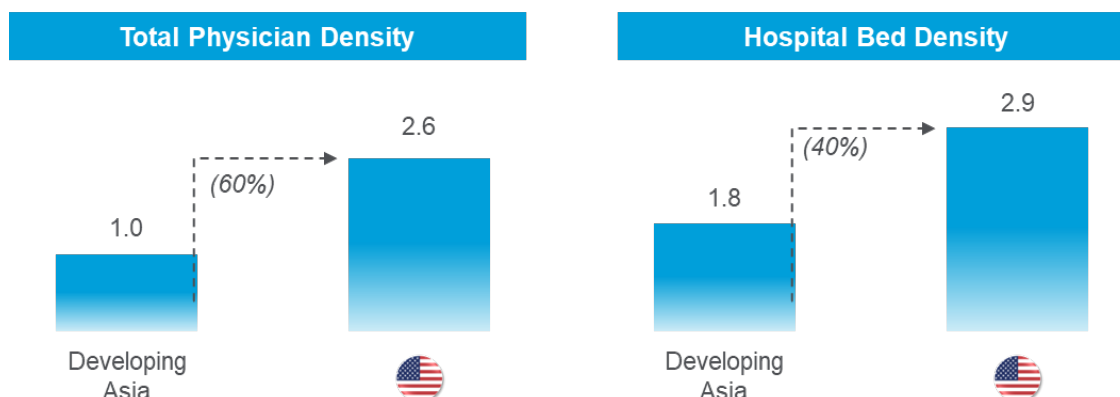
¹⁵⁸ Referring to the Asia-Pacific region. International Labor Association (ILO), "[1.6 Billion Across Asia and the Pacific Lack Access to Social Health Protection](#)," December 10, 2021; Björn Andersson, "Asia-Pacific: Home to More Than Half of the World's Population," UNFPA Asia Pacific, July 11, 2022.

¹⁵⁹ The World Bank, "[Physicians \(per 1,000 people\)](#)," accessed February 3, 2023; The World Bank, "[Hospital Beds \(per 1,000 people\)](#)," accessed February 3, 2023.

¹⁶⁰ Population data is from the China National Bureau of Statistics and U.S. Census Bureau. China National Health Commission, *China National Health Commission 2020 Statistics Yearbook*, July 13, 2021; Association of American Medical Colleges, *2022 Physician Specialty Data Report: Executive Summary*, January 2023.

Figure 33. Inadequate Supply of Healthcare Services in Developing Asia Versus the U.S.

(Total physician and hospital bed density per 1,000 people, latest data available)

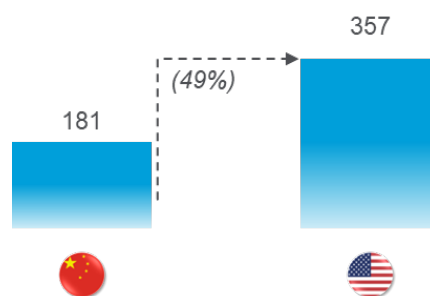


Note: Developing Asia is based on the average of India, Pakistan, Indonesia, the Philippines, Malaysia, Thailand, Vietnam, and China.

Source: World Bank, Citi GPS

Figure 34. China's Shortage of Primary Care Infrastructure

(Number of registered family doctors per million population, excluding non-active family doctors)



Note: Family doctor in China is defined as registered general practitioners, data as of 2020. Family doctor in the U.S. is defined as active physicians in family medicine/general practice, data as of 2021.

Source: China National Health Commission 2020 Statistics Yearbook, National Bureau of Statistics of China, Association of American Medical Colleges, U.S. Census Bureau, Citi GPS

Uneven distribution of healthcare resources

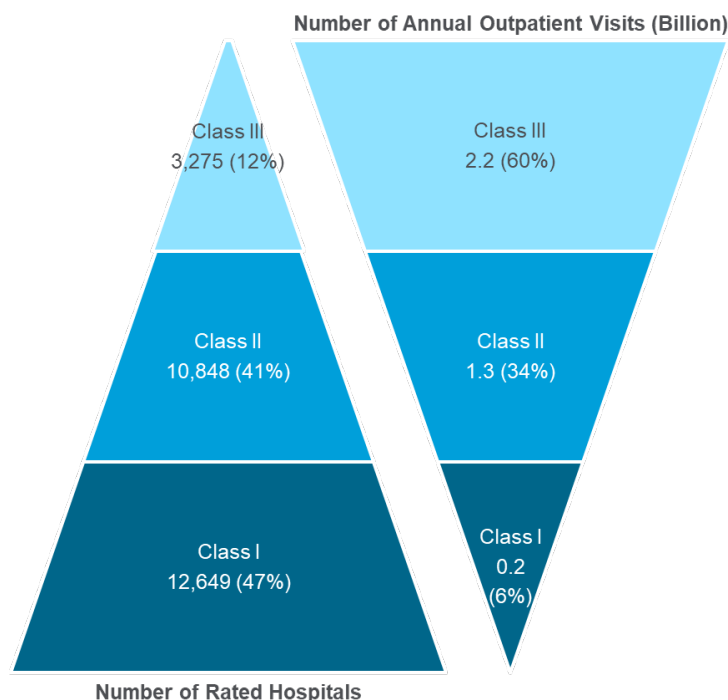
Asia accounts for over 60% of the world's rural population, and over 90% of Asia's rural residents are in low- and middle-income countries.¹⁶¹ With limited access to medical care — including doctors, facilities, and medical equipment — China serves as a typical example in its uneven distribution of medical resources between urban and rural areas: the country's active physician density in rural areas stands at only half of the density in urban areas, according to China Insights Consultancy. In addition, there is a severe imbalance of medical resources and diagnosis demand in China, with the least abundant, Class III hospitals receiving the most outpatient visits, as shown in Figure 35.¹⁶²

¹⁶¹ Likke Prawidya Putri et al., "Factors Associated with Increasing Rural Doctor Supply in Asia-Pacific LMICs: a Scoping Review," *Human Resources for Health*, Vol. 18, No. 93, December 1, 2020.

¹⁶² National Health Commission of the People's Republic of China [data](#), (Chinese language), accessed April 11, 2023. The classification of hospitals in China is a three-tier system, categorized by a hospital's ability to provide medical care and education and conduct medical research. A primary hospital (Class I) is typically a township hospital

Figure 35. Severe Imbalance of Medical Resources and Demand for Care in Chinese Hospitals

(Number of Rated Hospitals vs. Number of Annual Hospital Outpatient Visits in China as of 2021)



Source: National Health Commission of the People's Republic of China, Citi GPS

Rising focus on health awareness

Consumers in Asia are spending more on healthcare and are increasingly demanding convenient, affordable care. According to a 2021 Bain study, 79% of Asian consumers have expressed an interest in health maintenance and lifestyle changes, with 72% wanting improved convenience in addition to quality of care. Moreover, 47% of consumers are willing to spend more on digital services for better health outcomes.¹⁶³

Aging population

Asia is facing a rapidly aging population. According to the UN, the 60-and-over age group only accounted for 14% of the total population in Asia in 2022; however, this number is expected to increase to 25% by 2050.¹⁶⁴ But perhaps most notable is the sheer size of this older population — 670 million people in Asia, compared to 56 million in the U.S.¹⁶⁵ Such a meaningful demographic will lead to increased demand for digital healthcare solutions in Asia in years to come.

that contains under 100 beds and focuses on preventive care; a secondary hospital (Class II) contains between 100 and 500 beds; and a tertiary (Class III) hospital is a comprehensive, referral, general hospital at the provincial or national level with a bed capacity above 500.

¹⁶³ Referring to the Asia-Pacific region. Vikram Kapur et al., *Asia-Pacific Front Line of Healthcare Report 2022*, Bain & Company, January 14, 2022.

¹⁶⁴ Referring to the Asia-Pacific region. United Nations, *Asia-Pacific Report on Population Ageing 2022*, September 30, 2022.

¹⁶⁵ Ibid; America's Health Rankings, *Senior Report 2022*, 2022.

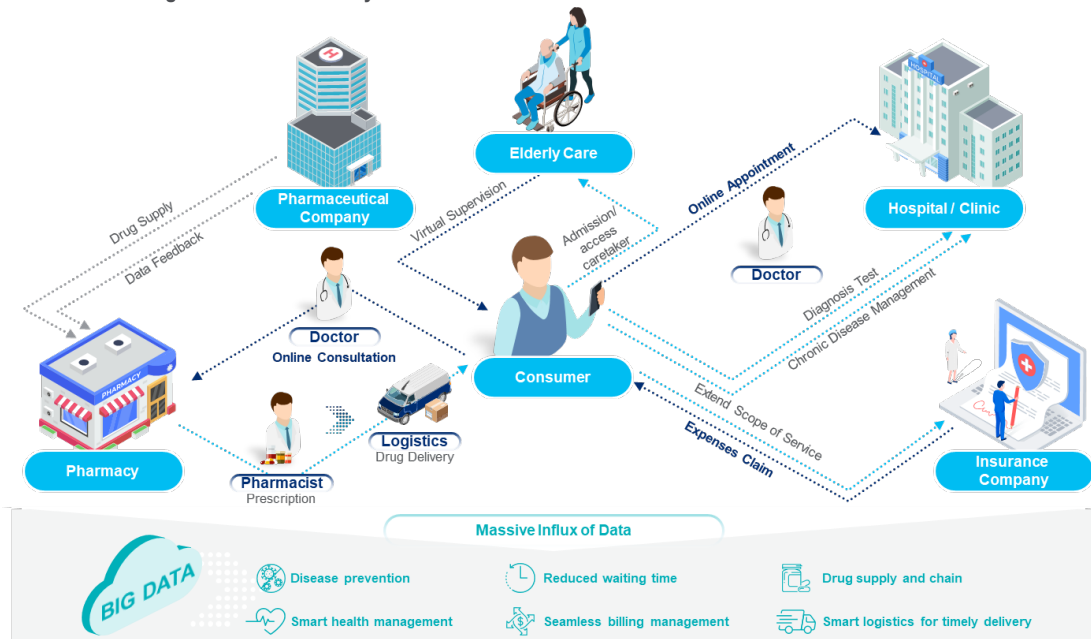
Development of digital healthcare ecosystems

Over the past decade, multiple Asian governments have launched supportive regulatory frameworks to enhance digital healthcare ecosystems. These include China's Guidelines on Internet Hospitals, Singapore's Smart Health Initiatives, and India's Digital Information Security in Healthcare Act. Benefiting from government advocacy and a highly mobile-centric population, Asia has witnessed growing digital healthcare ecosystems that enable governments, providers, and consumers to reimagine healthcare delivery and management. In return, the formation of a digital healthcare ecosystem also attracts both service providers and consumers, accelerating adoption of digital healthcare.

A Closer Look at Asia's Digital Healthcare Ecosystem

Unlike in the West, where various scaled players specialize in each vertical of healthcare services, the digital healthcare industry in Asia has evolved from a standalone play to a comprehensive ecosystem of services, as illustrated in Figure 36 below.

Figure 36. Illustration of the Digital Healthcare Ecosystem in Asia



Source: Citi GPS

Asia's digital healthcare ecosystem provides a unique value proposition for every participant in the value chain: patients, professionals and physicians, drug manufacturers, offline and online hospitals, pharmacies, insurance companies, and government bodies. For patients, the one-stop portal enables them to manage all their health-related services more conveniently and economically, from online consultations and online-to-offline (O2O) drug delivery to insurance claims and bill management. Physicians can virtually meet with more patients, prescribe and deliver medicine from pharmacies, and manage office administration. Hospitals, researchers, and pharmaceutical companies, with the array of patient data gathered through the ecosystem, can streamline patient flow as well as drug development and inventory. By creating value for all the healthcare ecosystem's stakeholders, the platform benefits from a self-reinforcing "flywheel effect" of a growing user base, further expanding its network of hospitals, physicians, and other third-party healthcare vendors.

One key differentiator of Asia's digital healthcare ecosystem is the development of medical e-commerce (i.e., digital pharmacies), which has grown significantly in recent years, notably in China. According to McKinsey, the market size of medical e-commerce in Asia stood at \$7.1 billion in 2020 and is expected to reach \$33.8 billion by 2025 at a CAGR of 37% — more than double the expected growth rate of the U.S. healthcare e-commerce market over the same period.¹⁶⁶ Medical e-commerce players in China leverage existing well-developed, smart logistics networks that have been built for broader e-commerce to offer timely fulfillment. For instance, in 2021, Dingdang Health, a pharmaceutical retail and medical consultation platform, reached a daily average order volume of 164,000 and adhered to a maximum delivery time of 28 minutes on a 24/7 basis across 17 cities.¹⁶⁷

Similarly, Southeast Asian markets are following China's model to develop their own medical e-commerce solutions as part of a larger ecosystem. In 2018, Grab, a leading super app in Southeast Asia, announced plans to enter the medical O2O field through a partnership with Ping An Healthcare and Technology to further leverage Grab's localized delivery fulfillment capability and Ping An's know-how and experience.

Global Trends in Digital Healthcare

Asia Is Driving Growth

Particularly in China, the development of consumer-centric digital healthcare ecosystems has been disrupting the healthcare industry at an unprecedented speed and scale. China is home to many leading players in the field of digital healthcare, including Ping An Healthcare and Technology (formally known as Ping An Good Doctor), JD Health, and Alibaba Health. Through years of development and innovation, the leading platforms in China have accumulated an enormous customer base. For instance, as of mid-2022, Ping An Healthcare and Technology had provided over 1.3 billion consultations (which includes medical and healthcare consultations and online inquiries across text, audio, and video formats) since the company's inception in 2014 and recorded over 440 million registered users, indicating 1 in 3 people in China had access to the platform.¹⁶⁸ Meanwhile, JD Health and Alibaba Health recorded large annual active user bases in 2021 of over 120 million and 110 million, respectively, through leveraging their e-commerce platforms to expand their digital healthcare service offerings. The high volume of information that these platforms can access is helping improve diagnostics and treatment and spurring advances in medicine.

¹⁶⁶ The U.S. healthcare e-commerce market includes online sales of pharmaceutical and healthcare products. Axel Baur, Hann Yew, and Mengwei Xin, "The Future of Healthcare in Asia: Digital Health Ecosystems," McKinsey & Company, July 21, 2021; Statista, "[Health and Personal Care Retail e-Commerce Sales Growth in the United States from 2018 to 2025](#)," accessed January 31, 2023.

¹⁶⁷ Calculated daily average order volume. Dingdang Health Technology Group, "[Global Offering](#)," PDF, accessed May 5, 2023.

¹⁶⁸ Ping An Healthcare and Technology, *Ping An Healthcare and Technology Company Limited 2022 Interim Results*, August 2022.

In Southeast Asia, the demand for online physician consultations and telemedicine increased significantly during the COVID-19 lockdown periods. Major digital healthcare platforms saw a surge in the number of users. MyDoc, a digital healthcare platform in Singapore, grew its monthly active user base by 272% from 2019 to 2021.¹⁶⁹

India is also a regional leader in digital healthcare. Practo, a leading telemedicine app, serves over 20 million patients every month. PhableCare — an ecosystem for managing chronic diseases that connects data from wearable devices to doctors and integrates teleconsultations, predictive diagnostics, prescriptions, insurance, and an e-commerce marketplace — boasts over three million active users and is expanding into more developed markets such as South Korea.

COVID Has Catalyzed the West

In the West, the COVID-19 pandemic accelerated the digital focus of healthcare and insurance providers, Big Tech companies, and policymakers.

The U.S. government has recognized the integral role digital platforms play in a successful healthcare infrastructure. A national study suggested that in the first three months of the COVID-19 pandemic, telehealth use increased nearly 8,000% over the same three-month period one year earlier.¹⁷⁰ In reaction to heightened demand for virtual healthcare and the move away from in-person medical contact, the U.S. Food and Drug Administration launched the Digital Health Center of Excellence (DHCoE) in 2020 to realize the potential of digital healthcare. The DHCoE has developed research, partnerships, and policy reviews in a commitment to enhancing the U.S.'s framework for digital healthcare.

Europe is also recognizing the value of digital healthcare. In September 2022, 53 European countries adopted the region's first-ever digital health action plan, which covers the areas of telemedicine, health data and health information systems, AI, and big data.

Outside of the public sector, technology and healthcare giants are also embracing digital healthcare business models. In November 2022, Amazon launched Amazon Clinic to provide patients with third-party telehealth services, while pharmaceutical leaders such as Pfizer and Moderna are implementing advanced technologies including AI to expedite the drug development process — all in part to strengthen the digital healthcare value proposition.

However, many policy and legislation questions — not to mention cultural mindsets — persist in the West, which will ultimately determine the growth rate of digital healthcare adoption. These include data privacy and the attitudes surrounding it, as well as anti-trust and pharmaceutical regulation, among others.

Asia as a Time Machine to the Future of Digital Healthcare

Studies suggest digital healthcare adoption stands at nearly 50% in developing Asia, compared with 18% in the U.S. The gap is expected to widen further as the growth of Asia's digital healthcare market outpaces the growth of its counterparts in the rest of the world. One study indicates the digital healthcare adoption rate in

¹⁶⁹ Vikram Kapur and Alex Boulton, "Asia-Pacific Telemedicine Platforms Will Long Outlast Covid-19," Bain & Company, April 22, 2021.

¹⁷⁰ Jonathan P. Weiner et al., "In-Person and Telehealth Ambulatory Contacts and Costs in a Large US Insured Cohort Before and During the COVID-19 Pandemic," *JAMA Network Open*, Vol. 4, No. 3, March 2021.

developing Asia could reach around 70% by 2024, driven by greater demand and necessity.¹⁷¹

While we expect to see a continued push from both the public and private sectors in Western countries to develop more inclusive and efficient digital healthcare ecosystems — efforts that have accelerated in the past few years — the entire digital healthcare ecosystem in Asia is several years ahead of the West.

¹⁷¹ Vikram Kapur et al., Asia-Pacific Front Line of Healthcare Report 2022, Bain & Company, January 14, 2022.

Epilogue

As Asia continues to lead the world in technology adoption, it is apparent that the trends and technologies seen across the region today can serve as a time machine to the future of what to expect in Western markets in years to come.

Beyond the limited number of cases we have highlighted in this report, there are several other technological trends where we expect Asia to lead as they play out.

Self-Driving Cars

Similar to its lead in the production and adoption of electric vehicles, China is likely to be a frontrunner in autonomous vehicles. Progress in this area is underpinned by the government's renewed push to introduce regulations to support the value chain; for example, by incorporating sustainable, autonomous infrastructure as part of urban planning in new cities.

A high level of consumer adoption and the ability of car manufacturers to collect valuable road test data will be key to mass commercialization. We have already witnessed Baidu in China experimenting with fully driverless taxis in select major cities, while Japan granted approval for the "ZEN drive Pilot Level 4" systems, its first highly autonomous, "level 4" self-driving vehicle program, at the end of March 2023.

Smart Cities

Asia's rapid urbanization and its adoption of information and communications technologies (ICT) and Internet of Things (IoT) are paving the way for fully smart cities through the adoption of technology across parameters such as governance and education, healthcare, buildings and infrastructure, mobility, and energy. Asia is forecast to be the largest shareholder in the smart cities market, which is expected to grow at a 25.5% CAGR (2022-30) and reach nearly \$6 trillion by 2030.¹⁷²

Autonomous Logistics

The future will likely bring drone and autonomous delivery vehicles to e-commerce and on-demand services. Numerous e-commerce players in Asia are already involved in the advancement of autonomous last-mile delivery services, including piloting the use of drones in rural areas to supply products, as well as delivery robots on the streets for items such as mail, food, and groceries.

AI Diagnostics

Artificial intelligence (AI) is being used across the healthcare continuum — from administration to clinical decision support — to increase system efficiency and improve patient outcomes. Emerging digital health ecosystems are already impacting more than a billion lives across Asia today, with prominent examples emerging in China, India, Singapore, and Indonesia. Take Ping An Healthcare and Technology as an example: The company has provided over 1.3 billion consultations since its inception in 2014 — this volume of information generated via the ecosystem will serve as a strong foundation to advance AI for diagnostics, treatment, and prevention.

¹⁷² Refers to Asia-Pacific. GlobeNewswire, "[Smart Cities Market Size Is Projected to Reach USD 5,829.24 Billion by 2030, Growing at a CAGR of 25.20%: Straits Research](#)," November 3, 2022.

We believe that in the not-too-distant future, AI diagnostics will be used to provide greater accuracy and faster decision-making, helping overcome the constraints on healthcare resources.

5G

5G enterprise networking and applications have made significant inroads in Asia, notably in South Korea and China. South Korea has deployed 5G to over 90% of its population through close collaboration between the government, operators, and equipment vendors.

In China, the three state-owned operators have built 5,325 5G private networks with use cases across 40 economic sectors.¹⁷³ Moreover, all prefecture-level cities, all counties, and 96% of towns across China currently have 5G network coverage.¹⁷⁴ 5G's massive network capacity and low latency will enable a new level of user experience, machine-to-machine communication, and ultimately, new industrial revolutions.

Industrial Robotics

In 2021, South Korea, Singapore, and Japan ranked as world's top three most automated countries in manufacturing, as measured by the number of robots installed in the industry per 10,000 employees. While China ranked in fifth place, its investments in industrial robotics put the country ahead of the U.S. for the first time in 2022.¹⁷⁵ China also now installs more industrial robots per year than the rest of the world combined.¹⁷⁶

Virtual Influencers

Virtual influencers and artists, created by computer-generated imagery (CGI), are yet to gain full momentum in the West, but in Asia, they are already a popular phenomenon. Originating in Japan's anime and idol culture, virtual influencers and artists today are embraced by young digital natives across Asia. Companies have also recognized the potential benefits of these virtual influencers and artists, including having control over an influencer's public image and aesthetics, being unbound by geographical and physical constraints, and being commercially cost-efficient.¹⁷⁷

Premia Partners noted there are at least 150 virtual influencers currently active in Asia, and the number is mounting.¹⁷⁸ Four in five Chinese internet users follow online celebrities, over 60% follow virtual influencers, and over half spend at least RMB500 (approximately \$72) a month on related purchases.¹⁷⁹

¹⁷³ Robert Clark, "China Has More Than 5K 5G Private Networks," Light Reading, accessed January 30, 2023.

¹⁷⁴ Juan Pedro Tomas, "Chinese Carriers Deploy Over 1.97 Million 5G Base Stations: Report," RCRWireless News, August 19, 2022.

¹⁷⁵ International Federation of Robotics (IFR), "[China Overtakes USA in Robot Density, According to World Robotics 2022 Report](#)," Robohub, December 10, 2022.

¹⁷⁶ IFR, "[World Robotics 2022](#)," PDF, October 2022.

¹⁷⁷ Bethanie Ryder, "Virtual Influencers Are the New Faces of Luxury Campaigns in Asia," Jing Daily, December 14, 2022.

¹⁷⁸ Ibid.

¹⁷⁹ Based on currency rates as of February 2, 2022. Premia Partners, "[Asia Metaverse: The Coming of Age of Virtual Influencers](#)," September 8, 2022.

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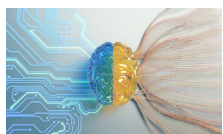
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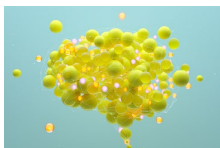
Education: Learning for Life
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Building for Net Zero
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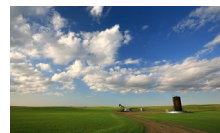
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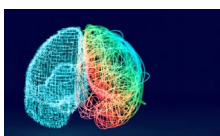
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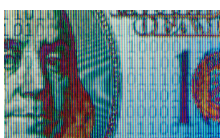
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Key Insights Regarding Asia as a Time Machine to the Future



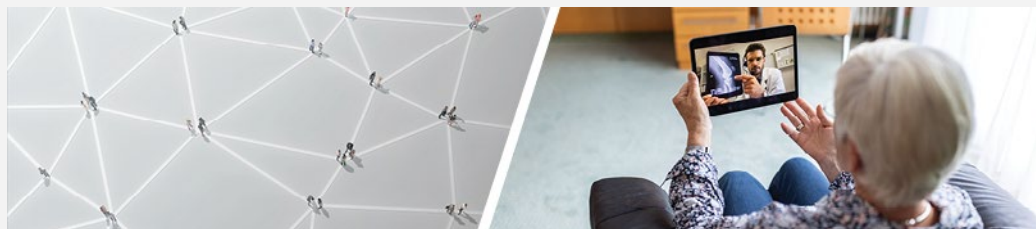
INNOVATION

Asia's demographics and historically underdeveloped infrastructure have helped drive rapid tech adoption in the region, enabling it to embrace mobile technologies and develop key innovations faster than the West. / [The West is gradually adopting various innovative technologies, business models, and trends that have gained popularity in Asia, from digital/mobile wallets to new forms of commerce and entertainment.](#)



SOCIAL CHANGE

Unlike in the West, the digital healthcare industry in Asia has evolved from a standalone play to a comprehensive ecosystem of services. / [Studies suggest digital healthcare adoption stands at nearly 50% in developing Asia, compared with 18% in the U.S. The gap is expected to widen further as the growth of Asia's digital healthcare market outpaces the growth of the rest of the world.](#)



TECHNOLOGY

Asia leads the rest of the world in both online and offline mobile payment penetration. For example, in 2021 digital/mobile wallets accounted for nearly 70% of the e-commerce transaction value in Asia, more than double the share in North America or Europe. / [China is at least eight years ahead of the U.S. in terms of mobile payment penetration. Nearly 46% of China's population had used mobile payments in 2018, a level the U.S. could come close to reaching by 2026.](#)

