

THE MOBILE ECONOMY AND DIGITAL AD SPACE IN 2022 AND BEYOND.

An Analysis of the Global Trends Shaping the Mobile and Digital Advertising Industry

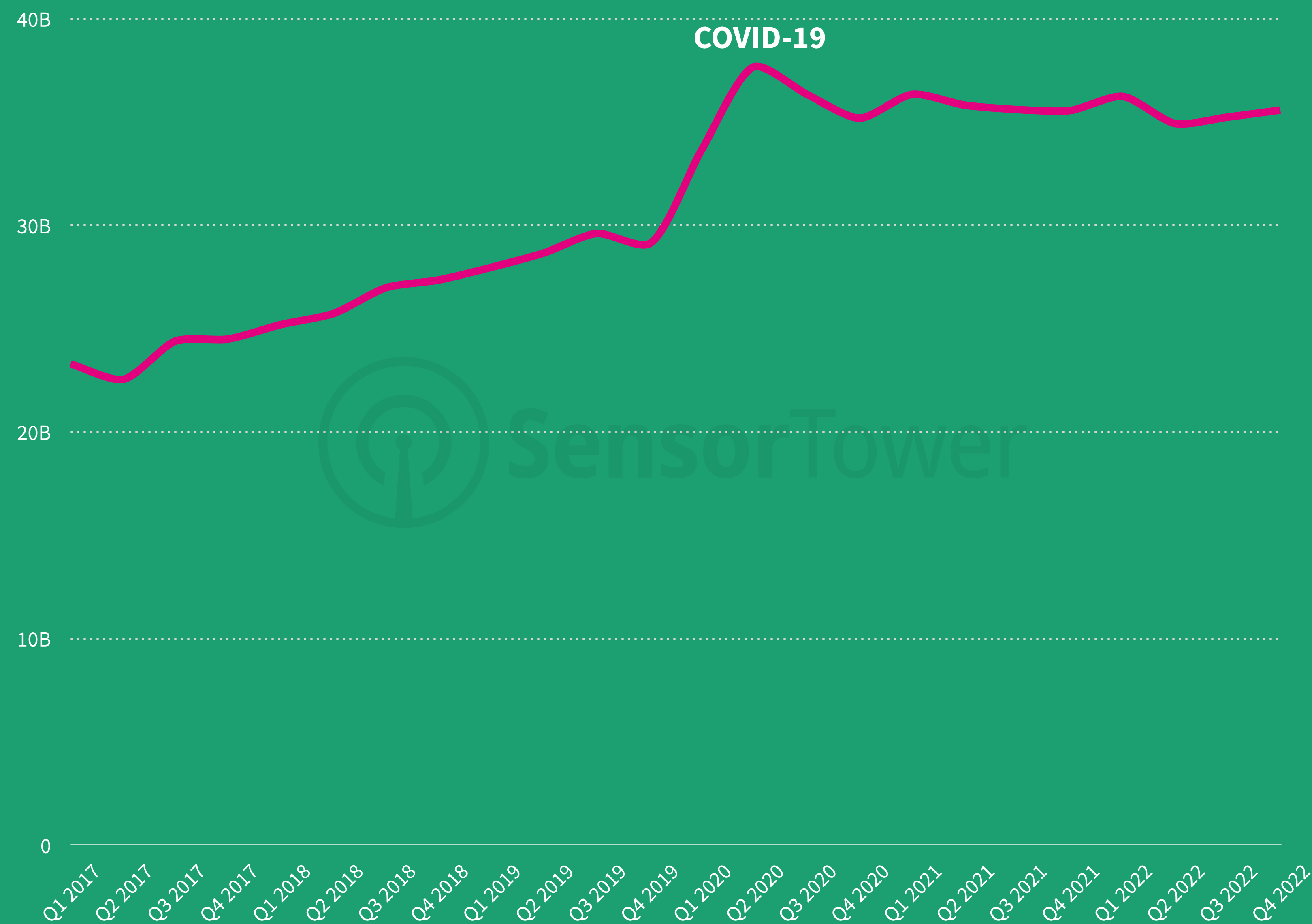
March 2023

Global App Install Growth Slows but Remains Above Pre-COVID Levels

Quarterly worldwide downloads, App Store and Google Play

Global downloads have slowed after the emergence of COVID-19 but remain significantly above pre-pandemic levels. Recent data confirm this trend, with January 2023 installs above the same period in 2019 and 2020. From a geographic perspective, India, the U.S., and emerging markets such as Brazil and Indonesia were the top countries by app installs in 2022. The European continent, including Turkey, accounted for nearly 19 percent of global downloads, with the region’s share declining in the past few years in favor of emerging markets.

In the short term, in a context of low download growth, a push in adoption may come from China. China’s reopening after the end of its zero-COVID policy and the easing of its tech crackdown will likely increase mobile adoption in the coming weeks (e.g., ride-hailing app Didi is back on the Apple App Store and has resumed taking on new customers after an 18-month ban). **In the medium-term, African countries, most of which are outside the top 20 markets by downloads, will rise in global download rankings** owing to a young and growing population as well as some of the fastest-growing smartphone penetration rates globally.



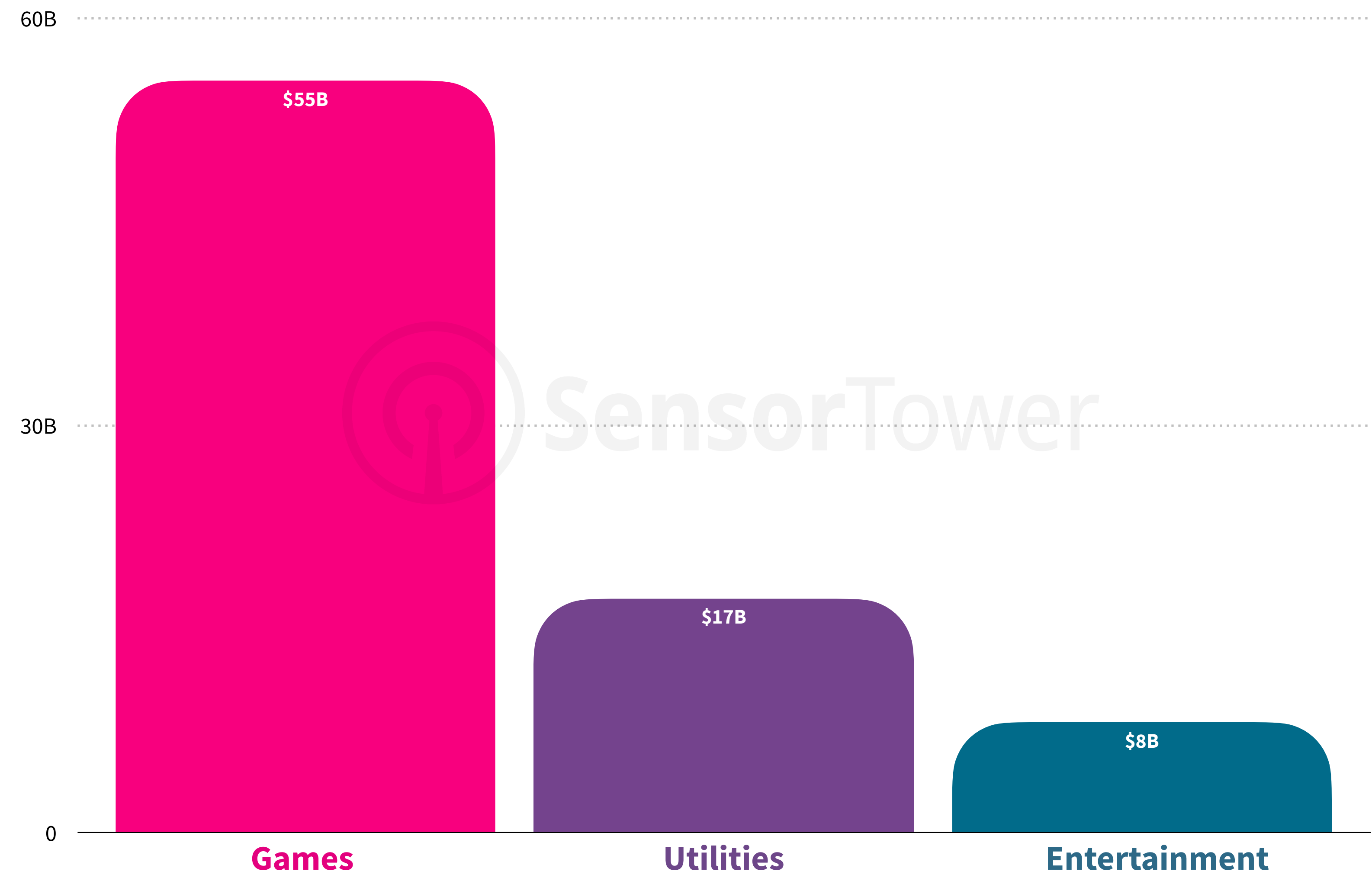
Mobile Games Remain the No. 1 Category by Downloads Globally

Top categories by downloads in 2022

Across the mobile space, games remain the No. 1 category by a wide margin, with over 50B downloads in 2022. Utilities and Entertainment apps follow as the second and third-largest categories, with Utilities apps surging in India last year.

While global Game downloads were flat in 2022 year-over-year, they remained markedly above pre-COVID levels, with last year’s downloads 13B above 2019. Games were the No. 1 category across all global markets in 2022, with the exception of some African countries, including Kenya and Nigeria. An increase in smartphone ownership and improvements in internet penetration and payment ecosystems will, however, make Africa an important region for Game publishers in the coming years.

Focusing on large markets with more than 500M Game app downloads in 2022, Asian consumers were among the most interested in gaming. The popularity of mobile Games was particularly strong in Vietnam, Kazakhstan, and Turkey, where Games accounted for over 50 percent of all app downloads.



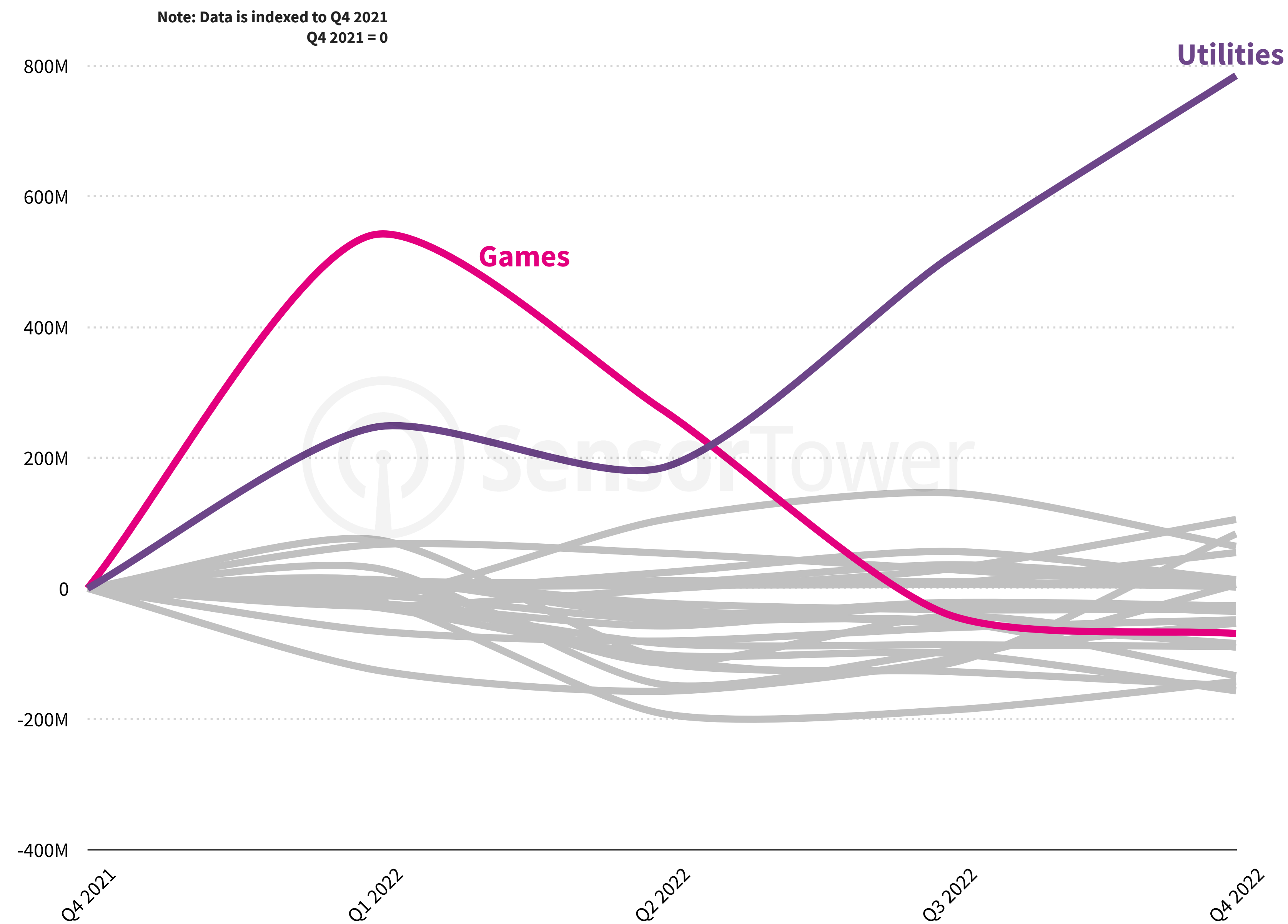
Utilities Apps Are Now Driving Global Adoption Growth

Quarterly worldwide downloads by category, App Store and Google Play

Looking at the fastest-growing mobile categories in 2022, Games drove adoption in the first half of the year (particularly in Q1 2022), while the Utilities category has been driving install growth in most recent quarters.

The growth in Game downloads in 2022 was primarily driven by emerging markets, which dominated the top 20 ranking by raw download growth. Indonesia, Pakistan, and the Philippines were the top markets by raw growth, with the three recording 590M more downloads in 2022 compared to the previous year.

Within the Utilities category, India was the top market by growth in 2022, with VPN apps one of its fastest-growing segments. Downloads for the top VPN apps in India went from 20M in the first six months of 2022 to nearly 100M in the second half of the year. Increasing internet shutdowns (there were more than 80 in 2022), the need to access geo-restricted apps and content, and the rise in remote working are some of the factors believed to be behind the surge in VPN app installs in India.

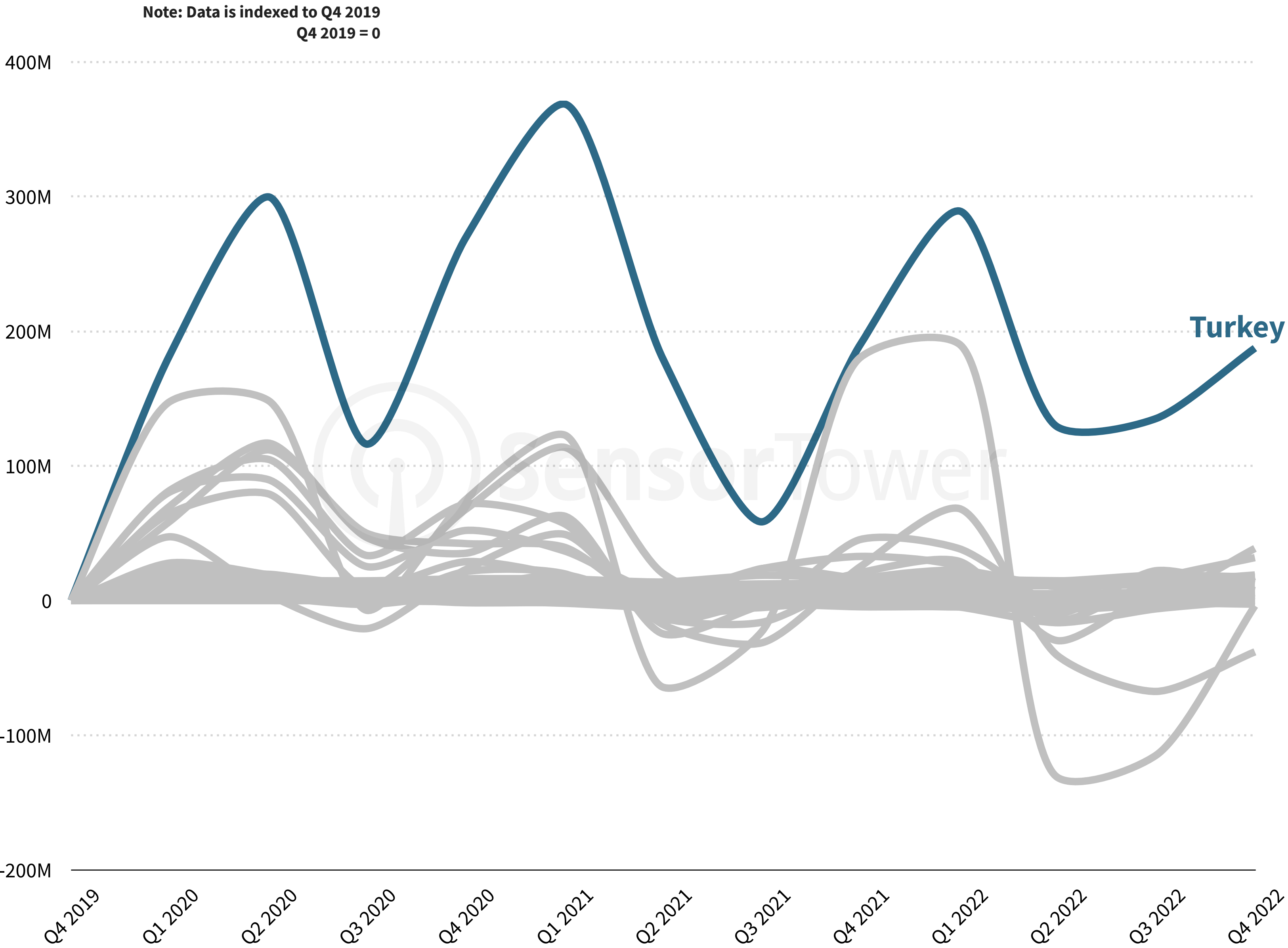


Turkey Leads by Adoption, but Economic Turmoil Halts Spending Potential

Quarterly downloads by European country, App Store and Google Play

In Europe, Turkey has been the country where app downloads have grown at the fastest pace since the emergence of COVID-19. A significant increase in smartphone penetration rates constitutes a key factor behind the rise in the popularity of mobile apps in the country. Games have been the strongest driver of downloads in the past few years in Turkey, but Shopping and Finance apps have also seen solid growth, with the latter rising amid the economic woes that have affected the country in recent quarters.

While strong interest rate cuts have sustained Turkish economic growth in past quarters, they have also increased inflation to the second-highest in the G20. The surge in inflation, a significant unemployment rate and a currency crisis have shrunk households' spending power, making it harder to translate the rise in mobile adoption of recent years into a similar increase in consumer spending.



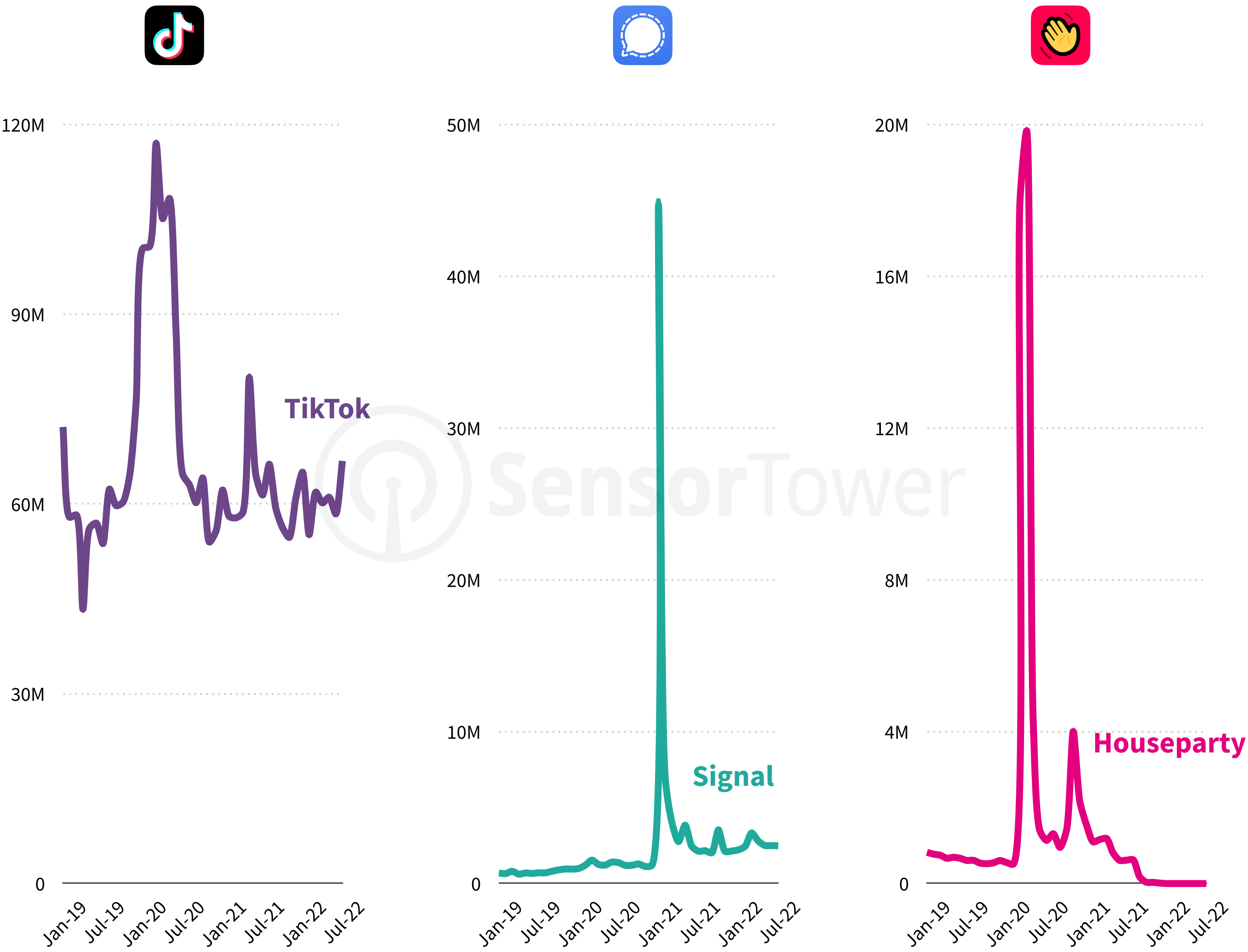
Drying Up of VC Funding Could See Fewer Disruptors Arise

Global monthly downloads of selected Social Networking app disruptors

The mobile space has seen a number of disruptors arise in the past few years. Some have disappeared as fast as they have risen. Others, like TikTok, have become game-changers in the mobile space.

While historic low interest rates in the past decade have helped capital flow to riskier investments, the increase in the cost of funding may make it harder for new app disruptors to emerge, as investors may focus on apps with more predictable profits.

Recent [data](#) published by equity management firm Carta seem to confirm that venture capital funds may now prefer to support existing portfolio companies rather than make new investments. This could make it more difficult for new disruptors to arise, impacting innovation in some segments of the mobile space in the coming years.



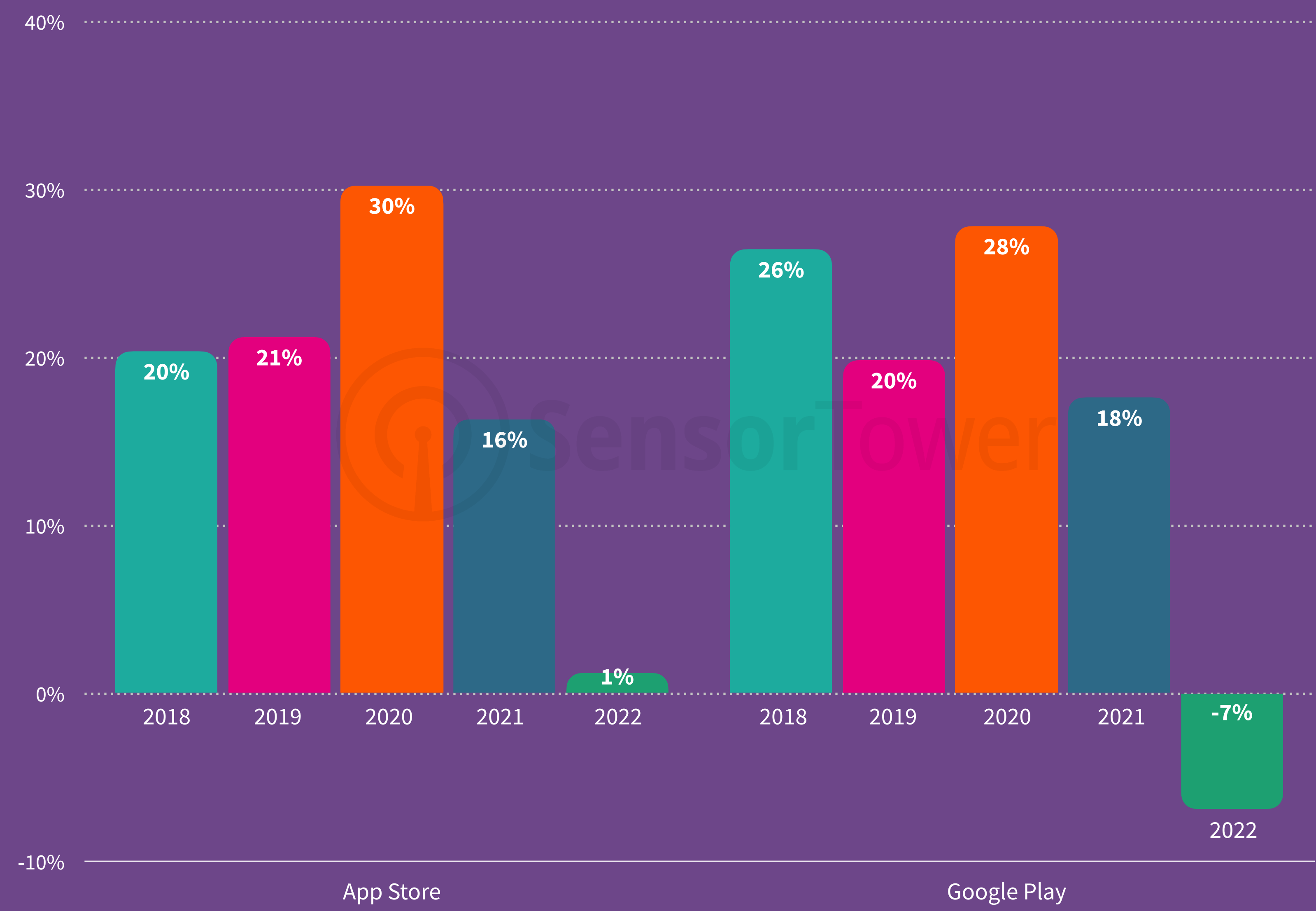
Global Android Spending Fell for the First Time in 2022 Amid Rise in Inflation

Year-over-year revenue growth by store

2022 was an eventful year in the mobile economy as spending on Android fell for the first time ever. The plunge in Android spending, which declined by nearly 7 percent, was driven by a decline in global Game revenue. While spending on iOS kept growing, it saw a record slowdown, increasing by just 1 percent YOY in 2022.

Japan was the country - among major economies - that saw the largest decline in Android spending in 2022. Other leading markets, including the U.S., also saw a decrease in Android revenue. The decline in Android revenue in the U.S. was, however, offset by solid spending growth on iOS, which tends to attract more high-income users.

In a context of high inflation and decreasing consumer spending, it is becoming imperative to test out new monetization strategies: Some app developers (e.g. Tinder, Duolingo) are now devoting more resources to boosting single in-app purchases, which have in the past been sidelined in favor of higher-value subscription services.



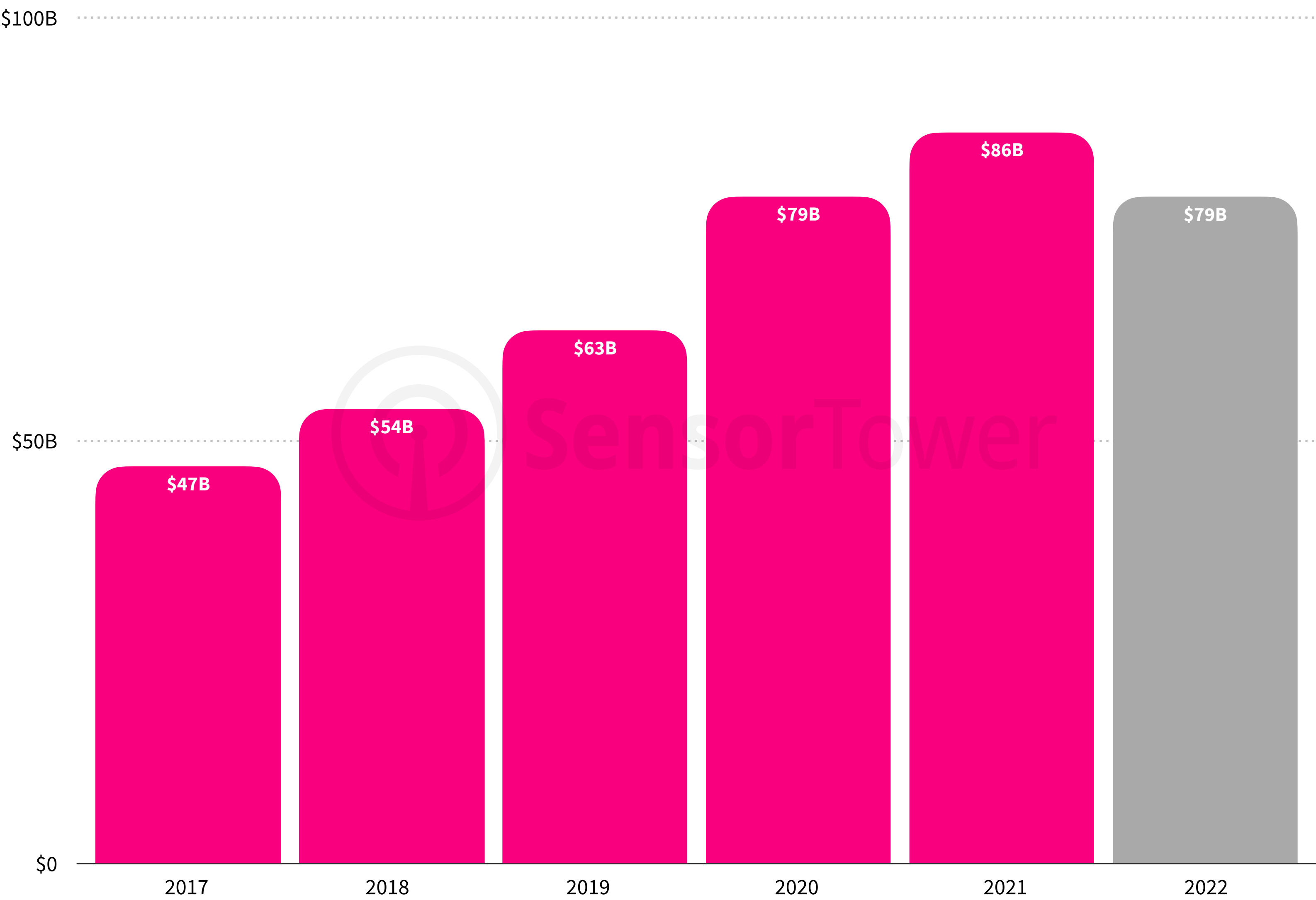
Game Revenue Declined for the First Time Globally in 2022...

Game apps' gross revenue

2022 marked the first time spending on mobile Games declined YOY globally after the surge propelled by the emergence of COVID-19. Nevertheless, despite the decrease in spending, revenue in 2022 remained on par with 2020 and was still markedly above pre-pandemic levels. Comparing consumer spending in 2022 versus 2019, all global markets except Russia, Lebanon and Tunisia saw an increase in revenue, a testament to the popularity and resilience of the mobile Gaming space.

The U.S., which was the leading market by Game revenue in 2022, recorded the second-largest fall in absolute spending in 2022 YOY. Asian markets, including Japan, China, South Korea, Taiwan and Thailand, also saw some of the largest declines in absolute spending, with Japan seeing the steepest drop in spending globally (see page 10).

While spending declined across the entire mobile Game category, some Game apps, including Lineage W, Diablo Immortal and Royal Match, bucked the trend, recording gross revenue growth north of \$300M in 2022 YOY.



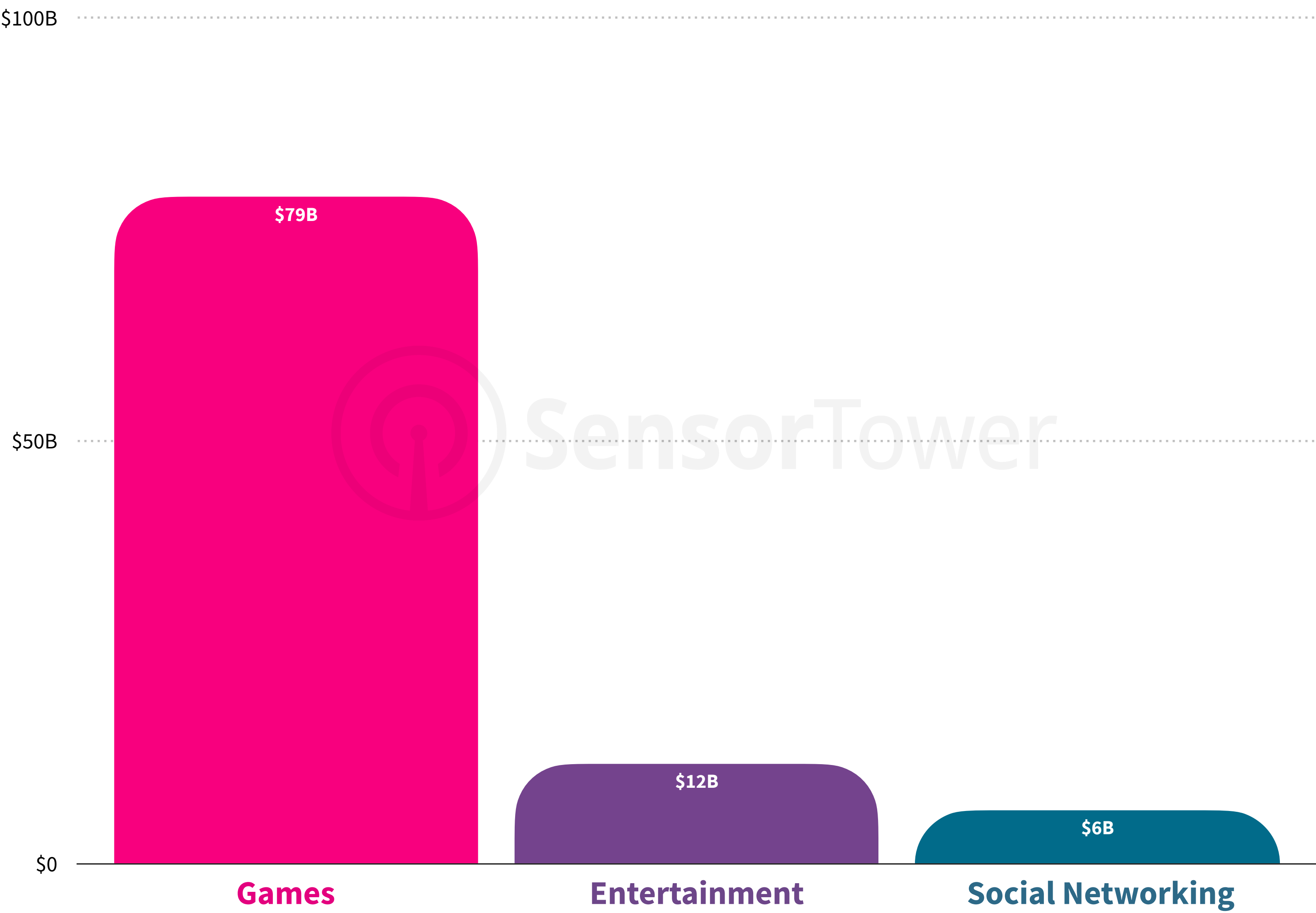
...But Game Revenue Continues to Dwarf Spending on Other Categories

Top categories by consumer spending in 2022

Despite the decline in Game spending, Games still led the mobile space by gross revenue in 2022, significantly ahead of Entertainment and Social Networking apps. While the gap in spending between Game and non-Game apps remains wide, the recent rise in spending on Entertainment apps (see page 12) could alter the balance if Game revenue stays weak in 2023.

Gulf countries, Scandinavia and Latin American markets were the regions with some of the narrowest differences in spending between mobile Games and the second-largest non-Game category (often Entertainment) in 2022, with Entertainment potentially cannibalizing Game revenue in those markets.

Game spending remained weak at the start of 2023 YOY. The release of some high-profile Games and Game publishers' focus on established franchises may reverse the decline in spending. The potential waning of regulatory gaming restrictions in China, and the implementation of post-IDFA strategies may also unlock new levels of growth in 2023.



Japan Has Seen the Largest Decline in Mobile Game Revenue

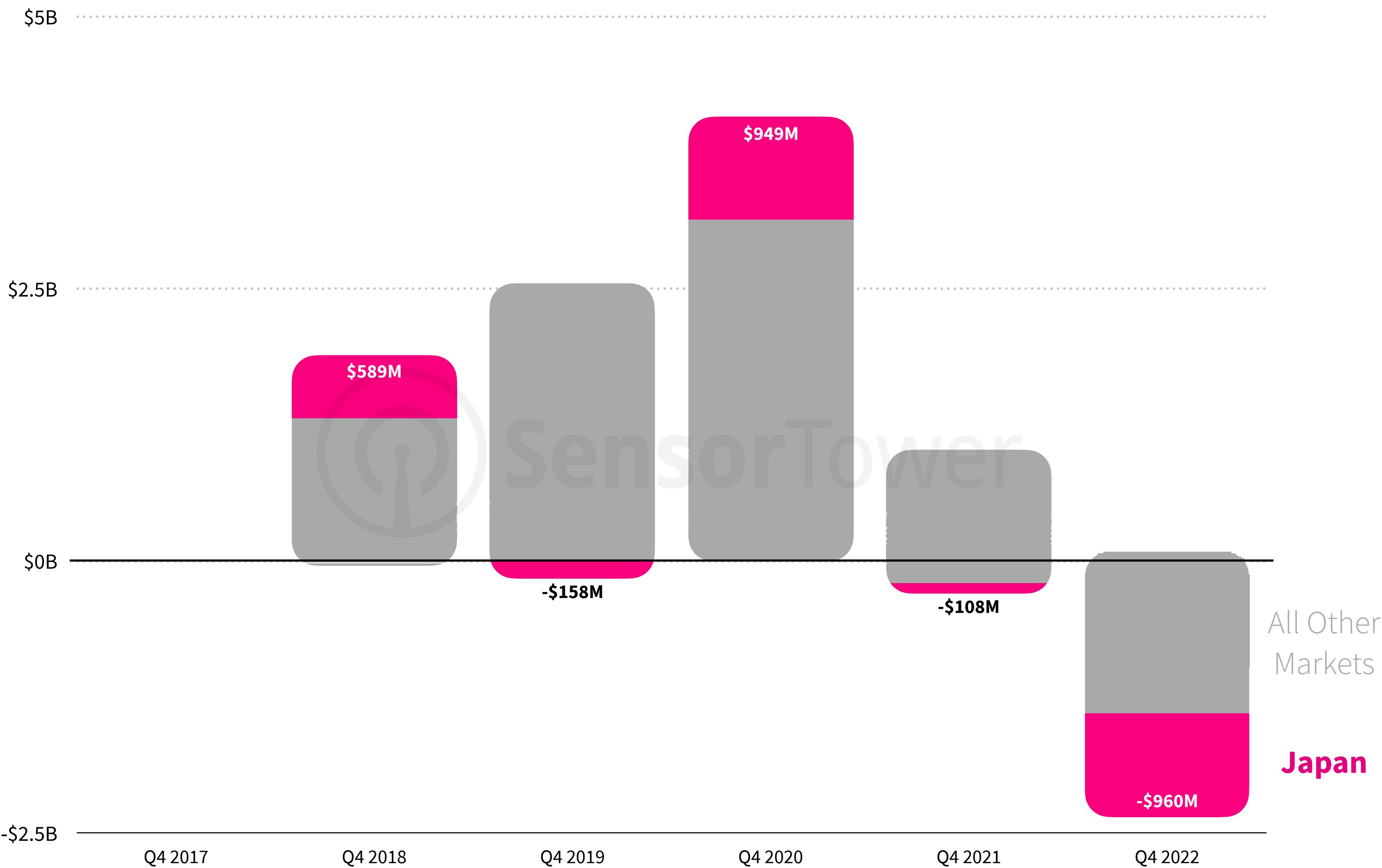
Game apps’ year-over-year quarterly consumer spending raw growth

Far East Asia, the U.S., and Europe were among the markets that saw the largest absolute decline in Game revenue in 2022 YOY, with Japan seeing the steepest decline globally, with revenue down by \$3.2B in 2022.

The lifting of COVID restrictions, Apple’s IDFA changes, rising inflation, and gaming fatigue after years of relying on indoor gaming are all factors that can help explain the global decrease in Game revenue.

Focusing on the most recent quarter, Japan saw the largest decline in spending at the end of 2022 YOY, with Game revenue down by \$960M in Q4 2022 versus the previous year.

In Japan, specific factors that may have impacted spending in Q4 2022 include a late COVID reopening, the World Cup, which might have kept some users away from games, and rising inflation - an unprecedented event in Japan, a country where the price of some everyday items has not increased in the past 40 years.

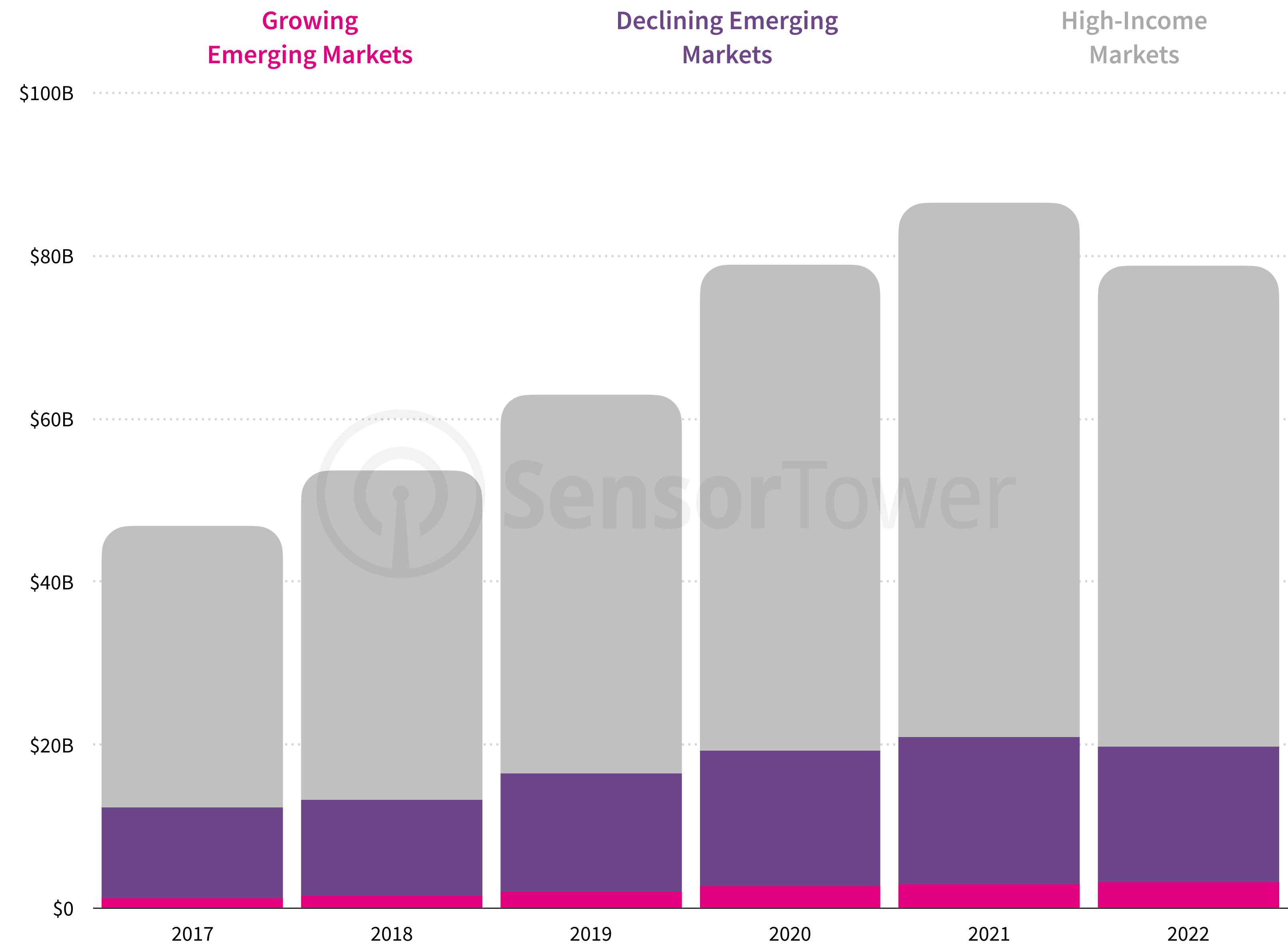


Game Revenue is Growing in Emerging Markets, but Not Fast Enough

Game apps' global consumer spending by year

While Game revenue has been declining across major economies, spending on mobile Games is growing in some emerging markets. Brazil, Indonesia, India, and Turkey were among the fastest-growing markets by Game revenue in 2022 YOY. However, although consumer spending is increasing in these markets, it is not rising fast enough to offset the decline in other major markets.

Given the current scenario of weak revenue growth, minimizing the impact of the Apple IDFA changes is critical to unlocking growth. Game publishers have a number of strategies available, including using a pre-permission prompt to emphasize the value users can gain from opting in; finding the optimal moment to deliver the Apple IDFA pop-up; rethinking their creative testing strategy and contextual ad targeting; and building a first-party data strategy.



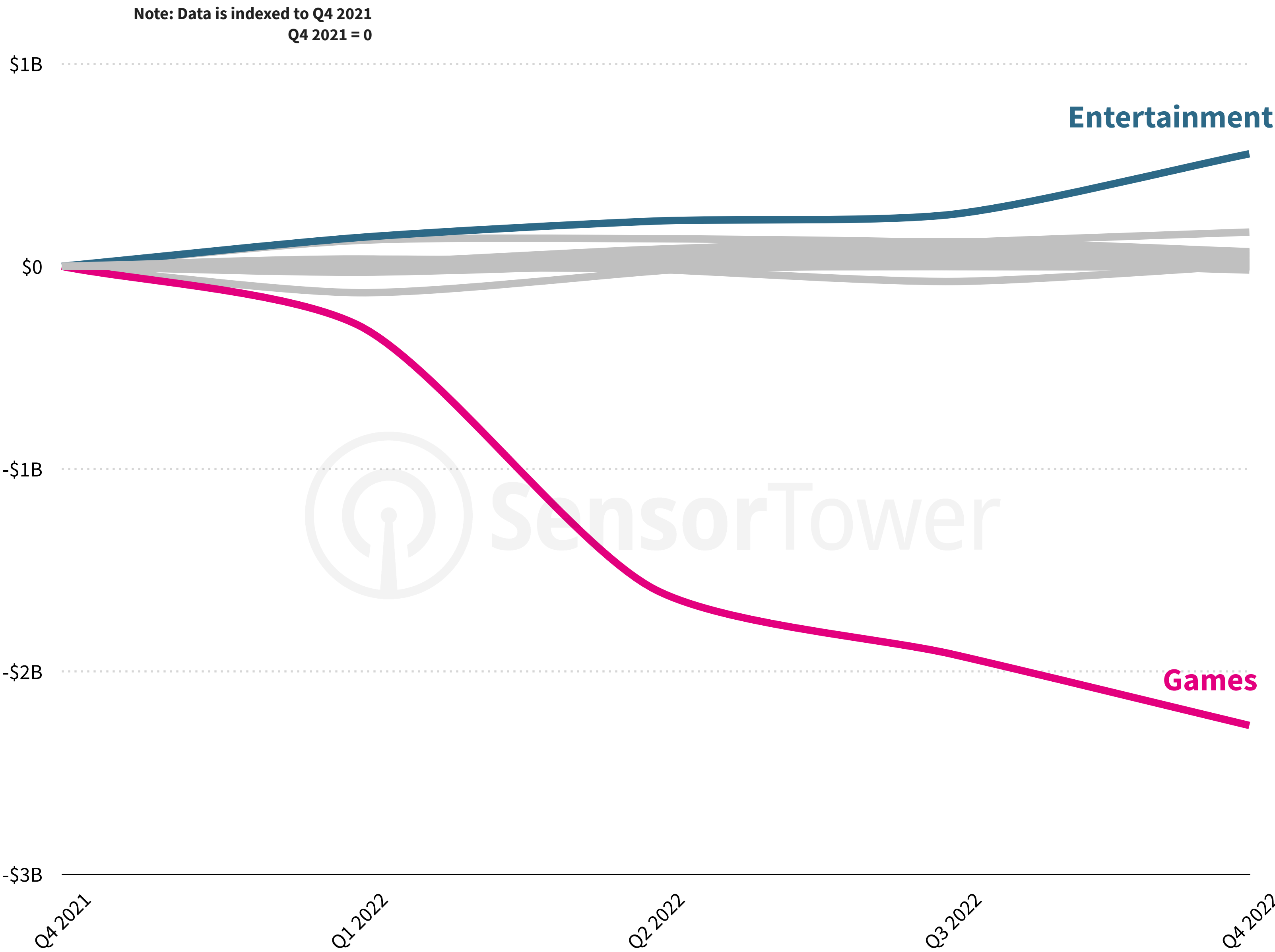
Entertainment is Now Driving Global Consumer Spending Growth

Quarterly worldwide consumer spending raw growth by category

Entertainment is now driving revenue growth globally. Entertainment is growing fast, with spending picking up pace as Game revenue declines. From a geographic perspective, the U.S., China, and South Korea drove spending growth on Entertainment apps in 2022, while TikTok, HBO Max and Disney+ were among the fastest-growing apps by consumer spending.

The increase in Entertainment revenue and the concurrent decline in Game spending raises the question of whether Game users are moving towards Entertainment apps, particularly those that are making a push into the gaming space, such as TikTok and Netflix.

Data from Sensor Tower’s App Overlap module show that TikTok and Netflix are among the apps that users of top-grossing Game apps worldwide are most likely to spend time on: TikTok and Netflix are among the top non-Game apps that Coin Master and Pokemon Go’s Android users are more likely to use in a 30-day period. TikTok is also popular among Genshin Impact’s user base, ranking as the No. 2 app Genshin Impact’s Android users are more likely to spend time on worldwide.



Spending on Entertainment Apps is Now Twice that of the Next-Largest Category in the U.S.

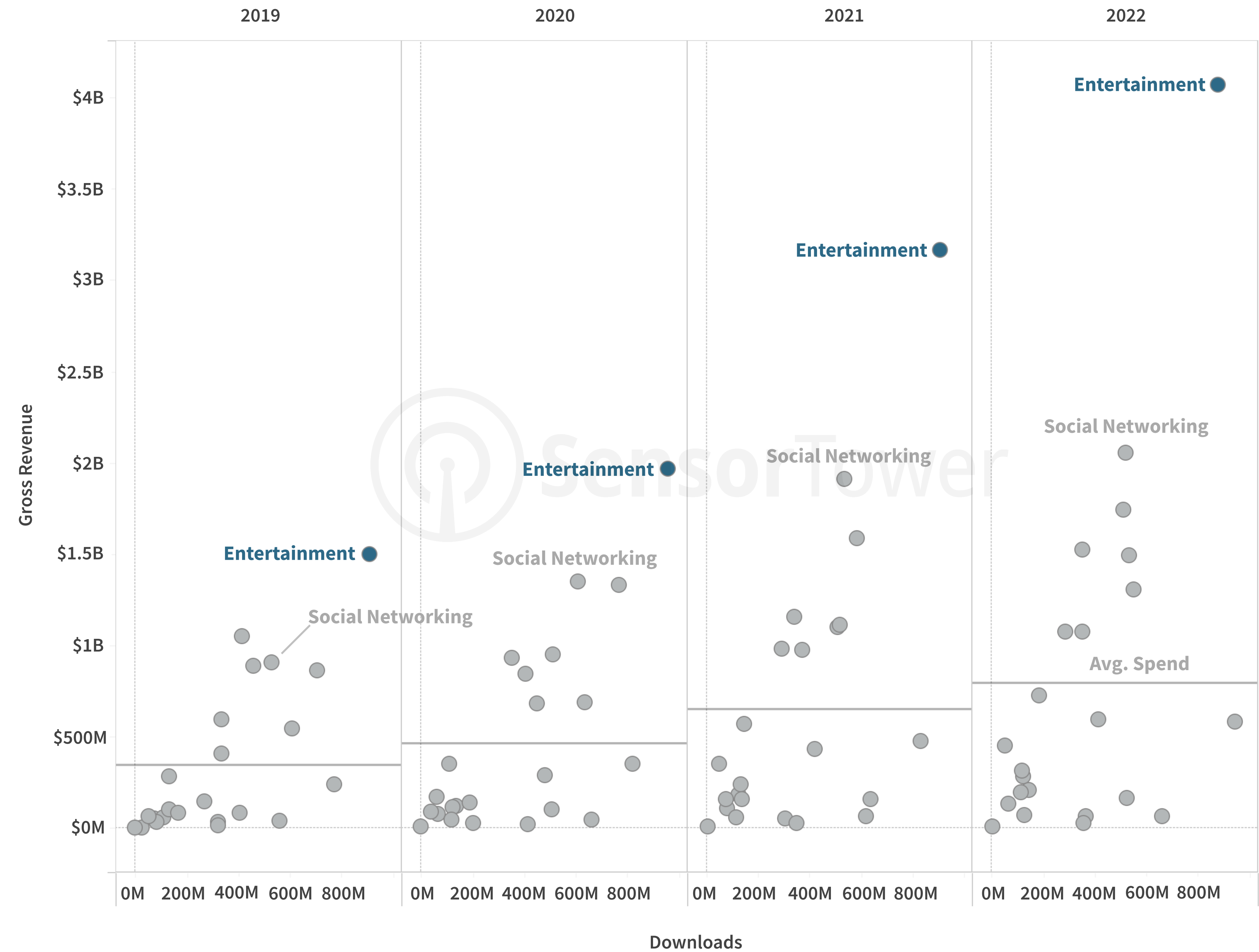
Consumer spending vs. downloads by category in the U.S.

The U.S. is a clear example of how much spending on Entertainment apps has risen in recent years: Entertainment revenue has grown steadily since the emergence of COVID-19, with spending on Entertainment apps reaching \$4B in 2022, more than double the amount of 2019.

Spending on Entertainment apps has grown so fast in the U.S. that in 2022 Entertainment apps revenue was, for the first time, twice that of the next-largest category, Social Networking (however, Game apps, not shown in the chart, remained the top by spend).

TikTok, HBO Max and Disney+ were the top grossing Entertainment apps in the U.S. in 2022, with TikTok surpassing even Game apps, with the exception of Candy Crush Saga. TikTok was also the fastest-growing by raw consumer spending in 2022 YOY, followed by TV Streaming apps, including HBO Max, Peacock TV and Paramount+.

Note Regarding Revenue Estimates:
Game apps are not included in the chart.



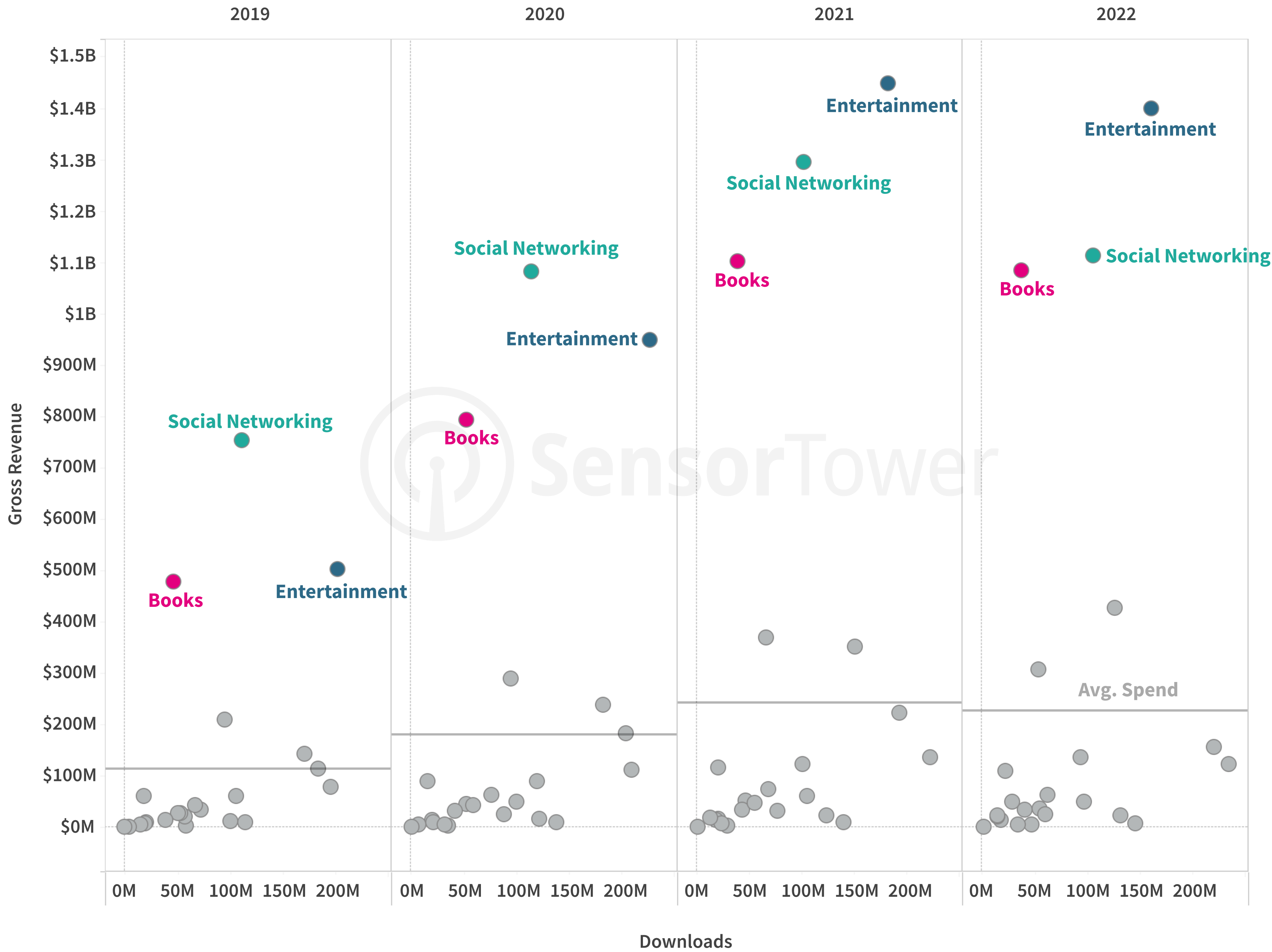
A Manga Reader App is Now the Top Grossing in Japan

Consumer spending vs. downloads by category in Japan

Entertainment has also been driving spending growth in Japan in recent years, with the category becoming the top grossing in 2021 among non-Game apps, a record it maintained last year. However, what sets Japan aside from other major markets is the size and growth that the Books category has seen in recent years. And while most mobile categories saw a decrease in revenue in 2022, Books saw one of the smallest declines among top categories, making it one of the most resilient in the Japanese mobile space.

Within the Books category, Manga Reader apps have been among its fastest-growing segments. This is apparent if one looks at the top-grossing apps across the entire mobile ecosystem: **Historically, the leading app by revenue across both stores in Japan has always been a Game app. However, in 2022, a Manga Reader app - Piccoma - became the No. 1 by revenue across both stores, replacing a Game app for the first time ever.**

Note Regarding Revenue Estimates:
Game apps are not included in the chart.



Global Mobile Spending Continues to Increase Despite Macro Headwinds

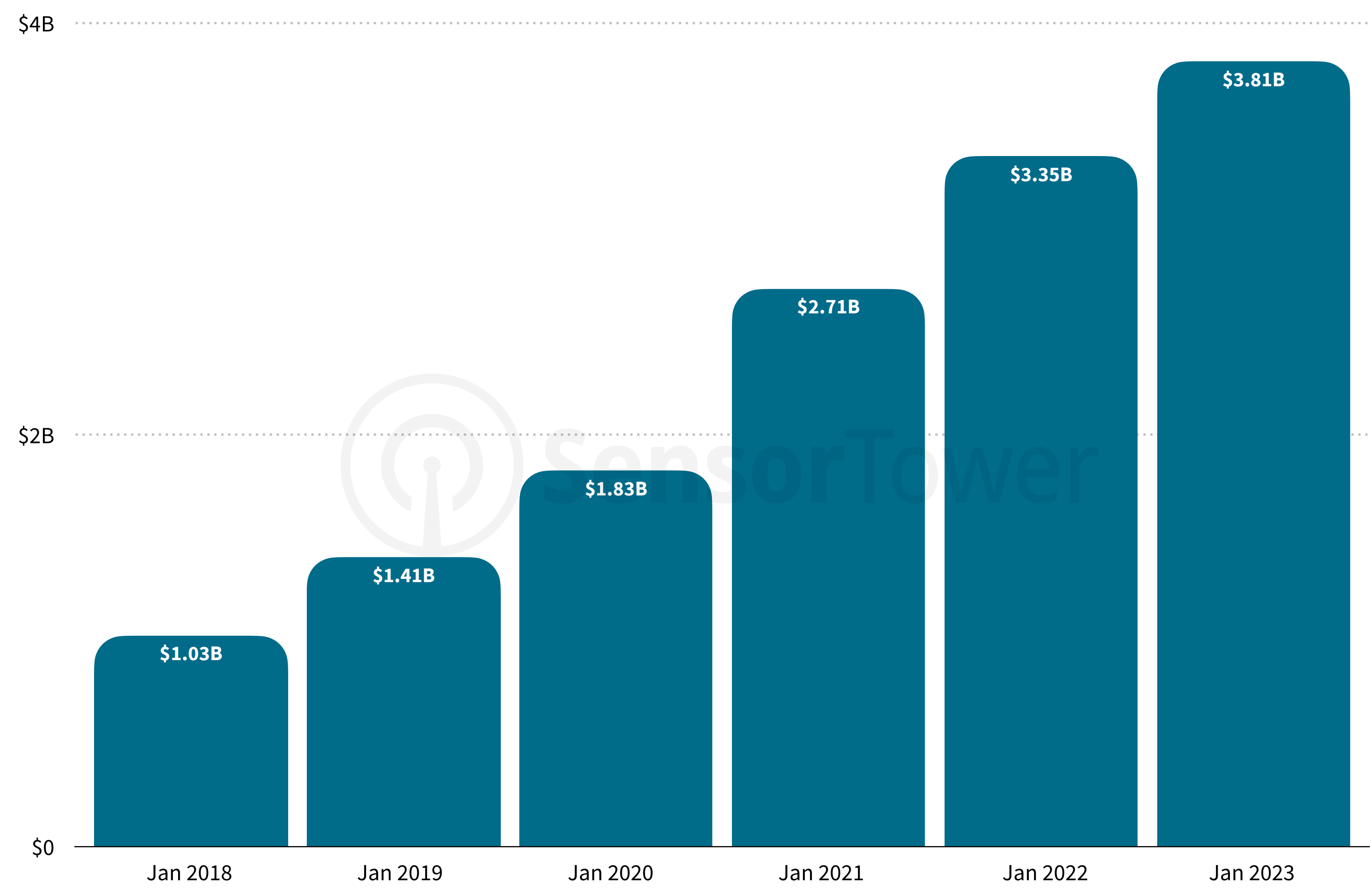
Global non-Game apps' gross revenue in January of each year (excluding China)

Global consumer spending on non-Game apps reached a record high in January 2023 YOY, with gross revenue hitting \$3.8B. The increase in spending has come on the back of an economy that - despite high inflation - has shown surprising strength across markets, including the U.S.

Most global markets, with the exception of Russia and Japan, saw an increase in non-Game mobile spending in January 2023 YOY. Entertainment and Photo & Video were the fastest-growing segments by raw revenue, while the U.S. and South Korea were the markets where spending increased the most in absolute terms.

While mobile spending remains strong, the latest economic data from the U.S. suggest that the Federal Reserve may consider larger interest rate increases to bring inflation back to its two percent target in the next few years. Higher interest rates might slow consumer spending, also impacting revenue in the mobile economy.

Note Regarding Revenue Estimates:
Game apps are not included in the chart.
China is not included.



Consumer Spending is Rising Again in China Amid the Country’s Reopening

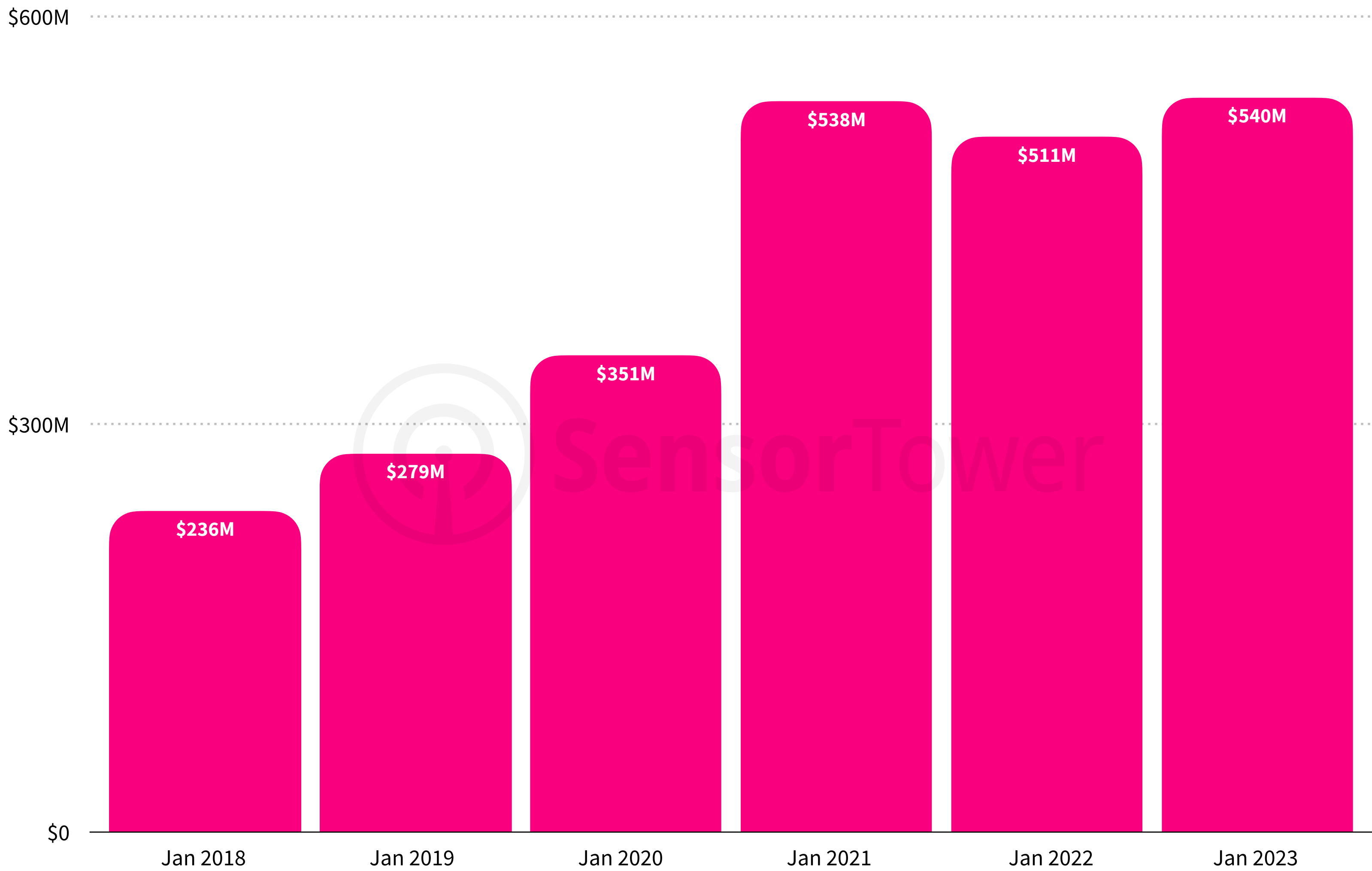
Non-Game apps’ gross revenue in January of each year in China

Mirroring other markets, mobile spending reached a record high in China in January 2023 YOY amid the country’s reopening following the end of its zero-COVID policy. Spending on non-Game apps hit \$540M in January 2023, the highest ever for the month.

While mobile spending is increasing, it is not rising as much as in the pre-COVID period. Nevertheless, Chinese households are sitting on the largest pool of new savings in history, which may represent a significant monetization opportunity for app developers in the coming months.

The accumulation of savings, the easing of China’s tech crackdown, a low inflation rate compared to other global markets, and signs of a potential relaxation of stringent gaming regulations may combine to unlock new growth opportunities in the coming quarters.

Note Regarding Revenue Estimates:
Game apps are not included in the chart.
Revenue estimates in China only include the App Store.

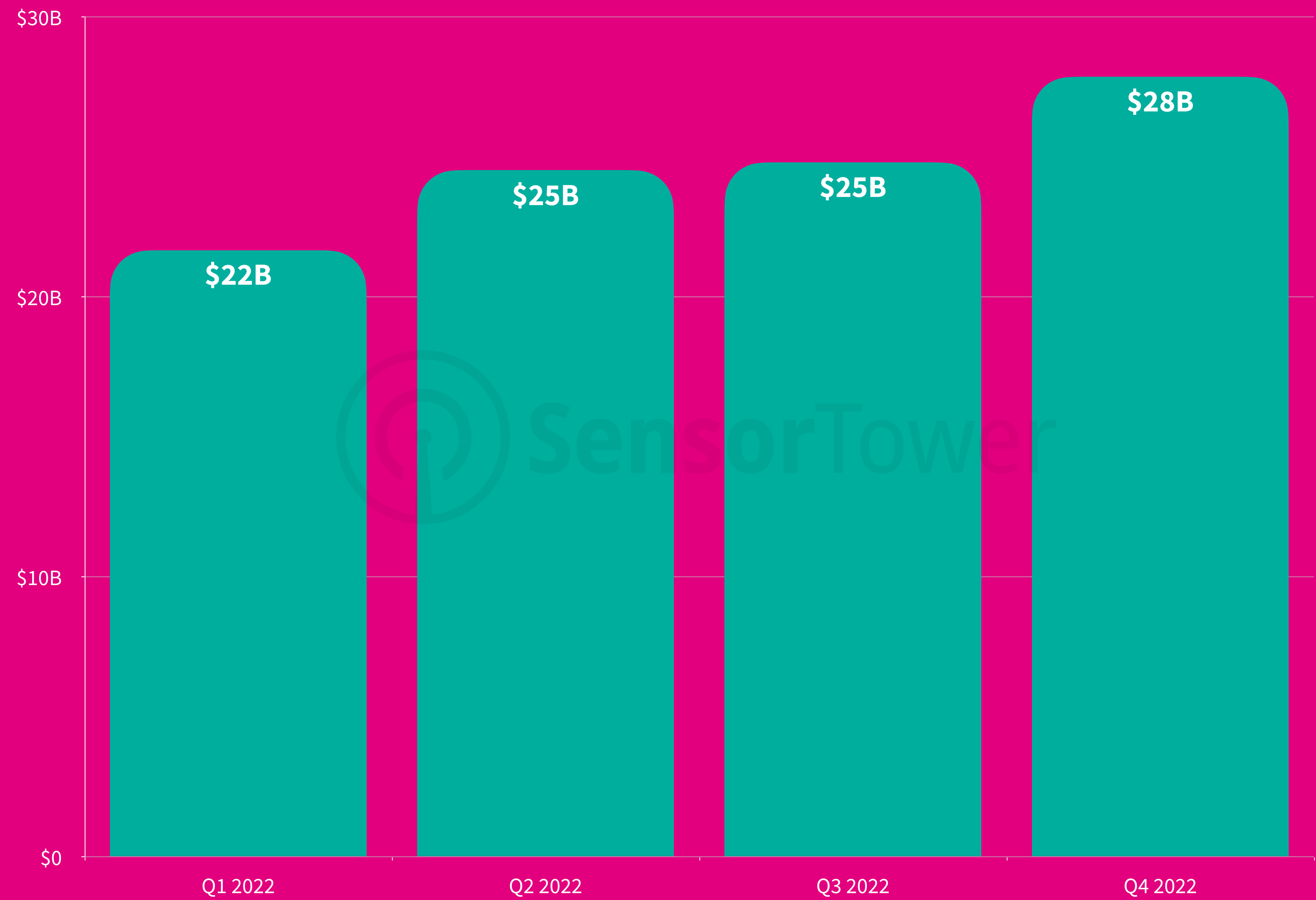


Digital Ad Spend is Picking Up Pace, but Apps Eye Alternative Revenue Streams

Quarterly digital ad spend in 2022 (U.S., Canada, U.K., Germany, France, Italy, Spain)

Digital ad spending has increased quarter-over-quarter in the past few quarters, reaching \$28B across North America and large European markets in Q4 2022. Comparing 2022 to 2021, however, some of the largest ad channels have seen a decrease in spend as brands have cut their marketing budgets at a time of rising inflation and as a response to Apple’s anti-tracking rules. Increasing competition from Amazon, Apple and TikTok has also shifted investments.

The Fall in advertising revenue has pushed apps that rely more heavily on advertising to look for new sources of revenue. Meta’s Verified subscription is the latest example of this trend, which has seen Snapchat and Twitter launch their subscription services in recent months. Subscription revenue will hardly make up for lost revenue from advertising, but the focus on subscriptions could be a windfall for Google and Apple: They make no money from apps’ advertising revenue but take a cut from their in-app purchases. A battle is, however, raging in the mobile space: Some apps (e.g., Netflix) bypass the Apple and Google Play stores entirely, redirecting users to their websites. Others, like Meta, offer cheaper subscriptions for users that sign up on their websites rather than their apps.



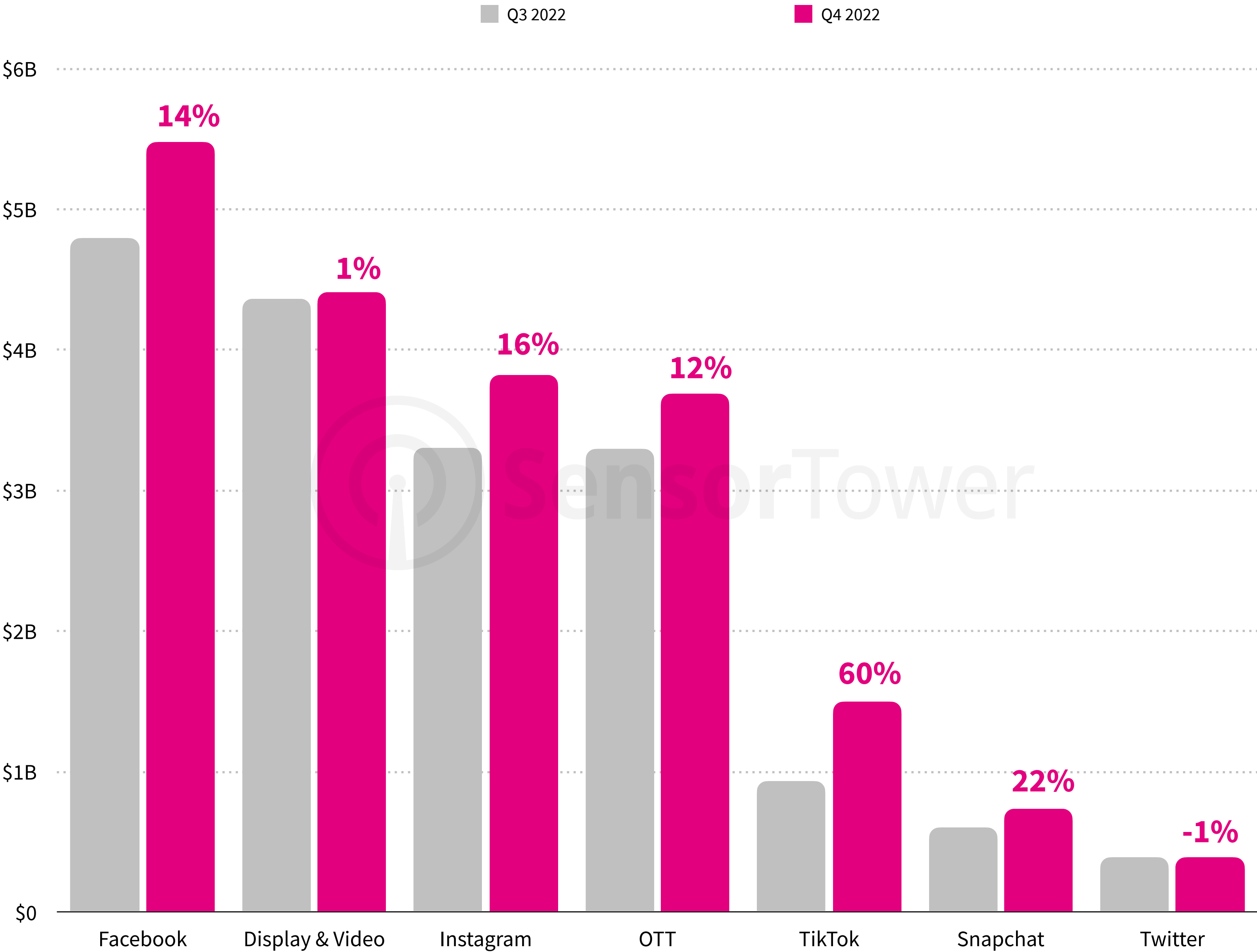
TikTok is Now the Fastest-Growing Advertising Channel

Quarterly ad spending by channel in the U.S.

Facebook remains the leading channel for ad investments, with over \$5B in digital ads in Q4 2022 in the U.S. An increasing amount of digital ad spend is, however, moving towards TikTok owing - among other factors - to its growing active user base (particularly in some markets), highly engaged users (TikTok was the fastest-growing app by consumer spending in 2022) and its reportedly lower advertising costs.

The increasing interest around TikTok has made it the fastest-growing ad channel in the U.S., with ad spend on the platform growing by 60 percent QOQ in Q4 2022. TikTok’s record growth is a reality in major European markets too, where it was the fastest-growing channel at the end of 2022.

Despite its rise in the digital ad space, TikTok’s market share remains small compared to other platforms. Moreover, increasing calls to ban TikTok in the U.S., including a recent bipartisan bill that would allow the banning of foreign apps, risk jeopardizing TikTok’s digital ad ambitions.



About Sensor Tower

Sensor Tower is the leading solution for mobile marketers, app developers, and industry analysts who demand competitive insights on the mobile economy. Sensor Tower’s product suite includes: Top Charts, App Intelligence, Store Intelligence, Ad Intelligence, and Usage Intelligence.



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