APP ANNIE

State of Mobile

— 2020 —

2020 STATE OF MOBILE

Executive Summary

204B

Worldwide **Downloads** in 2019

$120B

Worldwide App Store **Consumer Spend** in 2019

3.7 Hrs

Per day spent in mobile by the average user in 2019

825%

Higher avg IPO valuation for mobile companies in 2019

60%

Higher per user engagement by Gen Z vs older demos in 2019

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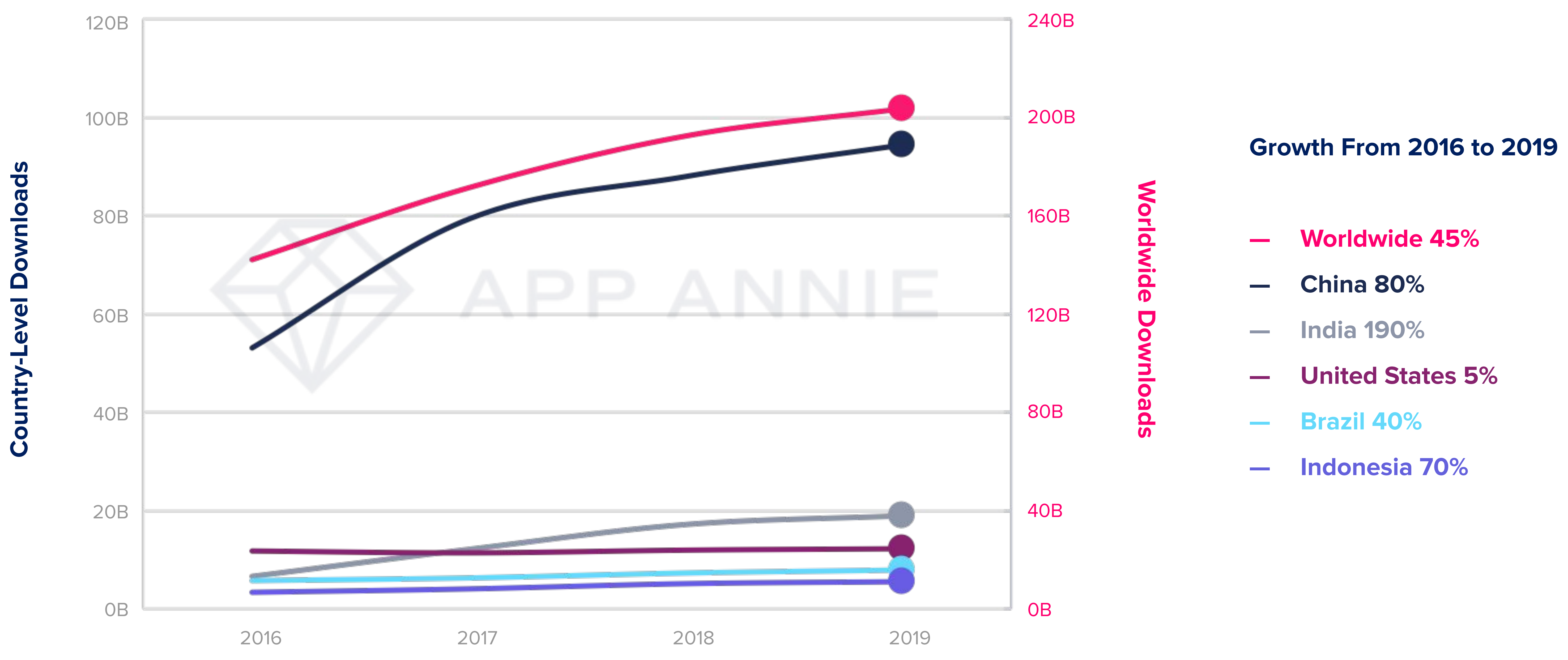
The Mobile Performance Standard

Through our mobile data and insights platform, we help
create winning mobile experiences for those aspiring to achieve excellence

Consumers Downloaded a Record 204 Billion Apps

- Annual worldwide downloads have grown 45% in the 3 years since 2016 and 6% year over year, which is particularly impressive given this excludes re-installs and app updates.
- Downloads are largely fueled by emerging markets, including India, Brazil and Indonesia.
- Consumers in mature markets like the US, Japan and Korea have seen download growth level off, but are still seeking out new apps. Downloads in 2019 alone topped 12.3B, 2.5B and 2B in the US, Japan and South Korea, respectively.

Top Countries by App Store Downloads

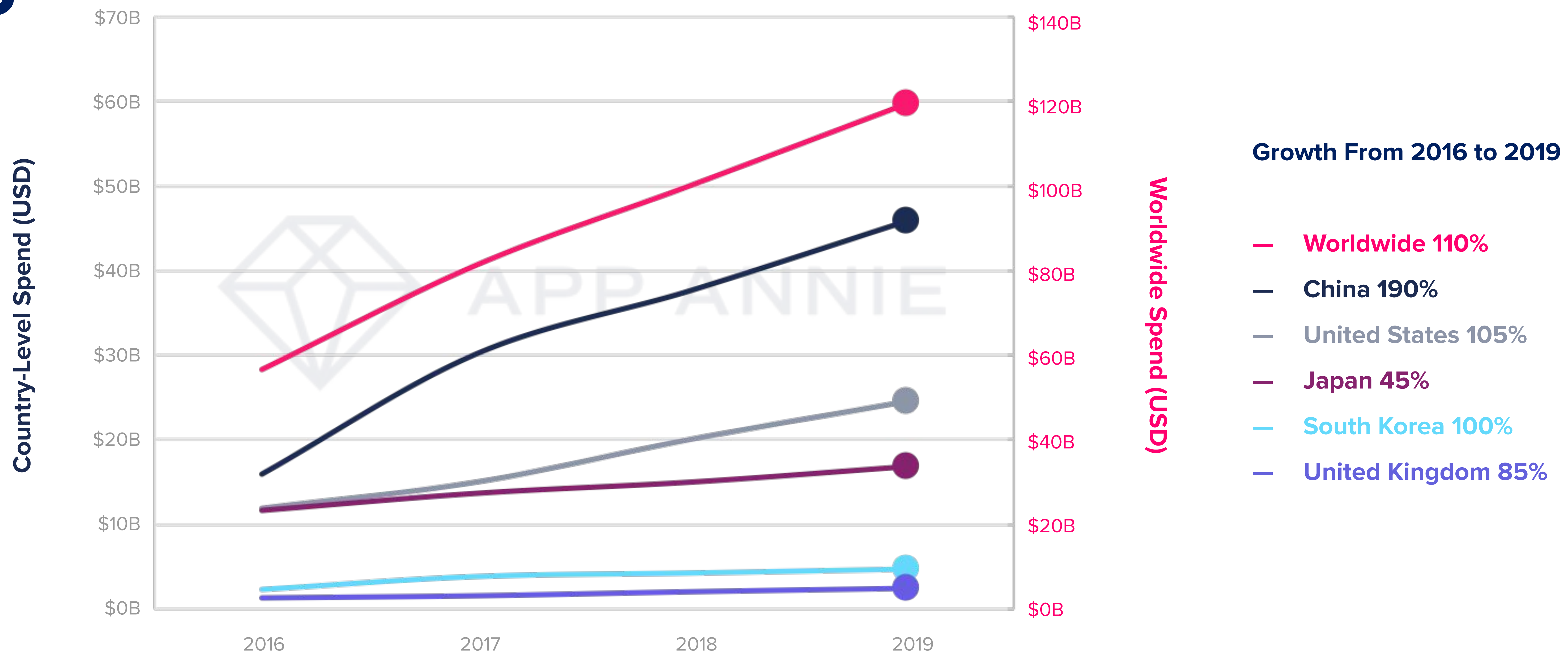


Note: iOS, Google Play, Third-Party Android in China combined

Consumer Spend Hit $120B, up 2.1x From 2016

- Games now make up 72% of all app store spend. Subscriptions in non-gaming apps fueled growth in spend, from 18% share in 2016 to 28% in 2019.
- China remains the largest market, making up 40% of global spend.
- Spend in both mobile gaming and non-gaming mobile subscriptions has fueled growth in mature markets like the US, Japan, South Korea and the UK.
- By 2023, the mobile industry is set to contribute $4.8 Trillion to global GDP.

Top Countries by App Store Consumer Spend

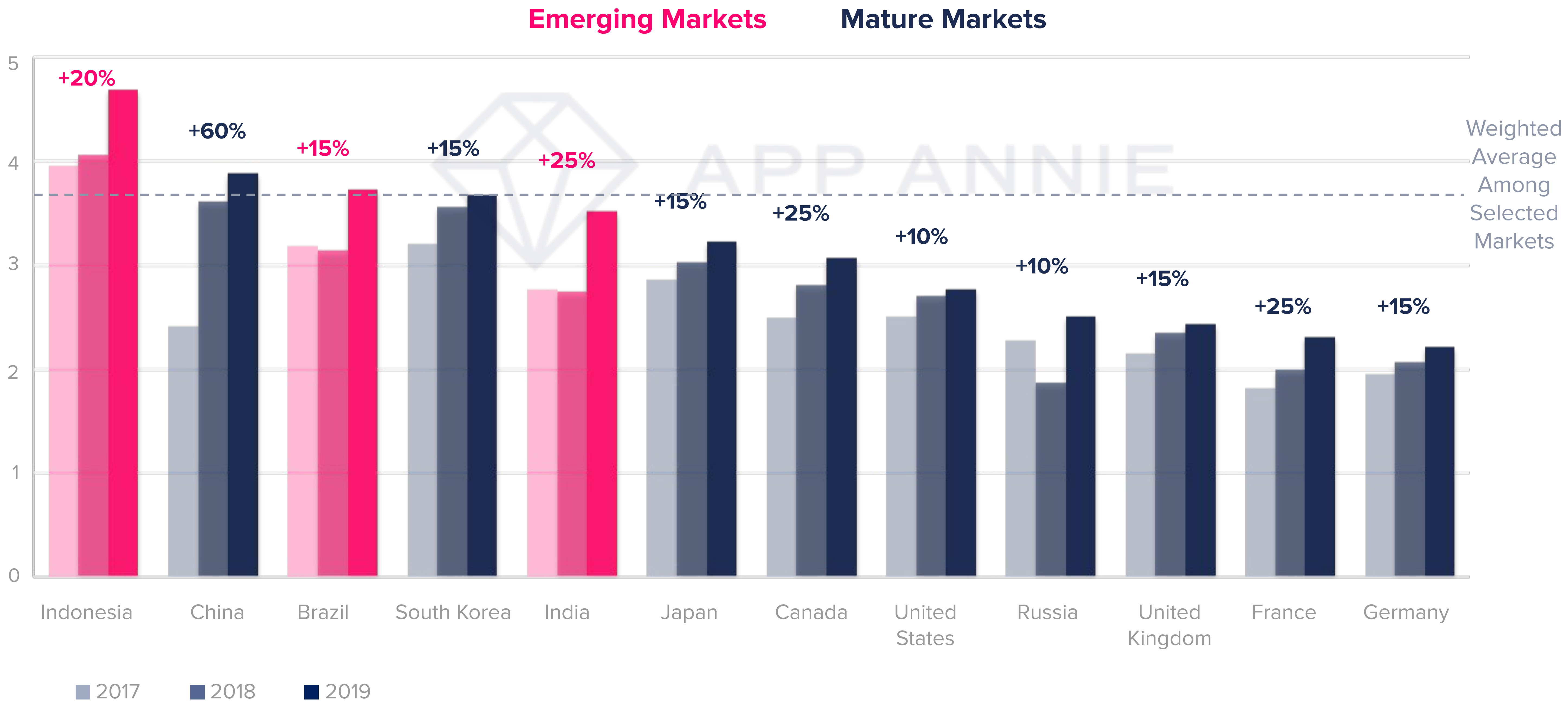


Note: Spend is gross — inclusive of any percent taken by the app stores; iOS, Google Play, Third-Party Android in China combined

Mobile Is Our Go-To Device, Capturing 3 Hrs 40 Min Per Day

- Across the markets analyzed, consumers are spending 35% more time in mobile in 2019 than 2 years prior.
- Mobile-first emerging markets like Indonesia, Brazil and India continue to spend the most time in mobile each day.
- France, India and Canada saw strong growth with the average user spending 25% more time in mobile each day in 2019 than in 2017.

Average Daily Hours Spent Per Device on Mobile

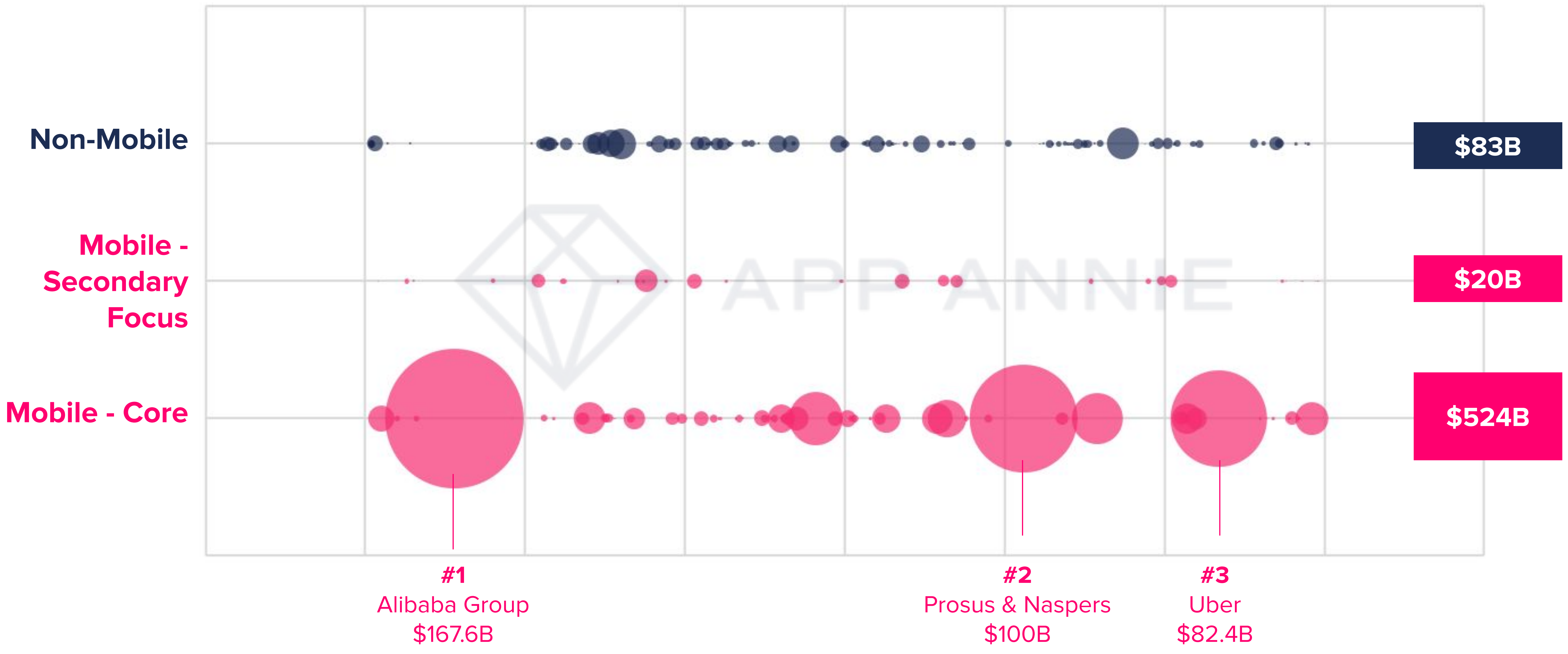


Note: Android phones

Mobile-First Companies Saw 825% Higher Avg IPO Valuation

- The 3 largest initial public offerings (IPOs) in 2019 were companies with mobile as a core focus of their business: #1 Alibaba Group ($167.6B USD), #2 Prosus & Naspers ($100B USD), #3 Uber ($82.4B USD).
- Mobile-focused companies had a combined $544B valuation, 6.5x higher versus companies without a mobile focus.
- These are further indications that mobile is essential to succeeding with customers in 2020 and beyond.

Mobile Centricity in 2019's Technology IPOs
USD Valuation

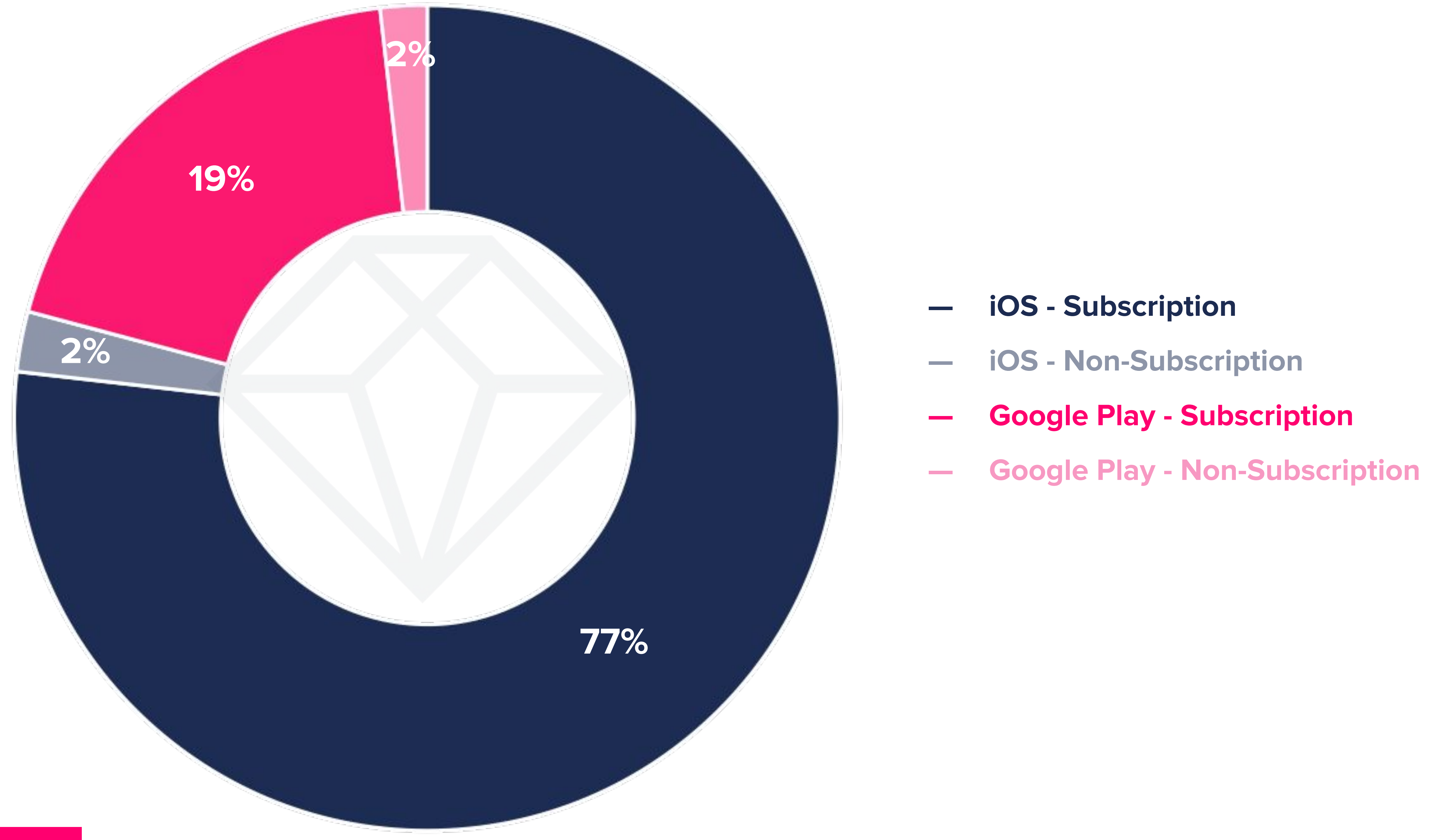


Bubble Size = Valuation (USD)
Companies Sorted Alphabetically on X-axis
Note: Technology IPOs globally
In absence of valuation, debut market cap was used.
IPO Valuation or Market Cap (USD) for 195/214 companies available

In-App Subscriptions Contribute to 96% of Spend in Top Non-Gaming Apps

- On iOS in the US, 97% of non-gaming consumer spend in the top 250 apps was driven by apps with subscriptions in 2019. On Google Play, this was slightly lower at 91%.
- Dating and video streaming apps have seen strong success with in-app subscriptions: *Tinder*, *Netflix* and *Tencent Video* topped the 2019 consumer spend chart for non-gaming apps.
- Publishers are taking advantage of the expanded monetization opportunities from in-app subscriptions. On Google Play, 79% of the top 250 apps by spend in the US monetized through in-app subscriptions in 2019. On iOS, this was higher at 94%.

Distribution of Consumer Spend in Top 250 Non-Gaming Apps Between Apps With Subscriptions and Apps Without Subscriptions
United States, 2019



Note: Combined iOS and Google Play combined

"2019 was a year of explosive growth for PicsArt. App Annie data showed PicsArt was the #4 top grossing app worldwide in the photo and video category. With the rise of visual communication, we're seeing more and more users - particularly millennials and Gen-Z'ers - willing to spend money for all-in-one editing apps with premium features like PicsArt."

Jeff Roberto, VP Growth Marketing, PicsArt

Mobile Is the Central Nervous System of Our Connected Lives

- In the US, there were over 106 million downloads of the top 20 IoT (Internet of Things) apps in 2019 alone.
- Mobile is set to be the brain for all devices and screens everywhere — whether streaming to Apple TV or Chromecast or controlling features in your car.
- The new decade ushers in the next phase of mobile, with smartphones serving as the primary interface through which we interact with the world around us.
- With major players in the industry working together to create IoT standardization, the industry is primed for growth. By 2025, there will be 25.2 billion connected devices, up 177% from 2018.

Top IoT Apps in 2019 by Downloads, United States

1		Amazon Alexa	Amazon
2		Roku	Roku
3		Google Home	Google
4		Xbox	Microsoft
5		Ring - Always Home	Ring.com
6		Fitbit	Fitbit
7		Android Auto	Google
8		HP All in One Printer Remote	Hewlett-Packard
9		Amazon Fire TV Remote	Amazon
10		DIRECTV	AT&T
11		PS4 Remote Play	Sony
12		Rokie - Roku Remote	Kraftwerk 9
13		Nest	Google
14		Samsung Gear	Samsung Group
15		Bose Connect	Bose

Note: Combined iOS and Google Play

Don't Miss Out: Gen Z Has 60% More Sessions Per User in Top Apps Than Older Demographics

- 98% of Gen Z (born 1997 - 2012) report owning a smartphone.
- Gen Z is expected to surpass Millennials as the largest generation by the end of 2019, comprising roughly 32% of the population.
- It is imperative to win Gen Z on mobile, or risk missing out on a mobile-native generation of consumers.

"Millennials and Gen Z have over $1 trillion in direct spending power, and will continue gaining influence in 2020 and beyond. In order to reach them, marketers need to take advantage of immersive mobile platforms like Snapchat, where we build engaging mobile experiences and drive powerful incremental reach among younger audiences."

Kathleen Gambarelli, Group Product Marketing Manager, Snapchat

Gen Z's Mobile Engagement in 2019

3.8
HOURS

Spent per app per month per user among top 25 non-gaming apps on average

150
SESSIONS

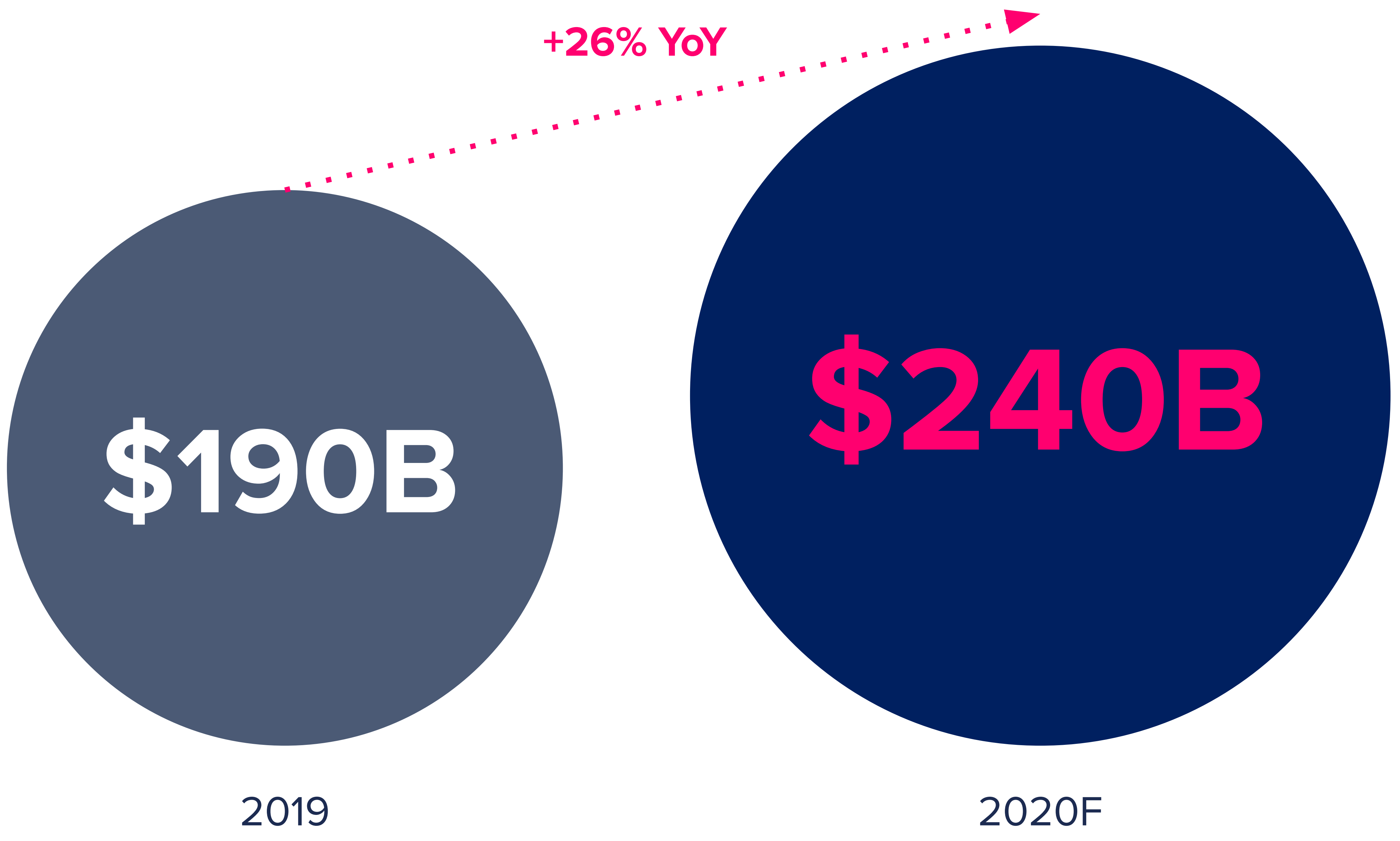
Per app per month per user among top 25 non-gaming apps on average

Note: Top 25 Apps by MAU excluding pre-installed apps, Android phones only, Average across Brazil, Canada, France, Germany, Indonesia, Japan, South Korea, UK, US

2020 Is Set to Be Mobile's Biggest Year, With Advertising Fueling Revenue

- Mobile ad spend to reach $240B as brands harness mobile's potential.
- The streaming wars will heat up in 2020 and consumers will decide where they spend their 674B hours on mobile.
- Apple Arcade and Google Play Pass will result in innovative new games for consumers and new revenue streams for publishers.
- 5G Is the next battleground, and gamers will be first to reap the rewards.
- Consumer and mobile ad spend to top $380 billion globally in 2020.
- View our Top 5 Predictions for 2020.

Global Mobile Ad Spend



"As most growth marketers know all too well, driving performance through programmatic channels, be it CPA, ROAS or LTV, comes down to two things: (1) having a broad set of high quality unbiased, fraud-free user data, and (2) a rigorous practice for building and testing ad creatives. To successfully scale UA on mobile, marketers must invest equally in each."

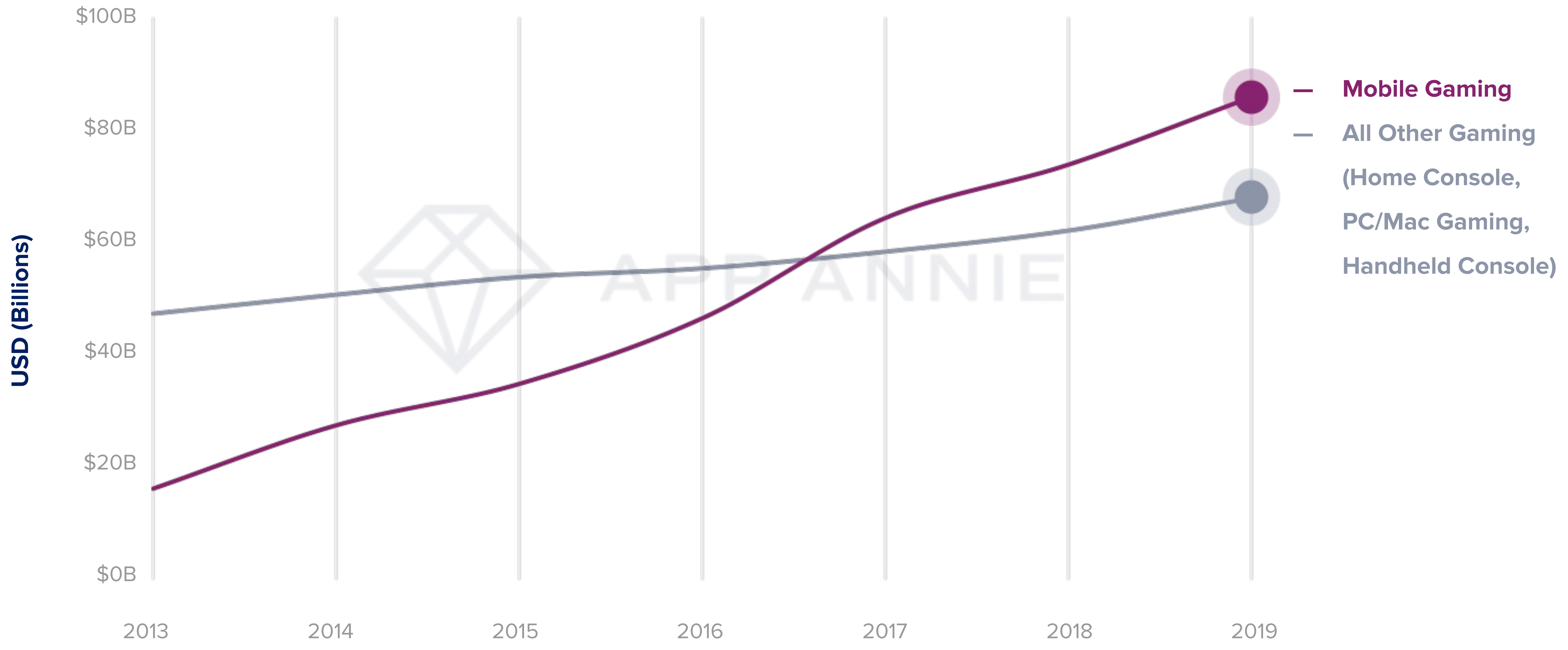
Dennis Mink, VP Marketing, Liftoff

MOBILE GAMING

Mobile Gaming Is the World's Most Popular Form of Gaming

- Mobile games in 2019 saw 25% more spend than in all other gaming combined.
- *Call of Duty: Mobile* and *Mario Kart Tour* launched on mobile in 2019 — evidence of console migrating to mobile to capitalize on the larger market.
- Mobile gaming extended its global lead in consumer spend to 2.4x PC/Mac gaming and 2.9x home game consoles in 2019.
- Mobile has democratized gaming, allowing for a portable gaming console to be in the pocket of nearly every consumer.
- Mobile gaming is on track to surpass $100B across all mobile app stores in 2020.

Global Consumer Spend in Games



Note: Other Gaming data from IDC; 2019 data for other gaming is projected, Mobile Gaming data is iOS, Google Play, Third-Party Android in China combined

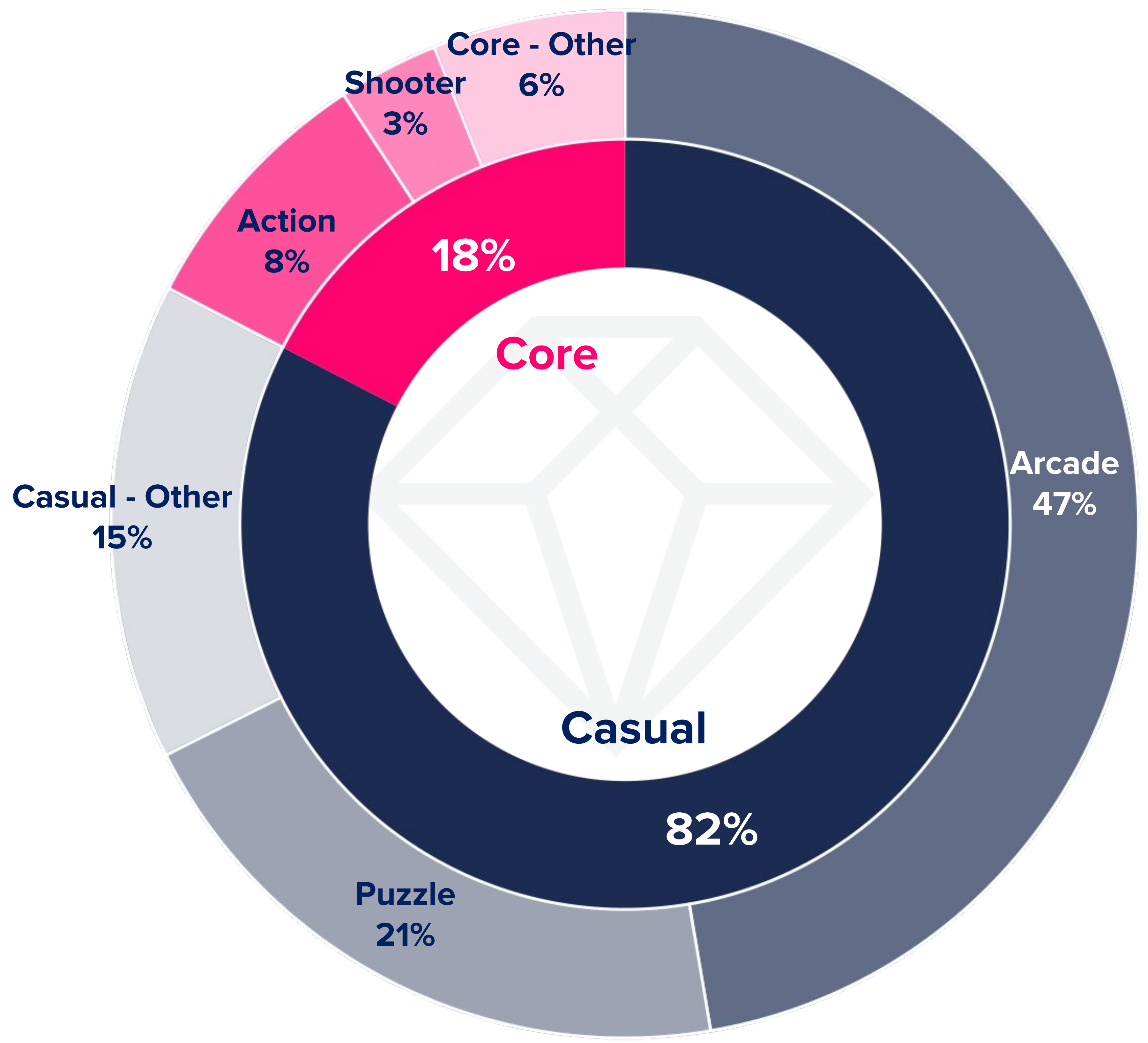
Casual Arcade Games Contributed 47% of Games Downloads

- Games within Casual genres, led by Arcade and Puzzle, were the most downloaded globally in 2019. Since users tend to switch between multiple Casual Games, many companies leverage a portfolio of Casual Games to retain high user bases overall.
- Publisher Good Job Games had a breakout year with multiple Casual Games topping the charts. *Fun Race 3D* ranked #5 by global downloads in 2019, despite only launching in May.
- Core Games represented almost one-fifth of global downloads. *Free Fire* was the most downloaded Core Game of 2019, falling under the Action subgenre.

"One of our crucial pillars of performance for 2020 is ASO. We achieved 200% growth in organic downloads of the 24 months ending Dec 2019 versus the 24 months prior across our portfolio of games. App Annie has been a critical partner in achieving and surpassing our goals."

Nadir Garouche, Senior Growth Manager, Tilting Point

Share of Global Downloads by Gaming Genres in 2019

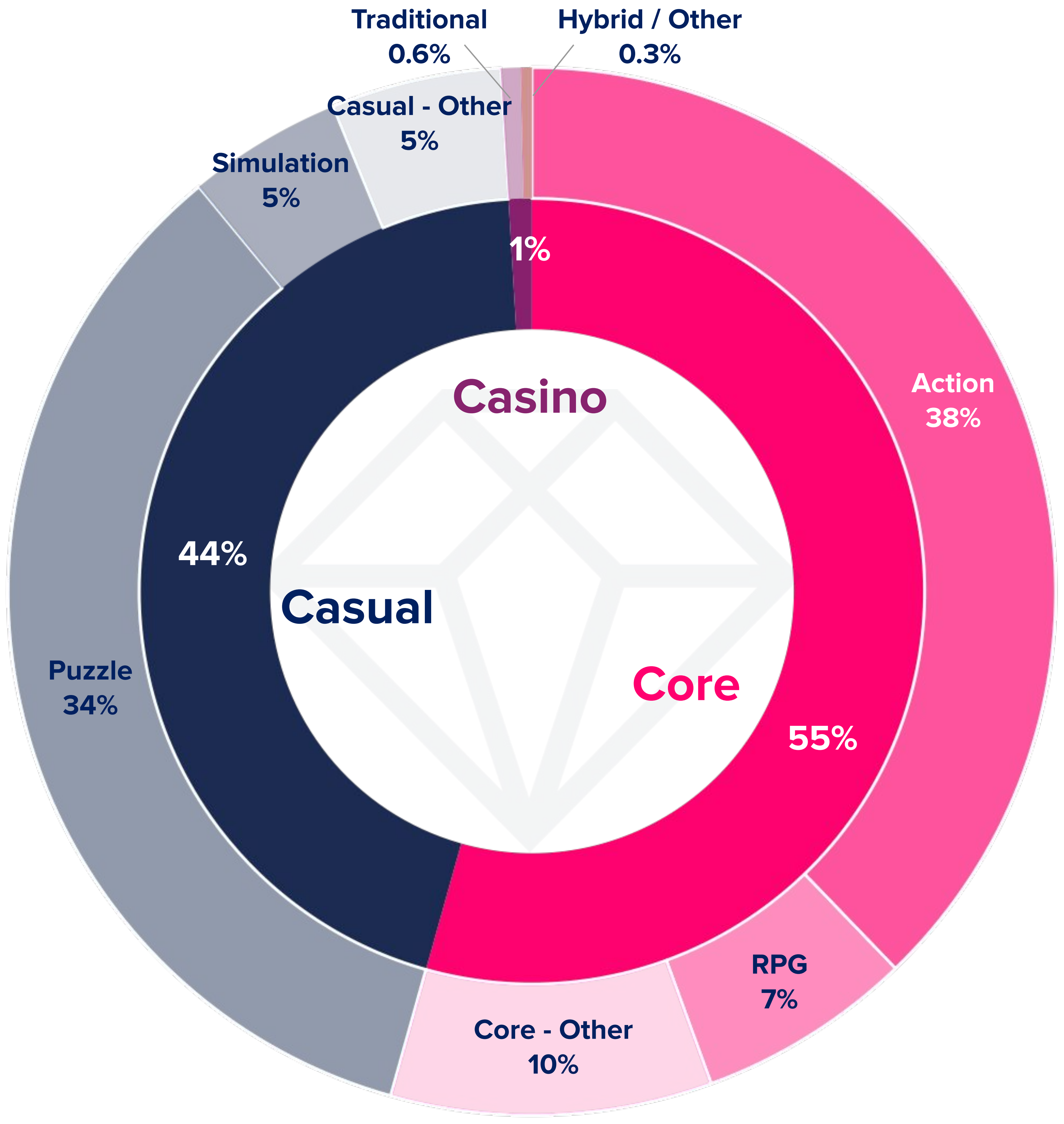


Note: Genre breakdown among top 100 Games by downloads, Combined iOS and Google Play

Core Games Represented Only 18% of Downloads, Yet 55% of Time Spent in Top Games

- Core Games tend to drive deeper engagement and longer gaming sessions. Mobile devices have made strides in power and hardware capabilities, enabling Core Games to flourish. 5G will make it even easier to play Core Games on-the-go.
- Increasingly, games incorporate gameplay and design elements across genres. It's important to analyze deeper gaming category information to understand this hybridization and how to leverage it.
- Within Core Games, Action represents the biggest portion of time spent. In 2019, *PUBG MOBILE* was the #1 Action Core Game by time spent on Android phones globally in 2019.
- Among Casual Games, Puzzle Games saw the most time spent in 2019. *Anipop* was the #1 Casual Puzzle Game by time spent, representing 10% of all time spent in the top 100 Games.

Share of Global Time Spent by Gaming Genres in 2019

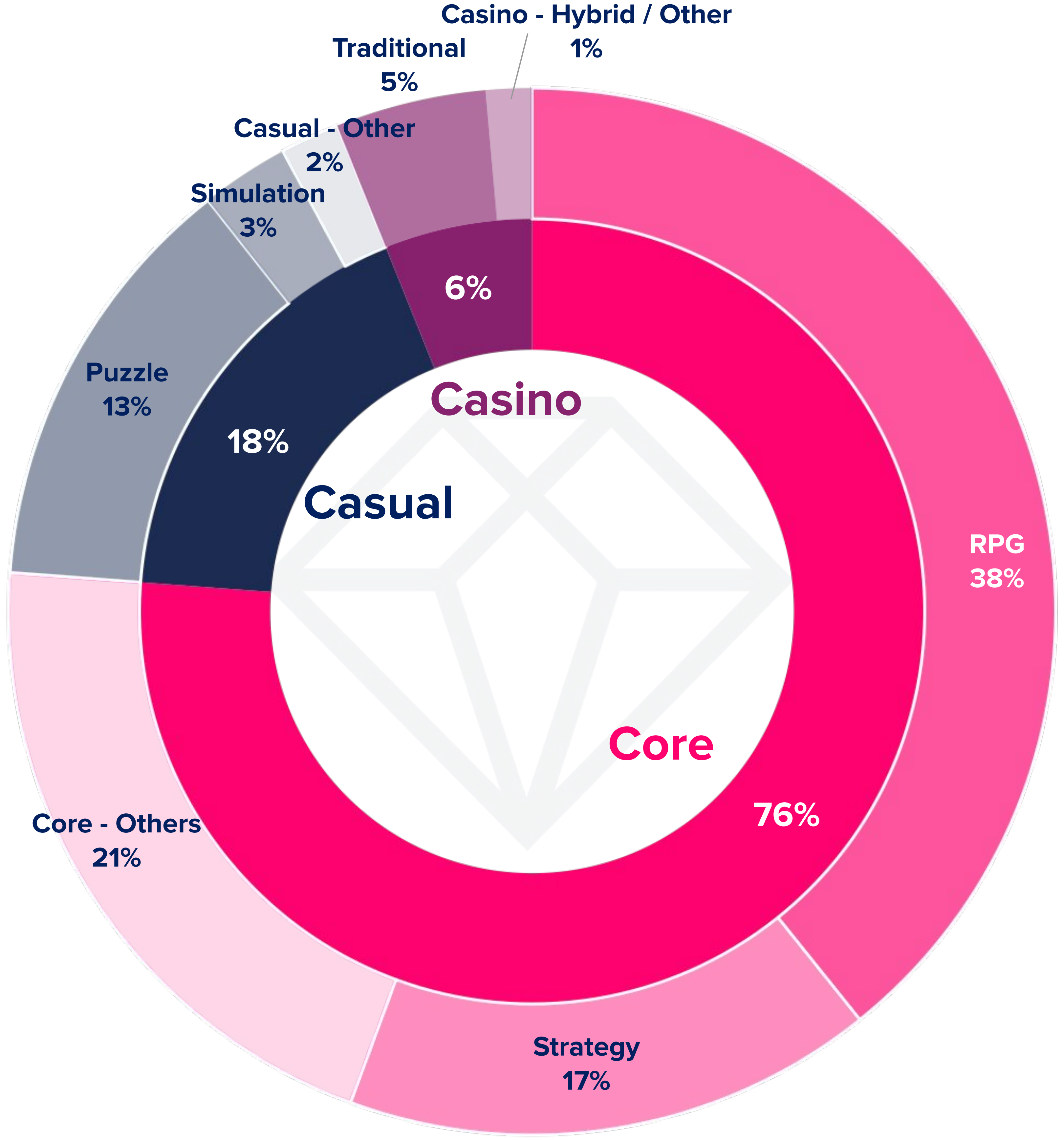


Note: Genre breakdown among top 100 Games by Android Phone MAU

Core Games Made Up 76% of Spend, Echoing the Growing Shift Towards Core Gaming in Western Markets

- Core RPG, Strategy and Action Games combined made up over half of consumer spend in key APAC markets — such as China, Japan and South Korea.
- Core Games enage gamers deeply, leveraging extensive customization, competitive online play, and season pass membership to cultivate stickiness. The #1 Core Game by consumer spend in 2019 was Fate/Grand Order, an RPG.
- Only 1% of time spent was in Casino Games, yet they accounted for 6% of total spend. Coin Master was the #1 Casino Game in 2019 by consumer spend and was particularly popular in the US, UK and Germany.

Share of Consumer Spend by Gaming Genres in 2019



Note: Genre breakdown among top 100 Games by consumer spend, Combined iOS and Google Play

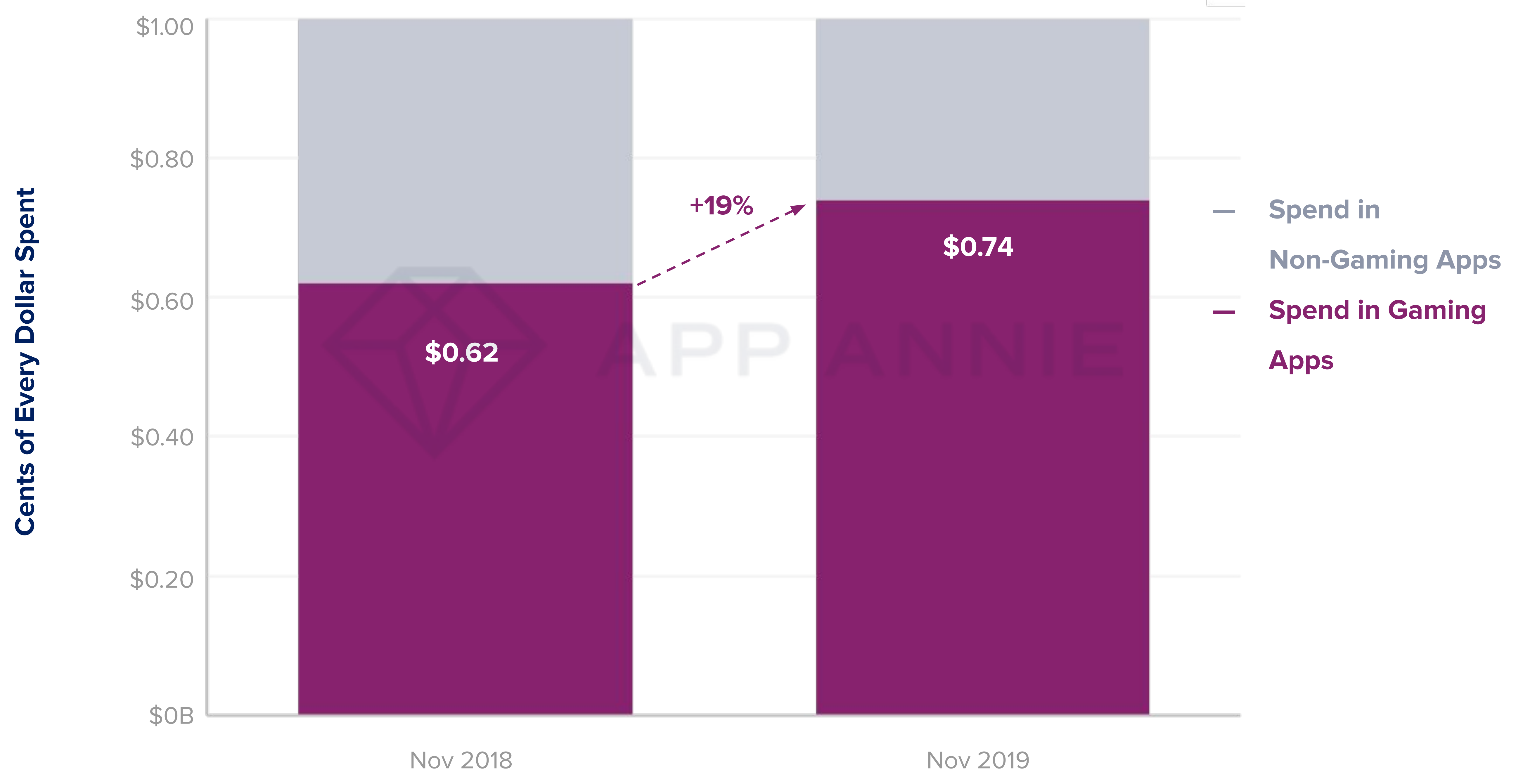
Companies Increased Spend on Branding Ad Campaigns in Games

- Games have historically been used for performance advertising, but companies are increasingly running branding campaigns in mobile games.
- In November 2019, for every dollar a brand DSP spent on MoPub's exchange, about 74 cents went to a gaming publisher — a 19% increase year over year.
- One major factor that makes gaming inventory effective for brands is that it offers engaging formats like full screen video. On MoPub's exchange, the average rewarded video completion rate in games was 93% in November 2019. MoPub has seen brand spend increase on video by approximately 180% year over year in November 2019.

"A common misconception in mobile in-app gaming is that the audience skews younger, meaning they don't possess any major buying power. The reality is that people across diverse demographics (both men and women of assorted ages) are playing games on their phones. According to our data, gaming ARPDAU was at least 2.5 times higher than any other vertical in November 2019. This is a signal that the gaming user is becoming more valuable to both advertisers and publishers."

Nayef Hijazi, Head of Product Marketing, MoPub

Distribution of Brand DSP Spend on MoPub's Exchange



Note: Source is MoPub; Brand DSPs as determined by MoPub (aka omni-channel DSPs) run the majority of their campaigns with a focus on meeting branding or brand performance KPIs

MOBILE GAMING

South Korea Saw Highest ARPU Among 2019 Game Releases

- Among the markets analyzed, South Korea led in terms of Average Revenue Per User (ARPU) among newly released games in 2019, followed by Japan and China.
- *Game of Thrones Slots Casino* ranked #1 in Canada for ARPU and was the only Casino Game to claim a #1 rank among the countries analyzed.
- *Perfect World*, an Action RPG Core Game was the #1 game released in 2019 by ARPU among the countries analyzed.
- *Sea Game: Mega Carrier,* a Battle Core Game, saw the highest ARPU among new releases in the United States in 2019.

Distribution of ARPU Among 2019 Releases

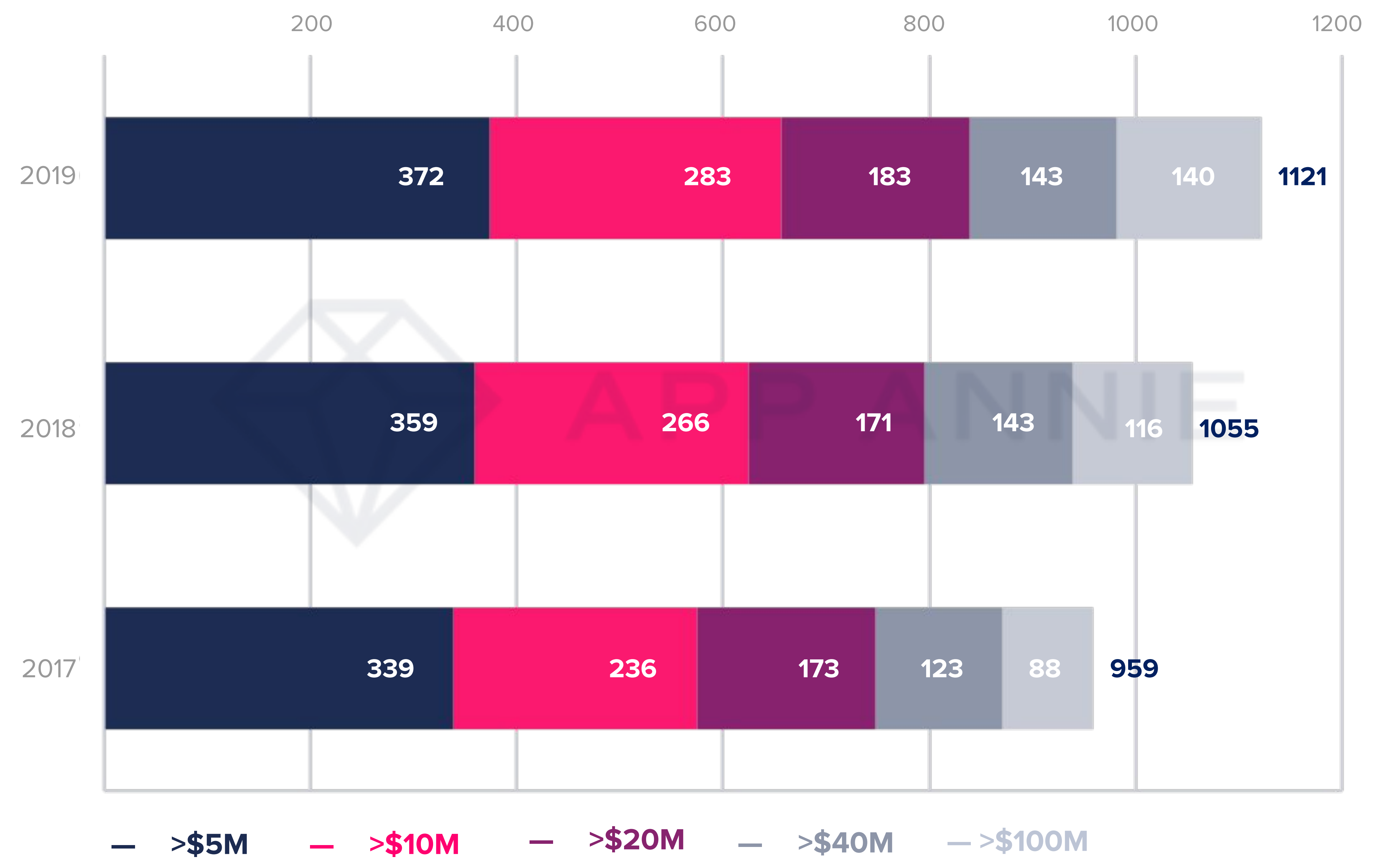
Top 20 Games by Consumer Spend

Note: iPhone only for China. Top games made up of top 20 Games that were first released within 2019 by Combined iOS and Google Play Consumer Spend

More Games Than Ever Before Surpassed $5M in Annual Consumer Spend

- Mobile gaming is the leading gaming platform worldwide by consumer spend, and opportunities are continuing to expand in the sector — it is not a market limited to incumbents or the biggest players.
- 17% more games surpassed an annual consumer spend of $5 million USD in 2019 versus 2017.
- The number of games that exceeded $100M annual consumer spend saw an incredible 59% growth in 2019 compared to two years prior.

Number of Games Exceeding $5M in Global Annual Consumer Spend Benchmarks



Note: Consumer spend is in USD. Combined iOS and Google Play

Breakout Games of 2019: Downloads

	Brazil	Canada	China	France	Germany	India	Indonesia	Japan	Russia	South Korea	United Kingdom	United States
1	Run Race 3D	Mario Kart Tour	Killing Virus	Mario Kart Tour	Color Bump 3D	Carrom Pool	Free Fire	Mario Kart Tour	Color Bump 3D	Brawl Stars	Mario Kart Tour	Mario Kart Tour
2	Call of Duty: Mobile	Call of Duty: Mobile	Drift Race 3D	Call of Duty: Mobile	Mario Kart Tour	Free Fire	Stack Ball	Roller Splat	Brawl Stars	Archero	Color Bump 3D	Color Bump 3D
3	Color Bump 3D	Color Bump 3D	Knife.io	Run Race 3D	Coin Master	PUBG MOBILE	Fun Race 3D	Call of Duty: Mobile	Run Race 3D	aquapark.io	aquapark.io	Call of Duty: Mobile
4	Stack Ball	aquapark.io	CrazyRacing KartRider	Fun Race 3D	Run Race 3D	Fun Race 3D	Higgs Domino Island	aquapark.io	Words Of Wonders	Color Bump 3D	Coin Master	aquapark.io
5	Fun Race 3D	Traffic Run	My Home - Design Dreams	Brawl Stars	aquapark.io	Sand Balls	Tiles Hop: EDM Rush	Color Bump 3D	Fun Race 3D	Crowd City	Traffic Run	Run Race 3D

Year-over-Year Growth in iOS & Google Play Downloads

Breakout Games of 2019: Consumer Spend

	Brazil	Canada	China	France	Germany	India	Indonesia	Japan	Russia	South Korea	United Kingdom	United States
1	Free Fire	Rise of Kingdoms	Game For Peace	Brawl Stars	Coin Master	PUBG MOBILE	Free Fire	Dragon Quest Walk	Game of Sultans	Blade & Soul: Revolution	Coin Master	Coin Master
2	Brawl Stars	PUBG MOBILE	Perfect World	Clash of Clans	Brawl Stars	Free Fire	PUBG MOBILE	Romancing Saga Reuniverse	Hero Wars	Brawl Stars	ROBLOX	PUBG MOBILE
3	Ragnarok M : Eternal Love	Homescapes	Arknights	AFK Arena	AFK Arena	Coin Master	Game of Sultans	Black Desert	Empires & Puzzles	Lineage 2	Star Trek Fleet Command	Matchington Mansion
4	Saint Seiya : Awakening	AFK Arena	CrazyRacing KartRider	Rise of Kingdoms	PUBG MOBILE	Rise of Kingdoms	Ragnarok M : Eternal Love	Professional Baseball Spirits A	Brawl Stars	Langrisser	Rise of Kingdoms	Homescapes
5	PUBG MOBILE	Star Trek Fleet Command	Sangokushi Strategy	Saint Seiya : Awakening	Rise of Kingdoms	Last Shelter: Survival	Rise of Kingdoms	Mafia City	PUBG MOBILE	Rise of Kingdoms	Merge Dragons	Game of Thrones: Conquest

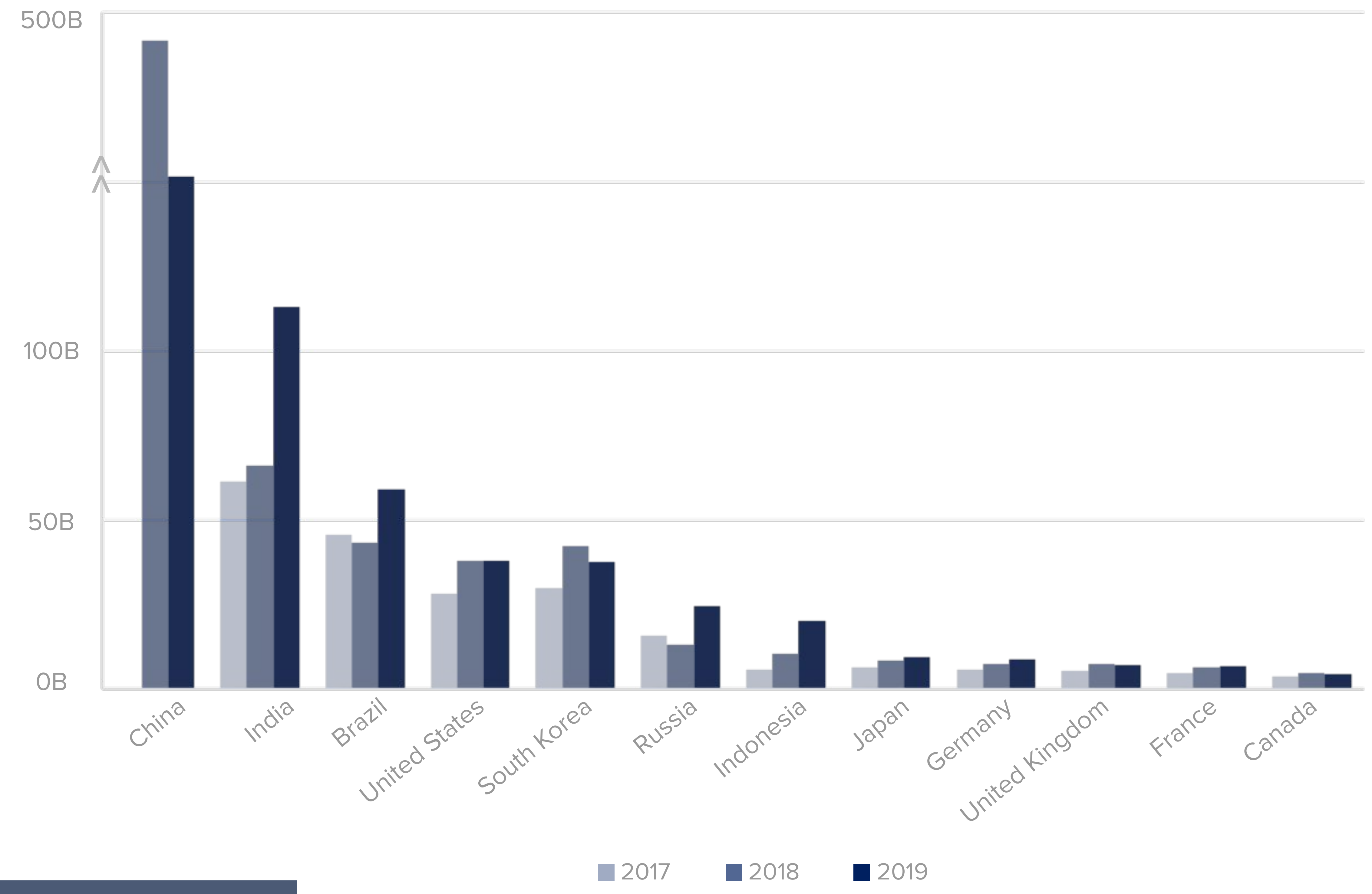
Year-over-Year Growth in iOS & Google Play Consumer Spend

Globally, Consumers Are Migrating More of Their Financial Activities to Mobile

- Globally, consumers accessed Finance apps over 1 trillion times in 2019, up 100% from 2017. From stock management to mobile banking to payment apps, this showcases mobile's central role in managing our daily finances.
- Loyalty and referral programs can help cultivate deeper engagement in finance apps. Citi reported 83% of consumers — and 94% of millennials — are more likely to participate in a loyalty program if it's on mobile.
- Both Apple and Google have both recognized the power of mobile as our financial hub, with Google offering checking accounts and Apple offering a credit card.

"Grab has become a multi-services platform offering transport, food and payments services with 45% of Grab users using two or more services. We are aiming to serve the region's rising middle class, which is mobile-savvy and craves digital services. We started offering e-healthcare services in Indonesia in Dec 2019 and are making a deeper push into financial services such as insurance, wealth management and micro-loans to consumers and small and medium-sized businesses. This accelerates financial inclusion, ensuring that everyone benefits from the rise of the digital economy."

Total Sessions in Finance Apps in Select Markets



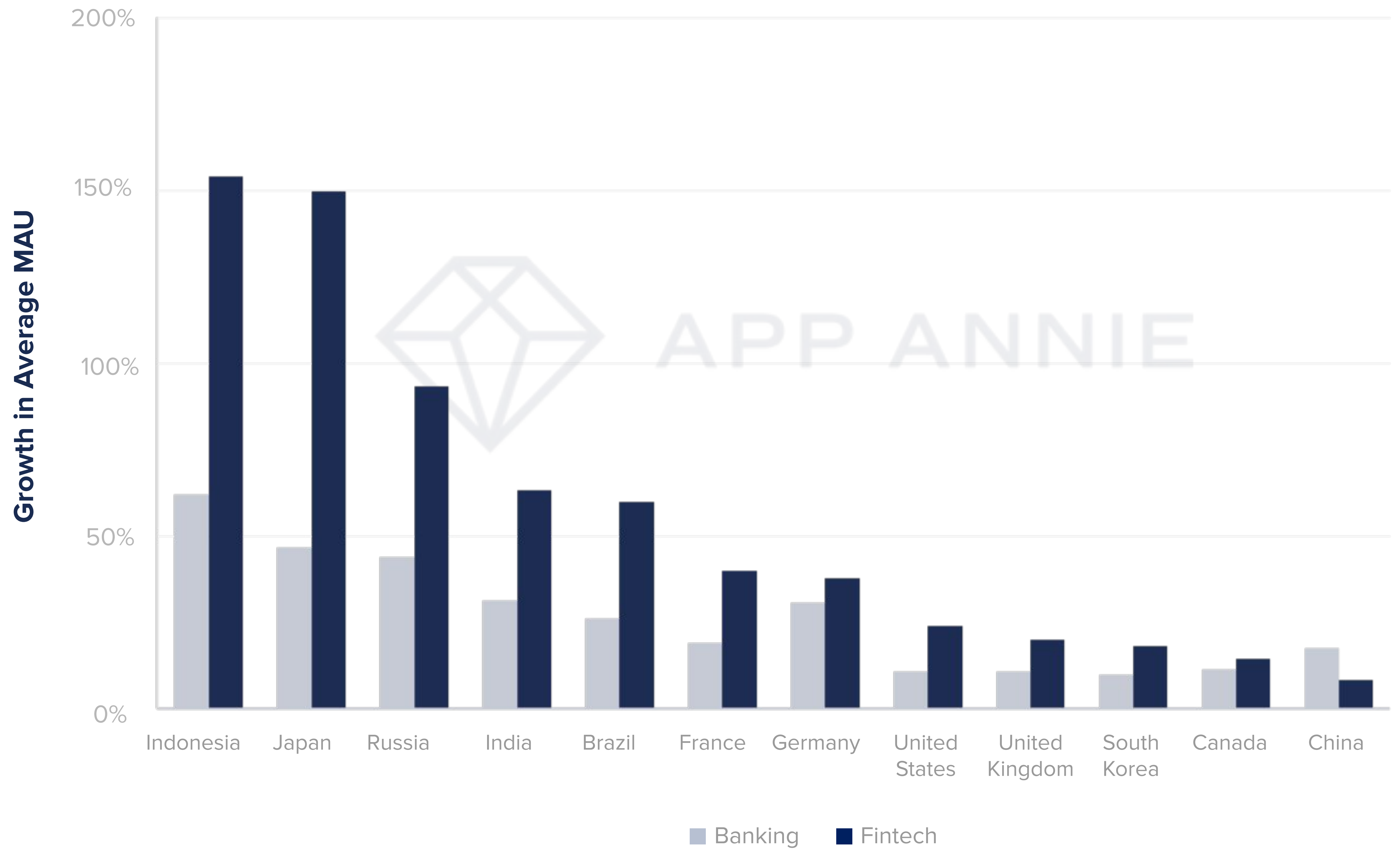
Note: Android phones; Growth rate for China is year-over-year

User Base Growth of Top Fintech Apps Topped Traditional Banking Apps

- Globally, the average MAU of top 10 Fintech apps grew 20% year over year in 2019, while Banking MAU grew 15%. While Banking apps tend to have higher existing user bases, this illustrates Fintech's disruption — enabled and accelerated by mobile — of traditional banking services.
- The key to mobile is ease, accessibility and simplicity. Features like face or finger recognition streamline the user journey. This underscores why companies can't port over an existing experience to mobile. Mobile requires deliberate planning to meet consumers' expectations.
- After all, a good mobile experience can make trading stock or transferring money as fun as leveling up in a game or as engaging as social media.

Growth in Average MAU From 2018 to 2019

Traditional Banking Apps vs. Fintech Apps



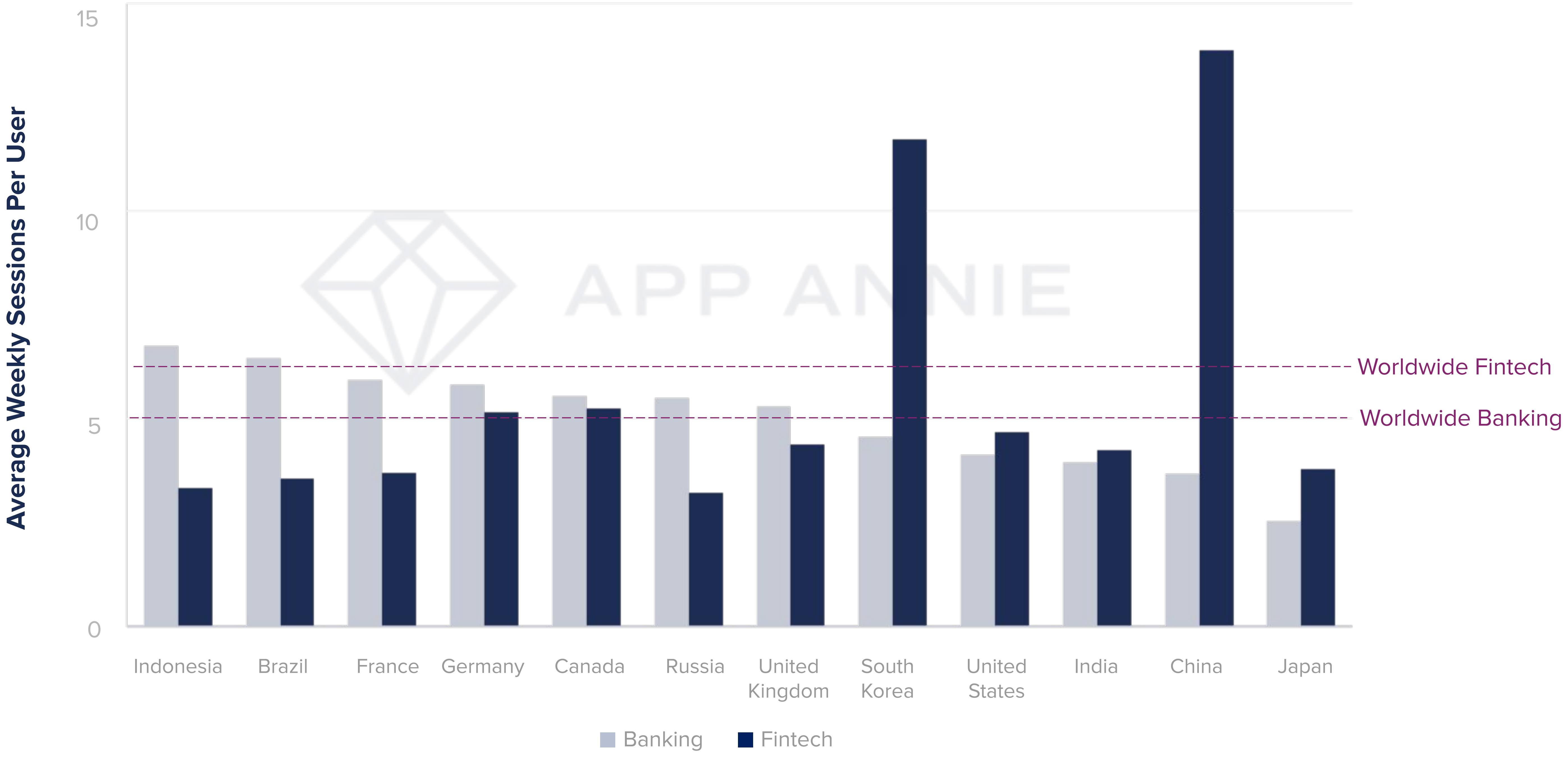
Note: Combined iPhone and Android phones: Average of Top 10 Apps by MAU

Globally, Money Is Left on the Table for Wallet Apps by Banks, but This Varies by Market

- Globally, wallet apps by fintech companies engaged users one more time per user each week than wallet apps by traditional banks. This indicates an additional 52 sessions per year for users of wallets apps by fintechs, representing millions of potential transactions each year flowing through fintech companies instead of banks.
- However, in Indonesia, Brazil, France, Germany, Canada, Russia, and the UK, wallet apps by traditional banks saw far greater engagement per user than wallet apps by their fintech counterparts — an important market distinction.
- In China and South Korea, cryptocurrency exchange wallets such as [UpBit], [Binance], [Bithumb] helped drive strong engagement.

Average Weekly Sessions Per User in Top 10 Wallet Apps

Banks vs Fintechs, 2019



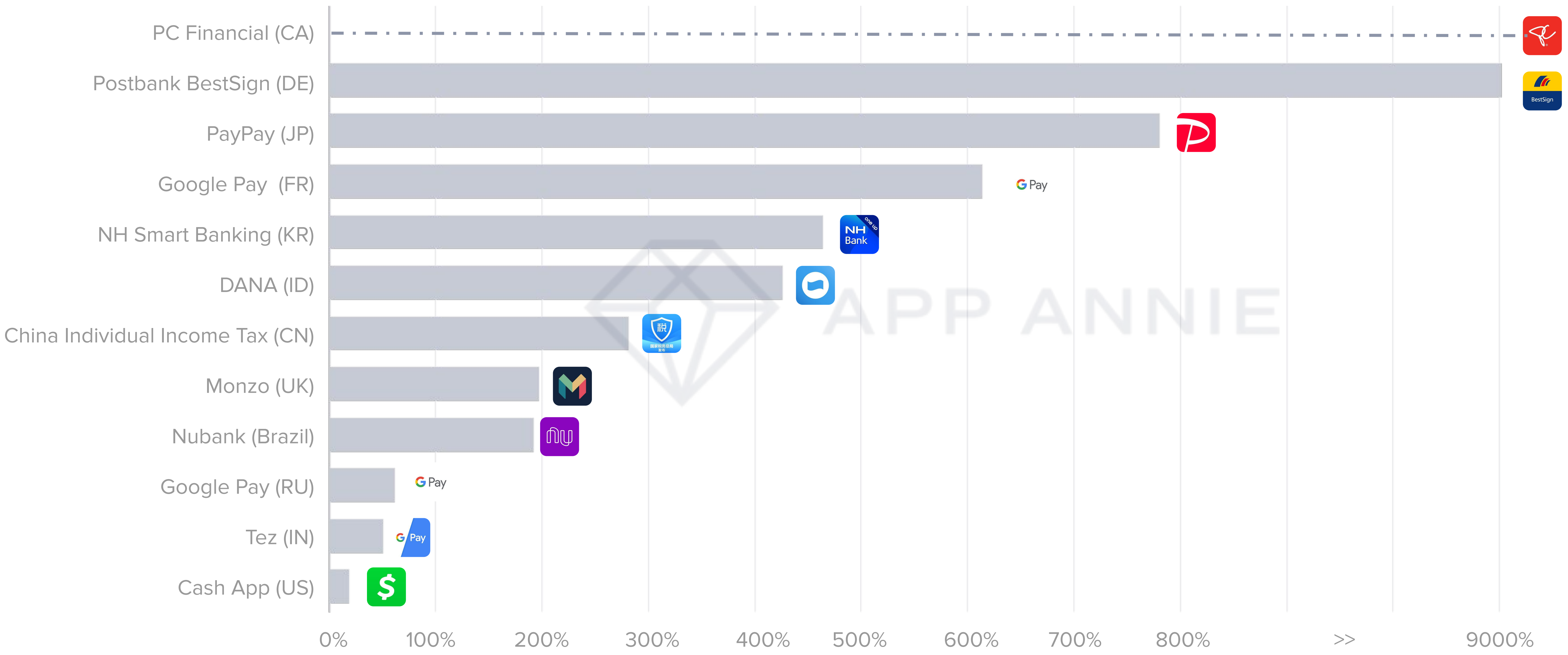
Note: Android phones: Average of Top 10 Apps by MAU

FINANCE

Fintech Apps Dominated the Breakout Finance Apps of 2019

- Breakout Finance apps saw the greatest year-over-year increase in absolute downloads. While some maintained high levels of downloads from the previous year, many also boasted impressive growth rates year over year.
- *Postbank BestSign* — an additional security app for Postbank — grew 9,300% year over year in downloads in Germany after a December 2018 launch, emphasizing mobile's ability to provide not only increased access to sensitive information, but additional methods to keep it secure.
- *PC Financial* also saw phenomenal growth in downloads. The app launched in Feb 2019, which is why the growth rate isn't featured in the chart.
- *Tez* — Google Pay in India — had a breakout year, adding 36 million new downloads — 50% growth year over year.

Year-Over-Year Growth of 2019 Downloads
Among #1 Breakout Finance App by Market



Note: Breakout app determined by absolute growth in downloads from 2018 to 2019 in each market; PC Financial saw the greatest year-over-year growth in downloads in Canada but grew from a base of 0, having launched in 2019

Breakout Finance Apps of 2019

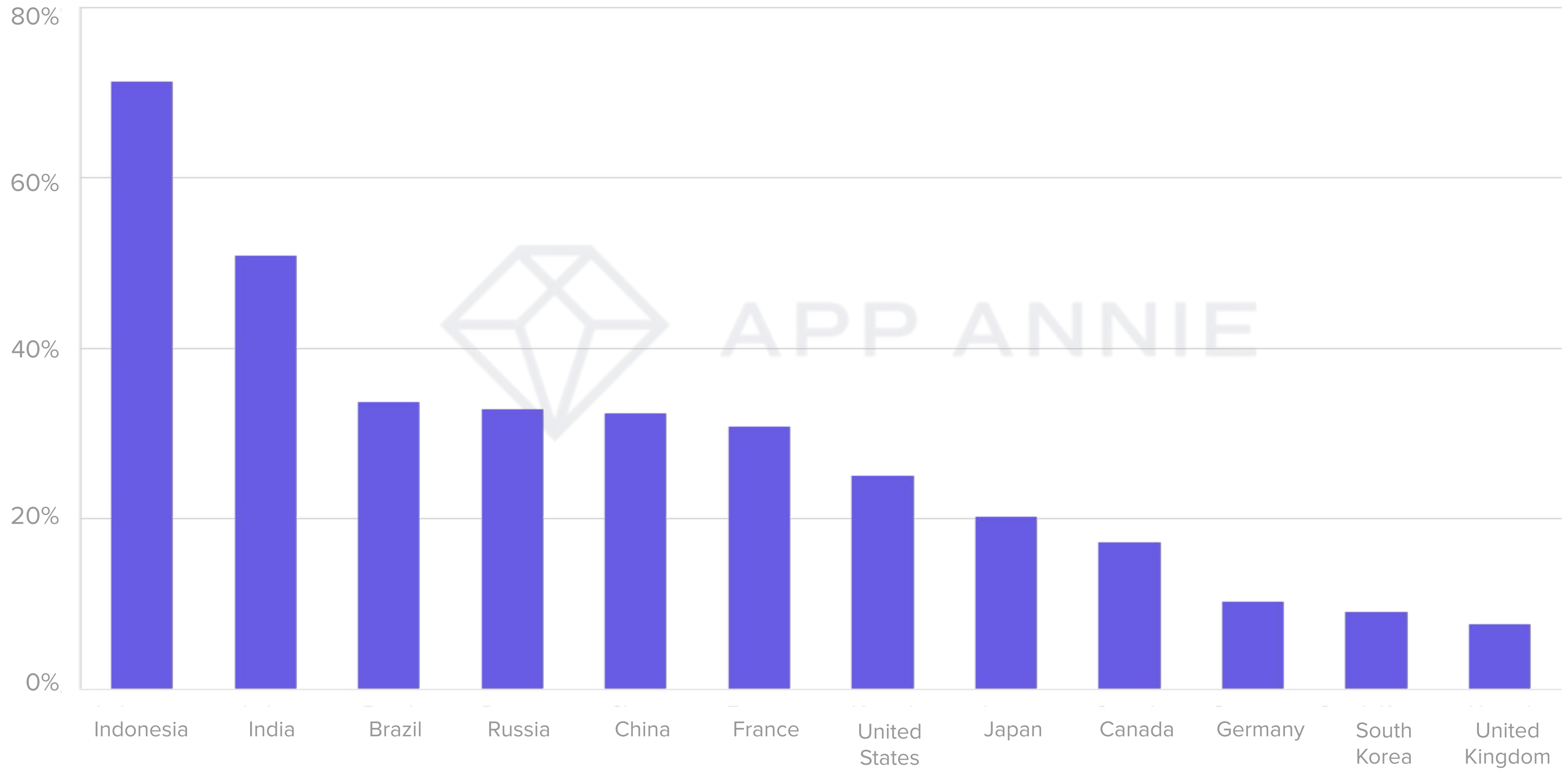
	Brazil	Canada	China	France	Germany	India	Indonesia	Japan	Russia	South Korea	United Kingdom	United States
1	Nubank	PC Financial	China Individual Income Tax	Google Pay	Postbank BestSign	Tez	DANA	PayPay	Google Pay	NH Smart Banking	Monzo	Cash App
2	FGTS	Scotiabank	JD Finance	Bankin’	S-pushTAN	CashBean	OVO	d Payment	Налоги ФЛ	i-ONE Bank	Virgin Money Credit Card	Zelle
3	PicPay	Credit Karma Canada	Gome easecard (国美易卡)	Lydia	S-ID-Check	KreditBee	KreditQ	AEON WALLET	Tinkoff	Woori WON Banking	Starling Bank	Venmo
4	CAIXA	Borrowell	Huanbei Loan (还呗-还享借)	PayPal	VR-SecureGo	PhonePe	Rupiah Cepat	Rakuten Pay	Sovcombank (Совкомбанк — Халва)	Hometax	Revolut	Chime - Mobile Banking
5	MercadoPago	PayPal	Xiaomi Loan (小米借条)	NUMBER26	comdirect photoTAN App	YONO SBI	Kredit Pintar	LINE Pay	Pochta Bank (Почта Банк)	KakaoPay	Google Pay	Experian

Year-over-Year Growth in iOS & Google Play Downloads

Shoppers Turn to Mobile for Research, Consideration, Purchase and Loyalty

- Increased time spent in Shopping apps is driven by both growing user bases and increased engagement.
- Global Shopping app downloads grew 20% from 2018 to 2019 to over 5.4 billion, an indication of strong demand.
- Time spent in Shopping apps in Indonesia grew 70% from 2018 to 2019 — highest among markets analyzed.
- With more companies adopting mobile platforms and experiences for their users, businesses are enhancing mobile experiences to streamline usability, personalization and services offered.

Growth in Time Spent in Shopping Apps
2018 - 2019



Note: Android phones

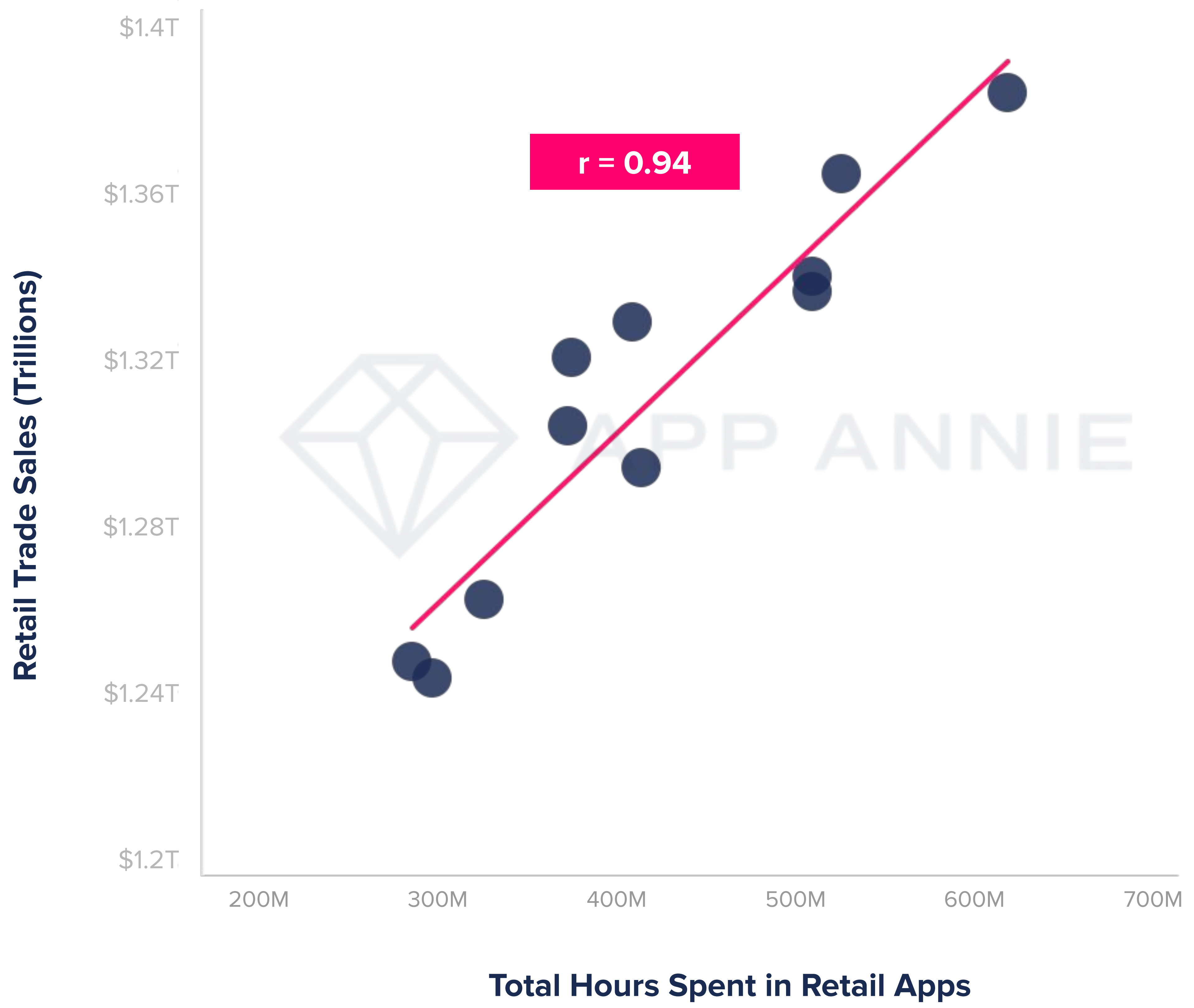
RETAIL

Time Spent in Shopping Apps Drives Online and In-Store Conversions

- Mobile is a critical avenue for omni-channel growth. It's not just about converting through the mobile app, it's about mobile driving research and consideration, and facilitating fulfillment — such as through in-store pickup and tracking of packages.
- The strong correlation (r-value of 0.94) between total retail sales (online and in-store) and time spent in Shopping apps indicates that not only are consumers turning to mobile to shop, but retailers are enhancing mobile experiences to better serve all phases of the buying journey — whether a user is browsing, checking out, facilitating pickup, or tracking their purchase.

Correlation of Quarterly Retail Trade Sales and Time Spent in Retail Apps

Q1 2017 – Q3 2019 | United States



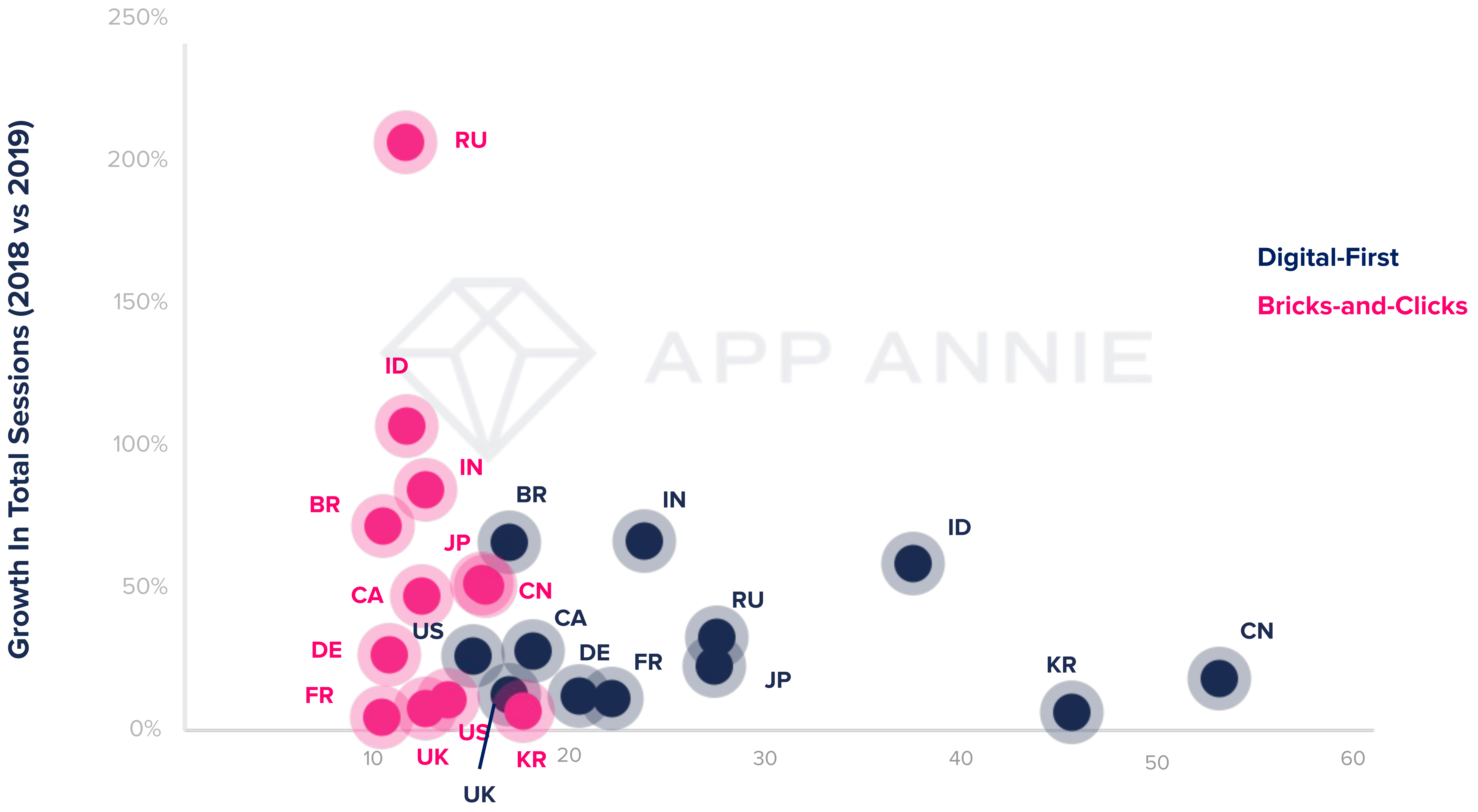
Source: US Census and App Annie
Note: Android phones: Average of Top 10 Shopping Apps (Digital-First, Bricks-and-Clicks, Peer-to-Peer Marketplaces) by MAU

Brick-and-Mortar Retailers Made Strong Gains in Mobile Engagement

- Bricks-and-Clicks apps saw strong gains in total sessions year over year, often out-pacing Digital-First apps in their respective markets, a notable change from past years.
- However, among markets analyzed, Digital-First apps still had up to 3.2x more average monthly sessions per user than Bricks-and-Clicks apps in 2019.
- Mobile is central to growing retail businesses in 2020 — for both Brick-and-Mortar and E-Commerce brands. In Q3 2019, Nike's digital business grew 42% — driven by mobile and app experiences.
- *Nike* has also focused on innovative app features that enhance the in-store experience, including product reservations and foot scanning technology to give shoppers an accurate shoe size.

Growth in Engagement of Shopping Apps From 2018 to 2019

Digital-First vs. Bricks-and-Clicks Apps



Note: Android phones: Average of Top 5 Apps by MAU

RETAIL

More Mobile Shopping Than Ever Before

$38.4B

Spent globally in 24 hours on Alibaba's Singles Day 2019. Mobile drove the lion's share

2.5B

Hours Spent globally in the weeks of Black Friday, Cyber Monday and the two weeks after on Android phones, up 40% yoy

$33.1B

Spent on mobile in the US from Nov 1 - Dec 2, 2019; representing 40% of all online sales

Note: Worldwide time spent figure excludes China

Breakout Retail Apps of 2019

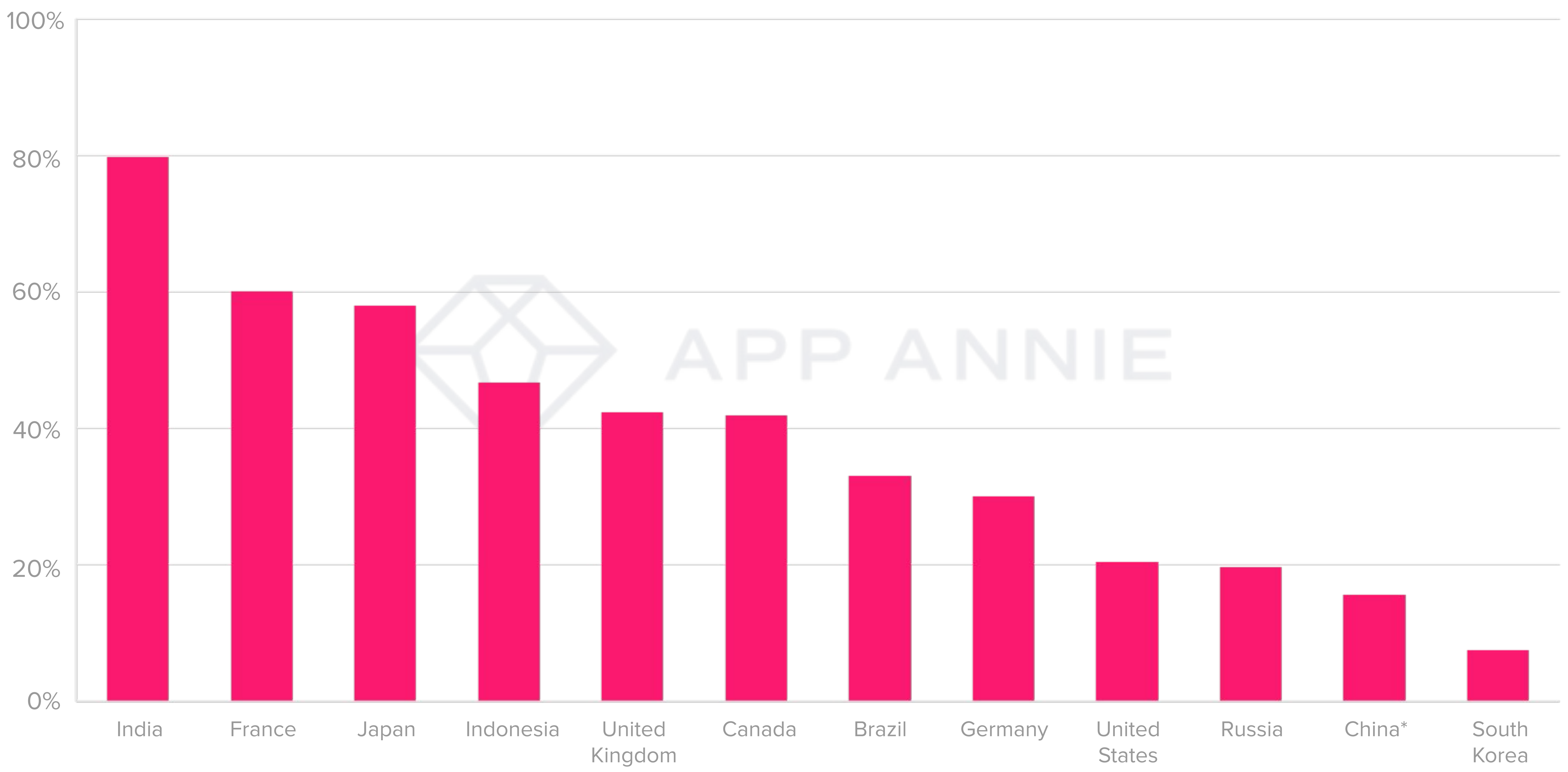
	Brazil	Canada	China	France	Germany	India	Indonesia	Japan	Russia	South Korea	United Kingdom	United States
1	MercadoLibre	Amazon	Pinduoduo	Vinted	eBay	Amazon	Shopee	Amazon	Avito	Coupang	Amazon	Amazon
2	Americanas	PC Plus	Jingdong	Leboncoin	Amazon	Flipkart	Tokopedia	Mercari	AliExpress	Danggeun Market	HotUKDeals	eBay
3	Magazine Luiza	Flipp	Xianyu	Amazon	Slidejoy	Paytm	Lazada	Rakuten Ichiba	Wildberries	AliExpress	ASDA	AliExpress
4	AliExpress	ZXing Team Barcode Scanner	Taojiji	Dealabs	Vinted	Myntra	Bukalapak - Jual Beli Online	Rakuma	OZON.ru	TMON	Tesco Clubcard	Walmart Grocery
5	Wish	Stocard	Mengtui	Stocard	idealo Price Comparison	Club Factory	Tokopedia Seller App	d POINT	Russian Post	WEMAKECHECK (위메프체크)	Boots	Walmart

Year-over-Year Growth in Total Sessions on Android Phones Among Shopping Apps

Consumers Choose the Small Screen: Mobile Is Our Go-To Device for Entertainment

- Globally, consumers spent 50% more sessions in Entertainment apps in 2019 than in 2017.
- The ever-growing adoption of video streaming apps on mobile devices to watch movies, TV shows, and live events on-demand helped bolster demand for Entertainment apps.
- High quality streaming, growth in user-generated content, and offline mode becoming standardized were industry advancements that helped tip the scales from screen size to on-the-go viewing.
- Competition in the video streaming space will bolster better user experiences to drive growth in downloads, usage and revenue, and ultimately lead to partnerships and consolidation to win the wallets of consumers long term.

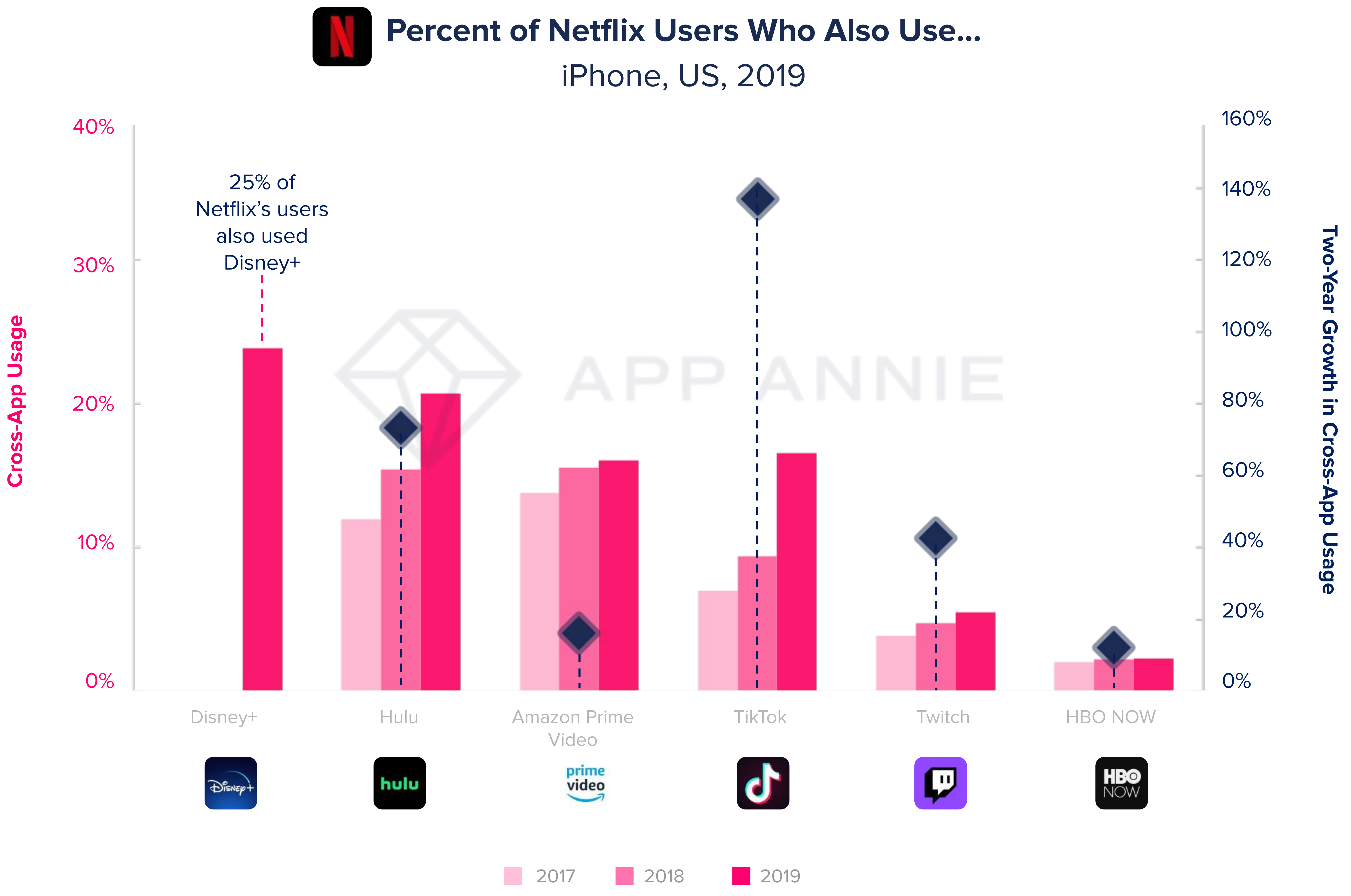
Growth in Sessions in Entertainment Apps
2017 - 2019



Note: Android phones
**China's growth rate is from 2018 to 2019*

TikTok and *Disney+* Carve Into Crowded US Video Streaming Market

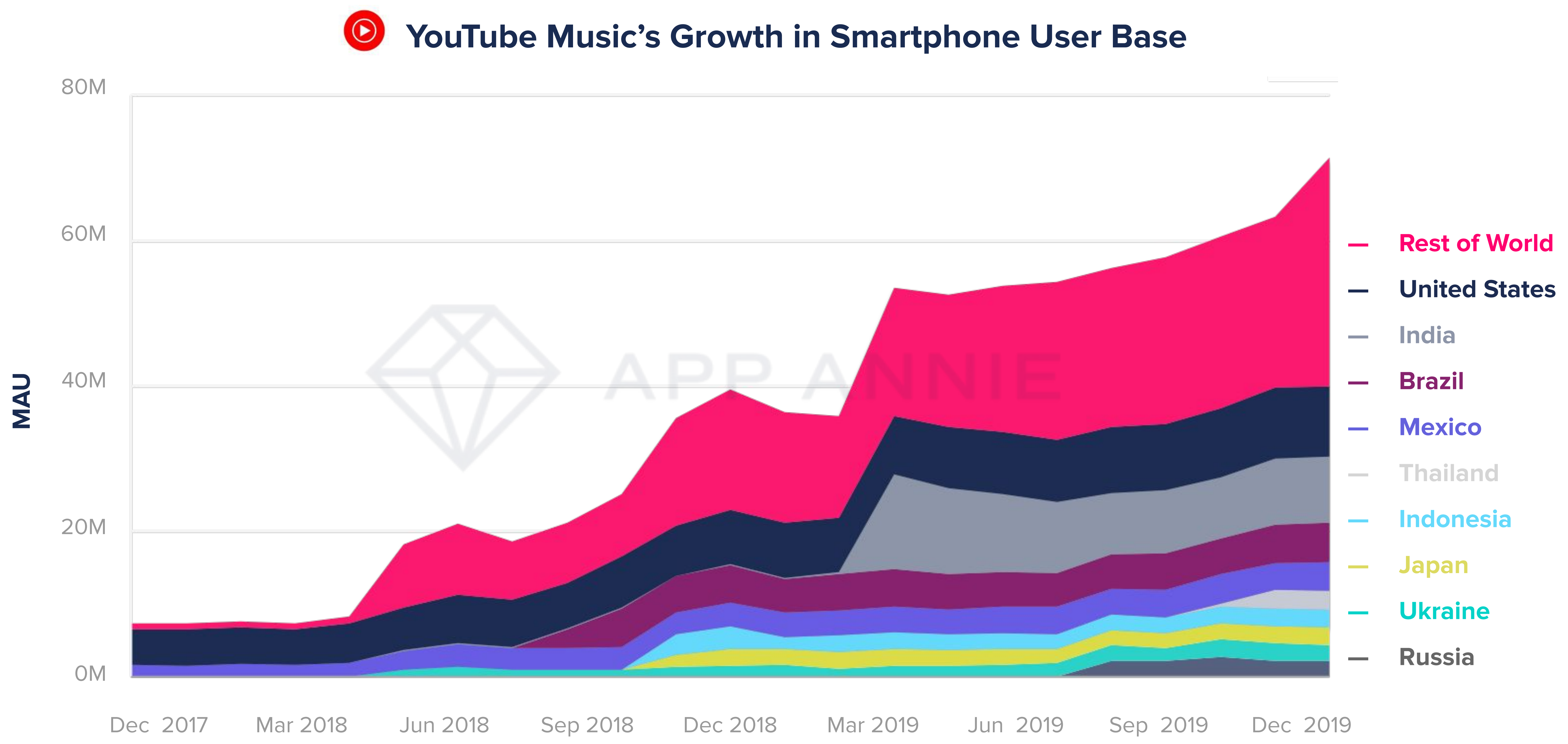
- The entrance of *Disney+* into the video streaming space — with *Netflix*, *Amazon Prime Video* and *HBO NOW* as incumbents, *AppleTV+ as* a new entrant, and *HBO Max* and NBCUniversal's *Peacock* set to launch in 2020 — has dialed up competition.
- Nearly 25% of *Netflix*'s iPhone users also used *Disney+* in Q4 2019, its highest overlap of users among top video streaming apps in the US.
- *TikTok* saw the greatest 2-year growth in cross-app usage of *Netflix* at over 135%, indicating that competition in the video streaming space is heating up not only by traditional companies launching standalone streaming services, but from social media companies carving new mobile-first consumption pathways.



Note: Disney+ launched in Nov 2019, data is for Nov - Dec 2019

YouTube Music Used Cross-Promotion to Attract 77M Active Users

- YouTube Music saw 980% growth in worldwide active users from Dec 2017 to Dec 2019.
- Cross-promotion across other properties (e.g. YouTube) helped grow the user base — along with strategic global expansion.
- *YouTube Music* focuses heavily on music discovery, including recommendations and playlists based on location, taste, and time of day.
- On Android phones in the US, *YouTube Music* skewed male at 70% of its user base, 1.3x more than Pandora and and 1.2x more than Spotify.



Note: Combined iPhones and Android phones

STREAMING

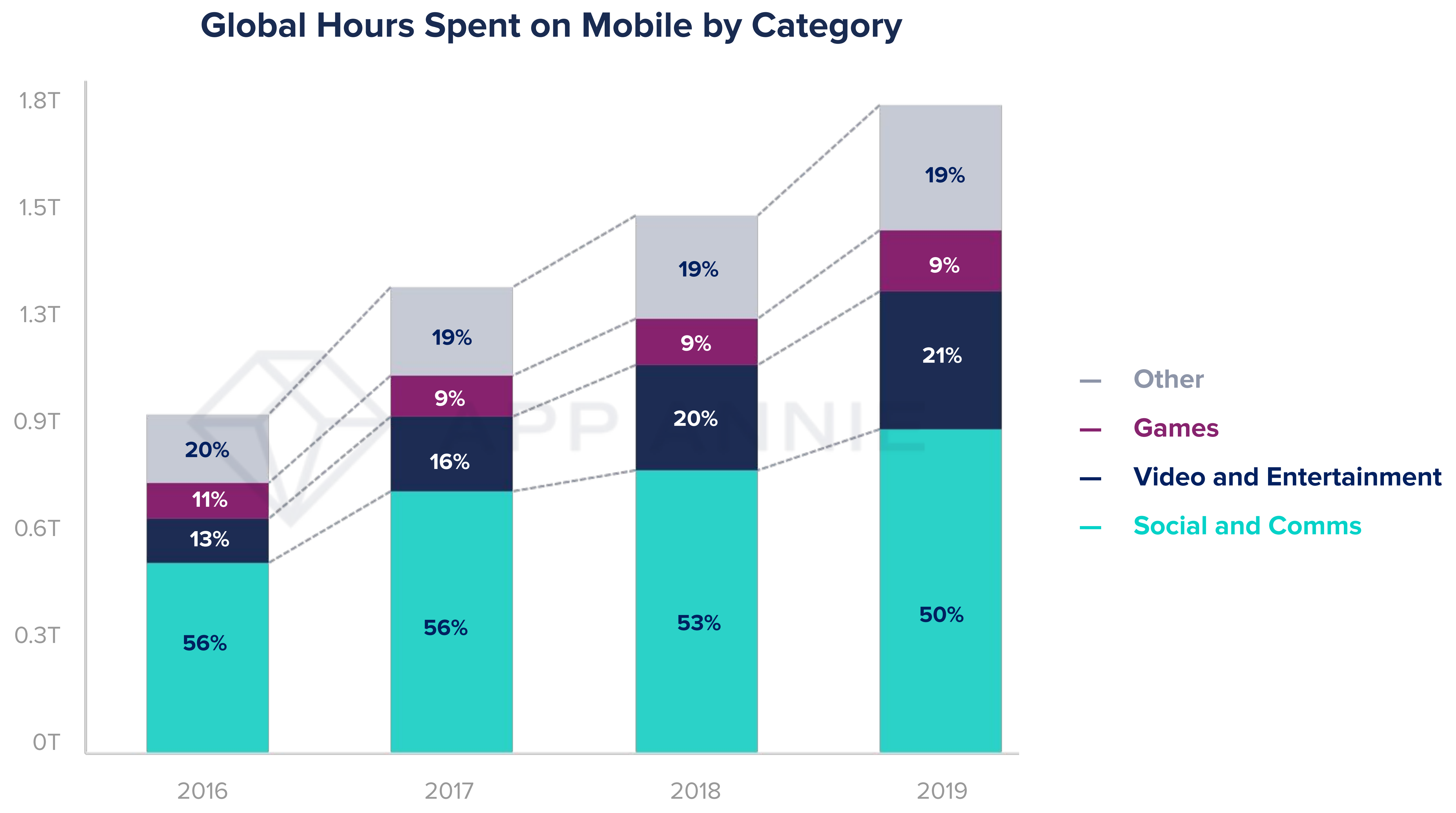
Breakout Video Streaming Apps of 2019

	Brazil	Canada	China	France	Germany	India	Indonesia	Japan	Russia	South Korea	United Kingdom	United States
1	Netflix	Netflix	Xigua Video	Netflix	Netflix	MX Player	YouTube Go	Amazon Prime Video	MX Player	Netflix	Netflix	Hulu
2	YouTube Go	Amazon Prime Video	Baidu Haokan	SFR TV	Amazon Prime Video	Hotstar	MX Player	TVer	Twitch	BuzzVideo	Amazon Prime Video	Amazon Prime Video
3	Amazon Prime Video	MX Player	Zhongzhong Community (种种社区)	Molotov	TV NOW	Netflix	Viu	Netflix	ivi.ru	pooq	BBC News	ESPN
4	Globo Play	Crave	iQiyi PPS	Amazon Prime Video	waipu.tv	Amazon Prime Video	Netflix	GyaO	MegaFon.TV	Twitch	BBC iPlayer	Netflix
5	Viki	Viki	Sohu TV	Twitch	Joyn | deine Streaming App	JioTV	YouTube Kids	AbemaTV	YouTube Kids	tving	Sky Go	Pluto.tv

Year-over-Year Growth in Time Spent on Android Phones Among Entertainment or Video Players & Editors

50% of Time Spent on Mobile Is in Social and Comms

- Social and Comms was a first-mover industry to mobile. Because of this, it is a relatively mature industry with ingrained app habits.
- Yet, due to innovation in the space and mobile's increasing importance in our daily lives — as both a source for communication and for entertainment — consumers are still downloading (9.5 billion in 2019 alone) and spending 25% more time in Social and Comms apps worldwide in 2019 versus 2017.
- Socials apps — particularly those popular with Gen Z — are blurring the lines with Entertainment apps. Snapchat prioritized innovating for Gen Z, capitalizing on this generation's "Fear of Missing Out" (FOMO) with disappearing messages, pioneering the "Stories" feature later adopted by other top social apps, as well as Augmented Reality and branded filters.

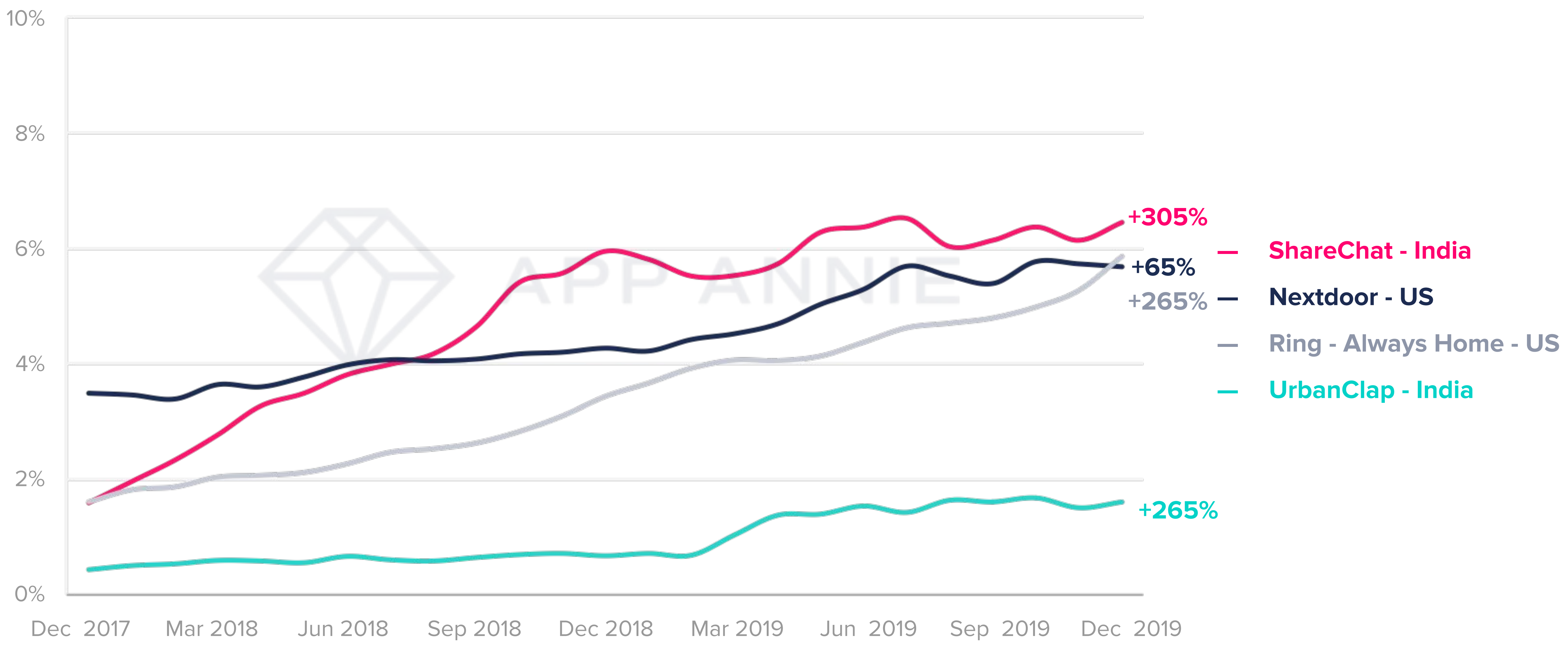


Note: Android phones, Worldwide excluding China

Fragmentation and Specialization in Social Market as Niche Apps Fill a Market Void

- Looking at examples in India and the US, hyper-local Social apps have grown in demand as consumers look for smaller circles to complement social media behemoths like Facebook.
- Nextdoor in the US offers one specific use case of *Facebook* carved out into a niche app. The app has grown 65% from Dec 2017 to Dec 2019 among smartphone users in the US, an indication of appetite in the market for more specialized and localized social networking.

Growth in Smartphone Usage Penetration of Specialized Social Apps

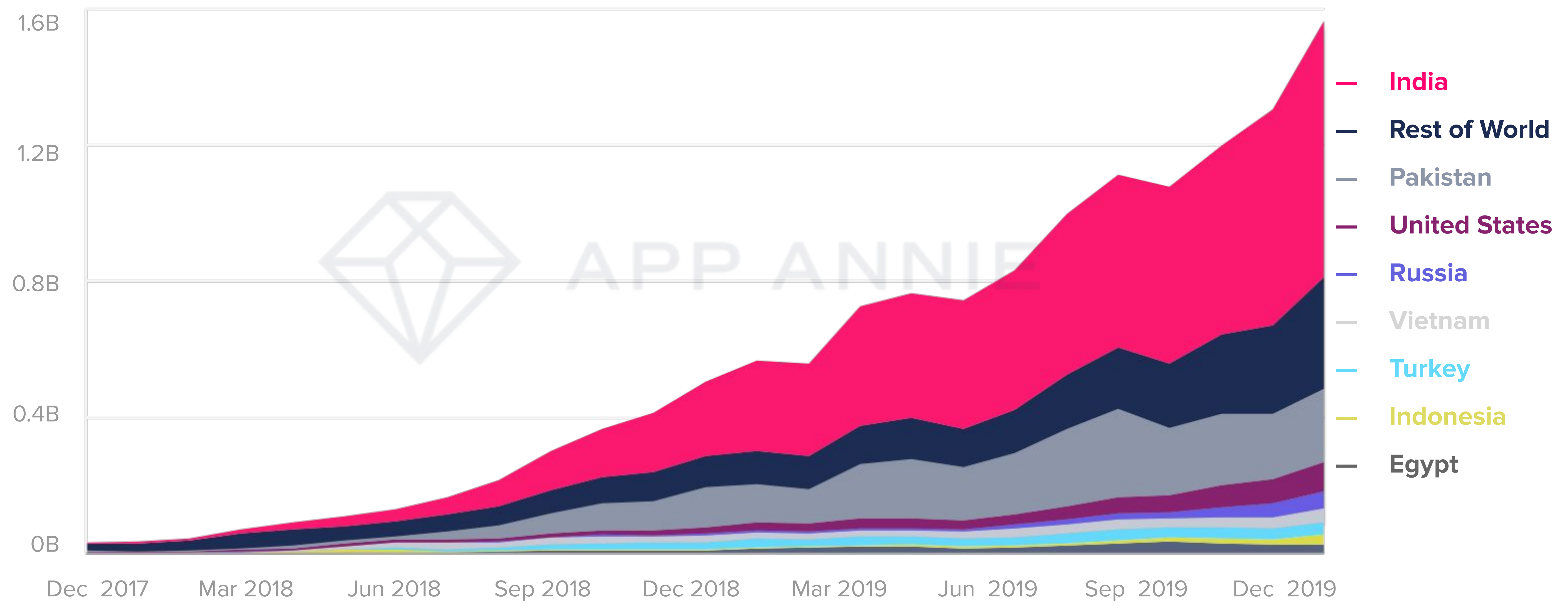


Note: Combined iPhones and Android phones

TikTok Tidal Wave: Time Spent Exceeded 68B Hours in 2019

- *TikTok* has grown to become both a social networking app and a source of entertainment, showcasing short, user-generated videos, often featuring lip-syncing or comedy. Musician Lil Nas X's "Old Town Road" started as a meme on *TikTok* and went viral on the platform, landing at #1 and breaking Billboard Hot 100 records.
- Global time spent in *TikTok* grew 210% year over year in 2019, both from expanding user bases and increasing time spent per user. *TikTok's* advertising platform positions this engaged and growing audience for brands to reach through videos designed to show value and entertain.
- 8 of every 10 minutes spent in *TikTok* in 2019 were by users in China, but the app's usage has also skyrocketed in other markets.

Growth in Hours Spent in TikTok Outside of China



Note: Android phones

Breakout Social Apps of 2019

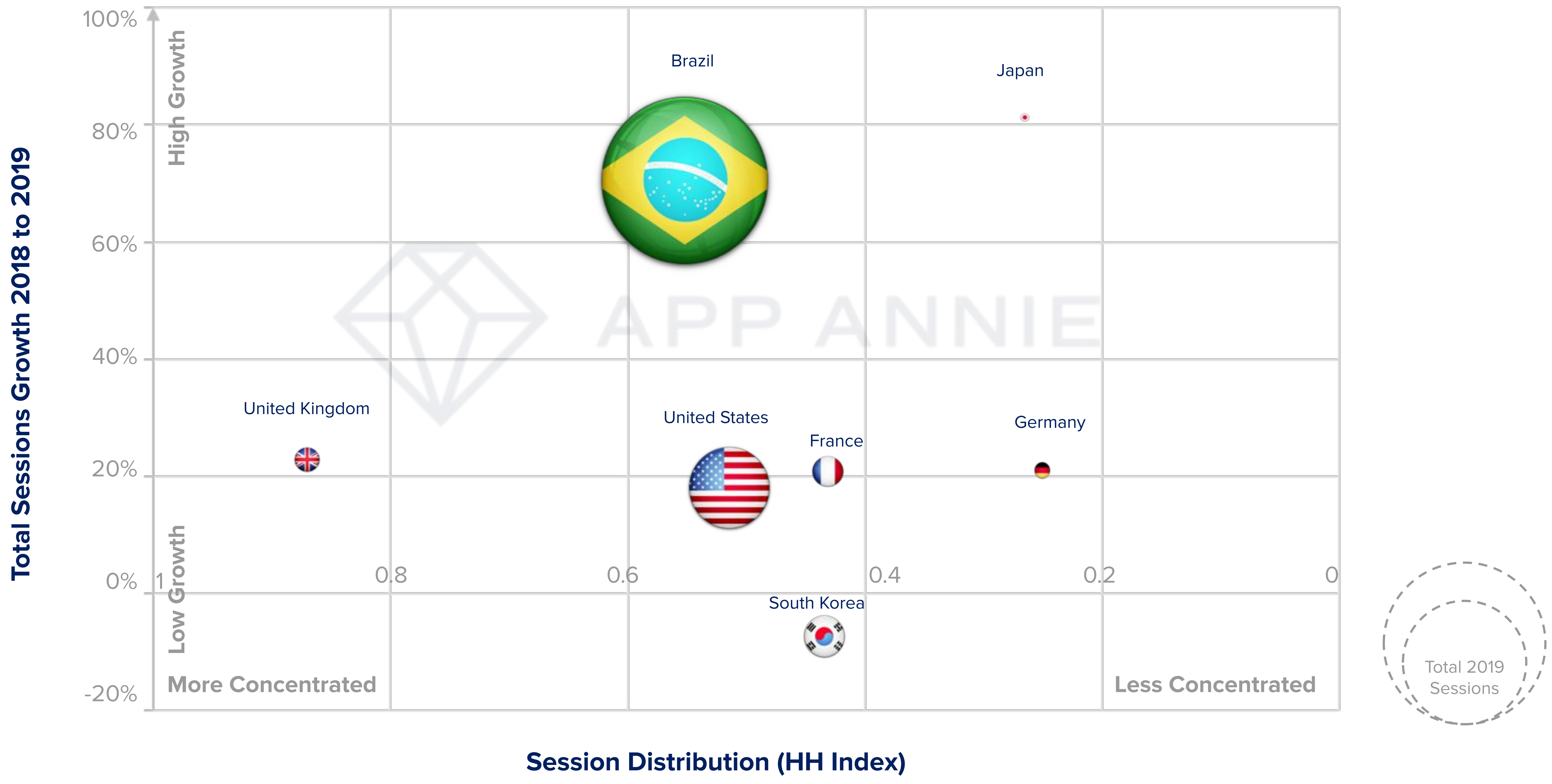
	Brazil	Canada	China	France	Germany	India	Indonesia	Japan	Russia	South Korea	United Kingdom	United States
1	WhatsApp Business	TikTok	Duoshan	F3	Opera Browser	TikTok	MiChat	Snapchat	GetContact	Snapchat	YOLO: Q&A	YOLO: Q&A
2	Status Saver	YOLO: Q&A	Spot - Your Inner Circle	21 Buttons	Beer With Me	Helo - Share Your Life	WhatsApp Business	Zenly	My Tele2	Puffin Web Browser	TikTok	TikTok
3	Snapchat	Messenger Kids	Weli	Plato: Find Fun	Ecosia Browser	Hago	Tantan	Pinterest	F3	Zenly	Tellonym	Life360 Family Locator
4	Telegram	Hily	Oasis (绿洲)	Hily	Tantan	VMate	SHAREit	InControl: Followers Tracker	Pinterest	WAVE - Video Chat Playground	Hily	Hily
5	Hago	Wishbone	Bi Xin (比心)	Orange Phone	Azar	WhatsApp Business	Yome Live	Questionbox	Zenly	Tubecash (튜브캐시)	Wishbone	Profoundly: Anonymous Chats

Year-over-Year Growth in iOS & Google Play Downloads

Ride-Sharing Apps See Strong Growth in Total Rides in 2019

- Ride-sharing apps saw strong growth in sessions in most markets analyzed, with South Korea being the main outlier.
- UK is the most concentrated market among those analyzed. It will be interesting to see if the November 2019 licensing changes in London will impact this in 2020.
- As sessions continue to grow, more mobility options proliferate. Some come from larger players looking to diversity (e.g. *JUMP by Uber*), while others are focusing solely on a sub category such as scooter-sharing (e.g *Bird*).

Ride-Sharing App Sessions
Opportunity Analysis in Key Markets

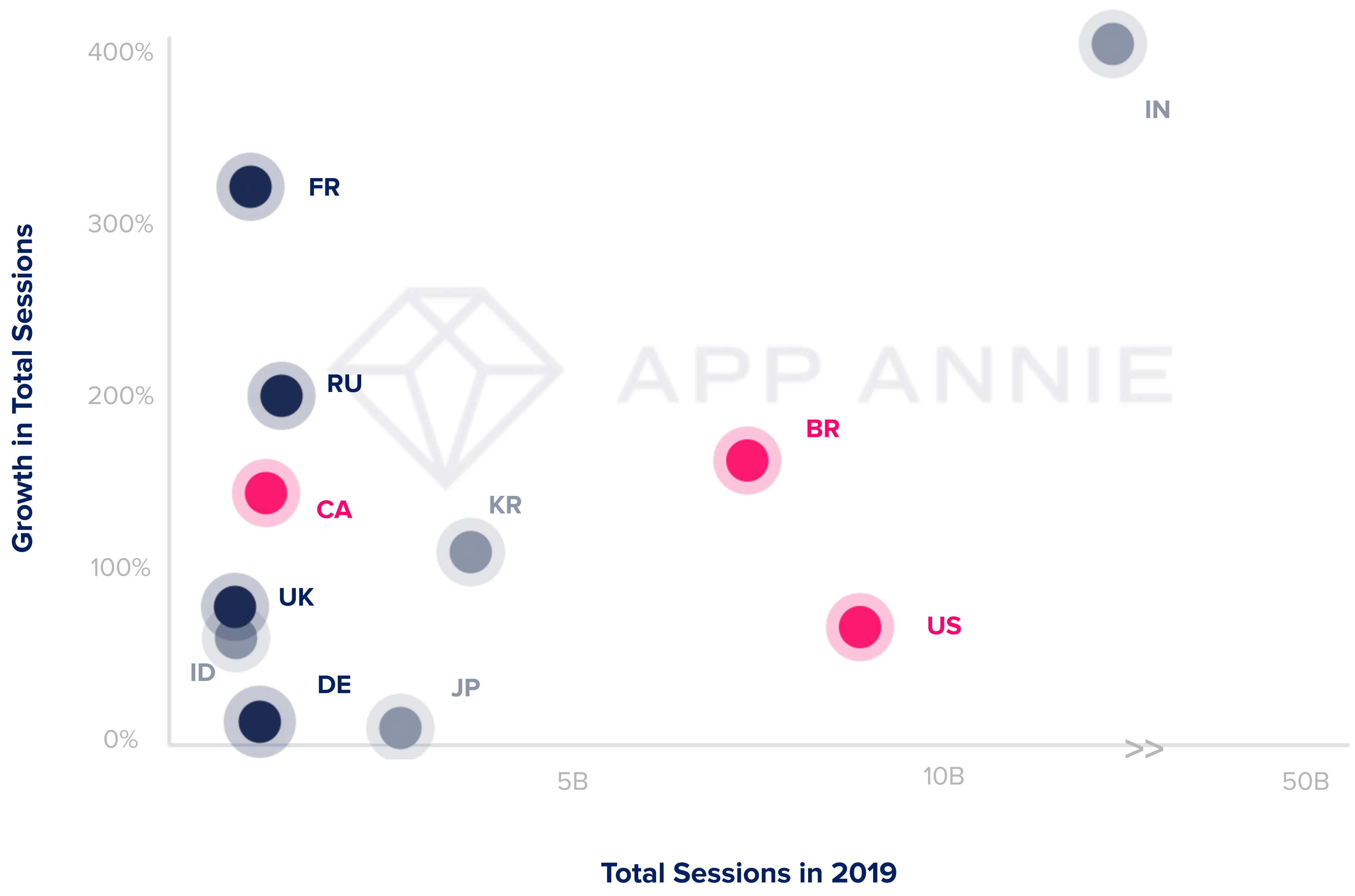


Note: Herfindahl-Hirschman Index – relative concentration of sessions.
Each circle represents one market. The closer to 1 on the x-axis, the more concentrated the ride-share category in that market. In the chart above, the UK is the most concentrated market, while Germany is the least.
Sessions Growth is on Android phones; Analysis Among top 5 Ride-Sharing apps by average MAU

Fast Food and Food Delivery Apps Upend Restaurant Industry

- The US restaurant industry is forecast to hit $1.2 Trillion in sales by 2030. As of 2019, 60% of sales are off-premise (drive-thru, delivery and carryout), and these are set to drive 80% of the industry's growth by 2025.
- Much of this demand is funneled through delivery apps. Globally, outside of China, sessions in Food and Drink apps grew 205% from 2017 to 2019 and 85% year over year. In response to this demand for food delivery, delivery-only 'ghost kitchens' have emerged — evidence of restructuring in the industry.
- The food delivery market is highly competitive, and companies are innovating to stay ahead. *Uber Eats* and *Postmates* both launched group ordering features in 2019.
- *GrubHub* had a standout year — seeing 55% growth in US downloads year over year.
- Germany's Delivery Hero expands to APAC with $4B deal to buy South Korea's Woowa, a signal of market consolidation.

Growth of Use of Food and Drink Apps
2017 to 2019



Note: Android phones

Consumers Spent Over $2.2B in Dating Apps, 2x As Much As in 2017

- *Tinder* dominates for global consumer spend in dating apps. *Tinder* was the 2nd highest non-gaming app for consumer spend over the last decade, seeing strong success from in-app subscriptions.
- While the most popular dating apps are still growing, companies are also growing by creating a portfolio of apps that cater to a variety of dating interests, as opposed to trying to fit all needs in one app, such as JSwipe, Single Parent Meet, Chispa, and OurTime.

Growth in 2019's Top Dating Apps by Global Consumer Spend

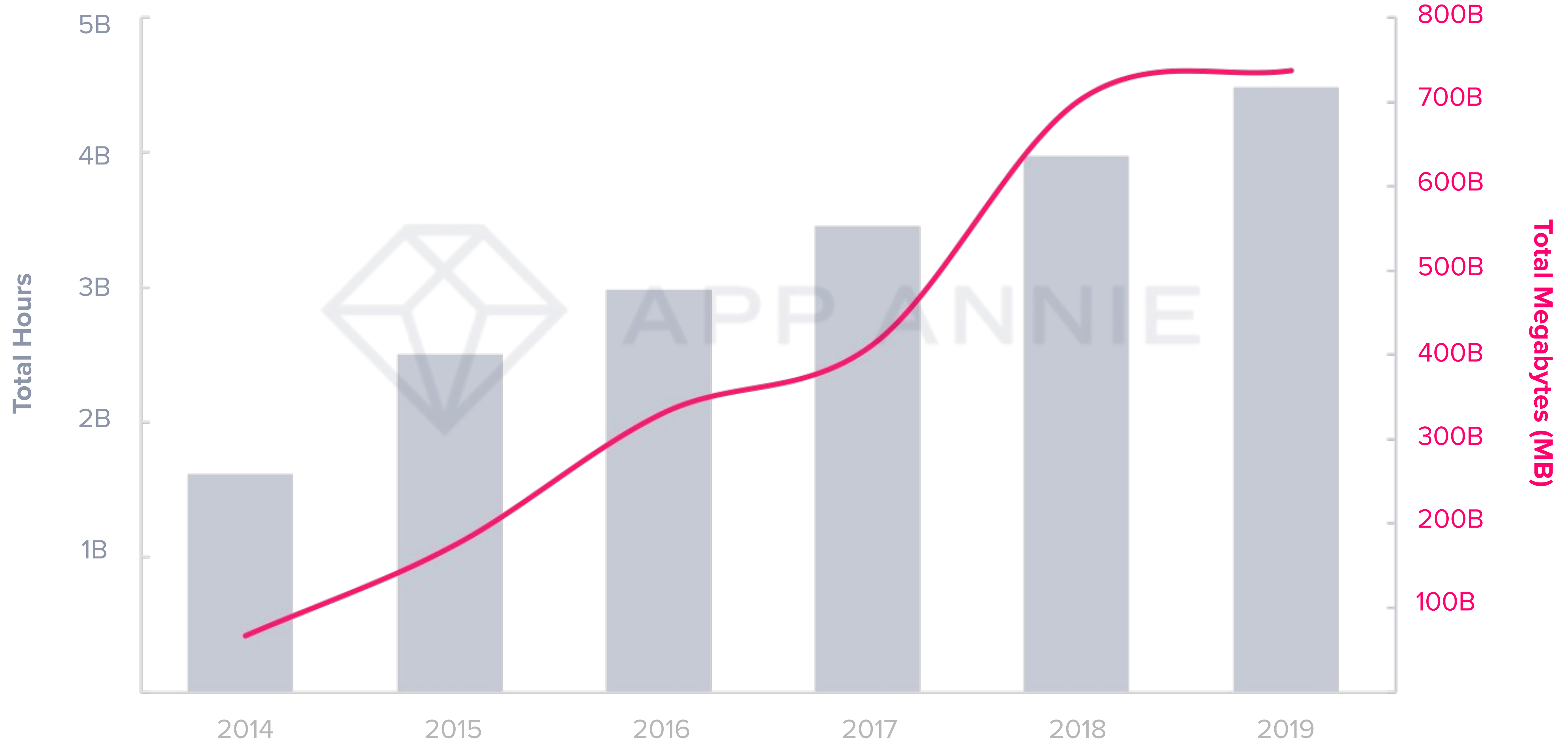
Two-Year Growth

Note: Consumer spend is combined iOS and Google Play
hily launched in 2018; 2018 - 2019 growth rate shown

Consumers Turned to Mobile to Stream Their Favorite Sports Matches

- Globally, time spent in sports apps has grown 30% from 2017 to 2019.
- However, during the same time period, total megabytes used has grown 80%. This indicates that sports fans are increasingly turning to mobile to stream matches — whether from a connected device casting to a TV or on-the-go from their always-on device: their smartphone.
- In the US, *ESPN* and *MLB.com at Bat* were the top two sports streaming apps, respectively, by time spent on Android phones in 2019. In the UK, the top two were *BBC Sport* and *Sky Sports*, and in Japan the top two were *Sports Navi* and *DAZN*.
- 5G stands to lead to advancements in augmented sports viewing in 2020 and the years to come.

Global Growth in Mobile Sports Streaming

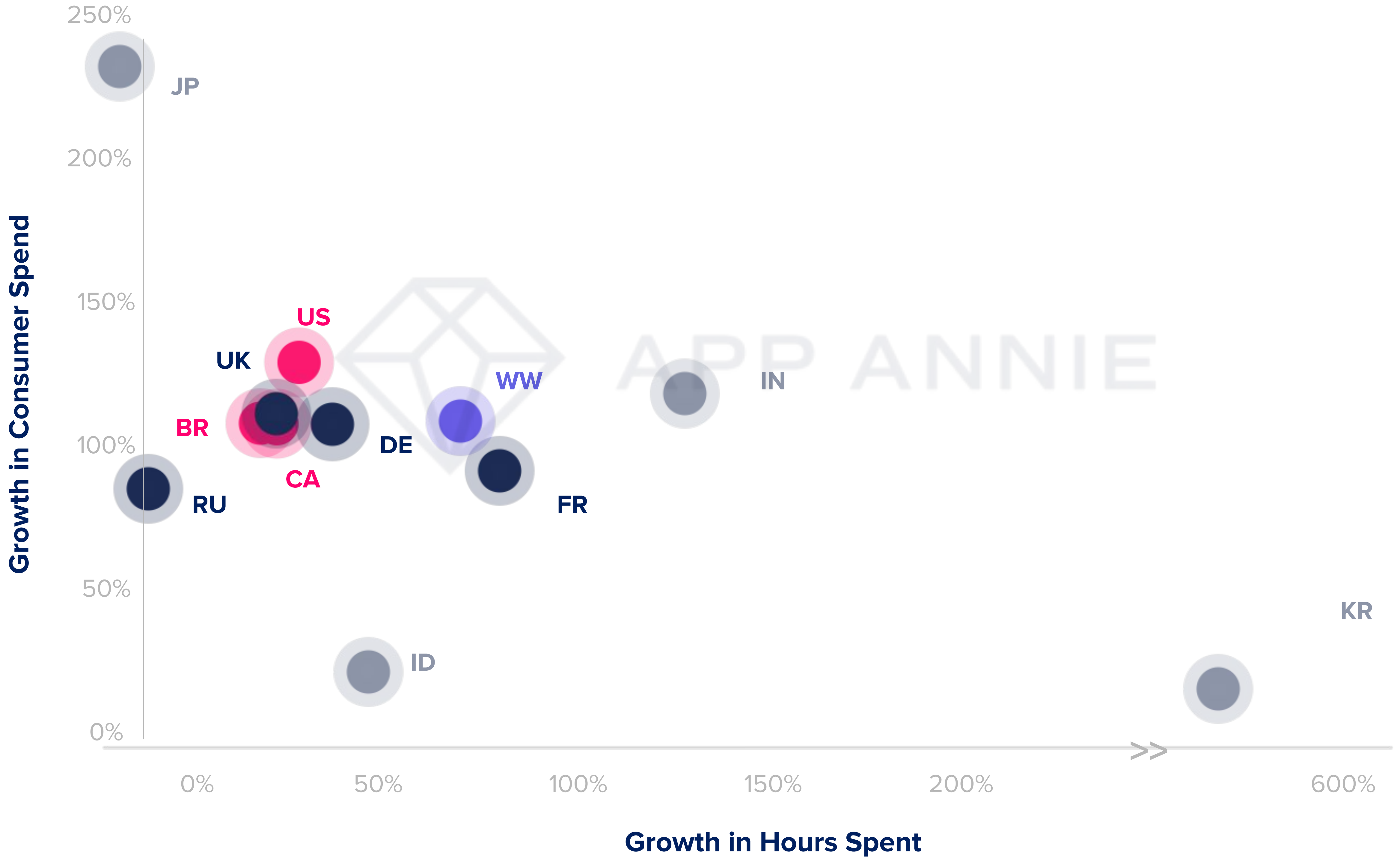


Note: Sports apps on Android phones, excluding China

Consumers Spent 110% More Money in Health and Fitness Apps in 2019 vs 2017

- Globally, consumers spent $1.4B in Health and Fitness apps in 2019. Mobile offers new pathways to meal planning, training regimes, exercise tracking and wellness and meditation — carving into the time and money spent at the gym.
- Growth in engagement and spend were strongest in APAC among markets analyzed. Consumers in China spent 295% more in Health and Fitness apps and in South Korea, 510% more time in them from 2017 to 2019.
- *Cashwalk*, a pedometer app, saw incredible growth in time spent in Korea at 175% year over year.

Growth in Engagement and Spend in Health and Fitness Apps
2017 to 2019



Note: Android phones, Worldwide excluding China

"We're excited to see continued growth success through improvements to our in-app promotion from free to paid. App Annie has helped us understand the competitive landscape so we can confidently ratchet monetization without sacrificing market position. We're also excited by our paid acquisition success in international markets and out of home campaigns."

Patrick Wetherille VP Growth, Lose It!

Worldwide Monthly Active Users in 2019

Top Apps

1		WhatsApp Messenger	Facebook
2		Facebook	Facebook
3		Facebook Messenger	Facebook
4		WeChat	Tencent
5		Instagram	Facebook
6		TikTok	ByteDance
7		Alipay	Ant Financial Services Group
8		QQ	Tencent
9		Taobao	Alibaba Group
10		Baidu	Baidu

Top Games

1		PUBG MOBILE	Tencent
2		Candy Crush Saga	Activision Blizzard
3		Honour of Kings	Tencent
4		Anipop	Happy Elements
5		Game For Peace	Tencent
6		Clash of Clans	Supercell
7		Pokémon GO	Niantic
8		Subway Surfers	Kiloo
9		Clash Royale	Supercell
10		Free Fire	Sea

Combined iPhone and Android Phone monthly active users

Worldwide Downloads in 2019

Top Apps

1	Facebook Messenger	Facebook
2	Facebook	Facebook
3	WhatsApp Messenger	Facebook
4	TikTok	ByteDance
5	Instagram	Facebook
6	SHAREit	SHAREit
7	Likee	YY Inc
8	Snapchat	Snap
9	Netflix	Netflix
10	Spotify	Spotify

Top Games

Free Fire	Sea
PUBG MOBILE	Tencent
Subway Surfers	Kiloo
Color Bump 3D	Good Job Games
Fun Race 3D	Good Job Games
My Talking Tom 2	Outfit7
Run Race 3D	Good Job Games
Homescapes	Playrix
Call of Duty: Mobile	Activision Blizzard
Stack Ball	Azur Interactive Games

Top App Companies

Google	United States
Facebook	United States
ByteDance	China
Alibaba Group	China
Microsoft	United States
YY Inc	China
Tencent	China
Amazon	United States
InShot Inc	China
Snap	United States

Top Games Companies

Voodoo	France
Good Job Games	Turkey
SayGames	Belarus
Outfit7	Cyprus
Playgendary	Germany
AppLovin	United States
Crazy Labs	Israel
Miniclip	Switzerland
BabyBus	China
Tencent	China

Combined iOS and Google Play

Worldwide Consumer Spend in 2019

Top Apps

1		Tinder	InterActiveCorp (IAC)
2		Netflix	Netflix
3		Tencent Video	Tencent
4		iQIYI	Baidu
5		YouTube	Google
6		Pandora Music	SIRIUS XM Radio
7		LINE	LINE
8		LINE Manga	LINE
9		Youku	Alibaba Group
10		Google One	Google

Top Games

	Fate/Grand Order	Sony
	Honour of Kings	Tencent
	Candy Crush Saga	Activision Blizzard
	Monster Strike	mixi
	Pokémon GO	Niantic
	Lineage M	NCSOFT
	Fantasy Westward Journey	NetEase
	Clash of Clans	Supercell
	PUBG MOBILE	Tencent
	Dragon Ball Z Dokkan Battle	BANDAI NAMCO

Top App Companies

InterActiveCorp (IAC)	United States
Tencent	China
Google	United States
Netflix	United States
Baidu	China
LINE	Japan
SIRIUS XM Radio	United States
Disney	United States
AT&T	United States
Badoo	United Kingdom

Top Games Companies

Tencent	China
NetEase	China
Activision Blizzard	United States
Supercell	Finland
BANDAI NAMCO	Japan
Netmarble	South Korea
Playrix	Ireland
Sony	Japan
Playtika	Israel
Zynga	United States

Combined iOS and Google Play

Discover New Mobile Trends and Insights for 2020

2020 State of Mobile:

- 2019 Country-Level Ranking Tables: Top Apps and Companies by Downloads, Active Users and Consumer Spend
- 2020 State of Mobile Report Summary
- 5 Things You Need to Know for a Successful 2020 on Mobile
- A Look Back At the Top Apps & Games of the Decade

Mobile Analysis and Insights:

- appannie.com/insights

Report methodology and updates are available here.

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