November 2018

ACTIVATE TECH & MEDIA OUTLOOK 2019

activate
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WSJ TECH D.LIVE

Welcome to Activate's Tech and Media Outlook 2019!

These are the major forces that will create growth opportunities and reshape companies and industries in the year ahead.

Each year, as part of Wall Street Journal D.Live, our team takes a deep dive into some of the most important consumer trends, technology innovations, and industry dynamics to predict what's going to happen next and what it will mean.

We are excited to share our fourth annual Outlook, and hope you will enjoy its many surprising and unexpected perspectives. From the impact of smart cameras, to the explosive growth of sports gambling, to the next wave of video gaming, we've uncovered key insights and future trends that will lead to opportunities for tech and media companies. There's an extensive evaluation of the music business, a view into the changing video landscape, and a perspective on the evolution of eCommerce. We also dive into the profound changes underway in podcasting, tech-driven consumer financial services, and messaging.

As a firm, our work begins with the most important person in tech and media: The User. Understanding how people consume tech and media experiences is the foundation of our thinking. You'll find extensive analysis of consumers' time, preferences, and habits across demographics, drawing on Activate's proprietary industry analysis and a large-scale consumer study that represents the U.S. population.

We know you'll find the results both provocative and useful, and look forward to a lively discussion.

Let's see where tech and media are headed!

The Activate Team

The Most Important Insights for Tech and Media in 2019

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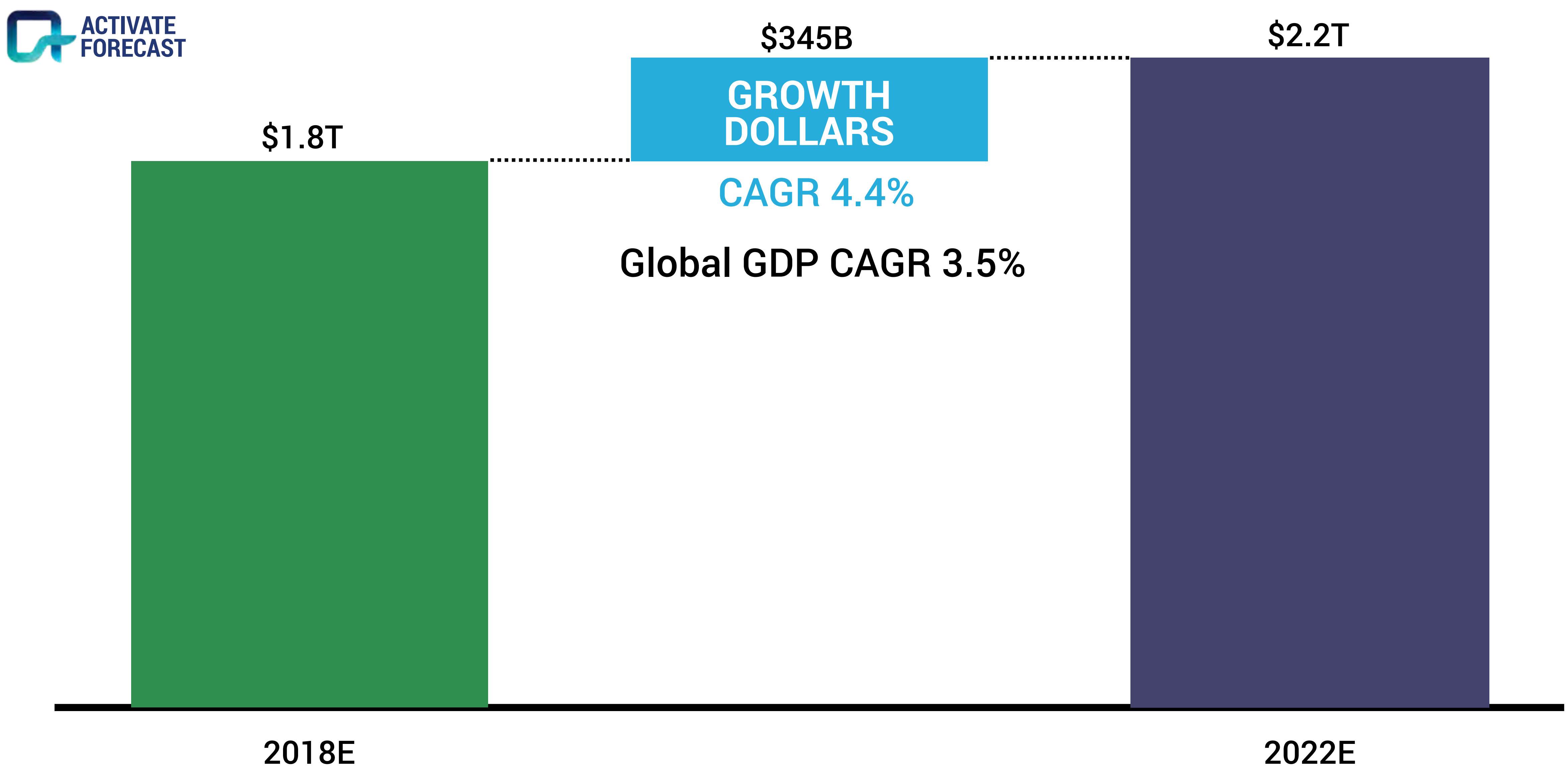
We forecast that over the next four years, global Internet and Media revenues will grow by approximately $340 Billion, continuing to outpace GDP growth

CONSUMER INTERNET AND MEDIA REVENUES[1], GLOBAL, 2018E-2022E, USD

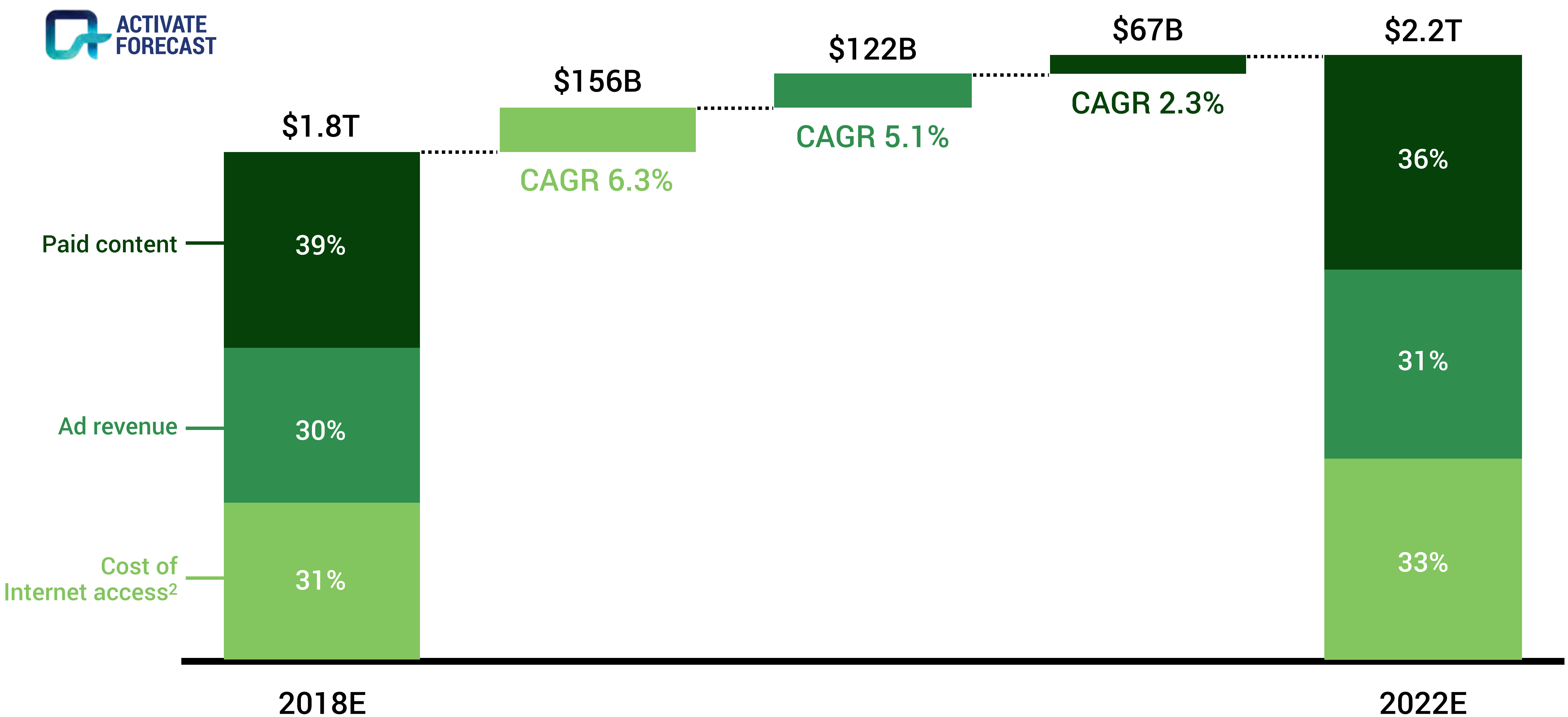


1. Consumer Internet and Media revenues include radio, recorded music, magazine publishing, newspaper publishing, video games, filmed entertainment, book publishing, TV subscription and licensing fees, Internet access, digital advertising, and traditional advertising on these platforms.

Sources: Activate analysis, Cowen and Company, eMarketer, GroupM, IBISWorld, International Federation of the Phonographic Industry, International Monetary Fund, Magna Global, Newzoo, PricewaterhouseCoopers, Raymond James, Warc, World Bank, ZenithOptimedia

Nearly 65% of all growth will come from end user spend (access, content) vs. advertising

CONSUMER INTERNET AND MEDIA REVENUE GROWTH BY SEGMENT[1], GLOBAL, 2018E-2022E, USD

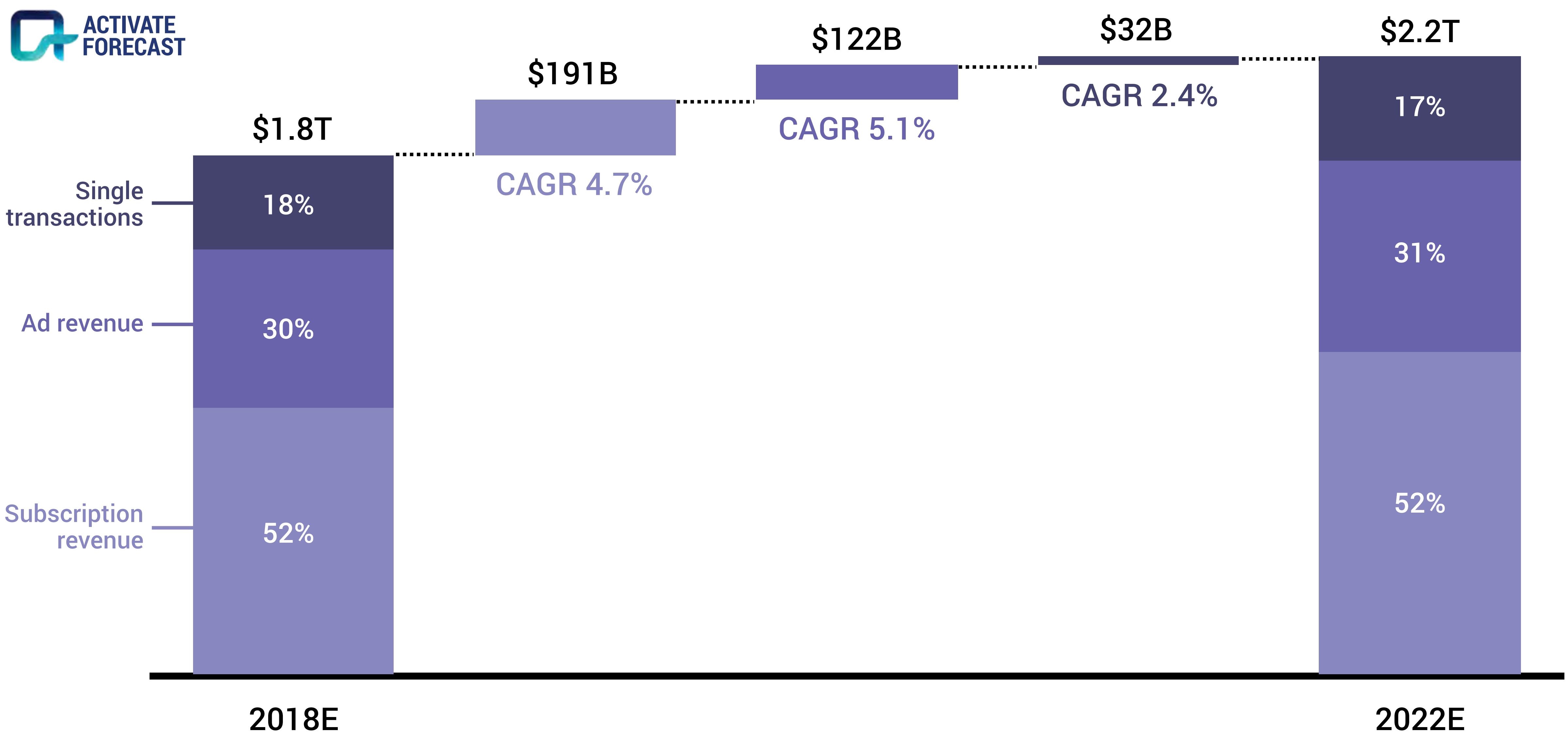


1. Consumer Internet and Media revenues include radio, recorded music, magazine publishing, newspaper publishing, video games, filmed entertainment, book publishing, TV subscription and licensing fees, Internet access, digital advertising, and traditional advertising on these platforms.
2. Includes fixed broadband, wireless, and mobile Internet access.

Sources: Activate analysis, Cowen and Company, eMarketer, GroupM, IBISWorld, International Federation of the Phonographic Industry, International Monetary Fund, Magna Global, Newzoo, PricewaterhouseCoopers, Raymond James, Warc, World Bank, ZenithOptimedia

Subscription will be the primary revenue model, accounting for over half of Internet and Media growth

CONSUMER INTERNET AND MEDIA REVENUE GROWTH BY REVENUE MODEL[1], GLOBAL, 2018E-2022E, USD



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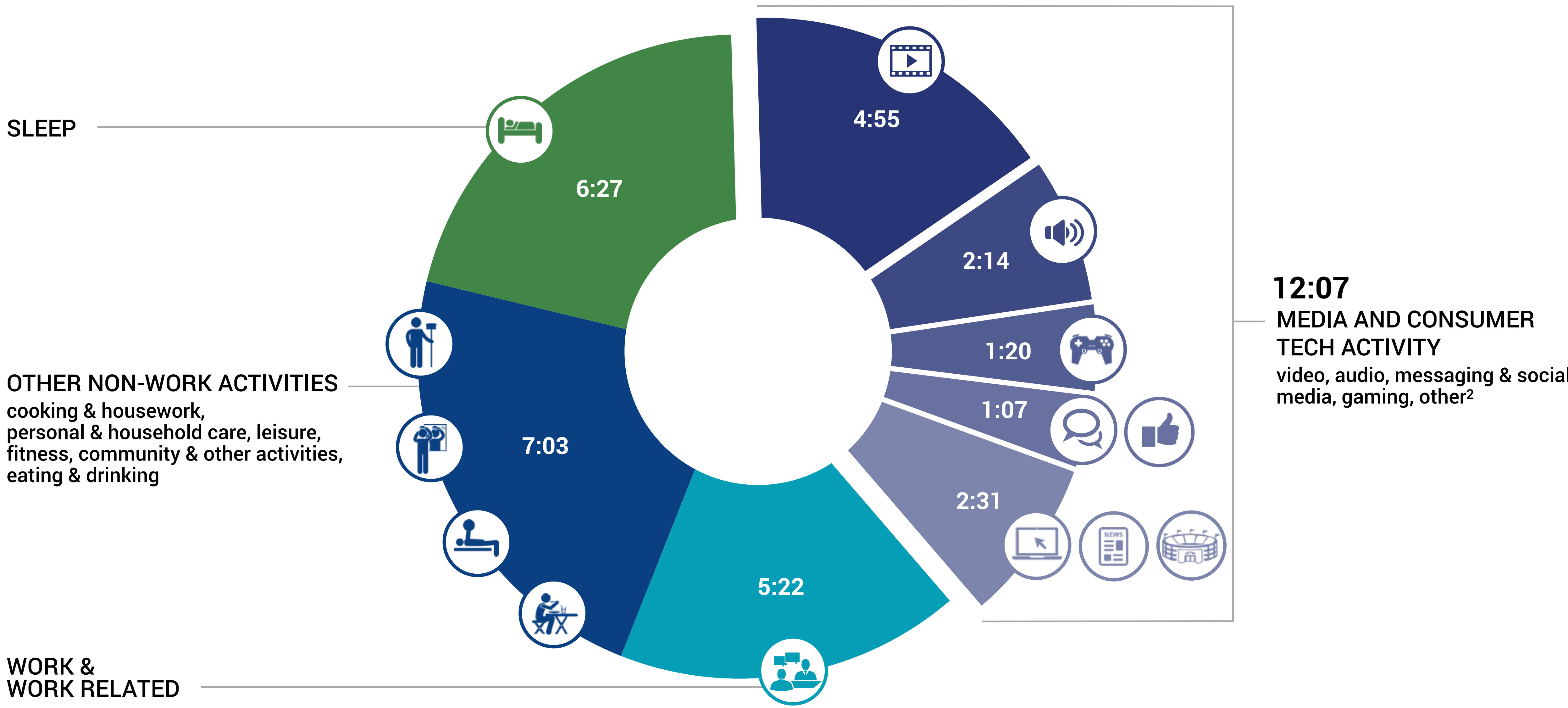
Activate's analysis shows that multitasking leads to a 31-hour day for the average American adult, 12 of which are spent consuming tech and media

AVERAGE DAY BY ACTIVITY PER ADULT (AGE 18+)[1], U.S., 2017, HOURS:MINUTES

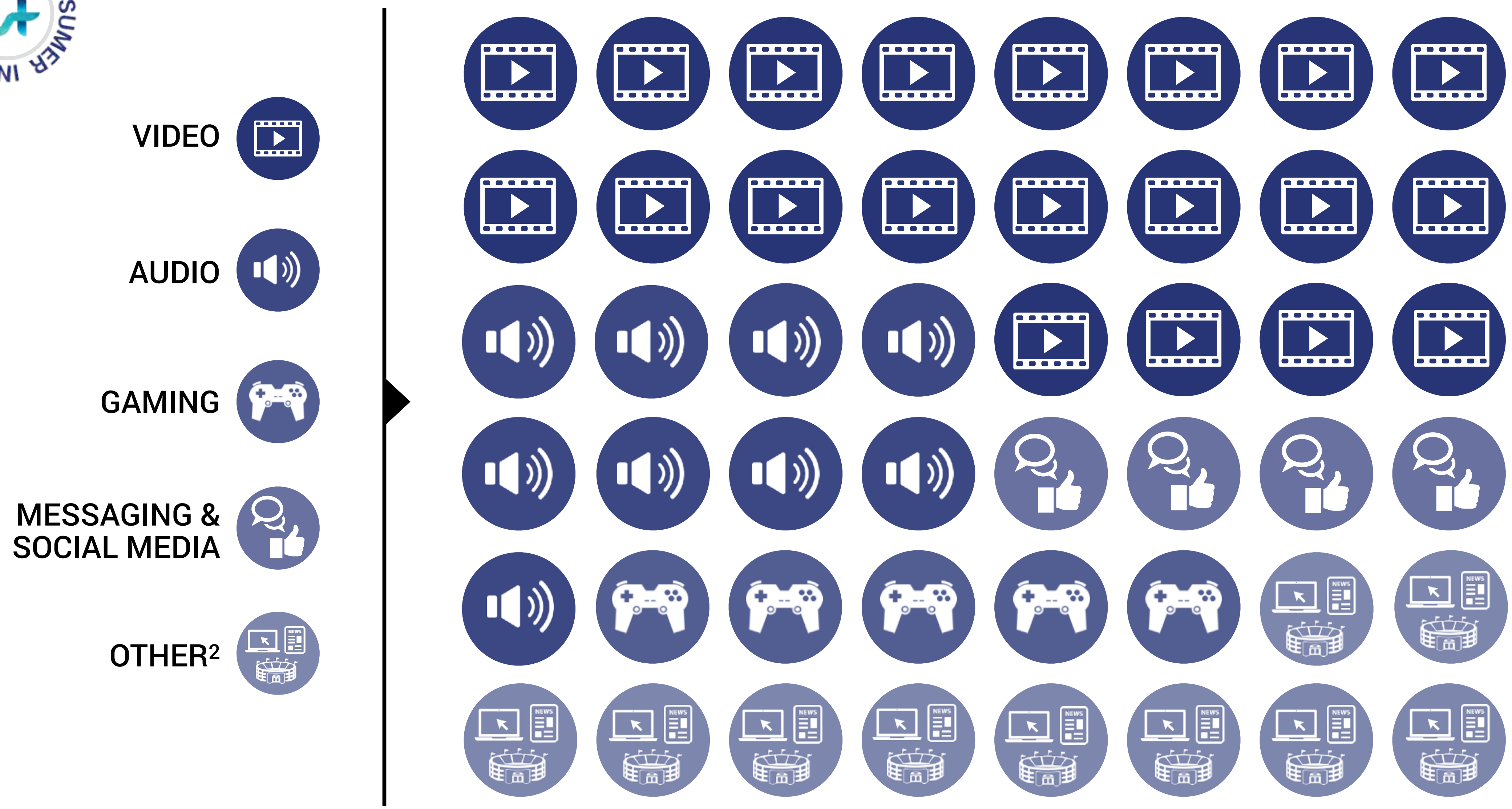


1. Behaviors averaged over 7 days.
2. Other includes browsing websites, offline reading, cinema, out-of-home, etc.
Sources: Activate analysis, Activate 2016 Consumer Tech & Media Research Study (n=1,003), Comscore, eMarketer, Fitbit, Gallup, Global Web Index, Interactive Advertising Bureau, National Sleep Foundation, Nielsen, Pew Research, ResMed, U.S. Bureau of Labor Statistics

On average, video still captures the largest share of attention of the daily 12 hours of tech and media consumption at 40%

DAILY MEDIA ATTENTION PER ADULT (AGE 18+)[1], U.S., 2017, 15-MINUTE INTERVALS

A TYPICAL 12:07-HOUR MEDIA DAY: 48 X 15-MINUTE INTERVALS



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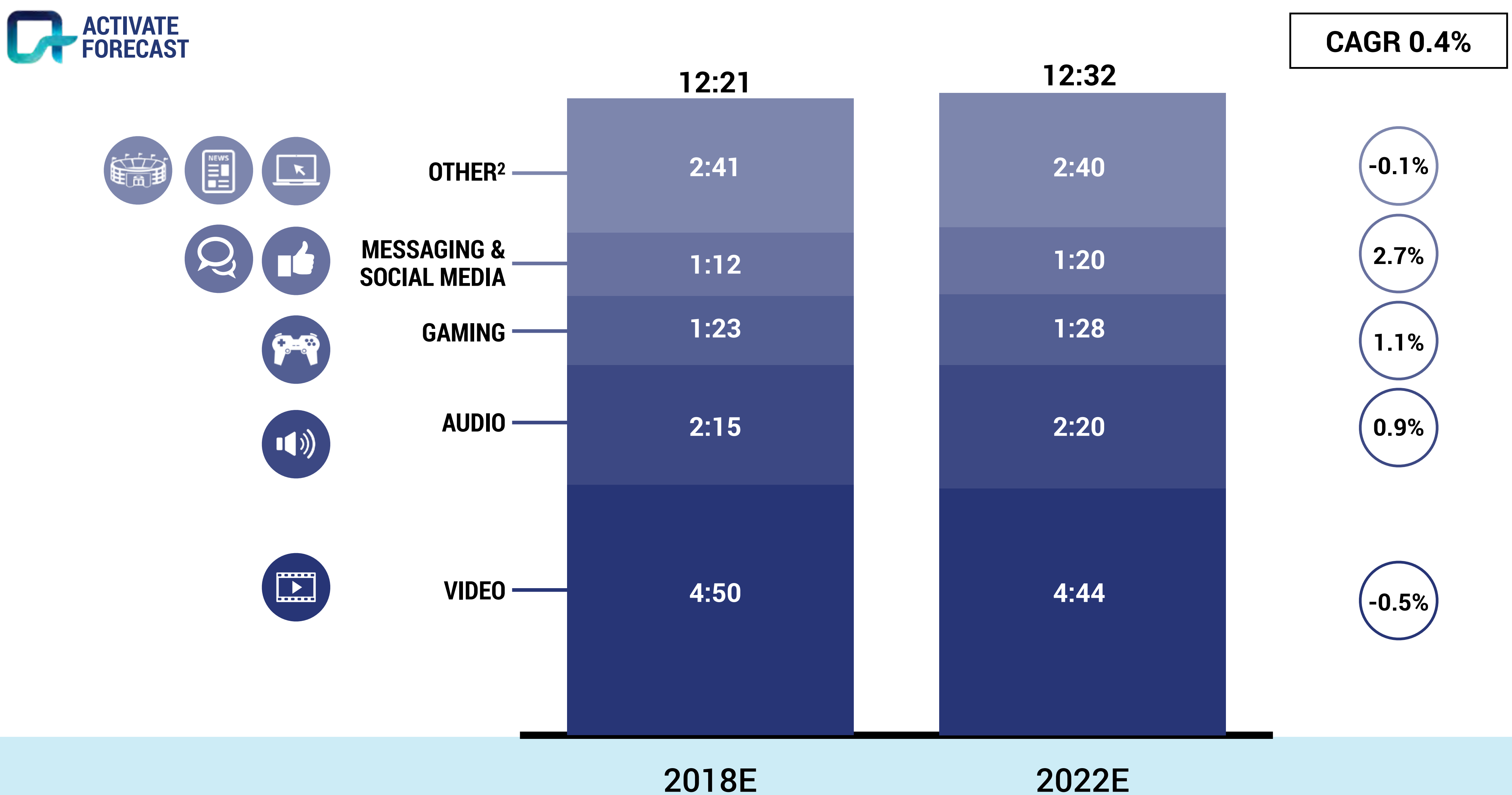
By 2022, Americans will spend an additional 11 minutes with tech and media daily

DAILY HOURS SPENT PER ADULT (AGE 18+)[1], U.S., 2018E-2022E, HOURS:MINUTES



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Sources: Activate analysis, Activate 2016 Consumer Tech & Media Research Study (n=1,003), Comscore, eMarketer, Fitbit, Gallup, Global Web Index, Interactive Advertising Bureau, National Sleep Foundation, Nielsen, Pew Research. ResMed. U.S. Bureau of Labor Statistics

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The age of the Smart Camera is beginning—we see an explosion in the number of Smart Cameras as they become an integral part of people's lives

VISUAL INTELLIGENCE SOFTWARE IS EXPLODING IN SOPHISTICATION

LARGE NUMBERS OF NETWORKED SMART CAMERAS WILL LEAD TO DRAMATIC IMPROVEMENTS IN FUNCTIONALITY

- **Transformational**: facial recognition as universal ID, cashierless retail, emotional reading, intelligent cars, at-home medical diagnoses, tailored education
- **Incremental**: intelligent home security, advanced targeted advertising, written foreign language translation, fashion recommendations, digital product showrooming

EVEN PEOPLE WHO ARE CONCERNED ABOUT PRIVACY WANT SMART CAMERAS IN THEIR LIVES

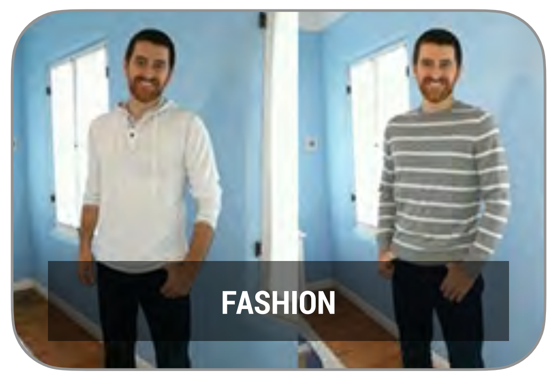
Source: Activate analysis

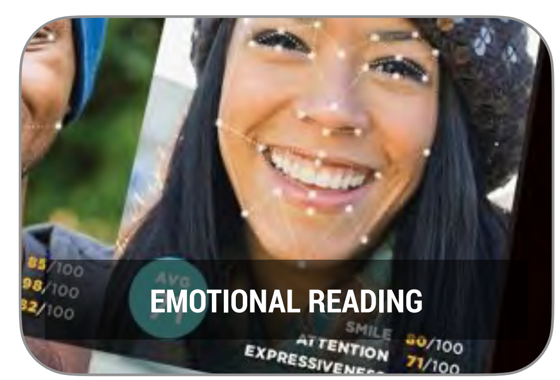
As a result of advanced functionality (visual intelligence, enhanced sensors and networking), Smart Cameras will be central to people's lives and digital activities

UNTIL RECENTLY: SIMPLE CAMERAS

NOW: SMART CAMERAS

The bridge between AI[1] and many powerful applications





1. Defined as narrow AI (convolutional neural networks) with current or close-to-current technical capabilities.
2. Requires LIDAR (Light Detection and Ranging), a surveying technology that is the foundation for self-driving cars.

Sources: Activate analysis, Ars Technica, Company sites

Cameras are becoming terrifyingly smart, enabling advanced applications for both consumers and businesses

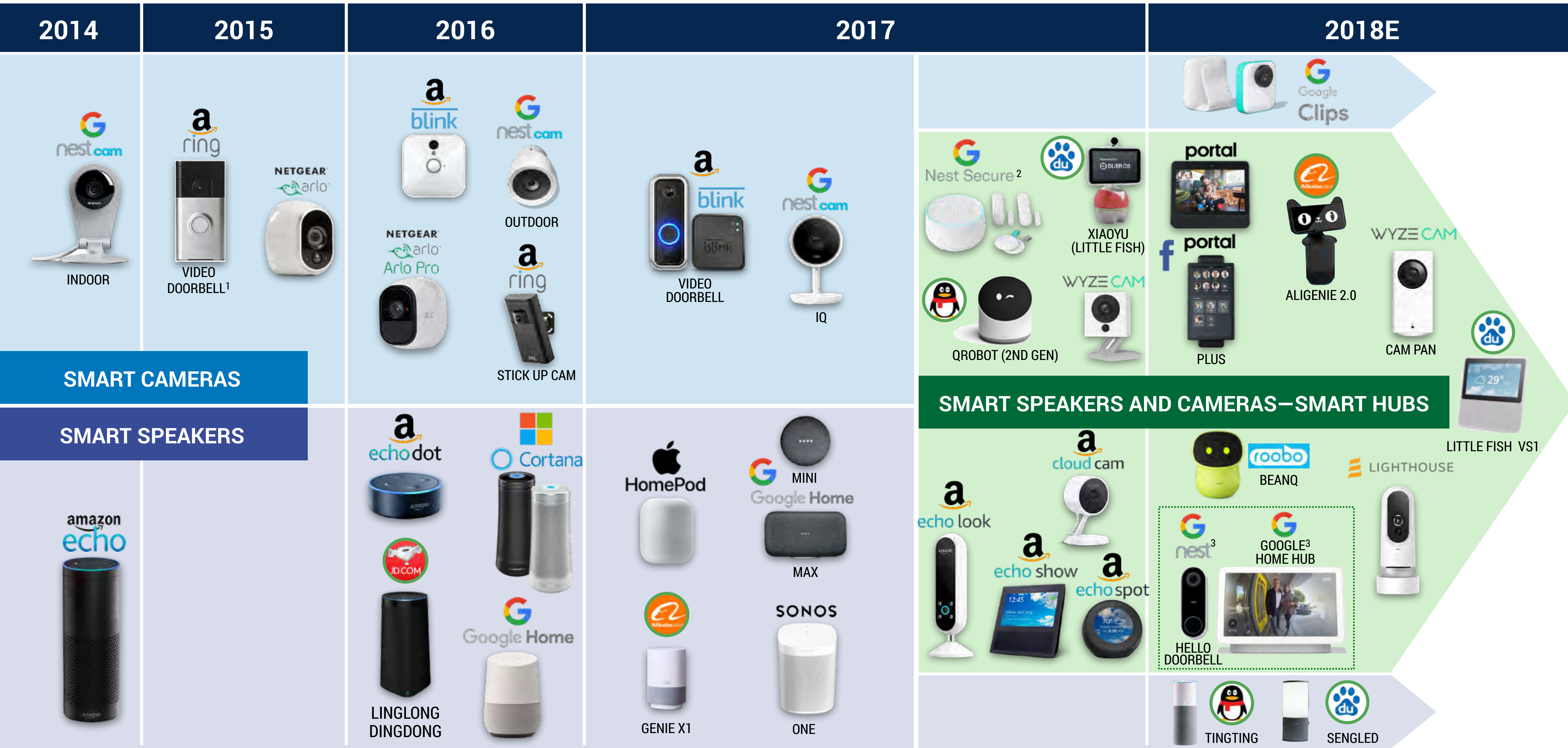
SMART CAMERA ROADMAP

	BASIC FACIAL + OBJECT RECOGNITION	NETWORKED SMART CAMERAS	PREDICTIVE SMART CAMERAS
DIFFERENTIATING FUNCTIONALITY	• Can **identify and track basic objects** and patterns, and learn to recognize subtle image differences • Can realize that there is a face in a photo, but not necessarily tie it to an individual	• Can **identify and track specific objects and individuals** • Can **identify most or all emotions** through facial expressions	• Are fully integrated into the environment (e.g. homes, neighborhoods, cars) and **can track across devices** • Can **make predictions and take action** with minimal human intervention
APPLICATIONS	• **Advanced photography improvement** (e.g. subject identification[1], image stabilization, Smart HDR) • **Foreign language translation** and landmark identification • **Augmented reality**, such as Instagram face filters, digital placement of furniture, etc. • **Early-stage business applications** such as medical image reading, crop management, etc.	• Seamless and keyless **camera-based security** for homes, cars, and devices (e.g. Face ID[2]) • **Cashierless retail** (e.g. Amazon Go, Standard Market) • Advanced **social reading** for use in social networks, therapy, etc. • Improved **media recommendations** and advanced **targeted advertising** • Improved **IoT devices / smart homes**	• Predictive **prevention of traffic accidents** • **Medical diagnosis** assistance for doctors and patients • **Tailored education programs**, informed by expressions and test scores

1. Such as portrait mode on iPhones.
2. Also uses several other technologies such as a dot projector.

Sources: Activate analysis, Ad Age, Ars Technica, Company sites, Computerworld, New York Times

The growth of Smart Cameras will follow the widespread adoption of Smart Speakers, making the intelligent network in the home more useful across more activities



Note: Positioning represents year of either product announcement or launch date. List of devices is representative, not exhaustive.
1. Motion detection became available early 2015.
2. Connects with existing Nest Cameras. Works with Google Assistant as of April 2018.
3. The Nest and Google Hub are marketed as a bundle on the Google Home Hub website.
Sources: Activate analysis, Company press releases, Digital Trends, Engadget, TechCrunch

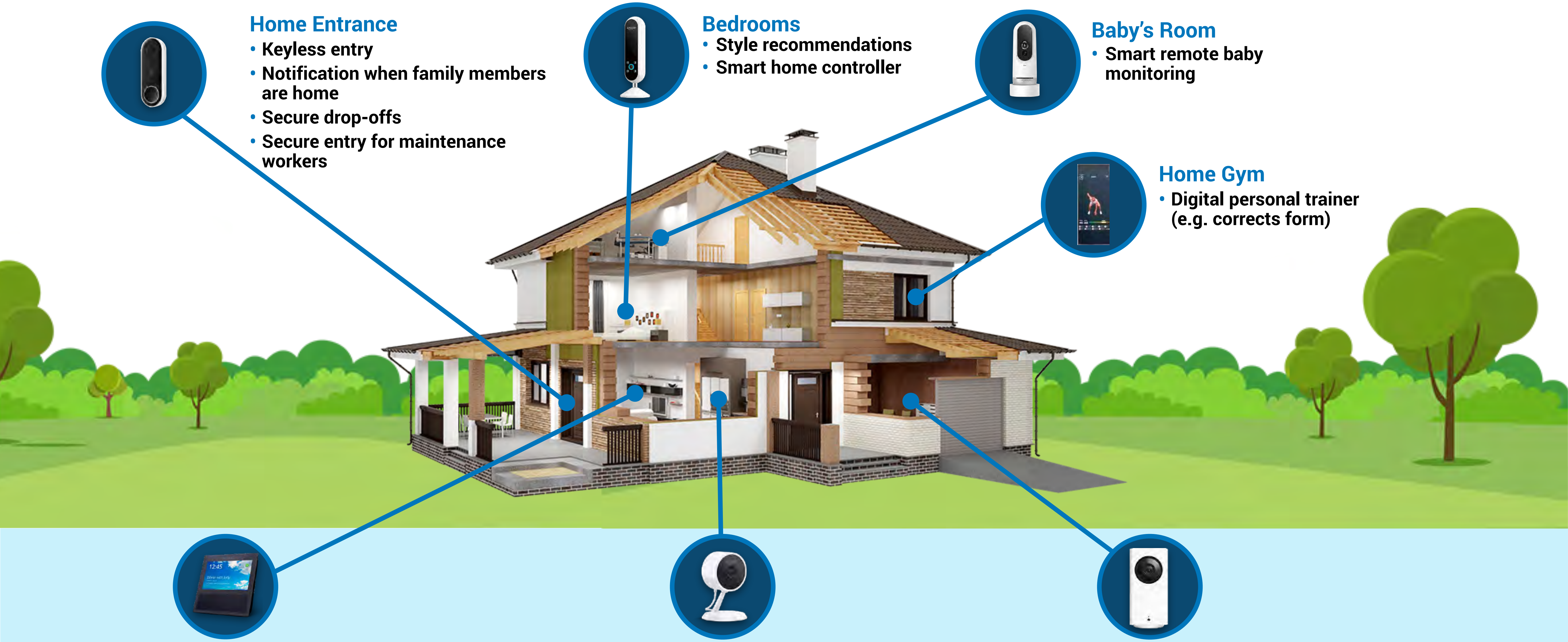
The intelligent network in the home is just the starting point for Smart Cameras

Home Entrance
- Keyless entry
- Notification when family members are home
- Secure drop-offs
- Secure entry for maintenance workers

Bedrooms
- Style recommendations
- Smart home controller

Baby's Room
- Smart remote baby monitoring

Home Gym
- Digital personal trainer (e.g. corrects form)



Living Room
- Early emergency detection (e.g. fire, water leak)
- Video feeds with friends and family
- Intercom system
- Smart home hub

Kitchen
- Early emergency detection (e.g. gas leak)
- Cooking recommendations

Garage
- Smart home controller
- Monitoring car in garage

Sources: Activate analysis, Company sites

We see Smart Cameras extending beyond just the home to play a central role in people's lives

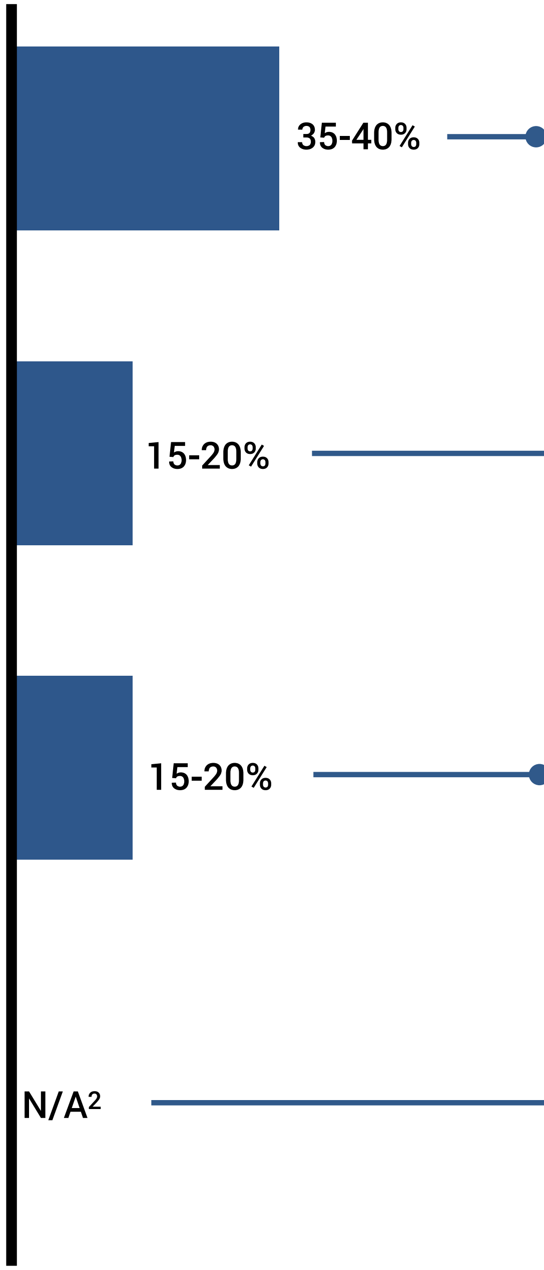
PERSONALIZED LIFE
Cameras that take significantly better photos, recommend style choices, act as personal trainers, recognize friends and expressions

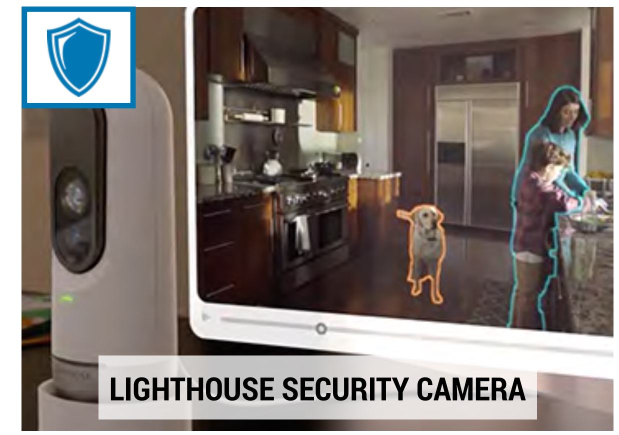
SEAMLESS SECURITY
Intelligent security that is ubiquitous, easier to use than passwords, can identify friends and family, and enables more secure entry for others (e.g. delivery drivers)

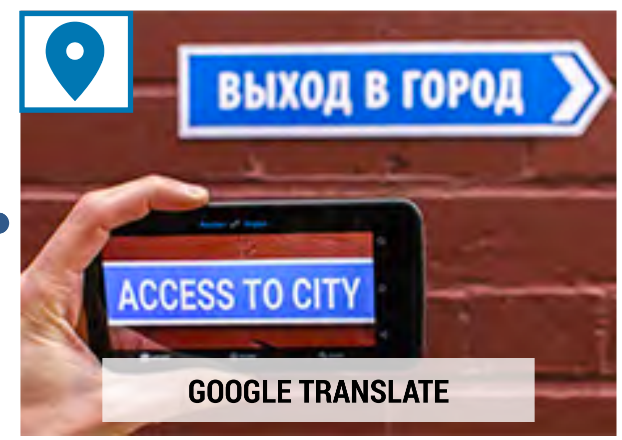
DIGITAL GUIDES
Frictionless travel with live text translations, landmark identification, and indoor/outdoor directions based on camera recognizing location

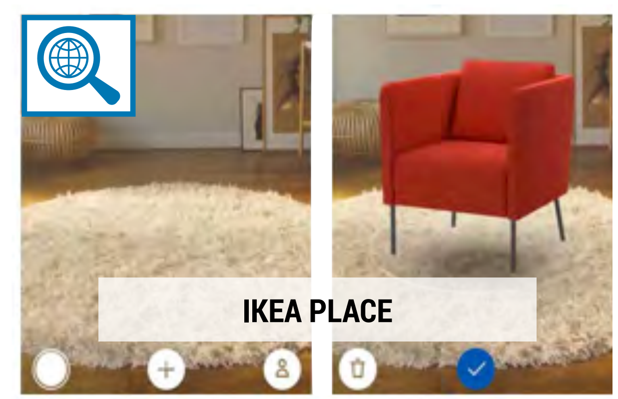
IMPROVED DISCOVERY
Media recommendations based on facial reactions, ads with improved targeting and relevance, and digital product showrooming

% ALREADY USING TODAY[1]



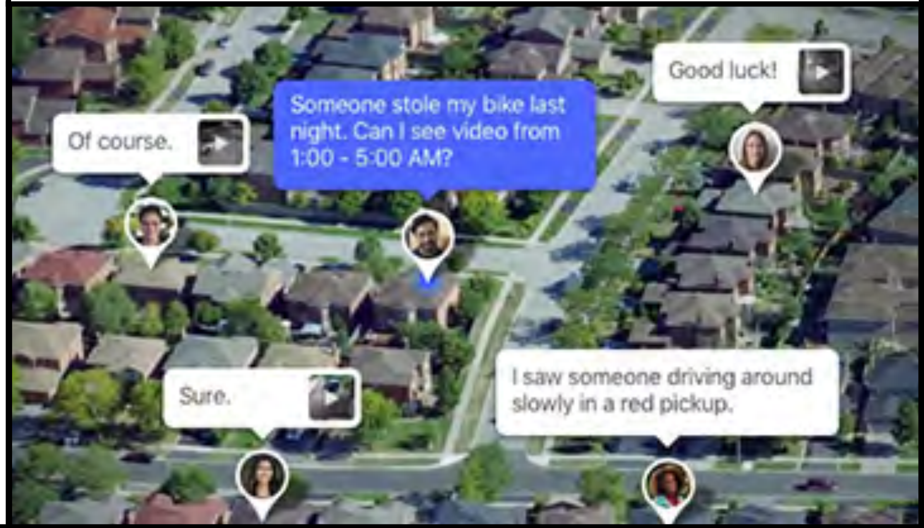
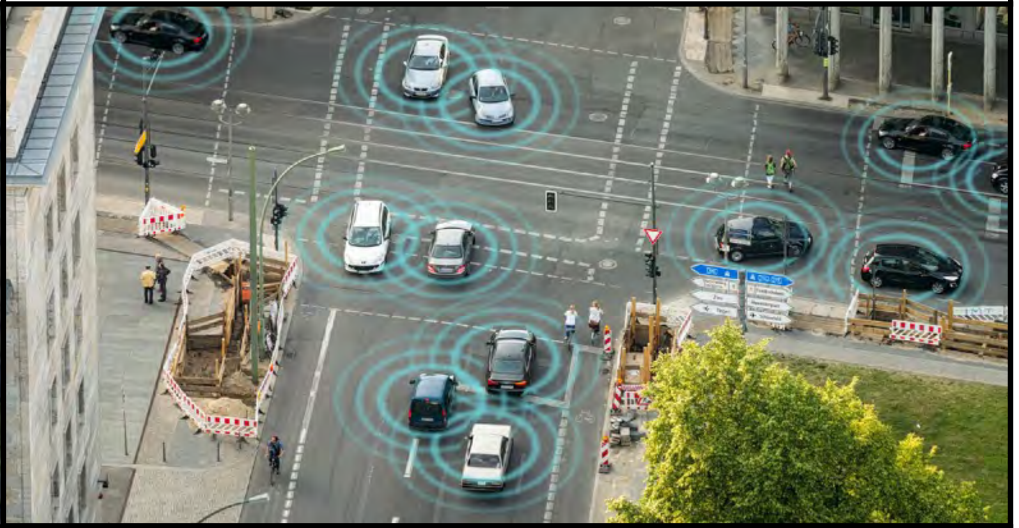






1. % Adult population as identified by use cases.
2. Includes applications identified that cannot be tested in primary research
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), Ars Technica, Company sites, Engadget

Smart Cameras will begin to realize their potential when they form networks with other Smart Cameras

	Neighborhood (Today)	Cars (Likely Future)
The Network	• **Networked neighborhood security—see through your neighbors' security cameras as well:** 	• **Networked series of car cameras,** including front, rear, dash, and 360 views—**will function similar to a supercharged version of Waze:** 
Use Cases	• **Automatically identify suspicious individuals/scammers** • **Track individuals in neighborhood,** for things such as **missing persons or pets**	• **Avoid any collisions while parking or backing up** • **Use intelligent cruise control** and automate accident avoidance • **Warn of dangerous conditions** (e.g. warn of an erratic driver ahead)

Note: Neighborhood photo is from Vivint Streety.
Sources: Activate analysis, Company sites, Fortune

The next generation of Smart Cameras will enable extensive enterprise use cases

EXAMPLES OF ENTERPRISE APPLICATIONS

AUTOMATED EXPERTISE

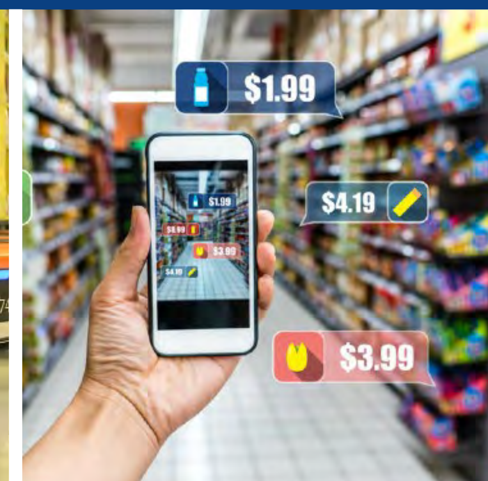
- Processing of images via AI has started to equal that of experts, especially in the medical field (e.g. medical imaging applied to retinal diseases)
- This will lower the cost of imaging procedures, increasing access to preventative care

MONITORING SYSTEMS

- Camera systems will monitor for both sudden issues (e.g. fire) and for more gradual changes (e.g. crop health)
- Security systems will recognize strangers vs. employees
- Satellite photos will automate claims and identify fraud

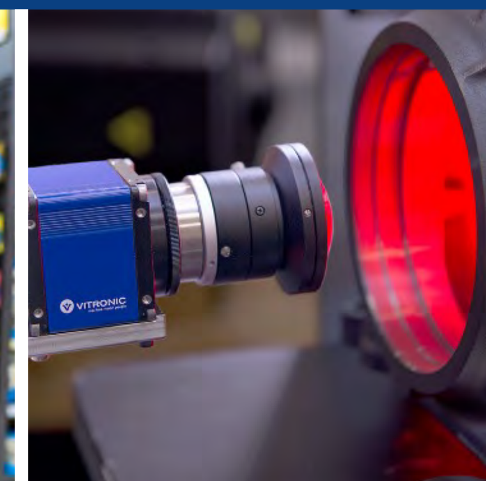
AUTOMATED PROCESSING

- Robots increase efficiency and organization in warehouses/factories—Amazon already uses ~120,000 robots in fulfillment centers as of 2017



ENHANCED RETAIL

- Advertisers will be able to identify customers via facial recognition (e.g. CaliBurger), guide them inside the store, and target them individually with promotions
- Cashierless retail, able to track customers and determine which items they take[1]



FRAUD DETECTION / QUALITY CONTROL

- Intelligent cameras will also prove powerful in combating fraud through capabilities such as signature identification
- Quality control will also be improved (e.g. recognizing flaws in a manufactured product)

1. Amazon Go uses pressure sensors (and other sensors) in addition to cameras.
Sources: Activate analysis, Ars Technica, DeepMind, Engadget, Nature Medicine, NBC News, New York Times, Nvidia, Reuters, Stateof.ai.2018, The Verge, Vision-Systems

Government applications for Smart Cameras will add advanced intelligence and service capabilities to existing infrastructure

EXAMPLES OF GOVERNMENT APPLICATIONS

CUSTOMIZED EDUCATION

- Smart cameras will scan and read books aloud to children

POLICE FORENSICS

- More automated processing and use of video footage will aid in investigations
- Expertise in areas such as fire patterns or bloodstain pattern analysis will also be automated, making forensic evidence interpretation more consistent

TRAFFIC CONTROL

- Traffic control via automation will help avoid accidents
- Traffic control will also help reduce traffic and identify violations or dangerous driving

MILITARY ADVANCEMENTS

- Identification of enemy forces or likely IEDs will save the lives of soldiers and civilians
- Improved identification will also limit collateral damage in war zones

PUBLIC SURVEILLANCE

- Public surveillance will increase safety, particularly in higher-crime areas

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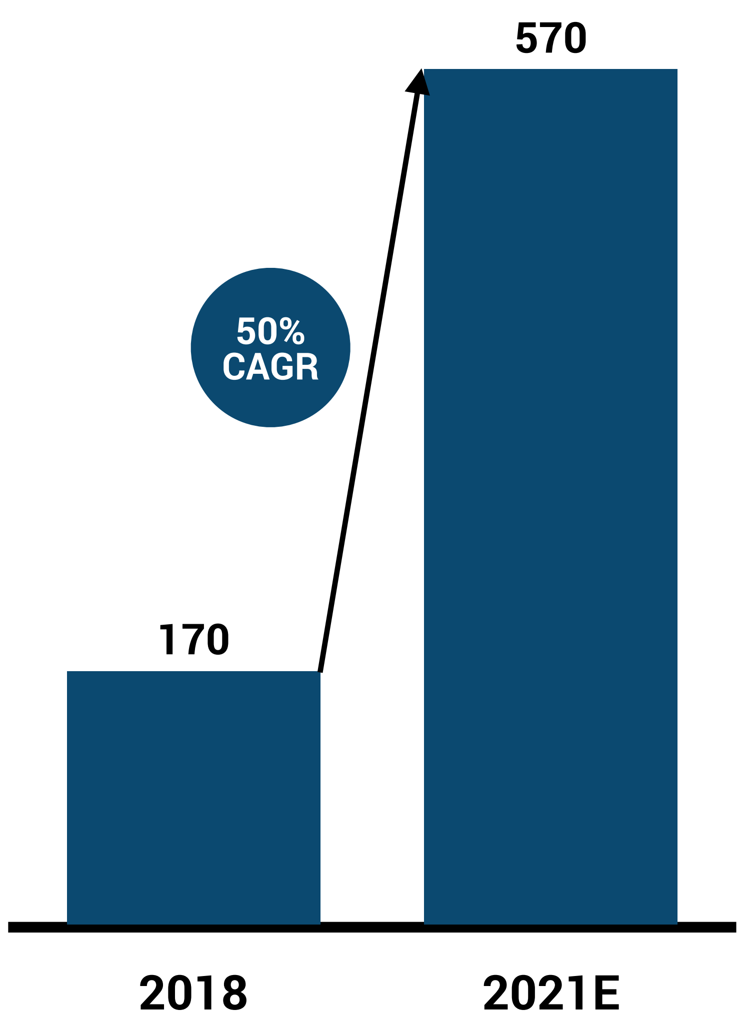
Sources: Activate analysis, Ars Technica, NBC News, Nvidia, The Verge, Vision-Systems

Will concerns about privacy stunt the growth of Smart Cameras?

INSTALLED CCTV SURVEILLANCE CAMERAS, CHINA, 2018-2021E, MILLIONS OF CAMERAS



CHINESE SURVEILLANCE USE CASES[1]

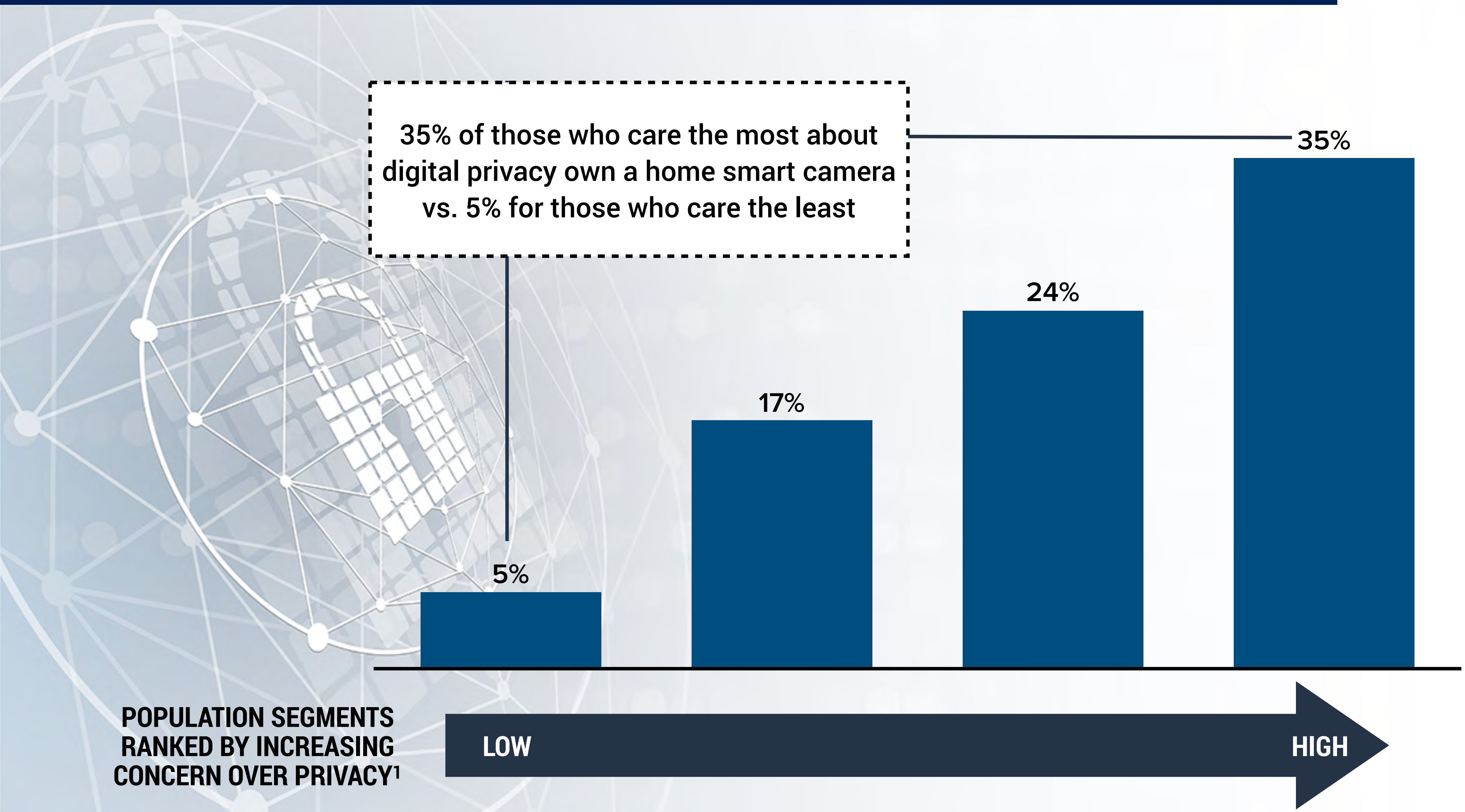
Use Cases Driving Adoption	• Scanning of public places to **identify those marked as criminals for arrest** • **Identifying those committing petty crime or traffic violations** and either fining or shaming them • **Tracking behavior generally for "Social Credit System,"** a system designed to digitally rank all citizens
Enabling Factors	• **Facial recognition software (via convolutional neural network AI)** • **Large datasets of photos to check against—mandated photo sessions with multiple expressions** • **Mass installation of public cameras**

1. China is not unique in using facial recognition. Germany has also piloted facial recognition surveillance programs, as have the UK, the U.S., and others.
2. Overstated capabilities. Takes several seconds of stationary target to identify, issues with false positives, and inability to search for many people simultaneously as of publication.
3. Has not seen widespread use, and suffers from similar issues of false positives and simultaneous searches as above.

Sources: Activate analysis, The Atlantic, BBC, Business Insider, The Economist, Financial Times, Independent, New York Times

The paradox is that people who indicate that they care the most about privacy are also the most likely to own a Smart Camera; for those consumers, functionality is more important than privacy

OWNERSHIP OF AN AT-HOME SMART CAMERA DEVICE, U.S., 2018, % ADULT POPULATION

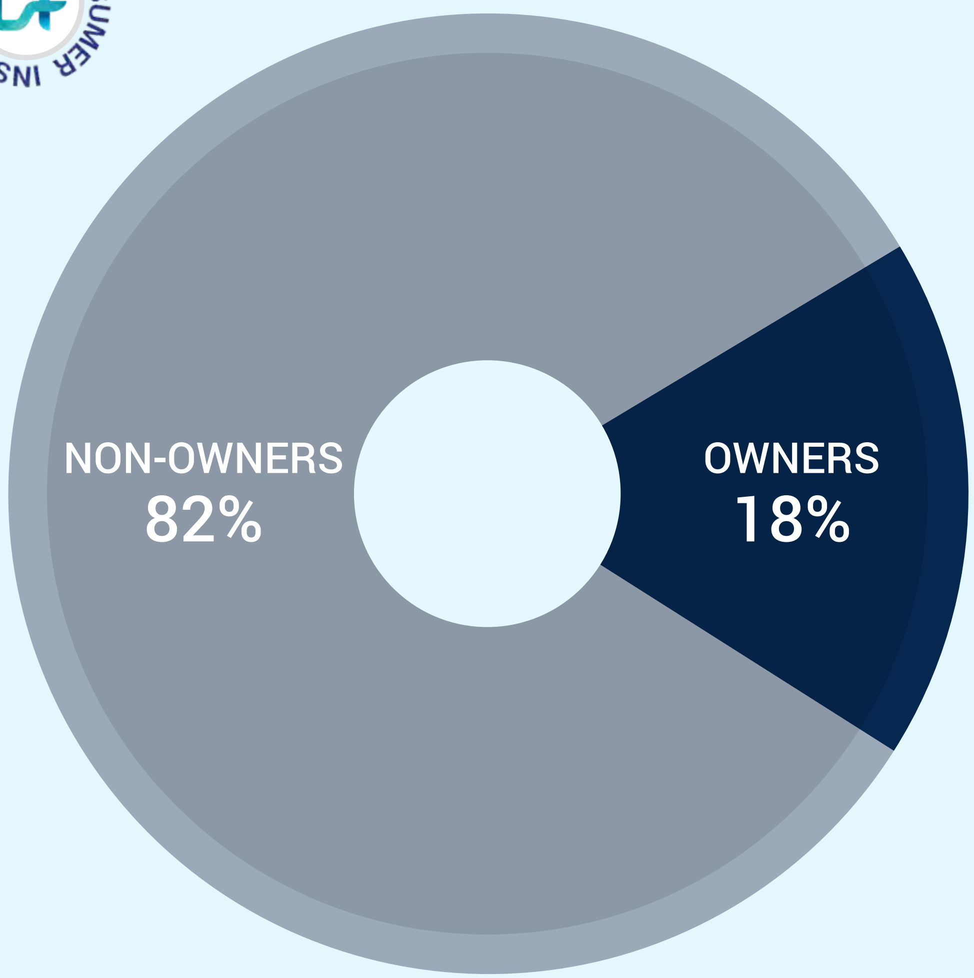


1. Measured by identification of privacy/security conscious behaviors, such as use of two-factor authentication, changing passwords at least every 6 months, use of a VPN, etc.

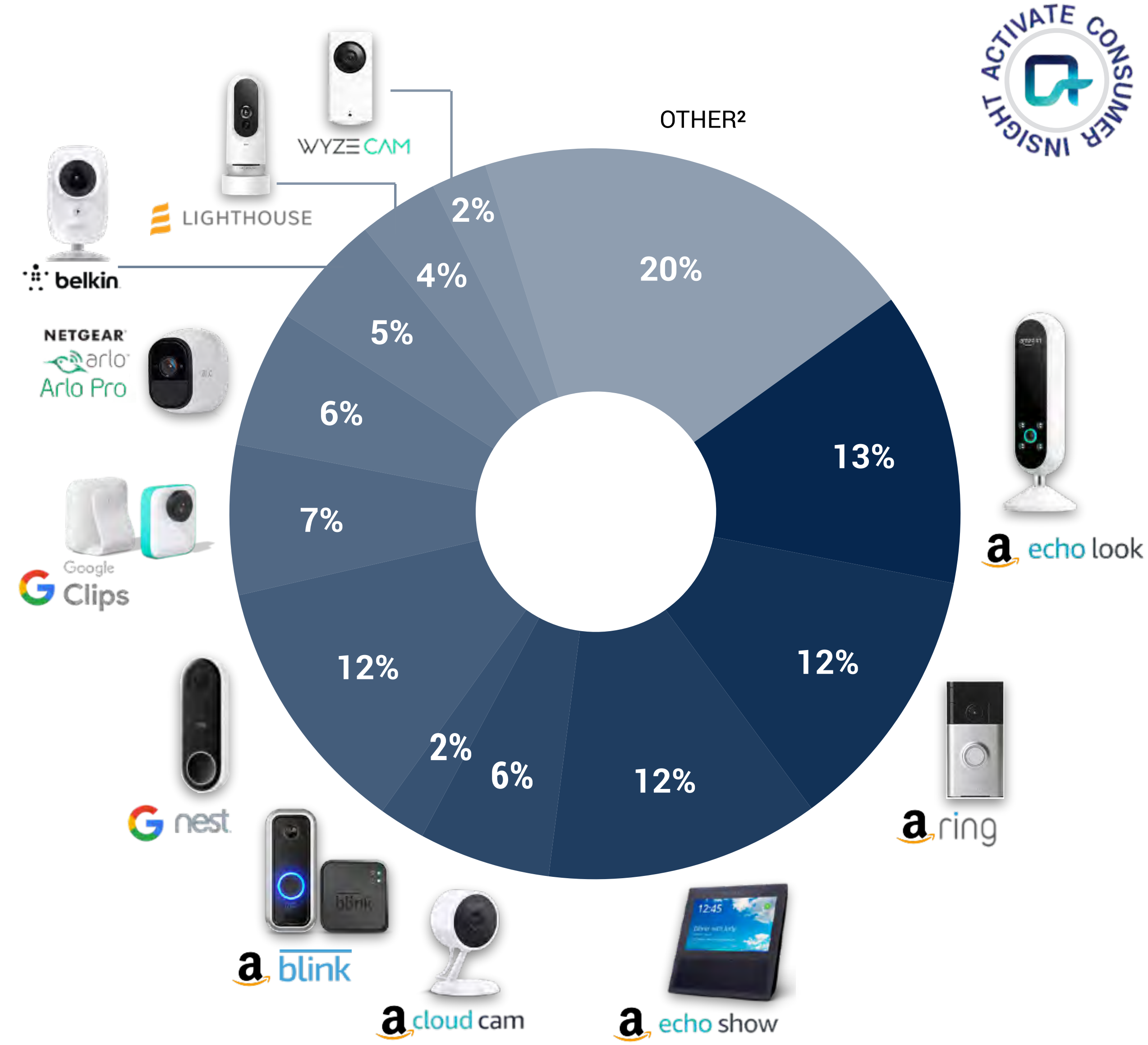
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000)

Our research shows that 18% of US consumers already own a smart camera device (in addition to their mobile phone)

SHARE OF SMART CAMERA OWNERS, (EXCLUDING MOBILE), U.S., 2018, % ADULT POPULATION



SMART CAMERA INSTALL BASE BY MODEL (EXCLUDING MOBILE), U.S., 2018, % DEVICES[1]

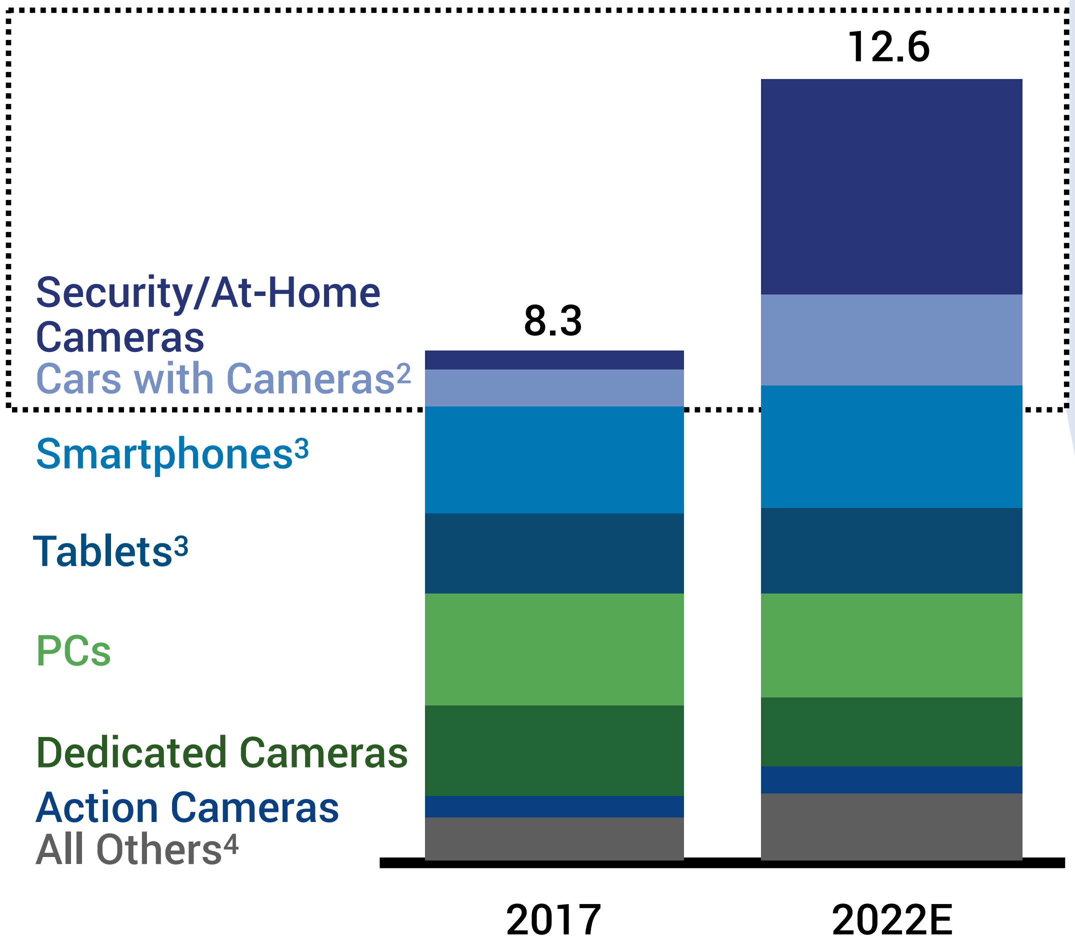


1. Figures will not sum to 100% because of rounding.
2. Includes drones with cameras, and other less common smart security cameras.

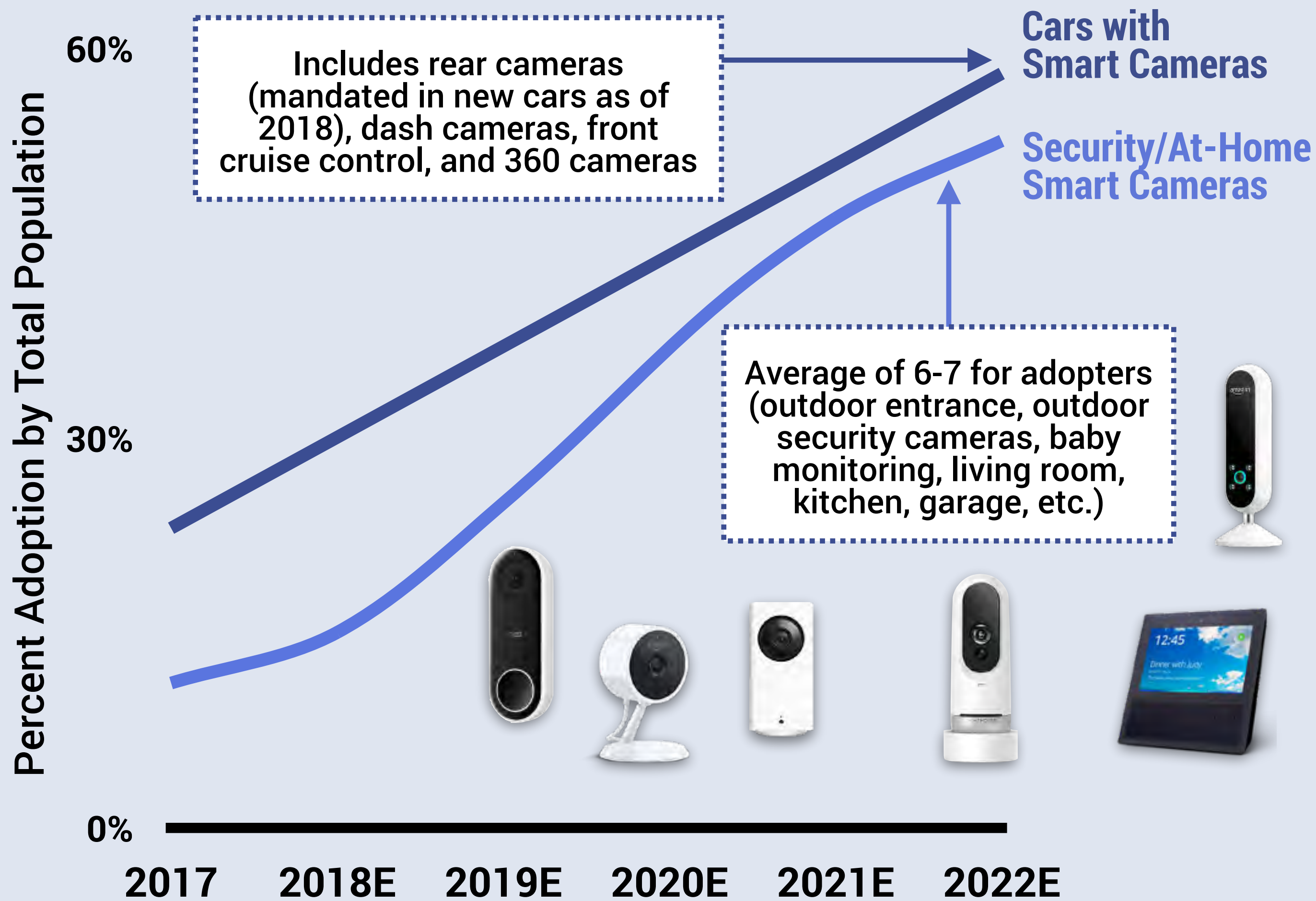
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (Left: n=4,000; Right: n=704)

We forecast that the average American household will own nearly 13 Smart Cameras by 2022—driven largely by cars and at-home Smart Cameras

CONSUMER DIGITAL CAMERAS, U.S., 2017-2022E, AVERAGE # DEVICES PER HOUSEHOLD



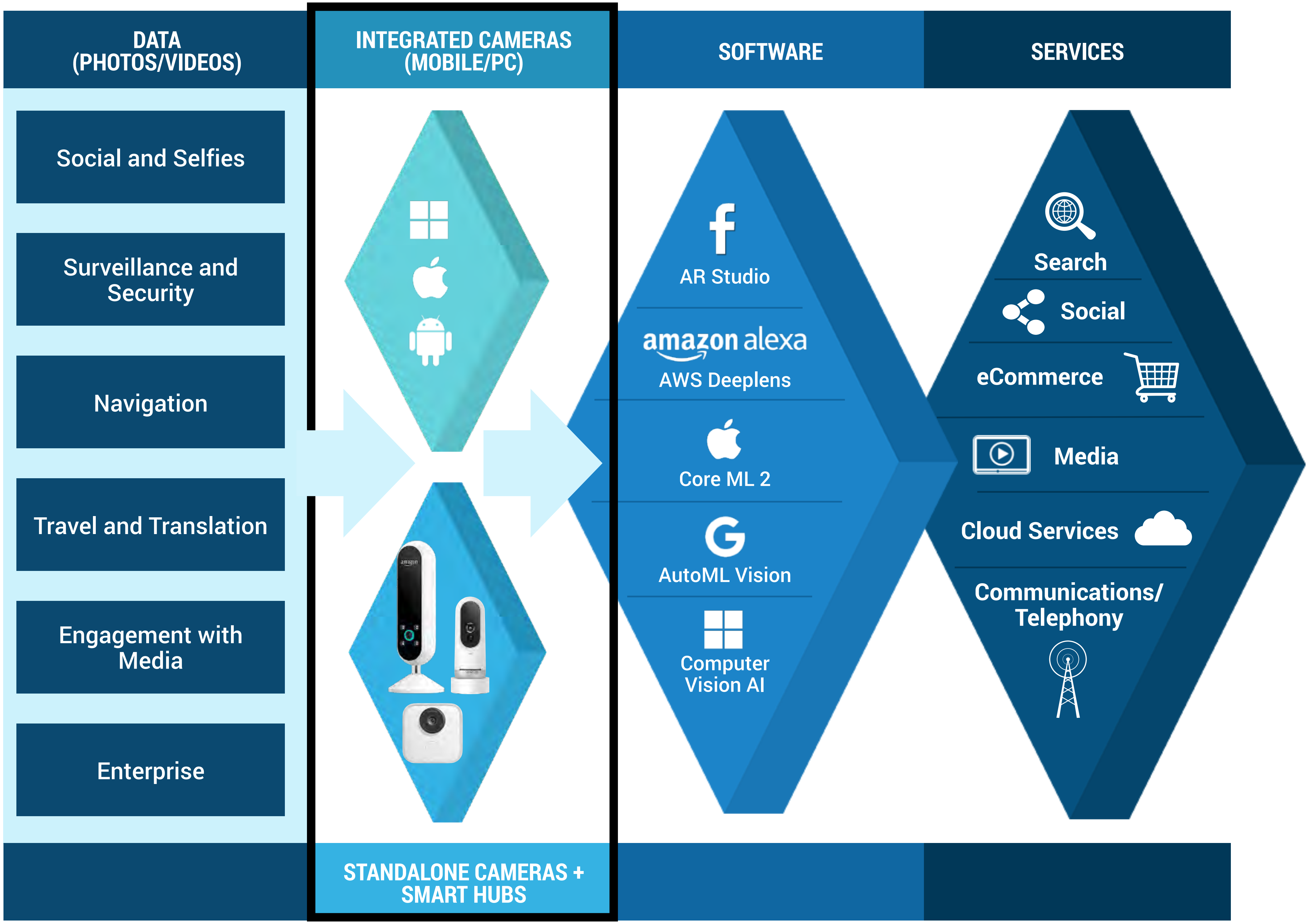
SELECT SMART CAMERA PENETRATION[1], U.S., 2017-2022E, % TOTAL POPULATION



1. Software can be updated to make any digital camera a Smart Camera.
2. Dash cams, rear cameras, front cameras (automated cruise control), and 360-camera systems all are considered.
3. Counts as one, regardless of # of cameras in device.
4. Includes drones with cameras, future smart watches with cameras, camcorders, and AR headsets.

Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), 24/7 WallStreet, AYTM, BIA Kelsey, Company filings, Company sites, Consumer Technology Industry Reports, Counterpoint Research, eMarketer, GoodCarBadCar, PCMag, Pew Research, ResearchInChina, ScientiaMobile, Statista, TechCrunch, Terapeak, U.S. Census Bureau

Smart Cameras will be a funnel to capture consumer data for platforms



Cameras are already baked into the most common consumer computing devices. The importance of cameras as a tool for consumer engagement will only grow—the data they capture will be a major competitive advantage.

Sources: Activate analysis, Company sites

The largest tech platforms are well-positioned to win in Smart Cameras by leveraging their expertise in data

Higher engagement and more users

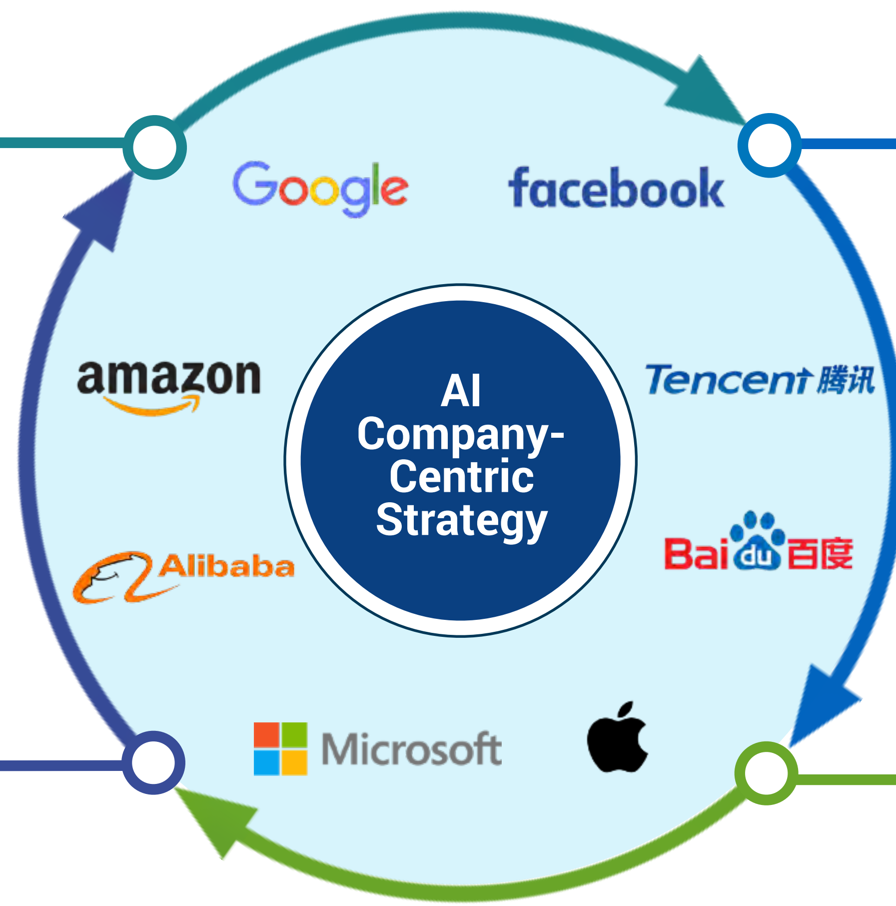
More users come for the improved or new product

Existing users engage more as the product becomes more useful

Better products for users

Improved algorithms lead to better products

Products are difficult to copy without access to large datasets



More data and greater profits

User and engagement growth generates more data

User growth results in higher revenues from ads, subscriptions, and other monetization models

Improved algorithms[1] and top-tier talent

Machine learning depends on large volumes of good data

New use cases based on accumulated consumer data

Improved AI talent acquisition by successful players

activate

1. Machine learning in the form of convolutional neural networks (visual intelligence).
Source: Activate analysis

Each of the major platforms is pursuing multiple initiatives to integrate Smart Cameras into their tech stacks and consumer offerings

	AT-HOME CAMERA PRODUCTS	OTHER PRODUCTS WITH CAMERAS	DEDICATED AI CHIP[1]	SOFTWARE DEVELOPMENT KITS (SDKS)	VISUAL AI AS A SERVICE[3]
Apple	– (But allows for some integration via HomeKit)	✓ iPhone, Macbook, iPad	✓ A12 Bionic Chip	✓ Core ML 2, Vision	–
Google	✓ Nest, Google Clips, Google Home Hub	✓ Pixel Phone, Android, Chromebook	✓ TPU (Cloud), Edge TPU	✓ ML Kit, AutoML Vision	✓
Microsoft	–	✓ Windows Laptops/ Tablets, HoloLens, DJI Drones (partnership)	✓[2]	✓ Computer Vision AI, Face	✓
facebook	✓ Portal and Portal Plus	– (Technically no, but controls significant smartphone attention)	? Rumored	✓ AR Studio	–
amazon	✓ Echo Devices, Ring, Bink, and Cloud Cam	✓	? News broke on development of an AI chip for Alexa devices in February 2018	✓ Skills SDK + AWS Deeplens + Motion Sensor	✓
Tencent 腾讯	✓ Qrobot	– (Technically no, but controls significant smartphone attention)	? Led a $50M pre-A round investment in Suiyuan Technology in August 2018	✓ Image Recognition	–
Baidu 百度	✓ Little Fish, Little Fish VS1	✓	✓ Announced two types of Kunlun chip in July 2018	✓ EZDL Custom Image Recognition	✓
Alibaba	✓ AliGenie 2.0	–	? Announced development of own AI chip through Pingtou Ge in September 2018	✓ Cloud SDK	✓

1. Qualcomm, Huawei, Nvidia, ARM, Intel, and IBM have all also built AI chips. 2. Microsoft in general is pursuing more of a strategy around FPGAs. 3. Allows companies with limited visual AI expertise to upload data and have a cloud platform create a custom machine learning model.

Sources: Activate analysis, Ars Technica, Bloomberg, China Money Network, CNBC, Company sites, The Information, Technology Review, Tencent, "The State of Artificial Intelligence in 2018," VentureBeat, Wired

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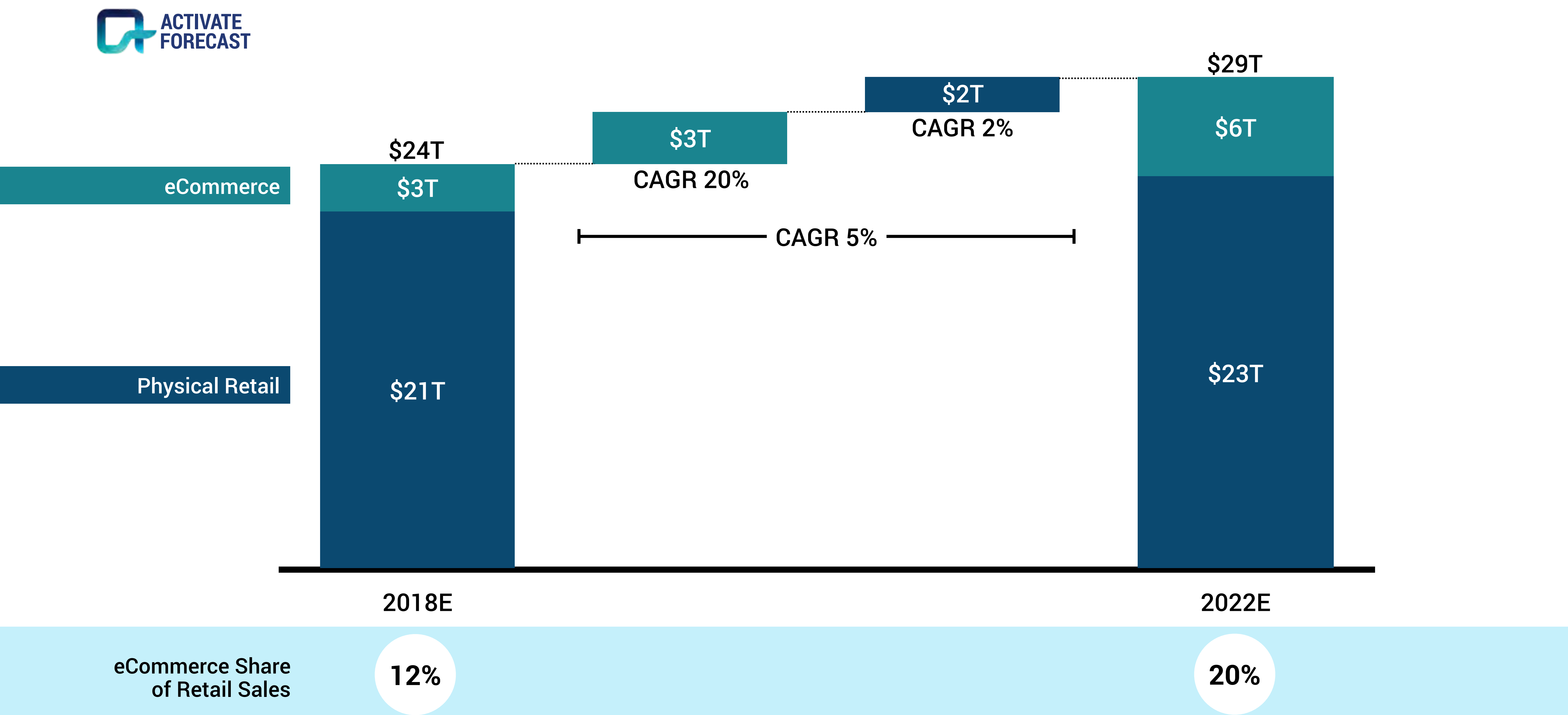
We forecast that eCommerce will grow faster than physical retail to reach $6T globally by 2022

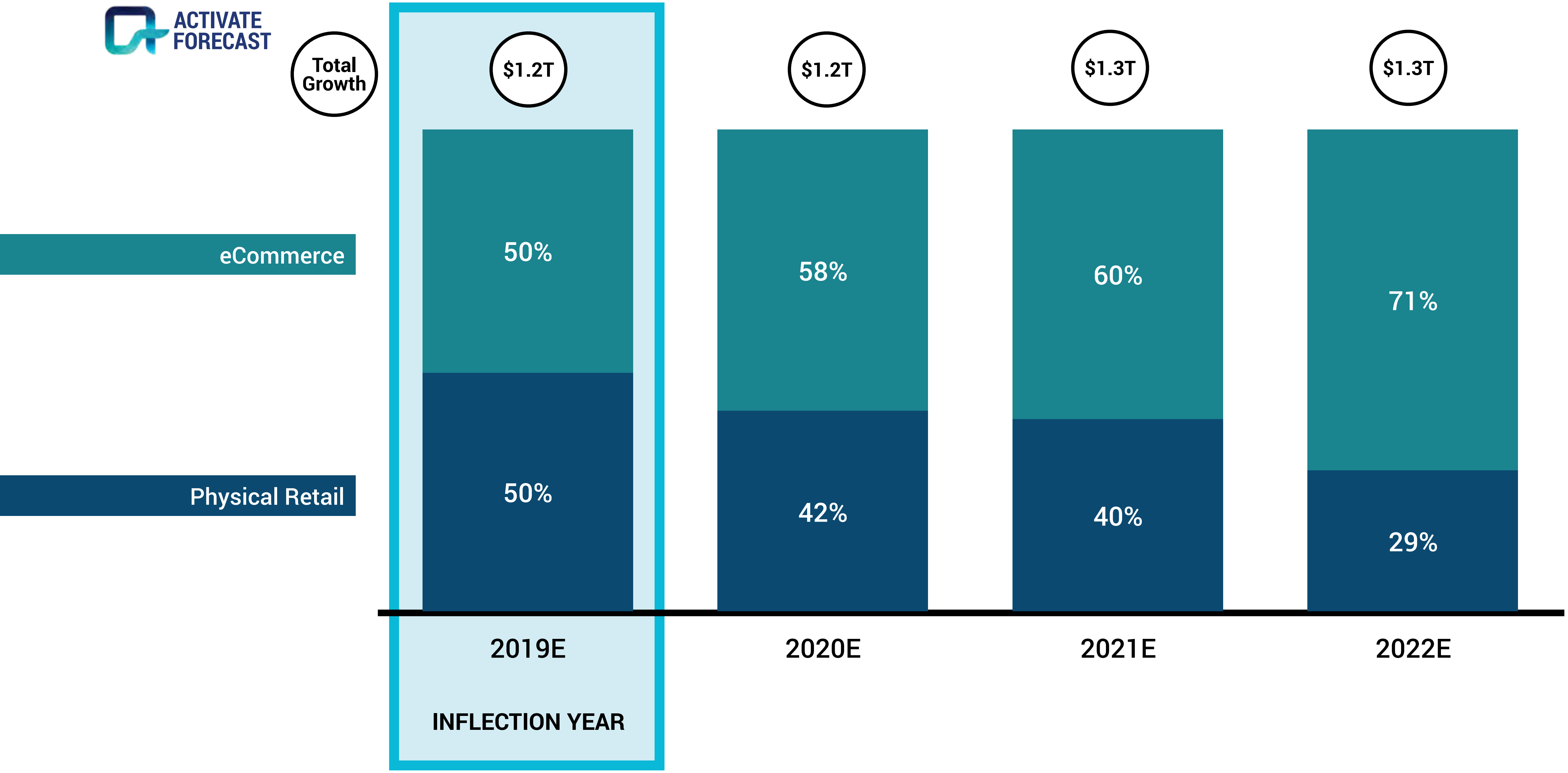
RETAIL SALES PROJECTIONS BY CHANNEL[1], GLOBAL, 2018E-2022E, TRILLIONS



1. Excluding travel and tickets.
Sources: Activate analysis, Ecommerce Foundation, eMarketer, Euromonitor International, Raymond James, U.S. Census Bureau

2019 will be the inflection year as eCommerce growth dollars will begin to surpass physical for the first time

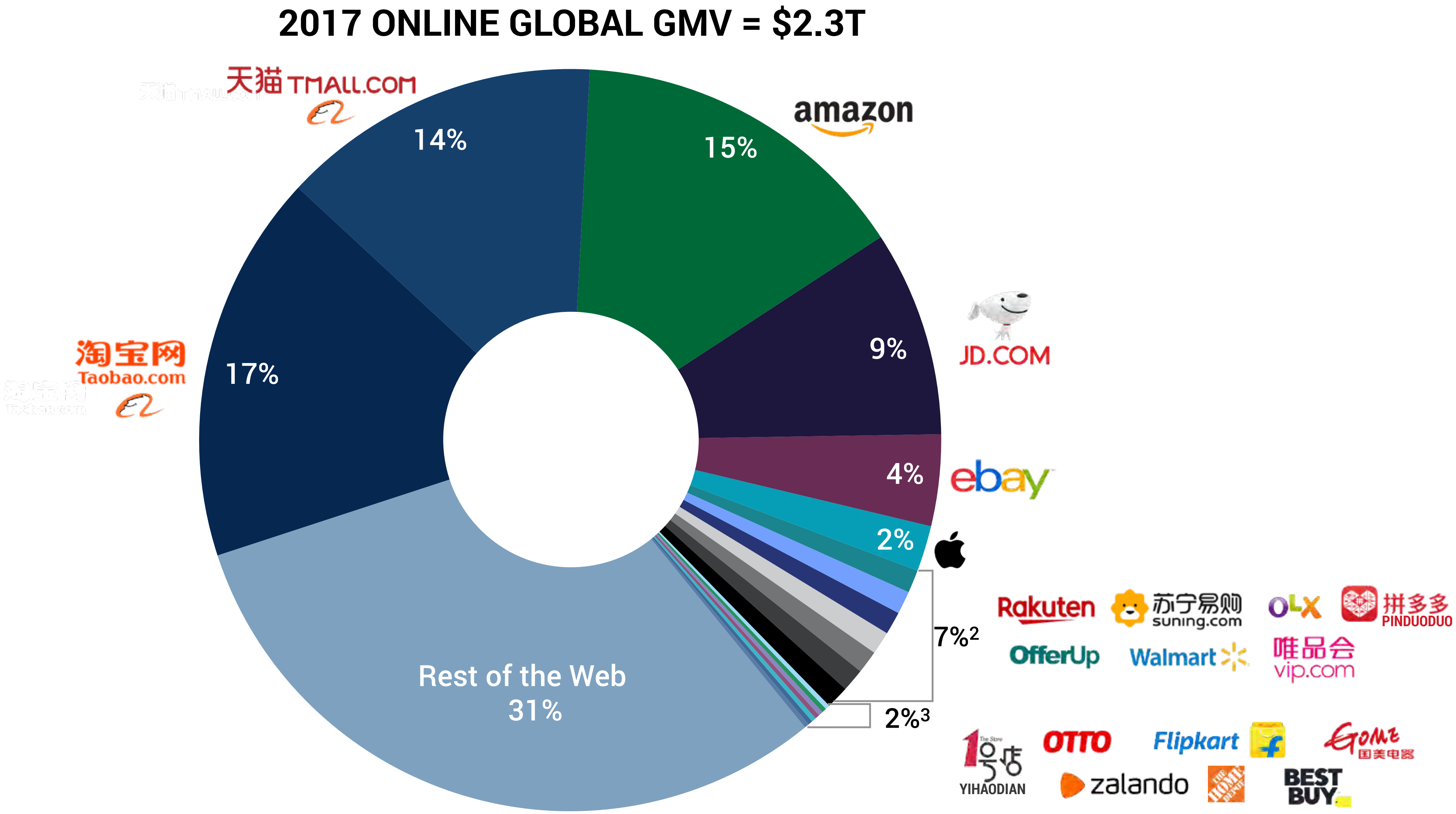
RETAIL SALES YOY GROWTH BY CHANNEL[1], GLOBAL, 2019E-2022E, TRILLIONS USD



1. Excluding travel and tickets. YoY growth measured for year listed against prior year (e.g. 2019E is est. growth from 2018-2019).
Sources: Activate analysis, Ecommerce Foundation, eMarketer, Euromonitor International, Raymond James, U.S. Census Bureau

The top 20 eCommerce companies account for nearly 70% of online global transaction volume

ONLINE GMV (GROSS MERCHANDISE VOLUME)[1], GLOBAL, 2017, % TOTAL GMV



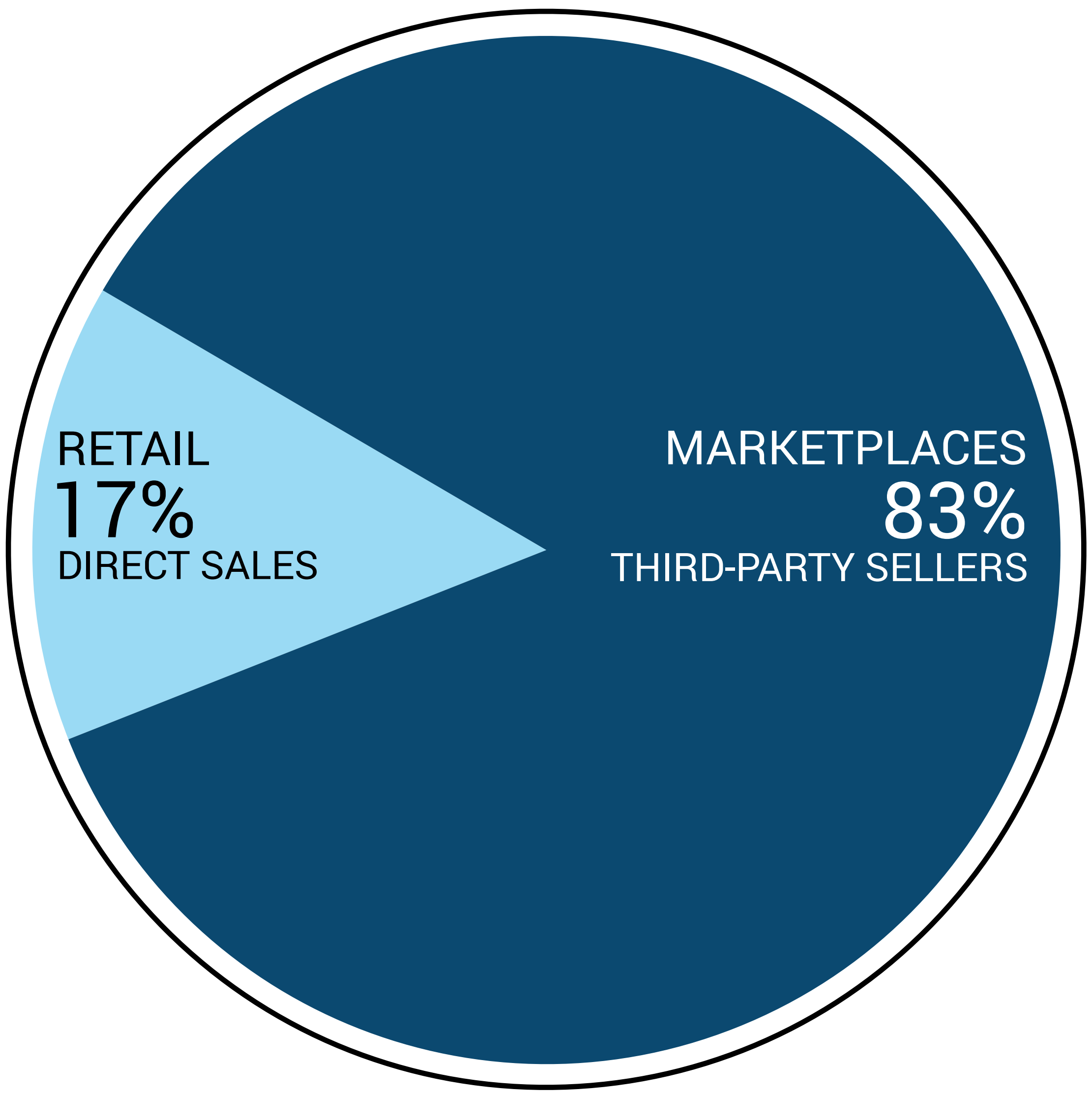
1. Figures will not sum to 100% because of rounding.
2. Each ~1%.
3. Each <1%.

Sources: Activate analysis, Company financials, Company sites, Digital Commerce 360, EcomCrew, eMarketer, GeekWire, Internet Retailer, iResearchChina, Nasdaq

Marketplaces will continue to generate the majority of sales for the top 20 eCommerce companies

ONLINE GMV (GROSS MERCHANDISE VOLUME), GLOBAL, 2017, % TOP 20 ECOMMERCE COMPANIES

GLOBAL TOP 20 ECOMMERCE COMPANIES GMV = $1.6T

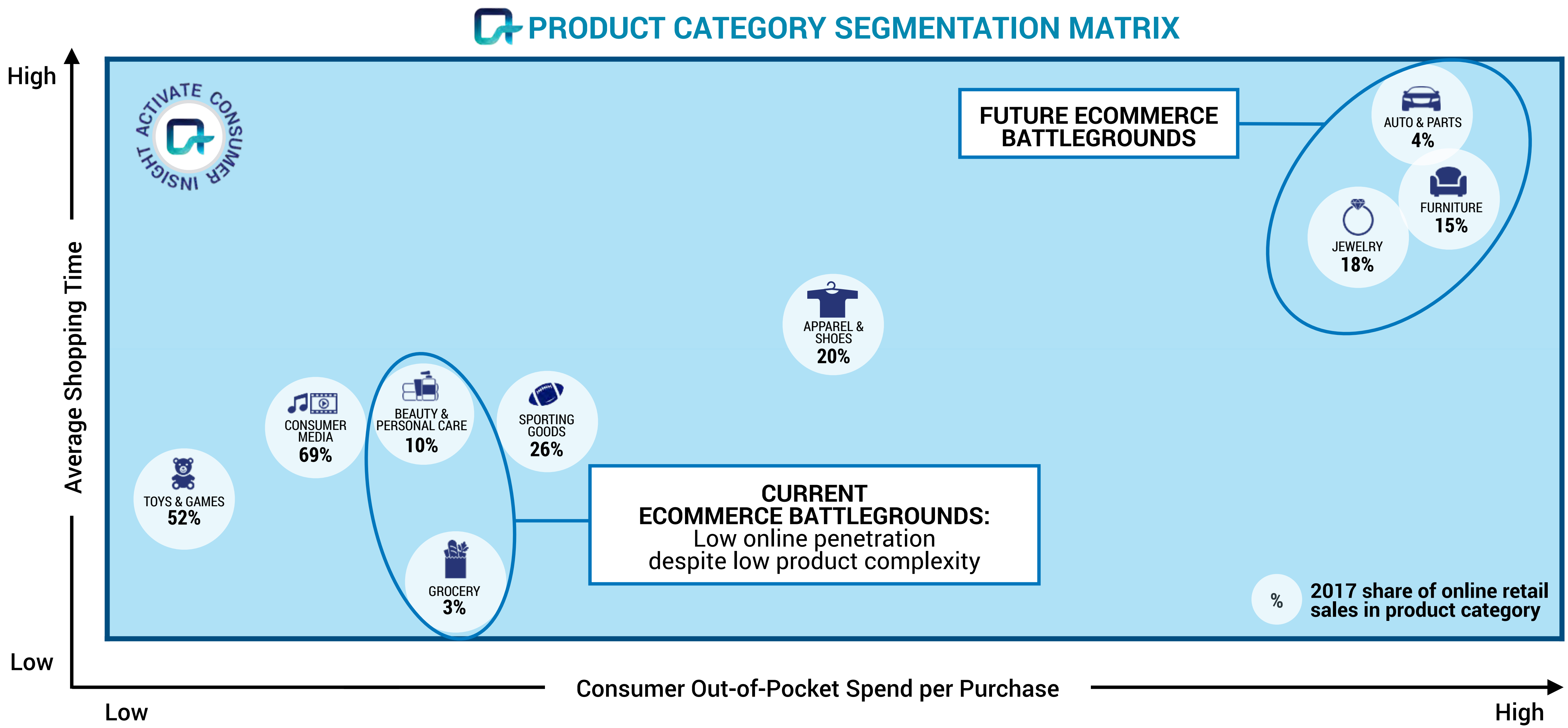


ONLINE MARKETPLACES

- Enable millions of sellers, creating a broad product selection for customers
- Increase pricing transparency
- Provide one-stop shop experience

Sources: Activate analysis, Company financials, Company sites, Digital Commerce 360, EcomCrew, eMarketer, GeekWire, Internet Retailer, iResearchChina, Nasdaq

Product categories that require less consideration before purchase have already reached high online penetration—Grocery and Beauty are the current battlegrounds, followed by Auto, Jewelry and Furniture



Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=1,948), Bloomberg, Company press releases, Company sites, Coresight Research, eMarketer, Euromonitor International, Hexa Research, IBISWorld, Institute of Grocery Distribution, Kantar Retail, NPD Group, Packaged Facts, PricewaterhouseCoopers, Progressive Grocer, Statista, U.S. Census Bureau, Willard Bishop

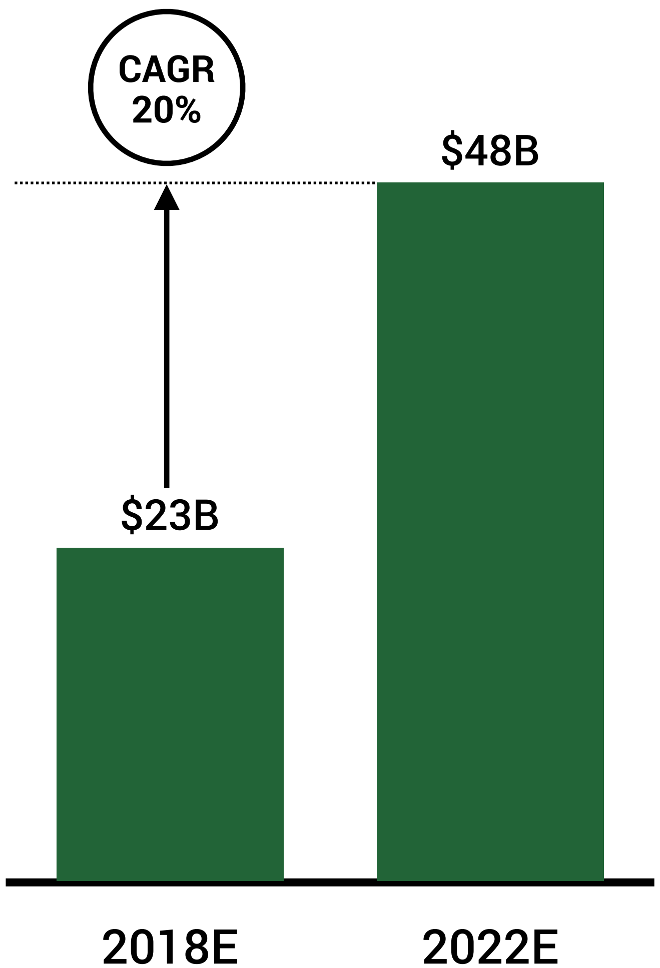
Grocery and Beauty/Personal Care will be the battlegrounds as they have the potential for over $30B in online expansion

ONLINE GROCERY SALES PROJECTIONS, U.S., 2018E-2022E, BILLIONS USD

ACTIVATE FORECAST

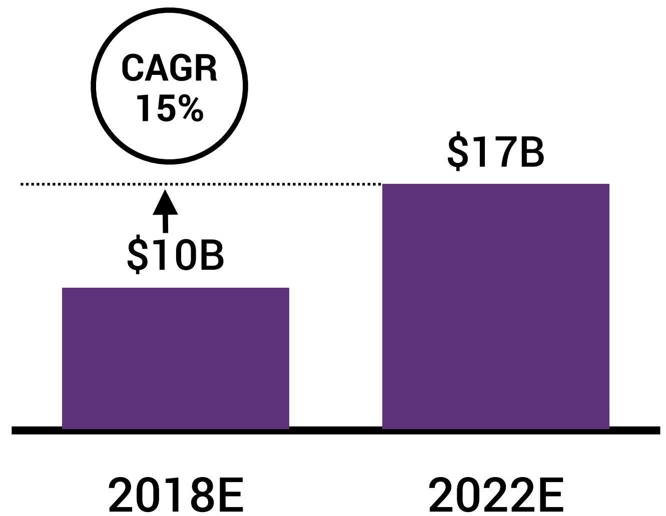
GROWTH ACCELERATORS

- Convenient, fast, and accurate delivery
- Quality products (e.g. fresh)
- Competitive and transparent prices



ONLINE BEAUTY AND PERSONAL CARE SALES PROJECTIONS, U.S., 2018E-2022E, BILLIONS USD

ACTIVATE FORECAST



GROWTH ACCELERATORS

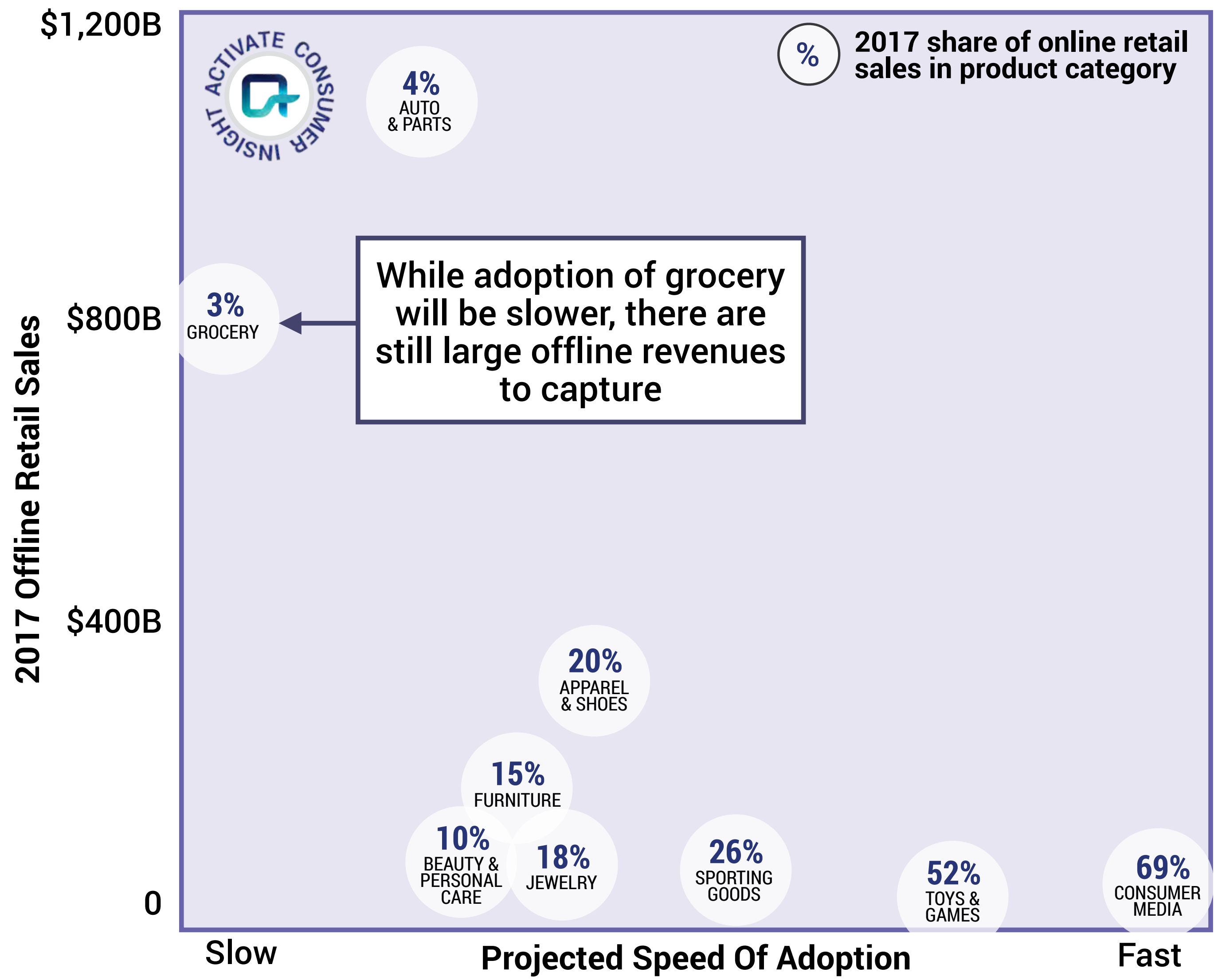
- Tech for more immersive shopping experience
- Wider selection (e.g. access to niche products)
- Efficient replenishment / subscription models

	Grocery 2018E	Grocery 2022E	Beauty 2018E	Beauty 2022E
EST. ECOMMERCE SHARE OF RETAIL SALES IN PRODUCT CATEGORY	3%	5%	11%	16%

Sources: Activate analysis, Bloomberg, eMarketer, Euromonitor International, IBISWorld, Institute of Grocery Distribution, Kantar Retail, Willard Bishop

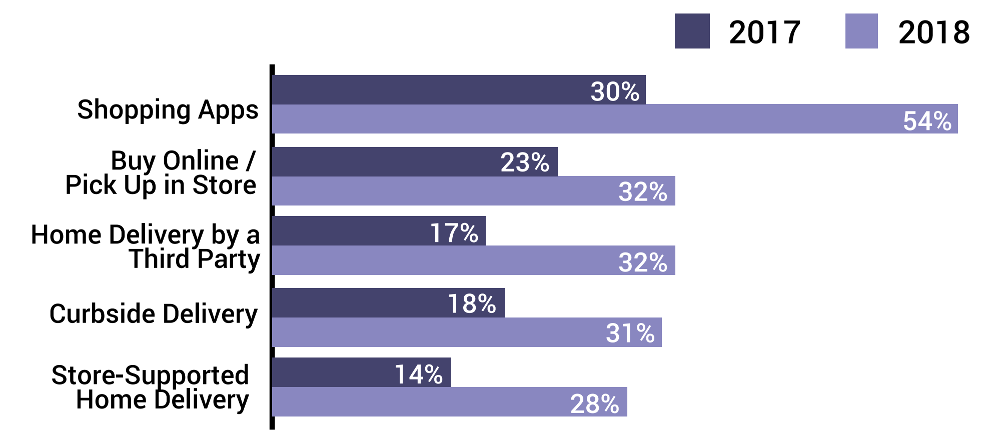
Recognizing the potential of Grocery, retailers are launching initiatives to accelerate online growth

ECOMMERCE ADOPTION FORECAST VS. 2017 OFFLINE RETAIL SALES BY PRODUCT CATEGORY, U.S.



OMNICHANNEL INITIATIVES FROM GROCERY RETAILERS, U.S., 2017 AND 2018

OMNICHANNEL SERVICES AT SELECT GROCERY RETAILERS, U.S., 2017 VS. 2018, % RETAILERS



EXAMPLE INITIATIVES

TARGET acquired SHIPT to offer same-day delivery to customers

Walmart partnership with WAYMO to provide self-driving cars that transport customers to stores to pick up online orders

Walmart is also launching the "Spark Delivery" pilot program, in which a crowdsourced driving workforce fulfills online orders

Kroger partnership with ocado to build automated fulfillment warehouses for improved delivery

Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), Bloomberg, Company press releases, Company sites, Coresight Research, eMarketer, Euromonitor International, Hexa Research, IBISWorld, Institute of Grocery Distribution, Kantar Retail, NPD Group, Packaged Facts, PricewaterhouseCoopers, Progressive Grocer, Statista, U.S. Census Bureau, Willard Bishop

The major eCommerce companies are enhancing their shopper experiences while reducing customer pain points

APPAREL & SHOES	AUTOMOTIVE	FURNITURE	JEWELRY
amazon	天猫 TMALL.COM	wayfair	ebay
Amazon Prime Wardrobe	**Super Test-Drive Center**	**Augmented Reality Experience**	**eBay Authenticate**
Permits customers to order items and **try for one week without payment**	Mobile app enables users to pick up a vehicle from an unstaffed automotive vending machine, and take **free test drives**	Allows shoppers to project online furniture onto their physical space to **visualize and test products** prior to purchase	Offers **third-party authentication** program to engender consumer confidence
Zappos.com	ebay	Walmart	天猫 TMALL.COM
Sizing Assistant	**eBay Motors**	**Handy Partnership**	**Luxury Pavilion**
Provides **size recommendations** based on prior purchases of the shopper and other similar customers	Provides interactive schematics and virtual garage feature to **match customers with correct auto parts** and accessories tailored to their vehicle	Creates a **one-stop shop** for customers by enabling them to purchase and coordinate professional assembly and installation services	Elevates the shopping experience with an **invite-only platform** for luxury goods, offering **exclusive** promotions and events, door-to-door returns, and **early access** to new items
zalando	Autotrader	amazon	TRUE FACET
Shop the Look	**Accelerate**	**Scout**	**Evaluation Services**
Enables customers to **directly shop complete modeled outfits** on product description pages	Empowers car buyers to **personalize the terms of purchase** (e.g. securing financing, calculating trade-in offers and monthly payments)	Uses machine learning-powered visual browsing tool to **recommend products** to customers	Provides **expert-level authentication** and leverages proprietary algorithms to set fair and **transparent prices** for customers

Our research indicates that consumers will buy more online with retailers that make the shopping experience easier and minimize the shopper's risk

FACTORS THAT WOULD ENCOURAGE CONSUMERS TO BUY MORE ONLINE, U.S., 2018, %

Improvement of seamless and risk-free online shopping will accelerate eCommerce growth

1. Based on respondents who indicated that they buy at least one product category primarily in physical stores.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=3,672)

There will be considerable customer interest in purchasing from Direct-to-Consumer (D2C) brands, driven by the perception of reasonable prices and higher-quality products

REASONS CONSUMERS ARE INTERESTED IN, OR PURCHASING WITH, D2C BRANDS, U.S., 2018, % SHOPPERS[1]

ACTIVATE CONSUMER INSIGHT

73% cite PRICE as a reason to shop with D2Cs

Lower-Cost Shopping: By cutting out the intermediaries, D2C brands are able to offer customers better pricing

72% cite PRODUCT as a reason to shop with D2Cs

Simplified Decision Making: D2C brands reduce customers' perception of product complexity through specialization—high-quality, focused offerings with fewer options lower the time and effort consumers need to research

EXAMPLES

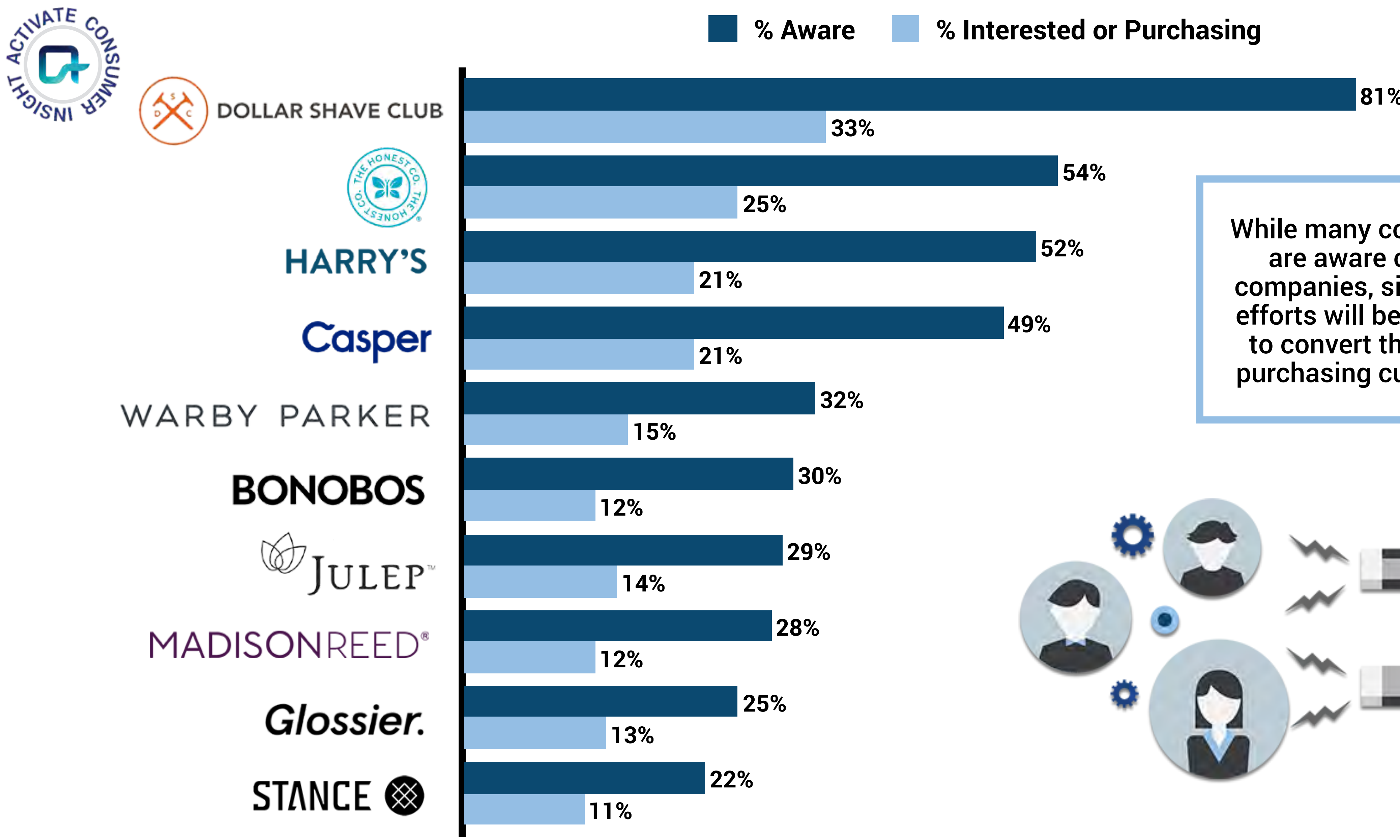
BRANDLESS, TUFT & NEEDLE, HUBBLE, billie, BAUBLEBAR, PRIVÉ REVAUX

AWAY, SNOWE, OARS + ALPS, goop, THIRDLOVE, allbirds

1. Based on respondents who indicated that they purchase or are interested in purchasing from select D2C brands.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,035), Company press releases, Company sites

Customer acquisition will be one of the primary challenges for native-to-digital D2C companies

AWARENESS VS. PURCHASING INTENT FOR SELECT D2C BRANDS, U.S., 2018, % ADULT POPULATION

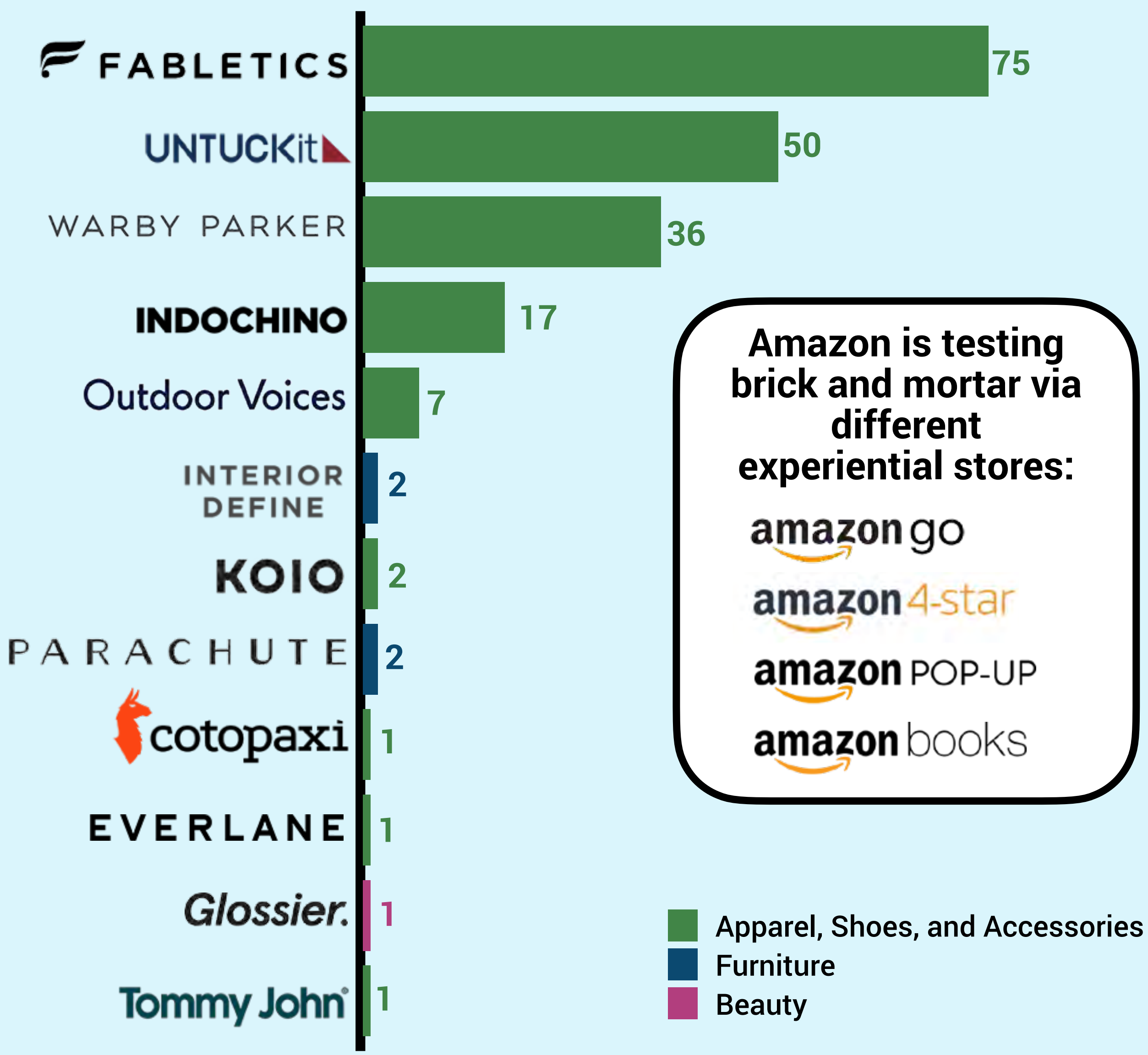


While many consumers are aware of D2C companies, significant efforts will be required to convert them into purchasing customers

Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000)

Both D2C brands and large eCommerce companies will continue to expand to physical stores

EXAMPLE DIGITAL-NATIVE D2C BRANDS[1] EXPANDING INTO PERMANENT BRICK AND MORTAR, GLOBAL, 2018, # STORES[2]



EXAMPLE DIGITAL-NATIVE D2C BRANDS OPENING FIRST PERMANENT BRICK AND MORTAR LOCATION IN 2018[2]

APPAREL, SHOES, AND ACCESSORIES

CARBON38, AYR, TAMARA MELLON, JACK ERWIN, GREATS, LIVELY, ROTHY'S, allbirds, ADORE ME, MeUndies, AWAY, CUYANA

BEAUTY

function of beauty

FURNITURE

BOLL & BRANCH™, Casper, BURROW

JEWELRY

MEJURI

GROCERY

DIRTYLEMON, hint

1. D2C brands that opened their first permanent brick and mortar location prior to 2018.
2. Number of permanent stores that either already opened in or were announced to open in 2018.

Sources: Activate analysis, Architectural Digest, BevNET, Business Insider, Business of Fashion, Business Wire, Chain Store Age, CNBC, Company press releases, Company sites, Company social media accounts, Fast Company, Footwear News, Forbes, Furniture Today, Hollywood Reporter, Nasdaq, Refinery29, Retail Dive, Wall Street Journal, Women's Wear Daily

Going forward, we believe that many D2C brands will build partnerships with larger companies, or be acquired by them

EXAMPLE DIGITAL-NATIVE D2C MERGERS AND ACQUISITIONS

D2C Brand	Acquirer[1]
APPAREL, SHOES, AND ACCESSORIES	
ELOQUII	Walmart
Nasty Gal	boohoo
SOLE/SOCIETY	CAMUTO GROUP
BEAUTY AND PERSONAL CARE	
DOLLAR SHAVE CLUB	Unilever
JULEP	GLANSAOL BEAUTY
NATIVE	P&G
FURNITURE	
TUFT&NEEDLE	Serta Simmons Bedding
GROCERY	
graze	THE CARLYLE GROUP
JEWELRY AND ACCESSORIES	
MVMT	MOVADO GROUP

EXAMPLE DIGITAL-NATIVE D2C STRATEGIC PARTNERSHIPS

D2C Brand	Example Partners
APPAREL, SHOES, AND ACCESSORIES	
OluKai	macy's, Neiman Marcus, REI, Zappos.com
PRIVÉ REVAUX EYEWEAR	AMERICAN EAGLE, EXPRESS, DSW, NORDSTROM, QVC
Reformation	NORDSTROM
BEAUTY AND PERSONAL CARE	
HARRY'S	BARNEYS NEW YORK, J.CREW, NORDSTROM, TARGET, Walmart
quip	TARGET
KOPARI	free people, ANTHROPOLOGIE, SEPHORA, ULTA
FURNITURE	
leesa	west elm
GROCERY	
HelloFRESH	Giant, Stop&Shop
soylent	7-ELEVEN, TARGET, Walmart

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1. All companies in this column are acquirers, with the exception of Serta Simmons Bedding, which merged with Tuft & Needle.
Sources: Activate analysis, BBC, CNBC, Company press releases, Company sites, Forbes

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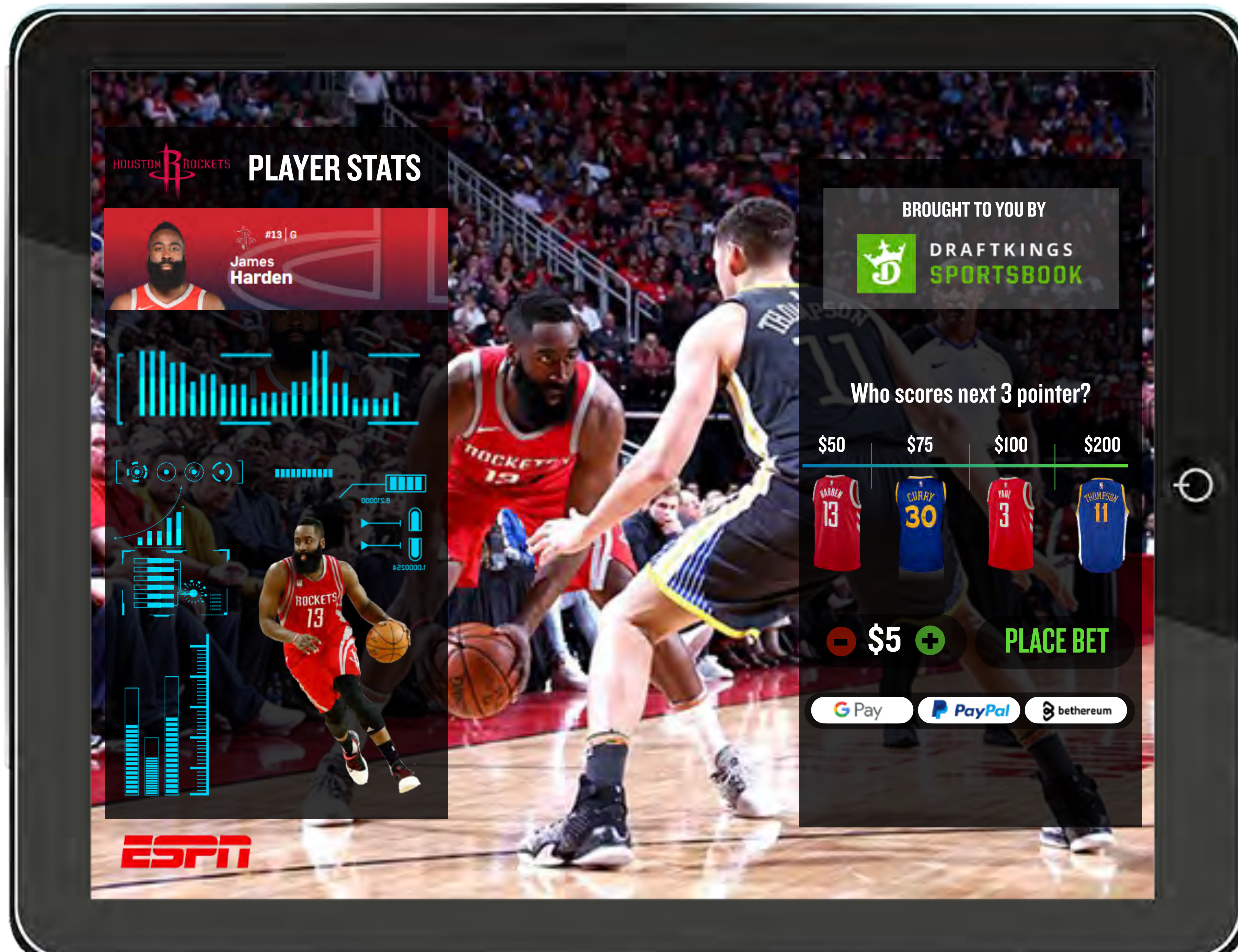
Sports betting will be an explosive new growth business for tech and media companies—driving new user experiences and tapping into new revenue streams



Technology will transform sports betting into a highly interactive and data-driven user experience

EXAMPLE DATA INPUT PROVIDERS

REAL-TIME STATS BASED ON ODDS, WEATHER, AND LINEUP CHANGES

- climacell
- SECOND SPECTRUM
- iSPORTGENIUS
- IBM Watson
- STATS

AI-ENABLED PREDICTIONS

- BEHIND THE PICKS
- LINEBACKER
- UNANIMOUS A.I.

BIOMETRIC DATA (E.G. SENSORS ON GAME EQUIPMENT AND JERSEYS)

- ZEBRA
- WHOOP
- HYPERGOLIC

AUGMENTED LIVE SPORTS VIDEO (E.G. DATA OVERLAYS)

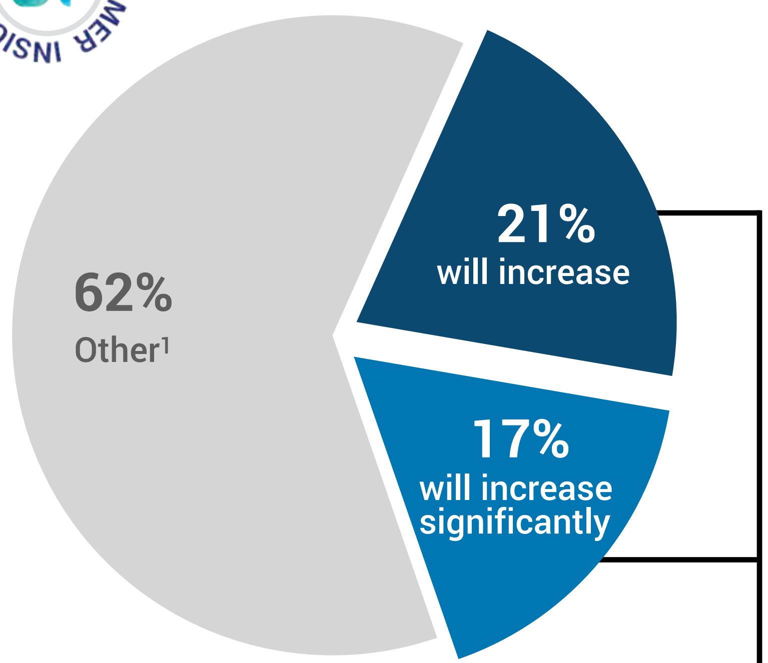
- SECOND SPECTRUM
- betradar

Sources: Activate analysis, Company sites, SportTechie, Washington Post

Not surprisingly, sports betting will increase overall sports viewership

IMPACT OF WAGERING ON VIEWERSHIP BY VIEWER TYPE, U.S., 2018, % VIEWERS & NON-VIEWERS

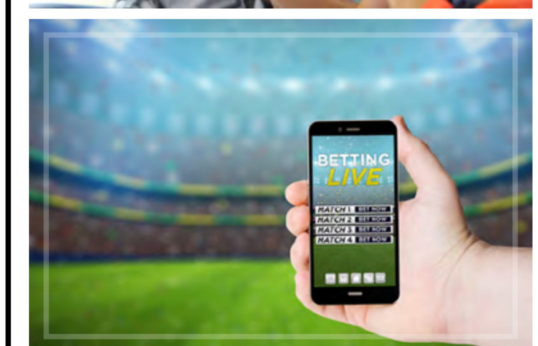
EXISTING VIEWERS



38% of existing sports viewers would watch more if they had money wagered on a game

NEW VIEWERS

>25%
would watch more sports content if they had money wagered on a game



1. Almost entirely no change in viewership.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (Left: n=2,827; Right: n=1,173)

Social betting will drive engagement for a substantial group of sports viewers

WAGERING WILL ENHANCE THE SOCIAL VALUE OF LIVE SPORTS

39% of sports viewers watch sports primarily as a social activity

34% of sports bettors enjoy betting because it is a social activity[1]

EXAMPLE SOCIAL BETTING TYPES	EXAMPLE COMPANIES
1. PEER-TO-PEER BETTING • Decentralizes user-to-user betting • Allows players to set odds and conditions • Offers lower fees than those of sportsbooks • Cryptocurrency-operated	bethereum, Stakehaul, ZenSports, MEVU
2. GROUP BETTING • Allows users to collaborate on bets • Allows zero-sum betting among friends through head-to-head • Provides option to bet non-monetary stakes (e.g. a meal, coffee, beer)	sky bet, BEERBET, yalla
3. EMBEDDED SOCIAL BETTING EXPERIENCE • Provides in-platform betting • Allows users to post and receive wagering tips through social platforms	facebook, twitter, twitch, YouTube, snapchat Expected companies

1. Sports bettors who say they enjoy sports betting because it is "competition between friends and colleagues."
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,827), Company sites, Statista

We expect that sports fans will be excited about new forms of betting, enabled by technology and embedded into the sports viewing experience

	BEFORE LEGALIZATION	AFTER LEGALIZATION
 **BETTING**	• Pre-game • In-person • Outcome-based • Single bet per game	• In-game • Online (mostly mobile) • Play-by-play bets • Hundreds of bets available per game
 **VIEWERSHIP**	• Multi-screen • Passive viewership	• Integrated, single-screen viewing • Interactive with on-demand data related to betting
 **DATA**	• Static • Served ad hoc • Based on past events	• Dynamic • On-demand • Predictive, updated in real time

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Sources: Activate analysis, SportTechie, William Hill company statements

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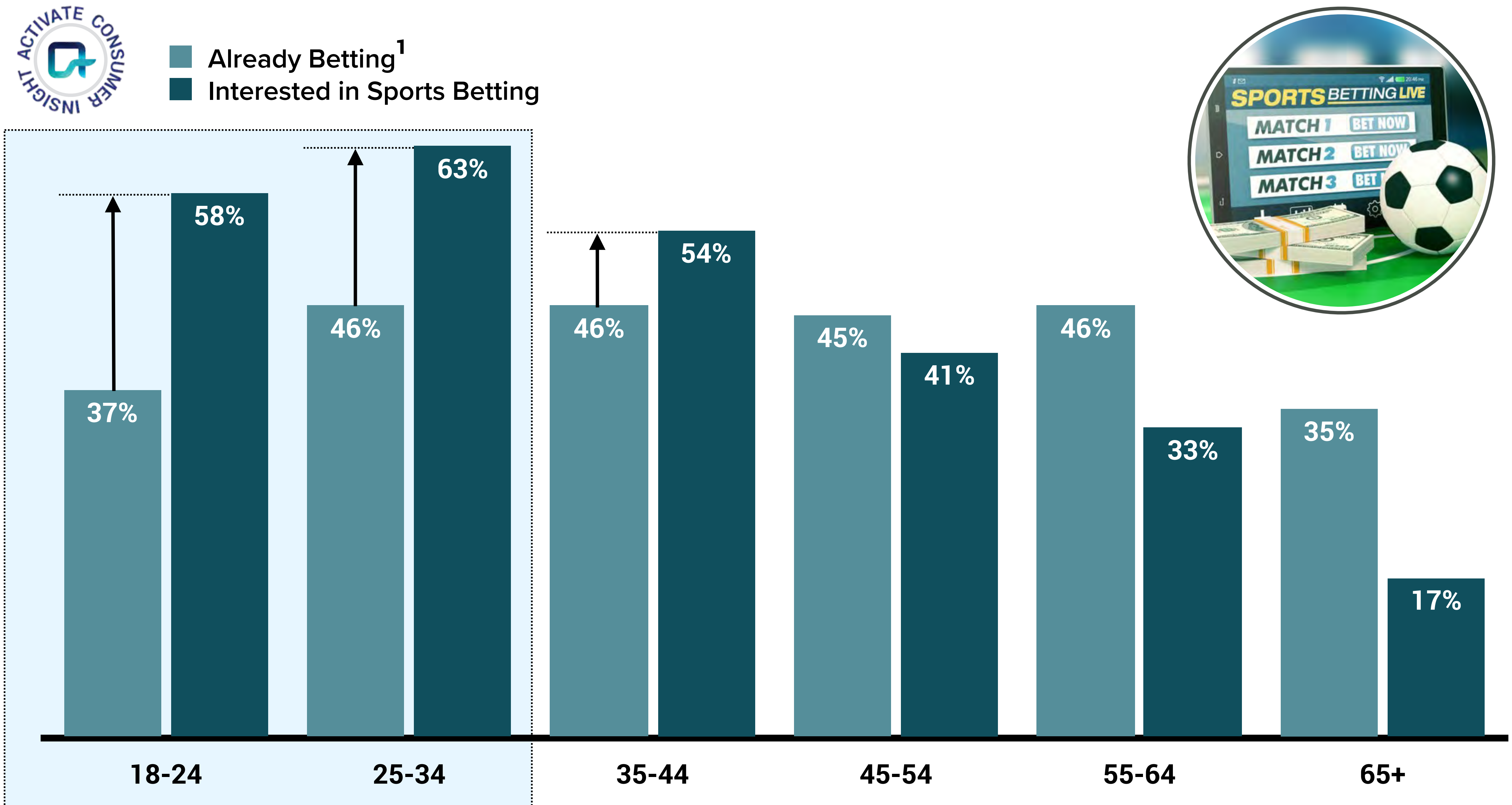
Millennial and Gen Z consumers indicate strong interest in sports betting, and in many cases are already betting

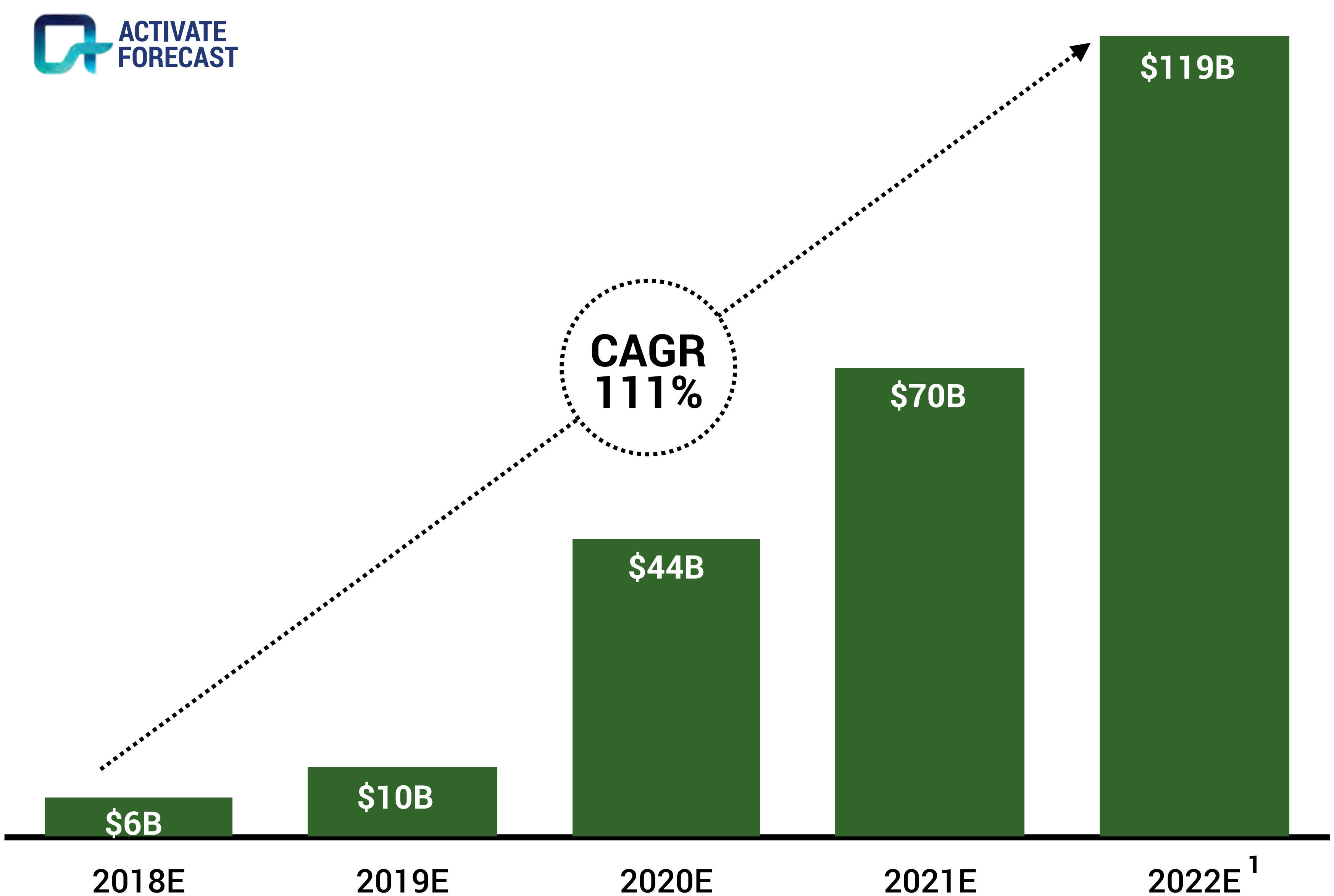
INTEREST IN SPORTS BETTING BY AGE GROUP, U.S., 2018, % ADULT POPULATION



1. Respondents who report engaging in any legal or illegal wagering activities at least once per month.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (Left: n=1,702; Right: n=2,827)

We forecast that the total sports betting amount wagered will reach ~$120B per year by 2022

TOTAL AMOUNT WAGERED, U.S., 2018E-2022E, BILLIONS USD



THIS IS NOT THE PEAK

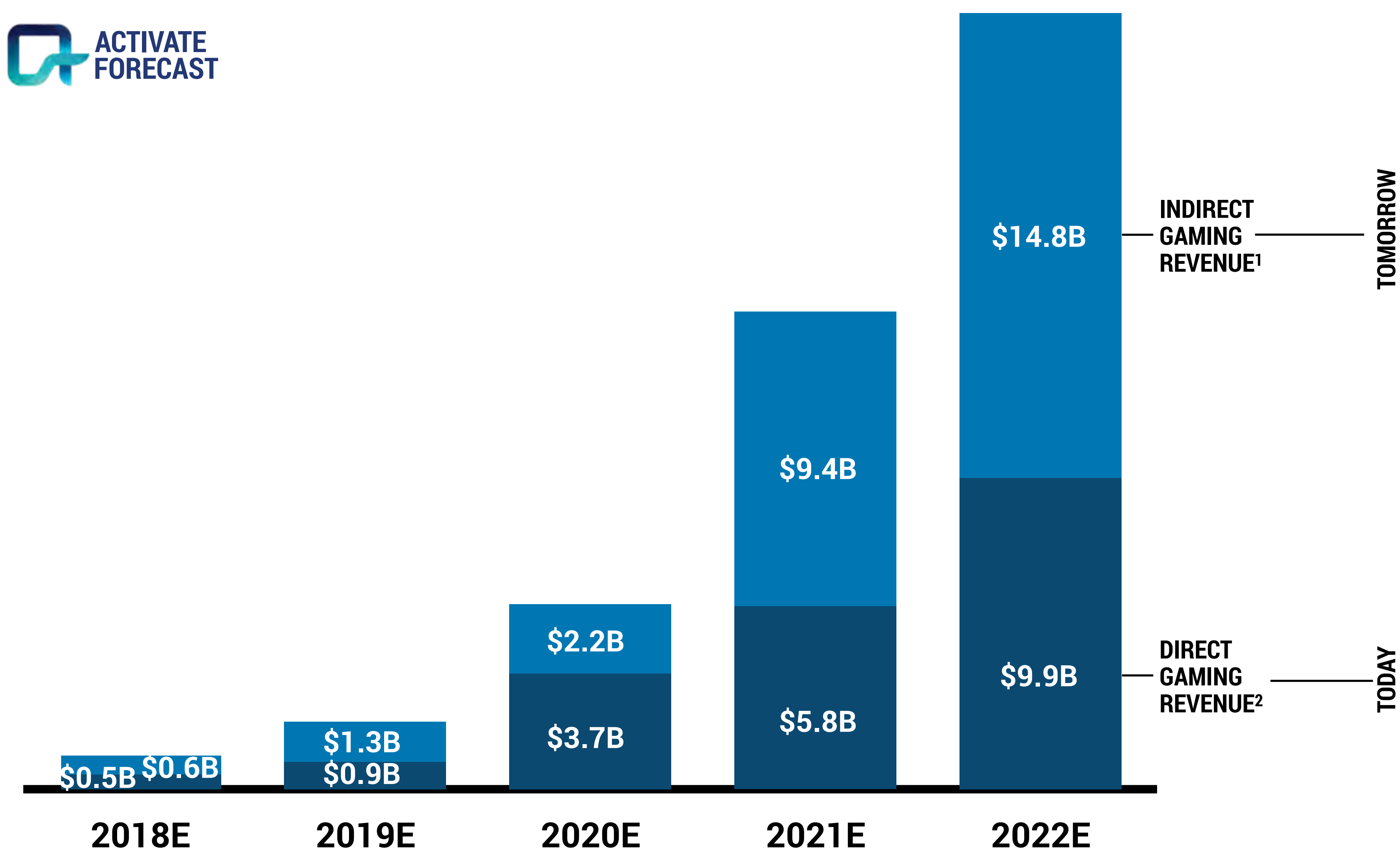
Legal sports betting in the U.S. will likely be a ~$215B industry by 2025, because an estimated 95% of the U.S. betting economy will be legal[2]

1. Projection assumes 69% legalization of the U.S. betting economy by 2022.
2. U.S. betting economy consists of the cumulative GDP in states that have legalized sports betting.

Sources: Activate analysis, Bureau of Economic Analysis, Eilers & Krejcik Gaming, Oxford Economics, University of Nevada, Las Vegas

Revenues from sports betting will exceed $24B by 2022

SPORTS BETTING REVENUE BY TYPE, U.S., 2018E-2022E, BILLIONS USD



INDIRECT GAMING REVENUE

- LEAGUES/TEAMS
- TECH COMPANIES
- MEDIA COMPANIES
- VENUES
- PAYMENT COMPANIES

DIRECT GAMING REVENUE

- SPORTSBOOKS
- CASINOS
- STATES[3]

1. Indirect revenue determined as a ratio of direct gaming revenue, and is comprised of media rights, advertising, sponsorships, and data rights.
2. Direct gaming revenue is a share of total amount wagered and depends on odds and individual sports books. The betting provider's revenue take ranges from 5-15% of total amount wagered.
3. State taxes are assessed as a share of the total amount wagered, a share of gross gaming revenue (ranges from ~7-60% depending on the state and type of betting), and gaming licensing fees.

Sources: Activate analysis, Bureau of Economic Analysis, Eilers & Krejcik Gaming, Oxford Economics, Nielsen, University of Nevada, Las Vegas

Sports betting will be a boon for a broad set of stakeholders across tech, media, sports and financial services

WHO STANDS TO BENEFIT?		INDIRECT REVENUE SOURCES: EXPECTED TO REACH $15B BY 2022			
		Example Companies	Media Rights	Sponsorships and Advertising	Value of Game and Betting Data
	LEAGUES AND TEAMS	NBA, ny, Formula 1, Golden State Warriors	✓	✓	✓
	MEDIA COMPANIES	The Action Network, FS1, B/R Bleacher Report		✓	✓
	TECH COMPANIES	twitch, facebook, twitter		✓	✓
	VENUES	Oracle Arena, AT&T Stadium, MSG		✓	
	PAYMENT COMPANIES	PayPal, VISA, American Express			✓

Sources: Activate analysis, Nielsen, SportTechie

Leagues and teams are moving quickly to capture their share of the opportunity

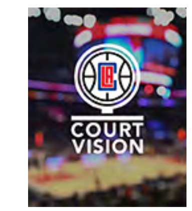
SPORTS BETTING PARTNERSHIPS

LEAGUES

- NBA → MGM is the first official gaming partner of the NBA and will create a branded digital content series
- Formula 1 → A recent $100M deal enables live in-race betting, and sets the stage for betting advertisements
- NHL → The FanDuel sportsbook will be the official sports betting partner of the NHL, which also has a marketing and data deal with MGM
- Major League Baseball → MLB forged a partnership with Genius Sports, a gambling data firm

TEAMS

- Clippers → Clippers Court Vision tracks live basketball shot probabilities



- Devils → The William Hill sportsbook will have a lounge in the Prudential Center that supports mobile betting
- Cowboys → WinStar will advertise in AT&T Stadium, and sponsor the Cowboys' pregame show
- Jets → MGM will be the official gaming partner of the New York Jets

Sources: Activate analysis, CB Insights, Crunchbase, Legal Sports Report, SportTechie

Overall, we see a dramatically expanded ecosystem driven by sports betting

NEW BUSINESS OPPORTUNITIES WITHIN EXISTING ECOSYSTEM

EXAMPLE COMPANIES

LEAGUES, TEAMS, AND PUBLISHERS

SPORTS

NBA, NFL, NHL, ATP World Tour, PGA Tour, Major League Baseball, MLS, Formula 1, NASCAR, PBR

ESPORTS

EA, ESL, NBA 2K League, League of Legends, The International, Fnatic, T2 Take Two Interactive, teamliquid, Cloud9

NEWS AND INFORMATION

MEDIA

ESPN, Lock It In, FS1, NBC Sports, caffeine, facebook, snapchat, Google, twitter, YouTube

PREDICTIONS AND ODDS

Unanimous A.I., Behind the Picks, Linebacker, FanGraphs

NEW MEDIA

Bleacher Report, VSiN, The Action Network

BETTING EXPERIENCE

SPORTSBOOKS

Caesars Entertainment, Golden Nugget Las Vegas, Churchill Downs, Boyd Gaming, MGM Grand, G Technology, William Hill

MOBILE

bet365, SugarHouse, Betable, DraftKings Sportsbook, FanDuel

SOCIAL GAMING

facebook, twitch, snapchat, caffeine, twitter, YouTube, BeerBet, StakeHaul, ZenSports, bethereum

ENABLING TECH

ACCOUNT MANAGEMENT/ AUTHENTICATION

betgenius, biztech software, SBTech we know sports, Unikrn, IGT, EVS, Metric Gaming

PAYMENTS/CRYPTO

bethereum, Unikrn, ACI Universal Payments, worldpay, PayPal, Alipay, Apple Pay

DATA

STATS, genius sports, Hypergolic, betradar, Zebra, IBM Watson, Second Spectrum

Sources: Activate analysis, American Gaming Association, CB Insights, Company sites, Crunchbase

Data that emerges from legal wagering will power industries outside of the sports betting ecosystem

CURRENT ELEMENTS OF CUSTOMER PROFILE	NEW BUSINESS OPPORTUNITY

Primary and public records
- Demographic information
- Loan repayment history
- Bill payment habits

Enterprise/consumer/social
- Social media interactions
- Adherence to traffic rules
- Shopping habits

Wagering Data
- Betting patterns/frequency
- Wagering performance (i.e. indication of skill)
- Risk appetites

EXAMPLE COMPANIES THAT COULD LEVERAGE WAGERING DATA:

acxiom. EQUIFAX experian. FICO Google LendingClub LexisNexis ORACLE Affirm Adobe

What needs to happen for sports betting to achieve its full potential?

- Passage of federal regulation to permit interstate mobile gaming
- Incorporation of interactive betting features in live broadcasts
- States adhering to sufficiently low tax rates to incentivize companies to participate
- Market entry of international players with deep betting industry expertise
- Continued support from sports and eSports leagues and teams

Source: Activate analysis

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Messaging will be at the heart of the tech and media world through new functionality and applications

CURRENT AND FUTURE MESSAGING USE CASES BEYOND TEXT EXCHANGES

Commerce

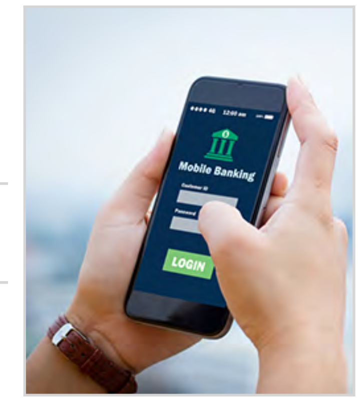
- Shopping recommendations
- Interacting with brands
- Purchasing within messaging app
- Automated customer service

Gaming

- Chat-based games
- Voicebot-enabled games
- In-app games
- Trivia

Payments

- Consumer banking
- Peer-to-peer money transfers
- Checking stock portfolio



Video

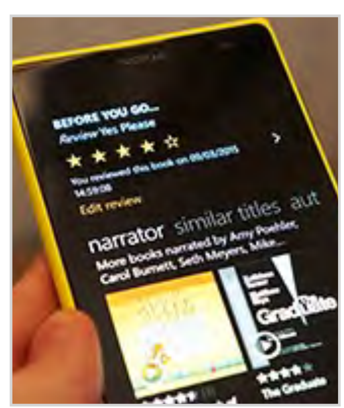
- Show/movie recommendations
- Smart speaker playout
- Accessing a media title's "x-ray" features

Gig Economy

- Ride-hailing
- Messaging drivers, cleaners, hosts, etc. within app
- Food delivery services

Enterprise

- Employee communication
- Document/asset management
- Productivity bots



Audio

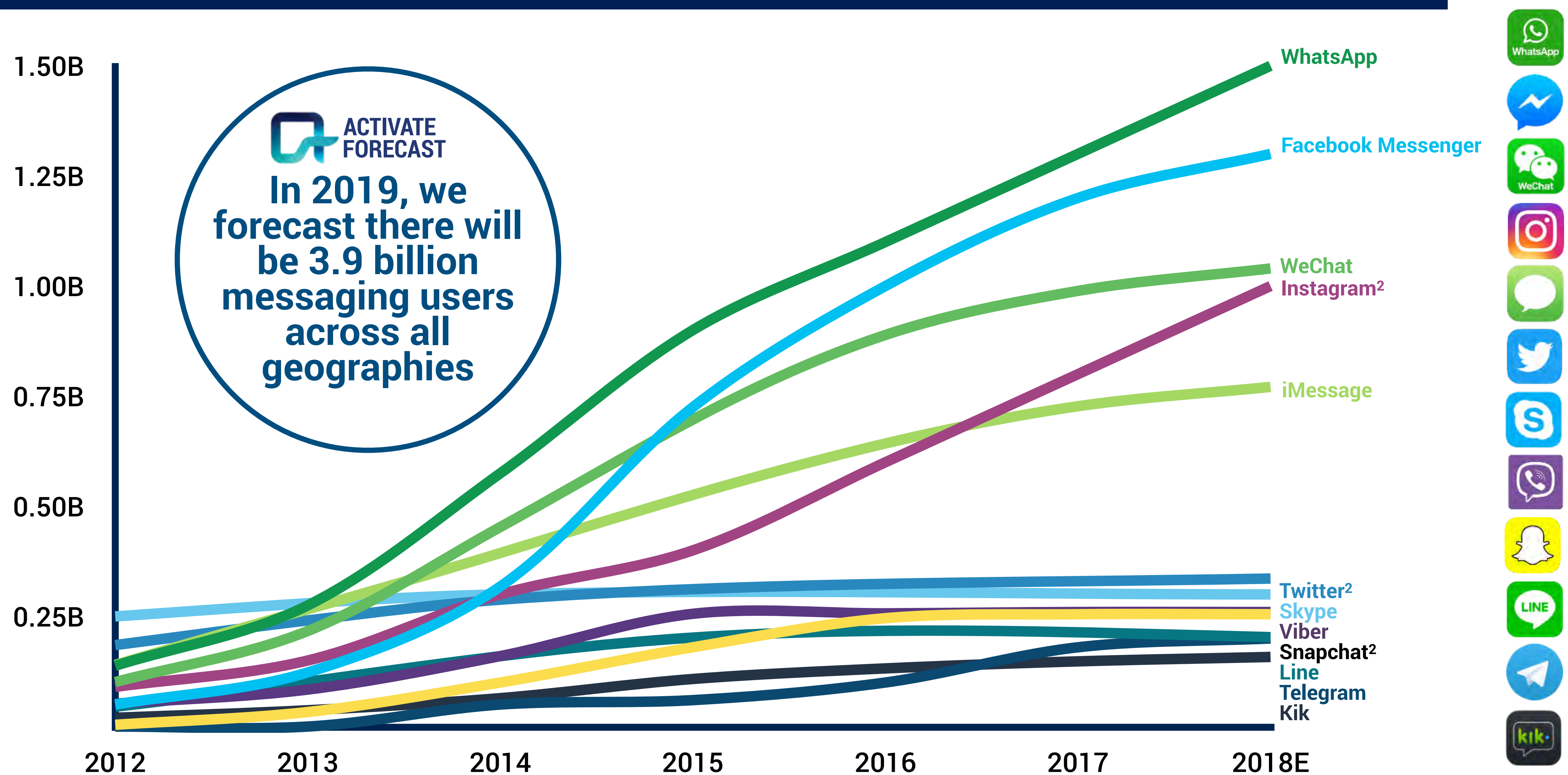
- News updates
- Podcasts/audiobooks
- Music playlists/ recommendations

Smart Home

- Smart camera real-time updates
- Controlling lights, thermostats, etc.
- Remote locking/unlocking

In 2019, there will be 3.9 billion global messaging users

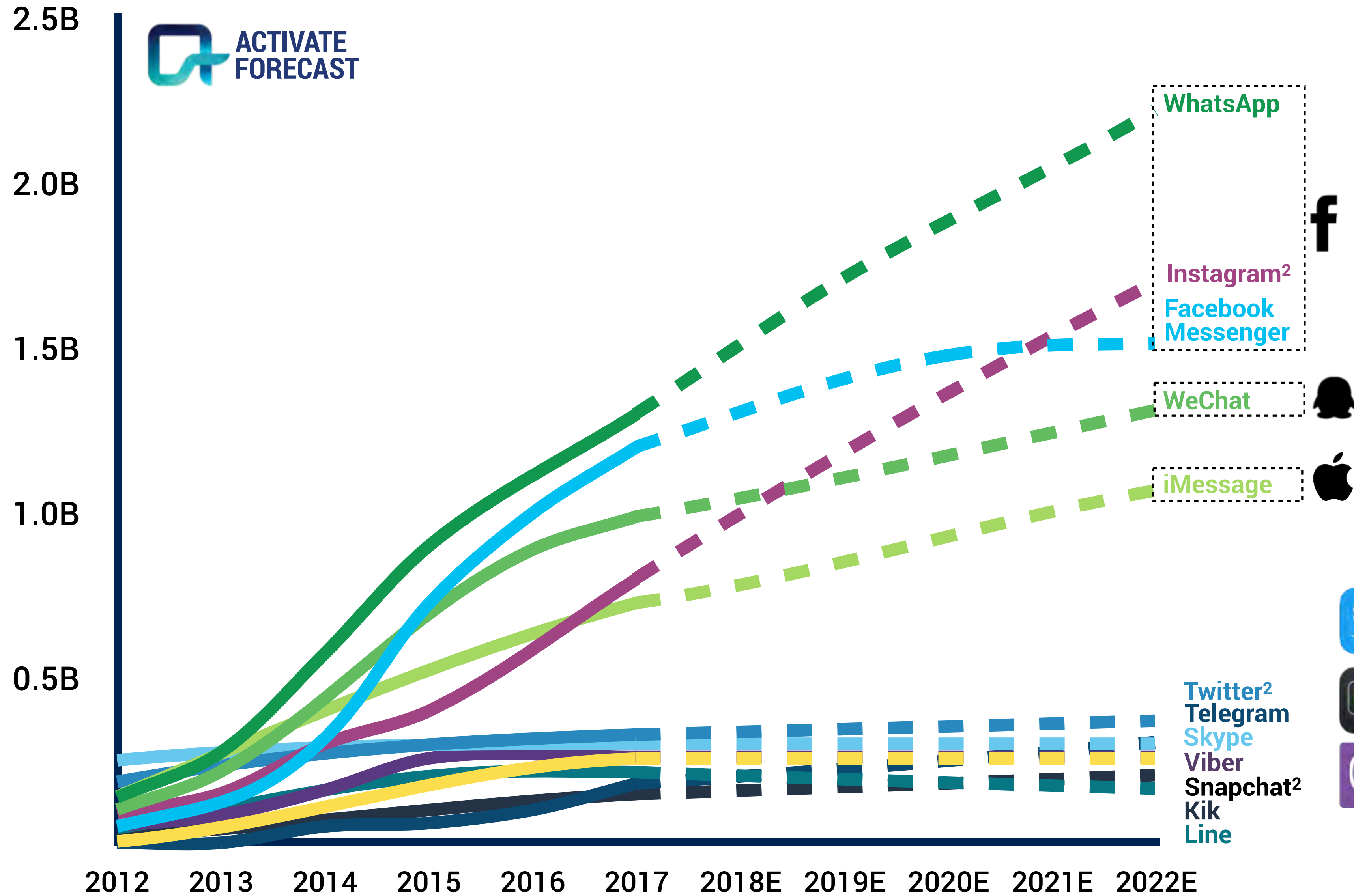
USE OF MAJOR MESSAGING PLATFORMS[1], GLOBAL, 2012-2018E, BILLIONS AVERAGE MONTHLY ACTIVE USERS



1. "Messaging" defined as communicating in real time with other contacts. User numbers by year are the latest available.
2. Hybrid messaging apps.
Sources: Activate analysis, Apple Insider, Business Insider, China Internet Watch, CIO, Company sites, DFRWS, eMarketer, GlobalWebIndex, Internet World Stats, Keplios, Silicon Beat, SNL Kagan, TechCrunch, U.S. Census Bureau, VentureBeat, We Are Social Singapore, Windows Report

Going forward, we see three dominant companies in messaging: Facebook, Tencent, and Apple

USE OF MAJOR MESSAGING PLATFORMS [1], GLOBAL, 2012-2022E, BILLIONS AVERAGE MONTHLY ACTIVE USERS



WHAT WOULD YOU HAVE TO BELIEVE?

- Global diaspora and high SMS fees outside the U.S. will drive WhatsApp growth
- Introduction of 5G will make photo and video sharing more widely accessible
- Messenger's adoption will plateau as Facebook's growth slows
- Continued dominance in China, and a strengthened hold over the rest of APAC
- Deeper integration with third-party apps, Siri integration, and brand communication

Other messaging apps will maintain niche audiences, but will see little future growth

1. "Messaging" defined as communicating in real time with other contacts. User numbers by year are the latest available.
2. Hybrid messaging apps.
Sources: Activate analysis, Apple Insider, Business Insider, China Internet Watch, CIO, Company sites, DFRWS, eMarketer, GlobalWebIndex, Keplios, Silicon Beat, SNL Kagan, TechCrunch, U.S. Census Bureau, VentureBeat, We Are Social Singapore, Windows Report

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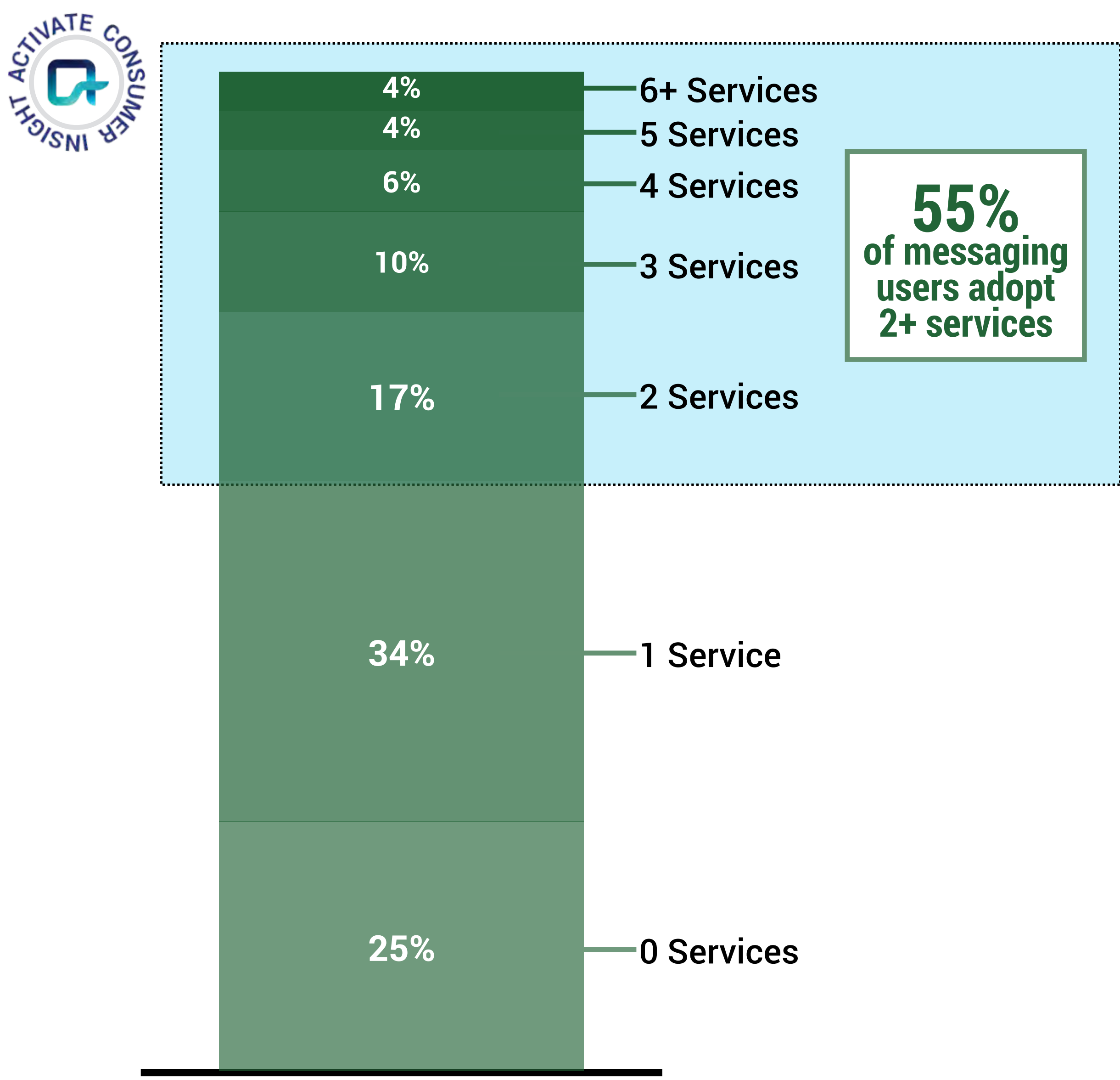
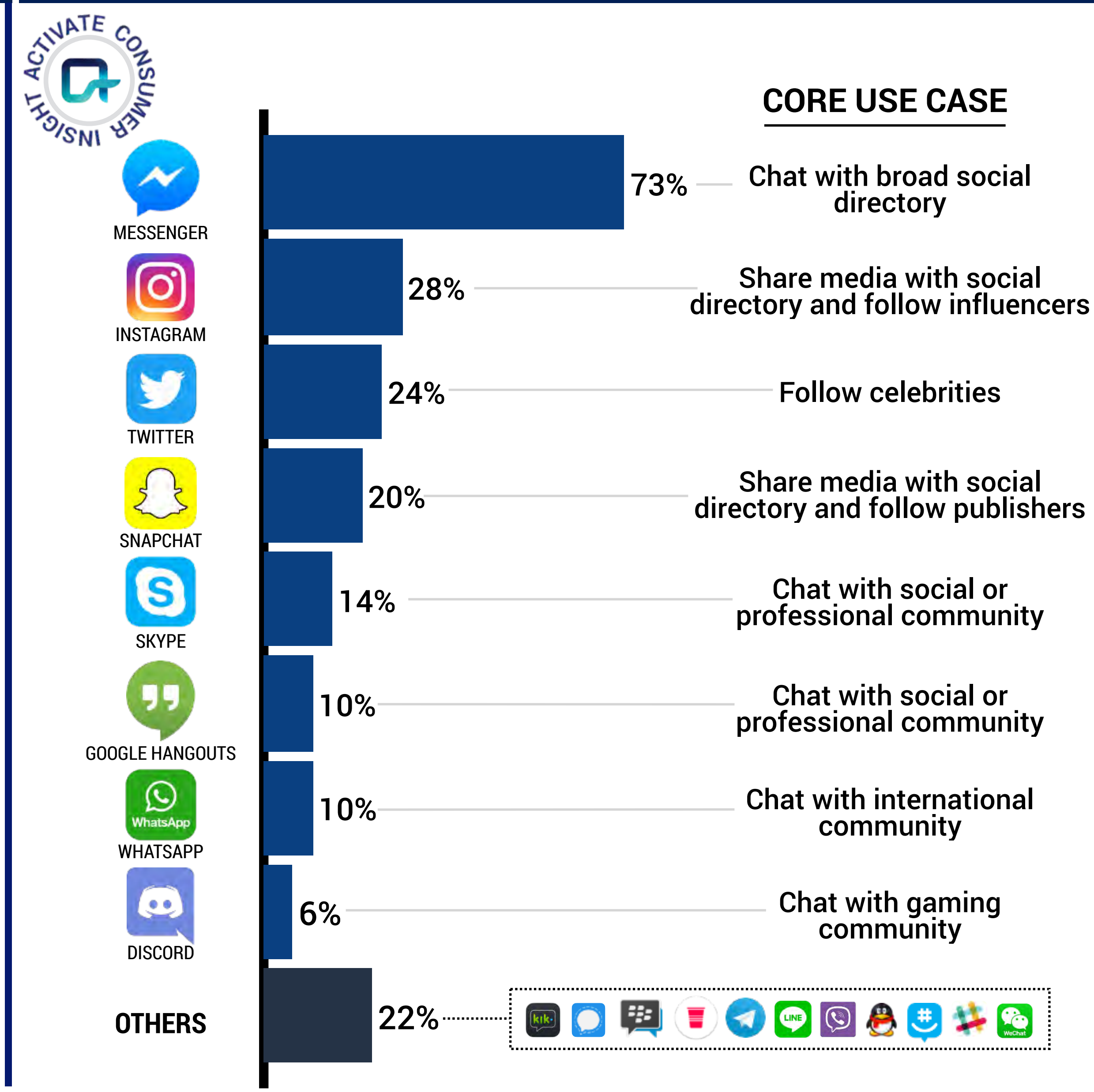
WSJ TECH D.LIVE

The majority of messaging users will adopt multiple services for different use cases

NUMBER OF MESSAGING SERVICES USED IN PAST MONTH, U.S., 2018, % ADULT POPULATION



MESSAGING SERVICES USED IN PAST MONTH[1], U.S., 2018, % MESSAGING USERS



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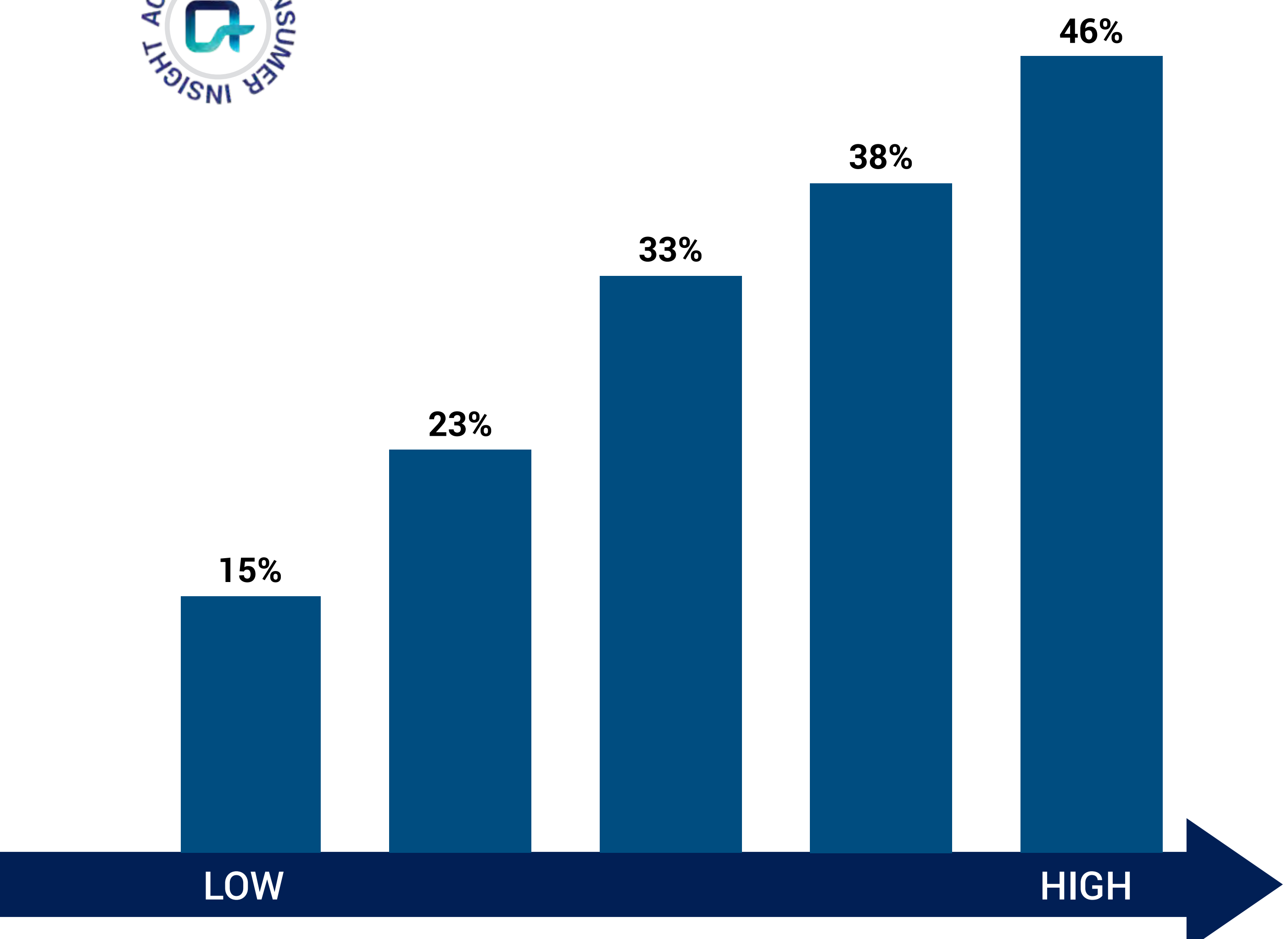
1. iMessage estimated to have 133M monthly average users in November 2018.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (Left: n=4,000; Right: n=3,020), App Annie

WSJ TECH D.LIVE

Privacy will be one of the reasons for consumers to use multiple services; our research shows that privacy concerns will continue to drive users to encrypted apps

USE OF MESSAGING SERVICES WITH DEFAULT END-TO-END ENCRYPTION BY LEVEL OF PRIVACY CONCERN,
U.S., 2018, % ADULT POPULATION

ACTIVATE CONSUMER INSIGHT



POPULATION SEGMENTS RANKED BY INCREASING CONCERN OVER PRIVACY[1]

NOTABLE PRIVACY FEATURES OF END-TO-END ENCRYPTED MESSAGING APPS

VIBER	Ability to delete messages
TELEGRAM	Distributed servers ensure security and speed, and messages can be set to self-destruct
IMESSAGE	End-to-end encryption on both iMessage and FaceTime
SIGNAL	Ability to verify user identities, with open source code available to security researchers
WHATSAPP	Ability to verify user identities

WhatsApp's supremacy is not guaranteed. Other encrypted services will quickly gain scale if WhatsApp sacrifices privacy for advertising.

1. Measured by identification of privacy/security-conscious behaviors, such as use of two-factor authentication, changing passwords at least every 6 months, use of a VPN, etc.

Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000)

Messaging platforms will attempt to attract and retain users through enhancements to group chat and collaboration tools

ENHANCEMENTS TO GROUP CHAT MADE BY MESSAGING SERVICES

iMessage	Apple now allows up to 32 people to participate in one group FaceTime session
WhatsApp	WhatsApp now includes a feature that limits messaging to the group administrator
Yahoo Together	Yahoo Together offers ways to prioritize the most important messages and organize threads by topic
Slack	Slack offers more advanced and targeted search filters for group chats
Discord	Discord group chatters have the ability to share screens during gameplay
Steam Chat	Steam Chat offers gamers the ability to trade Steam trading cards through a group
Berkanan	Berkanan Messenger connects group chatters through bluetooth connection
Snapchat	Snapchat now allows users to video chat with up to 16 people or voice chat with up to 32 people

Sources: Activate analysis, CNET, Company sites, Digital Trends, Engadget, TechCrunch, The Verge

Until app discovery on messaging platforms improves, users will prefer core messaging features (such as group chat) over traditional app features (such as gaming)

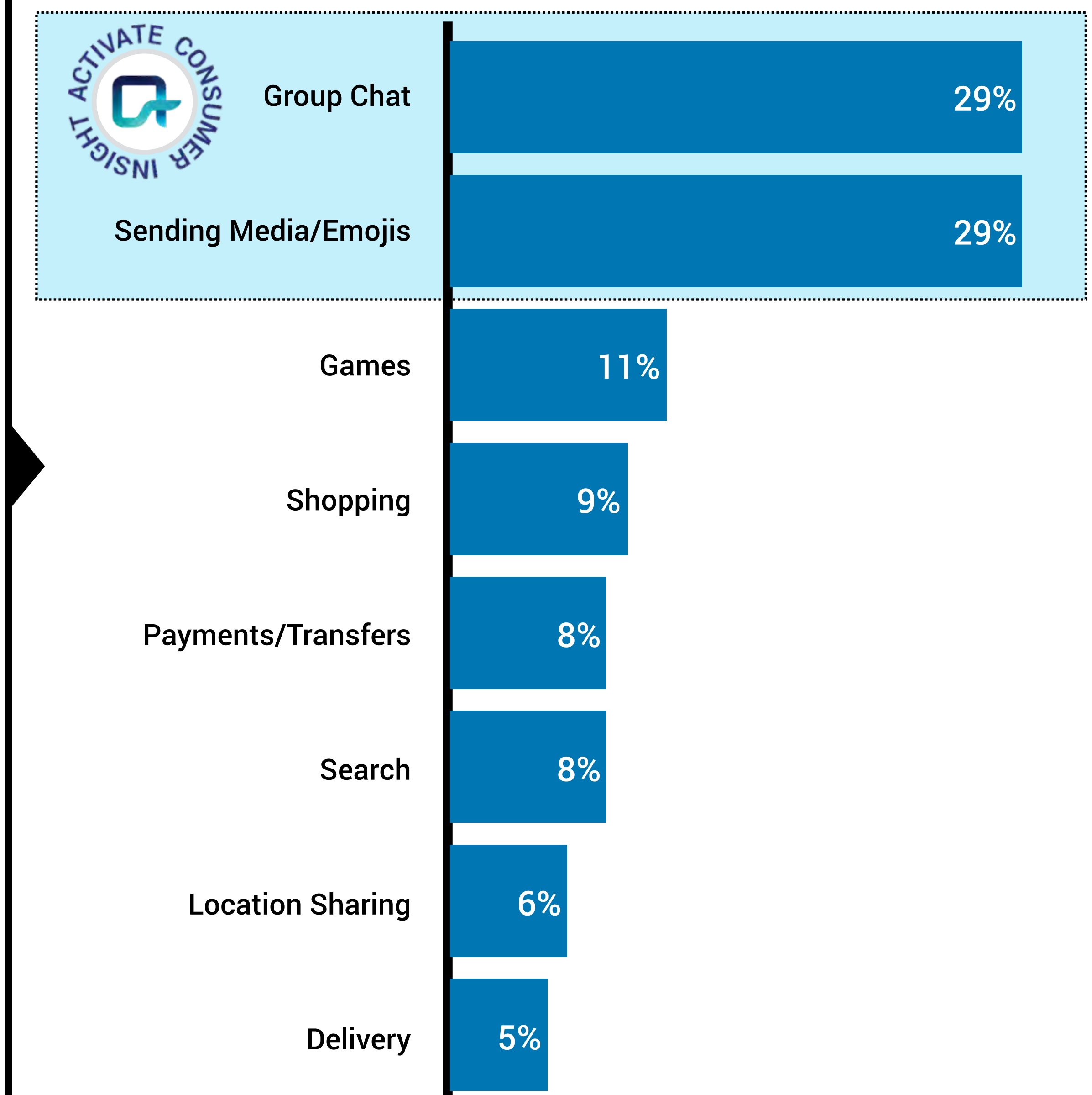
IMESSAGE

iMessage app discovery is limited to the apps users already have downloaded

MESSENGER

App discovery in FB Messenger is limited to featured placement and user search

TOP MESSAGING FEATURE USAGE, U.S., 2018, % ADULT POPULATION



Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), Messaging service mobile apps

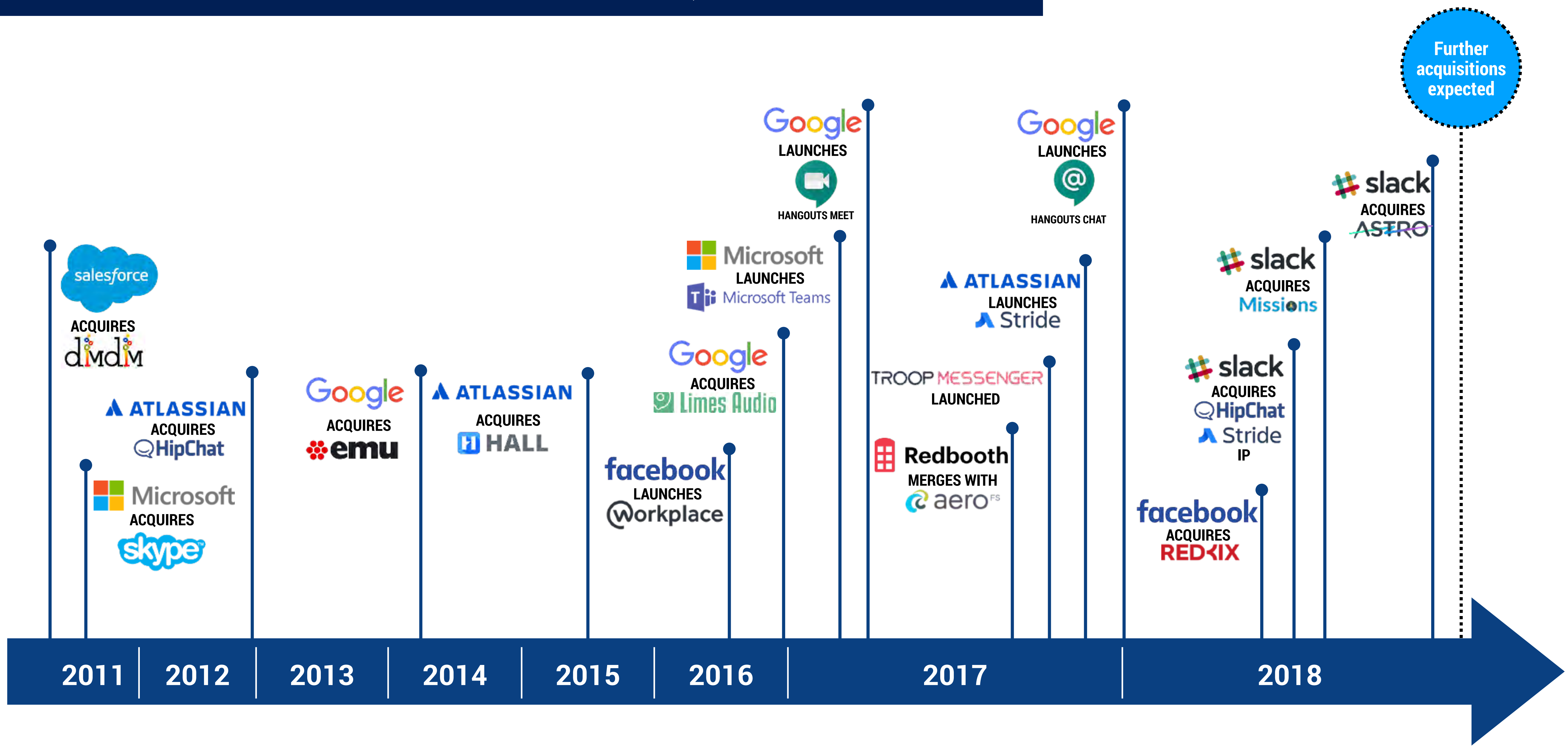
Business chat is already a core behavior—employees will expect much more from messaging services than just text exchanges

	KEY CAPABILITIES OF ENTERPRISE MESSAGING PLATFORMS			
	Enterprise Communication	Document Creation and Management	Bot Platform	HR Functionality[1]
Bloomberg PROFESSIONAL	●	●		
salesforce chatter	●	●	●	●
G Suite	●	●	●	●
LinkedIn Messaging	●			●
Office	●	●	●	●
skype	●	●	●	●
slack	●	●	●	●
SYMPHONY SOFTWARE FOUNDATION	●	●	●	
Workplace by facebook	●	●	●	●

1. Management of payroll, benefits, 401 (k), etc. Microsoft Office 365 already offers HR capabilities, further extended through chat. Google Hangouts offers on-site chat services for recruiters. Salesforce Chatter offers employee management functionality through third-party app integration (e.g. The WaterCooler). Workplace by Facebook helps with onboarding and mentoring.
Sources: Activate analysis, Company sites, TechCrunch

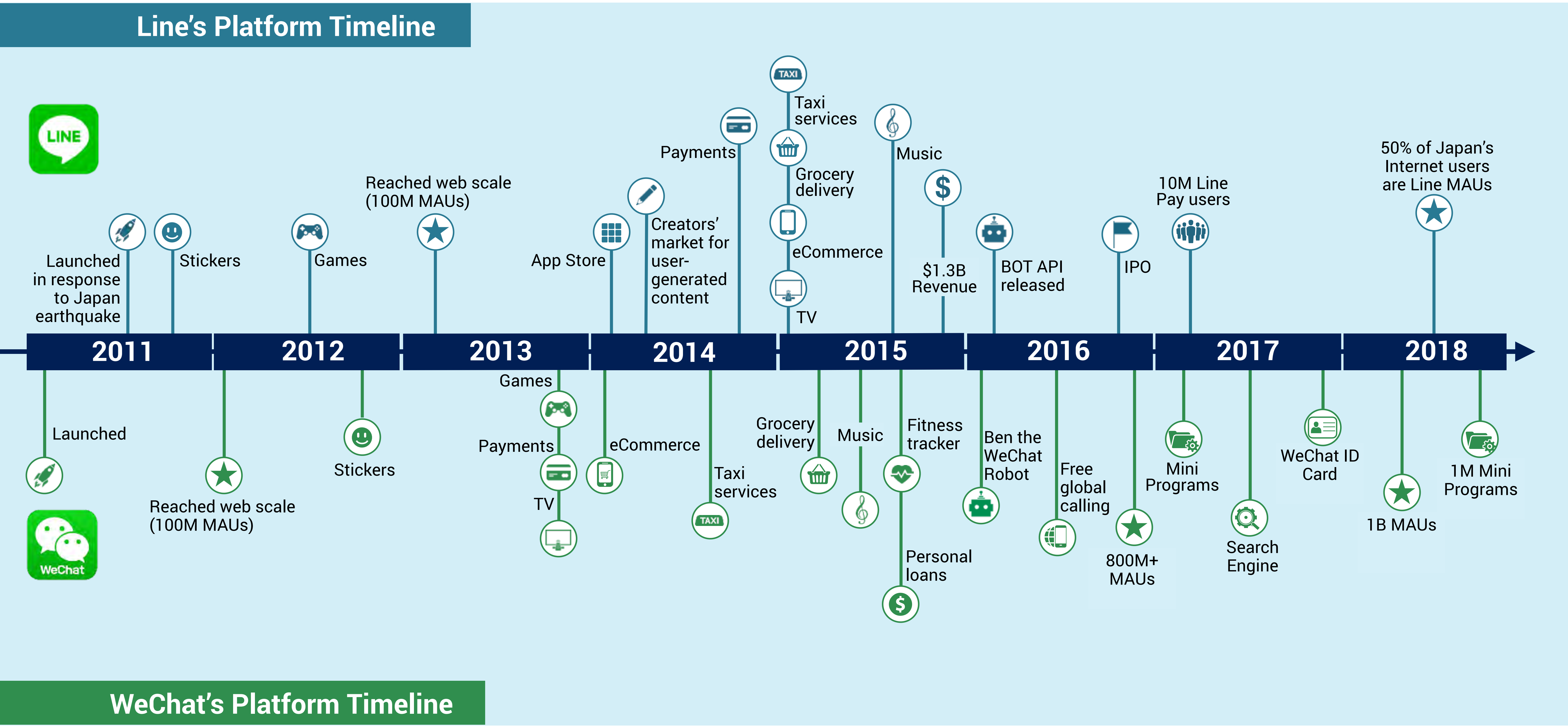
Business team chat will be the next battlefield in messaging—expect more acquisitions by the major tech players

TIMELINE OF ENTERPRISE/BUSINESS TEAM CHAT ACQUISITIONS AND LAUNCHES



Sources: Activate analysis, Company sites

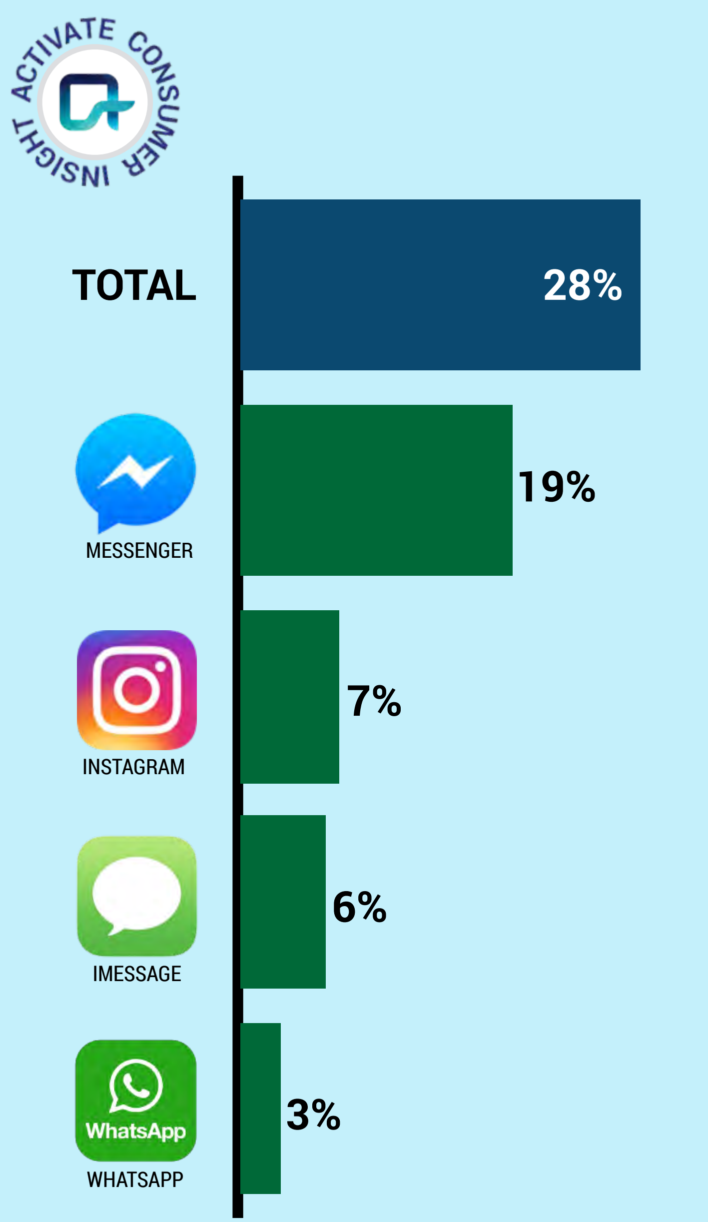
The key question for messaging: will the rest of the world follow the adoption patterns of Asia?

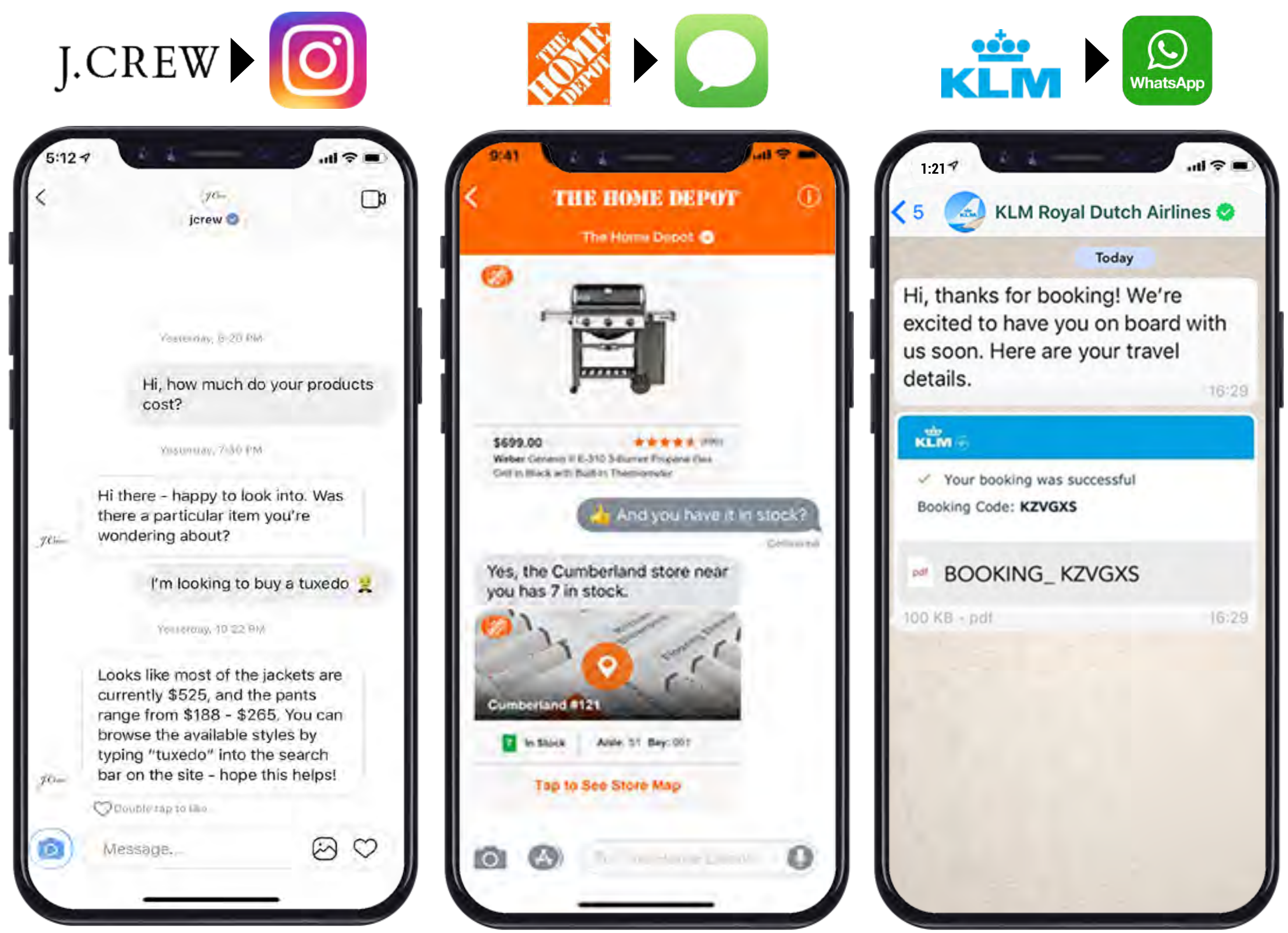


Sources: Activate analysis, AdWeek, Line, Motley Fool, Quartz, Tech in Asia, Tencent, Yahoo Finance

Users will increasingly communicate with brands through the major messaging platforms

USE OF A MESSAGING SERVICE TO INTERACT WITH A BRAND, U.S., 2018, % ADULT POPULATION

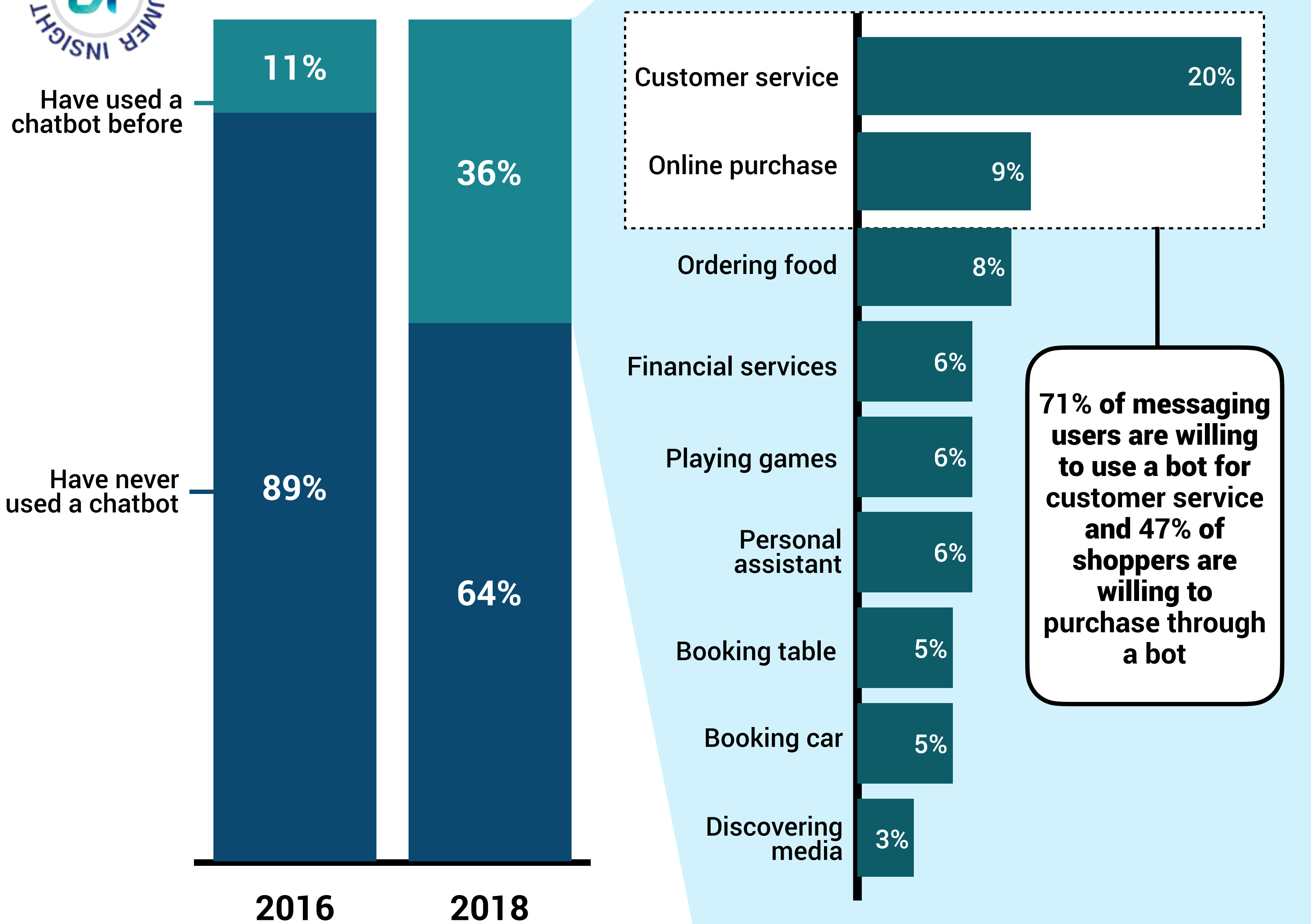




Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), Messaging service mobile apps

Users will also adopt brand-created chatbots; the dominant applications will be customer service and commerce

CHATBOT USAGE AND TOP USE CASES FOR CHATBOTS, U.S., 2016 VS. 2018, % ADULT POPULATION



DRIVERS OF SUCCESS FOR BOT USE CASES

USE CASE	DRIVERS OF SUCCESS
CUSTOMER SERVICE	• Immediate response times • Unlimited sales support • Deeper customer knowledge and more tailored recommendations
COMMERCE	• Automated purchasing • Personalized and streamlined shopping experience • Integrated payments

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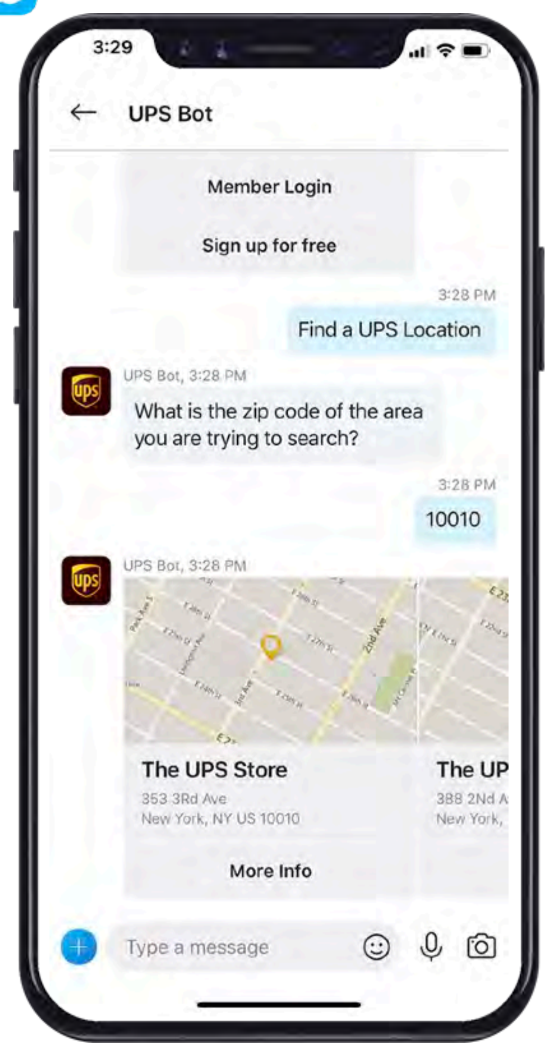
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (Left: n=4,000; Right: n=1,440), HubSpot

Today, the value of chatbots is still limited because they rely on simple decision trees…

TODAY'S CHATBOTS SUCCEED WHEN INTERACTIONS ARE SIMPLE AND EASILY AUTOMATED…

GOOGLE ASSISTANT

SKYPE

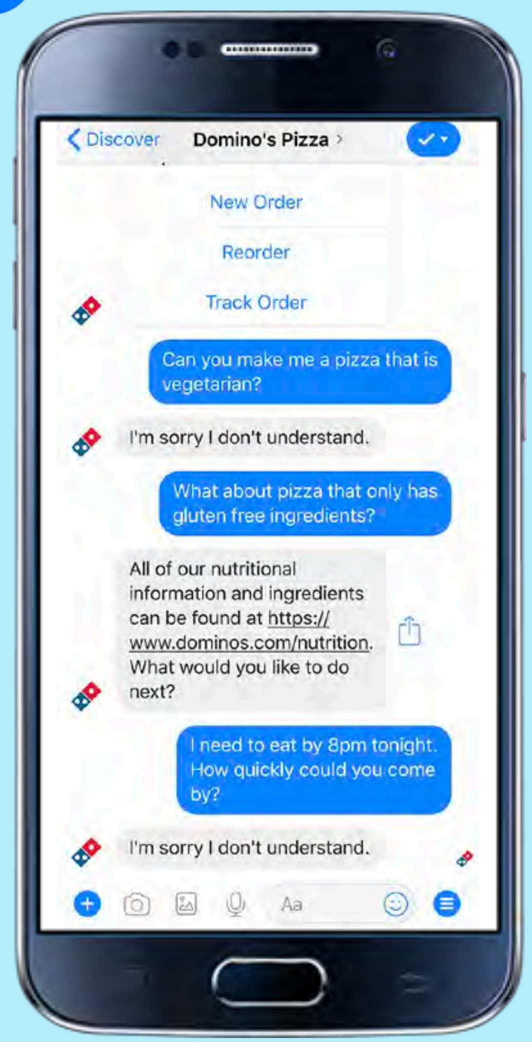


Questions with straightforward answers (e.g. directions, weather)

…BUT THEY STRUGGLE WITH NATURAL LANGUAGE COMMUNICATION

MESSENGER

MESSENGER

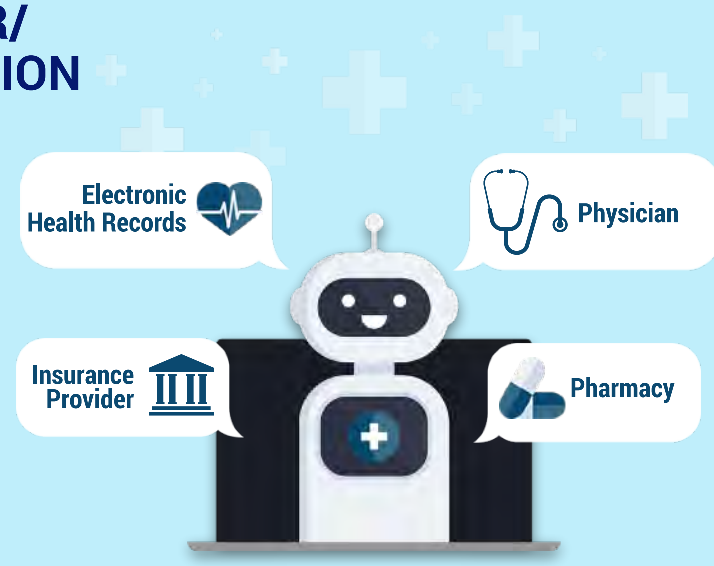


Open-ended, conditional, or context-sensitive questions

…but tomorrow, chatbots will rapidly improve, powered by AI and natural language processing to address more complex behaviors

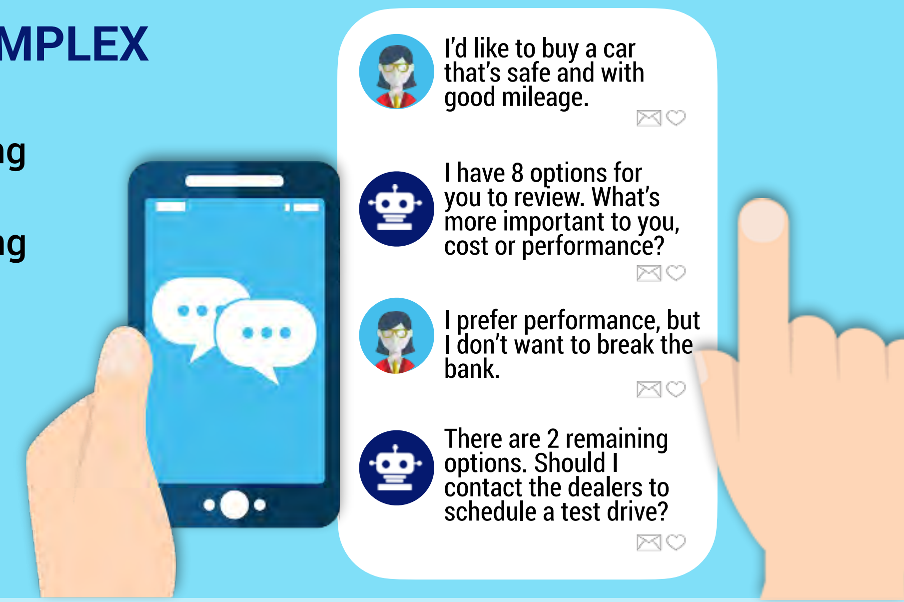
MULTIPLE PROVIDER/ ACCOUNT INTEGRATION

- Checking with bank to confirm available funds for a purchase
- Coordination between doctor and pharmacist to confirm medical needs



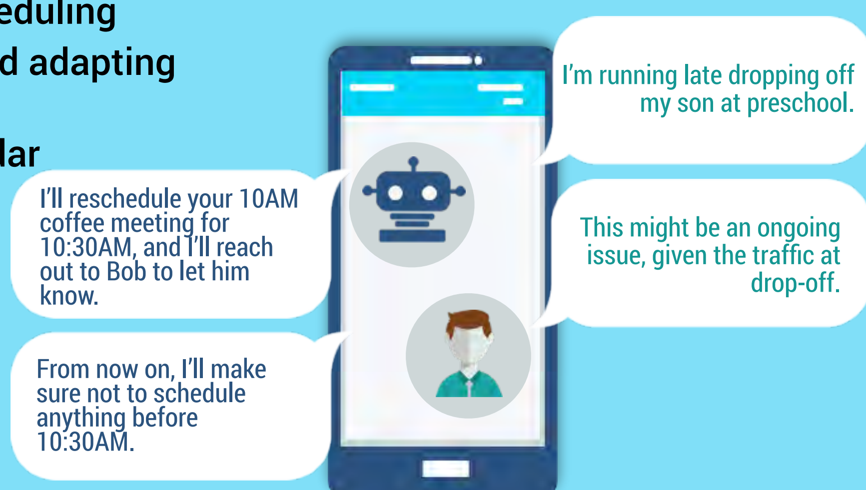
CONSIDERED/COMPLEX PURCHASES

- Personalized shopping experience
- Automated purchasing
- Expensive purchases



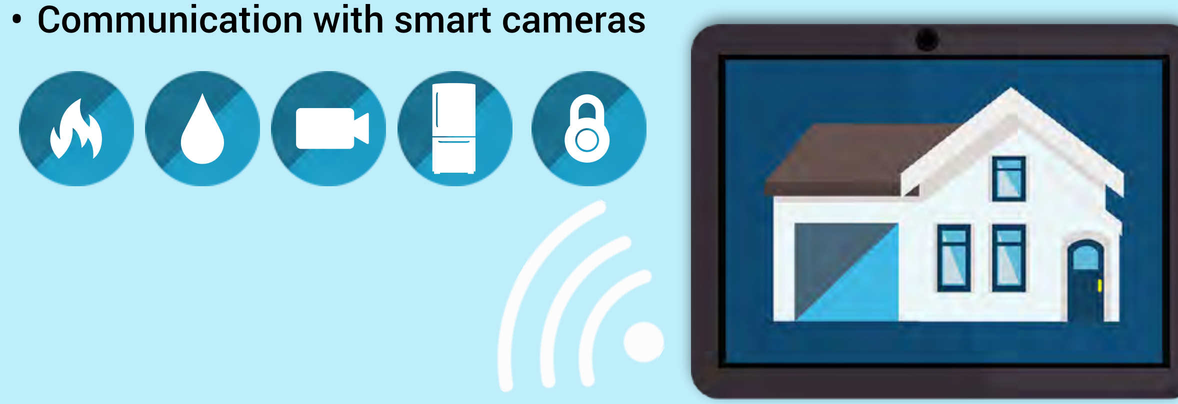
MORE EFFICIENT WORKPLACES

- Preemptive rescheduling
- Understanding and adapting to routines
- Automated calendar management



INTERNET OF THINGS INTEGRATION

- Home and appliance management
- Utilities, security, and safety monitoring
- Communication with smart cameras

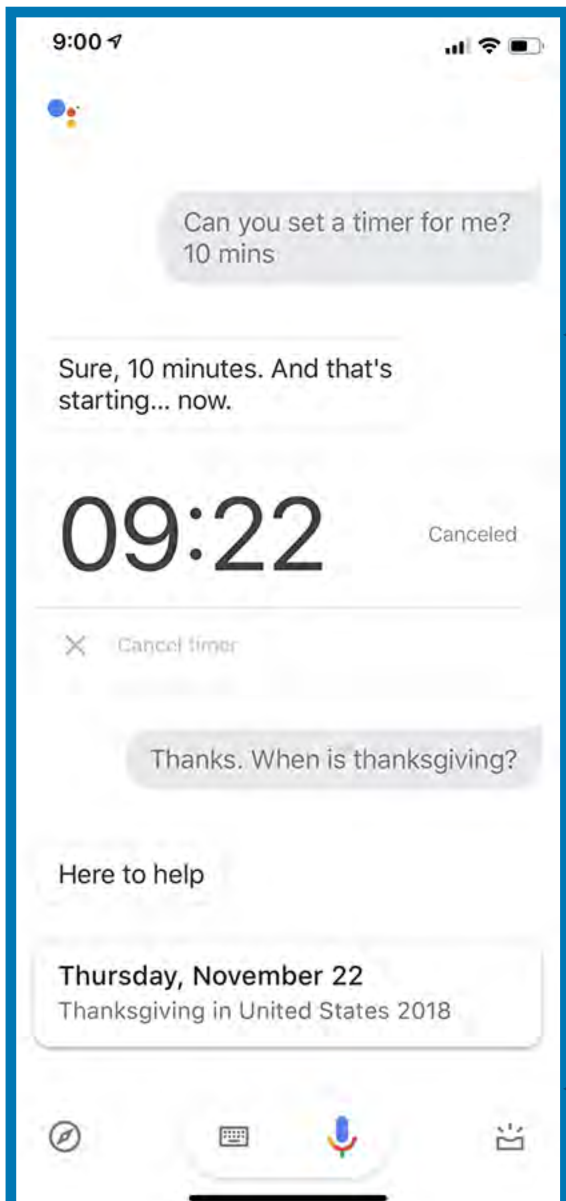


Sources: Activate analysis

Personal assistants will begin to resemble messaging platforms—a hook to drive further adoption

VIRTUAL ASSISTANT EMULATING MESSAGING PLATFORM

GOOGLE ASSISTANT



Digital assistants on mobile use familiar messaging interfaces to build user comfort, while capturing valuable data and improving conversational understanding

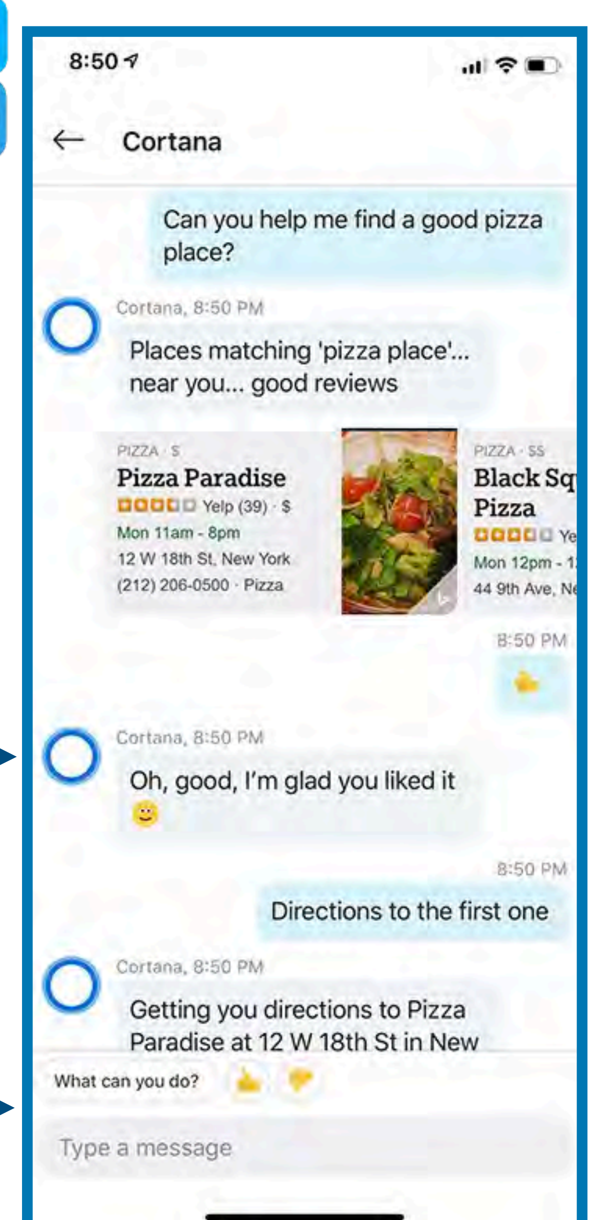
Digital assistants on messaging platforms allow users to quickly transition from messaging to productivity applications

Users can interact with digital assistants through voice or text, and on multiple mobile platforms

VIRTUAL ASSISTANT EMBEDDED IN MESSAGING PLATFORM

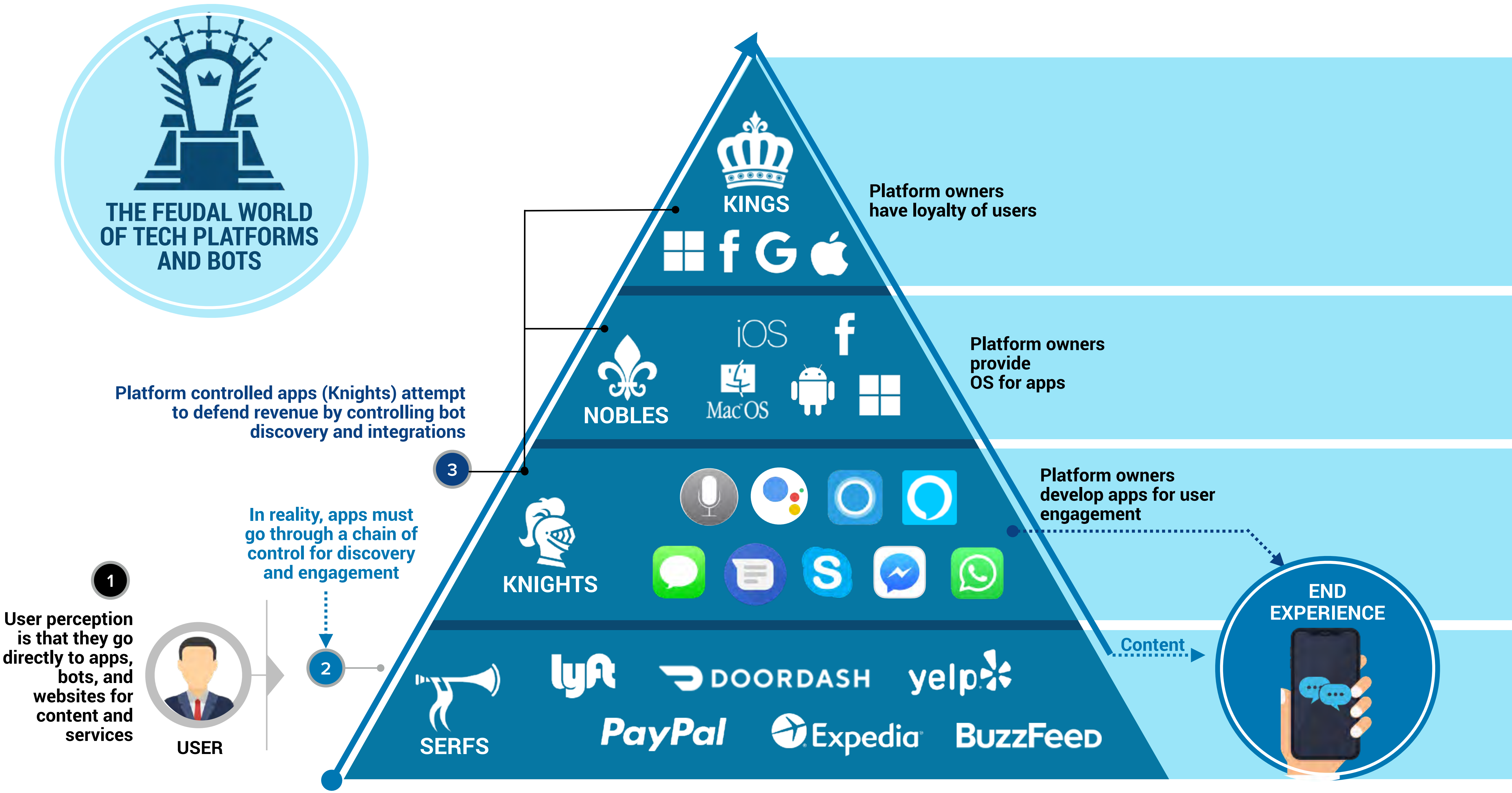
SKYPE

CORTANA



Sources: Activate analysis, Messaging service mobile apps

The tech players are investing in messaging apps to deepen and control their user relationships



Each of the platforms will attempt to win at messaging with strategies that build on what made them successful

	HOW THE MESSAGING PLATFORMS HAVE SUCCEEDED	HOW THEY WILL ATTEMPT TO SUCCEED GOING FORWARD
WHATSAPP	• High cost of SMS outside the U.S. drove significant international adoption • Frictionless on-boarding	• Emphasis on end-to-end encryption • Preservation of privacy
MESSENGER	• Was part of core Facebook app, then spun out • Early focus on emojis and GIFs • Option to upload personal contacts	• Investments in AI and chatbots • Integrations with hardware (e.g. Portal)
WECHAT	• Early photo and mobile-first platform • Cloning competitors, notably Snapchat	• Investments in discovery and curation • Targeted advertising for eCommerce
INSTAGRAM	• Early mover advantage in China • High SMS costs in China	• Deep integration with all services because of early mover advantage • Functioning as an app store and operating system
IMESSAGE	• Default text and SMS app on the iPhone • Recipients do not need iMessage to receive messages	• Keep iMessage closed to iPhone users to maintain lock-in, and identify users who are using Android (e.g. with green bubbles) • Increased focus on video group chat and facial recognition features
ANDROID MESSAGES	• Google's past attempts have not been successful, and fragmented offerings drove brand confusion	• Partnership with carriers to integrate RCS messaging protocol with richer content (e.g. multimedia attachments, read receipts) • Google Assistant integration • Replicating iMessage's core features, including group chat and texting from a desktop

Source: Activate analysis

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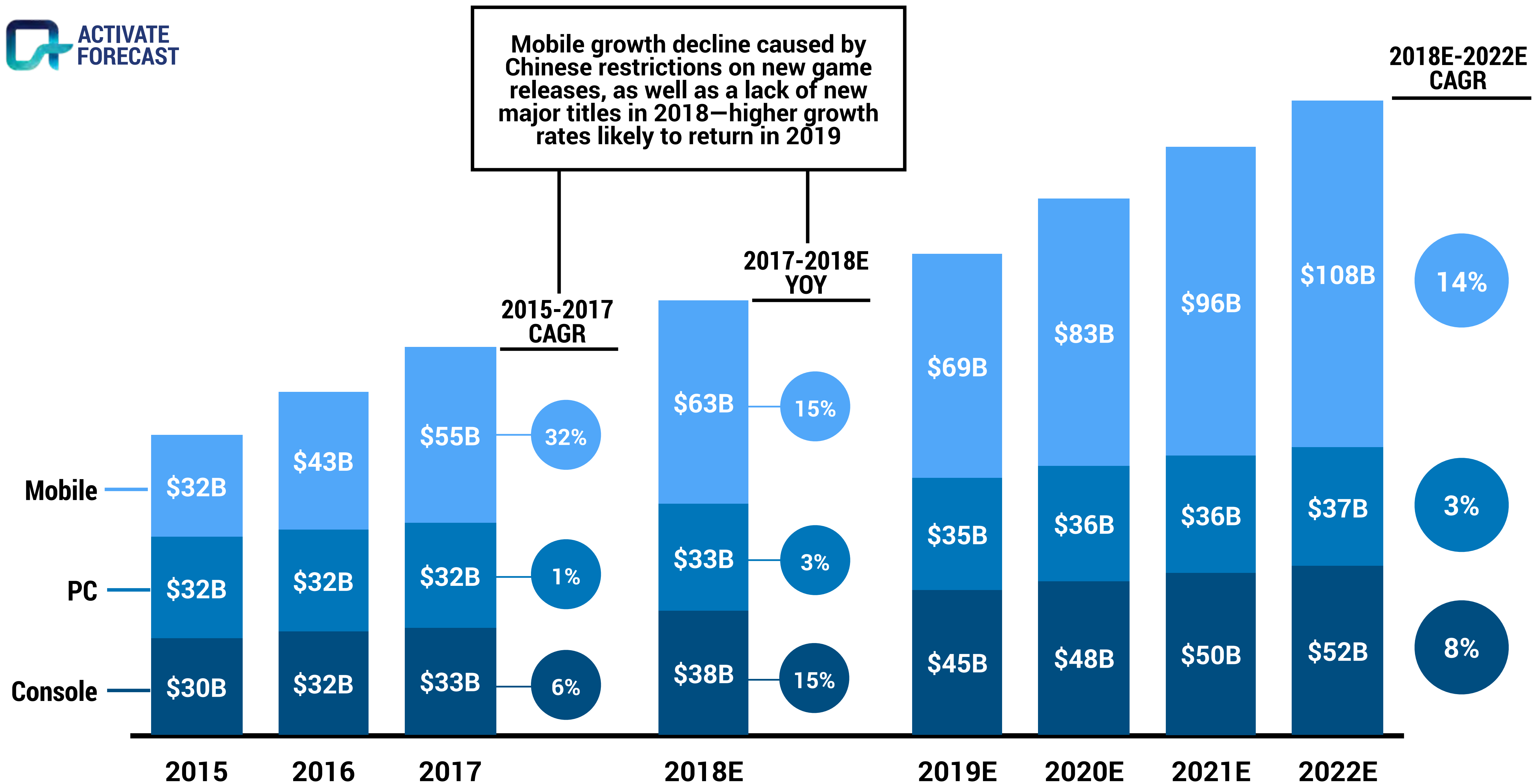
Over the next four years, the global video game industry will experience significant growth, driven by mobile games and a resurgent console business

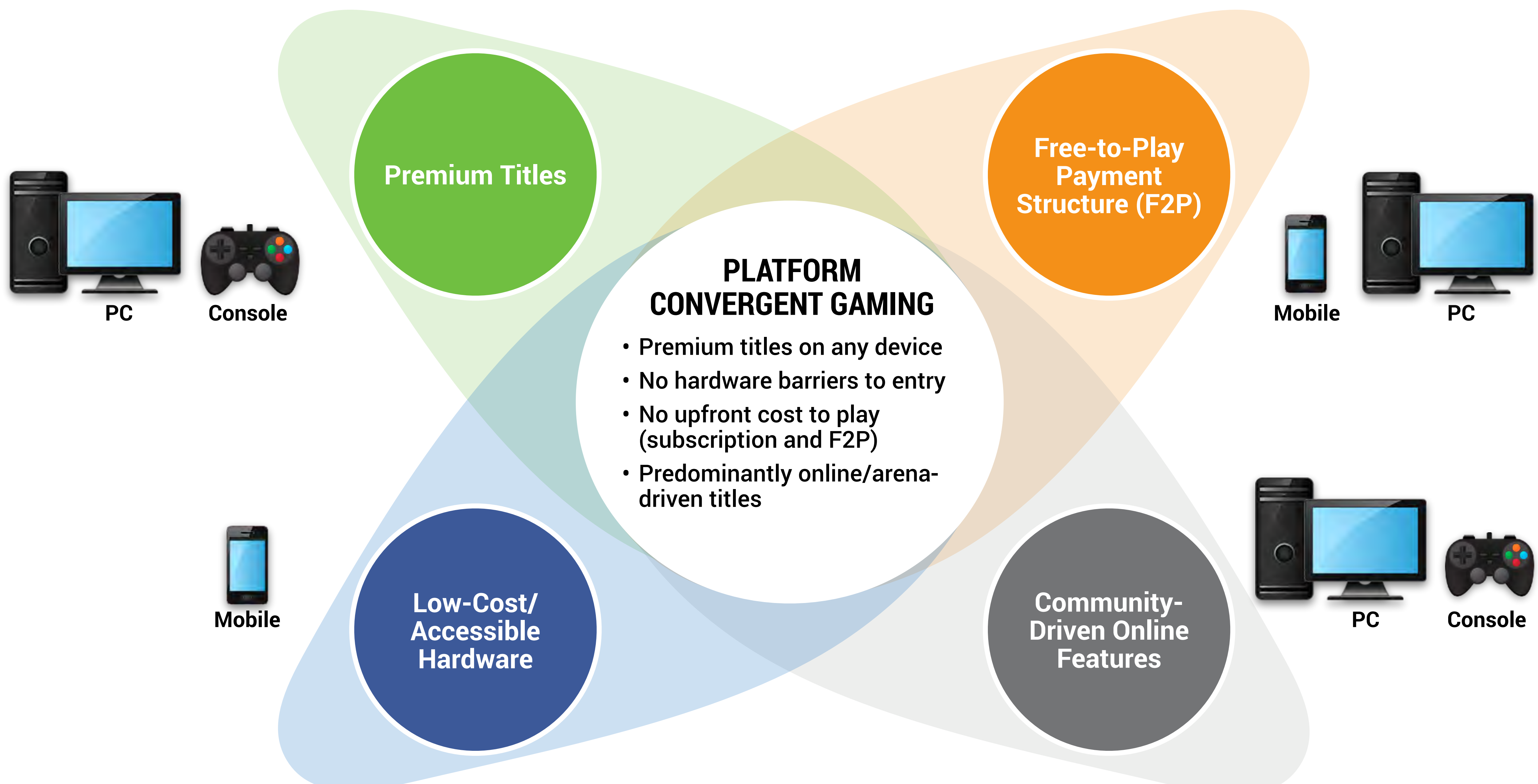
VIDEO GAME REVENUE BY PLATFORM[1], GLOBAL, 2015-2022E, BILLIONS USD



1. Includes hardware and software revenues.
Sources: Activate analysis, GamesIndustry.biz, Newzoo, VentureBeat

Gaming companies will profit as the distinctions between gaming platforms blur together—gamers will be able to play any game on any device

OVERLAP OF KEY GAMING FEATURES BY PLATFORM



Source: Activate analysis

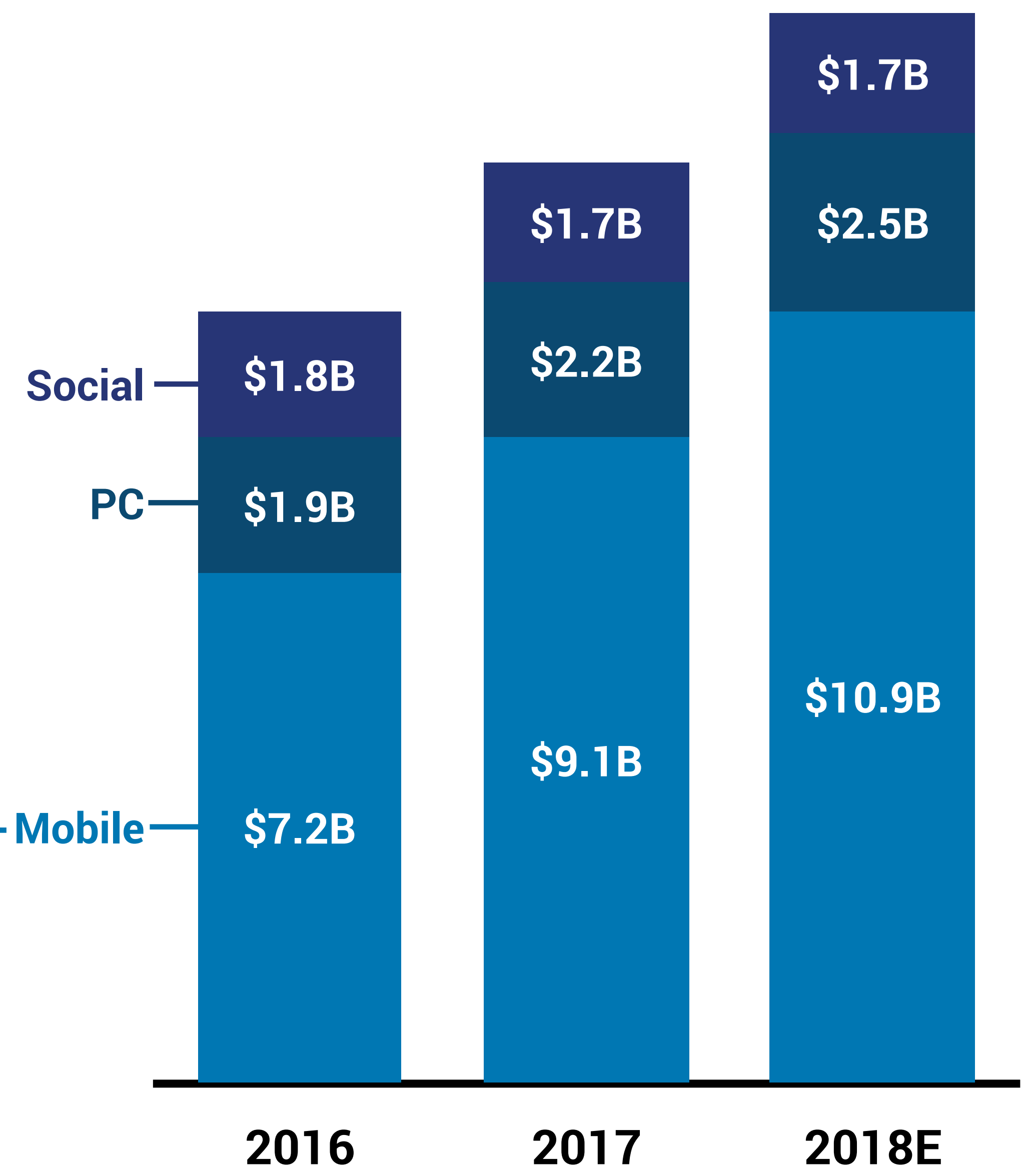
What will enable the new era of platform convergence in gaming?

PRIMARY ENABLERS	IMPACT	RATIONALE
CLOUD GAMING 	**Make premium titles available across all platforms**	• Streaming technology will bring gaming PCs and consoles into the cloud, distributing games through low-cost hardware (e.g. streaming devices) • Gamers will be able to compete across platforms, a model that the Battle Royale genre has already pioneered
SUBSCRIPTION SERVICES 	**Centralize discovery and lower the cost of switching between titles**	• Services from console providers, technology companies, and gaming publishers will create a single point of discovery and encourage gamers to play more titles • Gaming time spend will increase relative to other media formats
NEW FORMATS 	**Focus game development on in-game monetization and online features**	• Existing titles (e.g. Fortnite, GTA Online) have shown that the F2P model can transfer to non-mobile titles • Cross-platform play will drive new genres such as Battle Royale

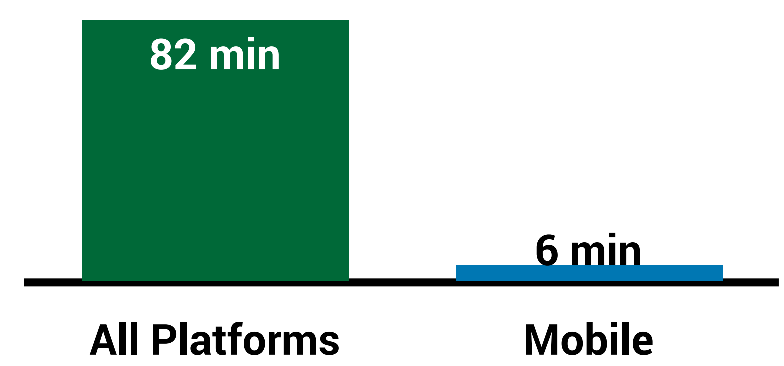
Sources: Activate analysis, Newzoo, Slice Intelligence, Tapjoy

Mobile gaming has grown because free-to-play makes titles easy to access, and allows the user to play in bursts throughout the day

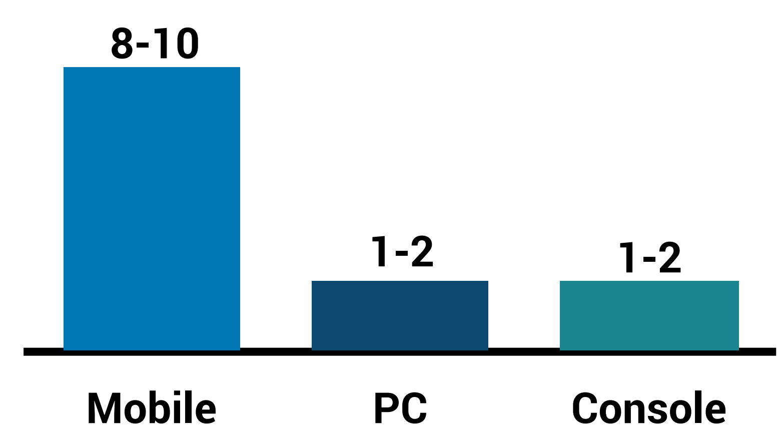
FREE-TO-PLAY REVENUE BY SOURCE, NORTH AMERICA, 2016-2018E, BILLIONS USD



AVERAGE SESSION LENGTH BY PLATFORM, U.S., SEPT. 2018, MINUTES



AVERAGE NUMBER OF DAILY SESSIONS BY PLATFORM, U.S., SEPT. 2018, # SESSIONS



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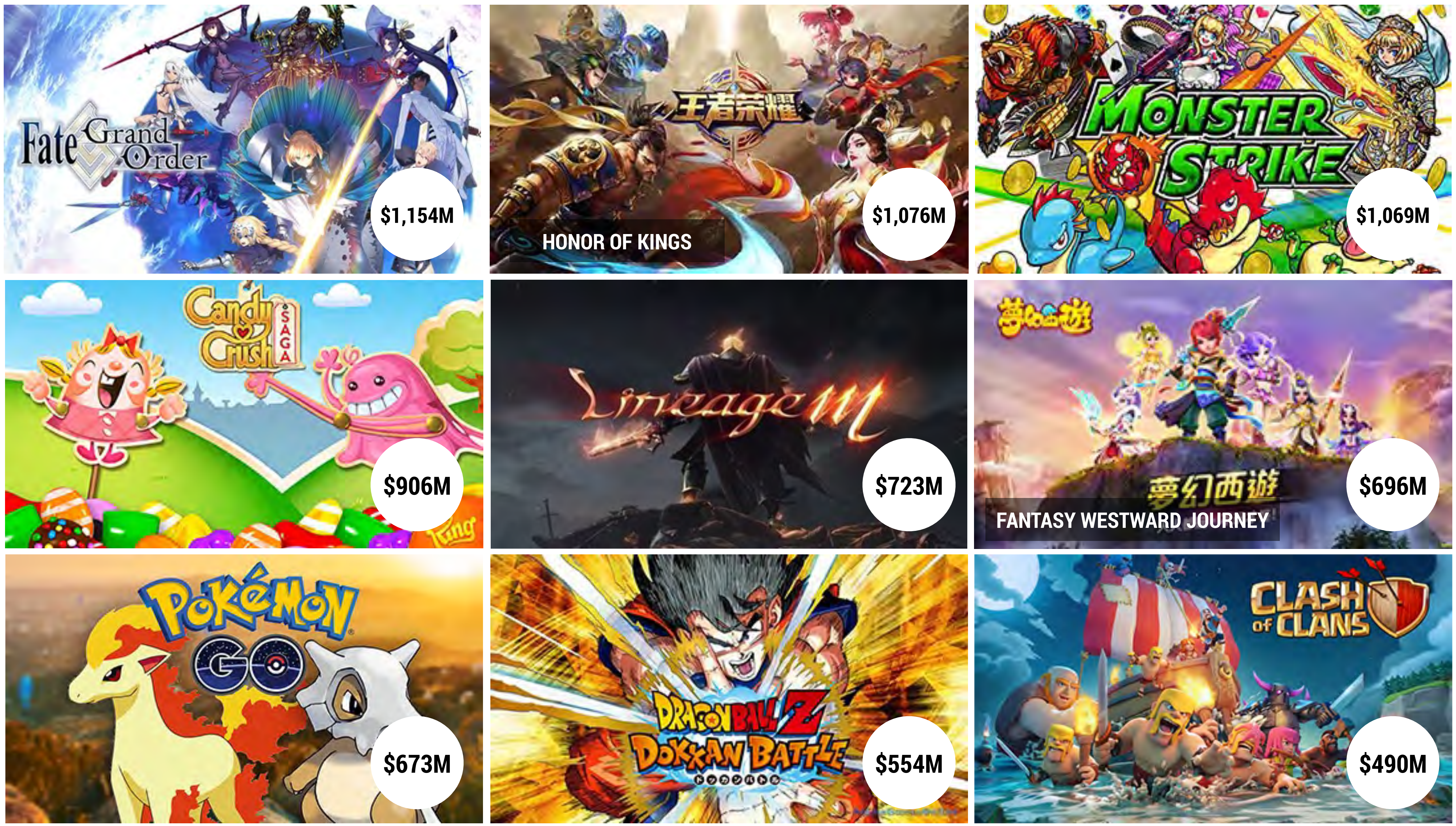
Sources: Activate analysis, App Annie, SuperData, Verto Analytics

All of the top-earning mobile games are free-to-play and rely on in-game transactions

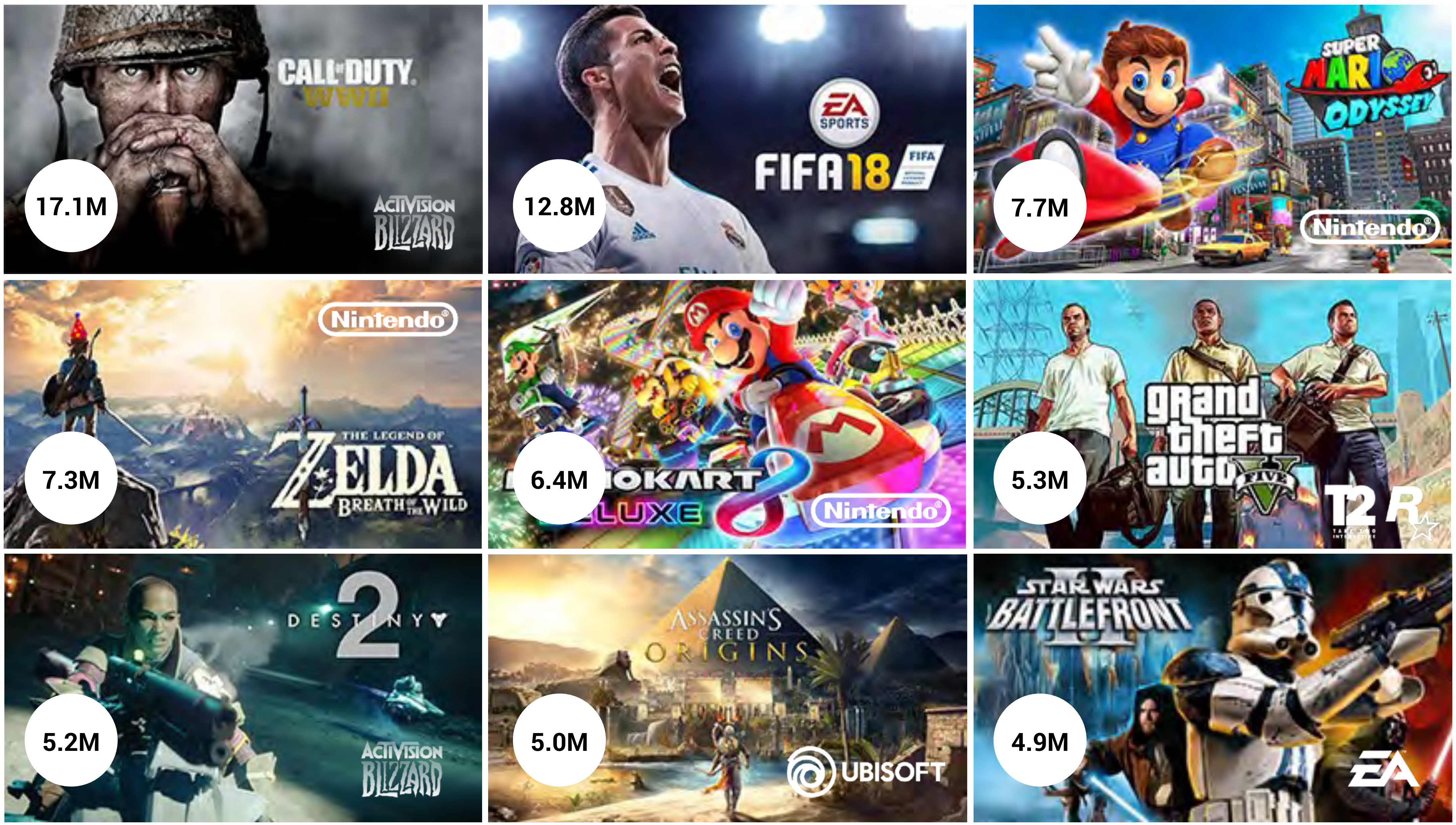
TOP-EARNING MOBILE GAMES[1], GLOBAL, JAN.-OCT. 2018, MILLIONS USD



1. Based on estimated revenues for iOS and Google Play apps and adjusted to account for revenue share taken.
Sources: Activate analysis, App Annie

Today's top-selling console games are highly-immersive entries in tentpole franchises

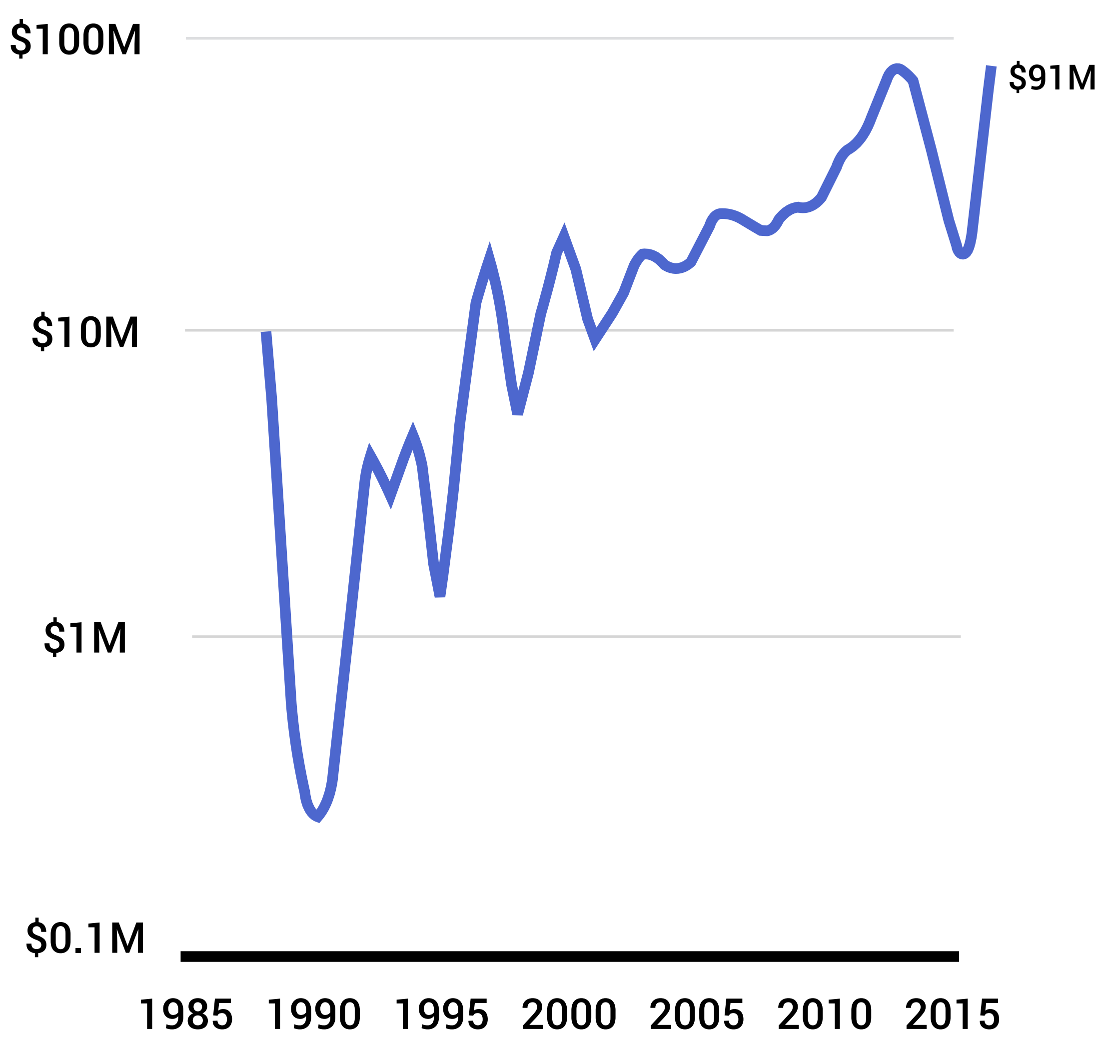
TOP SELLING CONSOLE VIDEO GAME TITLES[1], GLOBAL, 2017, MILLIONS UNIT SALES



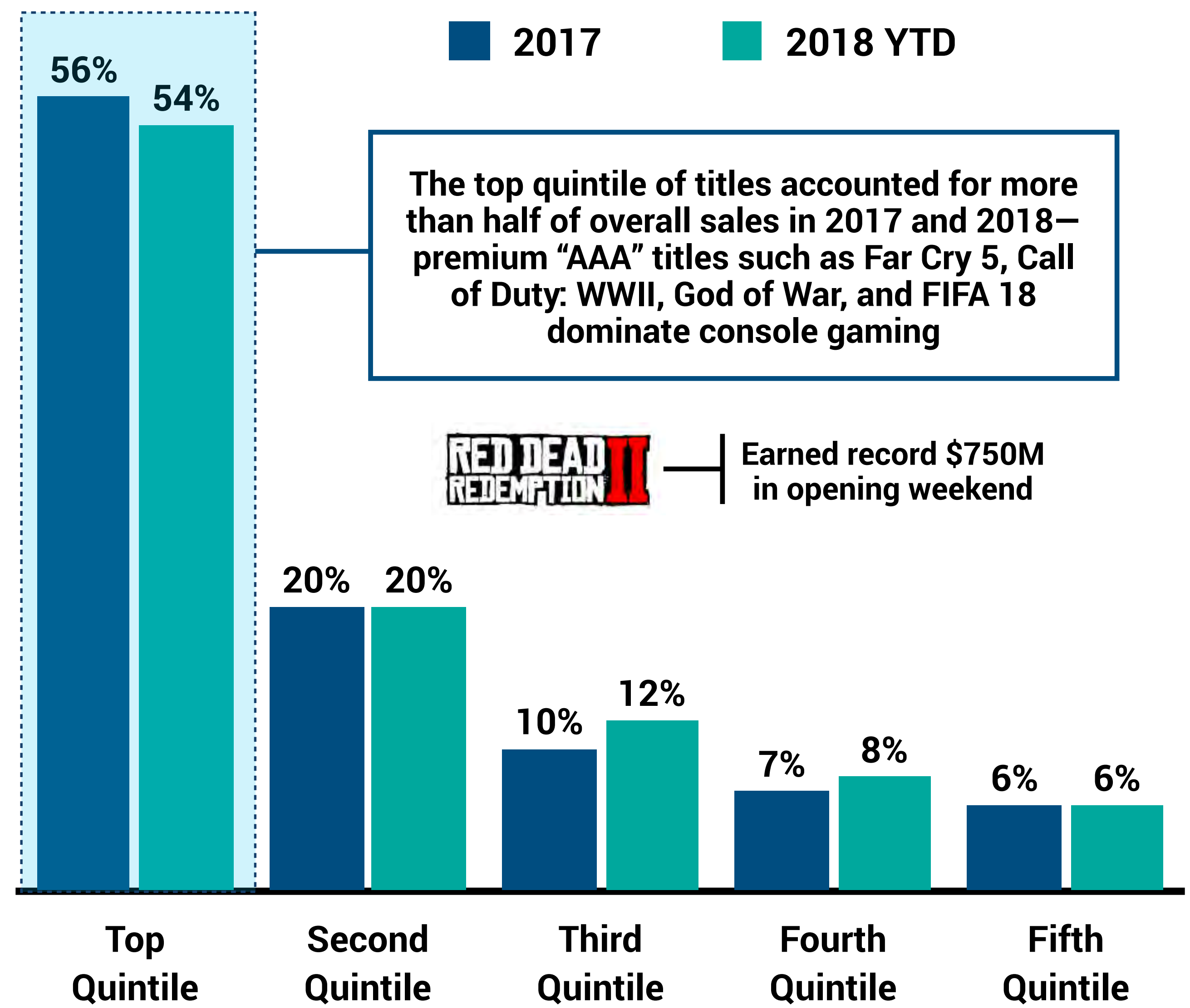
1. Top titles based on top 100 titles by unit sales, according to VGChartz. VGChartz data treats different SKUs of the same title as separate line items, so consolidated list contains only 80 discrete titles.
Sources: Activate analysis, VGChartz

Today's console games require significant development spend by publishers, as well as consumer investment in dedicated hardware—but gamers will soon be able to access these games in the cloud

AVERAGE DEVELOPMENT COST PER GAME[1], GLOBAL, 1985-2015, MILLIONS USD



CONSOLE GAME UNIT SALES BY QUINTILE[2], GLOBAL, 2017-2018 YTD, % SALES

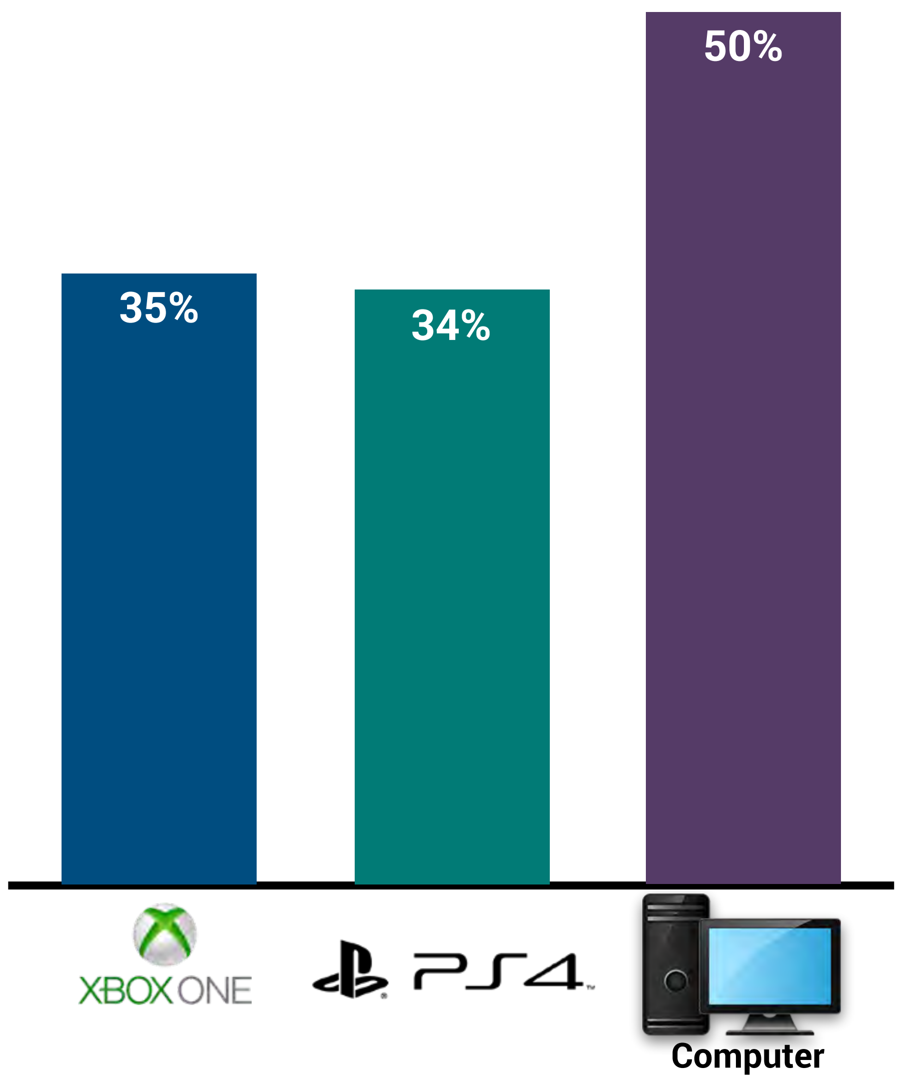


1. Drop in 2014 attributed to lack of reliable data. Adjusted for inflation. Analysis was conducted by researcher Raph Koster based on publicly released data and expert interviews for 250+ games over the course of 30 years. Excludes marketing spend.
2. Quintiles based on top 100 titles by unit sales, according to VGChartz. VGChartz data treats different SKUs of the same title as separate line items, so consolidated list contains only 80 discrete titles. Figures will not sum to 100% due to rounding.

Sources: Activate analysis, Newzoo, Research conducted by Raph Koster, Slice Intelligence, Tapjoy, VGChartz

PC offers gamers extensive community connection, with PC games among the most popular in eSports competitions

SHARE OF ESPORTS FANS THAT PLAY GAMES ON EACH DEVICE, U.S., 2017, % FANS[1]



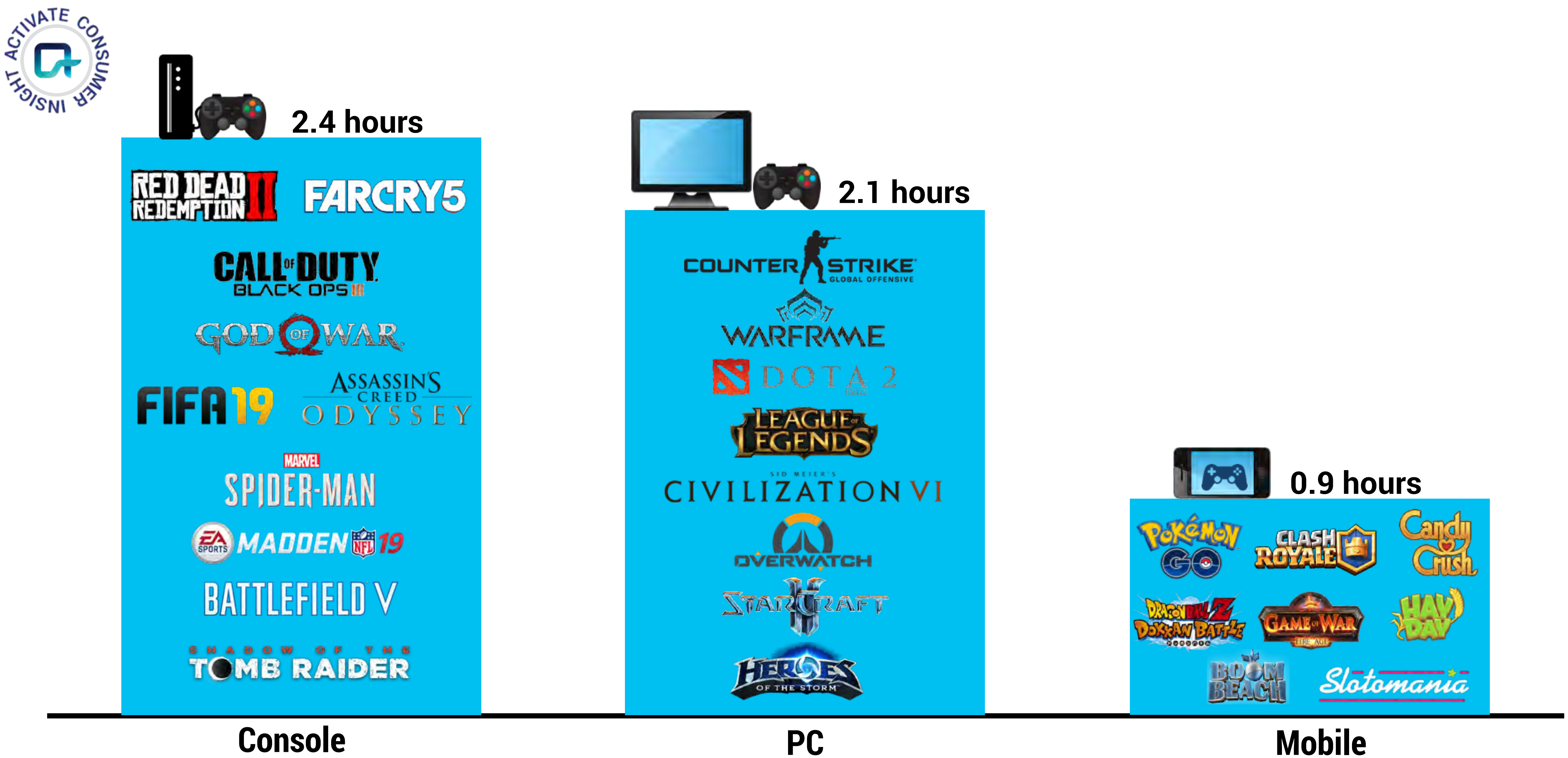
TOP ESPORTS TITLES BY TOTAL PRIZE MONEY AND PRIMARY GAMING TITLE PLATFORM, GLOBAL, AS OF JULY 2018, MILLIONS USD

GAME TITLE	PRIZE MONEY AWARDED ($M)	PRIMARY PLATFORM
DOTA 2	$143.8M	PC
COUNTER STRIKE GLOBAL OFFENSIVE	$55.8M	PC
LEAGUE of LEGENDS	$53.5M	PC
STARCRAFT II	$26.7M	PC
HEROES OF THE STORM	$13.5M	PC
HEARTHSTONE	$12.2M	PC/Mobile
COUNTER STRIKE	$11.0M	PC
SMITE	$8.4M	PC
STARCRAFT BROOD WAR	$7.6M	PC
OVERWATCH	$7.0M	PC

1. "Fans" defined as those who regularly engage with eSports.
Sources: Activate analysis, eSportsearnings.com, Goldman Sachs, Nielsen

Each type of gaming requires a different level of time investment—the average mobile loyalist plays less per day than the average console/PC loyalist

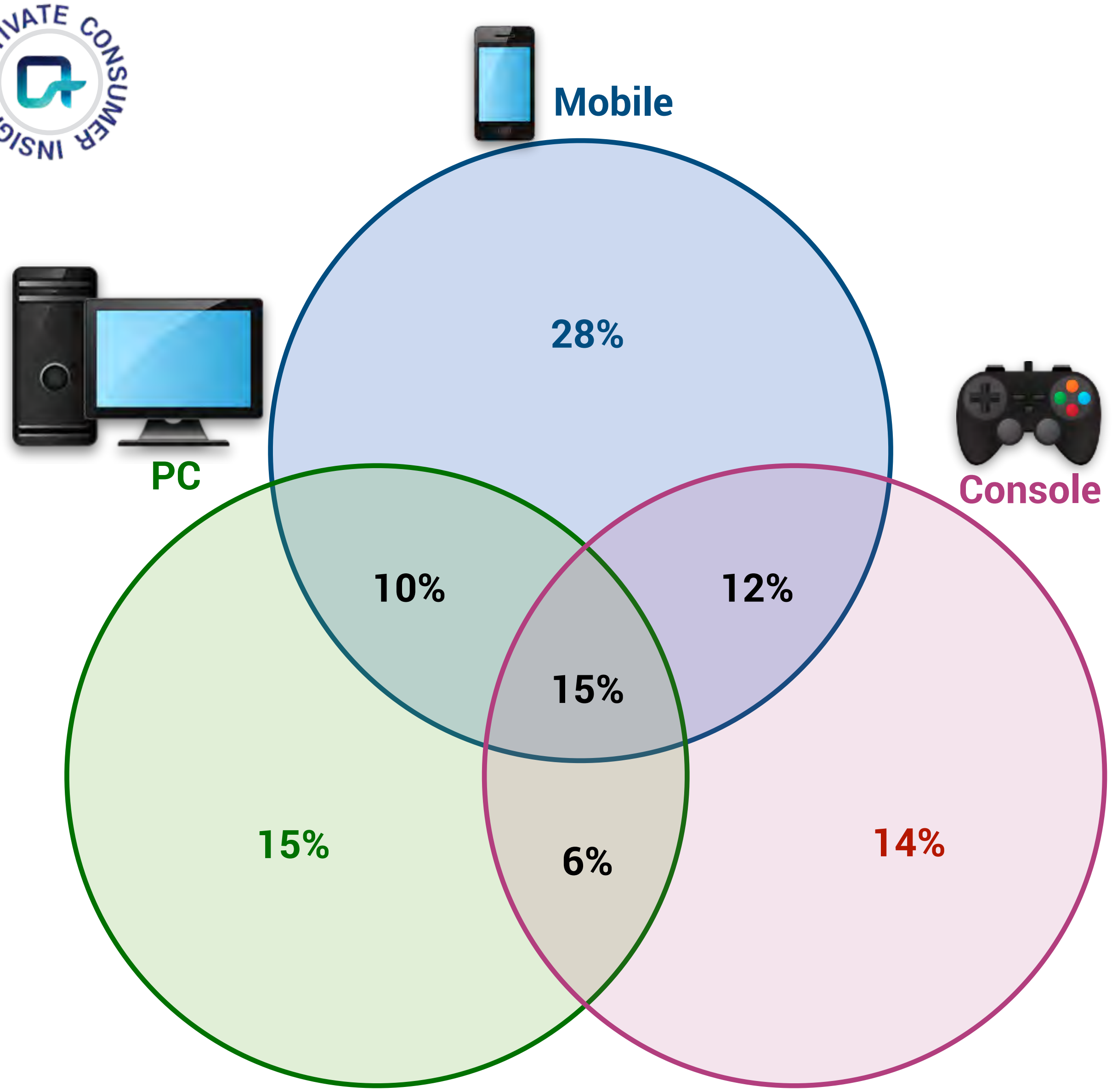
AVERAGE DAILY TIME SPEND BY PLATFORM, U.S., 2018, HOURS PER DAY PER PLATFORM LOYALIST[1]



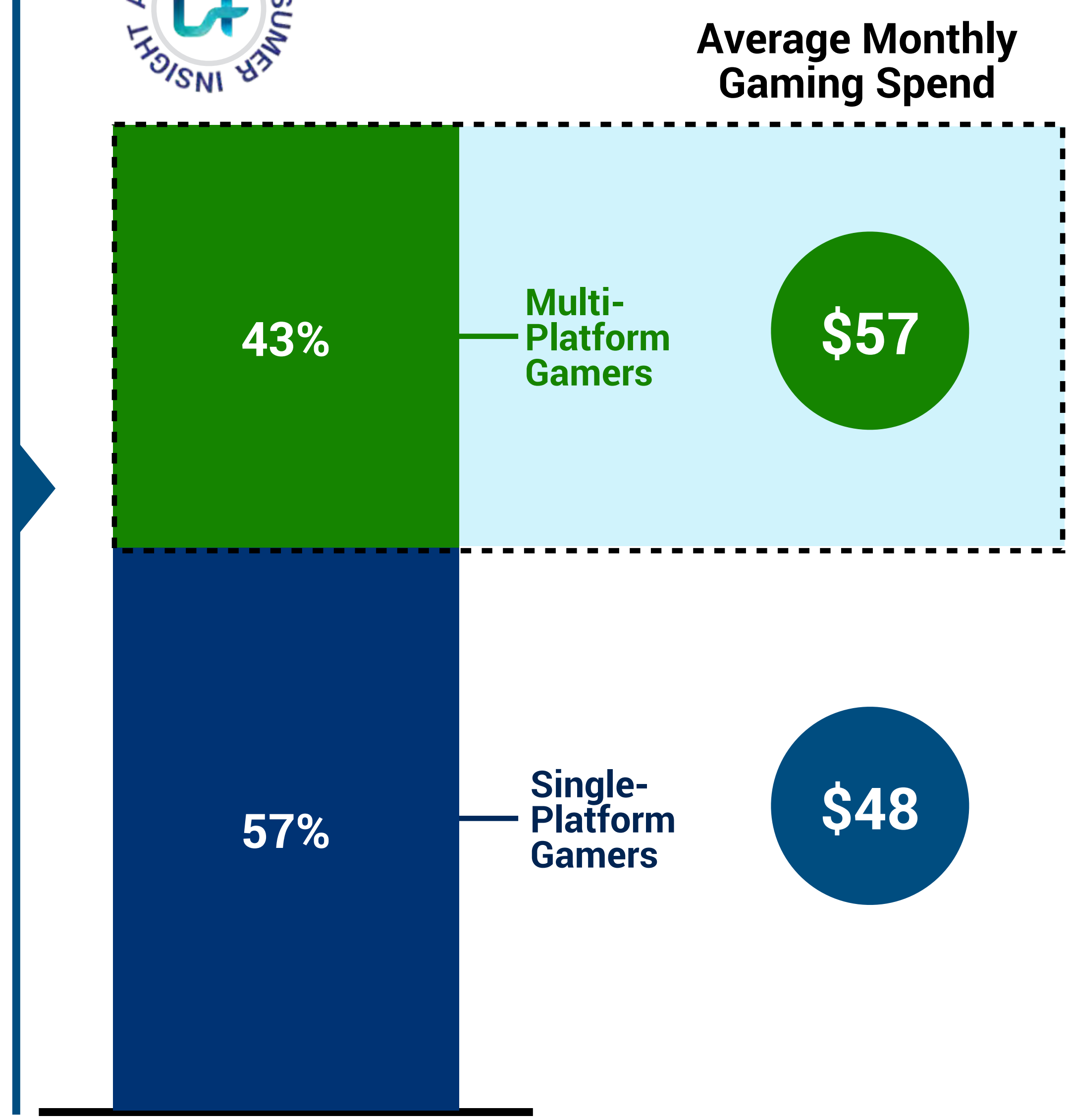
1. Exhibit only examines gamers that described each platform as their sole gaming platform.
Source: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,401), App Annie, Flurry Intelligence

Gamers recognize that each platform offers a different experience, which is why almost half of gamers play on multiple devices and spend more in the process

GAMER OVERLAP BY MAJOR PLATFORM[1], U.S., 2018, % GAMERS



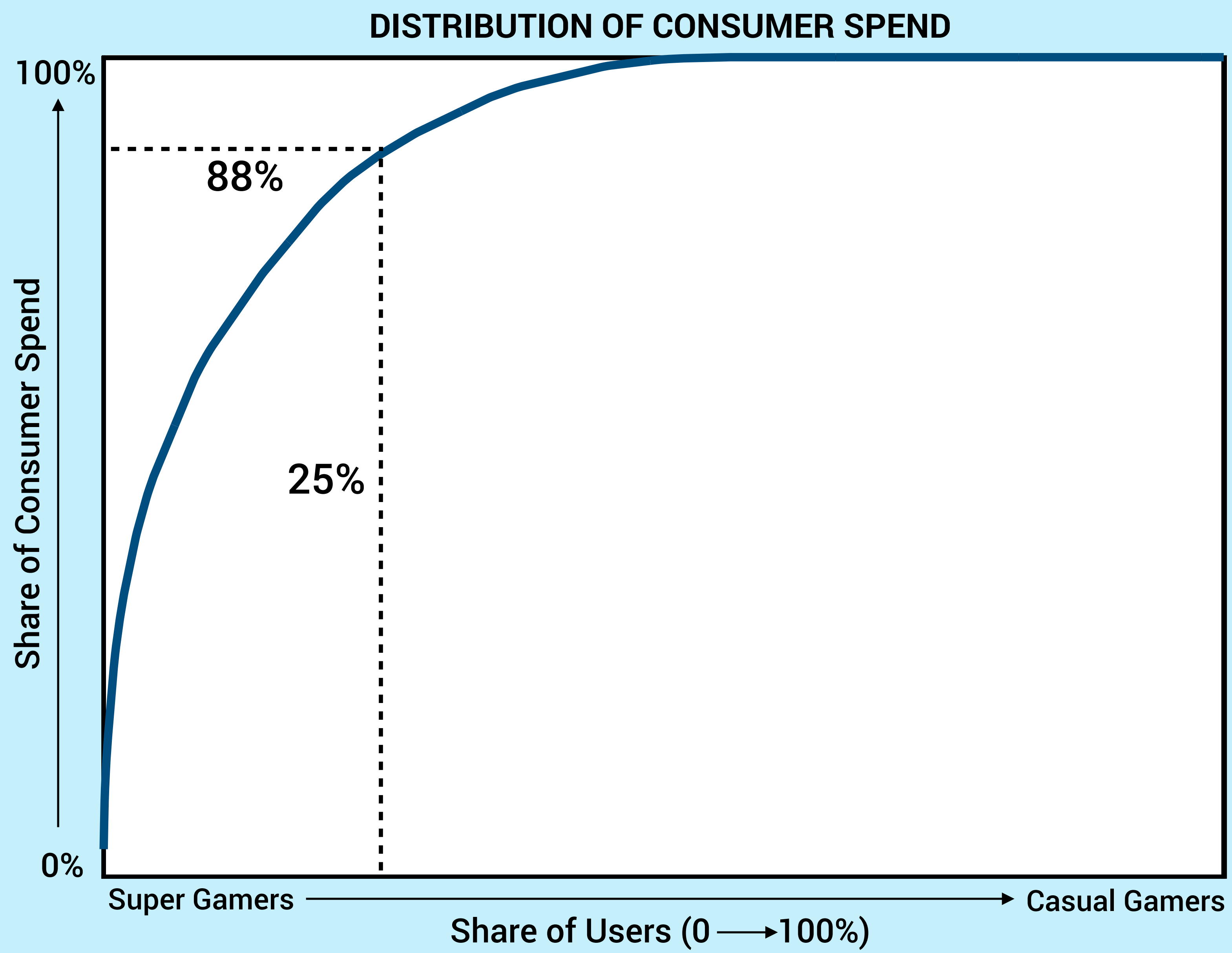
GAMERS BY MULTI-PLATFORM BEHAVIOR, U.S., 2018, % GAMERS



1. Analysis examines console, PC, and mobile. Excludes handheld consoles.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,401)

In fact, Super Users are the core of gaming

GAMING CONSUMER SPEND RELATIVE TO SHARE OF USERS, U.S., 2018, % TOTAL



TIME SPENT:
Top 25% of gamers by time (4+ hours of daily video game attention) generate 60% of play time

Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,401)

In the near future, cloud gaming will enable gamers to find and play any premium title without purchasing expensive consoles/PCs

TRADITIONAL CONSOLE/PC CONSUMER JOURNEY

$500-1,000[1]
Purchase of console or gaming PC to run game locally on owned hardware

→

$40-60[2]
Purchase of full license for <u>a single</u> premium console or PC title

→

$30-40[3]
In-game transactions or additional downloadable content (DLC)

CLOUD GAMING CONSOLE/PC CONSUMER JOURNEY

$20-40/mo[4]
Cloud gaming subscription through existing (e.g. Chromecast) or low-cost hardware (e.g. rented streaming box) to run game remotely on rented servers

→

$5-10/mo
Monthly fee for access to subscription <u>library of titles</u>

→

$30-40
In-game transactions or additional downloadable content (DLC)

1. Inflation-adjusted average cost of gaming console since 1972 comes to just over $500 in 2016 dollars. High-end gaming PCs likely to exceed consoles in price.
2. High-end based on historical price point for premium games in the United States.
3. High-end based on average DLC/in-game spending per user.
4. Based on average cost of services such as Blade Shadow (high-end) and PlayStation Now (low-end).

Sources: Activate analysis, IGN, Mordor Intelligence

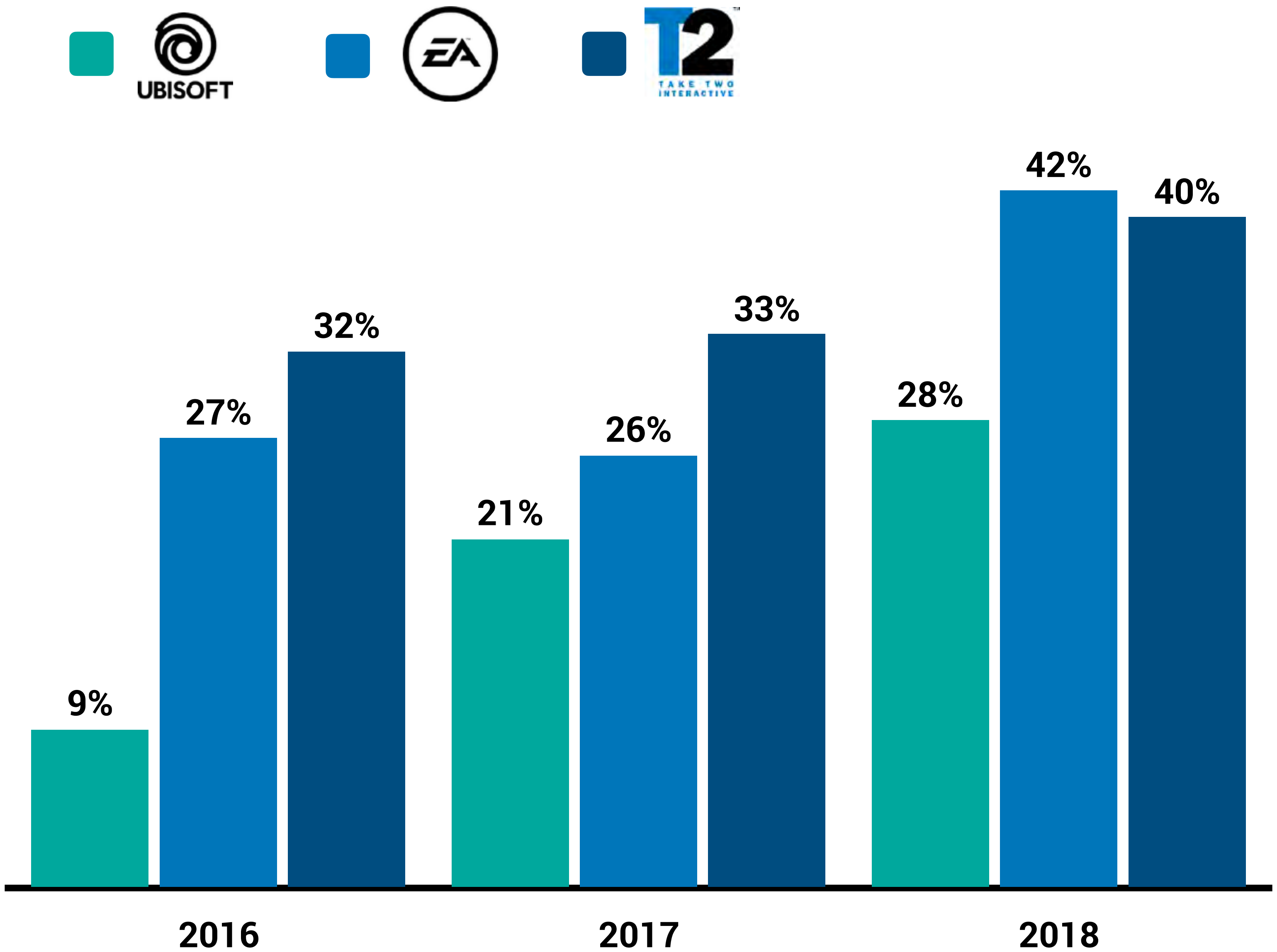
Gaming will move to the cloud as gaming incumbents, technology players, and insurgent start-ups develop cloud gaming products across platforms

	COMPANY	EXAMPLE INITIATIVES IN CLOUD STREAMING TECHNOLOGY
Incumbent streaming players	Microsoft	• Cloud gaming division is building a product to stream games across all devices (i.e. consoles, PCs, and smartphones)
	SONY	• Acquired Gaikai and OnLive to build PlayStation Now streaming service for PlayStation owners
	Google	• Agreement with Ubisoft to launch Project Stream (streaming Assassin's Creed Odyssey on Chrome browser)
	NVIDIA	• GeForce NOW enables access to cloud gaming rig through laptop, desktop, or SHIELD TV streaming device
Start-up streaming players	LIQUIDSKY	• Access to a cloud gaming rig on any device (including mobile), allowing gamers to access Steam, Origin, and Blizzard libraries
	SHADOW	• Blade product debuted in Europe in 2016—allows gamers to access a cloud PC from various devices • Adjusts fidelity and frame rate depending on device and bandwidth

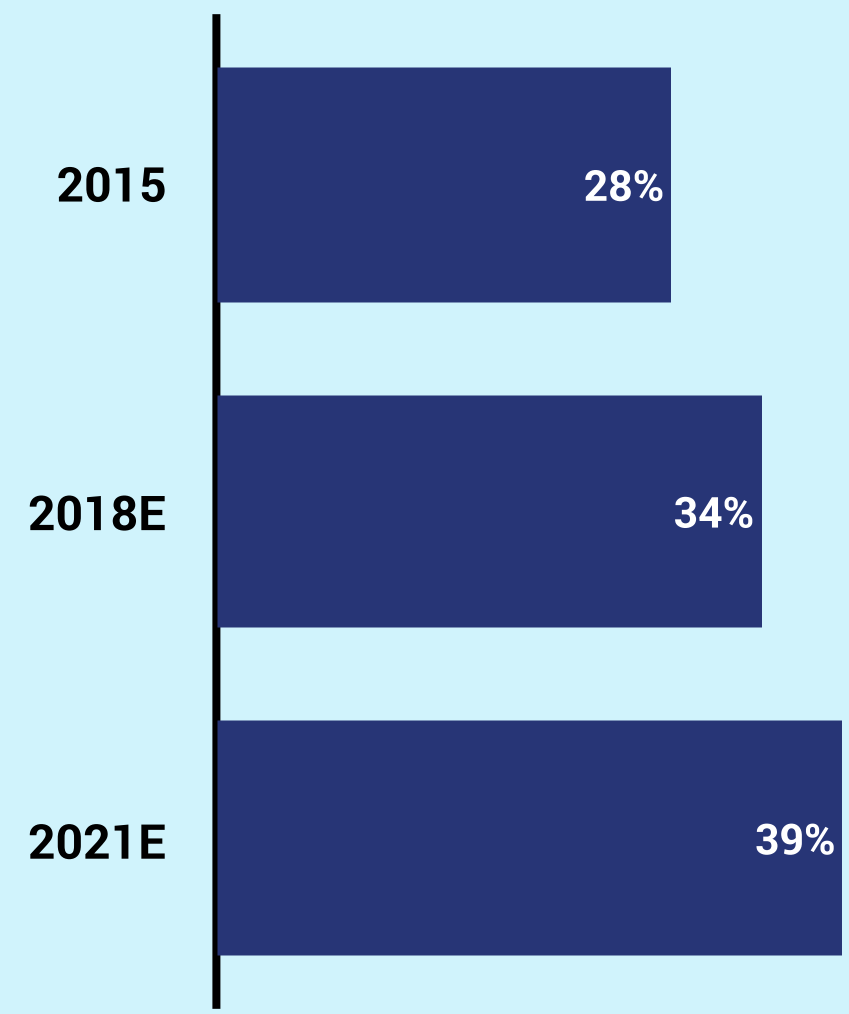
Sources: Company sites, Polygon, TechCrunch, The Verge

Top console and PC publishers are already building recurring revenue streams through in-game transactions and downloadable content

RECURRING DIGITAL REVENUE AS SHARE OF NET REVENUE, GLOBAL, 2016-2018[1], % TOTAL COMPANY REVENUE



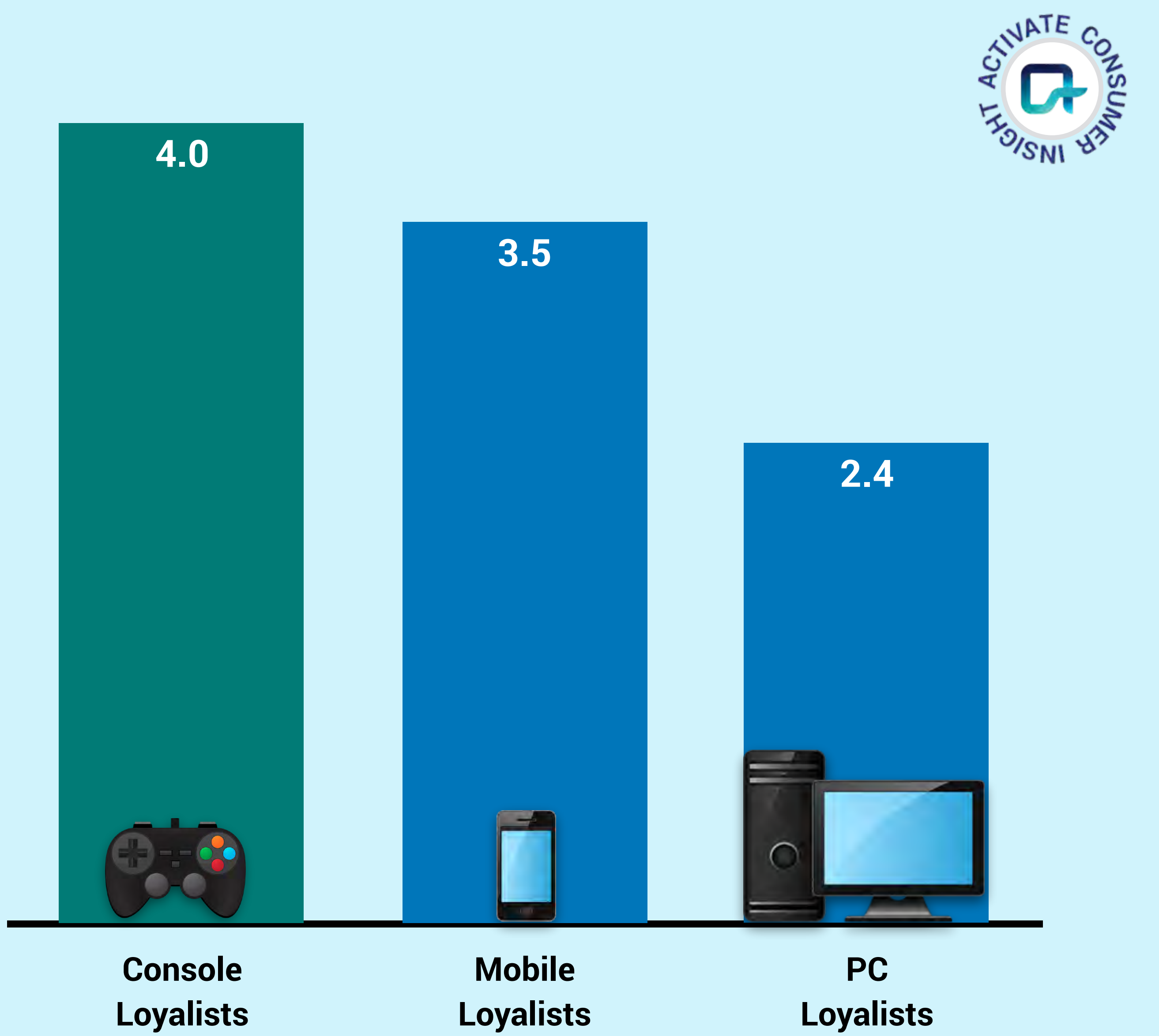
IN-GAME TRANSACTIONS AS SHARE OF TOTAL PC/CONSOLE GAME REVENUE, U.S., 2015-2021E, % REVENUE



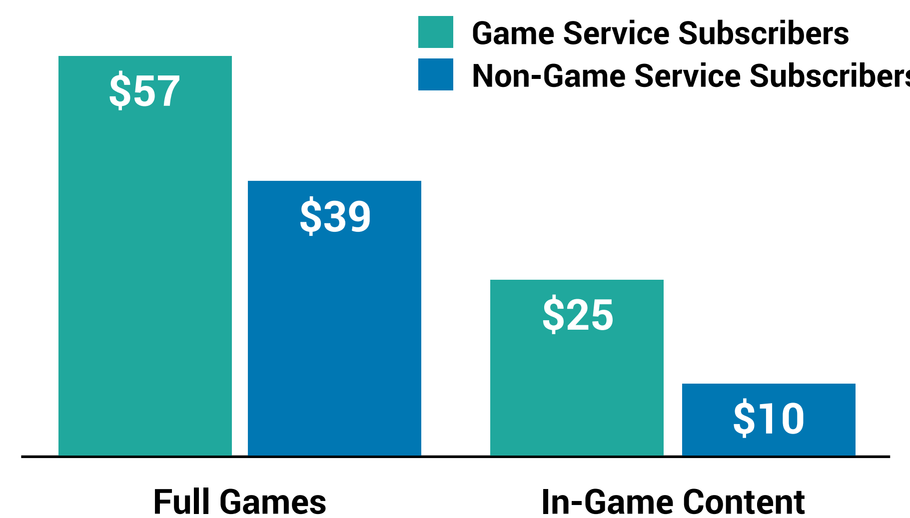
1. Data for each year is based on individual publisher definitions of the fiscal year (e.g. data for FY 2018, irrespective of alignment with CY 2018, is plotted in 2018).
Sources: Activate analysis, Company filings, PricewaterhouseCoopers

Recurring revenue models will evolve into subscription services (built on top of cloud gaming platforms) that encourage gamers to both play new titles and spend more on the titles that they play

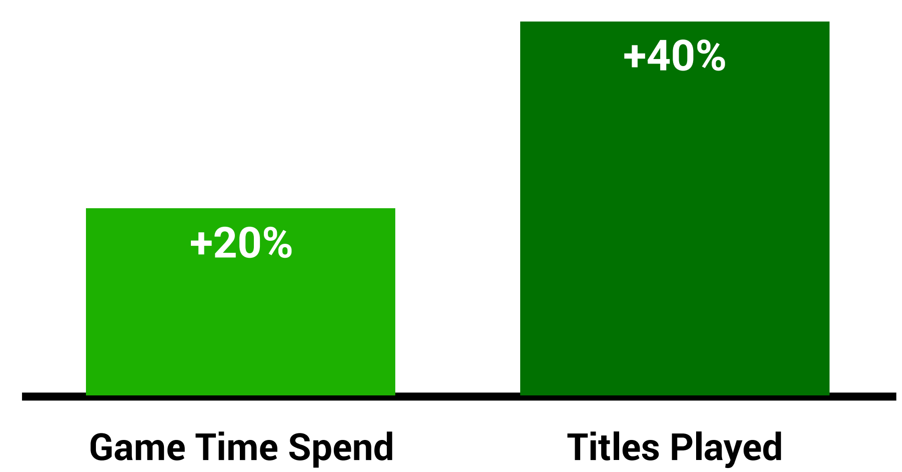
NUMBER OF GAMES PURCHASED/DOWNLOADED PER YEAR, BY PLATFORM, U.S., 2018, # GAMES



MONTHLY SPENDING PER GAMER BY GAMER TYPE AND SPEND TYPE, U.S., 2018, USD



IMPACT OF GAMEPASS ON SUBSCRIBER GAMING BEHAVIORS, U.S., 2018, % LIFT

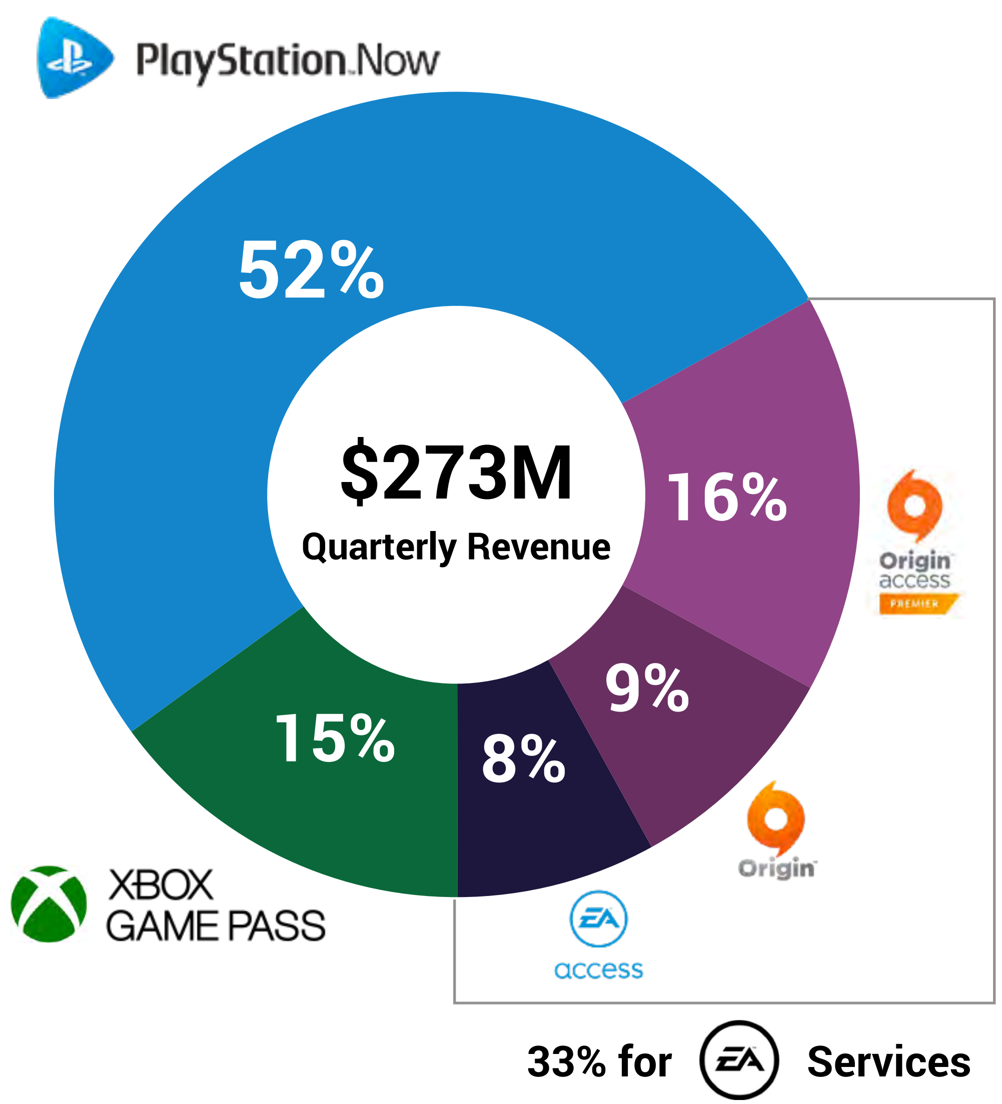


Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,401), Microsoft, SuperData, Variety

Gaming publishers and console/PC players are already launching subscription services, and experimenting with day-date title availability

	PLAYER	DETAILS OF SUBSCRIPTION OFFERING
Established players	Xbox	• Launched GamePass for console (and announced PC version in October 2018) for $9.99/mo • Provides users with subscription access to day-date releases of Microsoft titles, as well as a library of other titles
Established players	PlayStation	• PlayStation Now streaming service provides streaming access to library of licensed titles for $19.99/mo
Established players	EA	• EA Access provides access to Xbox One versions of EA games for $4.99/mo, with new titles released to the service after a delay • PC version (Origin Premier) allows gamers to access titles on the day of their release • Acquired GameFly streaming assets to bolster offering
Niche players	Utomik	• Access to library of 800+ PC games for $9.99/mo • Downloads small portion of game immediately to avoid long download times or streaming latency issues
Niche players	Jump	• Access to library of indie PC games for $4.99/mo

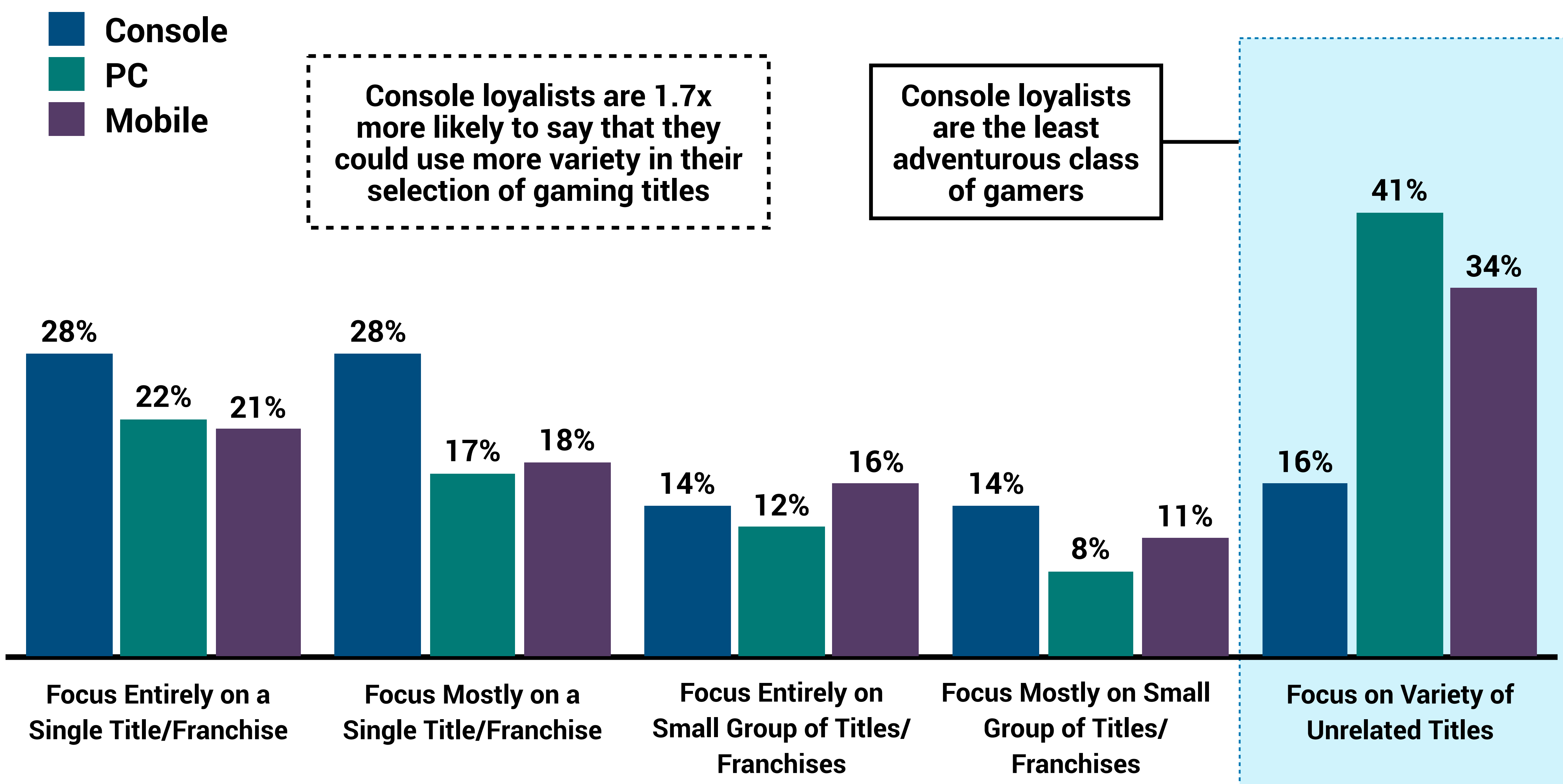
LEADING GAME SUBSCRIPTION SERVICE REVENUE BREAKDOWN, U.S., Q3 2018, % TOTAL REVENUE



Sources: Activate analysis, Company sites, SuperData

The shift to subscription services will benefit console gaming publishers by encouraging gamers to experiment with more titles

PRIMARY FOCUS OF GAMING TIME BY PLATFORM[1], U.S., 2018, % PLATFORM LOYALISTS[2]

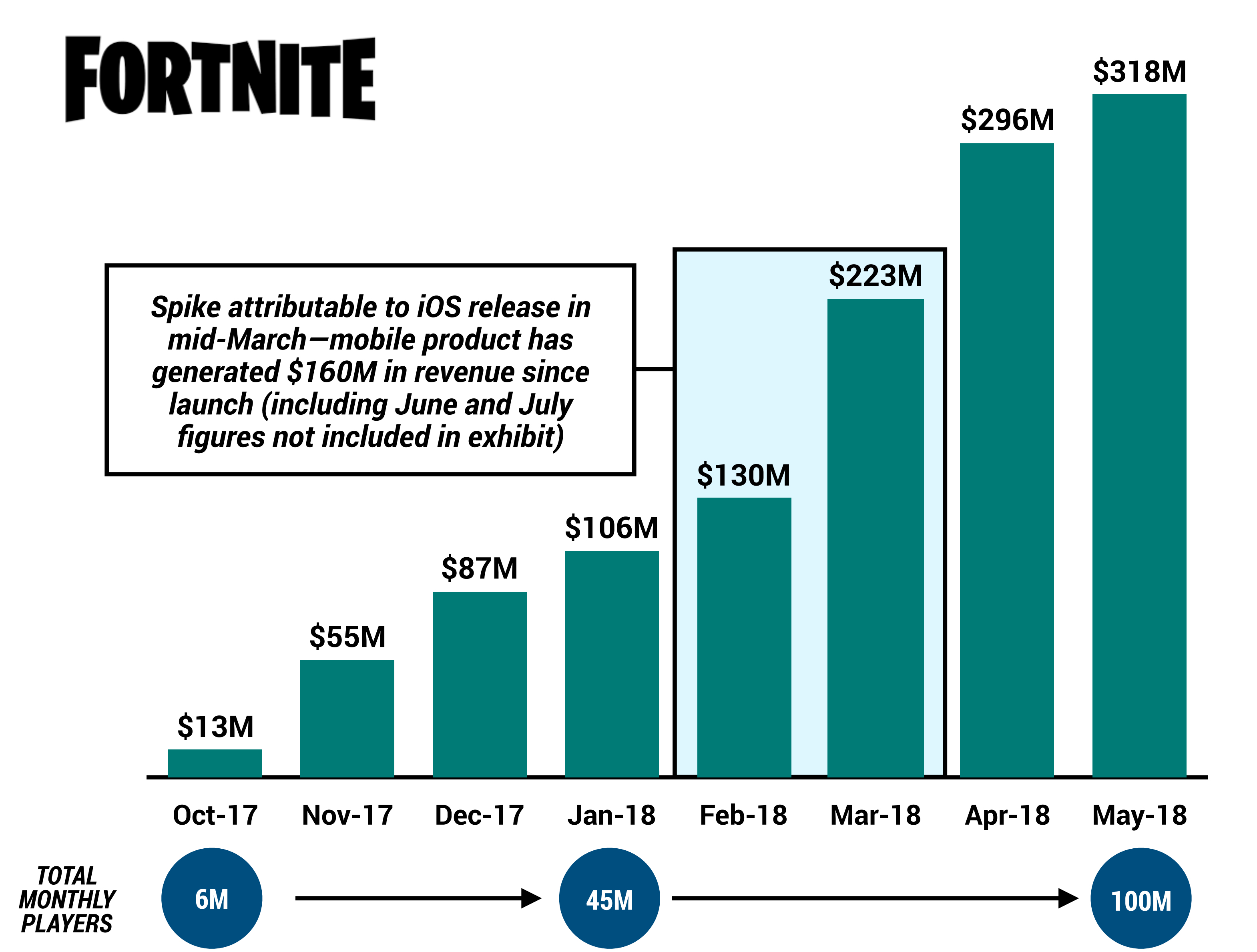


1. Respondents were asked to describe their gaming time based on the degree to which they focused on a single gaming title or franchise ("Which of the following best describes the video games that you play?"). The respondents selecting "I spend all of my gaming time with a single game or game series" are represented in the column labeled "focus entirely on a single title/franchise."
2. Categories only include respondents that selected the platform (i.e. PC, console, or mobile) as their only gaming device.

Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,401)

Fortnite is a harbinger of the type of game that will achieve global scale as gaming platforms converge—a free-to-play title that runs cleanly across platforms

FORTNITE MONTHLY REVENUE, GLOBAL, OCT. 2017-MAY 2018, MILLIONS USD



KEY SUCCESS FACTORS

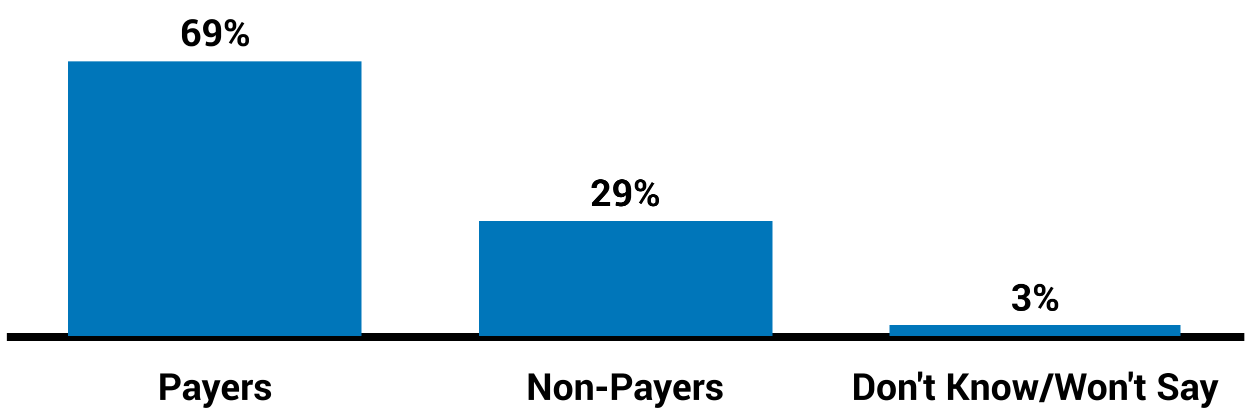
FACTOR	DESCRIPTION
FREE-TO-PLAY MONETIZATION MODEL	• **Free-to-play (F2P) model** has been key differentiator against PlayerUnknown's Battlegrounds (primary competitor), **reducing barriers to entry** for gamers • **60% of players report spending** on in-game content, providing reliable revenue
LOW SYSTEM REQUIREMENTS AND CROSS-PLATFORM PLAY	• **Reduced demands on hardware processing power** means 25% of players are on mobile and PC • **160 million downloads on iOS** alone within 5 months of release—Android release (currently in beta) will bolster mobile even further
STREAMING PLATFORM-FRIENDLY GENRE	• **126M hours of viewership on Twitch in June 2018**, compared to 72M for next-best title • Streaming platforms, combined with F2P, **encourage gamers to experiment** with the title

Sources: Activate analysis, Epic Games, Recode, SuperData, VentureBeat

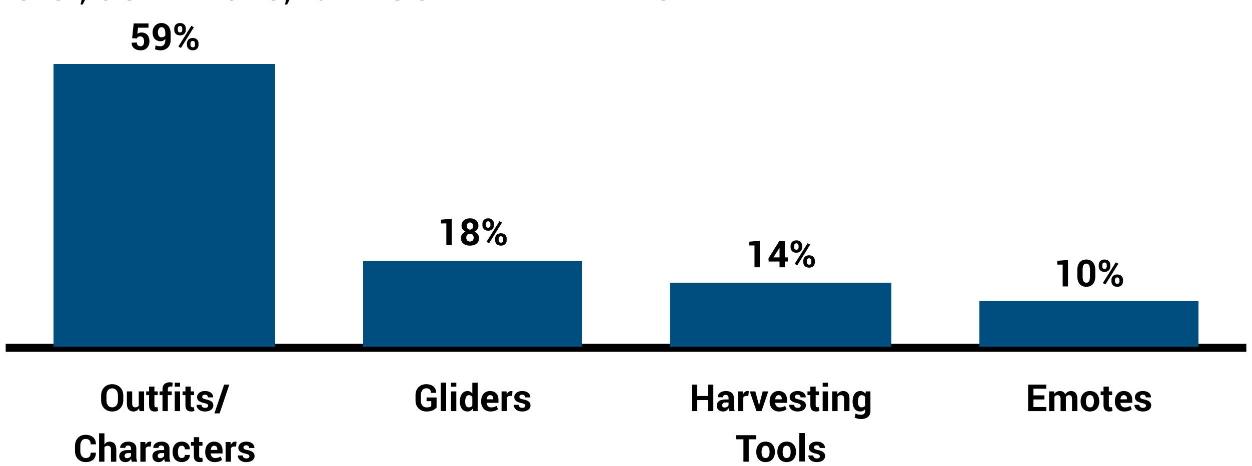
In fact, Fortnite has shown how the F2P model can spread beyond mobile—almost 70% of regular players are spending in-game across platforms

FORTNITE DLC[1] SPENDING BEHAVIOR[2], U.S., JUNE 2018, % REGULAR PLAYERS

FORTNITE PLAYERS BY PAYMENT BEHAVIOR,
U.S., JUNE 2018, % REGULAR PLAYERS



FORTNITE DLC SPENDING BY TYPE[3],
U.S., JUNE 2018, % REGULAR PLAYERS



INITIATIVE	IMPLICATION
FORTNITE BATTLE PASS SUBSCRIPTION	• $10/month subscription allows players to complete small tasks in exchange for access to DLC tiers • Encourages daily engagement with smaller tasks, as well as incremental DLC spending
SEASON-BASED REFRESHES	• Fornite "seasons" refresh Battle Pass subscriptions • Players encouraged to re-engage in order to regain progress in Battle Pass
LIMITED DLC AVAILABILITY	• Available DLC rotates on a regular basis, creating a perception of scarcity for in-demand items

1. Downloadable content. 2. Among respondents who selected Fortnite as the game that they "mainly played." Figures will not sum to 100% because of rounding. 3. "Outfits/characters" primarily refers to "skins" and other cosmetic items.
Sources: Activate analysis, Kotaku, LendEDU, Pollfish

Platform convergence will unlock significant value from Battle Royale-style games—players in this format are more likely to be Super Users

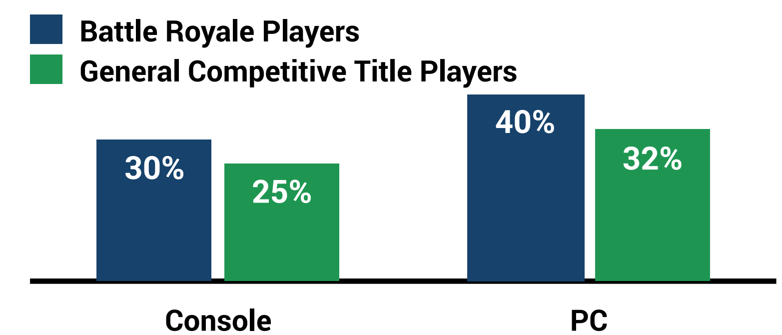
CHARACTERISTICS OF MAJOR MULTIPLAYER GAME FORMATS

GAME FORMAT	FORMAT ATTRIBUTES	EXAMPLE GAMES
MULTIPLAYER ONLINE BATTLE ARENA GAMES	• **Players:** Two teams, typically with five players each • **Main objective:** Destroy other team's base • **Gameplay:** Assume specific roles that have specific skills and weapons	StarCraft DOTA 2 League of Legends
BATTLE ROYALE GAMES	• **Players:** Typically very large number of players • **Main objective:** Stay alive • **Gameplay:** Minimal equipment/ scavenger elements	Fortnite DayZ, H1Z1 Battle Royale PlayerUnknown's Battlegrounds

BATTLE ROYALE PLAYERS ARE…

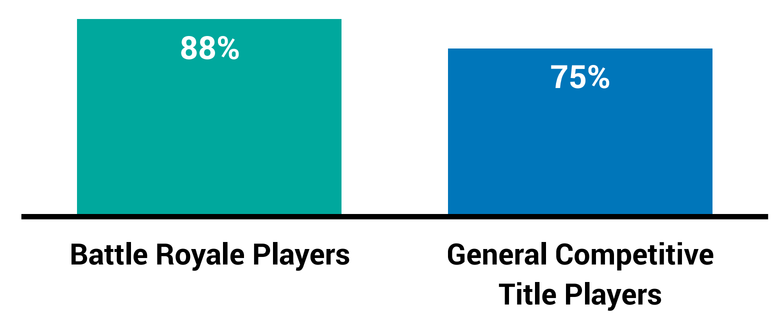
More likely to be multi-platform

GAMERS PLAYING 6+ HOURS PER WEEK BY PLATFORM, GLOBAL, 2018, % GAMERS



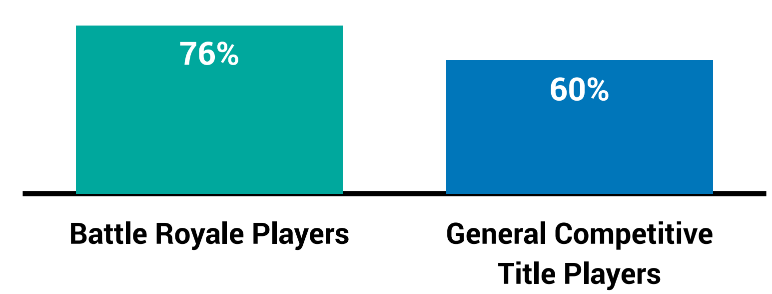
More likely to spend on gameplay

PLAYERS SPENDING MONEY ON GAMEPLAY BY GAMER TYPE, GLOBAL, 2018, % PLAYERS



More likely to watch eSports

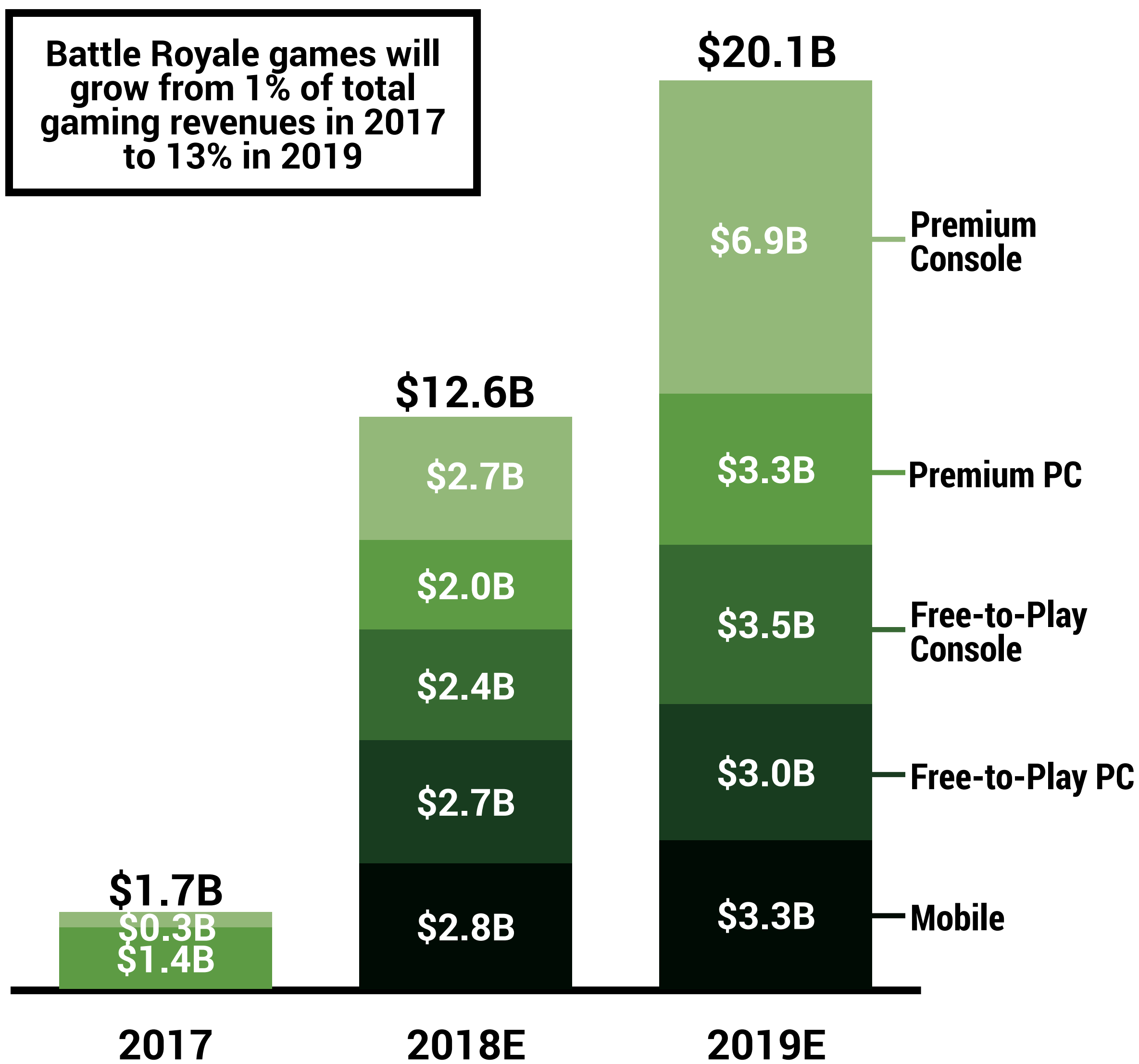
PLAYERS SUBSCRIBED TO 2+ VIDEO GAMING/ESPORTS CHANNELS BY GAMER TYPE, GLOBAL, 2018, % PLAYERS



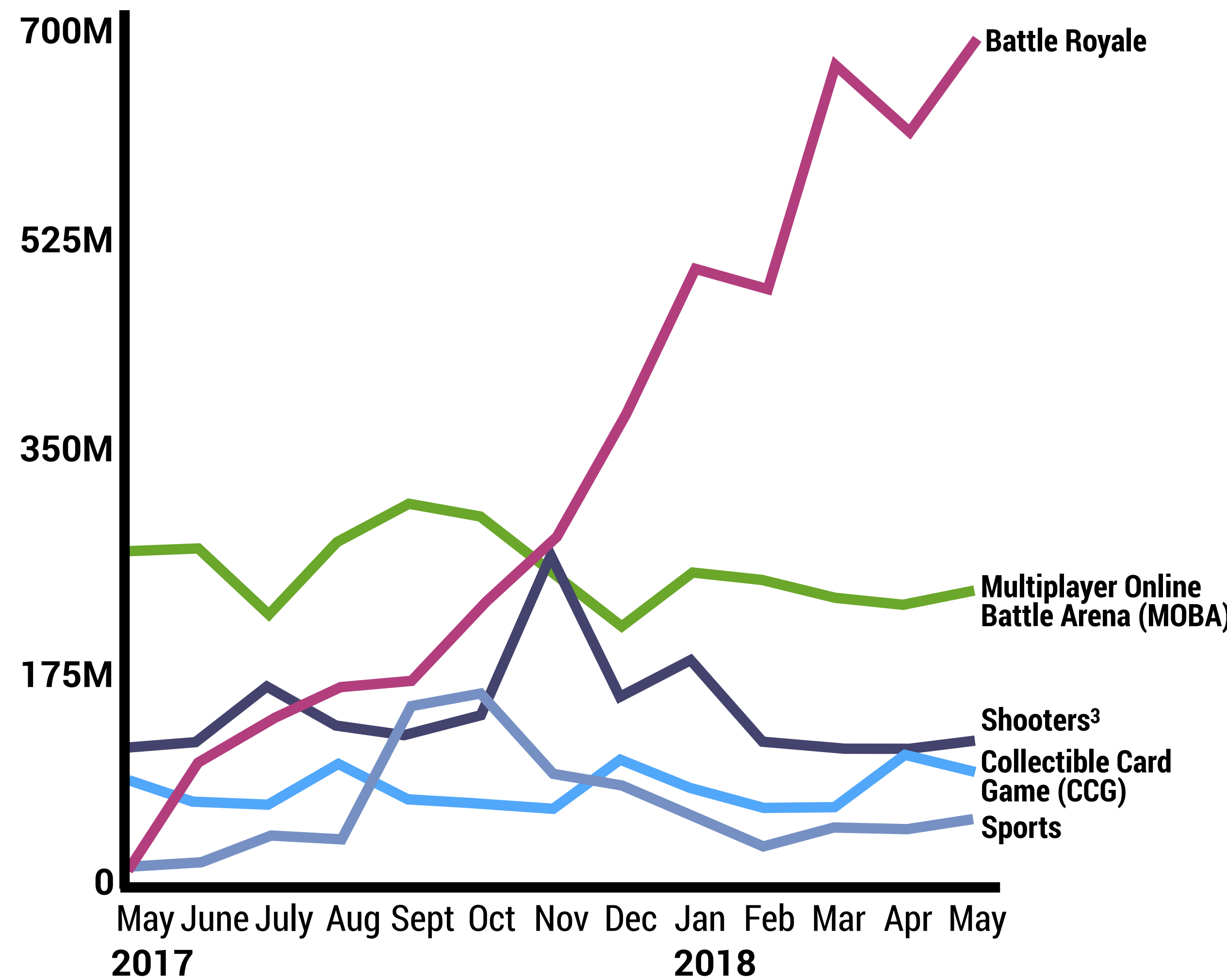
Sources: Activate analysis, Forbes, Newzoo, Polygon

Battle Royale-style games will drive revenues across all platforms—multi-platform title availability will also stimulate growth in eSports viewership

BATTLE ROYALE REVENUE BY GAMING PLATFORM[1], GLOBAL, 2017-2019E, BILLIONS USD



GAMING HOURS WATCHED BY TYPE ACROSS ALL PLATFORMS[2], GLOBAL, MAY 2017-MAY 2018, MILLIONS

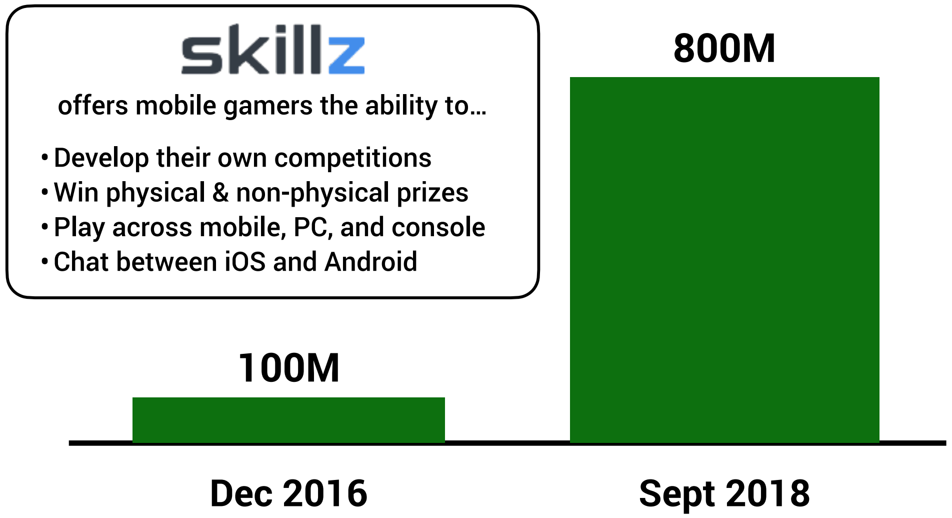


1. Battle Royale revenue includes all digital revenue from games that prominently feature a Battle Royale mode. Figures in 2019E bar will not sum to $20.1B because of rounding.
2. Games include key eSports titles across genres.
3. Does not include Battle Royale games.

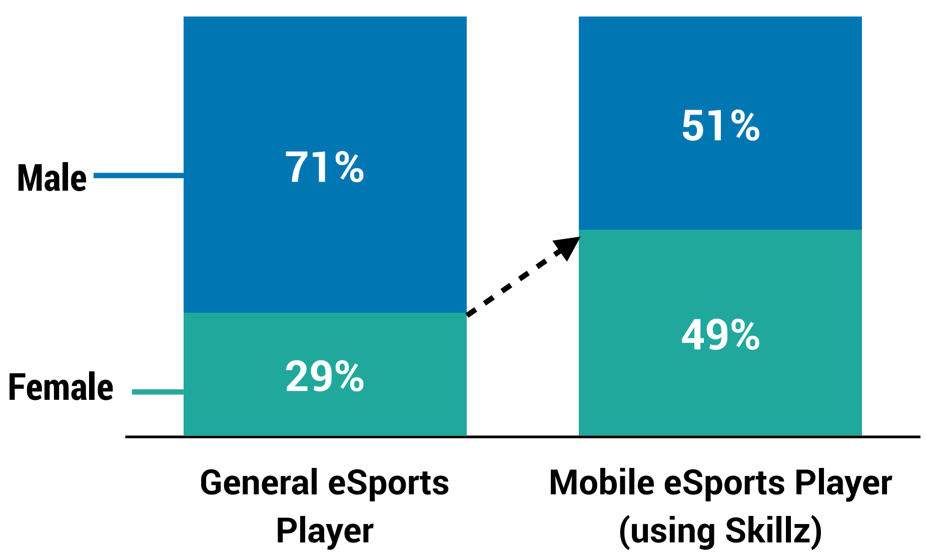
Sources: Activate analysis, SuperData

An increase in multi-platform titles, combined with new developer tools, will build a more engaged and diverse mobile eSports audience

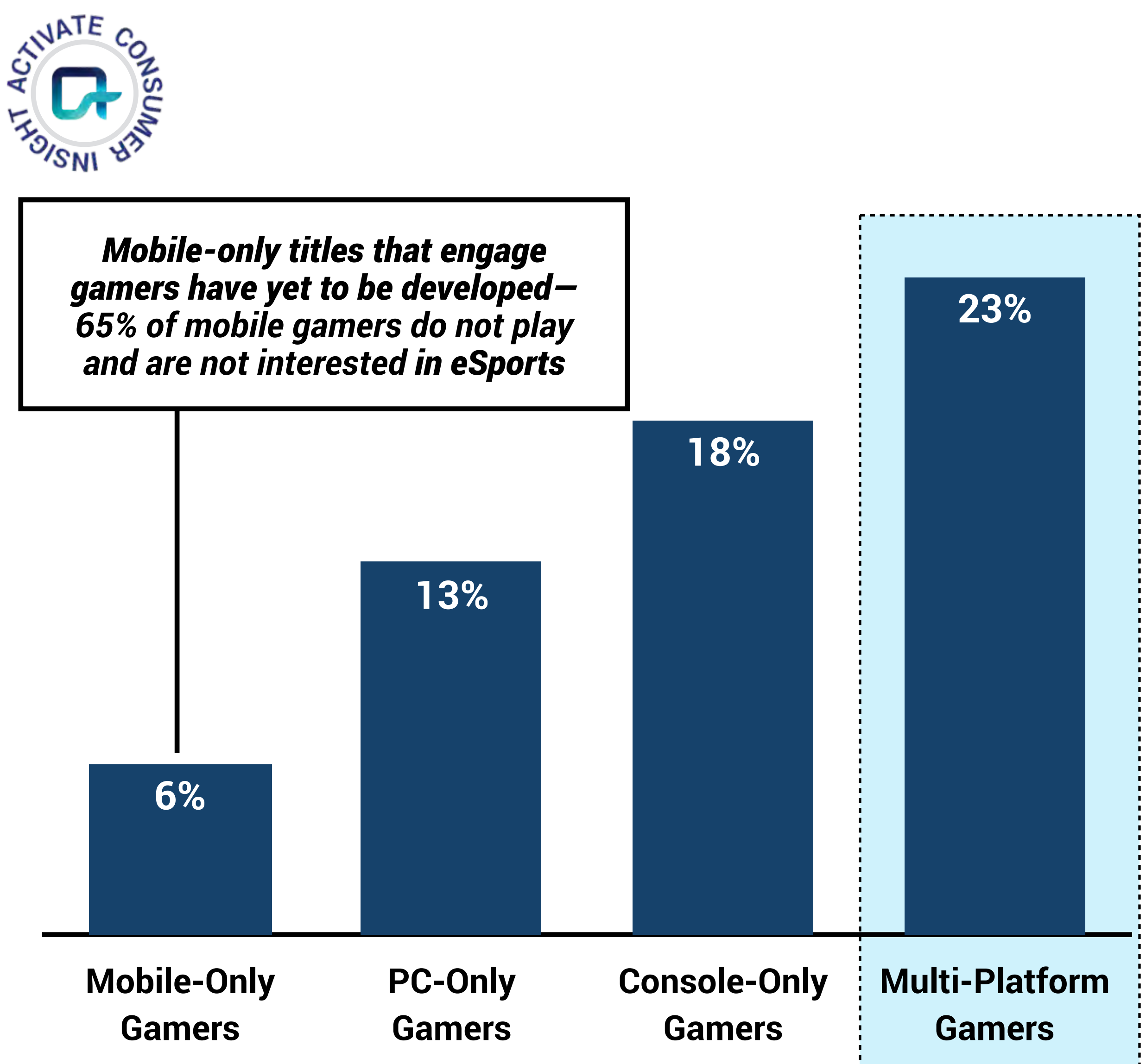
TOTAL MOBILE ESPORTS TOURNAMENTS HOSTED BY SKILLZ, GLOBAL, DEC. 2016 VS. SEPT. 2018, # TOURNAMENTS



ESPORTS GENDER BREAKDOWN BY PLAYER TYPE, U.S., 2018, % PLAYERS



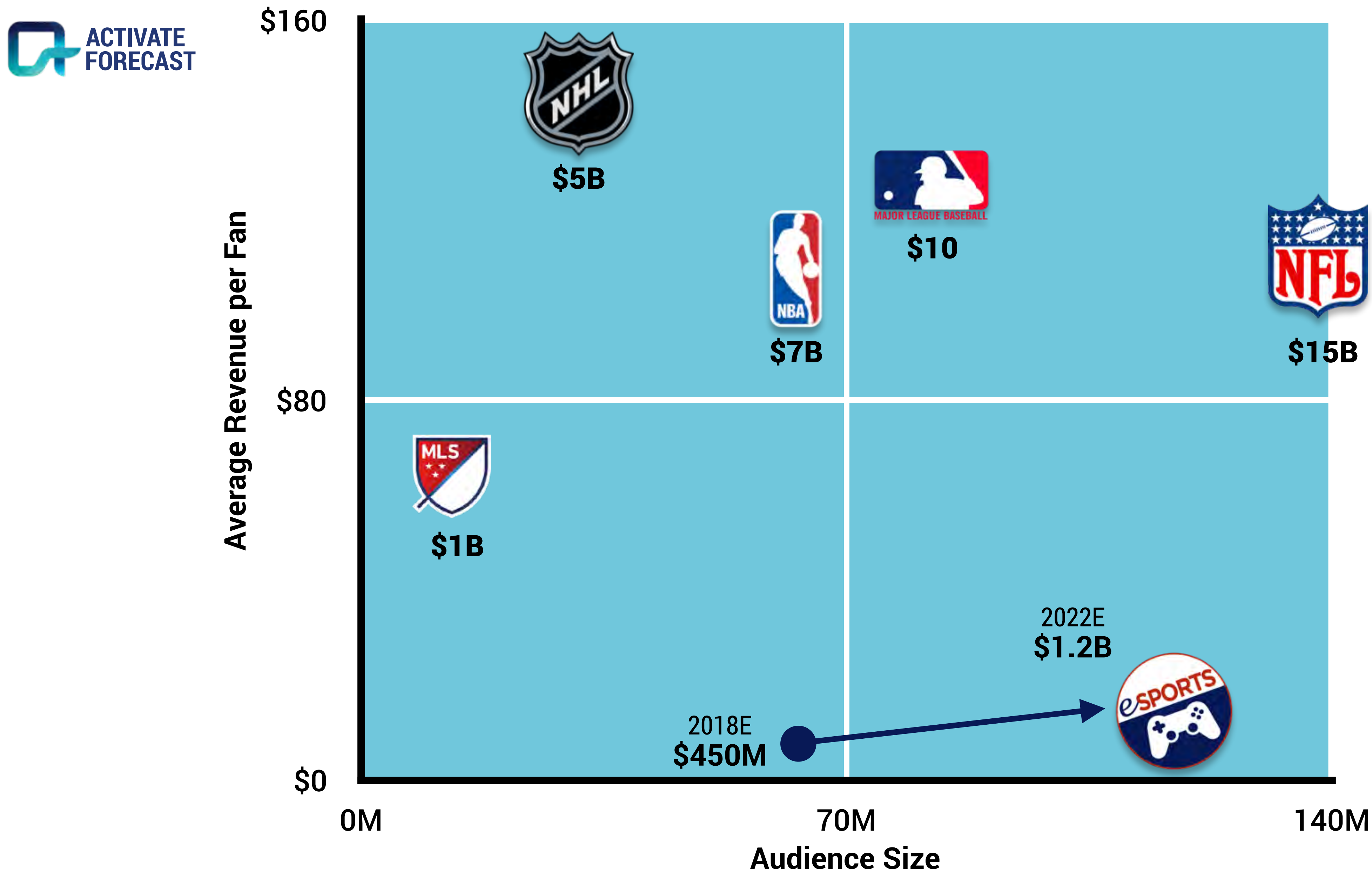
SHARE OF GAMING DEVICE PLAYERS THAT FOLLOW ESPORTS, U.S., 2018, % GAMER TYPE



Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (Left: n=376; Right: n=663; 358; 324; 995), Bloomberg, Company press releases

eSports will continue to grow rapidly—we forecast that global revenues will reach ~$4B and global viewership will reach 520M by 2022

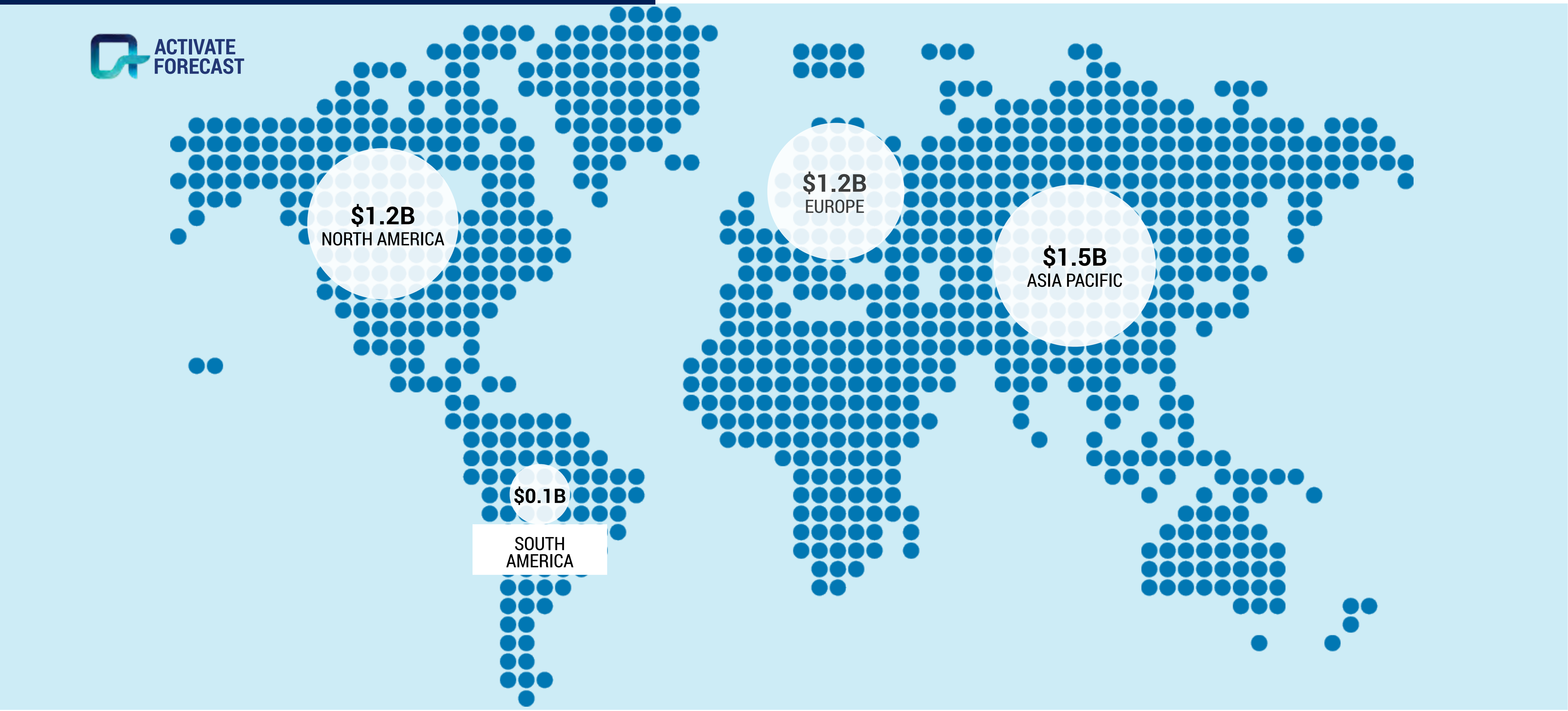
ESPORTS AND SPORTS AUDIENCE SIZE AND REVENUE[1], U.S., 2018E, BILLIONS USD



1. eSports revenues include sponsorship and advertising, prize pools, eSports betting, ticketing, merchandise, and media rights.
Sources: Activate analysis, Clairfield International, Goldman Sachs, Informa Telecoms & Media, Narus Advisors/Eilers & Krejcik Gaming, Newzoo, Ovum, PricewaterhouseCoopers, Reuters, Statista, SuperData

We forecast that global eSports revenues will reach ~$4B and global viewership will reach 520M by 2022

ESPORTS REVENUE[1], U.S., 2022E, BILLIONS USD



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Sources: Activate analysis, Clairfield International, Goldman Sachs, Informa Telecoms & Media, Narus Advisors/Eilers & Krejcik Gaming, Newzoo, Ovum, PricewaterhouseCoopers, Reuters, Statista, SuperData

The Most Important Insights for Tech and Media in 2019

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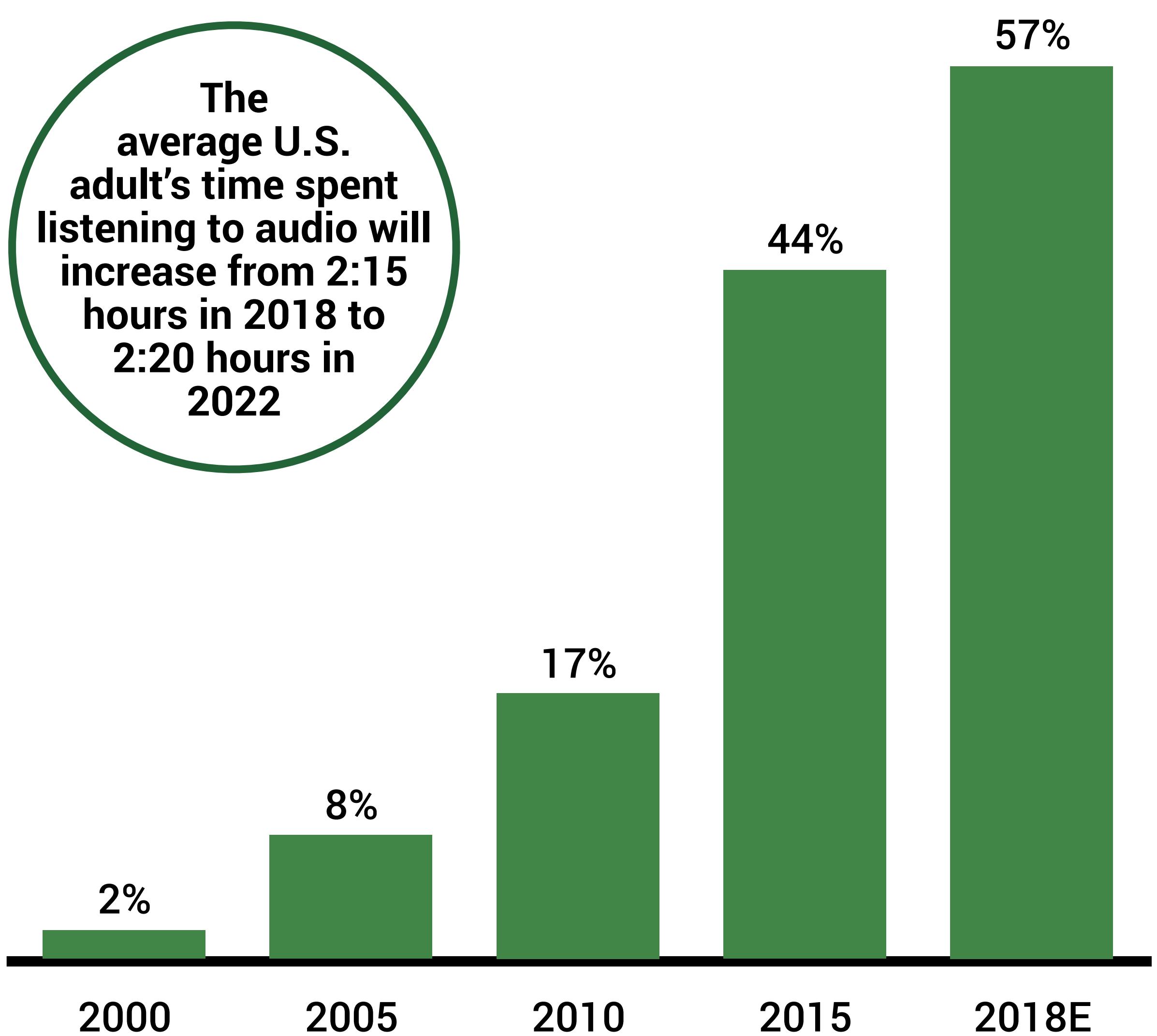
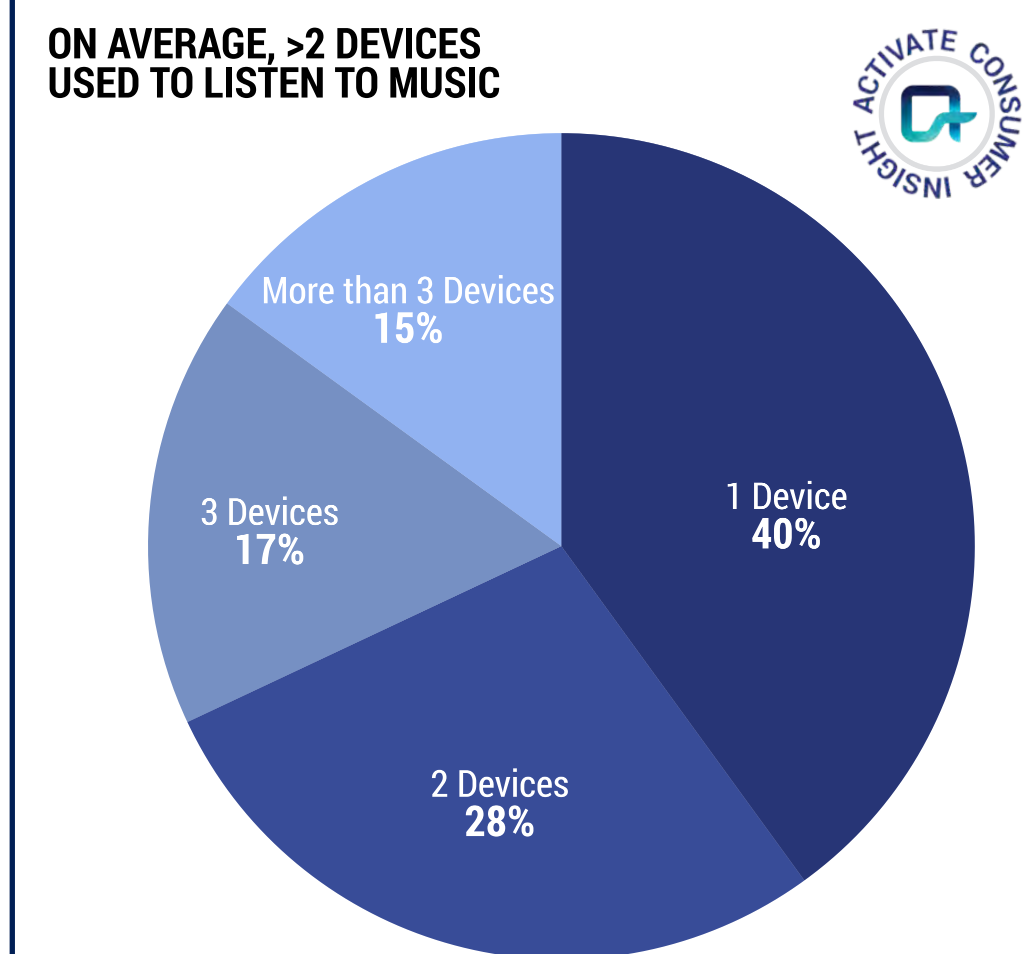
Audio entertainment and information will continue to be central to people's lives, and a significant part of their tech and media time across multiple devices

WEEKLY ONLINE AUDIO LISTENING, U.S., 2000-2018E, % ADULT POPULATION



NUMBER OF DEVICES USED TO LISTEN TO MUSIC, U.S., 2018, % LISTENERS



Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=3,583), Edison Research, Triton Digital

As an ambient medium, audio listening is part of most multitasking activities

TOP DEVICES USED TO LISTEN TO AUDIO, U.S., 2018, % LISTENERS

ACTIVATE CONSUMER INSIGHT

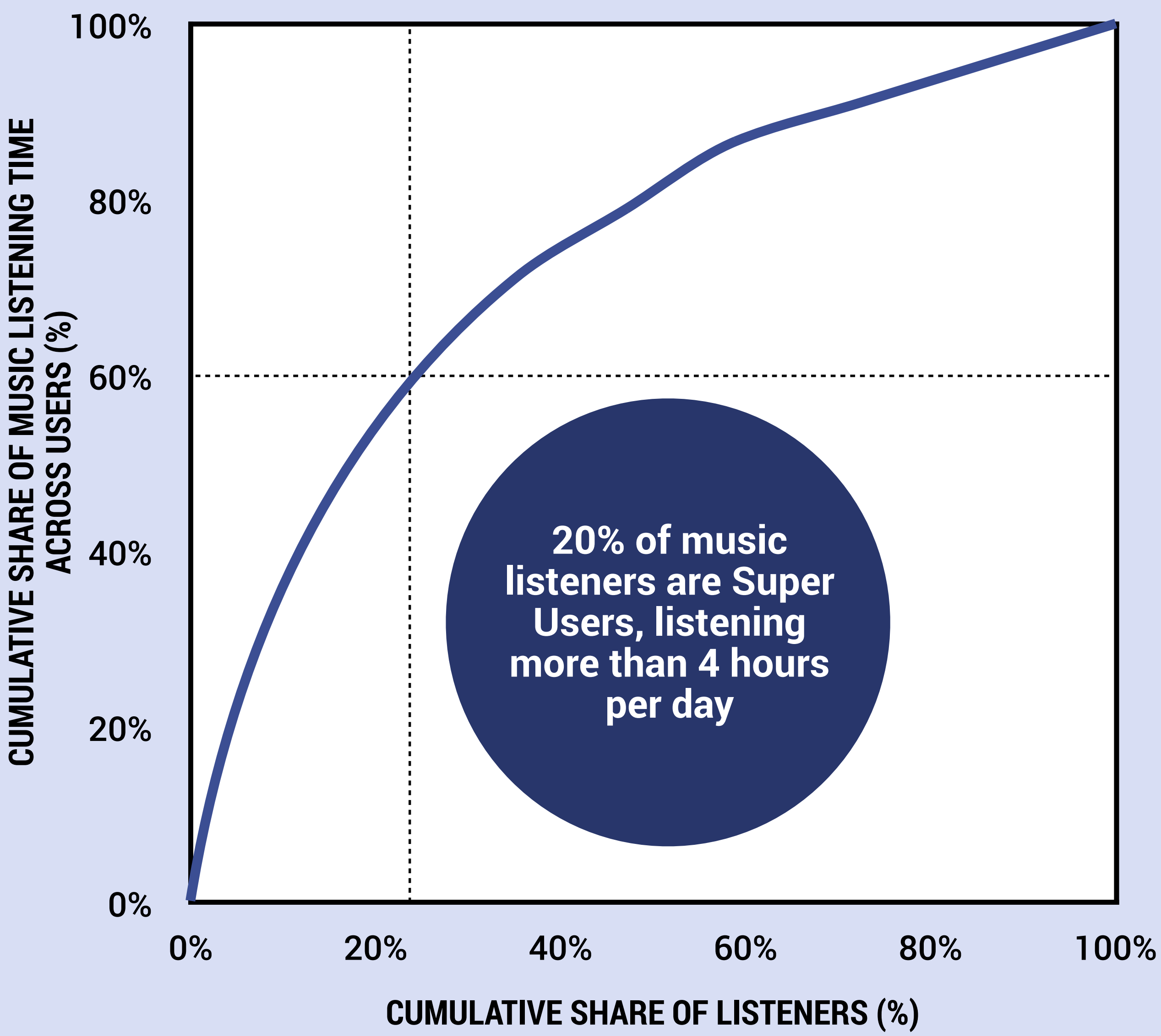
EXAMPLES OF MULTITASKING ACTIVITIES WHILE LISTENING TO AUDIO

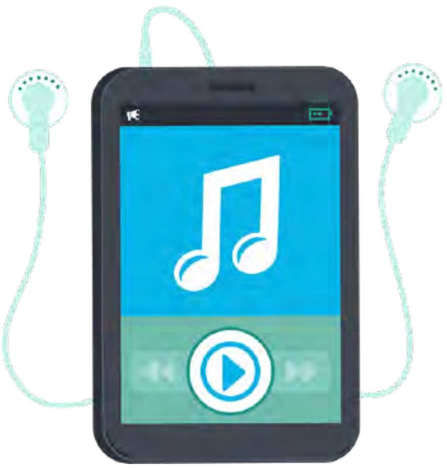
		MEDIA			NON-MEDIA					
Device	% Listeners	SOCIAL MEDIA	GAMING	READING	DRIVING	WORK & EDUCATION	LEISURE & FITNESS	COOKING & HOUSEWORK	PERSONAL CARE	EATING & DRINKING
Car Radio System	52%				●					
Desktop	50%	●	●	●		●	●	●	●	●
Smartphone	45%	●	●	●		●	●	●	●	●
Home Speaker	23%	●	●	●		●	●	●	●	●
Portable Speaker	20%	●	●	●		●	●	●	●	●
In-Car Using Smartphone	14%				●					
Smart Speaker	14%	●	●	●		●	●	●	●	●

Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=3,583)

Music Super Users account for 60% of consumer spend

DISTRIBUTION OF MUSIC LISTENERS BASED ON TIME SPENT, U.S., 2018



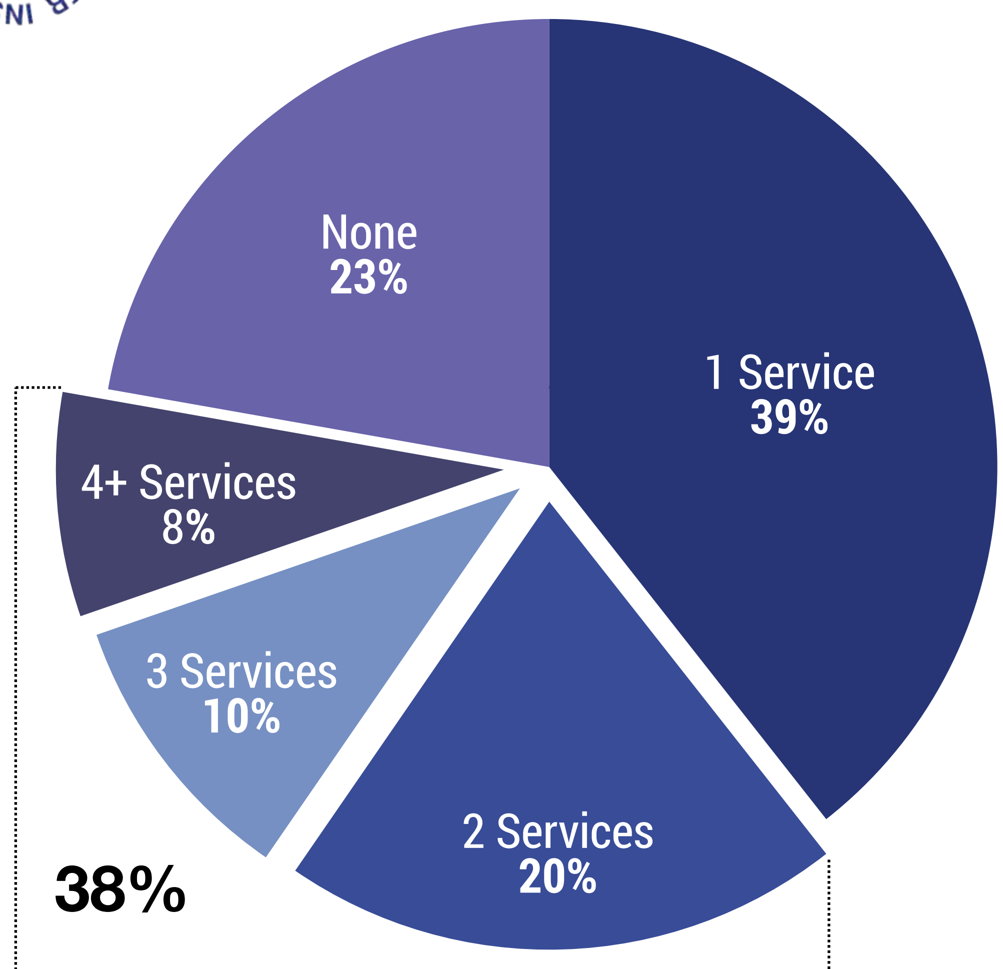


Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,821), Edison Research, Nielsen, Triton Digital

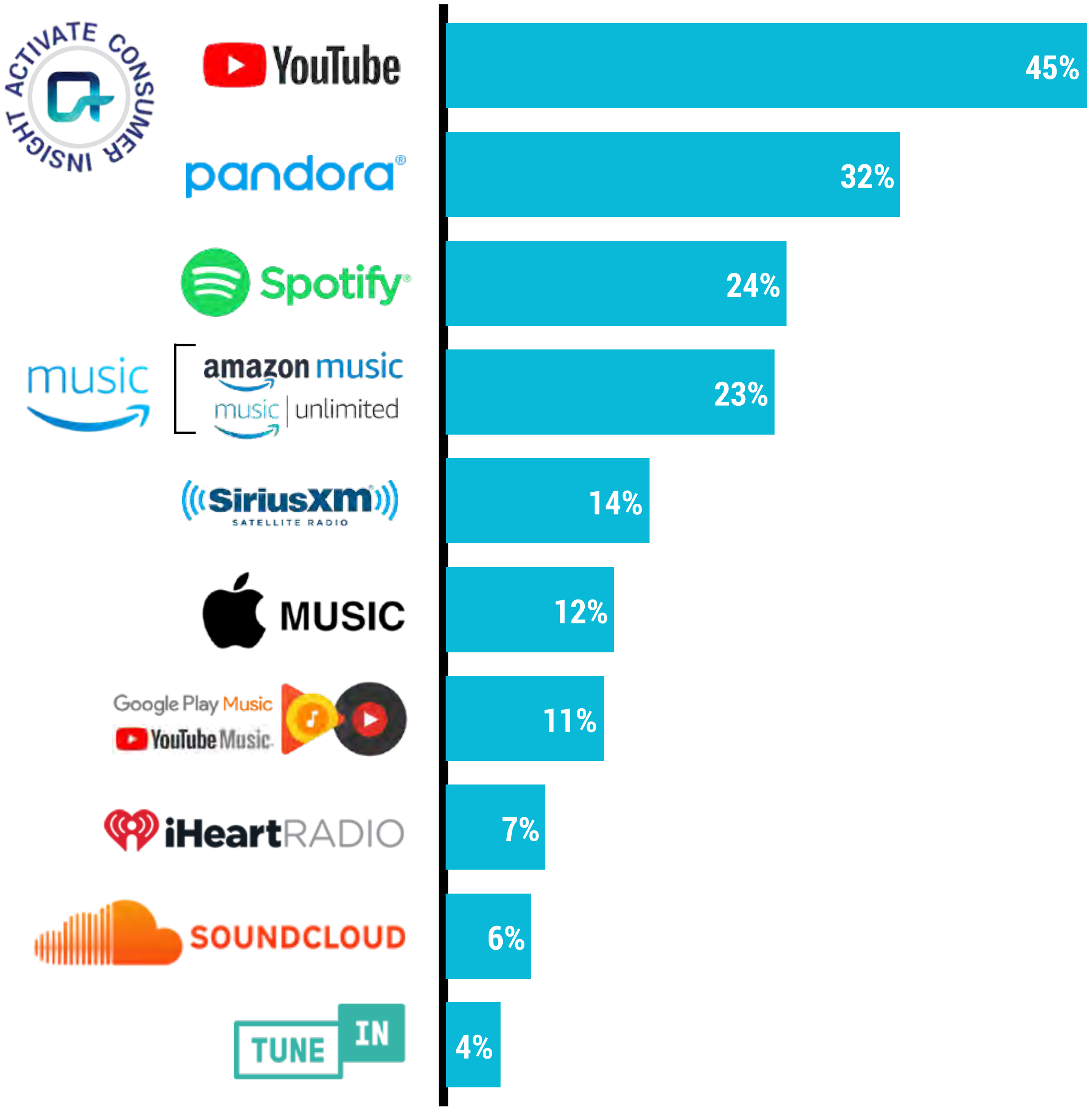
Consumers will use more than one service—YouTube and Pandora are still the most used, ahead of Spotify and Apple

NUMBER OF SERVICES USED TO LISTEN TO MUSIC, U.S., 2018, % ADULT POPULATION

ON AVERAGE, 2 MUSIC SERVICES PER USER



TOP 10 MUSIC SERVICES USED AMONG LISTENERS, U.S., 2018, % LISTENERS



Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (Left: n=4,000; Right: n=3,112)

Consumers will use both ad-supported and subscription services to address all of their needs across listening occasions and devices

MUSIC STREAMING SUBSCRIBERS, GLOBAL, MOST RECENT AS OF 2018, MILLIONS TRACKS AND SUBSCRIBERS

PAID SUBSCRIBERS		FREE SUBSCRIBERS/AD-SUPPORTED	# OF TRACKS
87M	Spotify	104M	35M
44M	MUSIC	N/A	50M
28M[1]	music unlimited / prime music	N/A	40M AMAZON MUSIC UNLIMITED; 2M PRIME MUSIC
7M	DEEZER	3M	53M
7M	Google Play Music / YouTube Music / YouTube	1,800M[2]	40M
6M	pandora	65M	40M
3M	napster	N/A	40M
1M	TIDAL	N/A	60M
	iHeartRADIO[3]	120M	30M
0.1M	SOUNDCLOUD	175M[2]	150M PAID TIER; 120M FREE TIER

1. Amazon includes Prime Music users and Music Unlimited subscribers.
2. Numbers represent free monthly active users.
3. iHeartRadio has a paid tier but no subscriber data is available.

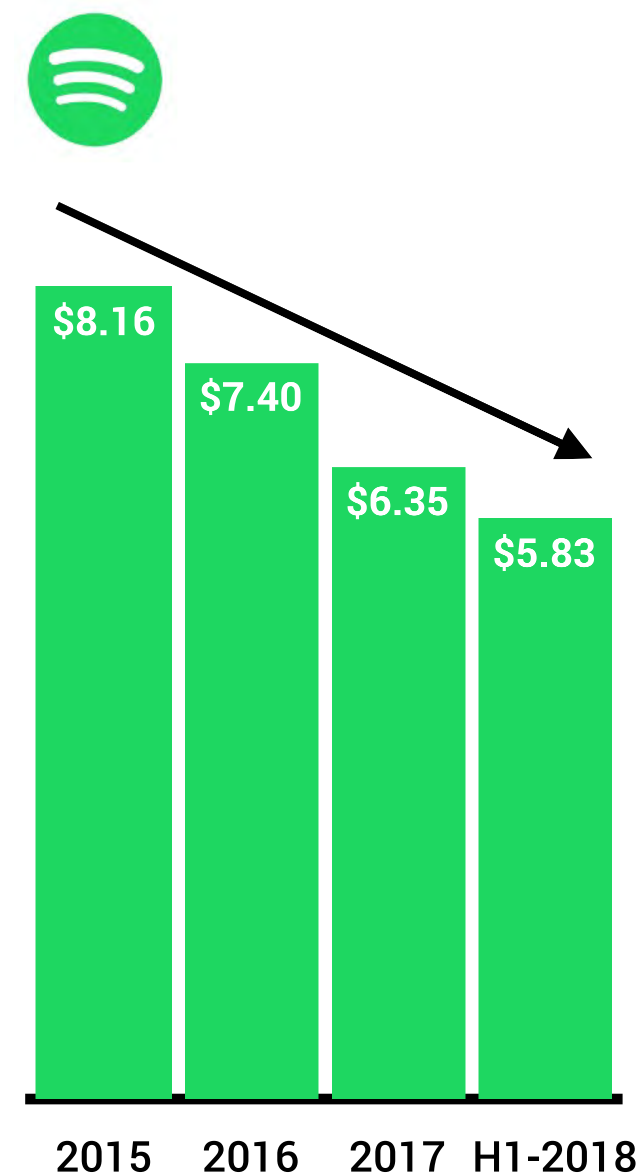
Sources: Activate analysis, Billboard, Company sites, Digital Music News, Forbes, Independent, MIDiA Research, Music Business Worldwide, Music Industry Blog, Musically, Reuters, TechCrunch, Variety

Consumers are subscribing together—as actual and virtual families—to take advantage of family plan pricing structures, and pay less for music than the standard $9.99/month

BASIC FAMILY PLANS BY SERVICE[1], U.S., OCT. 2018, USD AND

	LIST PRICE	MAX # PROFILES	MIN PRICE PER PERSON
Spotify	$14.99	6	$2.50
Apple MUSIC	$14.99	6	$2.50
prime music	$14.99	6	$2.50
DEEZER	$14.99	6	$2.50
Google Play Music / YouTube Music	$14.99	6	$2.50
pandora	$14.99	6	$2.50
napster	$14.99-29.99	5	$6.00
TIDAL	$14.99	6	$2.50
iHeartRADIO	$14.99	6	$2.50

SPOTIFY ARPU, GLOBAL, 2015-H1 2018, USD



ACTIVATE CONSUMER INSIGHT
~$5.90/month paid per service used in 2018

1. SoundCloud does not offer a family plan.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=3,112), Company financials, Company sites, Music Business Worldwide

Competition for consumers' audio attention in the car will be intense

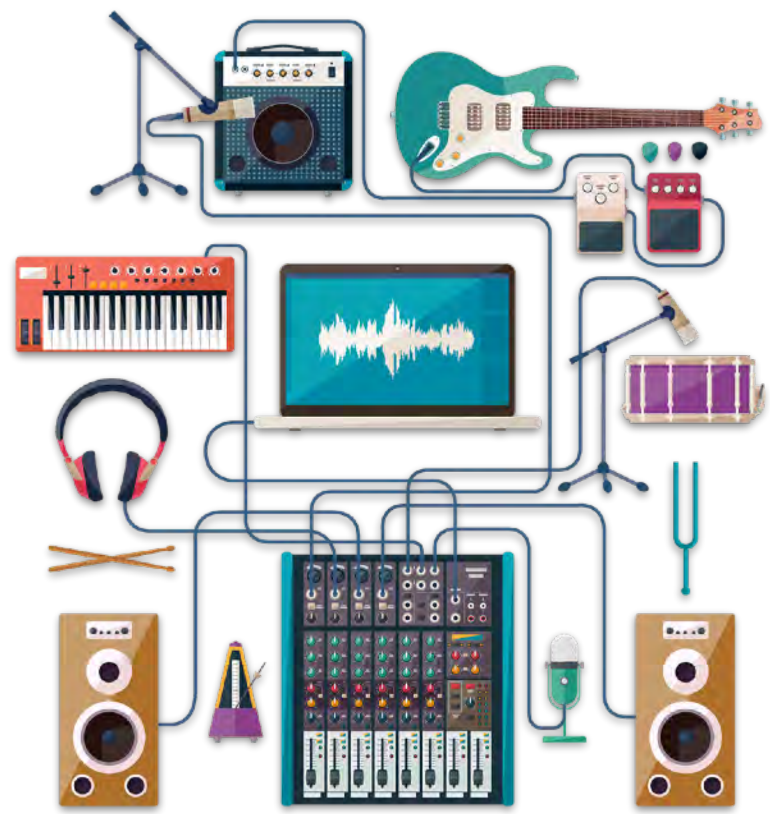
1. "OEM" stands for original equipment manufacturer.
Source: Activate analysis

Many consumers will become creators themselves, enabled by the new generation of tech services

MUSIC EDUCATION
- Jellynote™
- ArtistWorks.com — TEACH THE WORLD MUSIC
- chordify
- JoyTunes
- studytracks™

AI-POWERED CREATIVE TOOLS
- Jukedeck
- DeepMind
- Amper™
- LANDR
- AMPER MUSIC

DIGITAL AUDIO WORKSTATIONS AND PLUGINS
- Pacemaker
- GarageBand
- Au ADOBE AUDITION
- NATIVE INSTRUMENTS
- iZOTOPE



RIGHTS MANAGEMENT
- Revelator™
- blòkur
- AUDIAM™
- DUBSET MEDIA HOLDINGS
- Kobalt

SELF-PUBLISHING AND DISTRIBUTION
- DUBSET
- tuneCORE
- Stem
- cinq
- DISTROKID

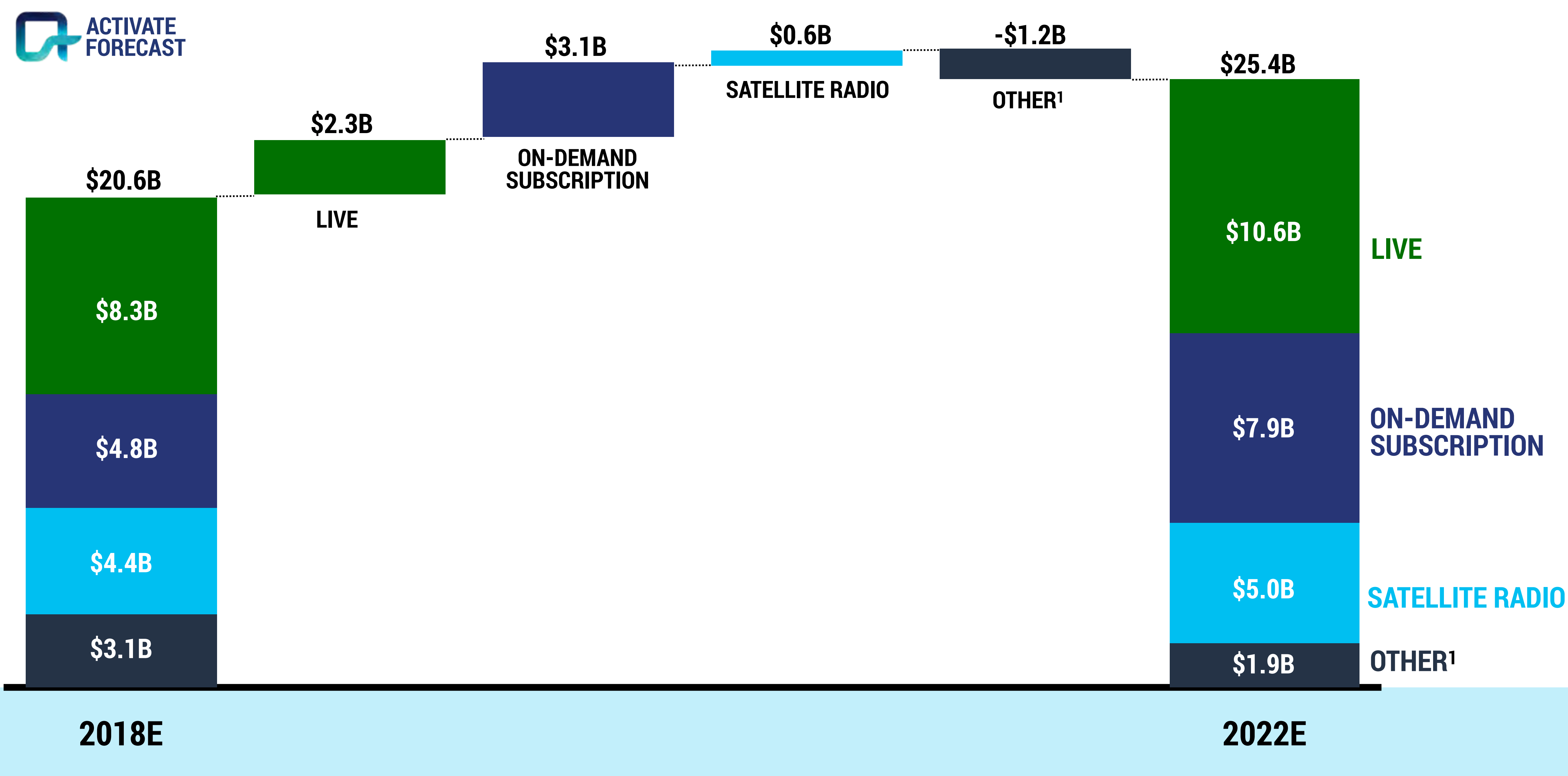
VIDEO CREATION AND EDITING
- FLIPAGRAM™
- smule
- musical.ly
- TRILLER
- xylo

FAN ENGAGEMENT PLATFORMS
- TOPFAN
- TOPSPIN
- tunetrax.com
- REVERBNATION®
- Bkstg

Source: Activate analysis

While streaming subscriptions will drive the most incremental consumer dollars, live will still account for 40% of the growth and remain the largest consumer spend segment in music

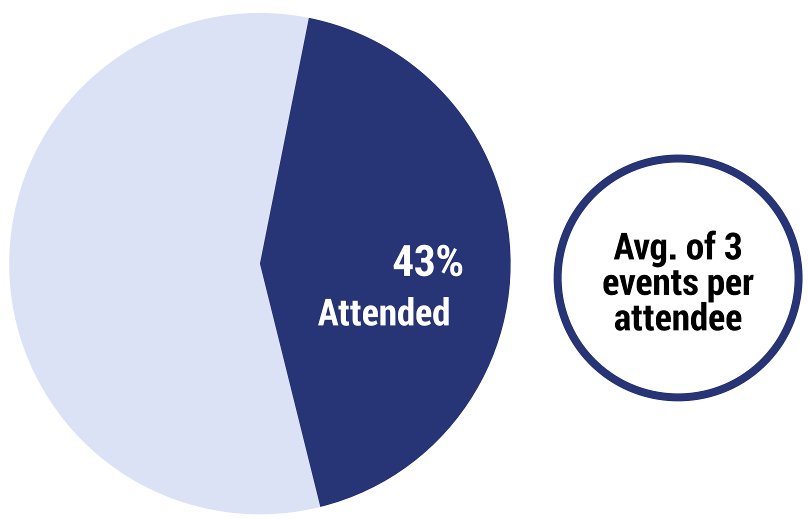
MUSIC CONSUMER SPEND PROJECTIONS, U.S., 2018E-2022E, BILLIONS USD



1. Radio streaming, download, physical.
Sources: Activate analysis, PricewaterhouseCoopers, Recording Industry Association of America, Statista

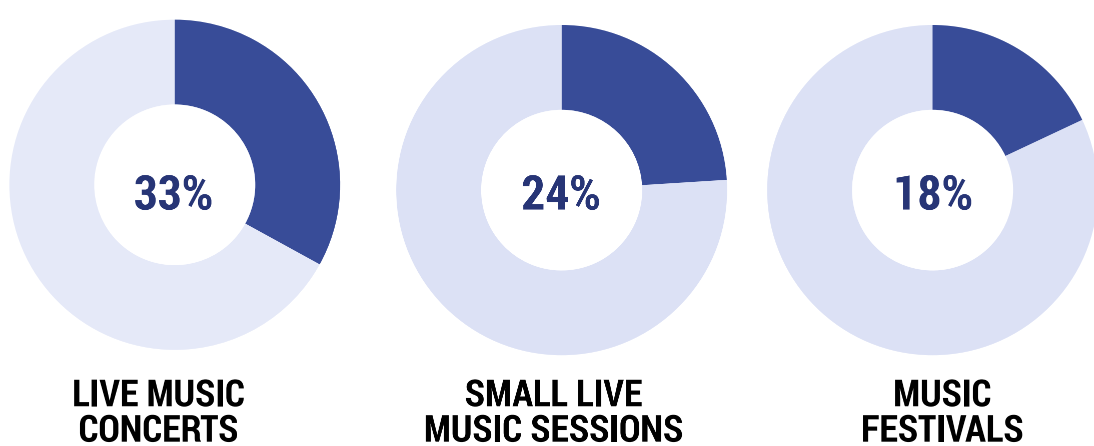
Live will continue to be a core music behavior, with almost half of consumers attending live events every year—not surprisingly, younger fans and affluent consumers over-index

CONCERTS / LIVE MUSIC EVENT ATTENDANCE IN THE LAST YEAR, U.S., 2018, % ADULT POPULATION

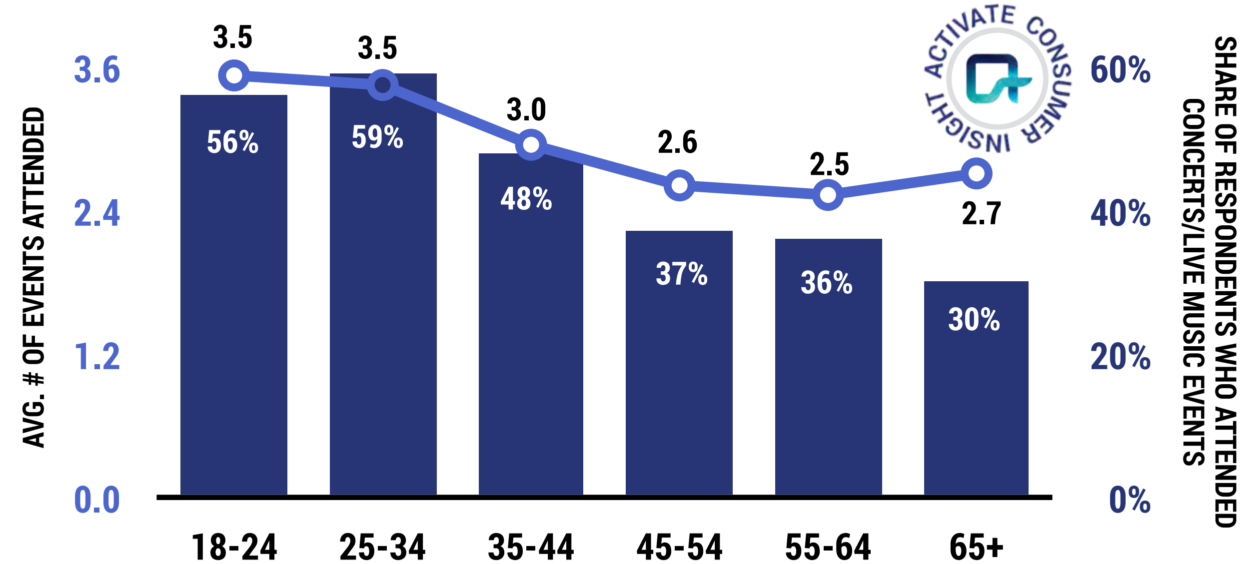


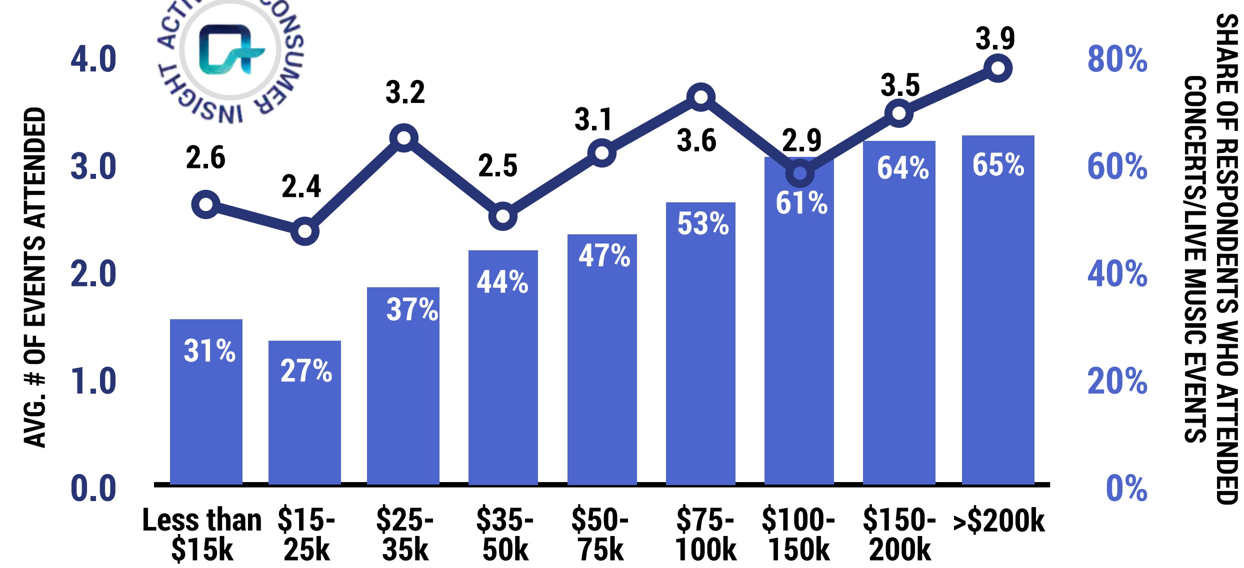
LIVE MUSIC EVENT ATTENDANCE BY TYPE

U.S., 2017, % GENERAL POPULATION



CONCERTS / LIVE MUSIC EVENT ATTENDANCE BY AGE AND INCOME, U.S., 2018, % WHO ATTENDED AND AVG. # OF EVENTS ATTENDED

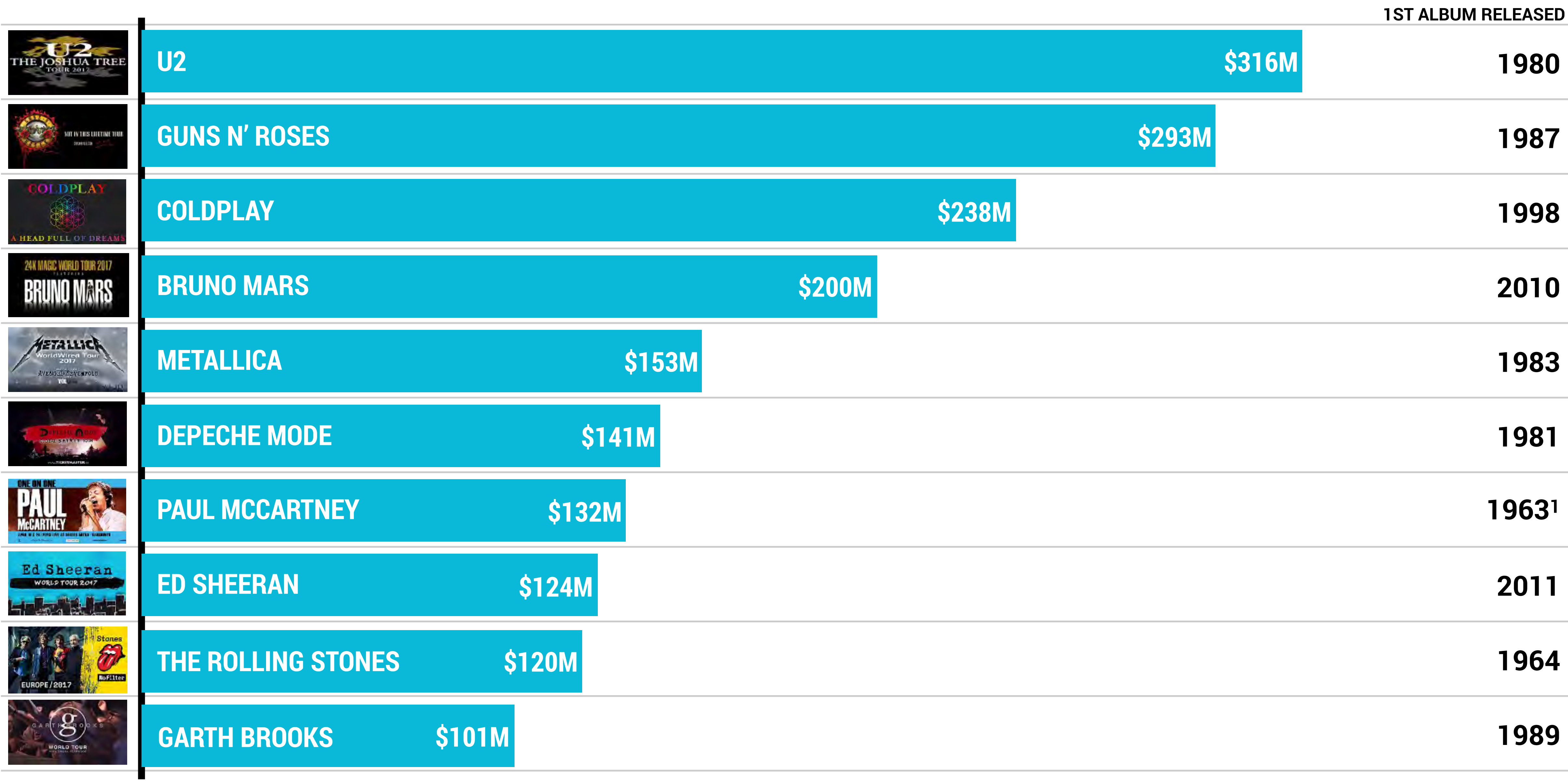




Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), Nielsen

The biggest established stars, who attract broader audiences than recent recording artists, will continue to drive live music…

TOP 10 HIGHEST GROSSING TOURS, GLOBAL, 2017, MILLIONS USD



1. "Please Please Me," first Beatles album.
Sources: Activate analysis, International Federation of the Phonographic Industry, Pollstar

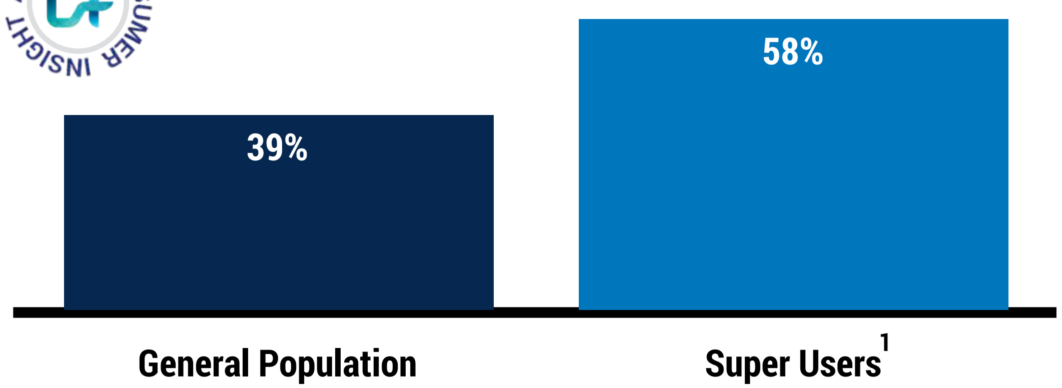
...but recent recording artists still dominate the charts

TOP 10 DIGITAL SINGLES, GLOBAL, 2017, MILLIONS DOWNLOADS AND STREAMS[1]

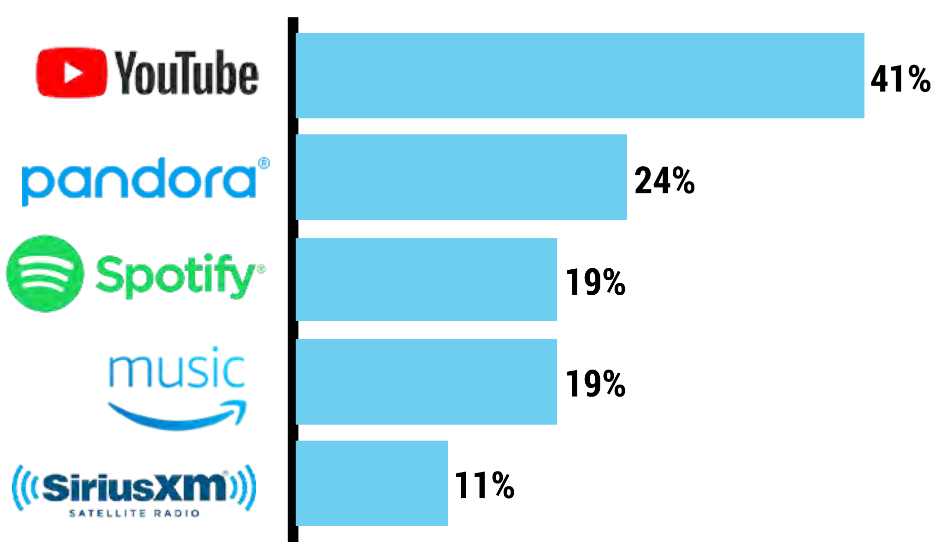
1. Units include single-track downloads and track-equivalent ad-supported audio and subscription audio streams. Video streams are excluded.
Sources: Activate analysis, International Federation of the Phonographic Industry, Pollstar

Live music outside the venue will also matter—beyond recorded live, new consumer experiences enabled by technology will emerge

SHARE OF CONSUMERS LISTENING TO RECORDED LIVE MUSIC, U.S., 2018, % ADULT POPULATION

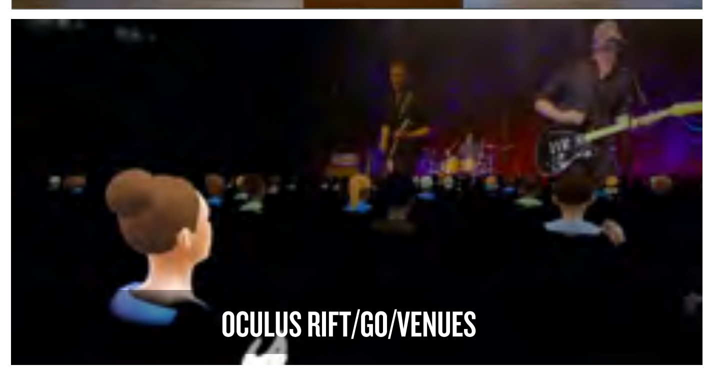


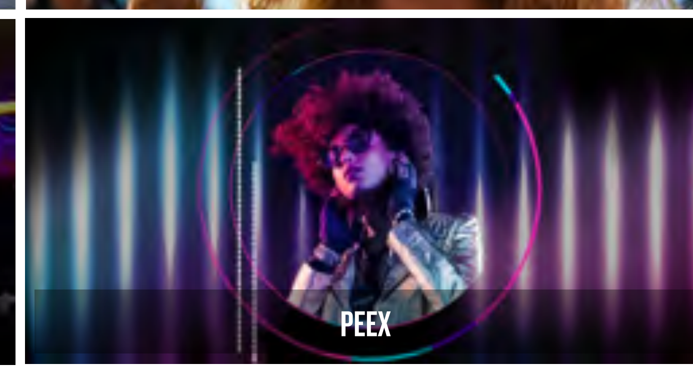
TOP 5 SERVICES USED BY CONSUMERS TO LISTEN TO LIVE RECORDED MUSIC, U.S., 2018, % RECORDED LIVE MUSIC LISTENERS



NEW REMOTE CONCERT ATTENDING OPPORTUNITIES

65% of U.S. consumers are interested in viewing live events in VR





1. Recorded live music "Super Users" defined as those who spend more than 4 hours/day listening to recorded live music.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (Left: n=4,000; Right: n=559), Greenlight Insights

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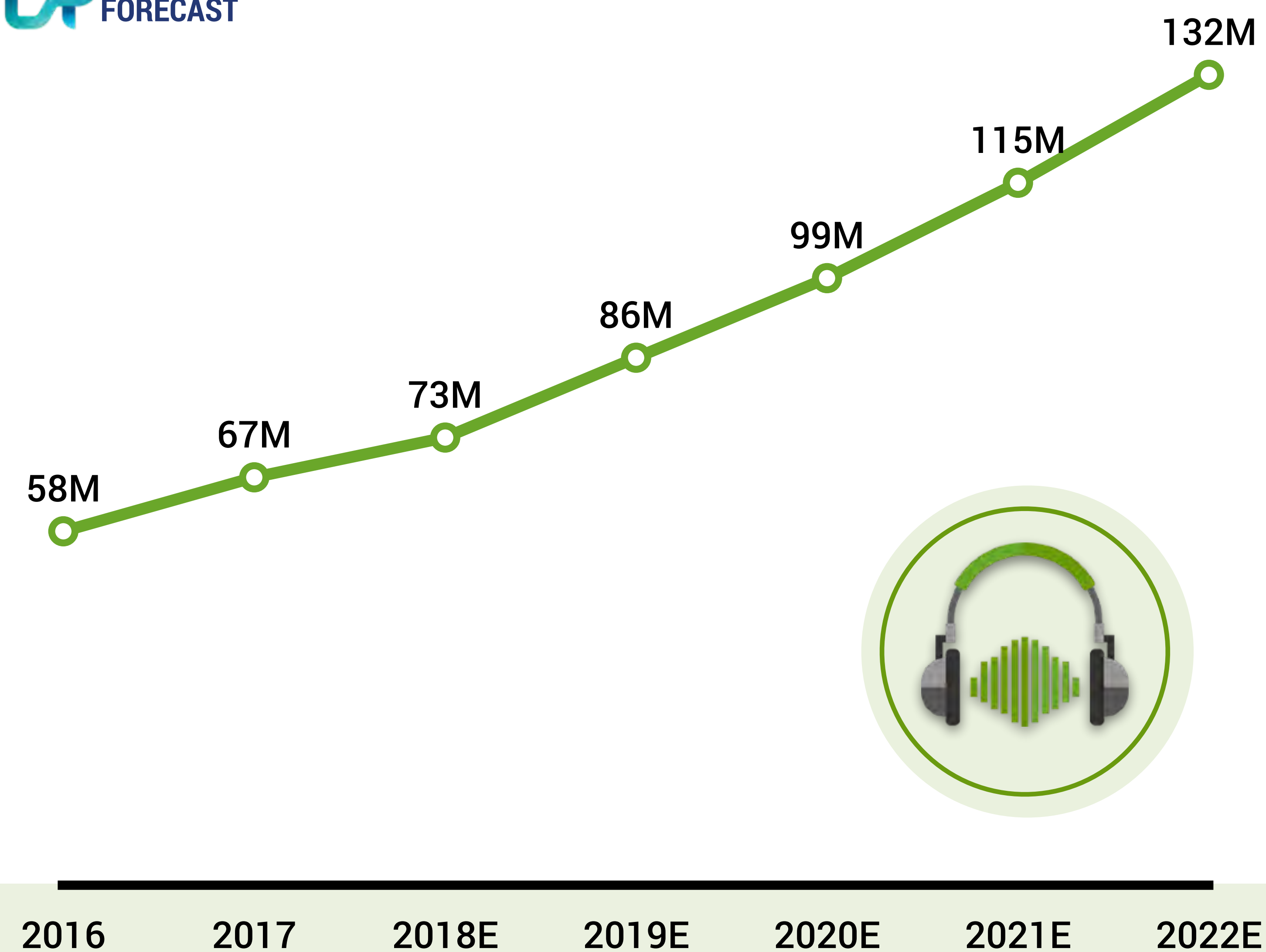
Podcast listening will become a massive consumer behavior—by 2022, there will be 132M monthly listeners in the U.S., however, the challenge is for the medium to reach commercial success

MONTHLY PODCAST LISTENERS, U.S., 2016-2022E, MILLIONS LISTENERS

ACTIVATE FORECAST



Over **550,000** active shows on Apple Podcast

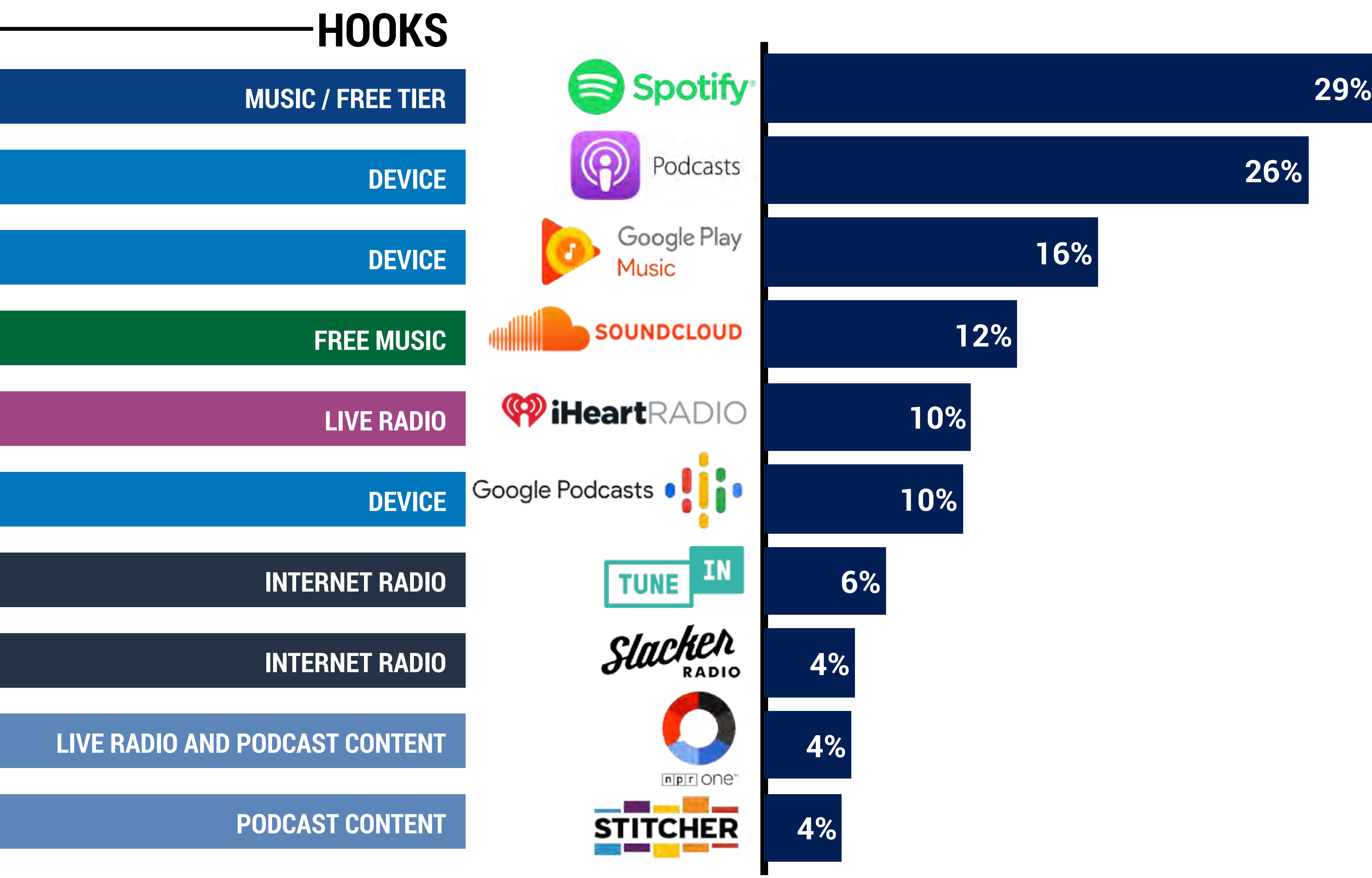
Mean weekly listening in **2018 is 6:37 hours per user,** up from **5:07 hours in 2017**

WE FORECAST THAT CONSUMERS WILL SPEND MORE TIME LISTENING TO PODCASTS THROUGH:

- Increased multitasking (listening in the background of other daily non-media activities)
- Some cannibalization of other audio time (AM/FM, satellite radio, and music streaming)

The podcast app landscape is still fragmented; Spotify has recently become the most commonly used app, overtaking pre-loaded apps

TOP 10 APPS USED TO LISTEN TO PODCASTS, U.S., 2018, % PODCAST LISTENERS

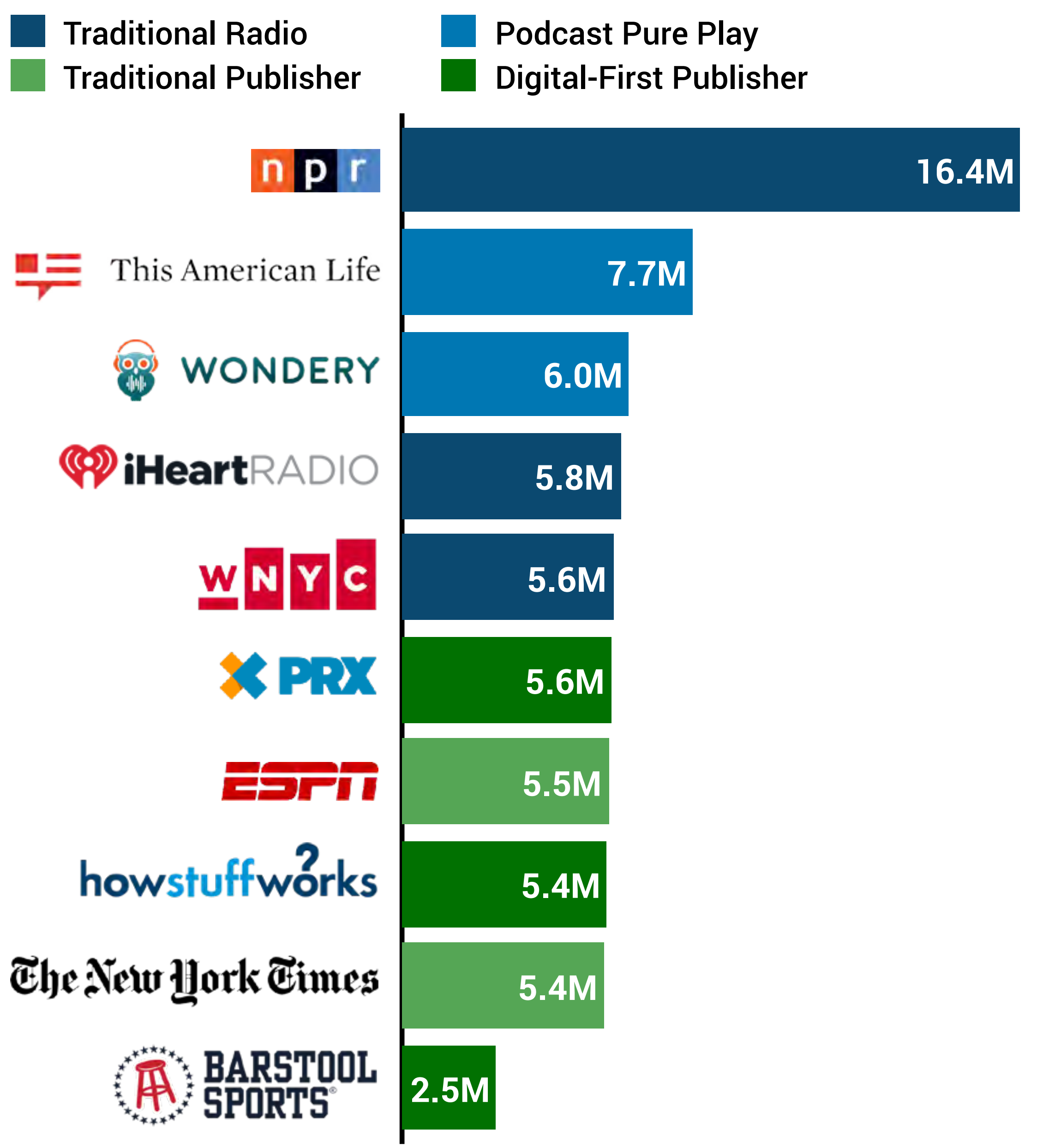


- Preloaded apps (e.g. Google Podcasts, Apple Podcasts) historically dominated as the default for listeners, in part because consumers were not aware of alternatives
- Spotify recently started emphasizing podcasts, and gained traction by offering an integrated, seamless experience to its users
- Expect other tech platforms, such as Google, to emulate Spotify's efforts to unify music and podcast services
- Apps such as Stitcher are investing in popular content (e.g. Freakonomics) that will drive user adoption

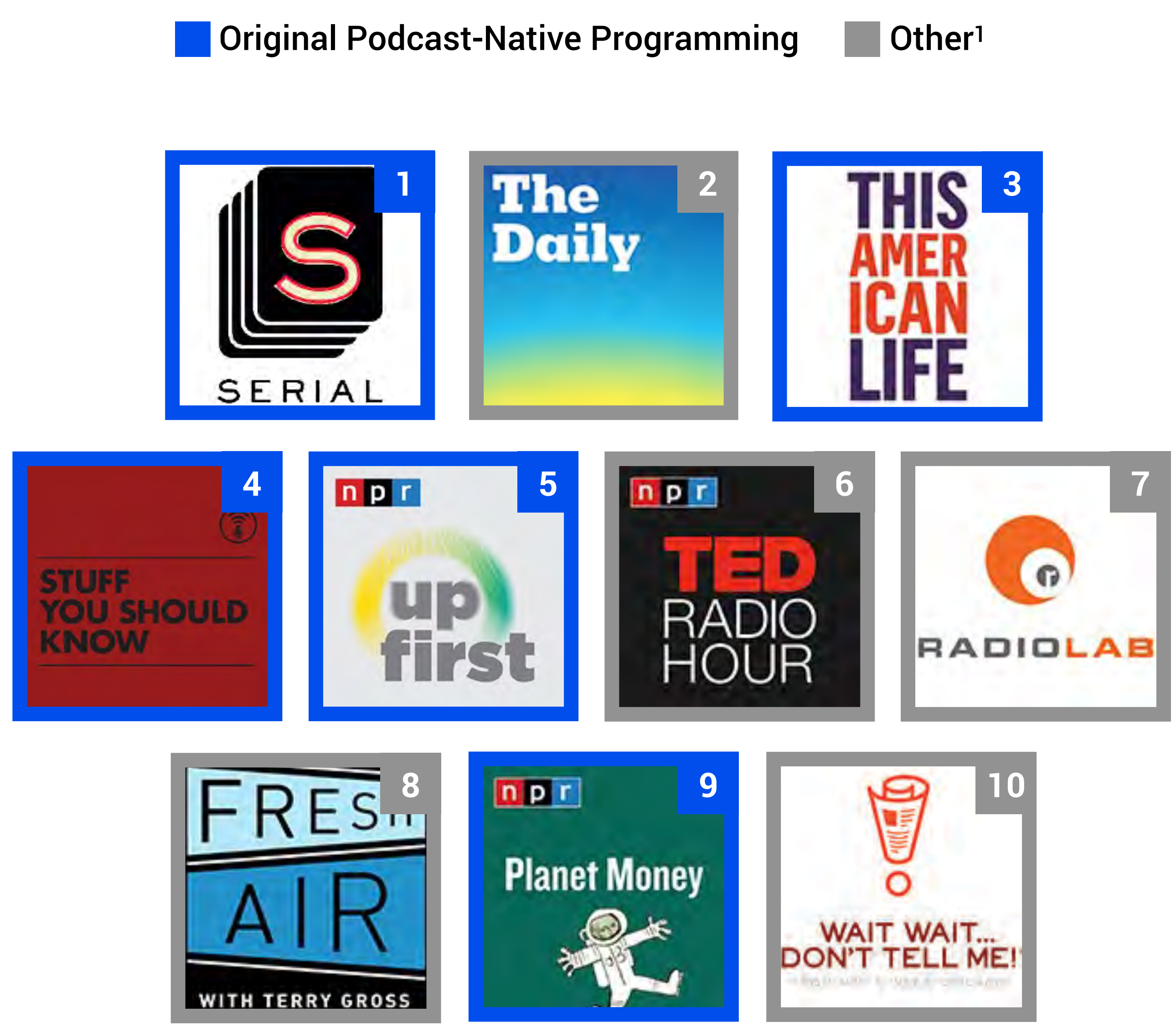
Sources: Activate analysis , Activate 2018 Consumer Tech & Media Research Study (n=1,143)

Traditional publishers will continue to develop podcast-native programming to capture the growing podcast audience

TOP 10 PODCAST PUBLISHERS BY MONTHLY UNIQUE AUDIENCE, U.S., SEPT. 2018, MILLIONS LISTENERS



TOP 10 PODCASTS BY LISTENERS, U.S., SEPT. 2018, AUDIENCE RANK



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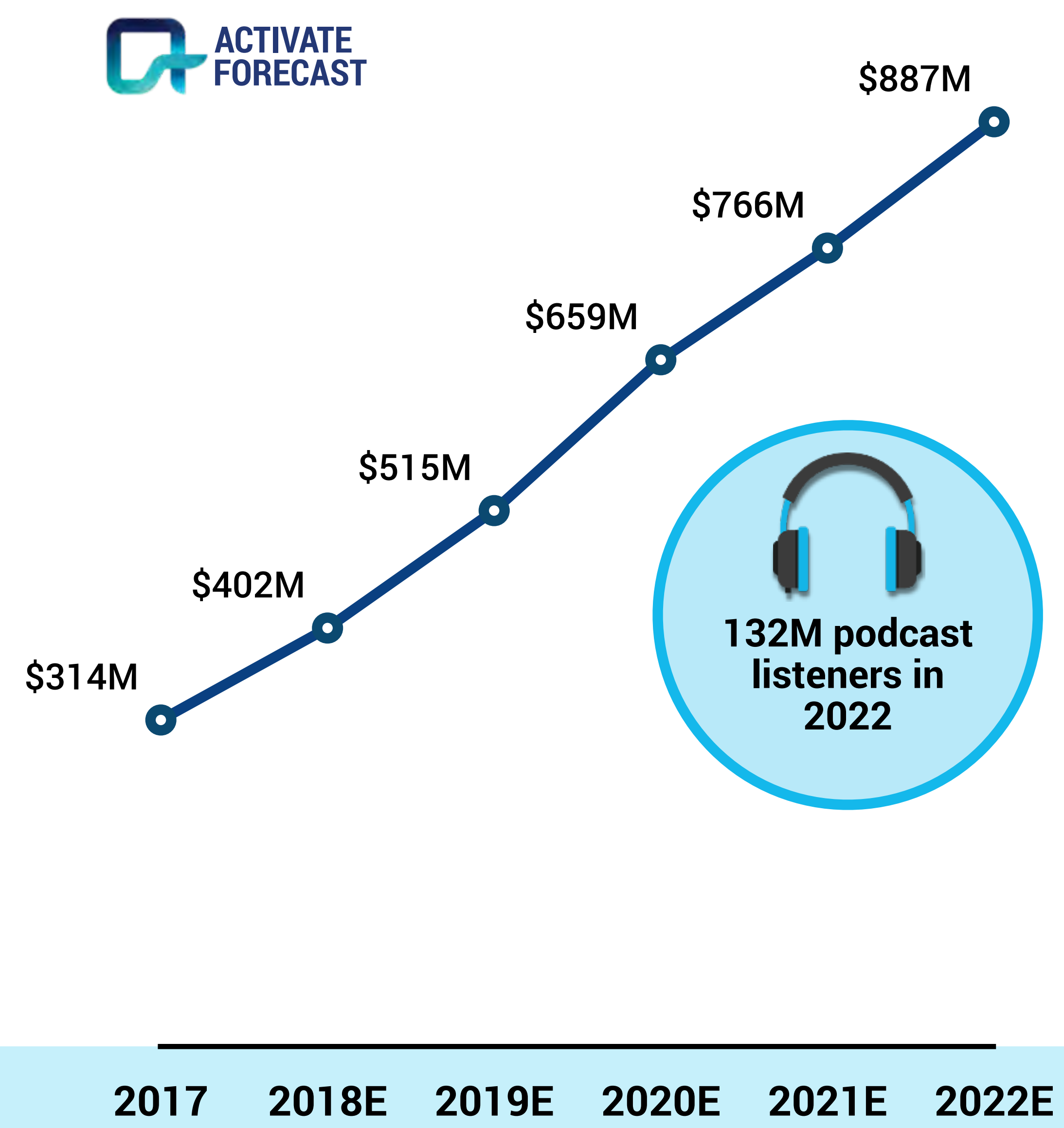
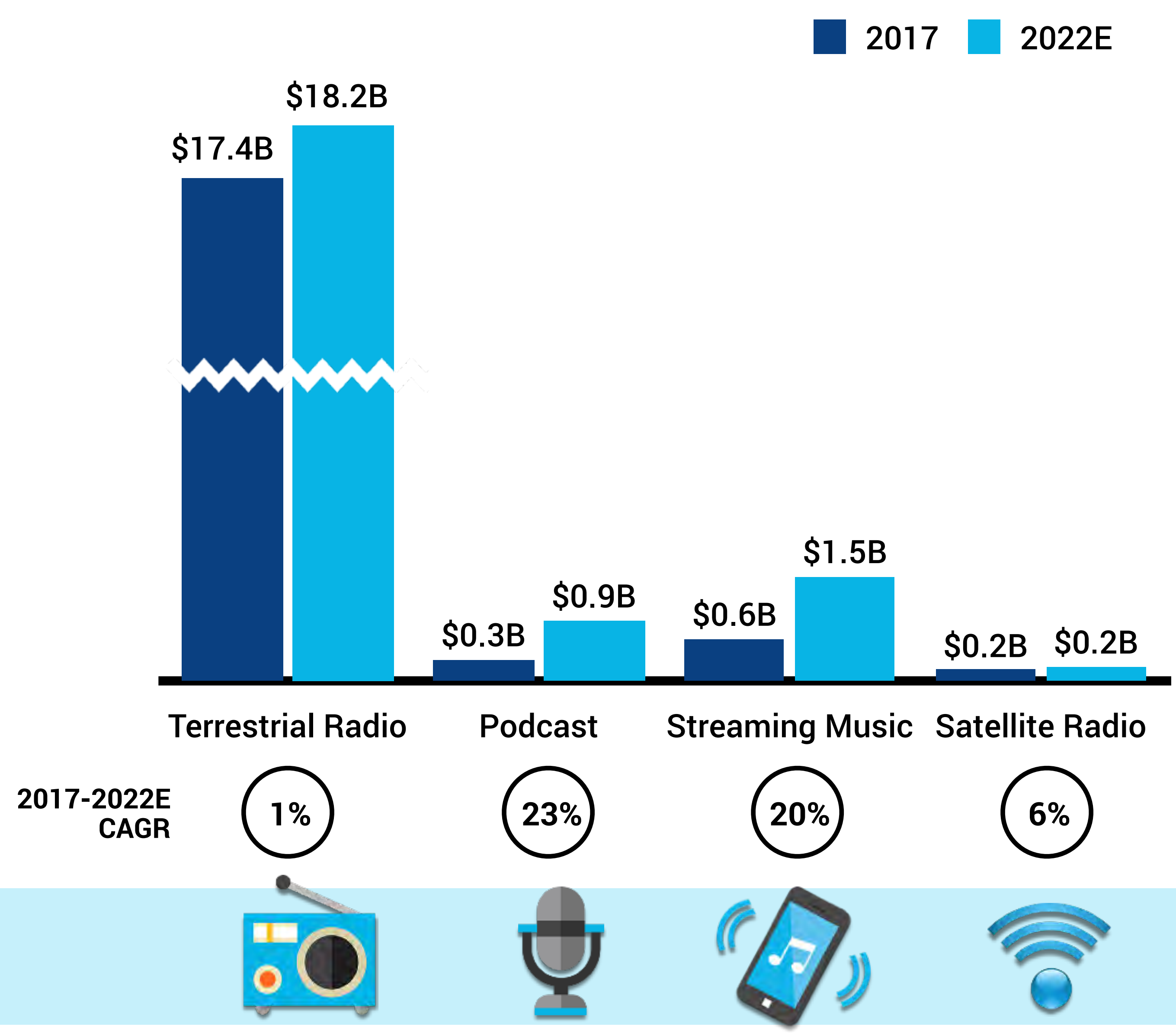
1. Shows that start on TV or traditional radio.
Sources: Activate analysis, Podtrac, Statista

By 2022, podcast ad revenues will be modest relative to the size of the audience

PODCAST AD REVENUE FORECAST,
U.S., 2017-2022E, MILLIONS USD



AUDIO MEDIA ADVERTISING REVENUE FORECAST,
U.S., 2017-2022E, BILLIONS USD

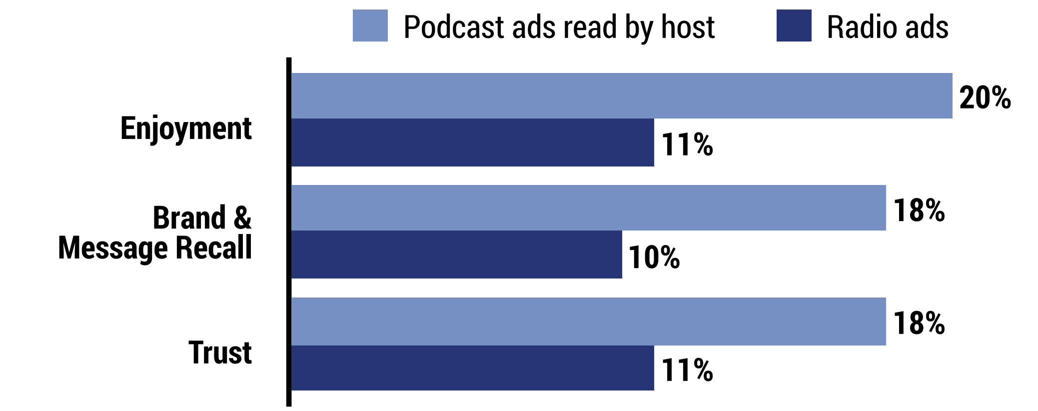


Sources: Activate analysis, Interactive Advertising Bureau, PricewaterhouseCoopers, Recording Industry Association of America

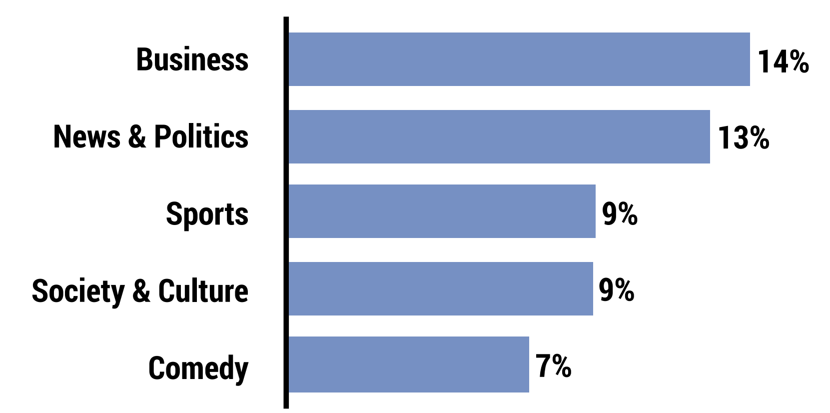
New advertising units, new measurement tools, and branded content could drive breakout podcast advertising growth; listeners indicate that they are very receptive to ads in podcasts

CONSUMER REACTION TO PODCAST ADS AND LIFT IN PURCHASE

INTERNET USERS' REACTIONS TO PODCAST ADS READ BY HOST VS. RADIO ADS, U.S., DEC. 2017, % INTERNET USERS



LIFT IN PURCHASE INTENT FOR BRANDS AFTER HEARING A PODCAST AD AMONG U.S. PODCAST LISTENERS BY CATEGORY, 2017, % LIFT



PODCAST MEASUREMENT TOOLS

PODCASTS WILL NEED A MEASUREMENT "CURRENCY" SIMILAR TO METRICS IN OTHER MEDIA

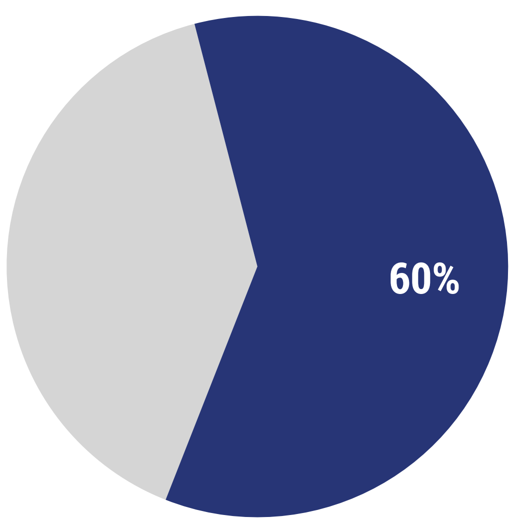
APPLE PODCAST ANALYTICS	PODTRAC ANALYTICS	PodBean HOSTING & TRACKING
npr RAD ANALYTICS	adswizz MONETIZATION	libsyn HOSTING & ANALYTICS
blubrry HOSTING & ANALYTICS	RawVoice HOSTING & ANALYTICS	Google Analytics ANALYTICS
nielsen ANALYTICS	iab. TECH LAB MEASUREMENT TECHNICAL GUIDE	Poddindex SWEDISH PODCAST MEASUREMENT STANDARD

Sources: Activate analysis, Acast, eMarketer, Nielsen

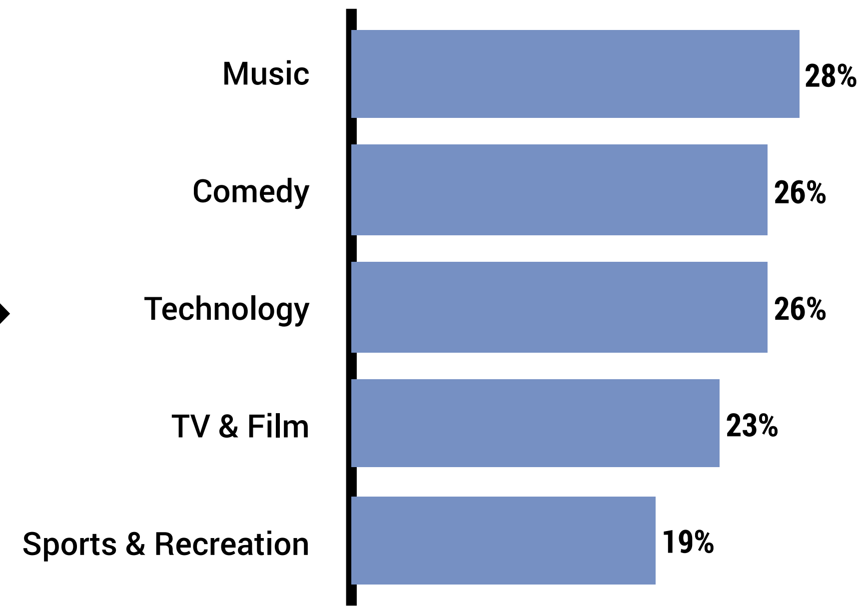
Consumers will pay for podcasts either through subscriptions or crowdfunding

CONSUMER WILLINGNESS TO PAY FOR PODCASTS AND TOP GENRES, U.S., 2017, % ADULT POPULATION

% U.S. CONSUMERS WILLING TO PAY FOR PODCAST CONTENT



TOP FIVE GENRES BY CONSUMER WILLINGNESS TO PAY



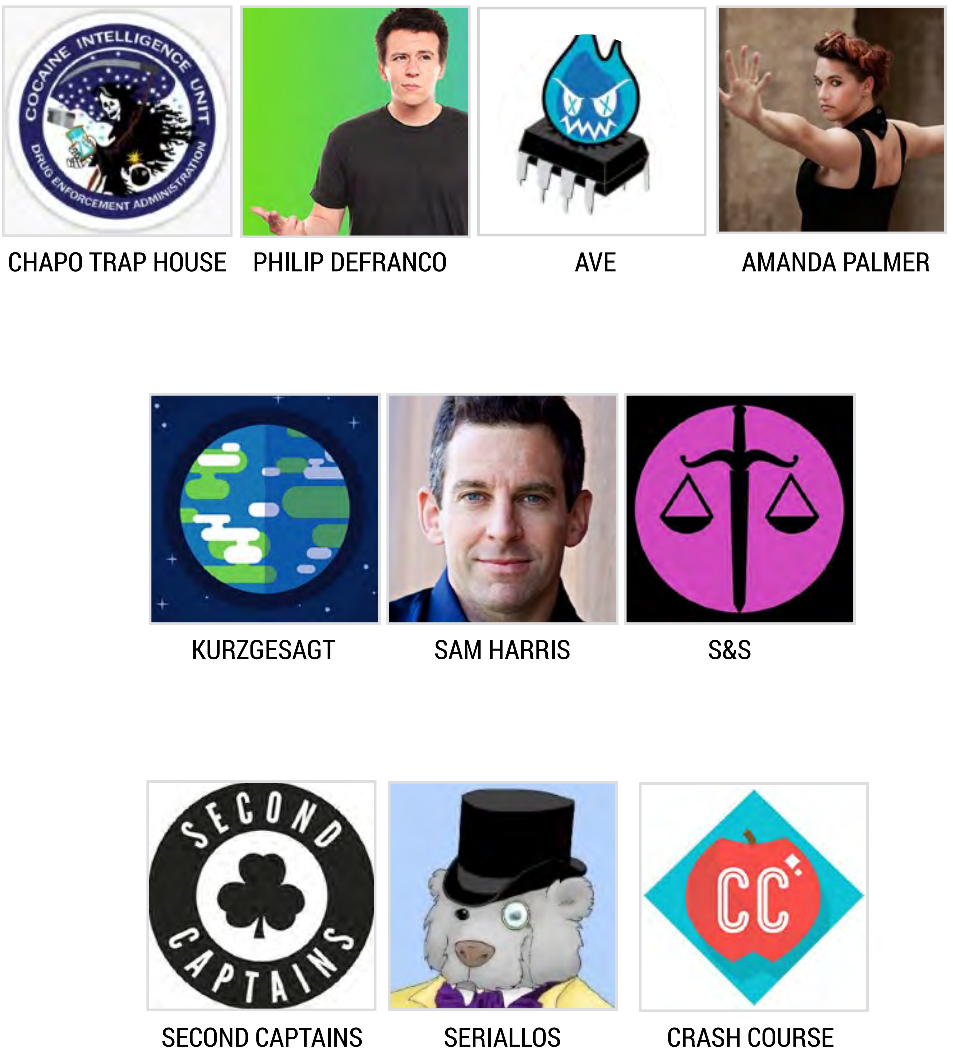
EXAMPLES OF PODCAST SUBSCRIPTION SERVICES

STITCHER PREMIUM
acast+
HOWL PREMIUM
Gimlet
PodBean PREMIUM
PODCASTONE
audible an amazon company

EXAMPLE FEATURES OFFERED WITH PAID SUBSCRIPTIONS

- Exclusive originals
- Archives
- Bonus episodes
- Ad-free shows
- Early access to new releases
- Ability to contribute feedback

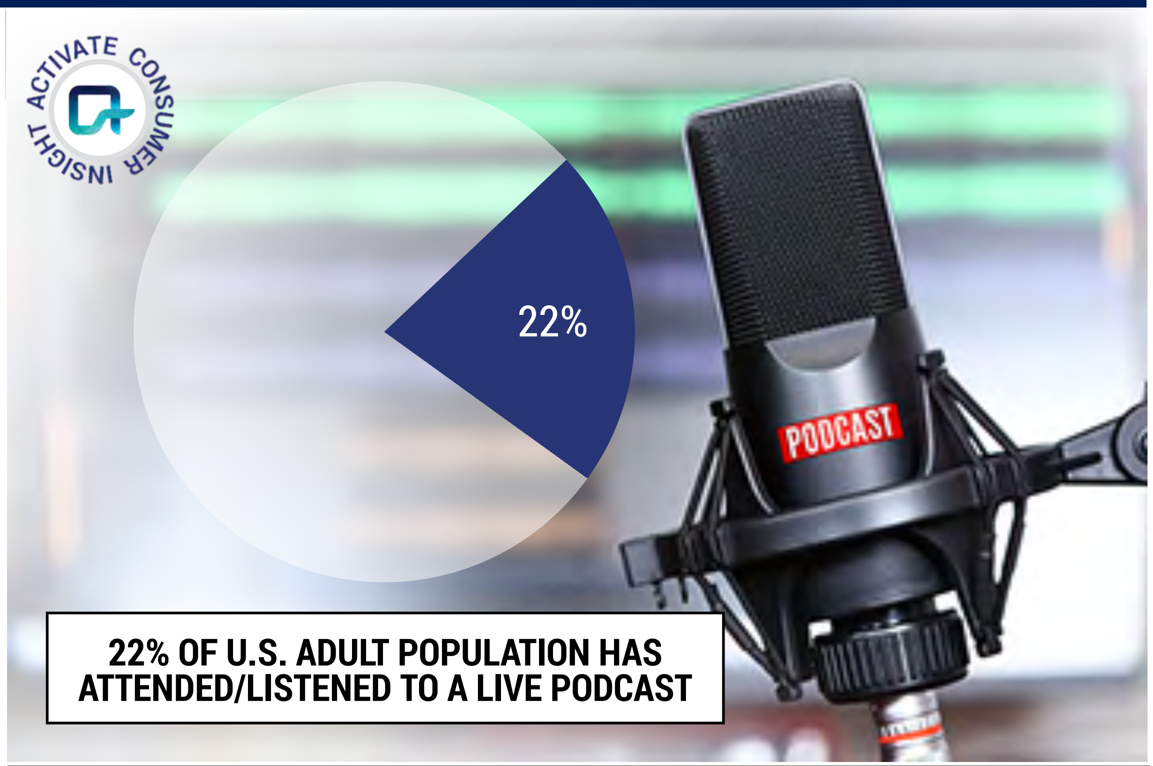
TOP 10 CREATORS BY NUMBER OF PATREON PATRONS, GLOBAL, 2017



Sources: Activate analysis, Company sites, Digiday, Forbes, Graphtreon, Patreon, Statista, Wall Street Journal

Live events will become a substantial source of podcast revenues as fans take advantage of the opportunity to engage directly with podcasters

LIVE PODCAST RECORDING ATTENDANCE/LISTENING, U.S., 2018, % ADULT POPULATION



22% OF U.S. ADULT POPULATION HAS ATTENDED/LISTENED TO A LIVE PODCAST

LIVE WILL LIKELY DRIVE CONSUMER ENGAGEMENT AND SPEND THROUGH:

TICKETS

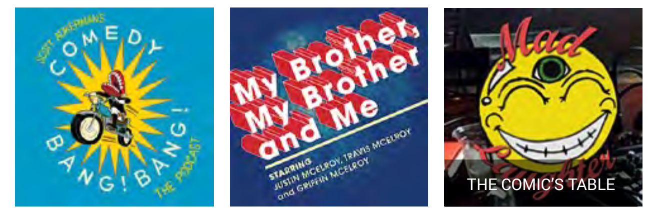
SPECIAL EVENTS (E.G. MEET AND GREET)

MERCHANDISE

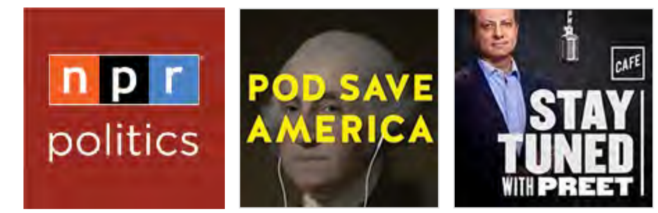
ON-SITE MARKETING/ PROMOTION

EXAMPLES OF PODCASTS WITH LIVE RECORDINGS

COMEDY



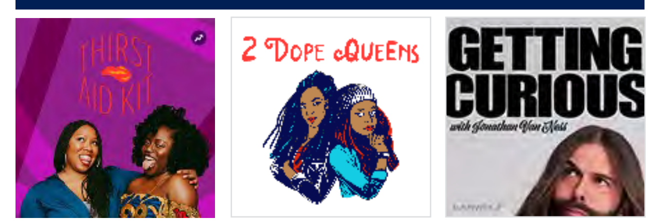
POLITICS



BUSINESS

HORROR / TRUE CRIME

POP CULTURE



SPORTS

FOOD

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Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), Digiday, Forbes, Wall Street Journal

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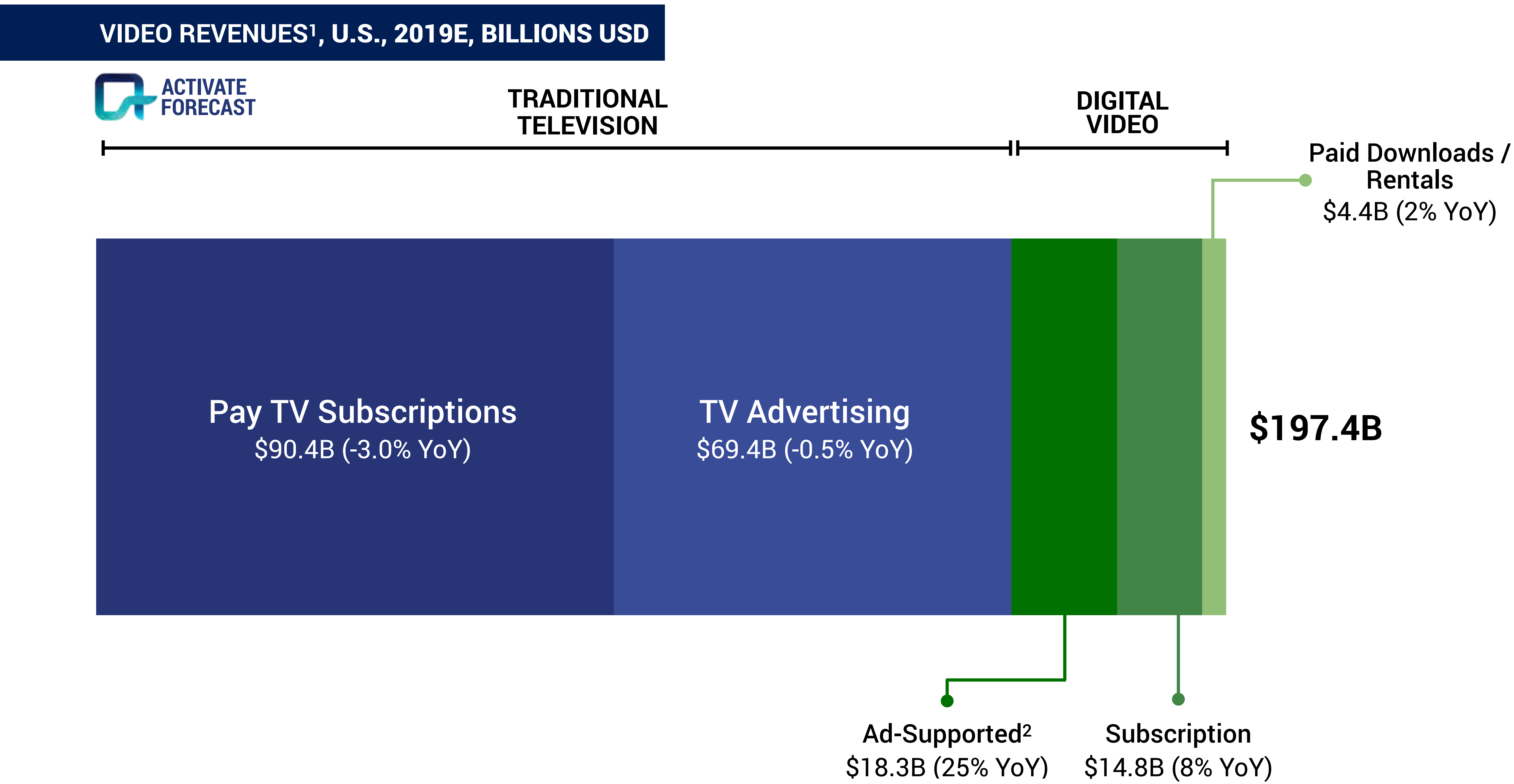
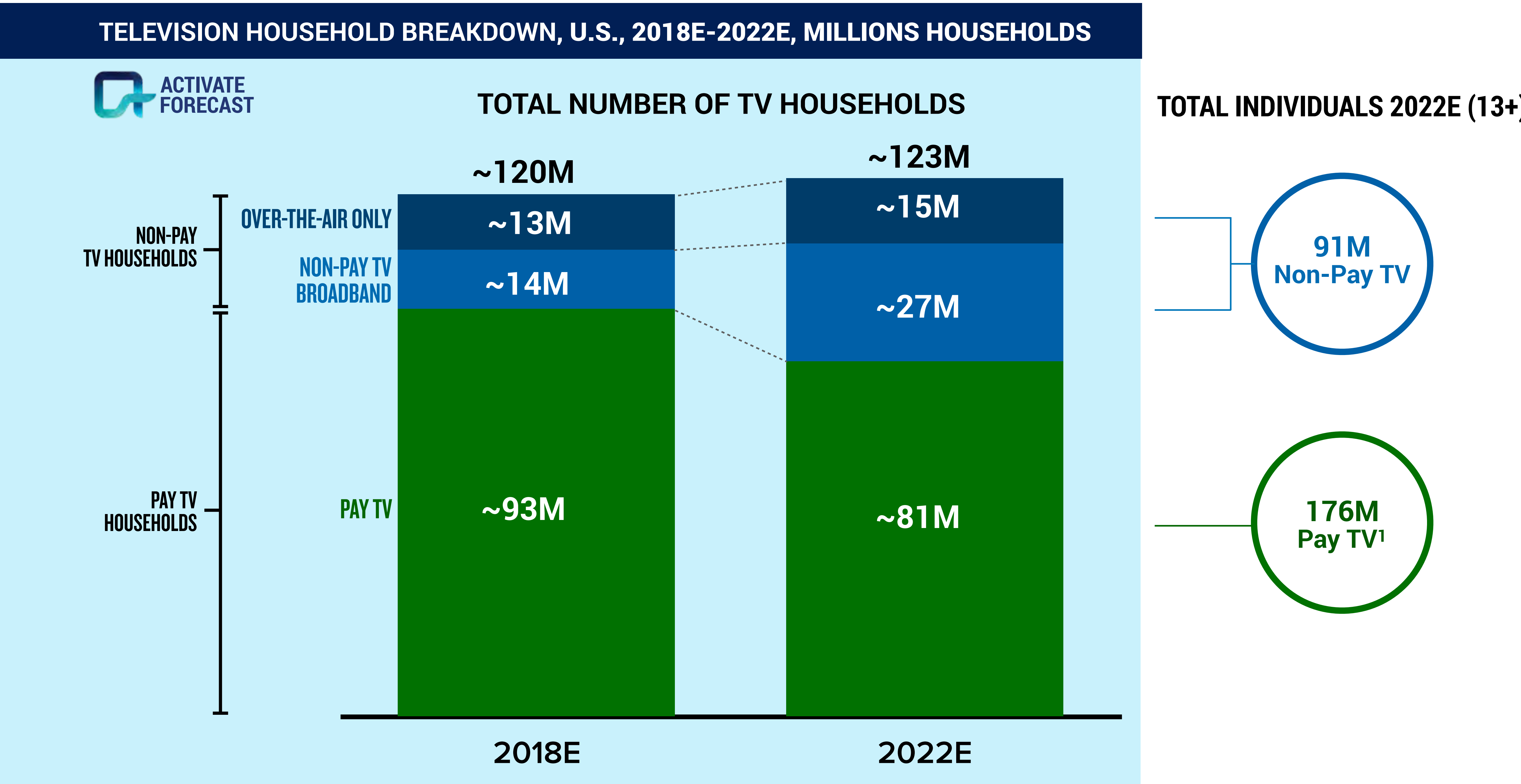
Video is a ~$200B ecosystem; all of the 2019 growth will come from digital formats



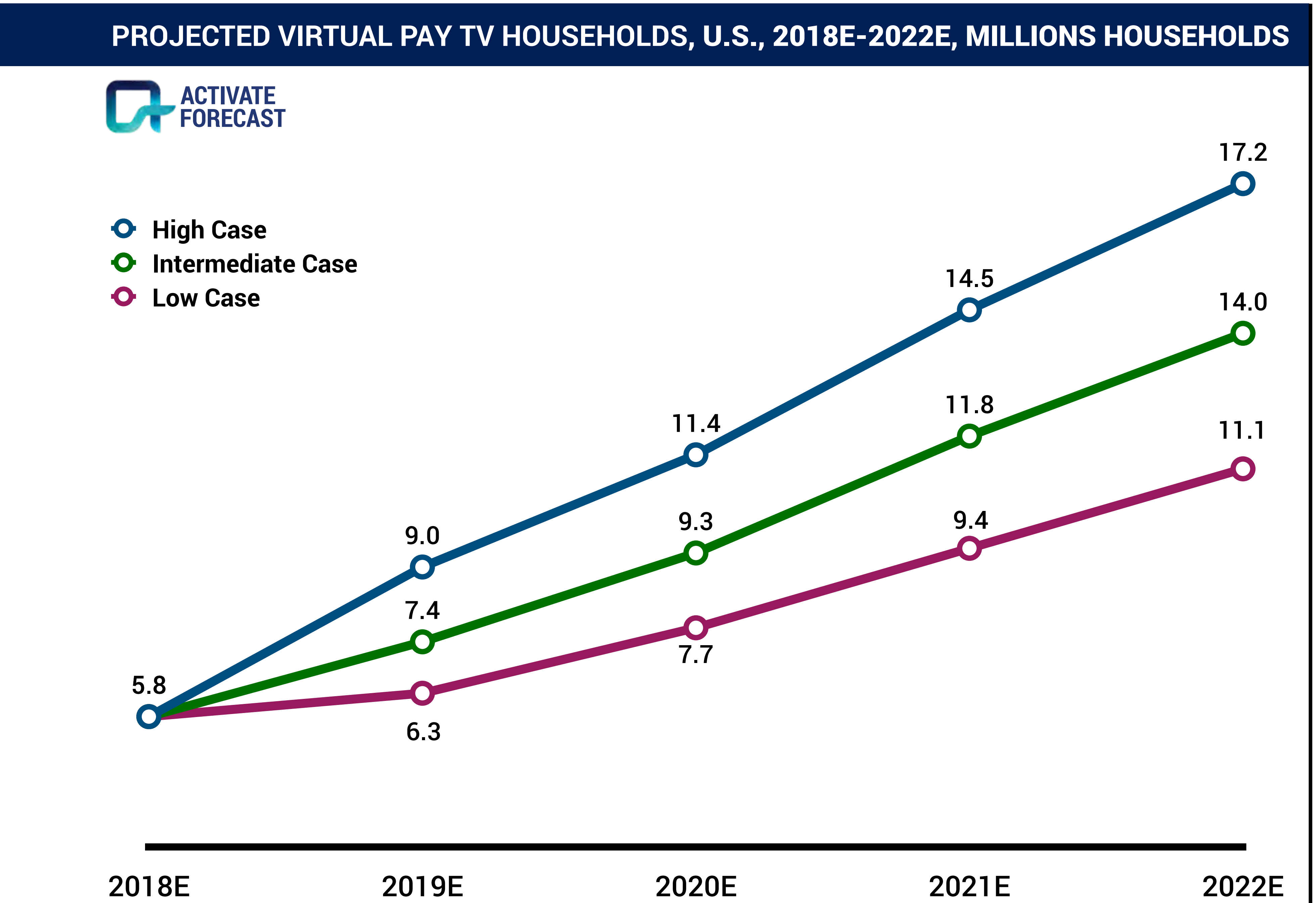
1. Values do not add up to 197.4 value due to rounding.
2. Only includes in-stream advertising.
Sources: Activate analysis, Barclays, Cowen and Company, Digital TV Research, eMarketer, GroupM, J.P. Morgan, MagnaGlobal, Pivotal Research Group, PricewaterhouseCoopers, SNL Kagan, Statista, Winterberry Group, ZenithOptimedia

We forecast that there will be 81M Pay TV households in 2022, representing 176M television viewers



1. Includes traditional Pay TV households (i.e. those with cable, satellite, telco), Virtual Pay TV households, and ATSC 3.0 households subscribed to a skinny bundle.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), The Diffusion Group, Leichtman Research Group, MoffettNathanson, Nielsen, Parks Associates, REDEF, U.S. Census Bureau, Video Advertising Bureau

Virtual Pay TV will grow as an alternative to traditional cable and satellite television



FACTORS DRIVING EACH ADOPTION SCENARIO

- Live events and sports remain a compelling adoption hook
- Skinny bundles do not "fatten up," and remain price-advantaged relative to the traditional bundle
- 5G and broadband expansions make services accessible to a larger share of consumers

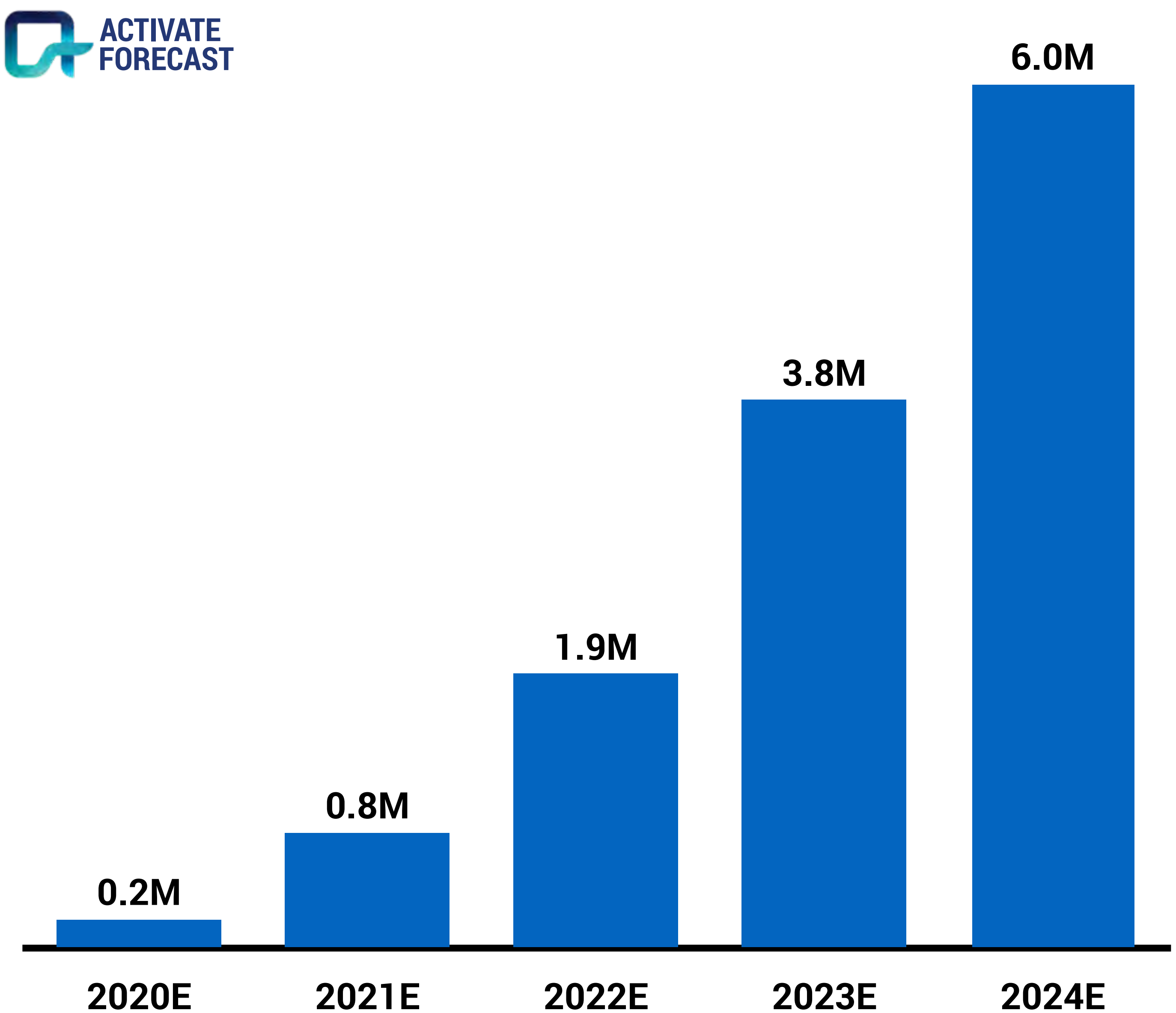
- Live events and sports decline somewhat as an adoption hook
- Operators continue to invest in customer acquisition, while keeping bundles skinny
- Multichannel distributors bundle Virtual Pay TV services to improve adoption

- Younger viewers find significantly less value in live events and sports
- Customers shy away from expanding Virtual Pay TV bundles
- Consumers see streaming services as a cheaper, but still direct, substitute for linear television

Sources: Activate analysis, The Diffusion Group, MediaRedef, MoffettNathanson, SNL Kagan, U.S. Census Bureau

The ATSC 3.0 broadcast standard will enable television stations to offer a 'skinny bundle' for over-the-air households

NUMBER OF HOMES USING ATSC 3.0, U.S., 2020E-2024E, MILLIONS HOUSEHOLDS

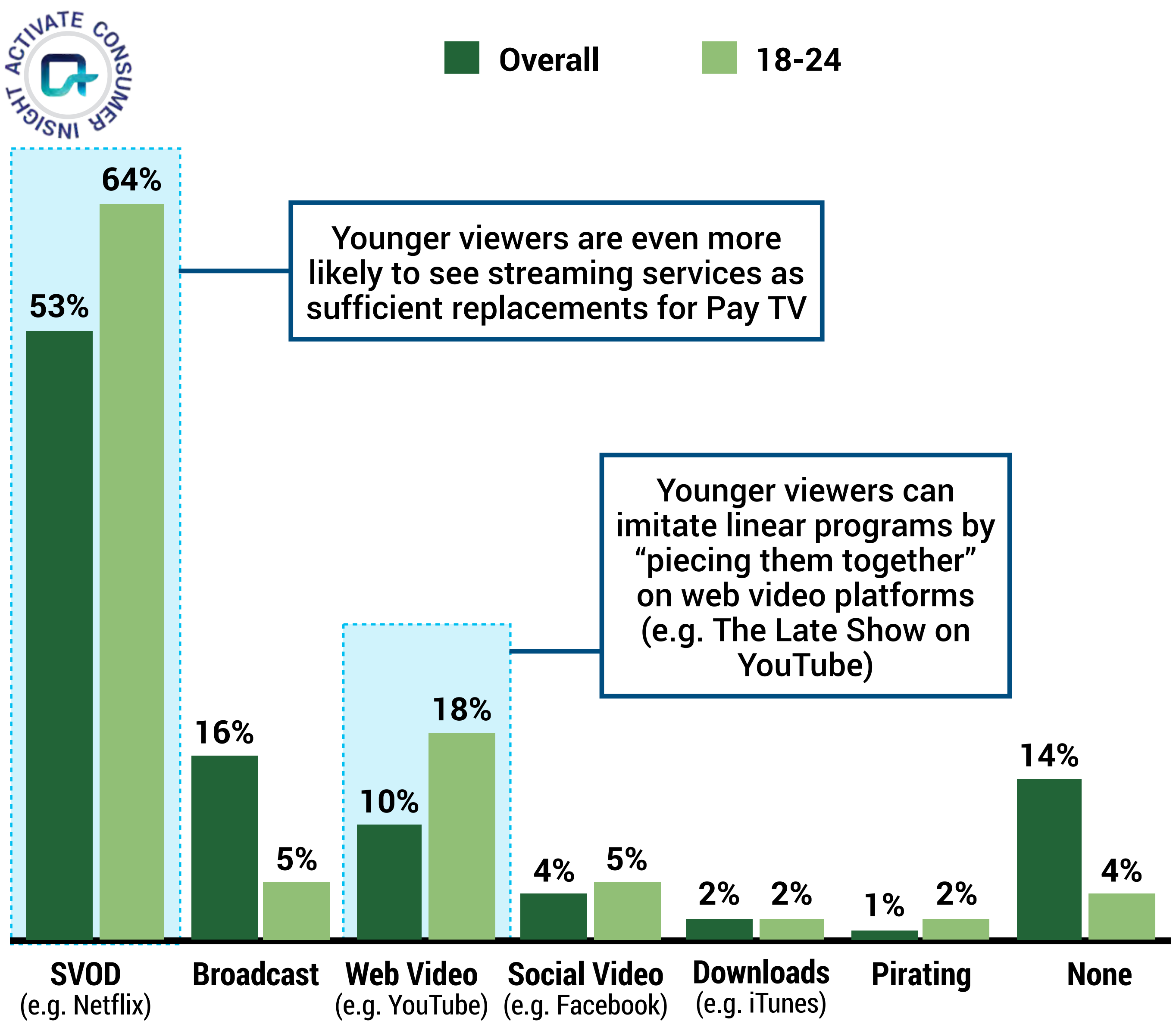


ATSC 3.0 ADVANTAGE	INITIATIVES
VIDEO QUALITY	• Delivers free broadcast programming at **high definition** • Offers an **accelerated frame rate** compared to traditional broadcast
IP SERVICE DISTRIBUTION	• Consumers will be able to **access streaming services and other digital content** alongside broadcast programming in broadband-constrained areas • ATSC 3.0 streams are translated into streams and files by an **IP-based tuner/dongle in the home**
TARGETED ADS	• IP-based delivery means programmers can deliver **targeted ads in real time** based on viewing data

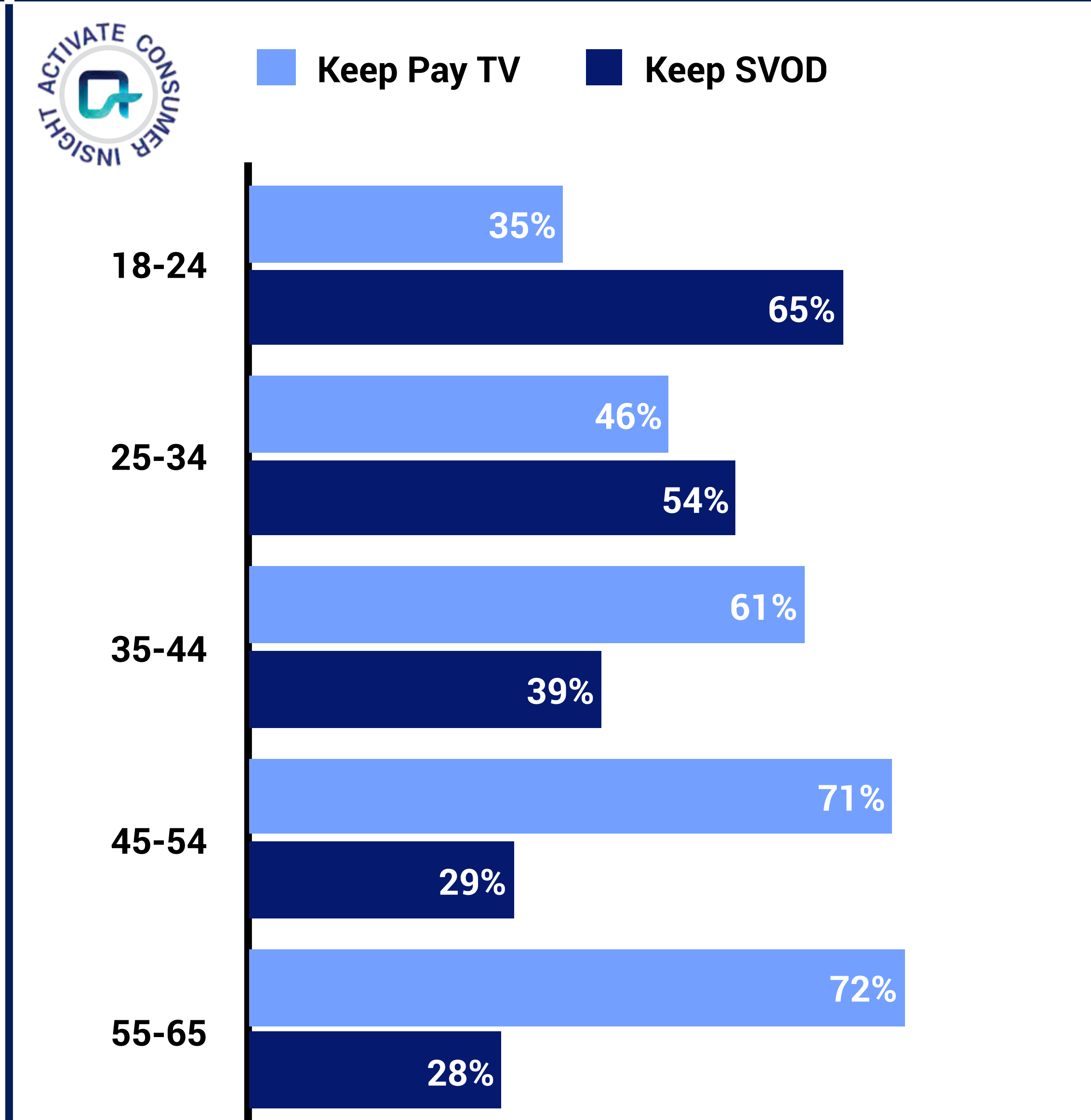
Sources: Activate analysis, The Diffusion Group, SNL Kagan

Many younger viewers will increasingly see streaming services as one-to-one replacements for Pay TV

PRIMARY PAY TV REPLACEMENT AMONG CORD CUTTERS/NEVERS,
U.S., 2018, % CORD CUTTERS/NEVERS



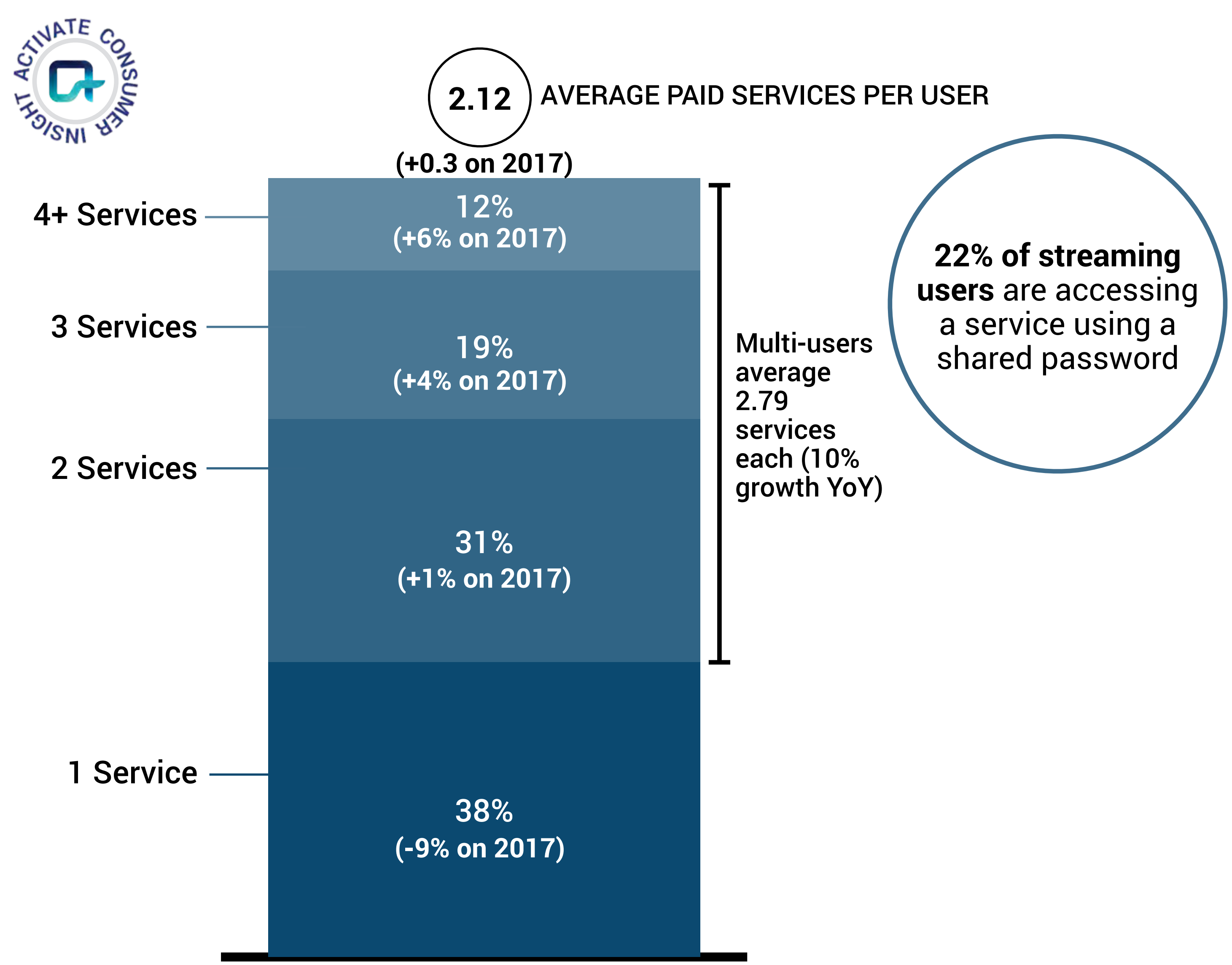
PREFERRED CHOICE BETWEEN PAY TV AND SVOD (AMONG DUAL USERS)[1], U.S., 2017, % USERS



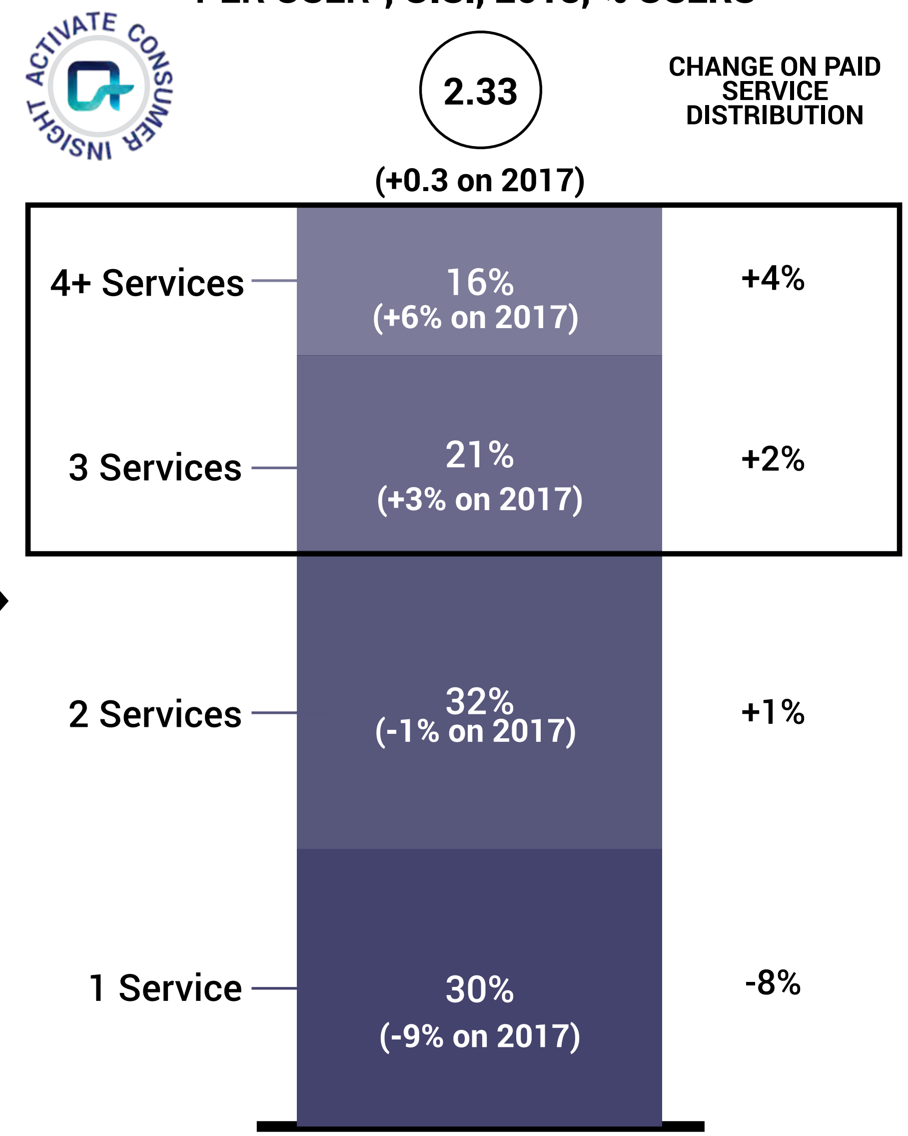
1. Respondents were asked: "If you were forced to choose between your traditional Pay TV service and your subscription streaming video services, which would you choose?"
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=1,349), Activate 2017 Consumer Tech & Media Research Study (n=2,015), The Diffusion Group

Streaming users will continue to stack subscriptions and share passwords to access more programming

NUMBER OF PAID SVOD SERVICES PER USER, U.S., 2018, % USERS



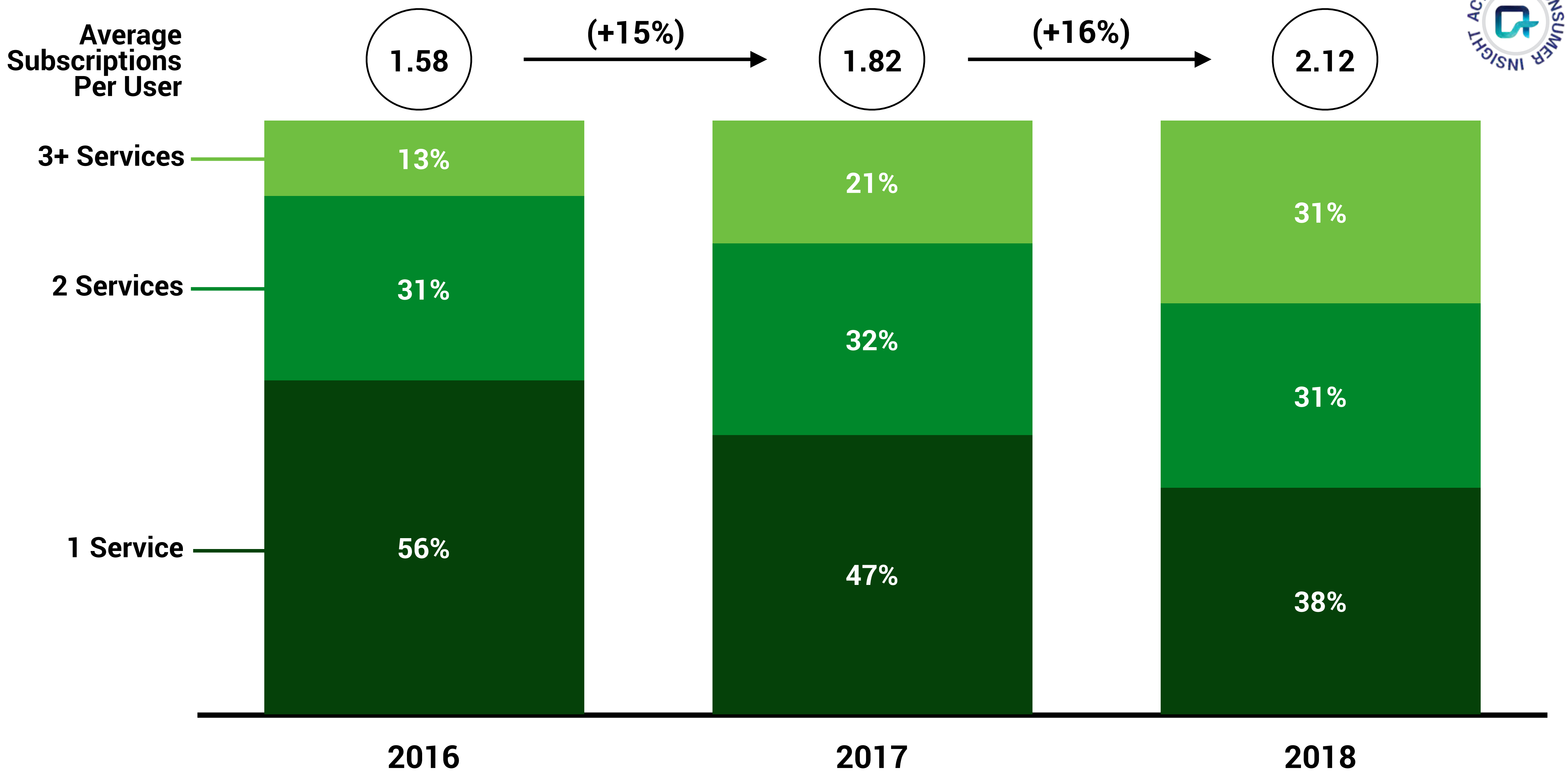
EFFECTIVE NUMBER OF SVOD SERVICES PER USER[1], U.S., 2018, % USERS



1. Effective bundle defined as total services used after factoring in paid subscriptions and password sharing.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,717), Activate 2017 Tech & Media Research Study (n=3,023)

Subscription stacking has continued apace since 2016, as subscribers look to build their own digital bundles

NUMBER OF PAID SVOD SUBSCRIPTIONS PER SUBSCRIBER, U.S., 2016-2018, % SUBSCRIBERS

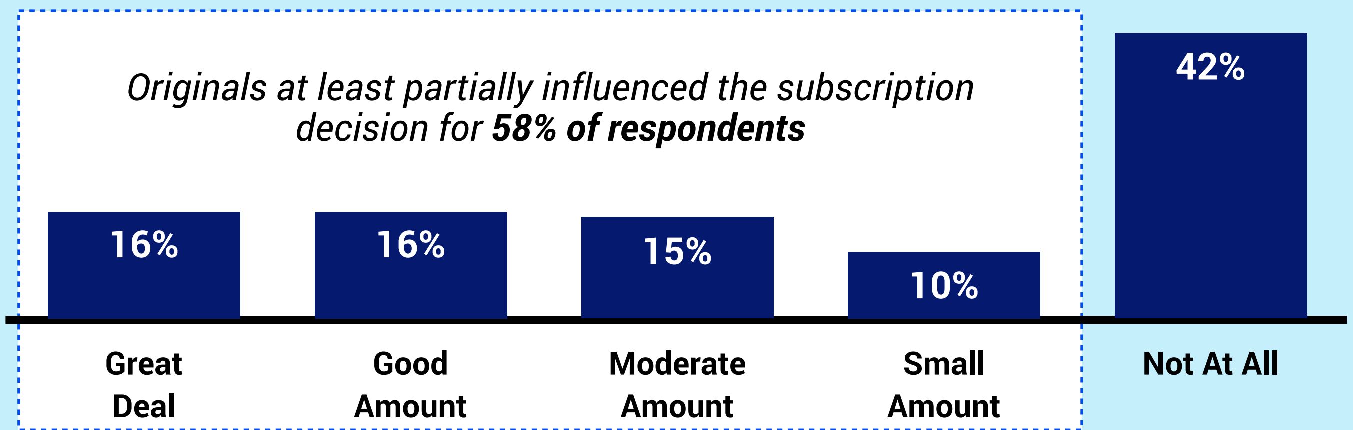


Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,717), Activate 2017 Consumer Tech & Media Research Study (n=3,023), Activate 2016 Consumer Tech & Media Research Study (n=2,064)

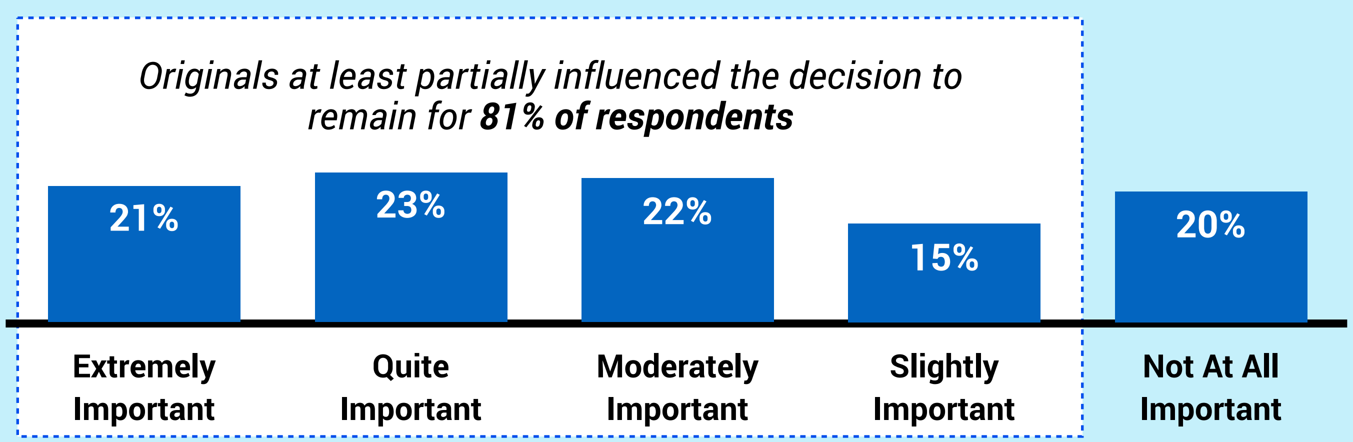
Streaming customers come for the licensed programming but stay for the originals; the scaled streaming services will continue to spend on original programming to retain their subscribers

INFLUENCE OF ORIGINALS ON NETFLIX SUBSCRIBERS[1]

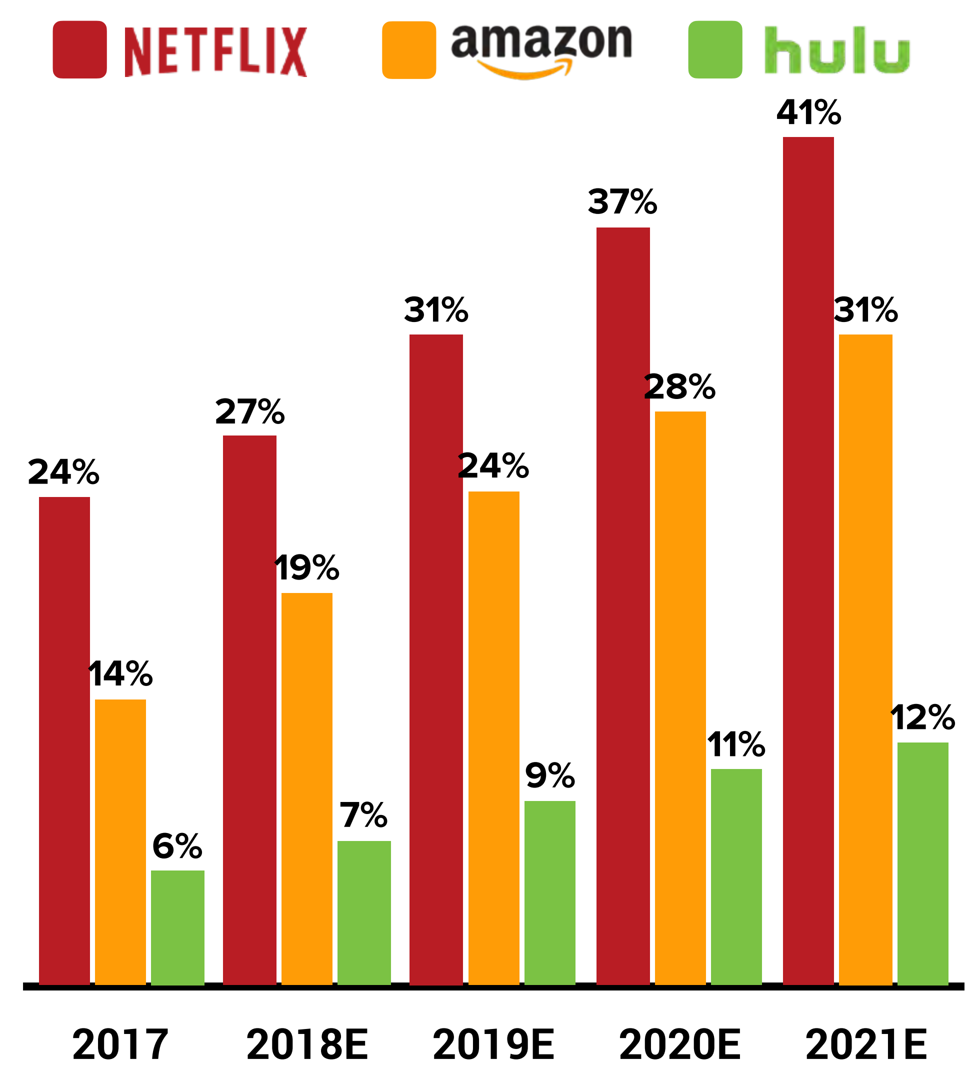
INFLUENCE OF ORIGINALS ON NEW SUBSCRIBERS, U.S., 2016-2018 AVERAGE, % NETFLIX SUBSCRIBERS



INFLUENCE OF ORIGINALS ON EXISTING SUBSCRIBERS, U.S., 2016-2018 AVERAGE, % NETFLIX SUBSCRIBERS



ORIGINALS AS SHARE OF OVERALL CONTENT SPEND BY SERVICE, U.S., 2017-2021E, % SPEND



1. Based on quarterly RBC Capital Markets survey of Netflix subscribers. Figures are average of survey values from February 2016 through March 2018. Numbers may not sum to 100% because of rounding.
Sources: Activate analysis, RBC Capital Markets, SNL Kagan

There will be a handful of winners in streaming video, including the incumbent players and major network offerings

LIKELY STREAMING VIDEO WINNERS BY CATEGORY, 2018

TYPE OF SERVICE	LEADING SERVICES	DESCRIPTION
INCUMBENT PLAYERS	NETFLIX, amazon, hulu	• Established **scale** (e.g. Netflix with more than 55M domestic subscribers) and brand recognition • **Deep libraries** of licensed and original content
SERVICES FROM PROGRAMMERS	FOX SPORTS 1 *(expected)*, HBO NOW, ESPN+, SHOWTIME, NBC UNIVERSAL *(expected)*, Disney+ *(announced)*, WARNERMEDIA *(announced)*, FOX NEWS channel, CBS ALL ACCESS, ? *(expected)*	• **Brand recognition** through established franchises, networks, and/or personalities • **Unique content** not currently available on streaming services (e.g. live sports) • **Resources to invest in customer acquisition** both domestically and internationally
FANDOM NICHE	crunchyroll, W NETWORK, SHUDDER, TENNIS CHANNEL	• **Loyal audiences willing to pay** for specialized content libraries • Will require **distribution** by major players (e.g. VRV, Amazon) to reach sustainable scale

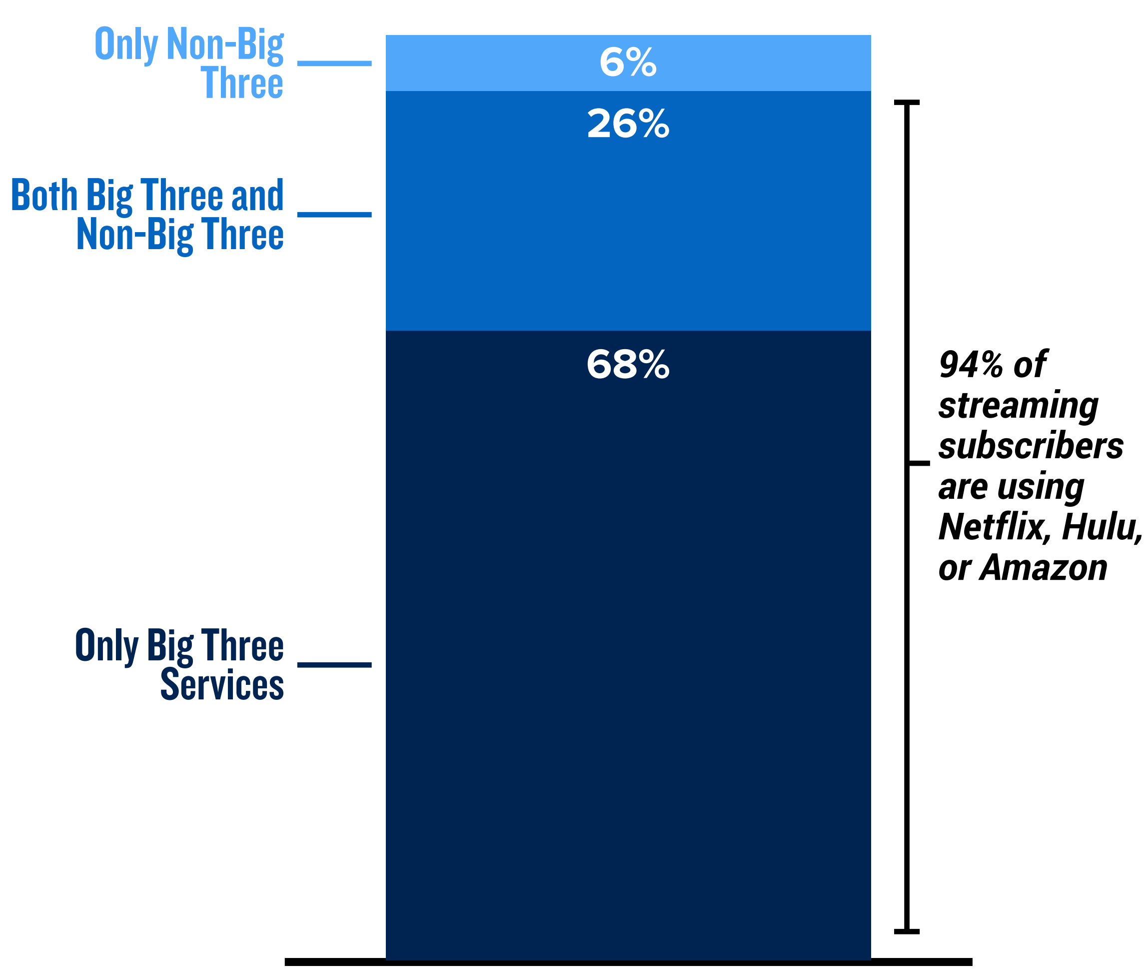
activate

Source: Activate analysis

To succeed in a crowded market, new services will need to focus on getting homes to add a service while niche services will need unique programming and a dedicated fan base

SHARE OF STREAMING SUBSCRIBERS BY TYPE OF SERVICE, U.S., 2018, % SUBSCRIBERS

"BIG THREE" SERVICES



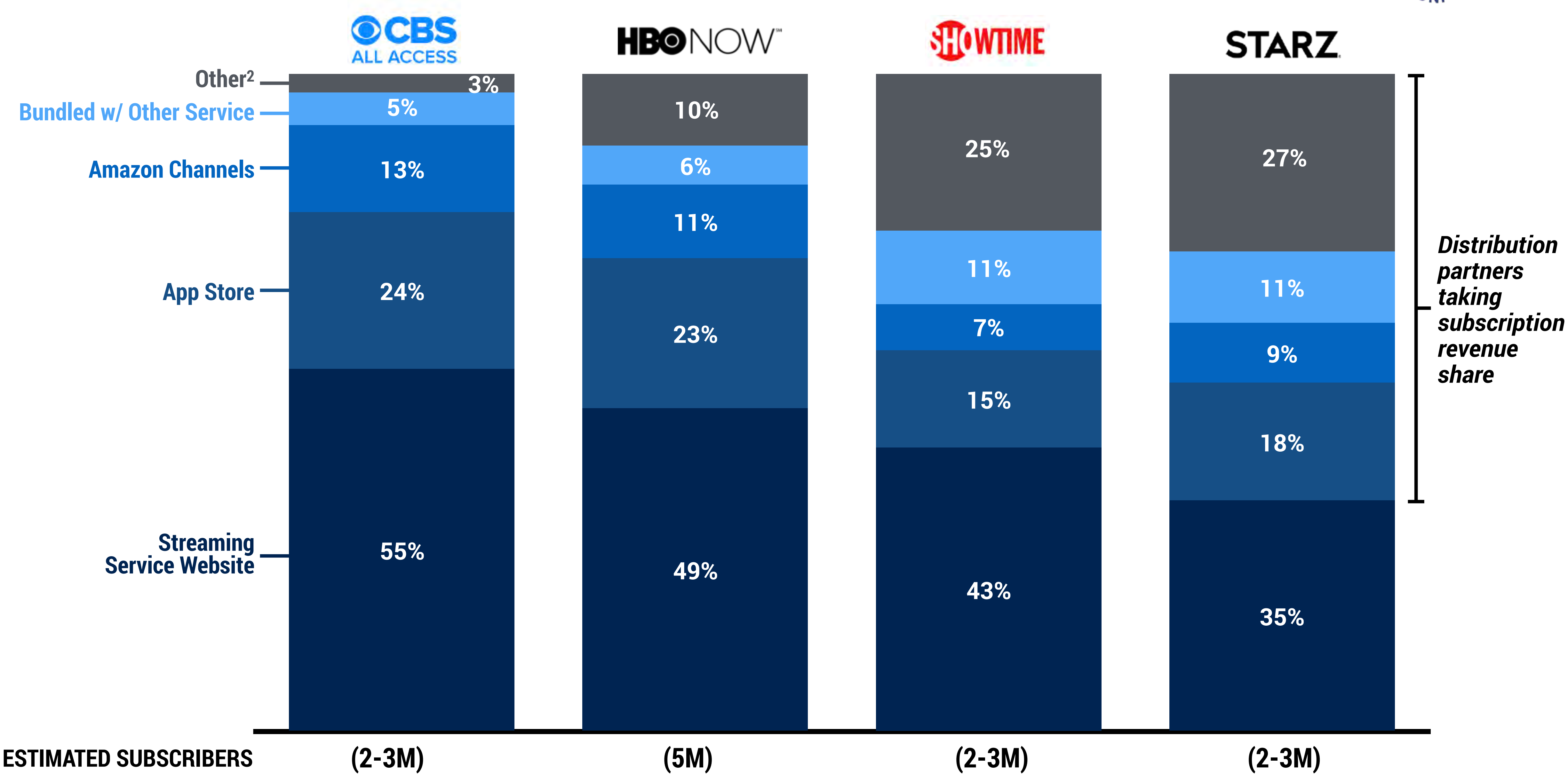
NICHE SERVICES ABOUND, BUT CHALLENGED ECONOMICS HAVE CAUSED SOME TO SHUT DOWN

NOTABLE SERVICE SHUTDOWNS

Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,717), SNL Kagan, Variety

Streaming services will need to partner with distributors for subscriber acquisition

SUBSCRIBER ACQUISITION SOURCE BY STREAMING SERVICE, U.S., 2018, % SUBSCRIBERS[1]



1. Figures will not sum to 100% because of rounding.
2. "Other" includes both respondents who reported "other" and "not sure."
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,717)

Cable, satellite, telecommunications and technology companies are likely to expand their roles as distributors for streaming services

PLAYER	EXAMPLES	RATIONALE
CABLE OPERATORS	COMCAST, COX	• Comcast launching streaming hardware device for broadband-only customers to improve customer retention and maintain a relationship with cord cutters • Comcast continues to distribute streaming services through X1 set-top-box platform, and has also licensed X1 to Cox and Rogers
SATELLITE OPERATORS	DIRECTV, sky	• DirecTV Now available as part of a bundled quadruple-play offering for AT&T mobile customers • With acquisition of Sky, Comcast will now exploit the potential of Now TV
TELECOM PROVIDERS	AT&T, T-Mobile	• Ownership of HBO, and announcement to launch WarnerMedia-branded service, positions AT&T to become major player in streaming distribution • T-Mobile acquisition of Layer3 could lead to bundled streaming television offering
LEADING BROADCASTERS	SINCLAIR, CBS	• Sinclair planning to launch STIRR streaming service, which will include local news coverage and talk shows • CBSN Local will deliver local news to cord cutters
MAJOR TECH PLAYERS	Apple, amazon	• Amazon building Prime Channels service and acting as primary distributor for niche streaming services • Rumored Apple TV streaming service will include subscription services from major media companies—App Store already a distribution medium for streaming services

Sources: Activate analysis, 9to5Mac, CNBC, Fierce Video, Hollywood Reporter, The Information, MediaPost, nScreenMedia, TechCrunch

In this environment, programming from the large media companies will be resilient; tentpole TV franchises garner strong digital viewership

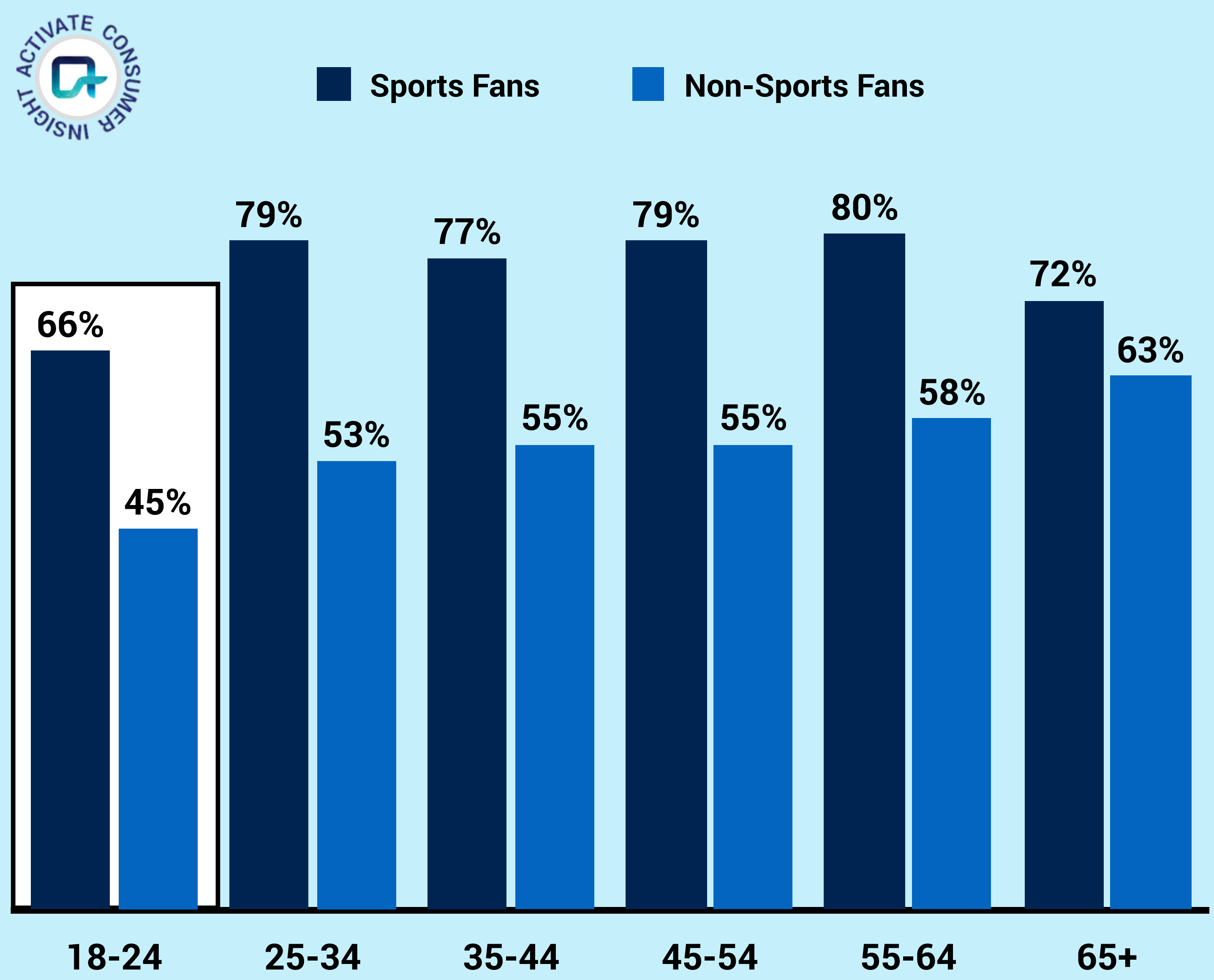
TOP TELEVISION ENTERTAINMENT CREATORS BY TOTAL DIGITAL VIEWS[1], U.S., 2017, BILLIONS VIEWS

10 of the top 17 entertainment channels on social platforms (including YouTube, Facebook, Instagram, and Snap) in 2017 were based on television franchises

1. Sum of views across YouTube, Facebook, Instagram, and Snap.
Sources: Activate analysis, Tubular Labs

Sports will continue to be one of the strongest draws for television, but with slightly less pull for younger viewers

PAY TV PENETRATION BY AGE AND SPORTS AFFINITY[1], U.S., 2018, % SPORTS FANS



TYPE		BACKGROUND
MAJOR TECH PLATFORMS	amazon, Twitter	• Amazon streaming TNF and select EPL games (in UK) on Prime Video and Twitch • Expiration of international rights (e.g. Bundesliga in 2021) another opportunity for expansion
LEAGUE SERVICES	MLB.TV, NBA LEAGUE PASS	• Target super fans • MLB TV at $109.99/year, or $84.99/year for a single team • NBA League pass at $200/ year, or $120/year for a single team
DIGITAL LINEAR SERVICES	fuboTV, PLUTO TV	• Sports-heavy Fubo service targets non-Pay TV sports fans • Pluto ad-supported offering provides some sports for free

1. Includes Virtual Pay TV services (e.g. Sling TV, DirecTV NOW) as part of Pay TV penetration figure.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), Digiday, TechCrunch, Variety

People are more likely to watch sports on multiple devices; this is especially true for Gen Z and Millennials

SHARE OF SPORTS VIEWERS WATCHING SPORTS ON EACH PLATFORM BY AGE, U.S., 2017, % VIEWERS

ACTIVATE CONSUMER INSIGHT

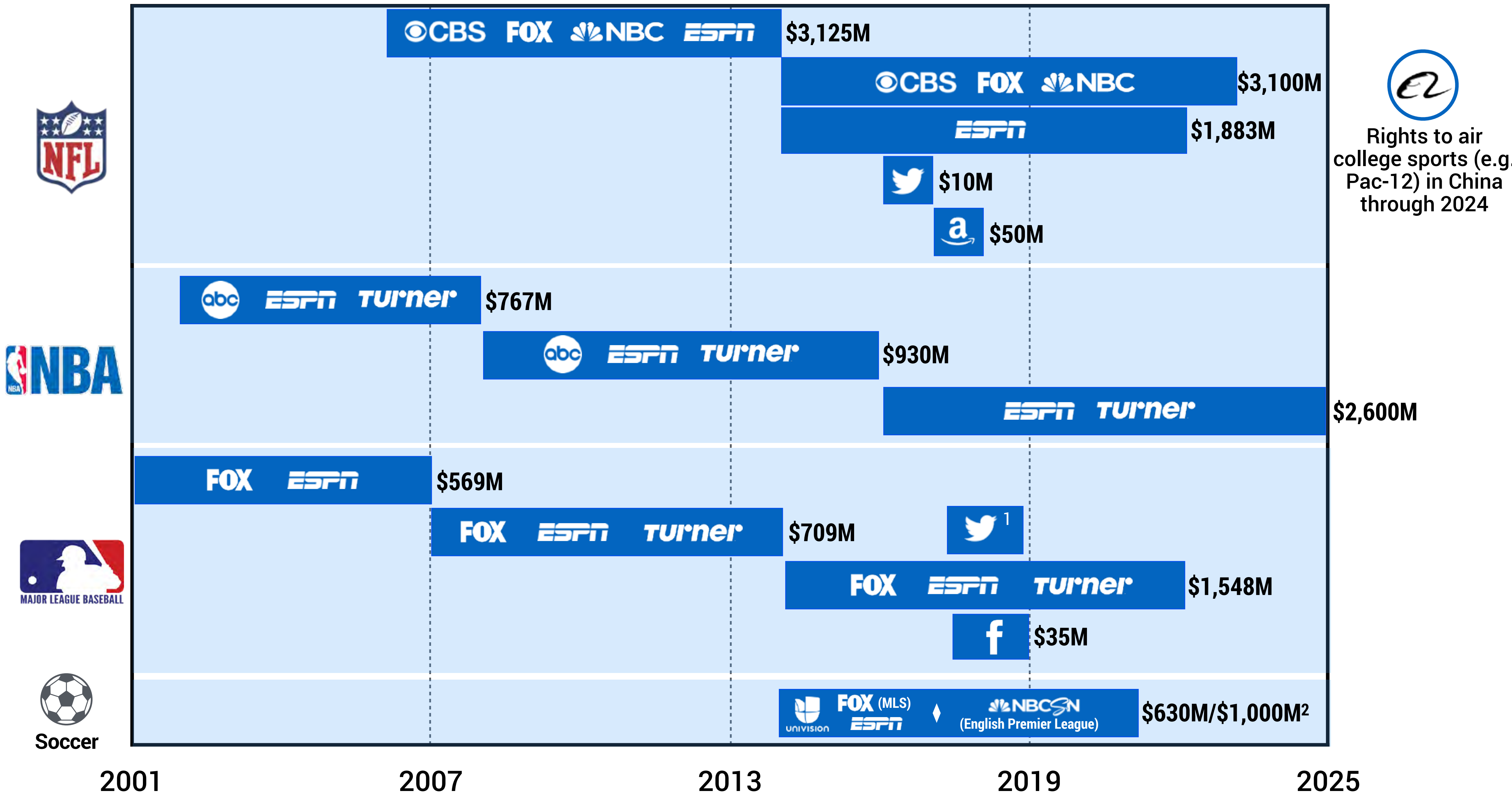
	18-24	25-34	35-44	45-54	55-64	65+
TV	87%	94%	92%	95%	97%	99%
SMARTPHONE	42%	38%	31%	14%	10%	2%
DESKTOP/ LAPTOP	38%	32%	26%	22%	16%	12%
TABLET	13%	17%	18%	13%	8%	3%

Younger viewers are watching on multiple platforms

Sources: Activate analysis, Activate 2017 Consumer Tech & Media Research Study (n=2,406), Nielsen

2019 will be the critical year as both television and digital players compete for domestic and international sports rights

MAJOR RIGHTS PACKAGES BY SPORT AND EXPIRATION YEAR, GLOBAL, 2001-2025, MILLIONS USD



1. Financials not disclosed. Two-year stretch is the result of renewed annual deals.
2. First value refers to estimated value of MLS deal, and second to estimated value of EPL deal.

Sources: Activate analysis, Company and league press releases, New York Times, Quartz, SNL Kagan, TechCrunch, Wall Street Journal

The Most Important Insights for Tech and Media in 2019

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Consumer Financial Services: The Long Awaited Tech Revolution is Finally Arriving	**139**

The long awaited transition to digital-first consumer financial services is finally here

A NEW WAVE OF TECH INNOVATORS HAS EMERGED, OFFERING BETTER EXPERIENCES AND EASY-TO-USE FUNCTIONALITY

- New experiences have launched across the full suite of consumer financial activities: banking, investing, insuring, borrowing, and paying (online and offline)
- They provide access to financial services for a broader set of consumers such as Gen Z, Millennials, HENRYs (high-earning, not rich yet), and the underbanked

THESE NEW EXPERIENCES ARE DEFINING A NEW SET OF EXPECTATIONS FOR CONSUMERS—CONSUMER FINANCIAL SERVICES SHOULD BE AS EASY AS OTHER DIGITAL APPLICATIONS

- Gen Z and Millennials are starting their financial lives with these tech experiences
- Once people start using these applications, they see no reason to go to mainstream financial institutions

THERE IS STILL A GREAT DEAL MORE INNOVATION AHEAD

- Expect more launches from venture-backed start-ups
- More innovation to come from established financial institutions, tech platforms, payment companies, and mobile operators

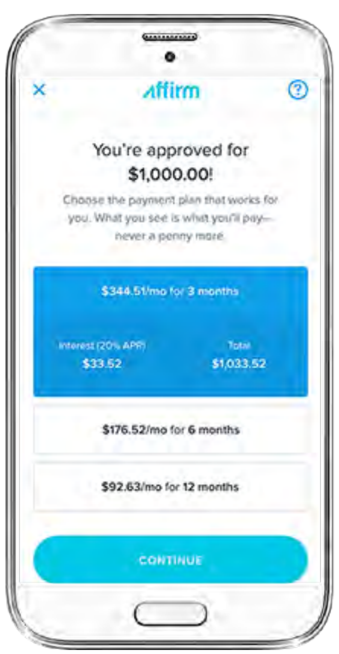
Source: Activate analysis

New innovators—founded in the last five years—are in the vanguard with new frictionless experiences

LAUNCHED:

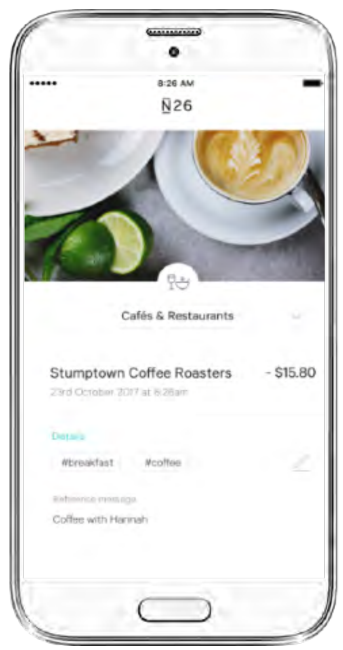
BORROW
2012 — affirm

- Instant access to lines of credit at purchase
- Embedded in eCommerce experiences and point-of-sale (POS)
- Customizable financial terms (low-interest, flexible)
- Backed by alternative data (beyond credit scores)



BANK
(E.G. HOLD/SAVE MONEY)

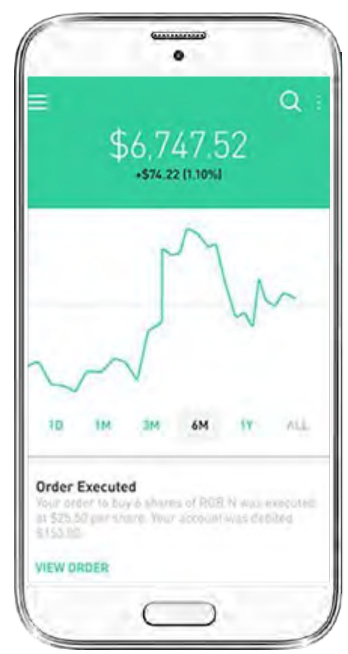
2013 — N26



- Frictionless, mobile-first, digital bank integrating payments, credit, and rewards
- Low-fee international money transfers
- Real-time payment notifications
- Ability to enable or disable card and online transactions through the app

INVEST
2013 — robinhood

- Simple user interface
- Integrated offering: stocks, options, cryptocurrency
- Instantly processed transactions backed by a 24/7 proprietary clearing system
- No fee at base tier to consumers



PAY
2015 — PAY

- Seamless integration of money transfers with messaging
- Embedded security and ID verification
- Easy interface with card integration, PayPal account

INSURE
(PROPERTY AND CASUALTY)

2015 — Lemonade

- Fast, online-only sign-up
- Online questionnaire for tailored experiences
- Video-based claim submission process
- Immediate claims processing and easy pay-out (high consumer indemnification)

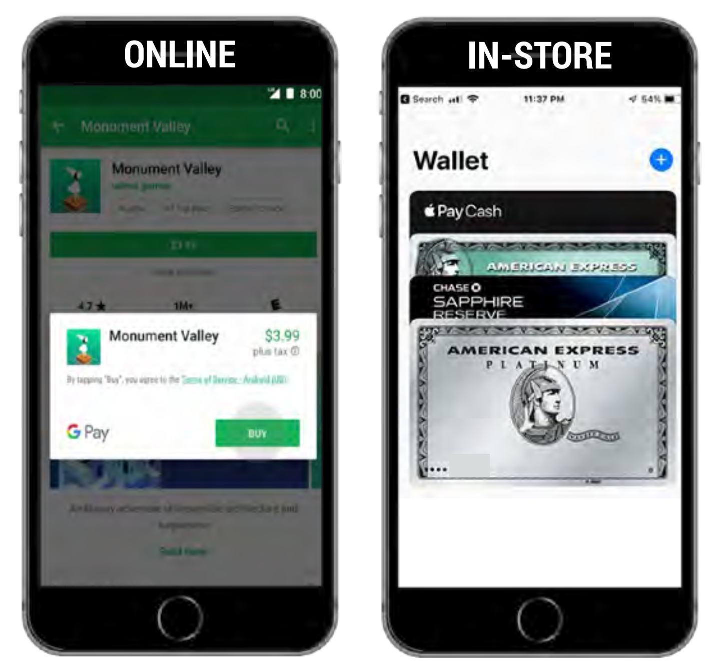
Sources: Activate analysis, Company sites

These companies join the established tech companies, who are already disrupting payments at scale (peer-to-peer, digital and POS)

TOP THREE CONSUMER BANKING SERVICES BY LEVEL OF ADOPTION, U.S., 2018

PEER-TO-PEER (P2P) PAYMENT

1. PayPal
2. venmo PayPal
3. G Pay



DIGITAL PAYMENT (ONLINE AND IN-STORE)

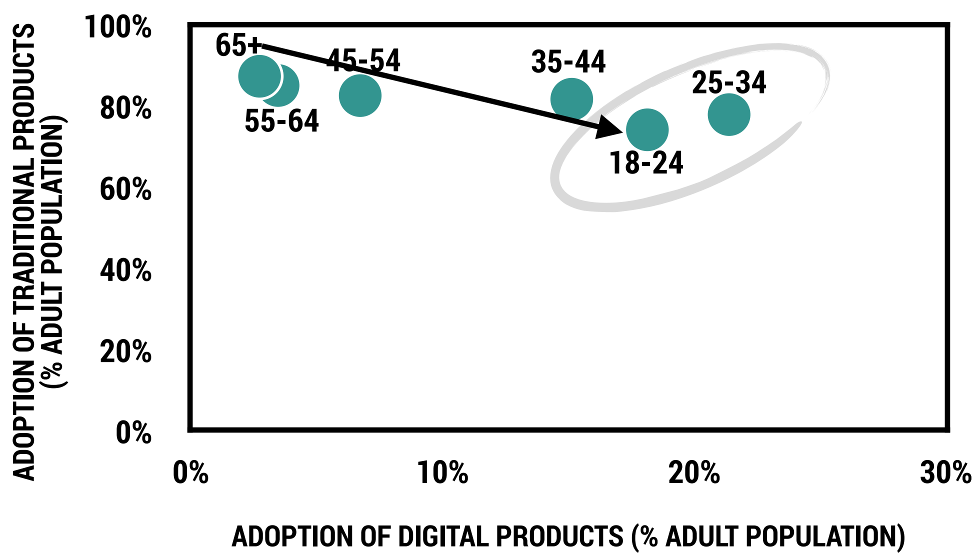
1. PayPal
2. Apple Pay
3. G Pay

Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000)

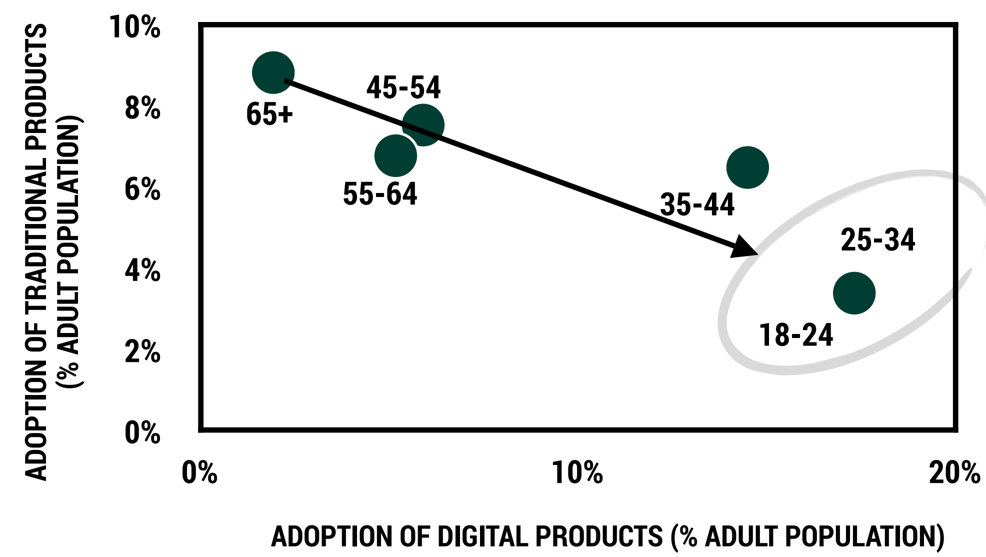
Our research shows that Millennials and Gen Z will lead in adoption

ADOPTION OF TRADITIONAL VS. DIGITAL FINANCIAL PRODUCTS BY AGE RANGE, U.S., 2018, % ADULT POPULATION

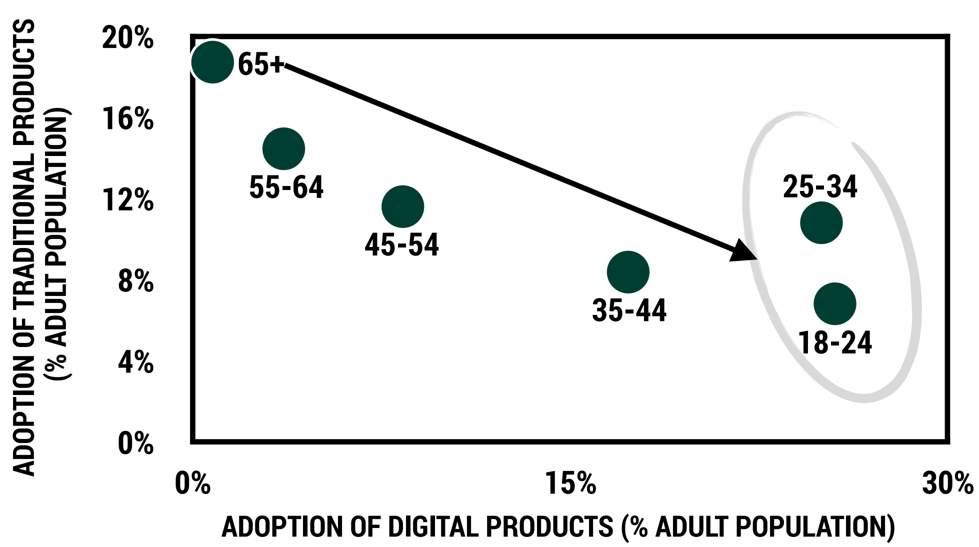
CHECKING/SAVINGS ACCOUNT



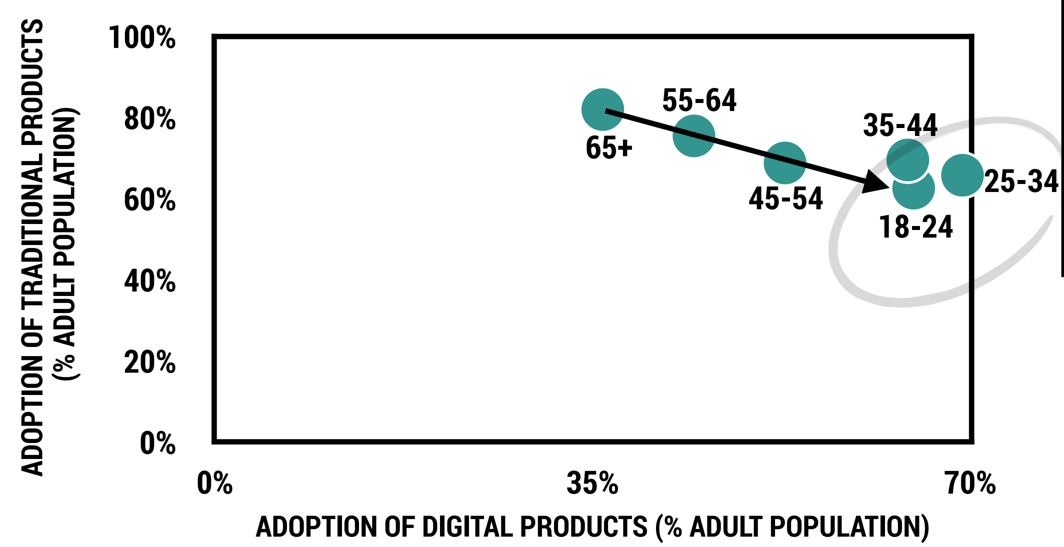
BORROWING[1]



INVESTMENT[2]



DIGITAL PAYMENT (ONLINE & IN-STORE)[3]



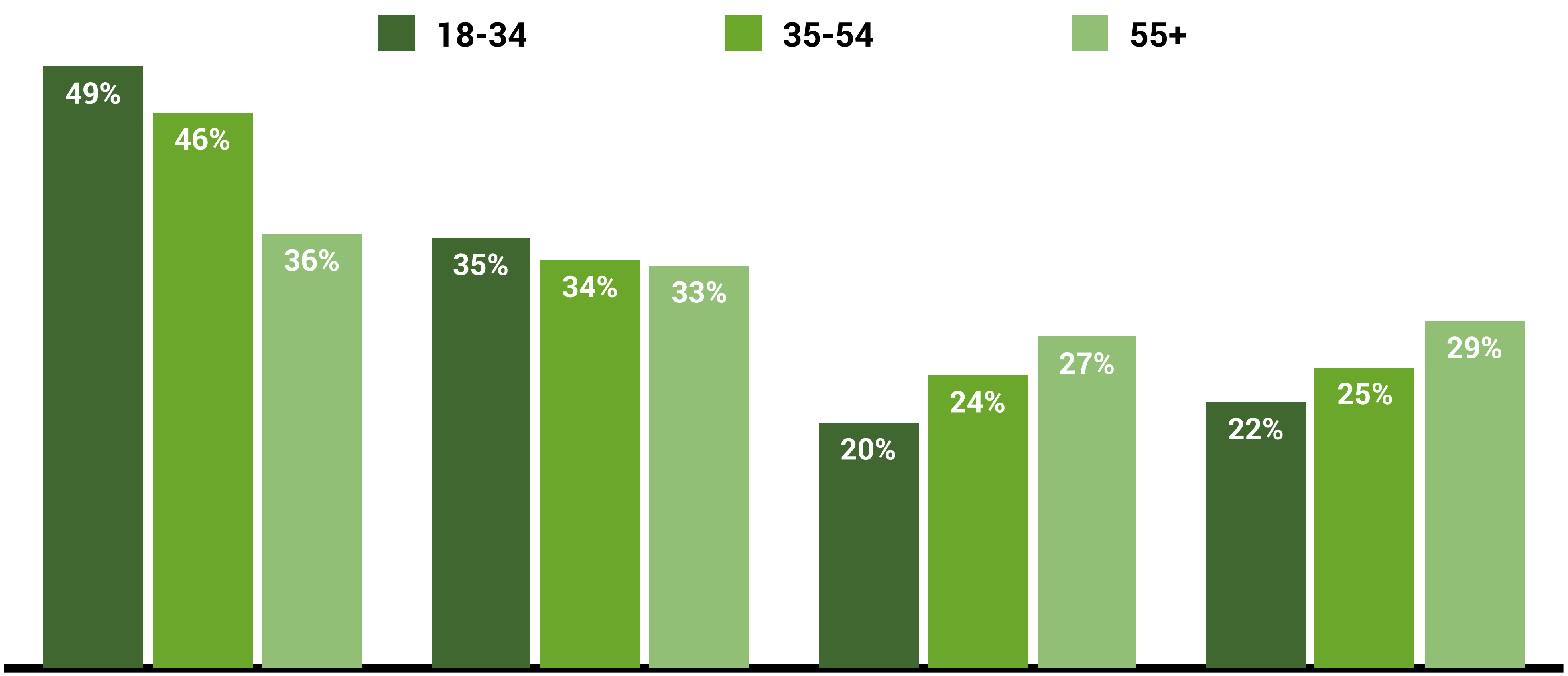
Younger generations of consumers are less loyal to their banks—Millennials switch banks 2.5x more often than Baby Boomers

1. Traditional: non-mortgage consumer loans (excluding credit cards); Digital: consumer point of sale and marketplace lending services. 2. Traditional: investment accounts (e.g. brokerage, IRA); Digital: investment and trading services, apps, and robo-advisors. 3. Traditional: credit/debit cards; Digital: mobile wallets, payment apps.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=4,000), Gallup

These services are here to stay; our research shows that once people start using new digital services, those services become core to their financial habits and practices

ADOPTERS OF DIGITAL SERVICES USING AS PRIMARY, U.S., 2018, % USERS

ACTIVATE CONSUMER INSIGHT

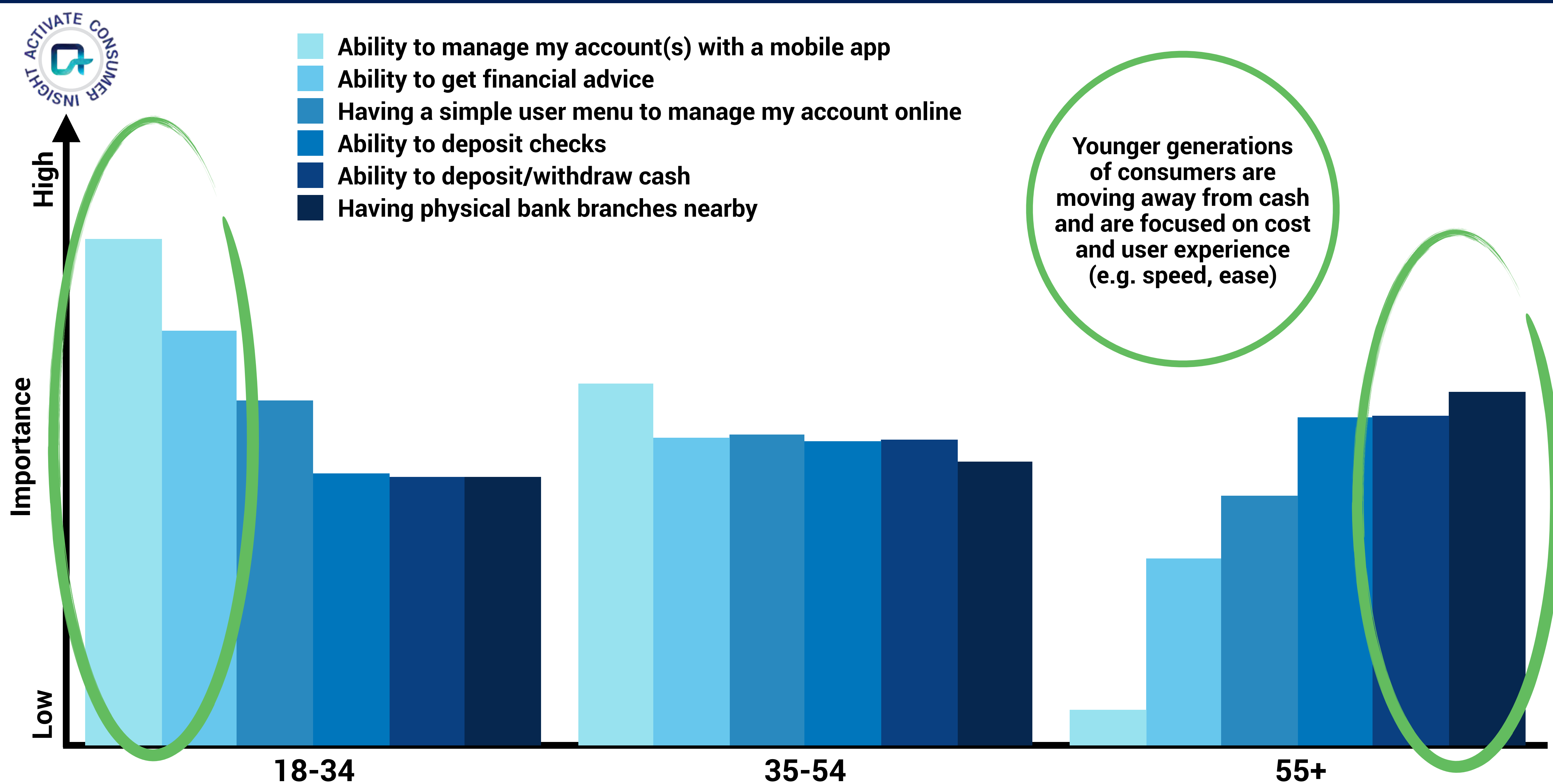


	P2P Payment		POS Payment		Checking/Saving		Investment	
TOP 2 STICKIEST SERVICES[1]	PayPal	48%	Samsung Pay	44%	ally	26%	robinhood	37%
	venmo	39%	Apple Pay	43%	chime	22%	acorns	27%

1. Percent of respective service adopters using as primary service.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=2,339; 2,163; 421; 493)

Tech companies are increasingly satisfying consumers' expectations for new services and experiences

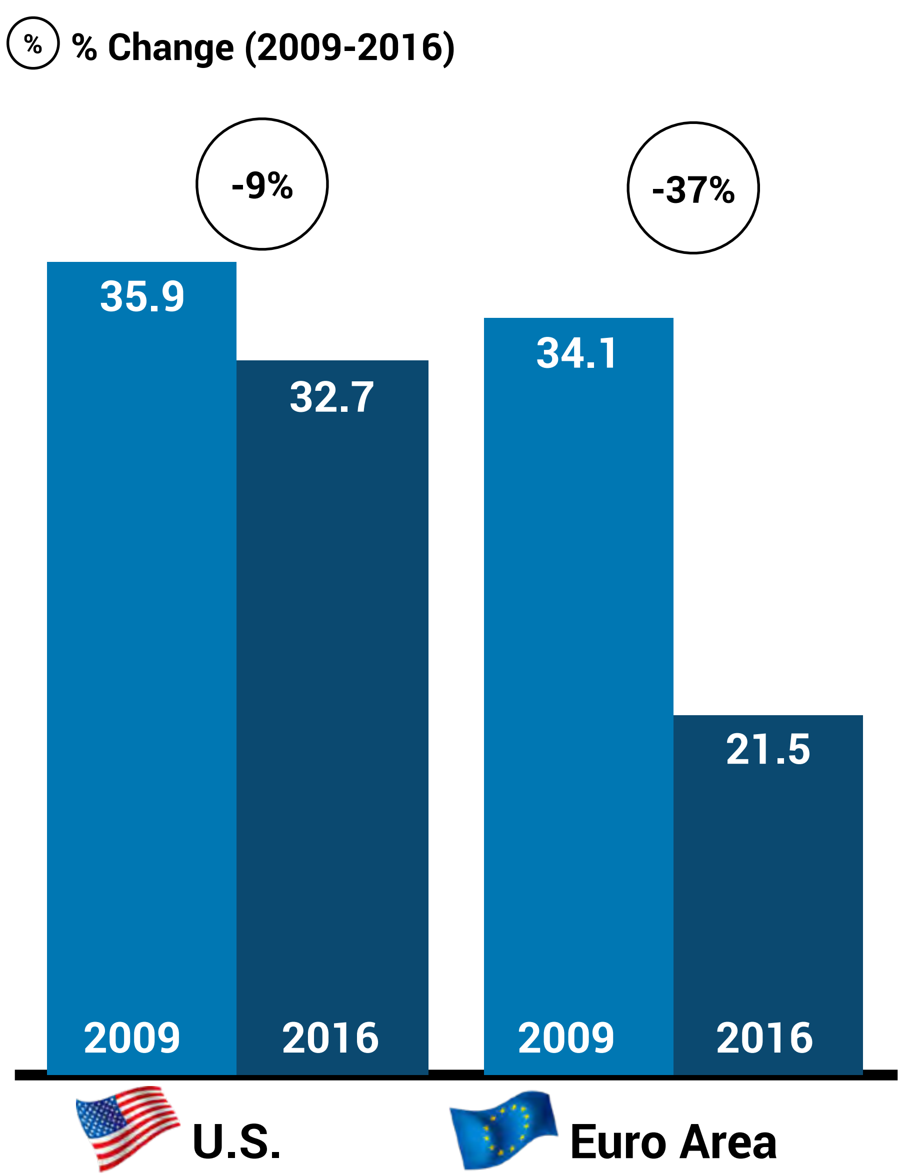
KEY FACTORS IN SELECTING FINANCIAL PRODUCTS BY AGE[1], U.S., 2018, IMPORTANCE SCORE INDEXED TO ADULT USERS



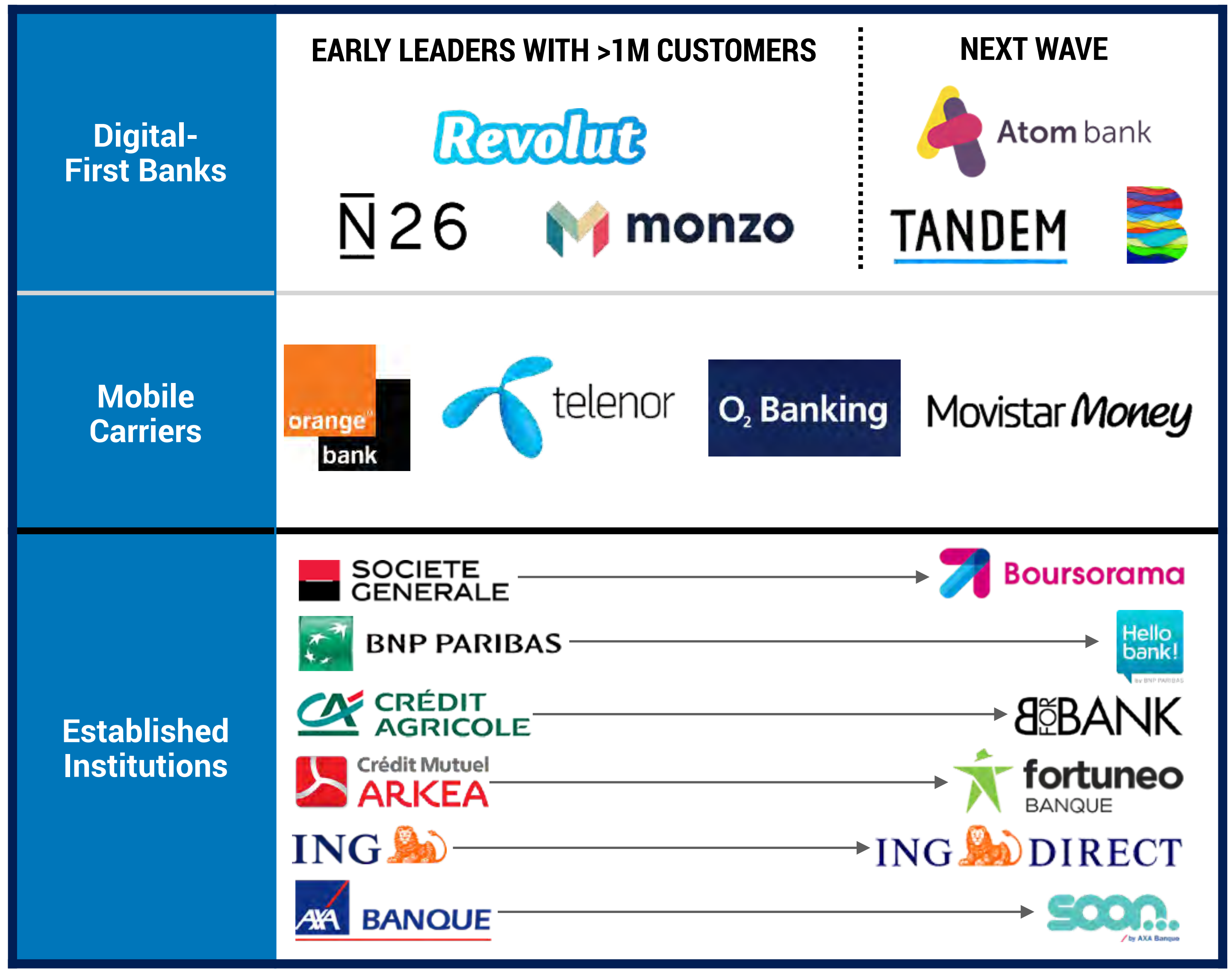
1. Based on checking/savings accounts.
Sources: Activate analysis, Activate 2018 Consumer Tech & Media Research Study (n=3,081)

In Europe, digital-first banks and mobile carriers have captured a greater share of financial services, and established financial institutions are responding by quickly transitioning to digital

COMMERCIAL BANK BRANCHES PER 100K ADULTS, U.S. VS. EURO AREA, 2009 VS. 2016



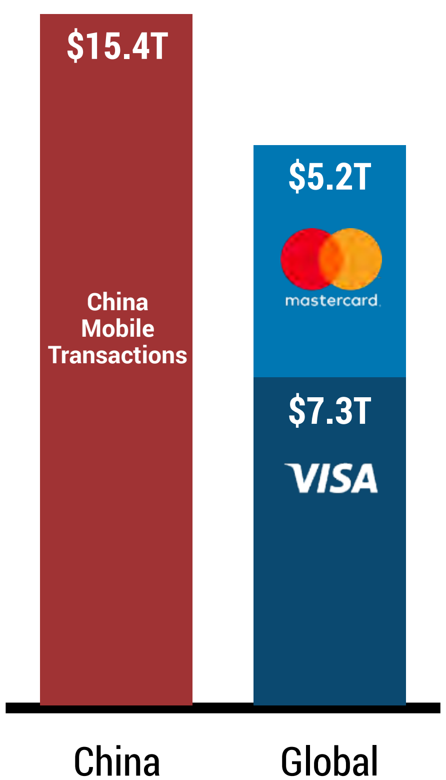
DIGITAL BANKING SEGMENTS IN EUROPE



Sources: Activate analysis, American Banker, Banking Tech, Crunchbase, Financial IT, Financial Times, Finextra, International Monetary Fund, Mobile Economic Forum, Recode

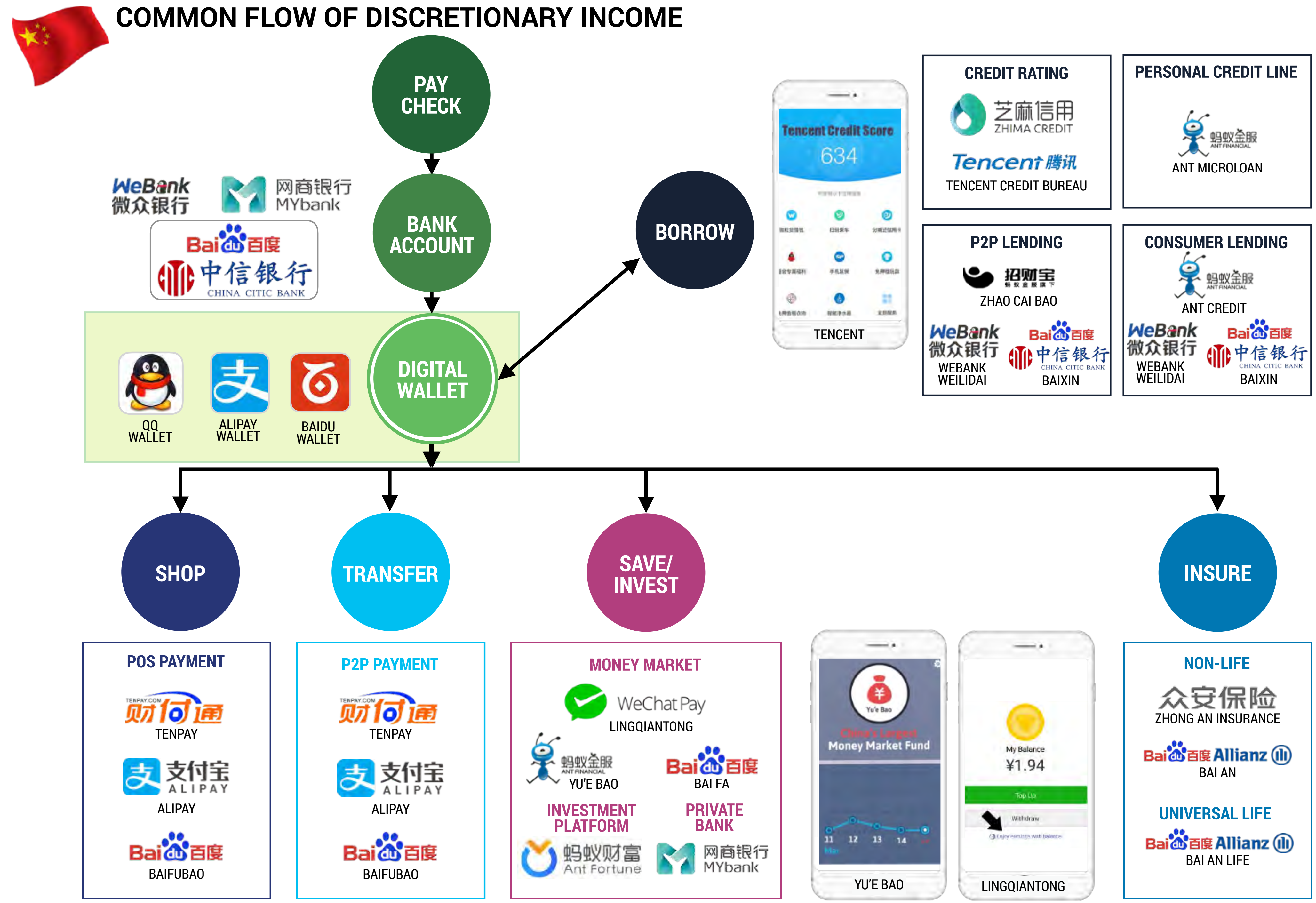
China shows the other end of the spectrum, with consumers using mobile wallets as the central hub for their banking activities

PAYMENTS VOLUME, CHINA VS. GLOBAL, **2017, TRILLIONS USD**



The vast majority of daily purchases, both online and offline, are paid using digital wallets. Offline, users scan QR codes with or on the device.

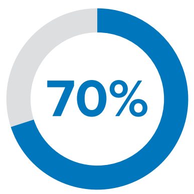
COMMON FLOW OF DISCRETIONARY INCOME



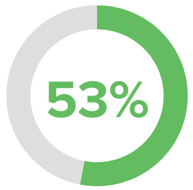
Sources: Activate analysis, AliPay/Ant Financial, Baidu, Bloomberg, The Economist, FinchRanking, PayBang, TechCrunch, Wall Street Journal, WeChat

To a large extent, newly available data sets will enable new competitors to provide a streamlined and superior consumer experience in credit

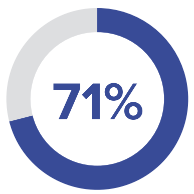
ATTITUDE TOWARDS CREDIT DATA SHARING, U.S., 2018, % TOTAL



of consumers are willing to provide additional financial information to a lender if it increases their chance for approval, or improves their interest rate

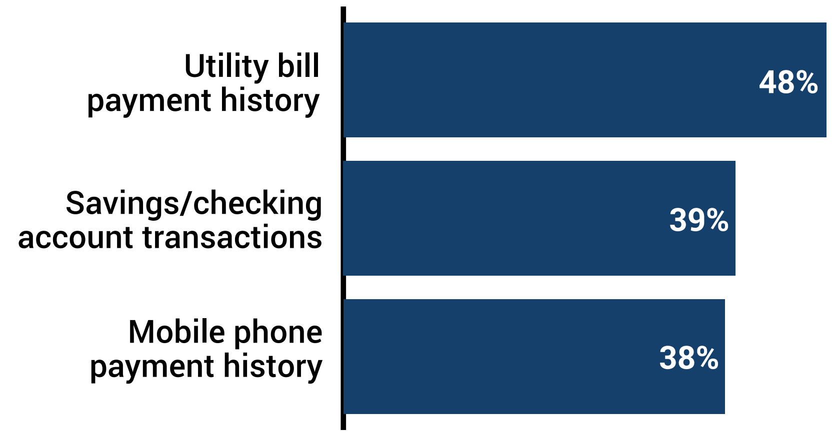


of consumers believe sharing additional data would have a positive impact on their credit score



of lenders believe consumers will increasingly allow access to their data if they can turn access on and off

SOURCES OF ALTERNATIVE DATA PREFERRED BY CONSUMERS TO EVALUATE THEIR CREDITWORTHINESS, U.S., 2018, % ADULT POPULATION



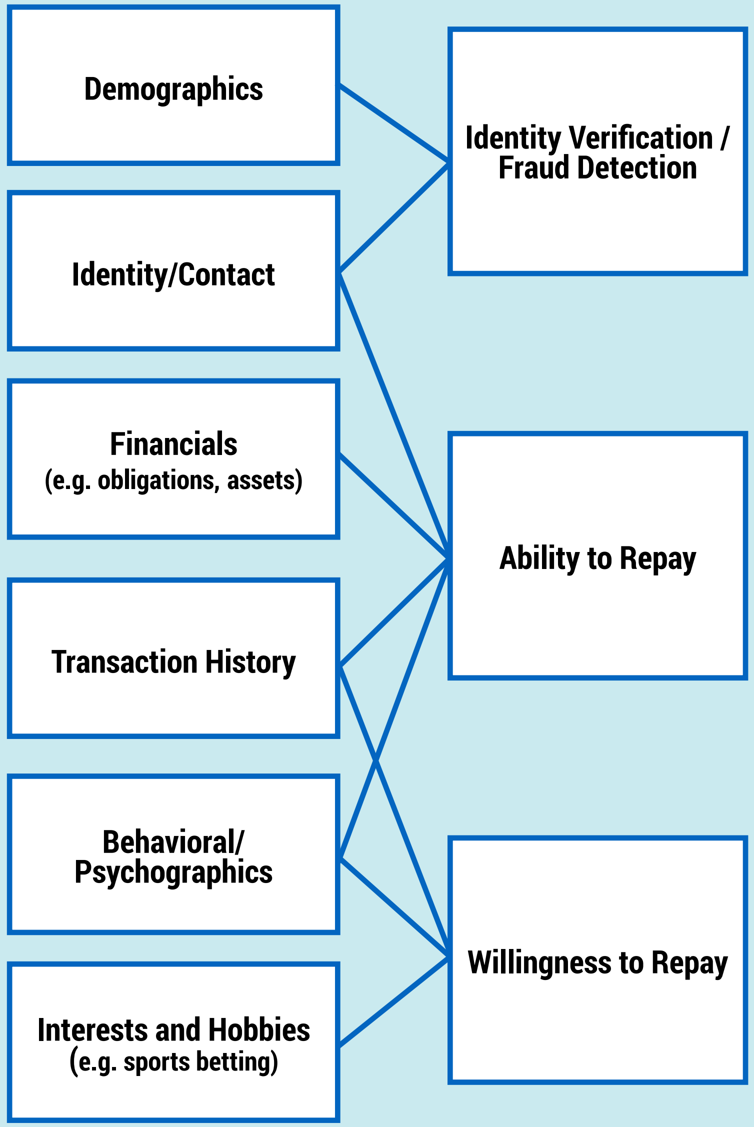
NEW DATA SETS ARE BECOMING AVAILABLE TO EVALUATE CREDITWORTHINESS

VOLUNTEERED DATA
- Surveys
- Questionnaires

PUBLIC RECORDS
- Government lists (e.g. ethnicity, age, education, household)
- Real estate records
- Public records (e.g. vehicle, driver's license, professional, court, civil)

ENTERPRISE/COMMERCIAL/WEB/ SOCIAL DATA
- Bill payment data (e.g. phone, Internet, rent)
- Retailer data (e.g. loyalty), subscription data
- Social media data (e.g. connections, interactions, posts, social graphs)
- Web data (e.g. cookies, navigation)
- Financial data (e.g. account balance, purchase history)
- Texting data
- Travel history
- Phone call patterns

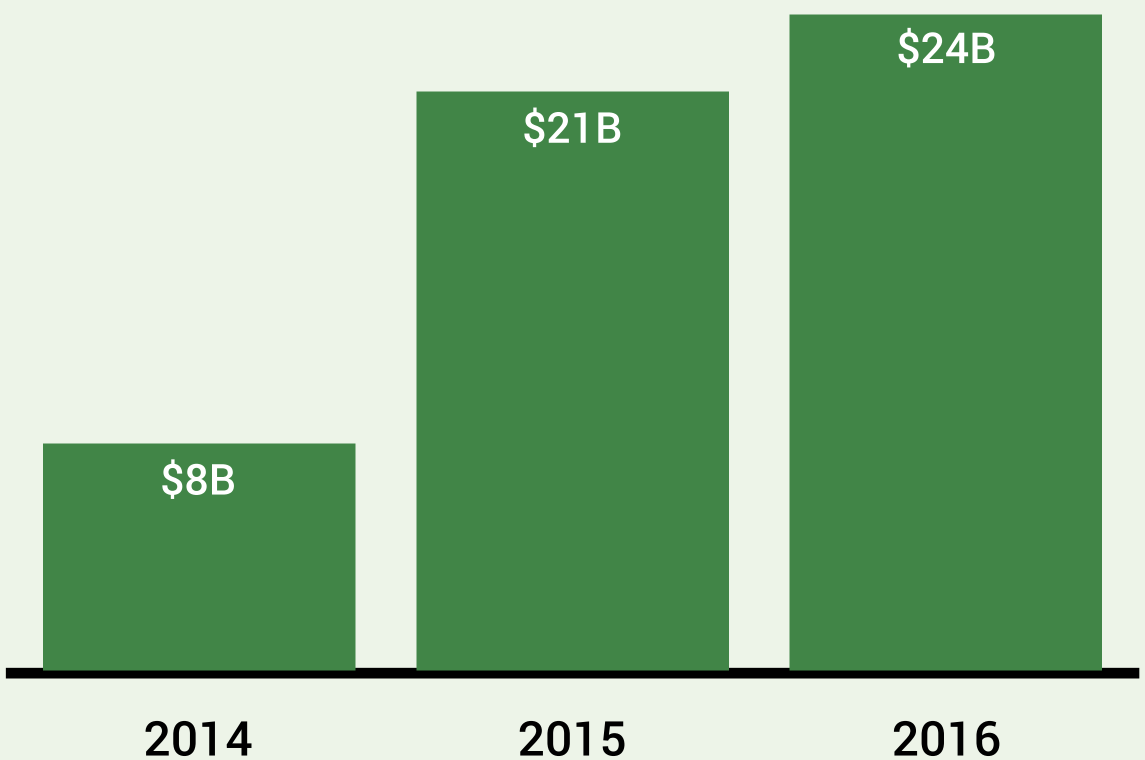
DATA INSIGHTS AND CREDIT SCORING



Sources: Activate analysis, American Banker, Cambridge Center for Alternative Finance, Consumer Financial Protection Bureau, ClearCode, Creditcards.com, Experian, Federal Reserve Board, Federal Reserve Bank of Chicago, Federal Reserve Bank of Philadelphia, Hubspot, Lending Club, Prosper, SoFi

A new generation of lenders can now take advantage of new data sets to offer consumer loans, student loans, and mortgages

ALTERNATIVE CONSUMER CREDIT ORIGINATION, U.S., 2014-2016, BILLIONS USD



LendingClub borrower grades are increasingly less correlated with traditional credit scores (e.g. 80% to 35% correlation for LendingClub from 2007-2015), and borrowers are less likely to default (over 50-60% improvement).

EXAMPLES OF NEXT GENERATION LENDERS

MORTGAGES

SoFi
zest finance

POS LOANS

Klarna.
affirm
PayPal CREDIT

STUDENT LOANS

Upstart
commonbond
SoFi

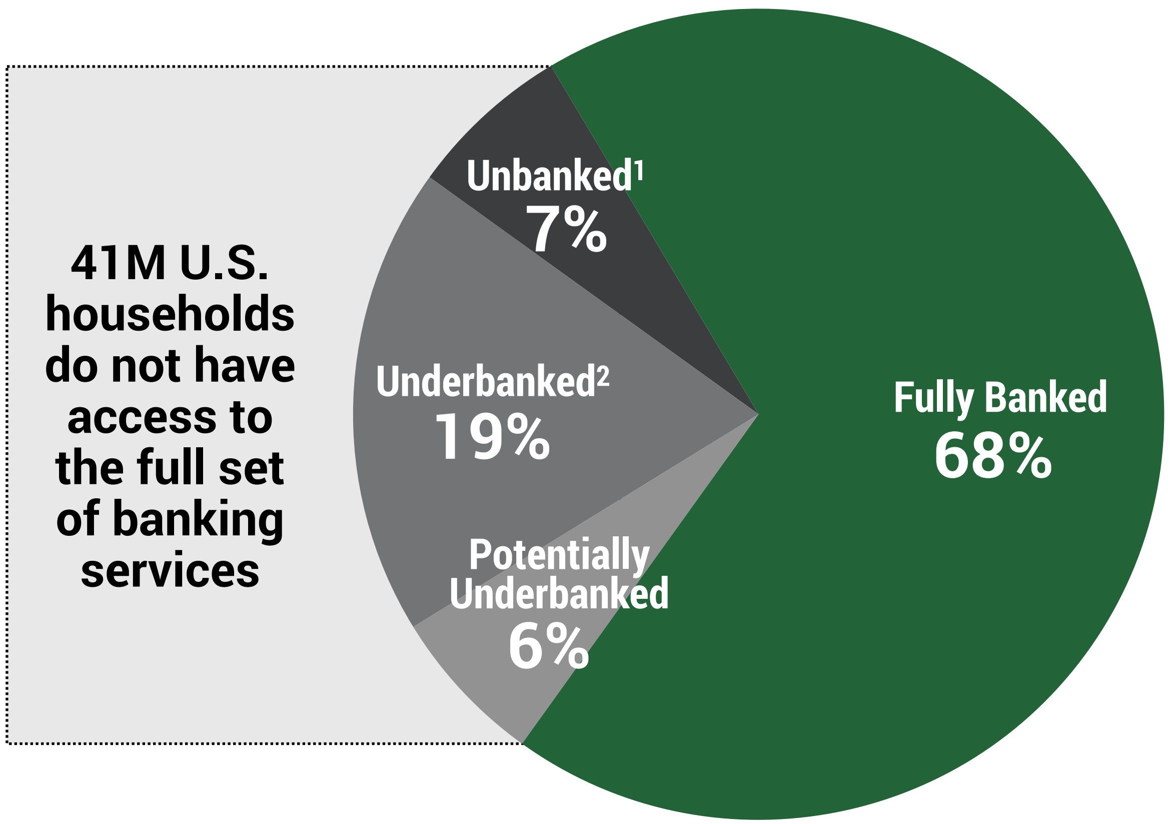
CONSUMER LOANS

LendUp
TALA
Upstart
LendingClub
Kreditech
SoFi
PROSPER
zest finance

Sources: Activate analysis, Cambridge Center for Alternative Finance, Crunchbase, Federal Reserve Bank of Chicago, Federal Reserve Bank of Philadelphia, Forbes, LendingClub, PitchBook, Prosper, SoFi, Wall Street Journal

A large number of unbanked and underserved U.S. consumers will see improved access to financial services through new products

HOUSEHOLD BANKING STATUS, U.S., 2017, % HOUSEHOLDS



AMERICANS WHO COULD HAVE BROADER ACCESS TO FINANCIAL SERVICES THROUGH NEW CONSUMER FINANCE PRODUCTS

HENRYs (high earning, not rich yet)	**People without any credit history or "credit invisibles"**
People are in their 20s have an average credit score ~20 points lower than people in their 30s	**People taking out payday loans each year**
19% of **people are not able to save any share of their income, and another 21%** save less than 5% of their income	**People relying on mobile phones to access the Internet**
People born in another country, with a potentially partial credit history	**Undocumented immigrants**

1. "Unbanked" defined as household in which none of the members has access to a checking or savings account.
2. "Underbanked" defined as household in which at least one of the members has access to an account at an insured institution, but also obtained financial products or services outside the banking system.

Sources: Activate analysis, American Community Survey, Bankrate, Bloomberg, Consumer Financial Protection Bureau, CNBC, Economicinclusion.gov, Equifax, Federal Deposit Insurance Corporation, Federal Reserve Bank, FICO, Gates Foundation, The Hill, Huffington Post, Investopedia, National Telecommunications and Information Administration, Pew Research, Public Library of Science, U.S. Census Bureau, Value Penguin

Beyond established tech companies, an ecosystem of emerging companies will deliver the next wave of consumer banking and insurance services

SELECT NEXT GENERATION CONSUMER BANKING AND INSURANCE COMPANIES AND PRODUCTS

BANK

DIGITAL-FIRST BANKS (ACTIVE OR ANNOUNCED)
Revolut, N26, green dot, BankMobile, monzo, Moven, chime, Aspiration, zero

DIGITAL-FIRST DIVISION OF ESTABLISHED INSTITUTIONS
finn by CHASE, Marcus: BY GOLDMAN SACHS, personetics, SIMPLE

ACCOUNT SUBSTITUTES
SoFi, acorns, Bluebird BY AMERICAN EXPRESS, PayPal

PAY

P2P
TransferWise, PayPal, venmo, Square Cash, CIRCLE, ripple

DIGITAL WALLET / IN-STORE PAYMENT
Apple Pay, SAMSUNG pay, STARBUCKS, Alipay, Walmart Pay, G Pay

UNBANKED
CAPWAY, waleteros, MoCaFi, 46°, MOVO, NationPay, Airfox, Mozido, PEARL CAPITAL

BORROW

UNSECURED

- MARKETPLACES: LendingClub, PROSPER, Upstart
- POS LENDING: Klarna, affirm, PayPal CREDIT
- CONSUMER LENDING: earnest, SoFi, TALA, Kabbage, LendUp, zestfinance, Kreditech, CommonBond

SECURED
better MORTGAGE, blend, lenda, LendingHome, ROOSTIFY

INVEST

INVESTMENT PLATFORMS
robinhood, STOCKPILE, M, acorns, STASH, KAPITALL, nutmeg

ROBO ADVISORS
Betterment, wealthfront, HEDGEABLE, PERSONAL CAPITAL, SIGFIG, DriveWealth, Investifai, FutureAdvisor

INSURE

PROPERTY AND CASUALTY
Lemonade, Hippo, Cover, ROOT, Slice, metromile

HEALTH
oscar, Clover, bind, amino, Collective Health, bright HEALTH

LIFE
Ladder, ethos, bestow, TOMORROW IDEAS

activate

Sources: Activate analysis, American Banker, CB Insights, Consumer Financial Protection Bureau, CNBC, Company sites, Crunchbase, Financial Times, Forbes, Pitchbook, Wall Street Journal

Activate: we are the leading management consulting firm for tech, media, information, sports and consumer companies

Activate works with CEOs, senior management teams and principal investors to drive growth and position their companies to win in the dynamic tech and media ecosystem.

We help our clients develop strategies to grow their businesses and to take advantage of the innovation and inventions reshaping these industries.

ACTIVATE'S CAPABILITIES

GROWTH STRATEGY	PRODUCT AND STRATEGY	NEW DIGITAL BUSINESSES	PRICING STRATEGY AND OPTIMIZATION	REVENUE OPTIMIZATION: SALES, MARKETING, CUSTOMER ACQUISITION	DUE DILIGENCE AND VALUE CREATION
Identify and exploit new growth opportunities, take advantage of the innovation, platforms, businesses, content and technology reshaping these industries.	Formulate strategies and identify opportunities to create new and engaging user experiences, products and services that underpin new growth businesses, revenue streams and audiences.	Create new businesses as 'virtual startups' within large companies. Leverage content, technology and experiences to take advantage of the native capabilities of devices and platforms.	Develop new pricing structures and strategies to grow revenues from consumers and B-to-B customers. Areas of expertise include: advertising sales, ticketing, payments, eCommerce, merchandise, information services, and SaaS businesses.	Enhance customer acquisition, marketing and sales effectiveness in areas such as advertising sales, subscriptions, eCommerce, consumer pay and freemium businesses.	Identify and assess investment targets, improve operating performance, and apply domain knowledge to identify strategic value creation opportunities.
					

Activate Data Partners for Tech & Media Outlook 2019

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