

# ACTIVATE TECHNOLOGY & MEDIA OUTLOOK 2024



**activate**  
consulting  
[www.activate.com](http://www.activate.com)

**WSJ**   
**TECH** 

# 14 Takeaways from the Activate Technology & Media Outlook 2024

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**Consumer Time and Attention:** Activate's analysis of consumer technology and media activity shows that multitasking leads to a nearly 32-hour day for the average American, with over 13 hours spent using technology and media. By 2027, we project that time spend with technology and media will increase by 12 minutes a day.

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**Super Users:** To drive growth, the imperative for technology and media companies will be to identify, reach, and super-serve Super Users – the segment of power users who account for a disproportionately high share of time and spend across technology and media activities, including AR/VR, eCommerce, gaming, generative AI, live events, messaging and social media, Metaverse, music, podcasts, video, and more.

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**Generative AI:** Today, over 10M U.S. adults begin their web search with generative AI; this will grow to 90M by 2027, promising to reshape the largest technology businesses. Generative AI will supercharge the productivity of consumers who use it across media, work, and other daily habits, bringing paradigm shifts across content creation, enterprise, and search. The generative AI playing field will not be limited to the major technology players, particularly with the rise of open-source AI models opening the door for new, smaller entrants.

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**eCommerce:** Global eCommerce will reach nearly \$10T by 2027, growing over twice as fast as physical retail. eCommerce is a marketplace business, with an increasing number of online retailers launching their own marketplaces to enhance their customer value proposition and capitalize on the retail media opportunity. eCommerce enablement solutions will continue to drive growth across eCommerce. While Amazon continues to be the top online shopping discovery source across age groups, TikTok is quickly emerging as one of the most popular sources among younger consumers.

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**B2B and Enterprise Software:** By 2027, we forecast that global B2B technology spend will reach \$3.5T. This growth will be driven by industry players developing solutions to solve historically unresolved pain points across IT processes and functional business challenges. This change is enabled in part by AI-based innovations, including LLMs, GPU compute, and connectivity, from major technology companies and a new generation of innovators.

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# 14 Takeaways from the Activate Technology & Media Outlook 2024

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**Gaming:** With 2.6B global gamers in 2023, video gaming is one of the world's most widespread digital behaviors. Super Gamers, representing nearly a quarter of all U.S. gamers, have the highest level of engagement and spend with video games and will be the most critical segment to target. Super Gamers will also be the earliest adopters of the Metaverse, as they already take advantage of opportunities for immersive activities within games today.

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**Metaverse:** Today, there are over 300M active users in major virtual world platforms; we forecast that there will be 600M people in Metaverse virtual worlds by 2026. Generative AI will accelerate Metaverse development and investment. The major technology companies will continue to build out their capabilities and invest across each element of the Metaverse. To capitalize on the growth of this new frontier, all companies will need to create Metaverse strategies.

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**Spatial Computing:** Spatial Computing will break free from the constraints of headsets as all screens will become spatially-enabled devices – technology for people to interact with the three-dimensional space around them. Today's spatial technology experiences will evolve, becoming integrated across all aspects of daily life. Apple's entry into spatial computing will be a catalyst for the growth of an overall developer ecosystem, while other companies will compete to create the spatial computing operating system.

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**Social Video:** TikTok will strengthen its position as the market leader in social video, expanding its use cases to web search and eCommerce. TikTok accounts for the most consumer time spent with social video, rivaling other major platforms.

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**Video:** Streaming continues to grow at the expense of traditional television, but competition for user time, attention, and subscriptions will intensify. To sustain growth and enhance monetization, streaming services will place a greater emphasis on ad-supported tiers and bundling, have no choice but to continue to spend on entertainment and sports programming, crackdown on password sharing, and focus on international markets. As the cable bundle unwinds, we expect a new wave of bundling from aggregators.

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# 14 Takeaways from the Activate Technology & Media Outlook 2024

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**Music and Podcasts:** YouTube and TikTok are now the top discovery sources for music, while radio (surprisingly) has shown staying power. AI will transform music discovery and consumption from individualized music recommendations to fully personalized listening experiences. A sizable share of music listeners will be creators, with many using AI-enabled tools. The music industry will take strong steps to protect its artists as rogue AI clones known artists' style, compositions, and voices.

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**Sports Betting:** The legalization of sports betting began five years ago and its impact on the entire sports ecosystem will grow as more states allow sports betting and more fans place bets. Activate forecasts that the total amount wagered in sports betting will reach \$186B by 2027.

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**Live Entertainment and Experiences:** Global consumer spend on admission to live events and experiences exceeds \$110B. Consumers will continue to attend live events and experiences in the future as a key outlet to socialize and celebrate special occasions. In the face of increased demand for top acts, prices are expected to continue to rise.

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**Technology and Media Revenues:** We forecast significant growth for internet and media revenues, with global spend increasing by nearly \$400B between 2023 to 2027. Increases in advertising will drive more than half of this growth.

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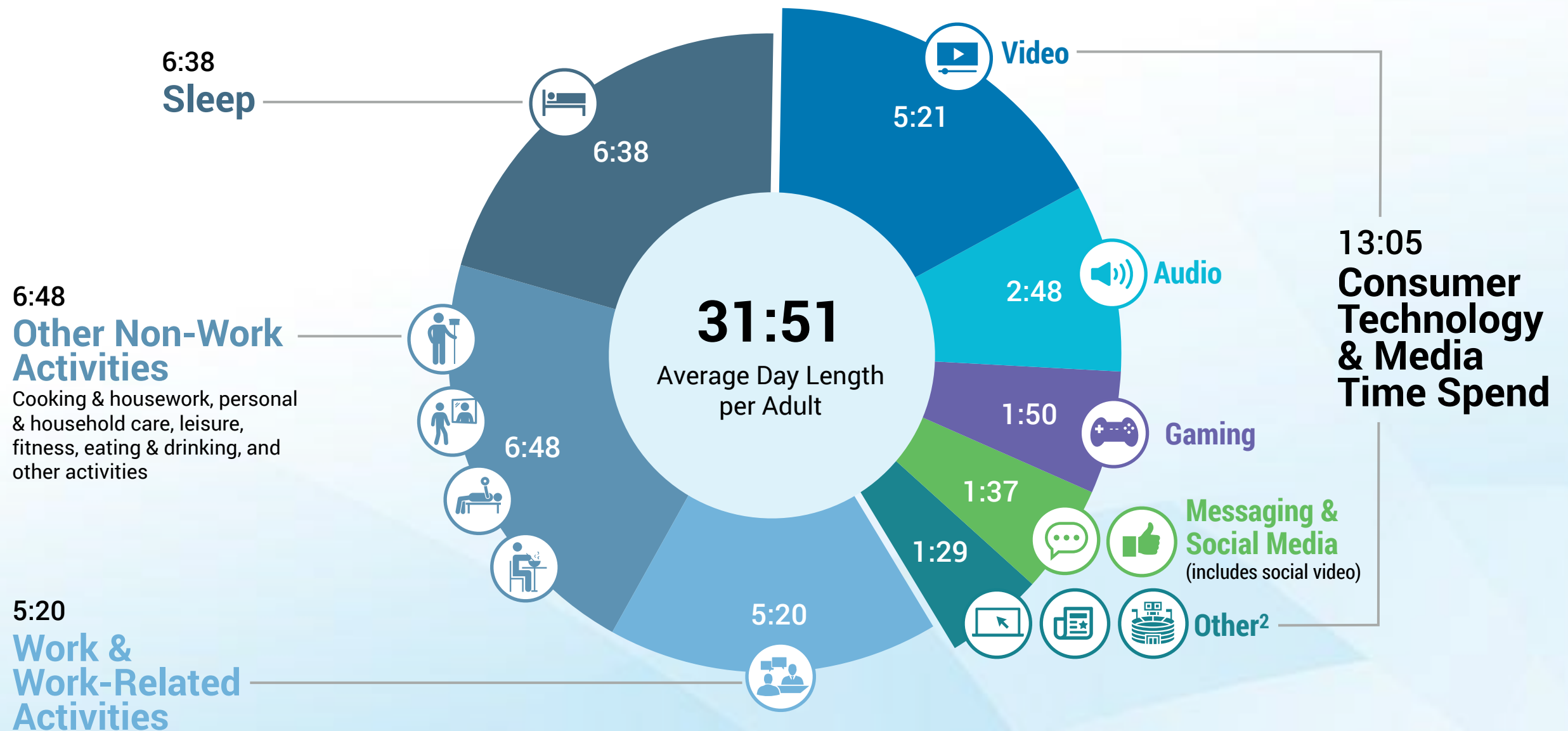


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# Activate's Attention Clock: Our analysis of consumer technology and media activity shows that multitasking leads to a nearly 32-hour day for the average American, with over 13 hours spent using technology and media

 AVERAGE DAY BY ACTIVITY PER ADULT AGED 18+1, U.S., 2022, HOURS:MINUTES



1. Behaviors averaged over seven days. 2. "Other" includes media activities outside of the listed categories, such as browsing websites, reading, and attending live events.

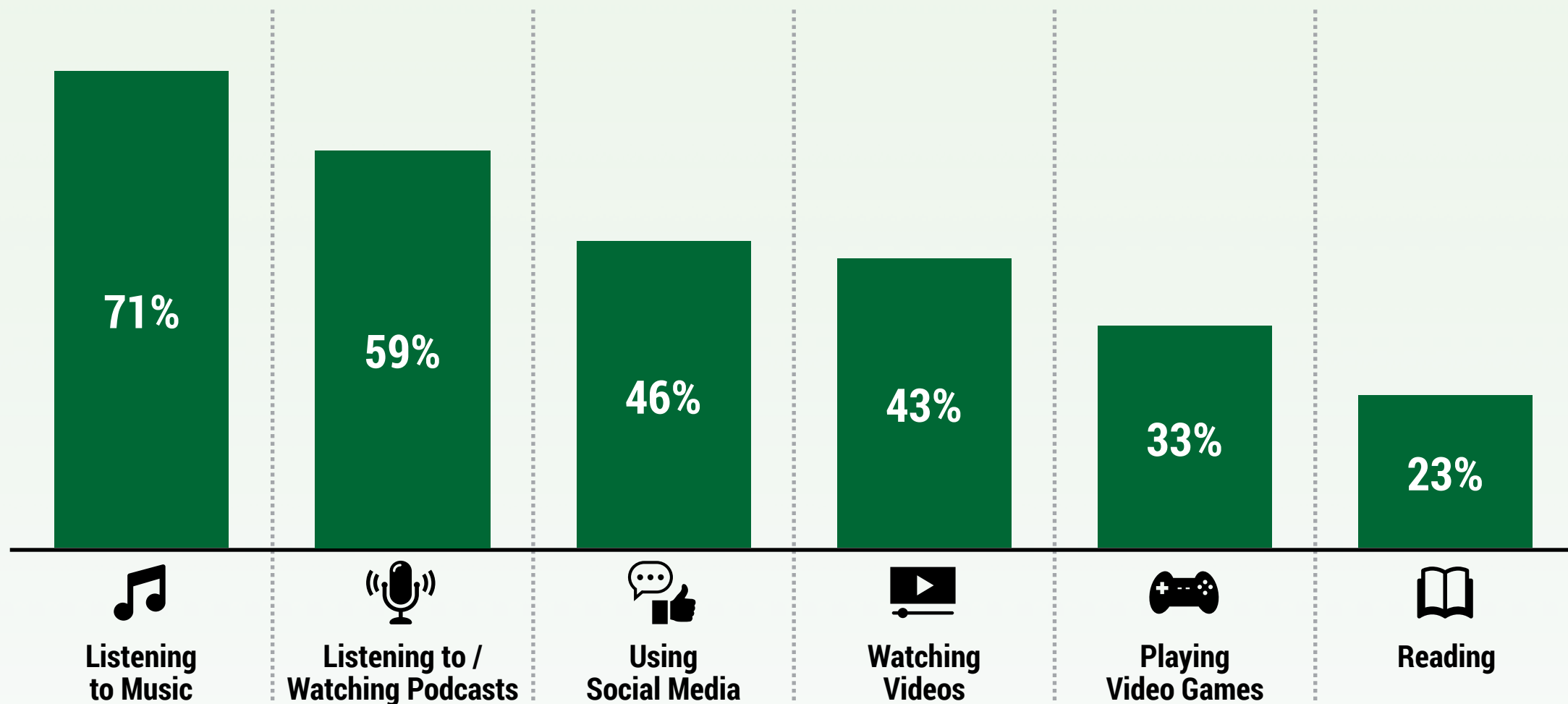
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company filings, Comscore, Conviva, data.ai, eMarketer, Gallup, GWI, Interactive Advertising Bureau, Music Biz, National Sleep Foundation, Newzoo, Nielsen, NPD Group, Omdia, Pew Research Center, PricewaterhouseCoopers, U.S. Bureau of Labor Statistics, YouGov



# Most people multitask, particularly while engaging in ambient experiences such as music and podcasts

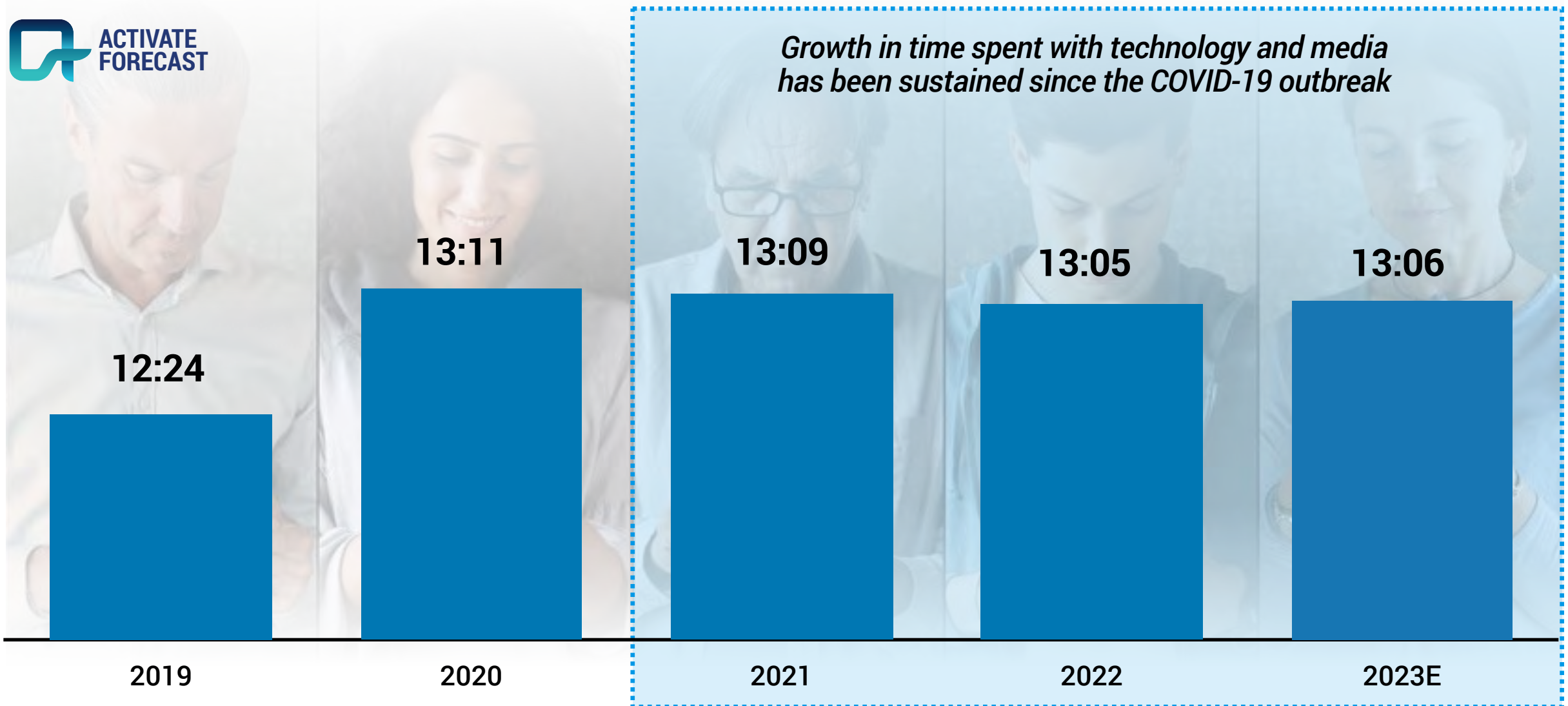
MULTITASKING<sup>1</sup> BEHAVIOR BY ACTIVITY, U.S., 2023, % ADULTS AGED 18+ WHO ENGAGE IN EACH ACTIVITY

*Consumers who multitask<sup>1</sup> all, almost all, or most of the time when...*



# The growth in daily time spent with technology and media since the COVID-19 spike has largely been sustained

AVERAGE DAILY TECHNOLOGY AND MEDIA ATTENTION PER ADULT AGED 18+<sup>1</sup>, U.S., 2019-2023E, HOURS:MINUTES



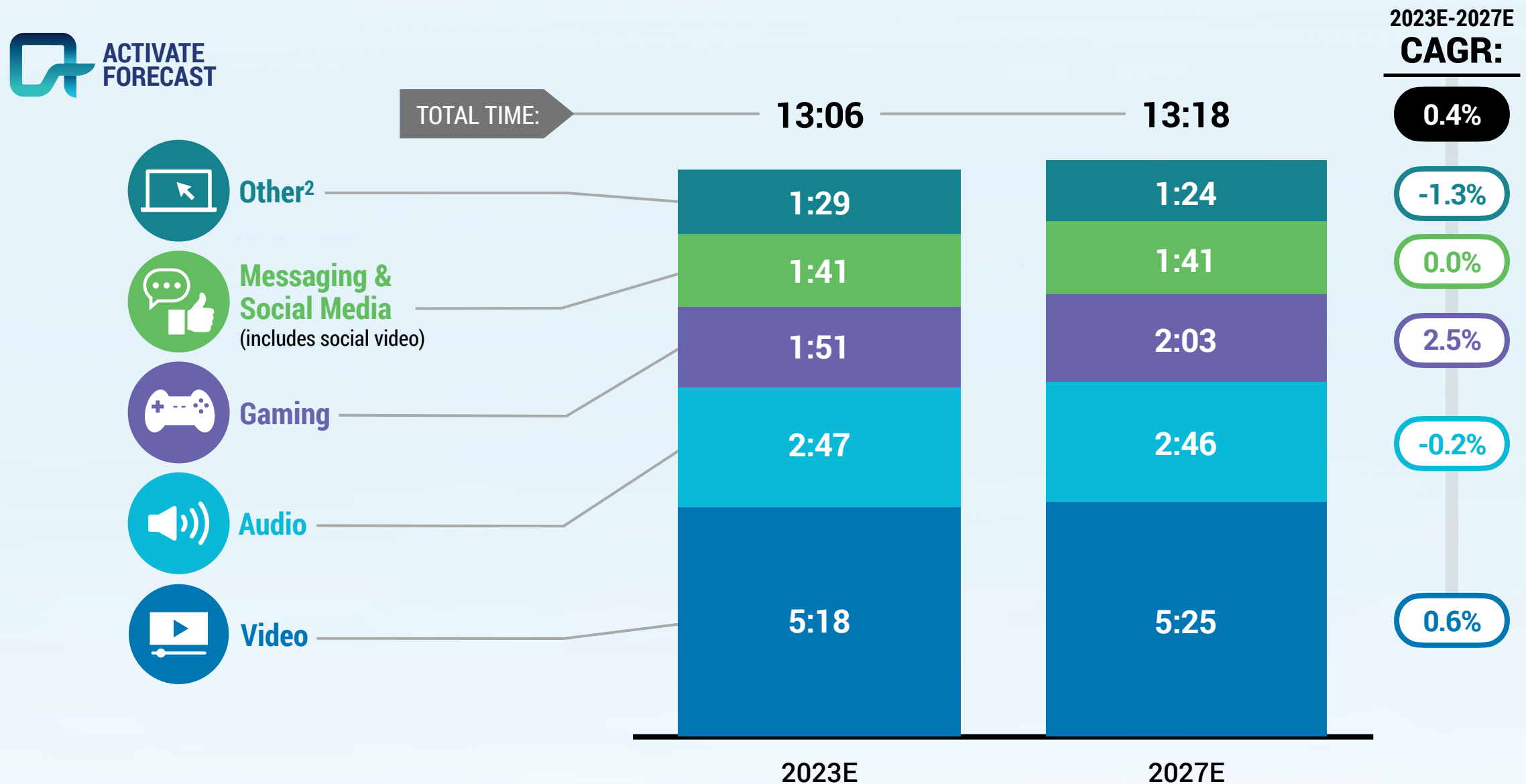
1. Behaviors averaged over seven days.

Sources: Activate analysis, Activate 2019 Consumer Technology & Media Research Study (n = 4,006), Activate 2020 Consumer Technology & Media Research Study (n = 4,003), Activate 2021 Consumer Technology & Media Research Study (n = 4,018), Activate 2021 Consumer Video Research Study (n = 2,014), Activate 2022 Consumer Technology & Media Research Study (n = 4,001), Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company filings, Comscore, Conviva, data.ai, eMarketer, Gallup, GWI, Interactive Advertising Bureau, Music Biz, National Sleep Foundation, Newzoo, Nielsen, NPD Group, Omdia, Pew Research Center, PricewaterhouseCoopers, U.S. Bureau of Labor Statistics, YouGov



# We project that people will increase their daily time spent with technology and media, adding 12 minutes per day by 2027

AVERAGE DAILY TECHNOLOGY AND MEDIA ATTENTION PER ADULT AGED 18+<sup>1</sup>, U.S., 2023E VS. 2027E, HOURS:MINUTES



1. Behaviors averaged over seven days. Figures do not sum due to rounding. 2. "Other" includes media activities outside of the listed categories, such as browsing websites, reading, and attending live events.

Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company filings, Comscore, Conviva, data.ai, eMarketer, Gallup, GWI, Interactive Advertising Bureau, Music Biz, National Sleep Foundation, Newzoo, Nielsen, NPD Group, Omdia, Pew Research Center, PricewaterhouseCoopers, U.S. Bureau of Labor Statistics, YouGov

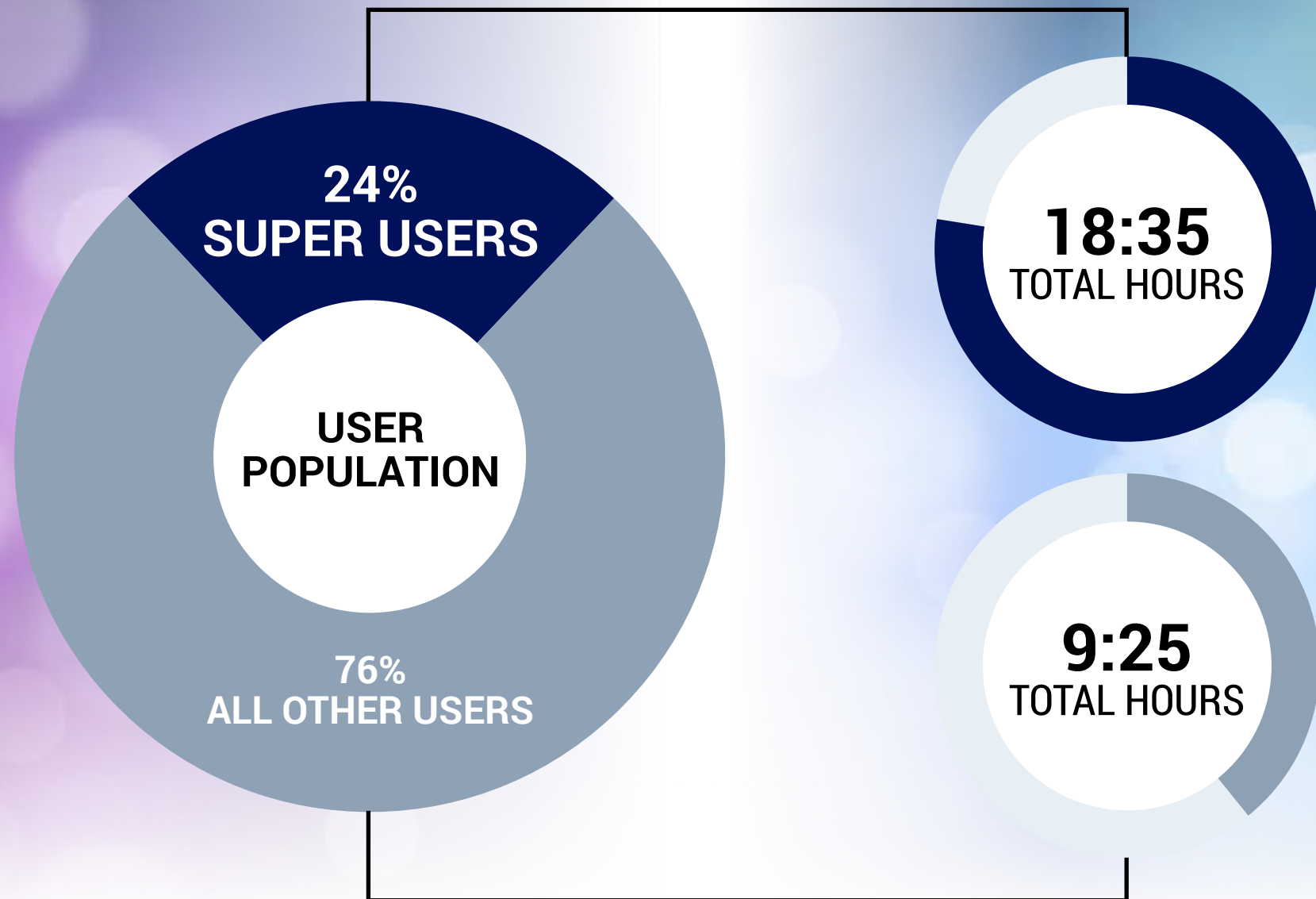
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# Representing 24% of the U.S. population, Super Users spend nearly double the amount of time consuming media as all other users

AVERAGE DAILY TIME SPEND WITH MEDIA PER USER<sup>1</sup>, U.S., 2023E, % ADULTS AGED 18+ / HOURS:MINUTES



1. Includes time spent watching video, playing video games, listening to music, listening to or watching podcasts, and using messaging / social media services.

Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company filings, Comscore, Conviva, data.ai, Edison Research, eMarketer, Gallup, GWI, Interactive Advertising Bureau, Music Biz, National Sleep Foundation, Newzoo, Nielsen, NPD Group, Pew Research Center, U.S. Bureau of Labor Statistics, YouGov

# Super Users spend significantly more time across most major technology and media activities

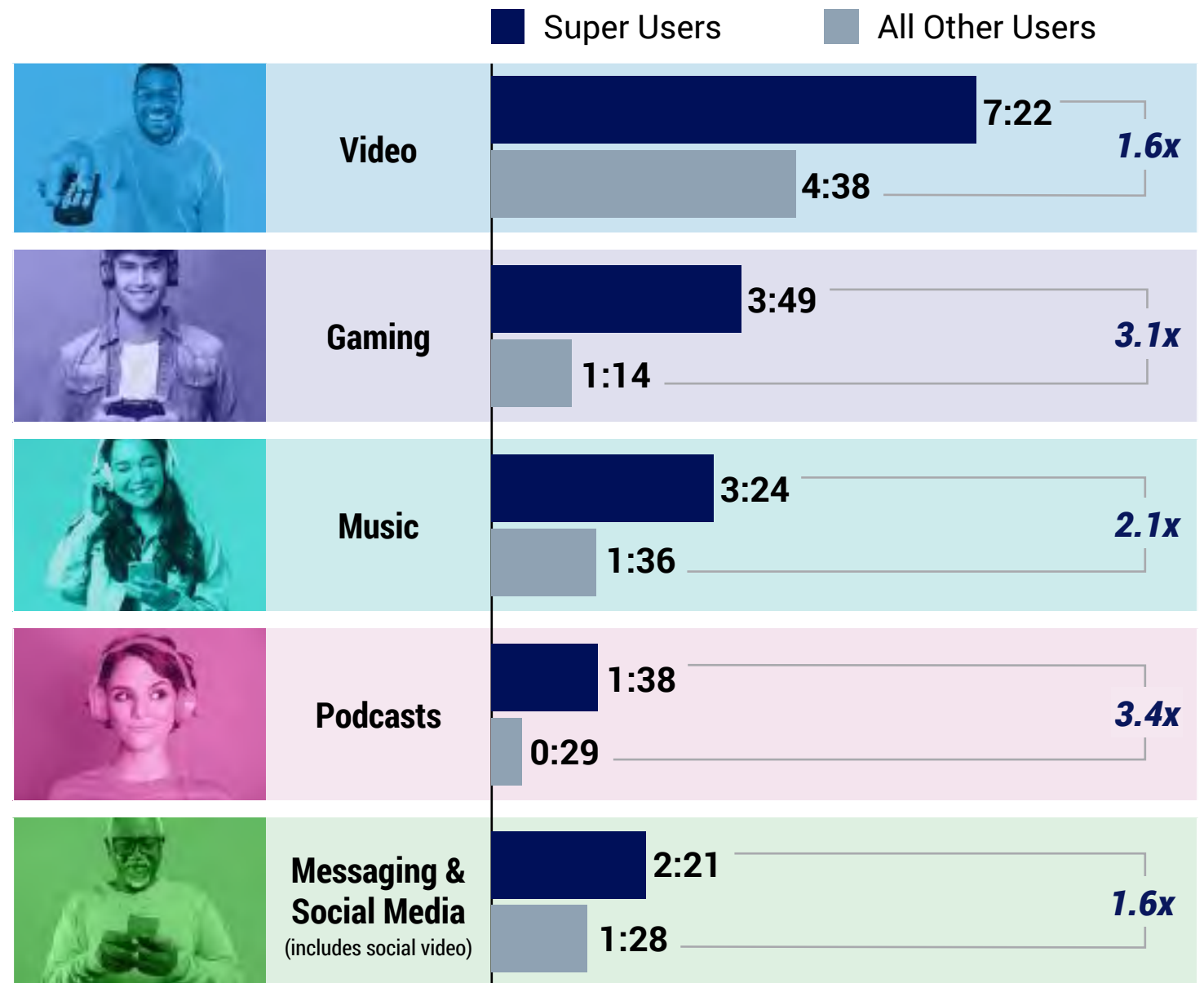
AVERAGE DAILY TIME SPEND PER USER BY MEDIA TYPE, U.S., 2023E, HOURS:MINUTES

## SUPER USERS

**18:35**  
Total Hours<sup>1</sup>

## ALL OTHER USERS

**9:25**  
Total Hours



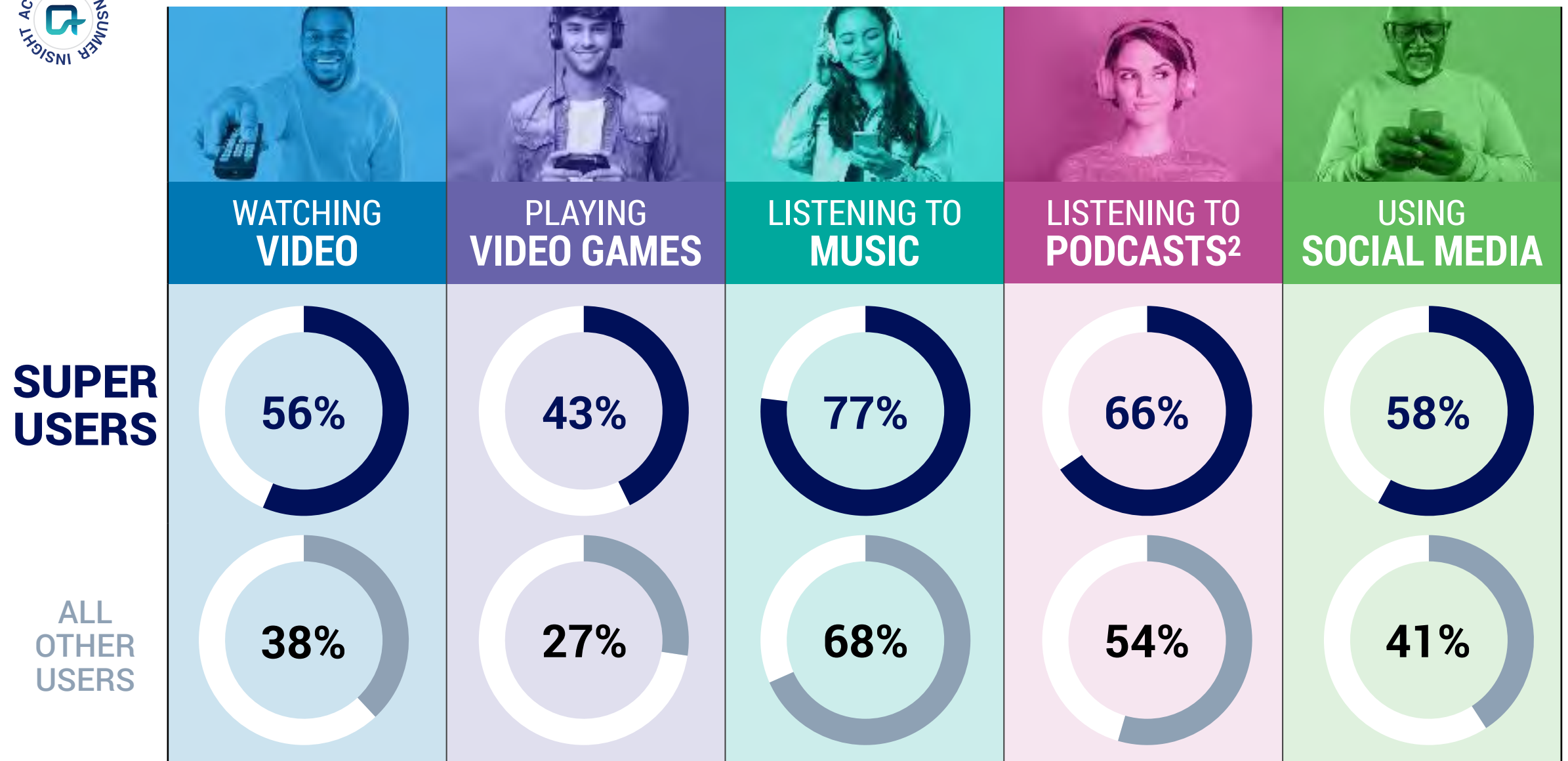
1. Figures do not sum due to rounding.  
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company filings, Comscore, Conviva, data.ai, Edison Research, eMarketer, Gallup, GWI, Interactive Advertising Bureau, Music Biz, National Sleep Foundation, Newzoo, Nielsen, NPD Group, Pew Research Center, U.S. Bureau of Labor Statistics, YouGov



# Super Users are considerably more likely to multitask, enabling them to spend more time with technology and media each day

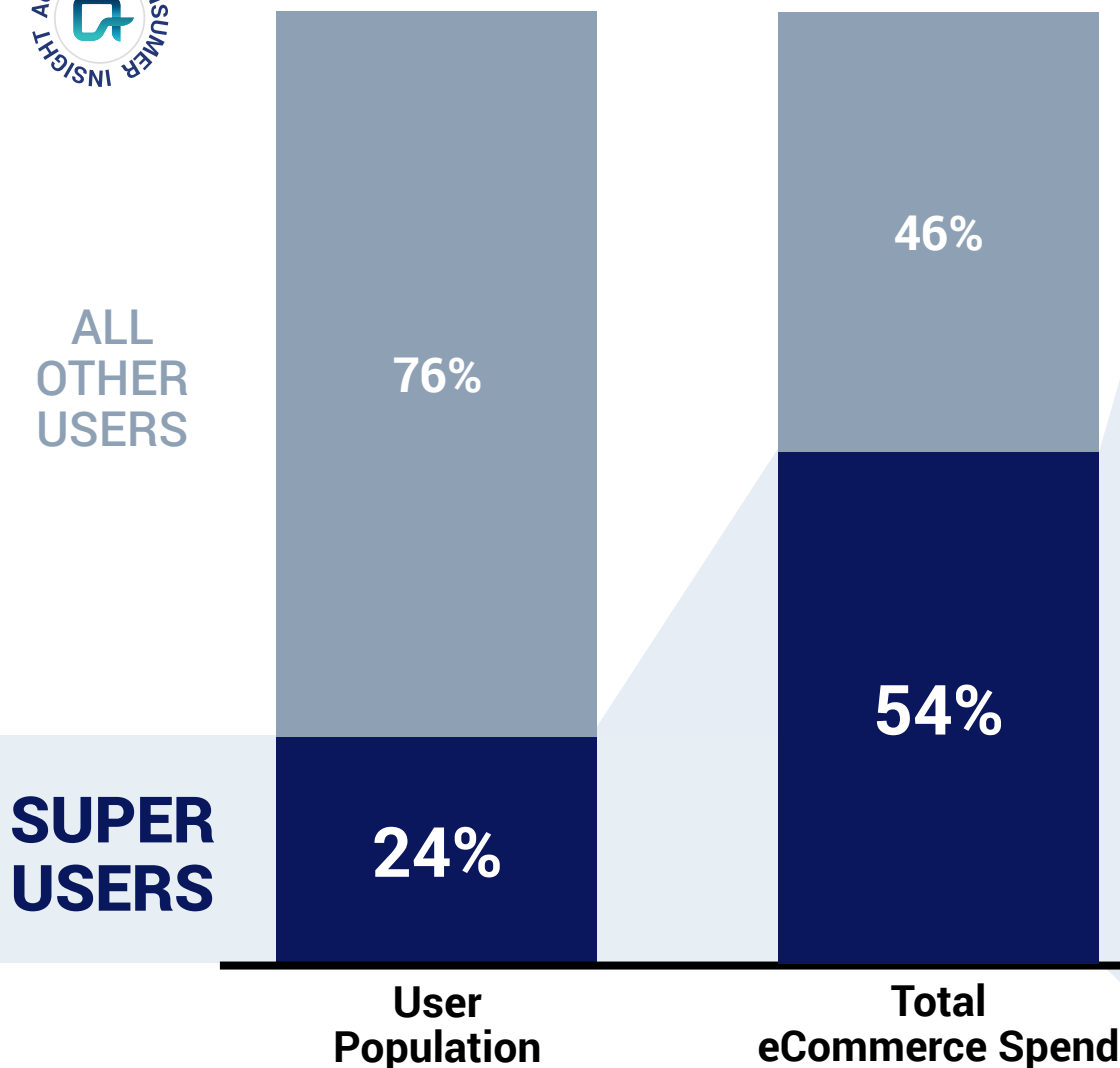
MULTITASKING<sup>1</sup> BEHAVIOR BY MEDIA ACTIVITY, U.S., 2023, % ADULTS AGED 18+ WHO ENGAGE IN EACH ACTIVITY

CONSUMERS WHO MULTITASK<sup>1</sup> ALL, ALMOST ALL, OR MOST OF THE TIME WHEN...



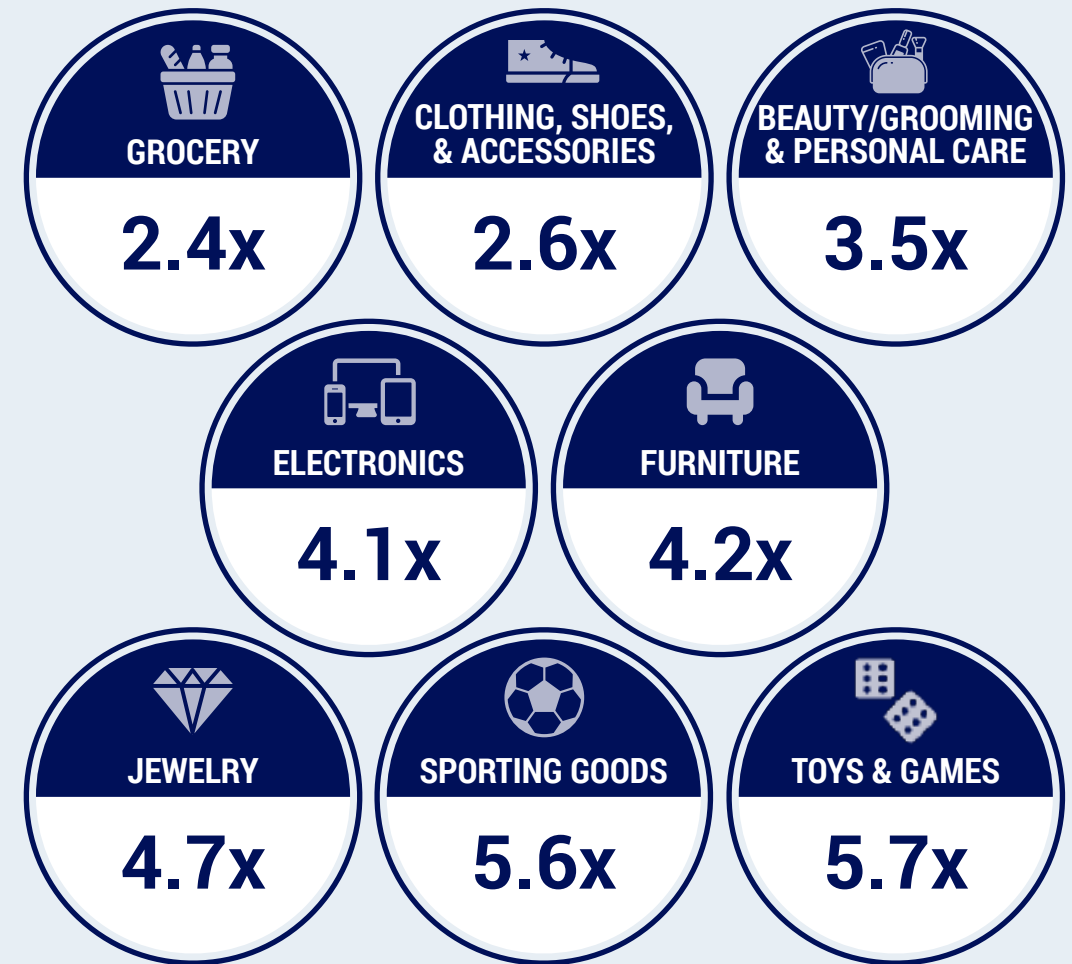
# Super Users represent a disproportionately high share of total eCommerce spend

ECOMMERCE SPEND, U.S., 2023,  
% ADULTS AGED 18+ / % TOTAL ECOMMERCE SPEND



ECOMMERCE SPEND BY CATEGORY, U.S., 2023,  
SUPER USERS INDEXED TO ALL OTHER USERS

Super Users over-index on eCommerce spend across a number of key categories



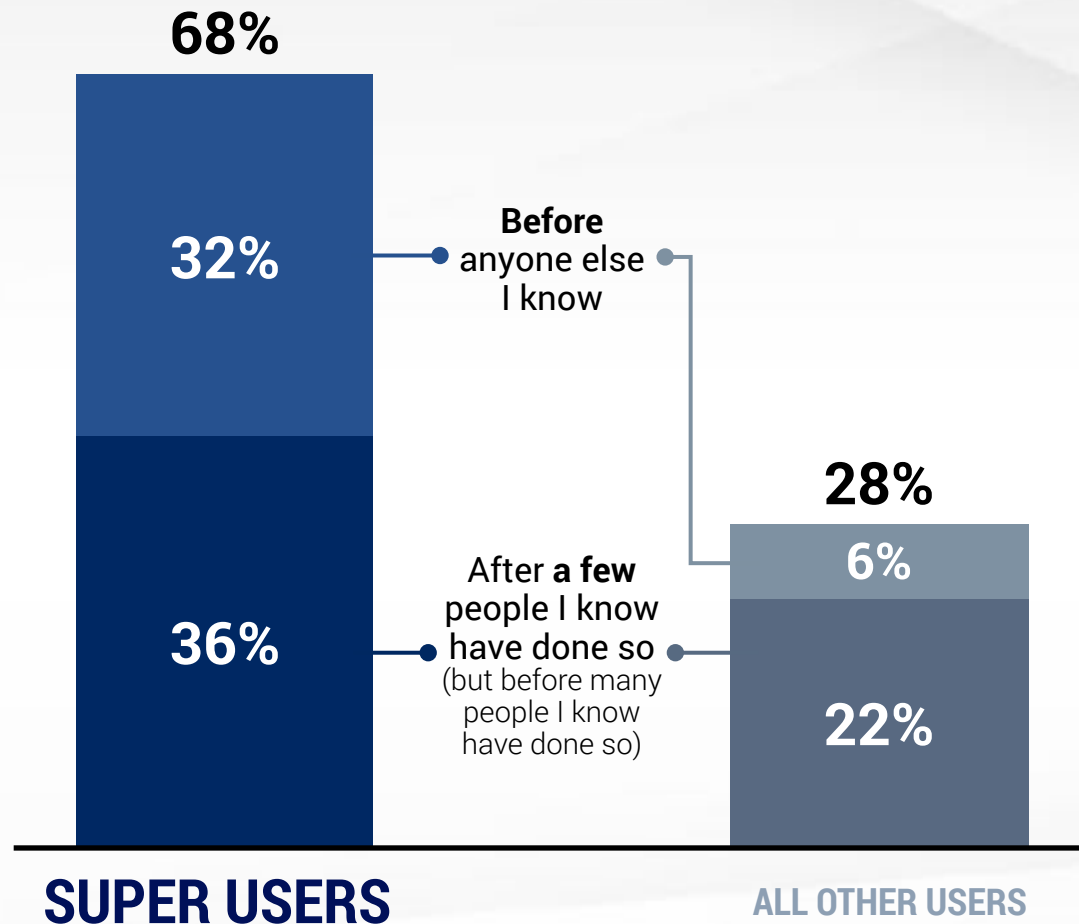
# Super Users are the first to try and buy new technology and devices

**PROPENSITY TO BE AMONG THE FIRST FEW TO BUY/USE NEW TECHNOLOGY/DEVICES, U.S., 2023, % ADULTS AGED 18+**

**REASONS FOR EARLY ADOPTION OF TECHNOLOGY/DEVICES, U.S., 2023, % ADULTS AGED 18+ WHO ARE USUALLY AMONG THE FIRST FEW TO BUY/USE NEW TECHNOLOGY/DEVICES<sup>1</sup>**



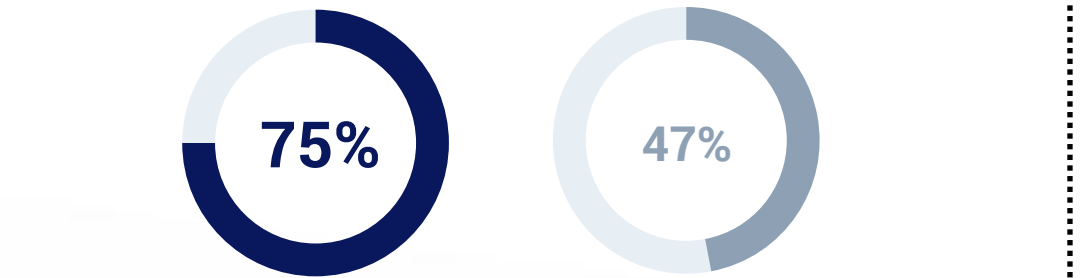
When a new, highly anticipated technology/device is available, I usually buy/use it...



I WANT TO BENEFIT FROM THE NEW FEATURES OF THE LATEST TECHNOLOGY/DEVICE AS SOON AS POSSIBLE



I ENJOY THE EXCLUSIVITY OF BEING AMONG THE FIRST FEW PEOPLE TO BUY/USE THE LATEST TECHNOLOGY/DEVICE



*While early technology adopters overall are driven by the ability to benefit from new features, Supers Users are also significantly influenced by exclusivity*



# Super Users will lead all other users into emerging technology behaviors such as AR, VR/MR, Metaverse, and generative AI

EMERGING TECHNOLOGY BEHAVIORS, U.S., 2023, SUPER USERS INDEXED TO ALL OTHER USERS

## Virtual Reality (VR) / Mixed Reality (MR)

EXAMPLE  
VR/MR HEADSETS

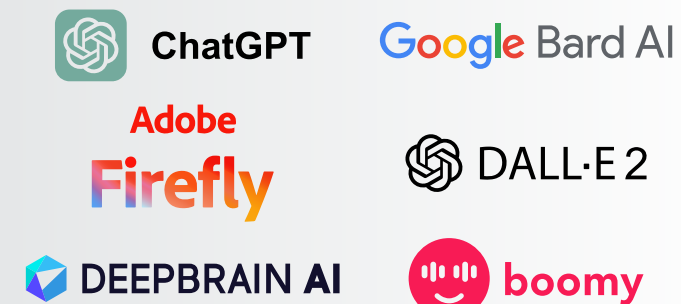


**6.9x**  
AS LIKELY TO USE  
A VR/MR HEADSET  
AT LEAST ONCE PER MONTH



## Generative AI

EXAMPLE  
GENERATIVE AI TOOLS



**3.8x**  
AS LIKELY TO USE  
A GENERATIVE AI TOOL  
AT LEAST ONCE PER MONTH

## Metaverse

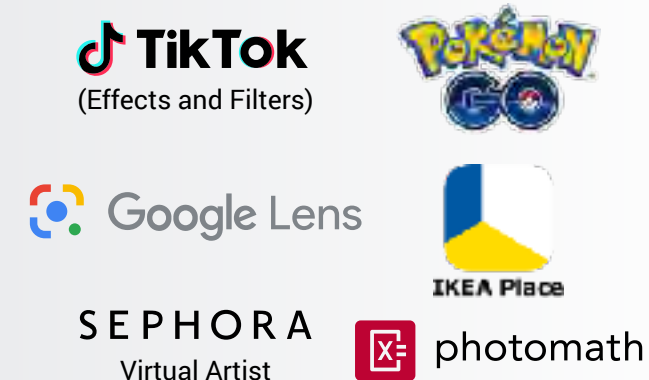
EXAMPLE  
METAVERSE PLATFORMS



**3.2x**  
AS LIKELY TO HAVE USED  
A METAVERSE PLATFORM  
IN THE LAST 12 MONTHS

## Augmented Reality (AR)

EXAMPLE  
AR APPLICATIONS/TOOLS



**2.1x**  
AS LIKELY TO HAVE USED  
AN AR APPLICATION OR TOOL  
IN THE LAST 12 MONTHS

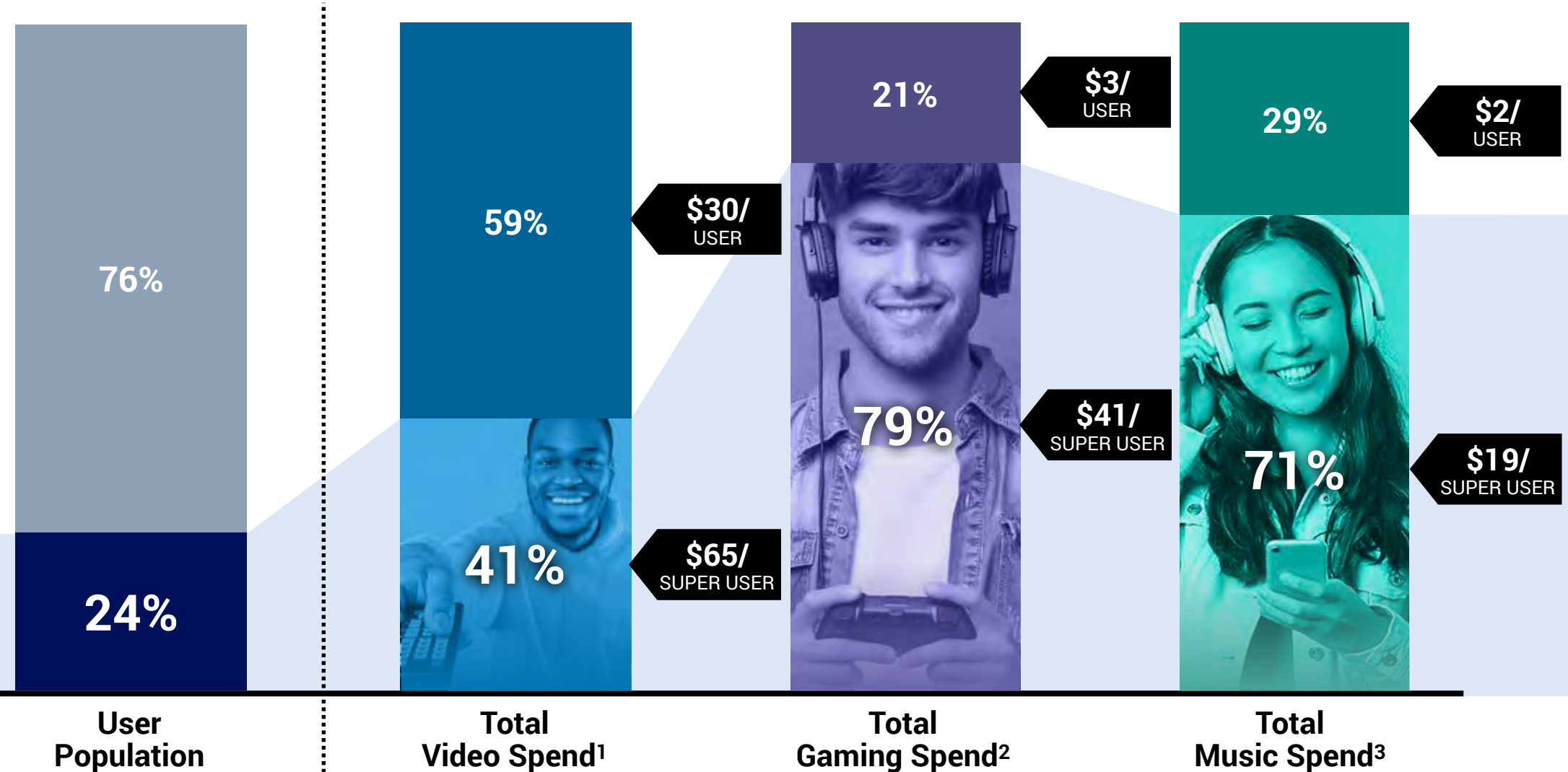
# Across major technology and media verticals, Super Users over-index on dollar spend versus all other users

MONTHLY DOLLAR SPEND BY MEDIA TYPE, U.S., 2023E, % ADULTS AGED 18+ / % TOTAL SPEND BY MEDIA TYPE / USD PER USER



ALL OTHER USERS

SUPER USERS



1. Includes spend on all videos and video services, including traditional/virtual Pay TV, video streaming subscription services, and video purchases/rentals. 2. Includes spend on video games and other video gaming purchases (e.g. in-game purchases, video gaming subscription services) across all devices. Excludes spend on gaming devices and accessories. 3. Includes spend on music and music services.

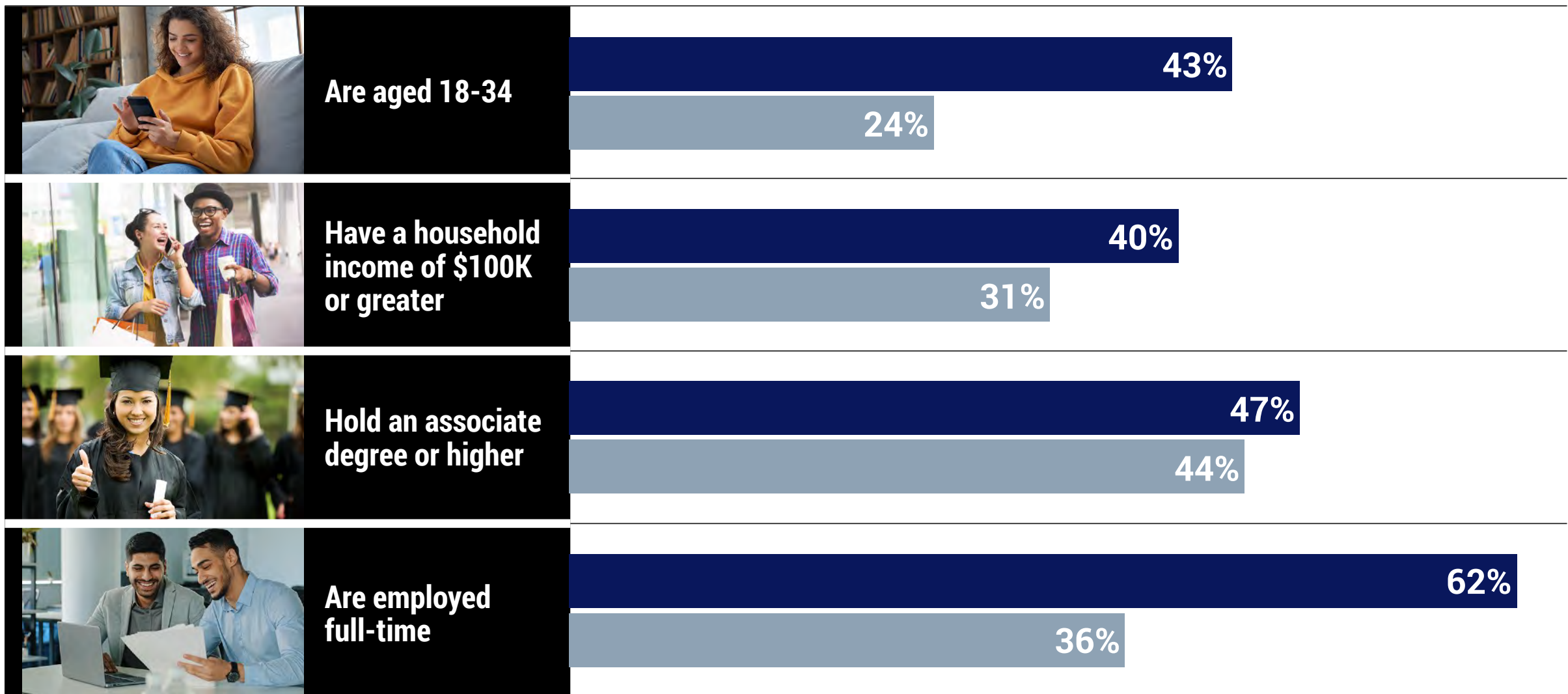
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), eMarketer, Goldman Sachs, Grand View Research, IFPI, Newzoo, Omdia, PricewaterhouseCoopers, Recording Industry Association of America, SiriusXM, Statista

# Super Users tend to be younger, more affluent, and more likely to be employed full-time

USER DEMOGRAPHICS, U.S., 2023, % ADULTS AGED 18+



■ % Super Users    ■ % All Other Users

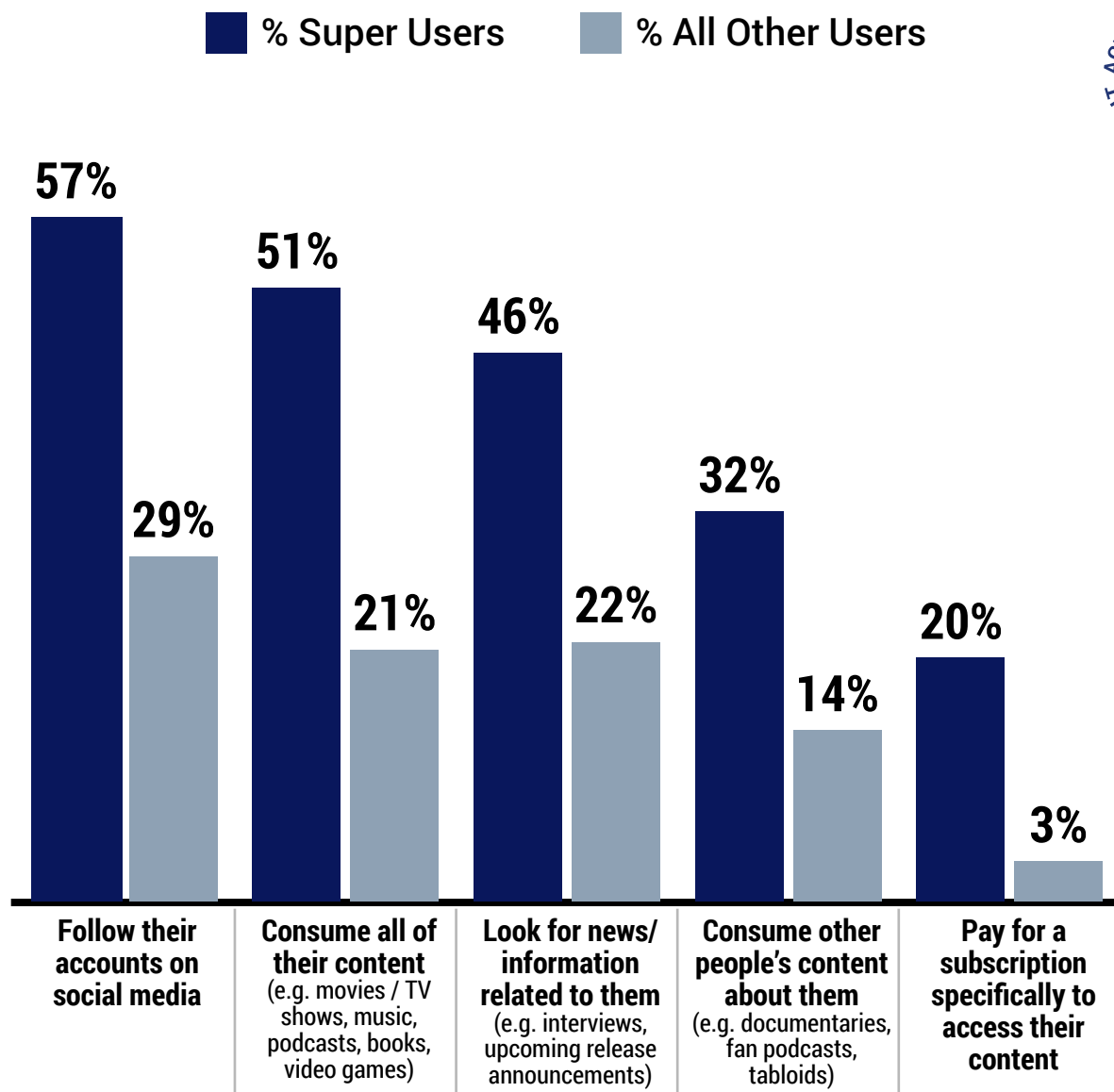




# Super Users are more likely to be loyal to their favorite celebrities/influencers – from following their accounts on social media to purchasing products created or endorsed by them

METHODS USED TO FOLLOW FAVORITE CELEBRITIES/INFLUENCERS, U.S., 2023, % ADULTS AGED 18+

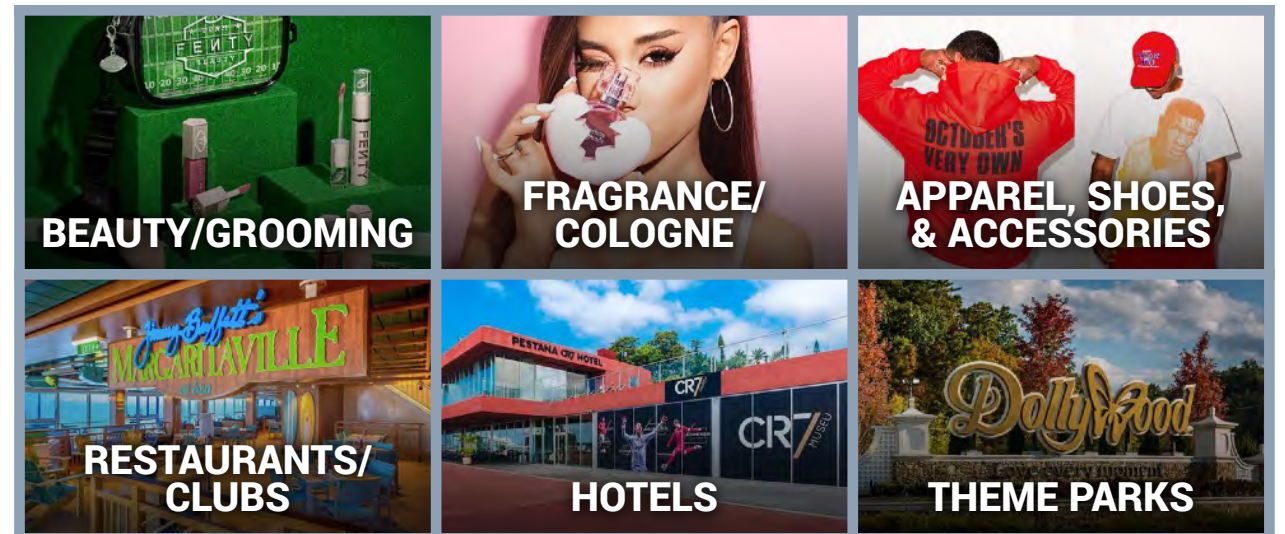
CONSUMER BEHAVIORS TOWARDS PRODUCTS/DESTINATIONS TIED TO FAVORITE CELEBRITIES/INFLUENCERS, U.S., 2023, SUPER USERS INDEXED TO ALL OTHER USERS



Super Users are

**3.5X**

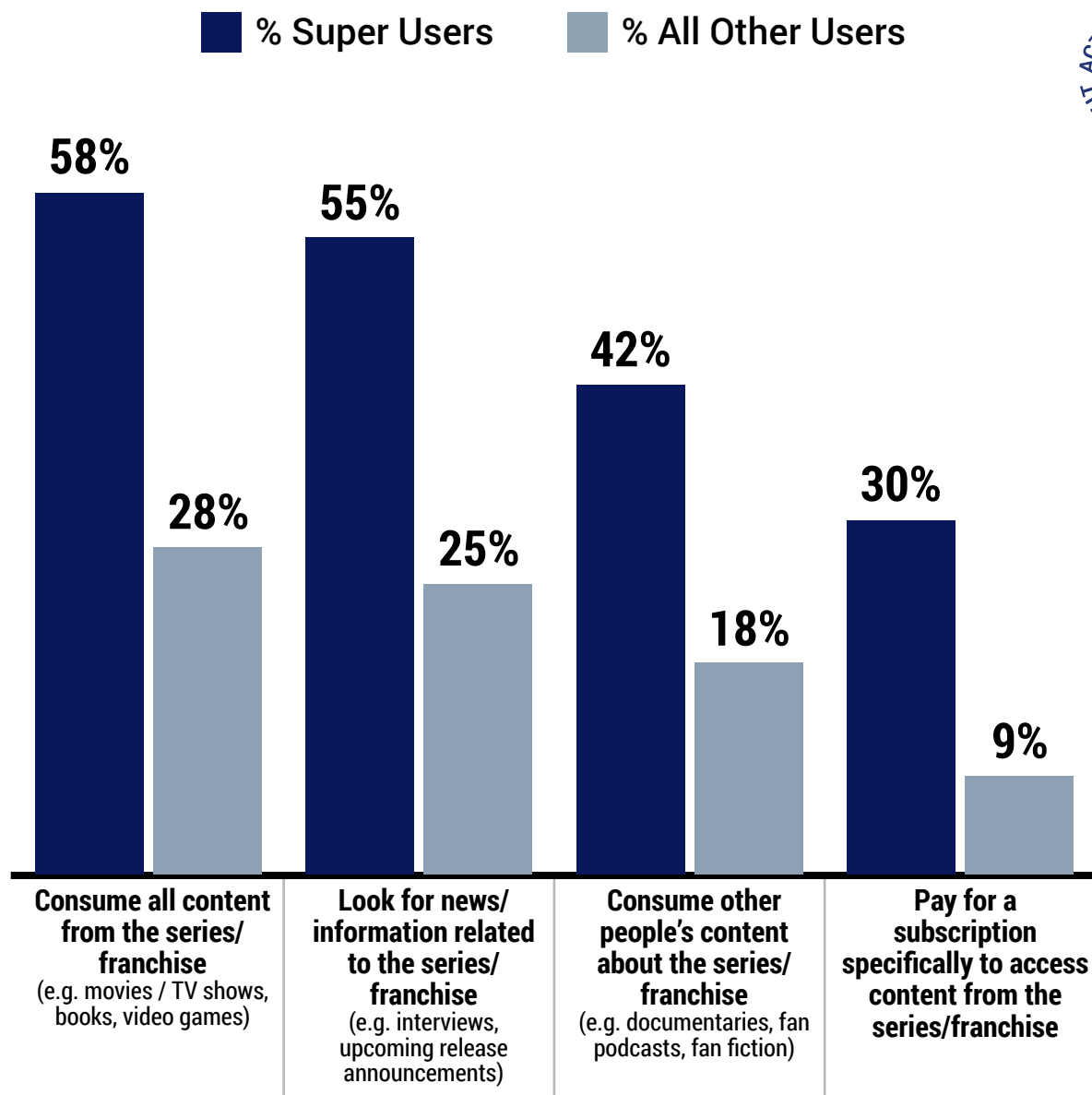
as likely to purchase products or visit destinations created or endorsed by a favorite celebrity/influencer



# Super Users demonstrate a higher degree of loyalty to their favorite series/franchises

METHODS USED TO FOLLOW FAVORITE SERIES/FRANCHISES, U.S., 2023, % ADULTS AGED 18+

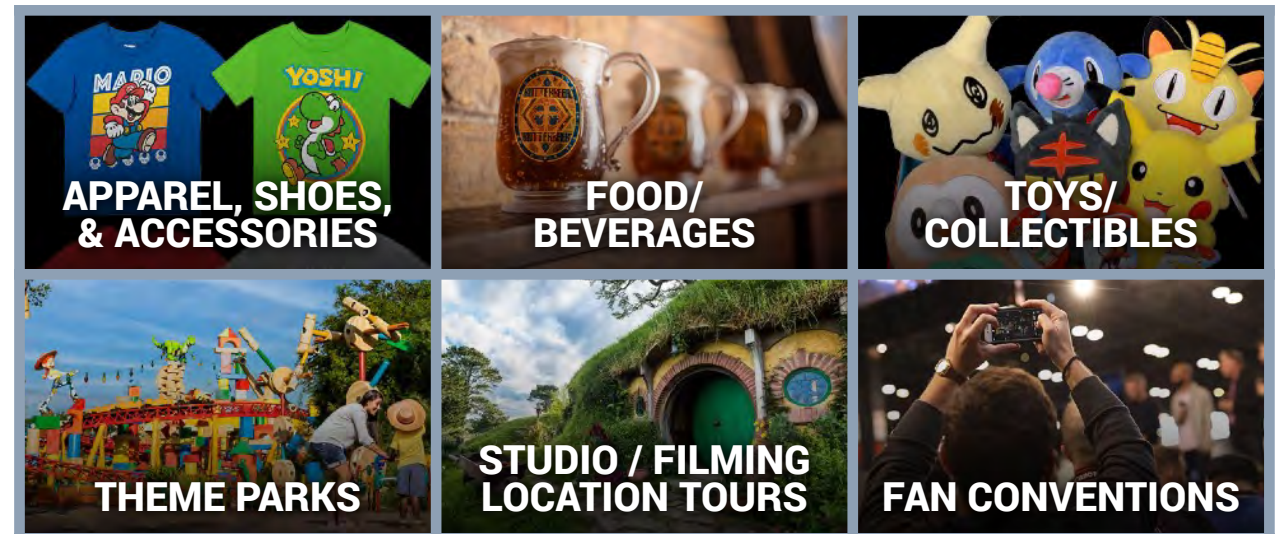
CONSUMER BEHAVIORS TOWARDS PRODUCTS/DESTINATIONS TIED TO FAVORITE SERIES/FRANCHISES, U.S., 2023, SUPER USERS INDEXED TO ALL OTHER USERS



Super Users are

**2.8X**

as likely to purchase official merchandise or visit destinations related to a favorite series/franchises



# Super Users show higher brand trust and brand affinity, leading to an increased willingness to share data with, exclusively purchase from, and pay more for their favorite brands

CONSUMER ATTITUDES TOWARDS FAVORITE BRANDS, U.S., 2023, % ADULTS AGED 18+

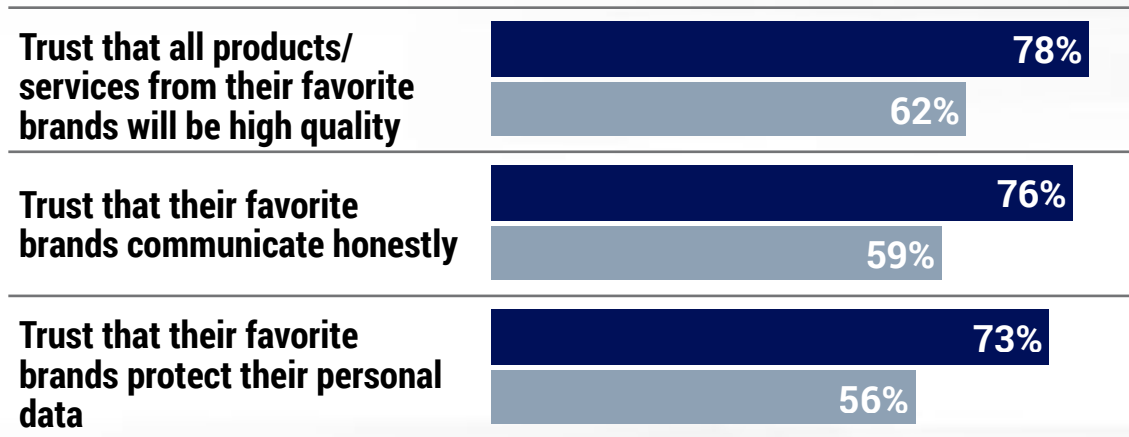
CONSUMER LOYALTY BEHAVIORS TOWARDS FAVORITE BRANDS, U.S., 2023, % ADULTS AGED 18+

■ % Super Users    ■ % All Other Users

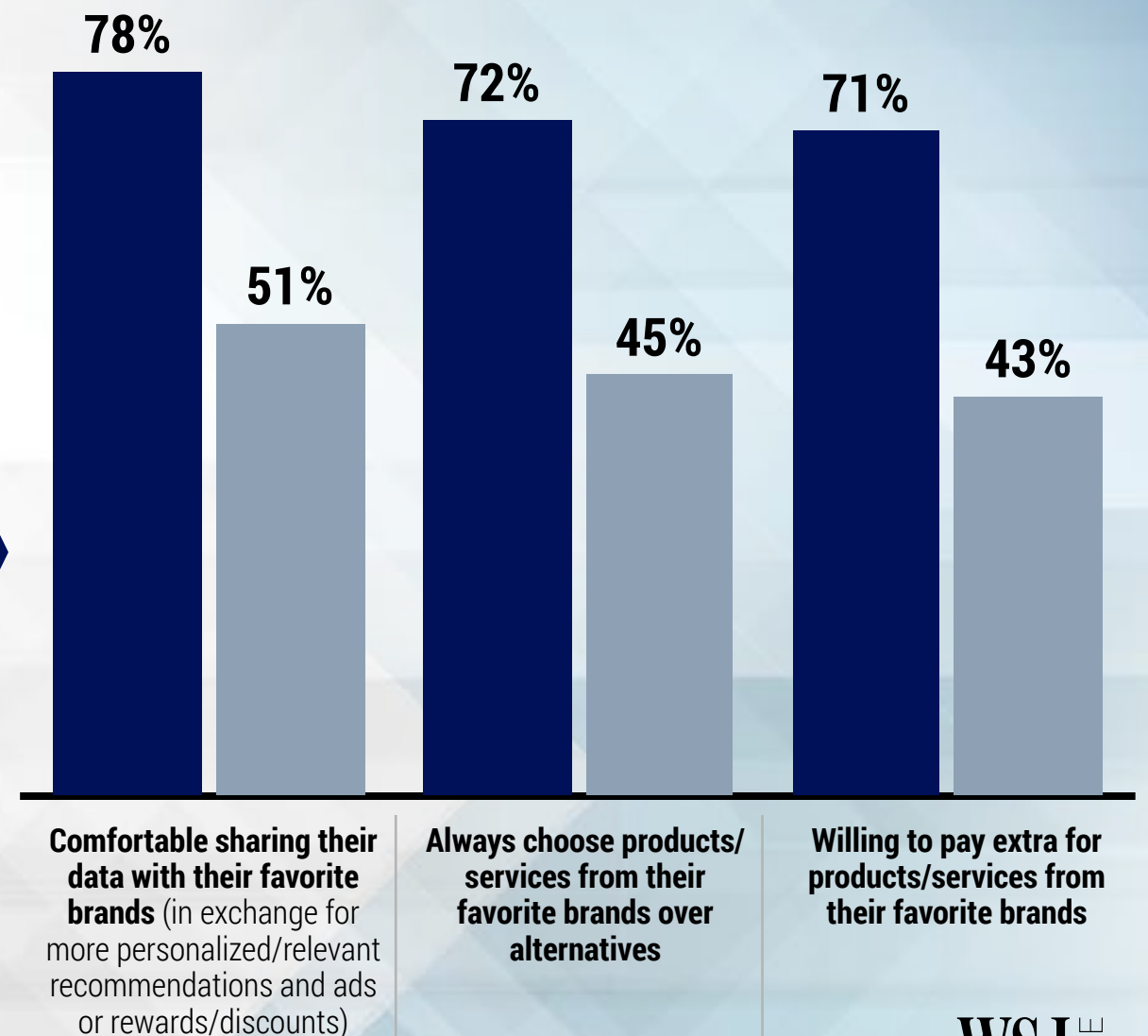
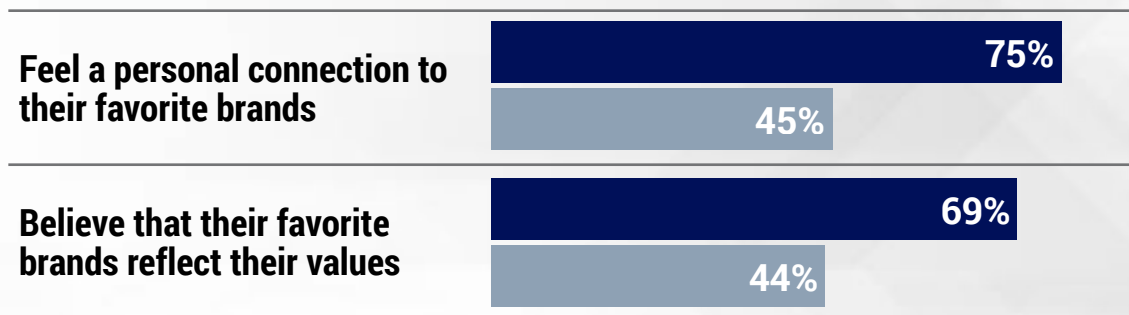


■ % Super Users    ■ % All Other Users

## BRAND TRUST



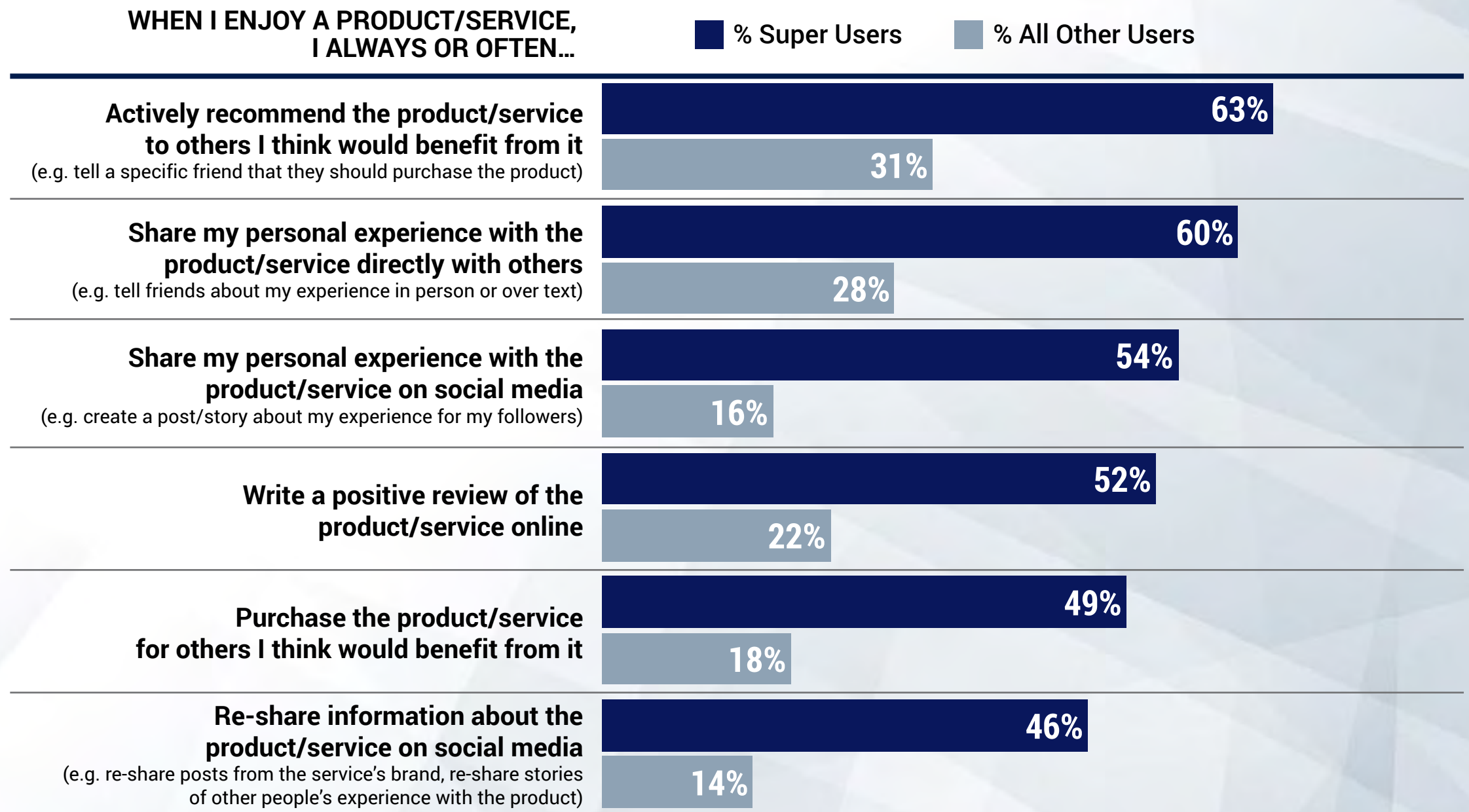
## BRAND AFFINITY





# For consumer brands, Super Users are especially valuable, as they are significantly more likely to serve as brand advocates

BRAND ADVOCACY BEHAVIORS, U.S., 2023, % ADULTS AGED 18+



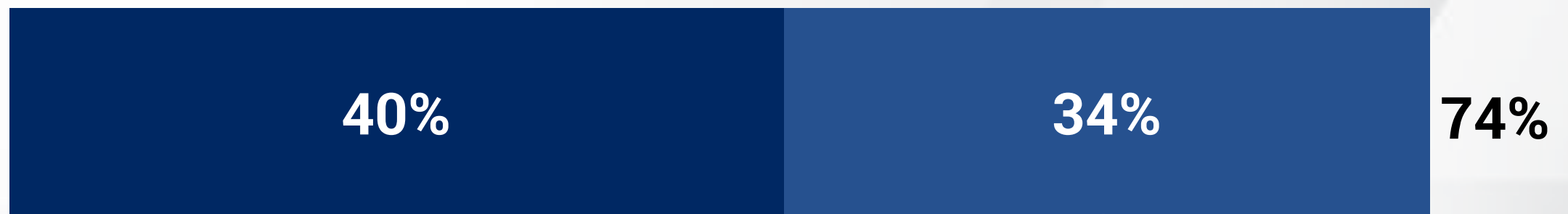
# In addition to being early adopters of technology, Super Users are also typically among the first to consume newly released content

PROPENSITY TO BE AMONG THE FIRST FEW TO CONSUME NEW CONTENT, U.S., 2023, % ADULTS AGED 18+



When a new, highly anticipated piece of content (e.g. song, movie, TV show, video game) is released, I usually listen to / watch / play it...

**SUPER USERS**



**Before**  
anyone else  
I know

**After a few**  
people I know  
have done so  
(but before many people  
I know have done so)

**ALL OTHER USERS**

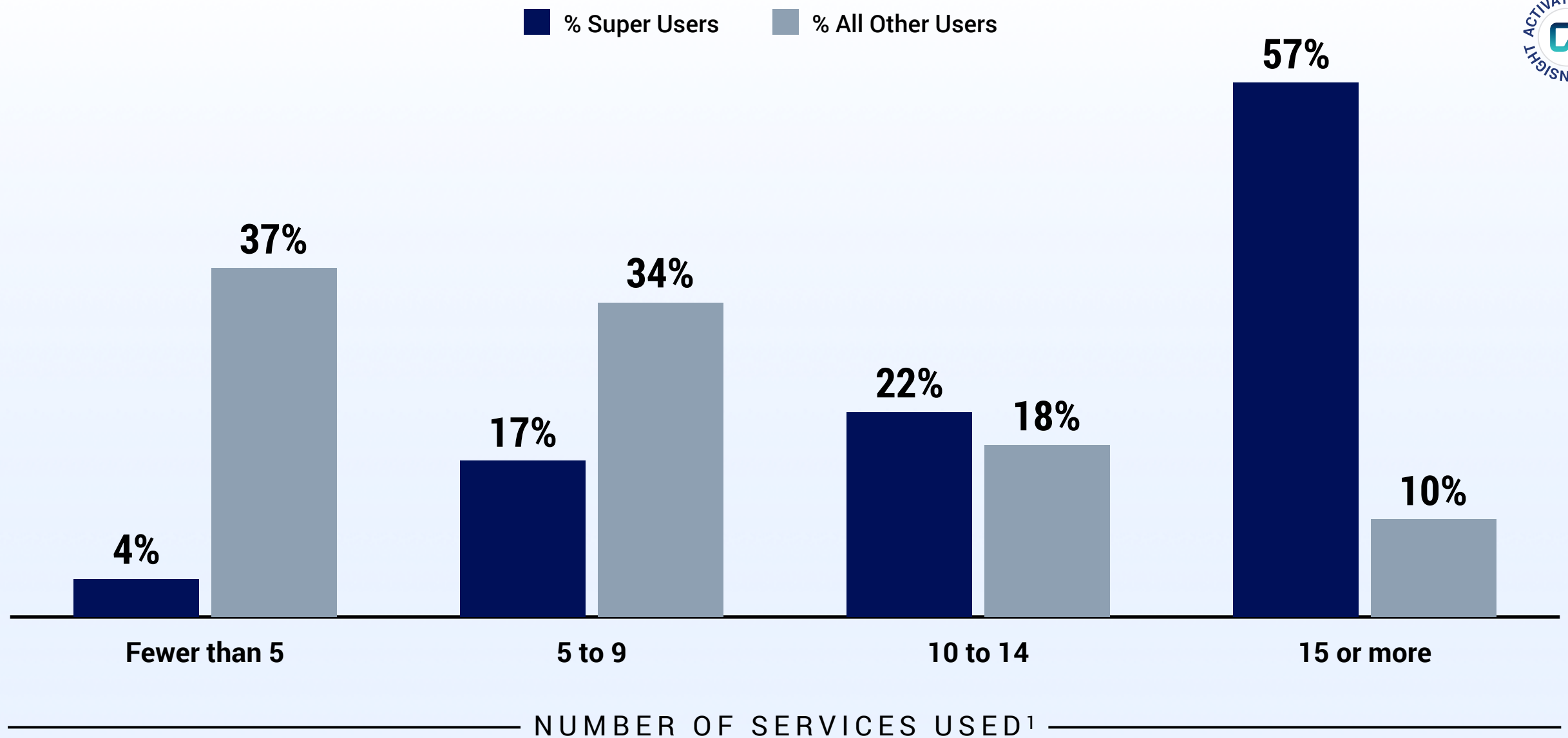
11%

26%

37%

# Super Users use significantly more digital media services compared to all other users

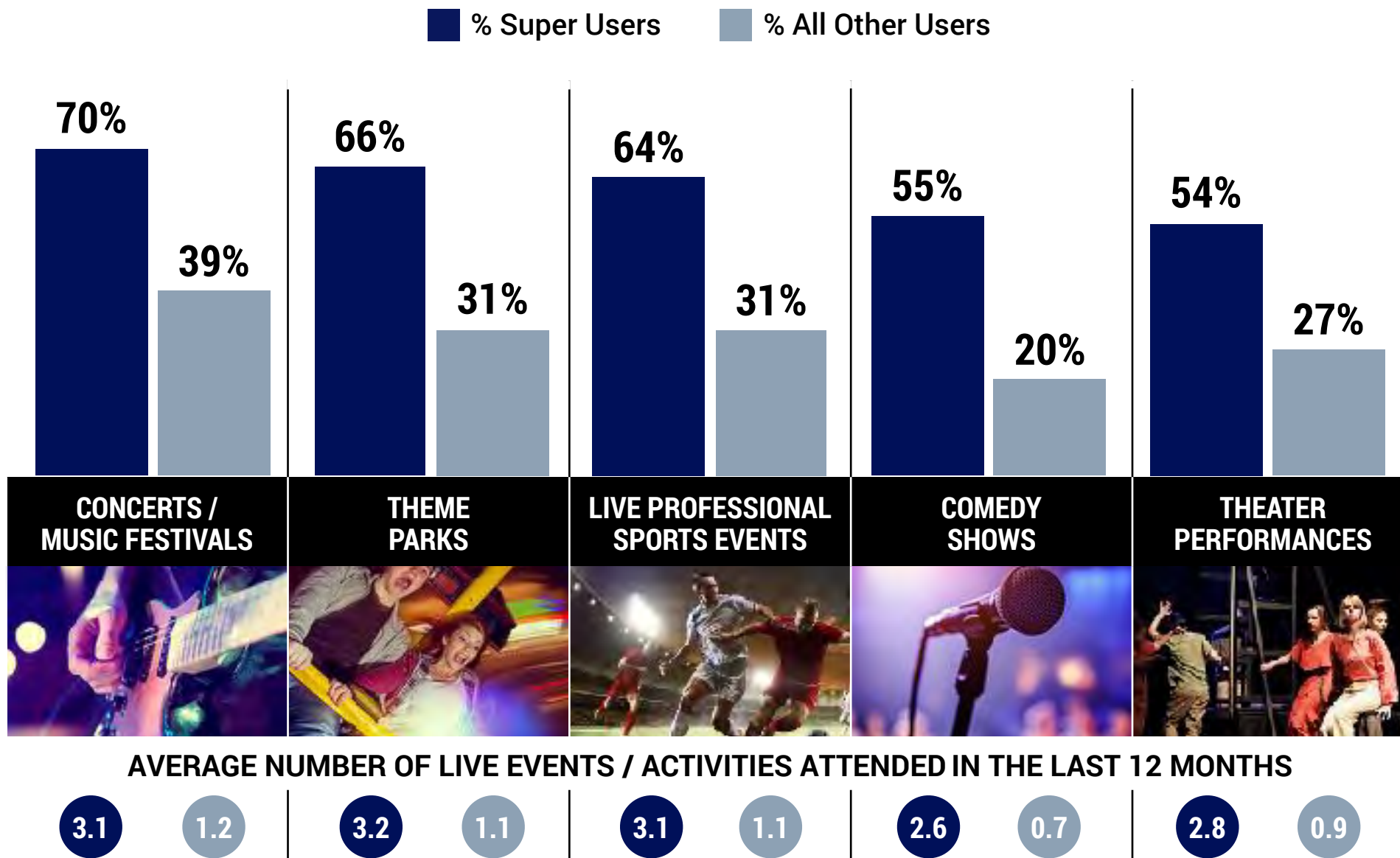
NUMBER OF DIGITAL MEDIA SERVICES USED PER USER<sup>1</sup>, U.S., 2023, % ADULTS AGED 18+





# Beyond digital activities, Super Users attend more live events and experiences, while spending 3x as much annually as other users

LIVE EVENT / ACTIVITY ATTENDANCE IN THE LAST 12 MONTHS BY TYPE<sup>1</sup>, U.S., 2023, % ADULTS AGED 18+



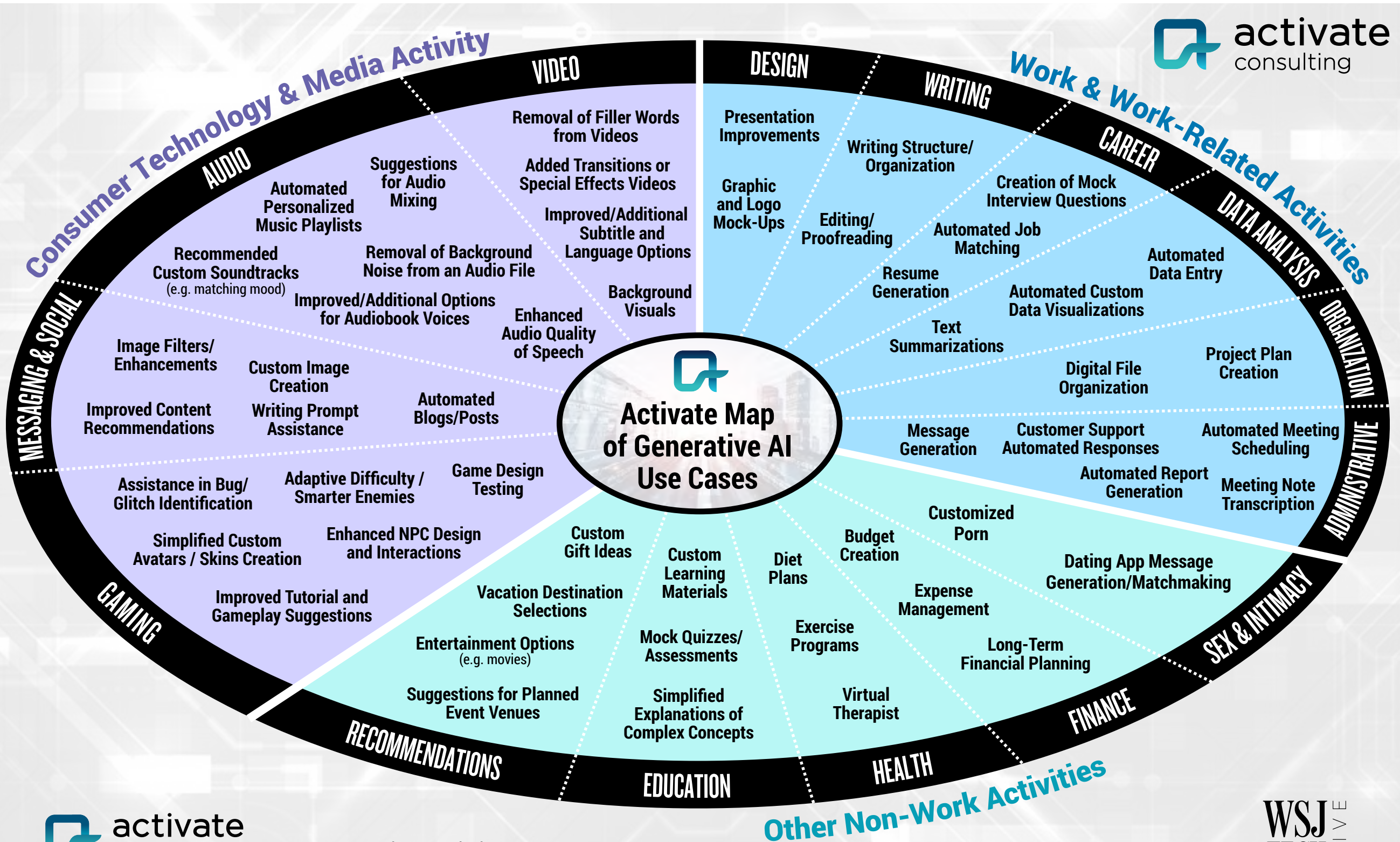
**SUPER USERS** spend<sup>2</sup> over **3x** as much annually on live events / activities compared to all other users

1. Reflects adults aged 18+ who attended at least one event in the specific category in the last 12 months. 2. Includes total spend on live events / activities (e.g. tickets, food/beverages, merchandise, parking, accommodations/lodging, transportation fees).  
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

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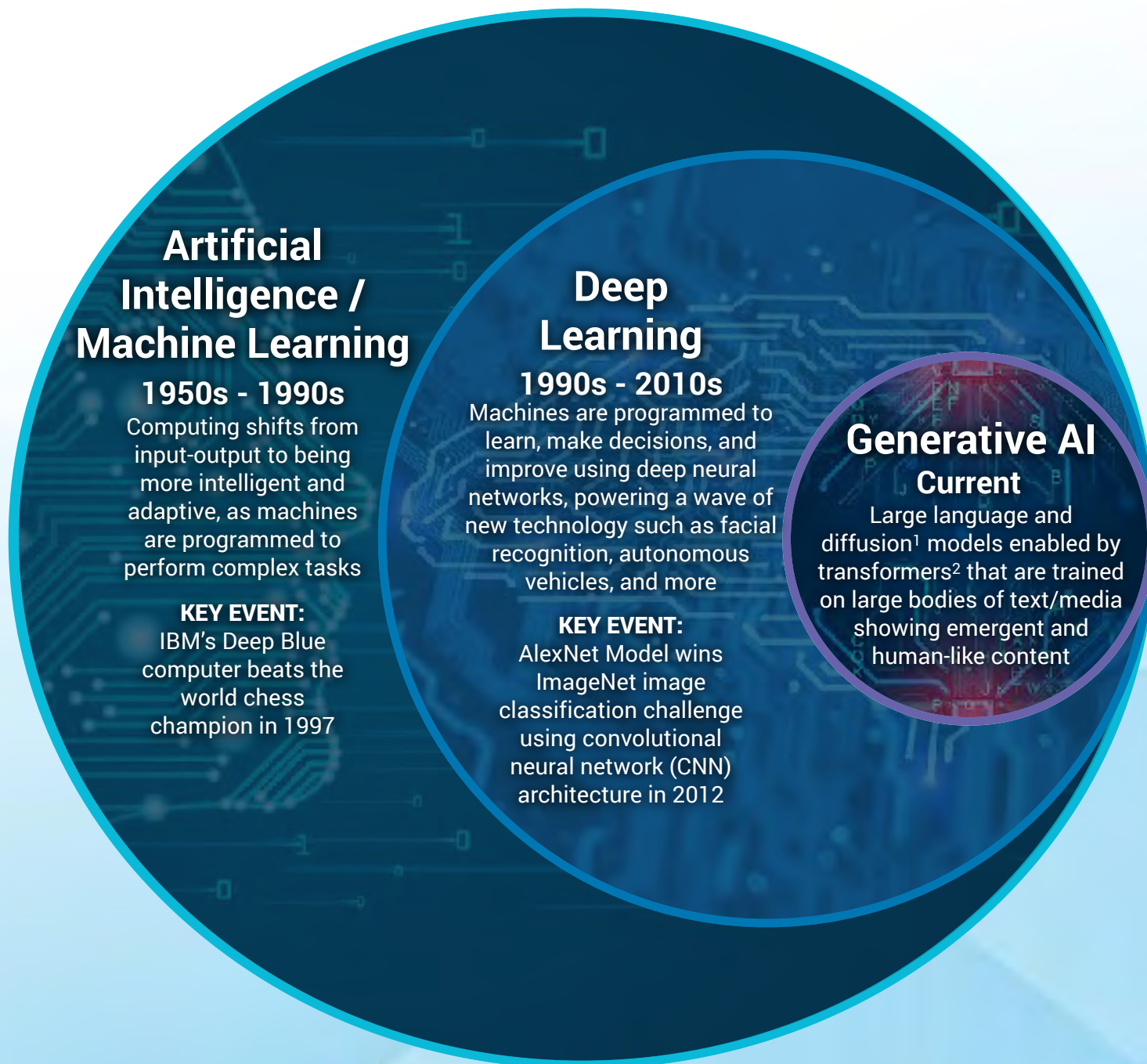
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# Generative AI will massively change the behaviors and supercharge the productivity of consumers who use it across media, work, and other daily habits





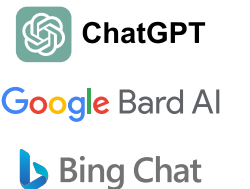
# Generative AI will bring paradigm shifts across search, content creation, and enterprise use cases



## GENERATIVE AI WILL LEAD TO THE KEY PARADIGM SHIFTS OF THE FUTURE

### SEARCH & INFORMATION

Search engines will shift towards conversational AI-driven interfaces that power online information searches and lead to a total transformation in discovery and search advertising for brands



### CONTENT CREATION

Text-to-text, -image, -video, and -audio tools will be the lifeblood of developers, artists, marketers, and all creators, producing content at scale that is indistinguishable from that produced by humans



### ENTERPRISE & THE WORKPLACE

Text-to-code, administrative, process automation, and other AI tools will drive efficiencies, increase margins, make organizations more lean, and fully automate workflows



1. "Diffusion models" estimate the probabilistic distribution of image data by gradually noising and de-noising images.  
 2. "Transformers" are a deep learning architecture capable of translating text and images in near-real time by identifying relationships between unlabeled data elements rather than being trained on sequential labeled data.  
 Sources: Activate analysis, Ars Technica, Dartmouth, Dataversity IBM, NVIDIA, Quartz



# Today's generative AI capabilities have been developing since at least 2009

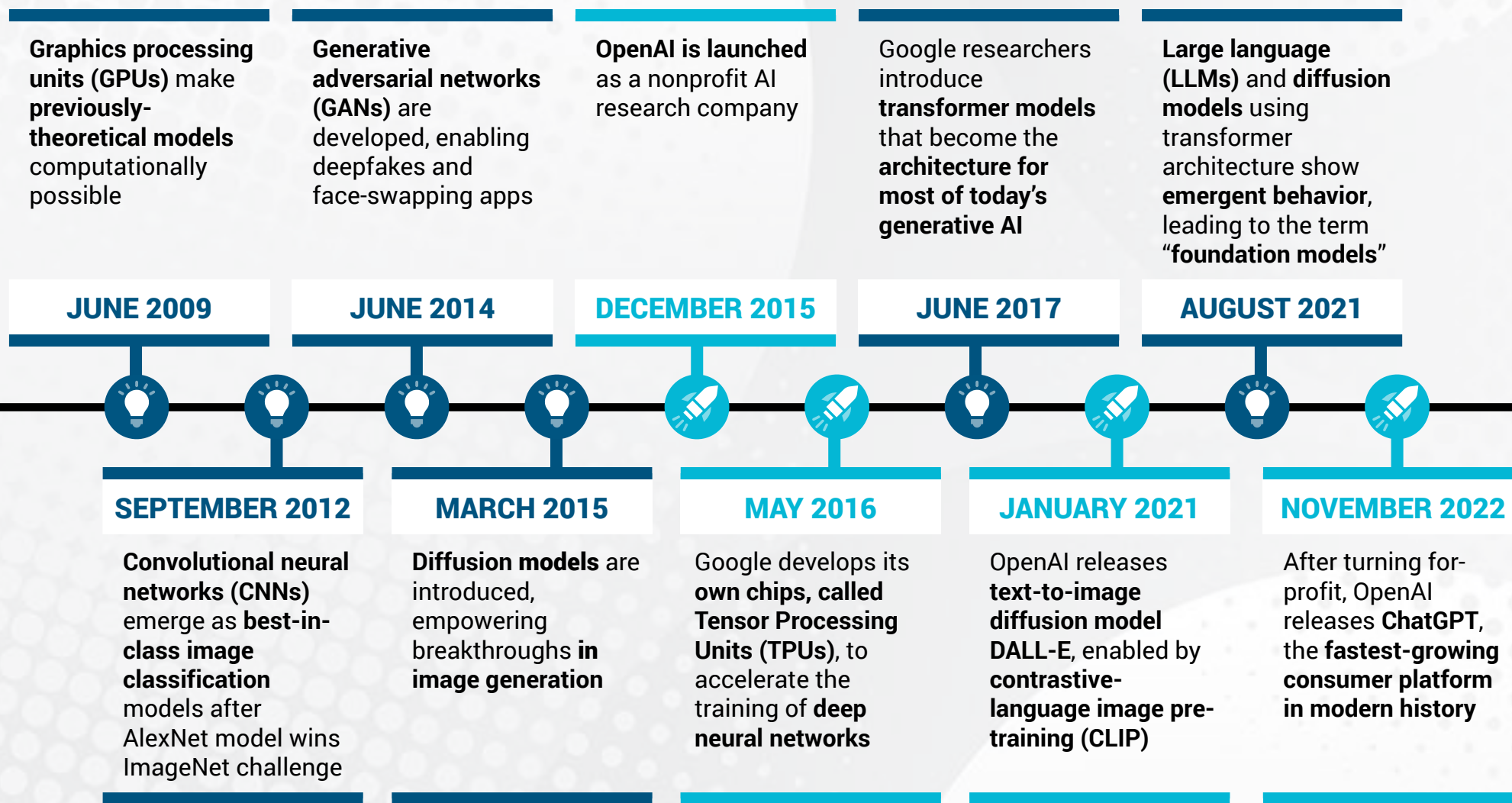
## ACTIVATE TIMELINE OF MAJOR AI MILESTONES



Model Research Breakthroughs



Business Developments / Model Releases



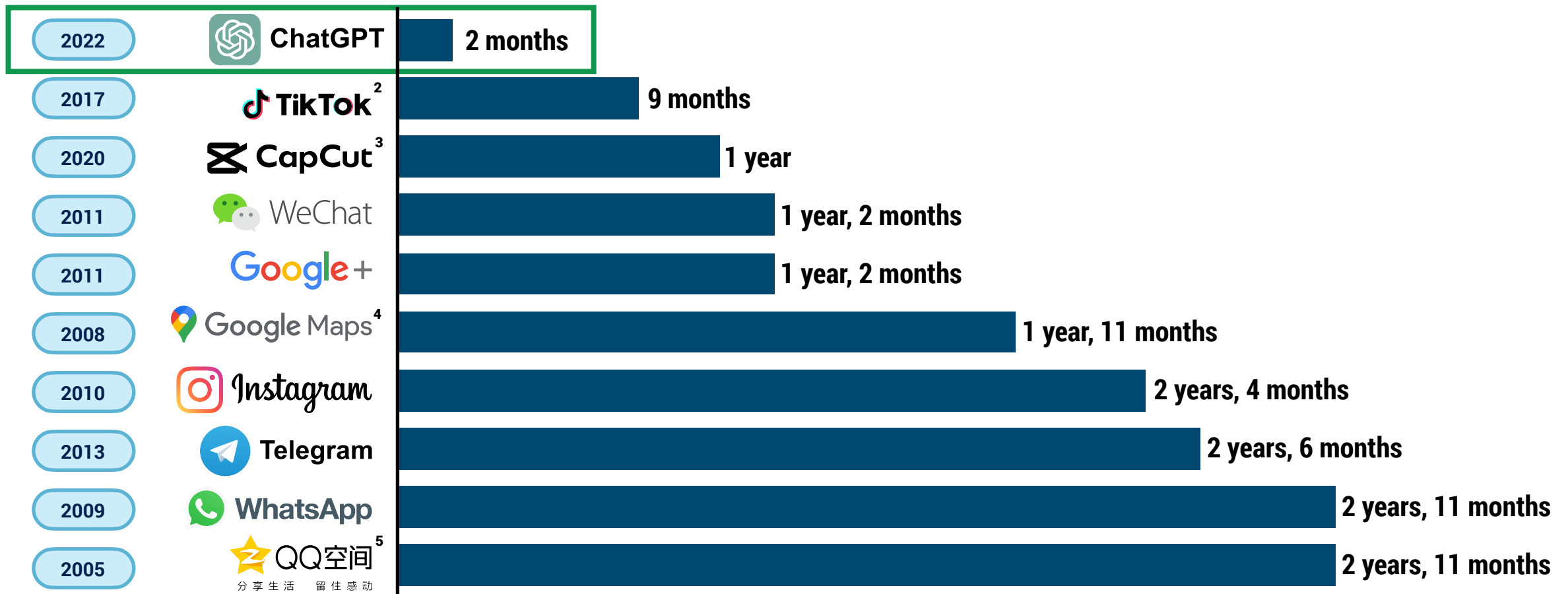
### BEYOND

- In Oct. 2023, OpenAI will integrate DALL-E 3 with ChatGPT, creating the company's first multimodal consumer platform
- Google is expected to release Gemini by the end of 2023, to compete with OpenAI's GPT-4
- Google is currently testing the integration of generative AI features into its Google Search engine
- Apple is rumored to make a significant AI announcement in 2024

# ChatGPT has been adopted faster than any other platform in modern history (100M MAUs in two months)

TIME TO REACH 100M MONTHLY ACTIVE USERS FROM LAUNCH BY PLATFORM<sup>1</sup>, GLOBAL, ALL TIME, YEARS AND MONTHS

LAUNCH YEAR

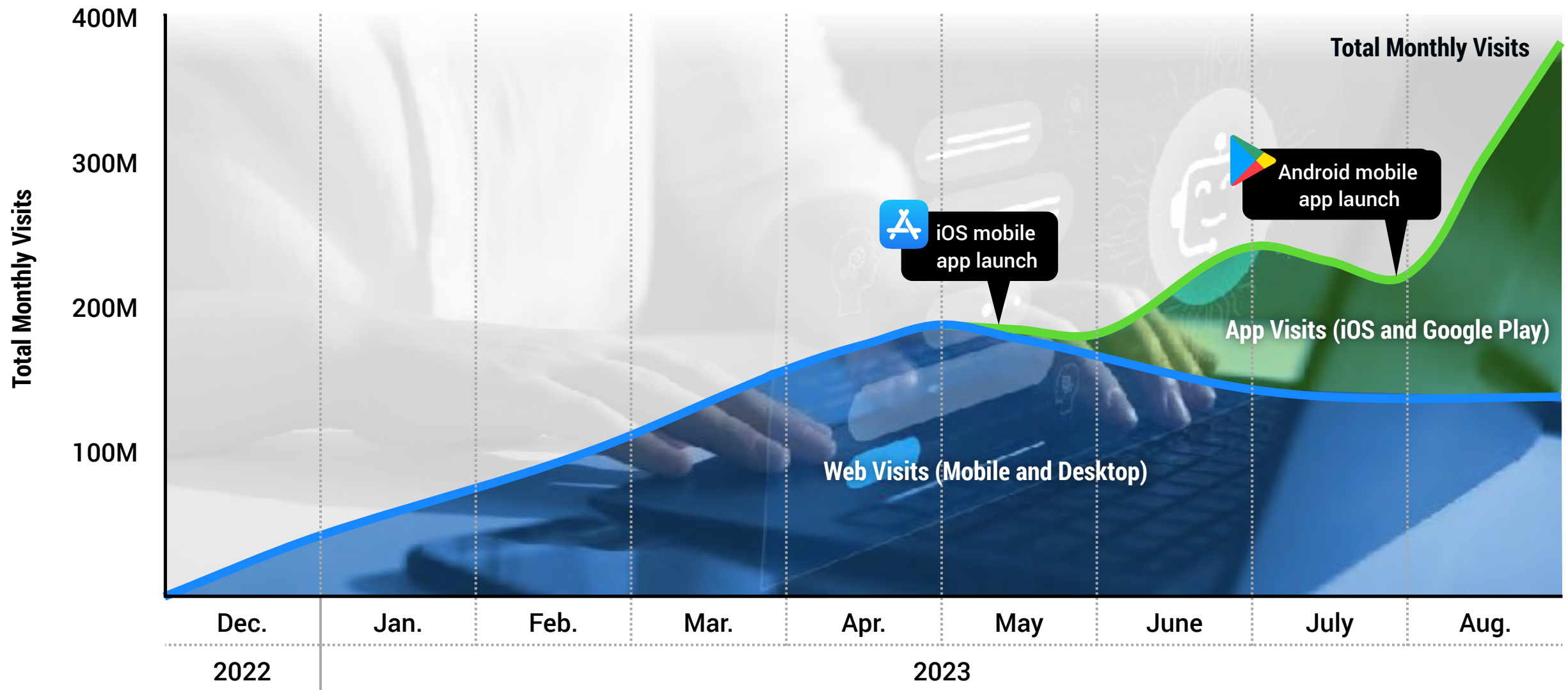


Note: Analysis completed by evaluating the top 50 most visited websites (all time, as of Jan. 27, 2021, via Visual Capitalist) and top 50 apps with the most cumulative downloads (all time, as of May 30, 2023, via data.ai). List limited to companies that publicly announced surpassing 100M MAUs. Does not include announcements of total accounts, downloads, or (non-monthly) users.

1. Analysis excludes Threads, as all Instagram users (2B+ MAUs) were prompted to join Threads the day of its release, July 6, 2023, and Threads is not a “new platform,” as the platform is a clone of another app (X/Twitter). 2. Refers to the international release of TikTok. 3. CapCut is a video editing app launched by ByteDance in Apr. 2020. 4. Refers to the Google Maps mobile GPS navigation app, not the Google Maps website. 5. Qzone is a social networking website launched by Tencent in Apr. 2005. Sources: Activate analysis, data.ai, Insider, Reuters, TechCrunch, Tech in Asia, Tencent, VentureBeat, Visual Capitalist

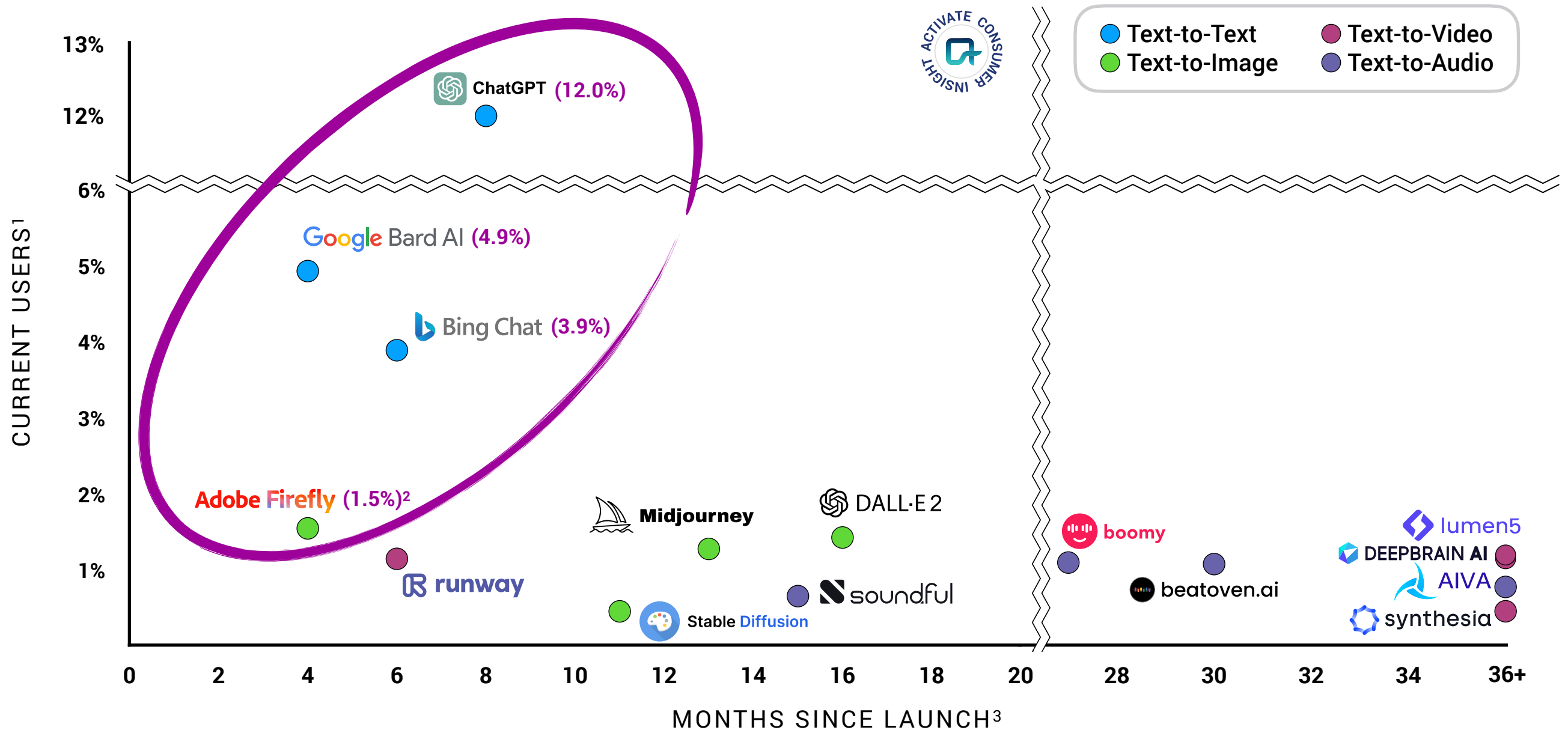
# Although ChatGPT web traffic has declined in recent months, traffic is increasingly shifting towards mobile; total monthly ChatGPT visits have doubled from April to August 2023

TOTAL MONTHLY CHATGPT VISITS BY PLATFORM, U.S., DEC. 2022-AUG. 2023, MILLIONS MONTHLY VISITS



# ChatGPT, Google Bard, and Bing Chat are seeing significant usage within a year of launch, while Adobe Firefly has exhibited fast growth in just a few months

USAGE OF SELECT GENERATIVE AI TOOLS, U.S., 2023, % ADULTS AGED 18+ / MONTHS

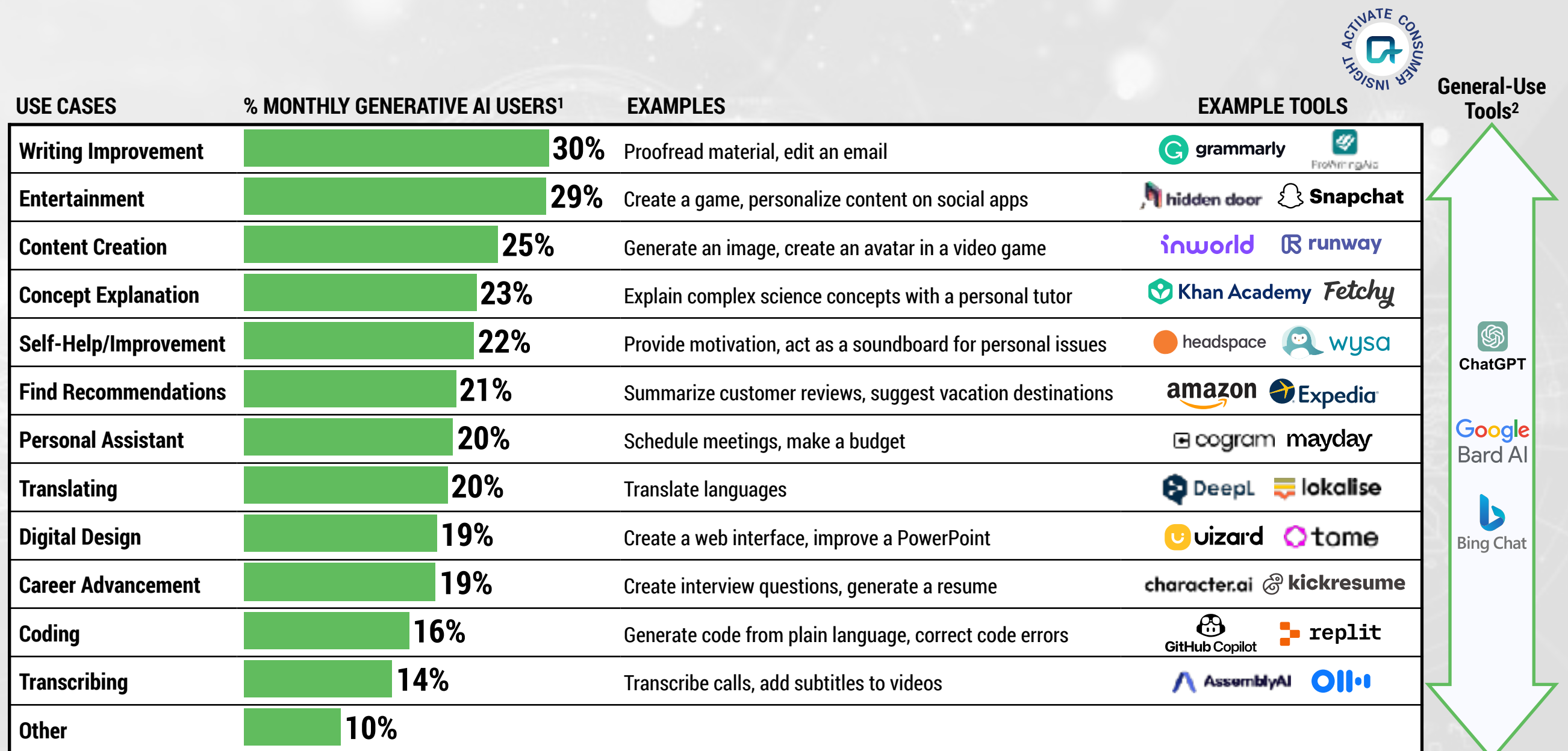


1. "Current Users" are defined as those who use the generative AI tool at least once per month.  
 2. Tool has created over 1 billion assets and supports over 100 languages. 3. As of Aug. 2023.  
 Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023),  
 Company sites, Crunchbase



# Consumers are using generative AI tools to support a broad range of personal and professional use cases today

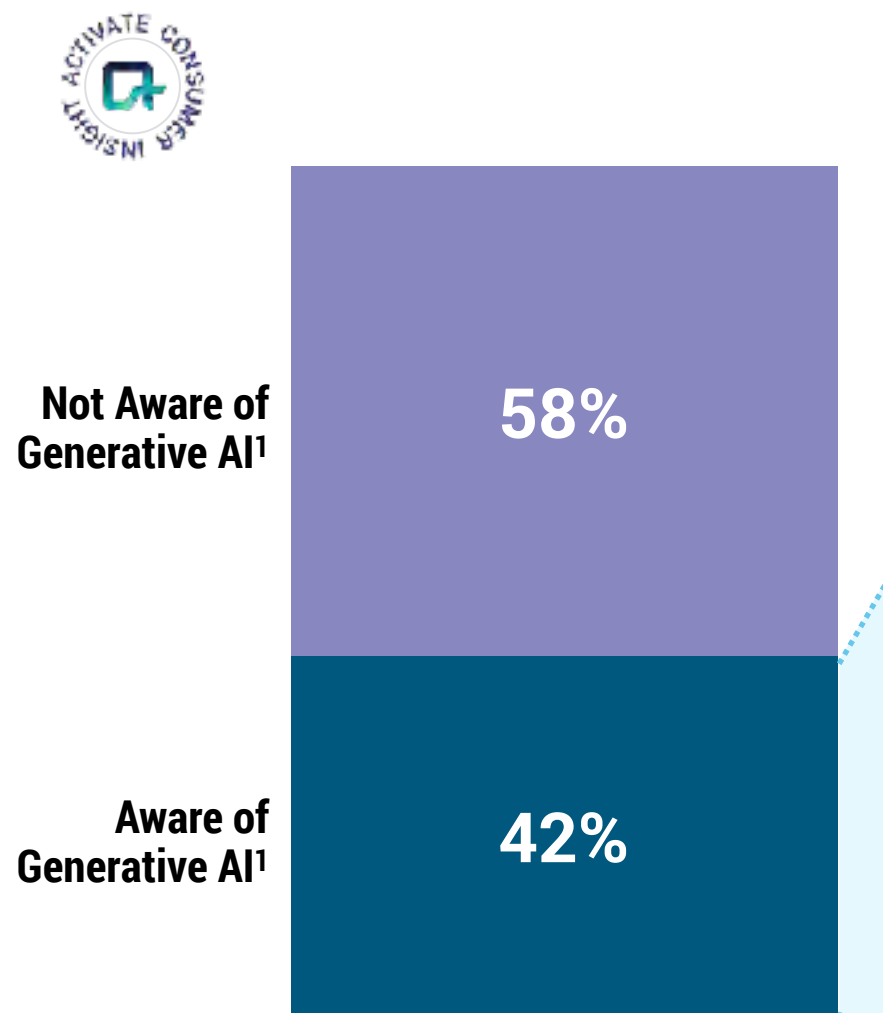
CONSUMER GENERATIVE AI TOOL USAGE, U.S., 2023, % MONTHLY GENERATIVE AI USERS<sup>1</sup>



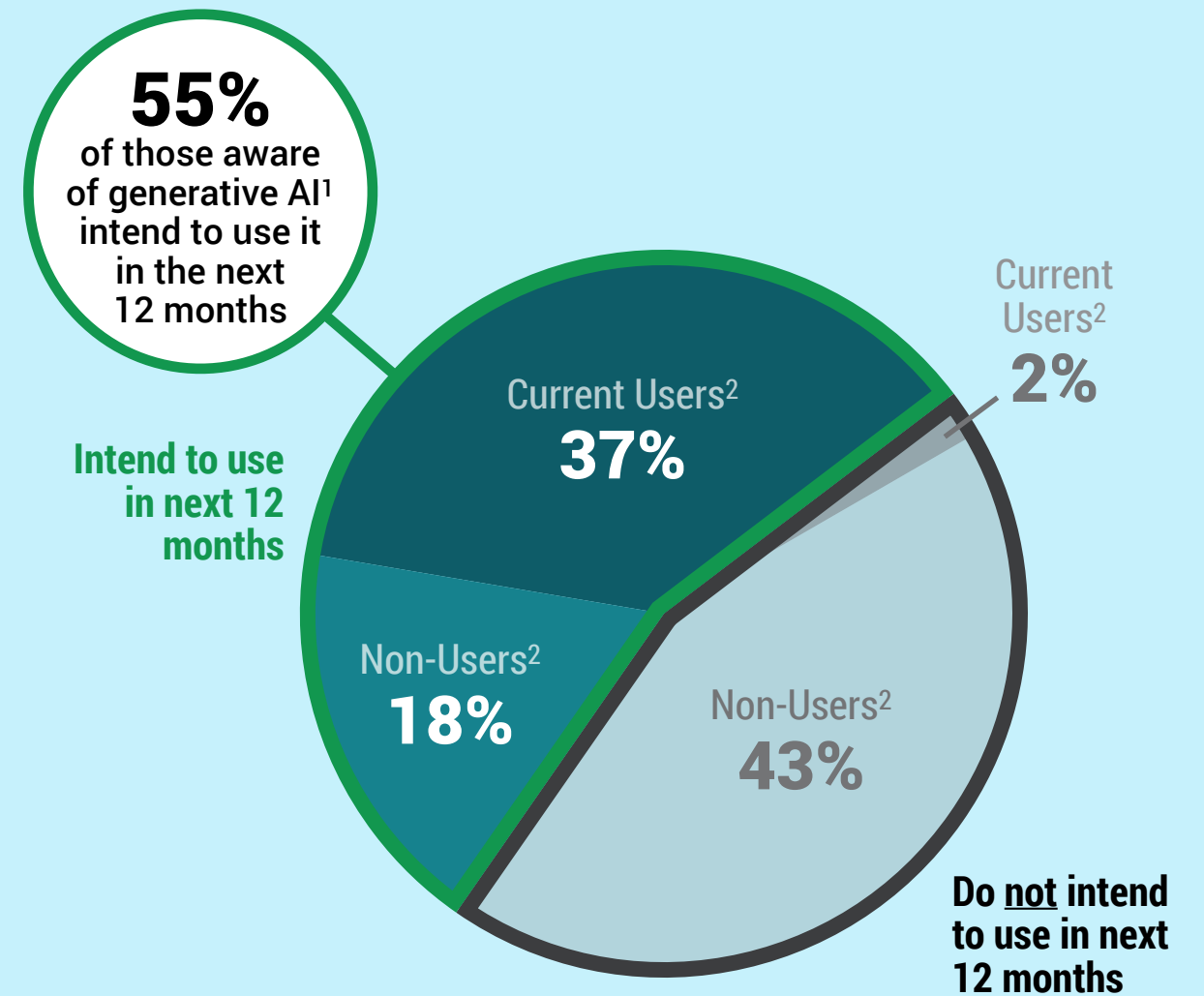
1. "Monthly generative AI users" are defined as adults aged 18+ who use at least one generative AI tool at least once per month. 2. Includes generative AI tools primarily known in a multipurpose way. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company sites

# Over half of people who are aware of generative AI tools today intend to use them in the future

**GENERATIVE AI AWARENESS<sup>1</sup>, U.S., 2023, % ADULTS AGED 18+**



**GENERATIVE AI INTENT TO USE BY CURRENT USAGE, U.S., 2023, % ADULTS AWARE OF GENERATIVE AI<sup>1</sup>**

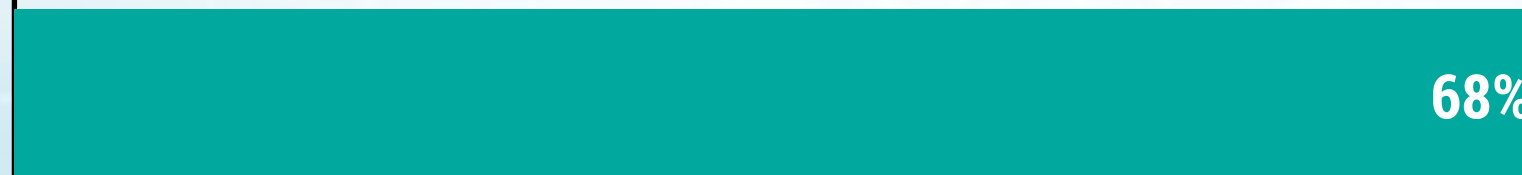


# People are most interested in using text-to-text and text-to-image generative AI tools

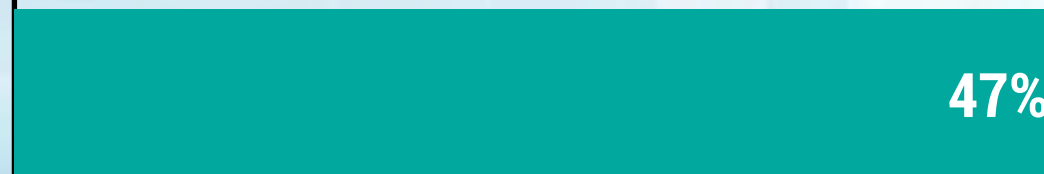
INTENT TO USE GENERATIVE AI BY AI TOOL TYPE, U.S., 2023,  
% ADULTS AGED 18+ WHO INTEND TO USE GENERATIVE AI<sup>1</sup>




**Aa**  
TEXT TO  
**TEXT**  
(i.e. chatbots)



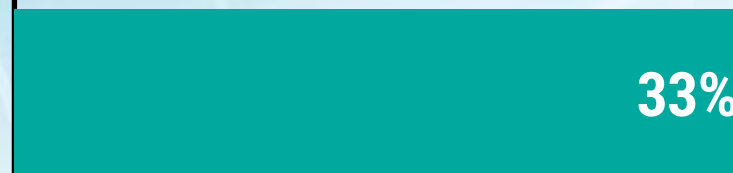
  
TEXT TO  
**IMAGE**



  
TEXT TO  
**AUDIO**

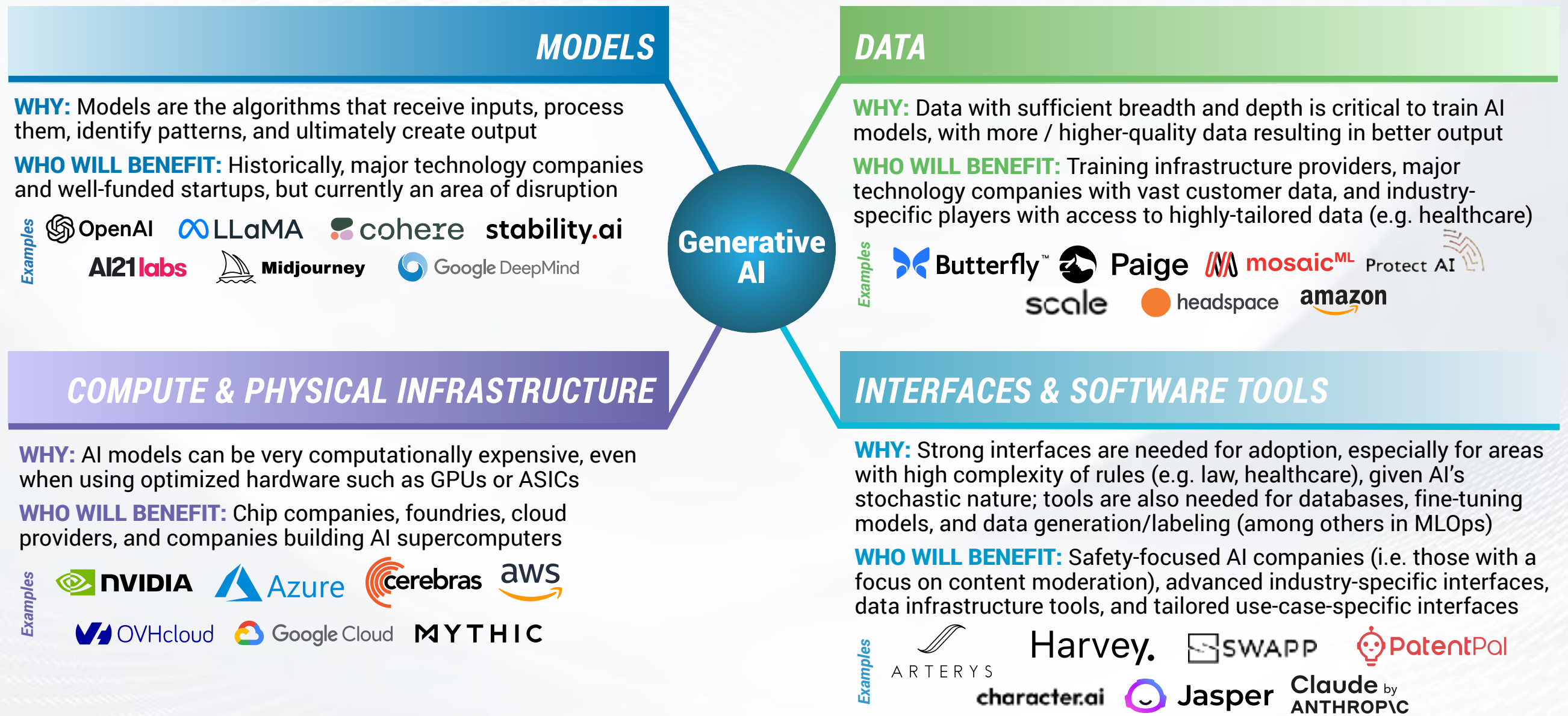


  
TEXT TO  
**VIDEO**



# There are four fundamental building blocks to consider within the greater ecosystem of generative AI, with different companies expected to benefit from the importance of each: models, data, compute, and interfaces & software tools

## FUNDAMENTAL BUILDING BLOCKS FOR GENERATIVE AI





# The generative AI playing field will not be limited to the major technology players, particularly with the rise of open-source AI models opening the door for new, smaller entrants

## ONGOING DISRUPTION: OPEN-SOURCE MODELS LEADING TO COMMODITIZATION

### STEPS TOWARDS COMMODITIZATION



#### Pre-trained models have become publicly available:

- Meta models (LLaMA, LLaMA 2, and Code LLaMA), Falcon LLM, and StableStudio are prominent examples
- As of August 2023, Hugging Face has over 300,000 available open-source models



#### Open-source models become increasingly high-quality and low-cost:

- Training for LLMs such as GPT-4 are estimated at upwards of \$100M<sup>1</sup>
- Training costs for recent open-source models can be in the hundreds (e.g. \$600 for Alpaca)



#### Open-source communities rapidly innovate and improve models:

- Researchers in the open-source community are improving models faster (by some accounts) than many major technology companies
- Models are already showcasing similar results with much lower costs (e.g. Vicuna-13B achieving ~90% of GPT-4 quality for \$300 in training)

### STRATEGIC IMPLICATIONS



#### Independence from Major Technology Players

Companies do not need to go to major technology players such as Meta, Google, or Microsoft for paid access to high-quality generative models



#### More Accessibility for Custom Models

Companies can create more custom high-quality generative AI models for significantly lower costs

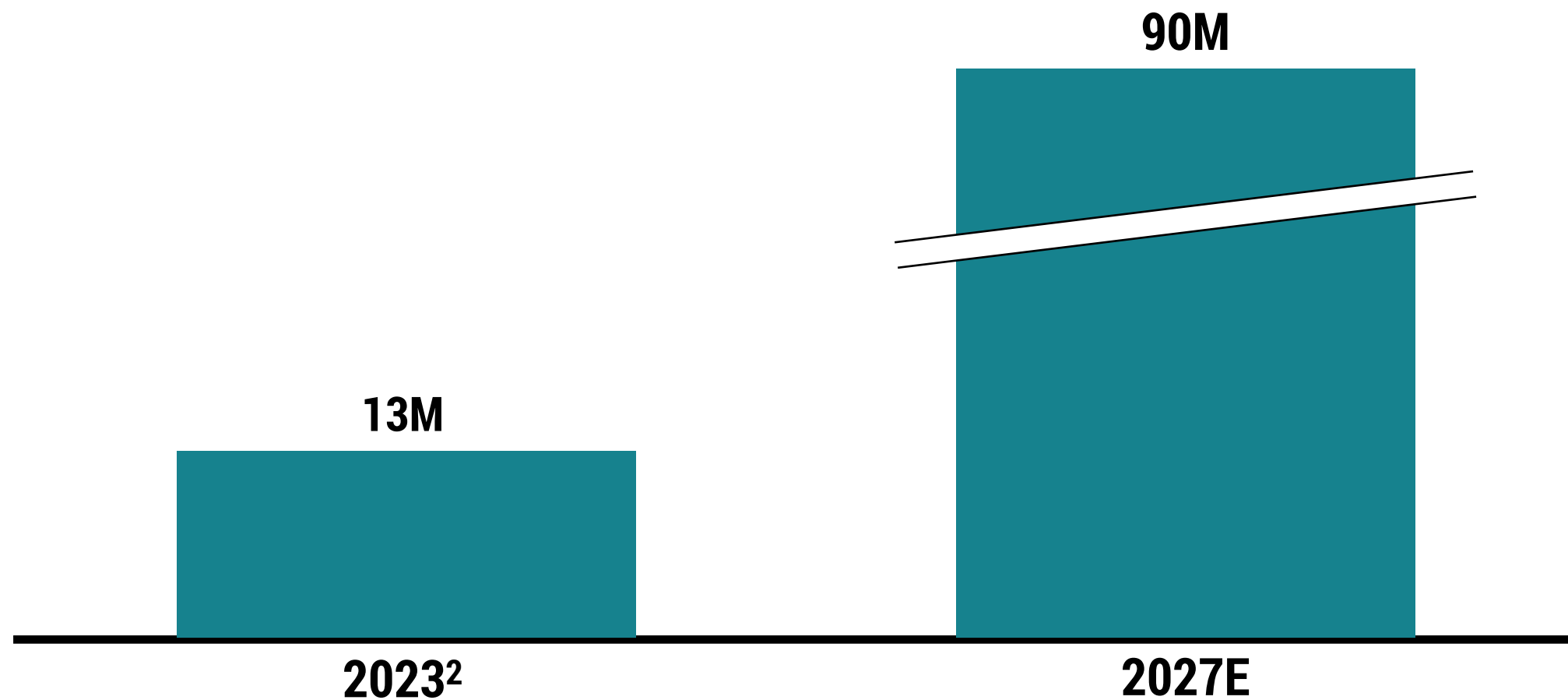


#### Potential Commoditization of Models as Base Layer

Generative AI models may follow a path similar to technologies like Linux, where paid applications are built off of a free and open-source base

# Today, over 10M U.S. adults begin their web search with generative AI; this will grow to 90M by 2027, promising to reshape the largest technology businesses

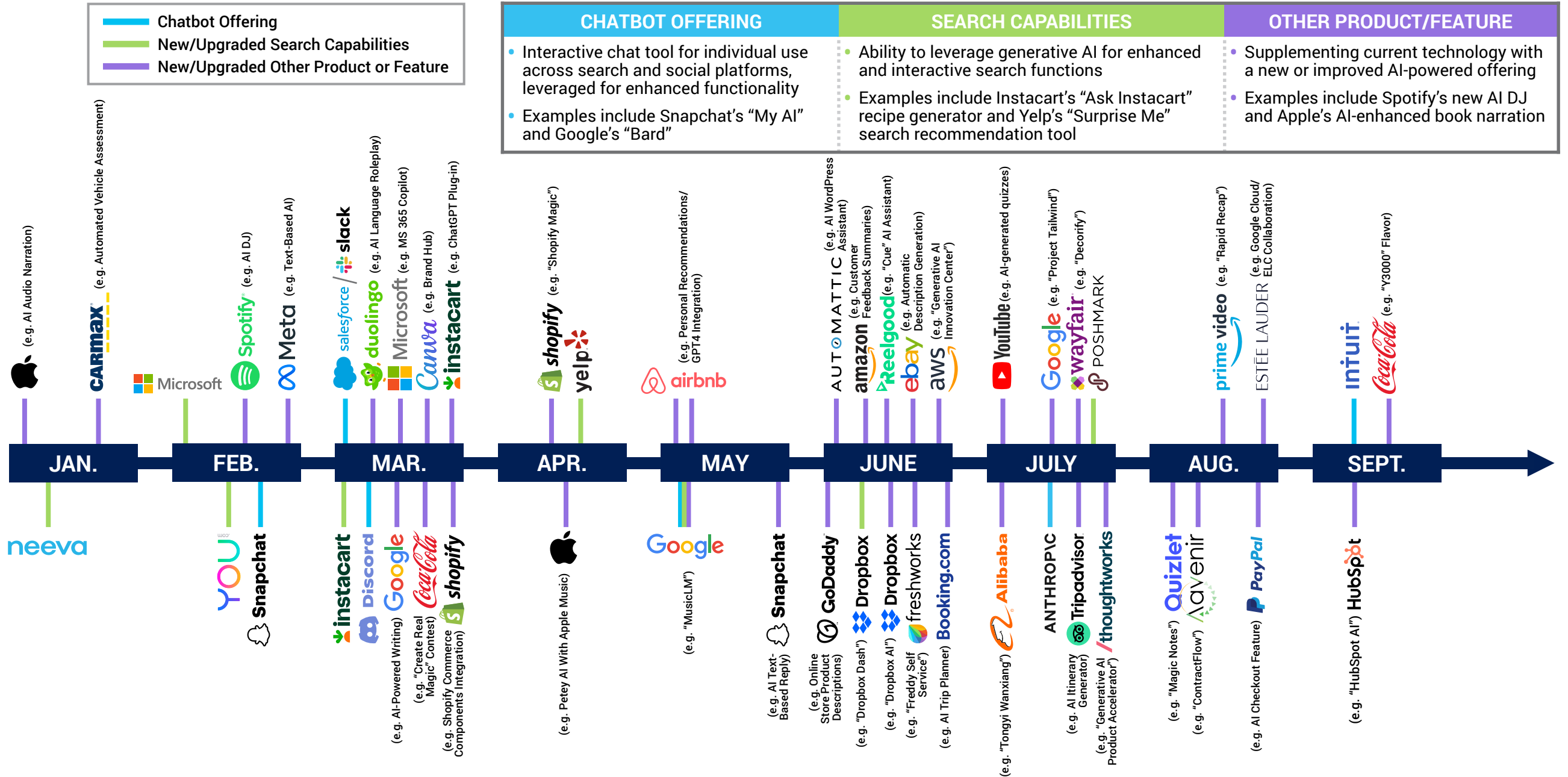
USAGE OF GENERATIVE AI AS A FIRST STOP FOR ONLINE SEARCH<sup>1</sup>, U.S., 2023<sup>2</sup> VS. 2027E, MILLIONS ADULTS AGED 18+



1. "Using generative AI as a first stop for online search" is defined as typically starting search at a generative AI tool when looking for information online. Includes normal search with a generative AI summary at the top of a search results page.  
2. Reflects Aug. 2023.  
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), U.S. Census Bureau

# Brands across a broad set of industries have already integrated generative AI into their consumer offerings

## ACTIVATE TIMELINE OF AI CONSUMER BRAND OFFERINGS, U.S., JAN. 2023-SEPT. 2023<sup>1</sup>



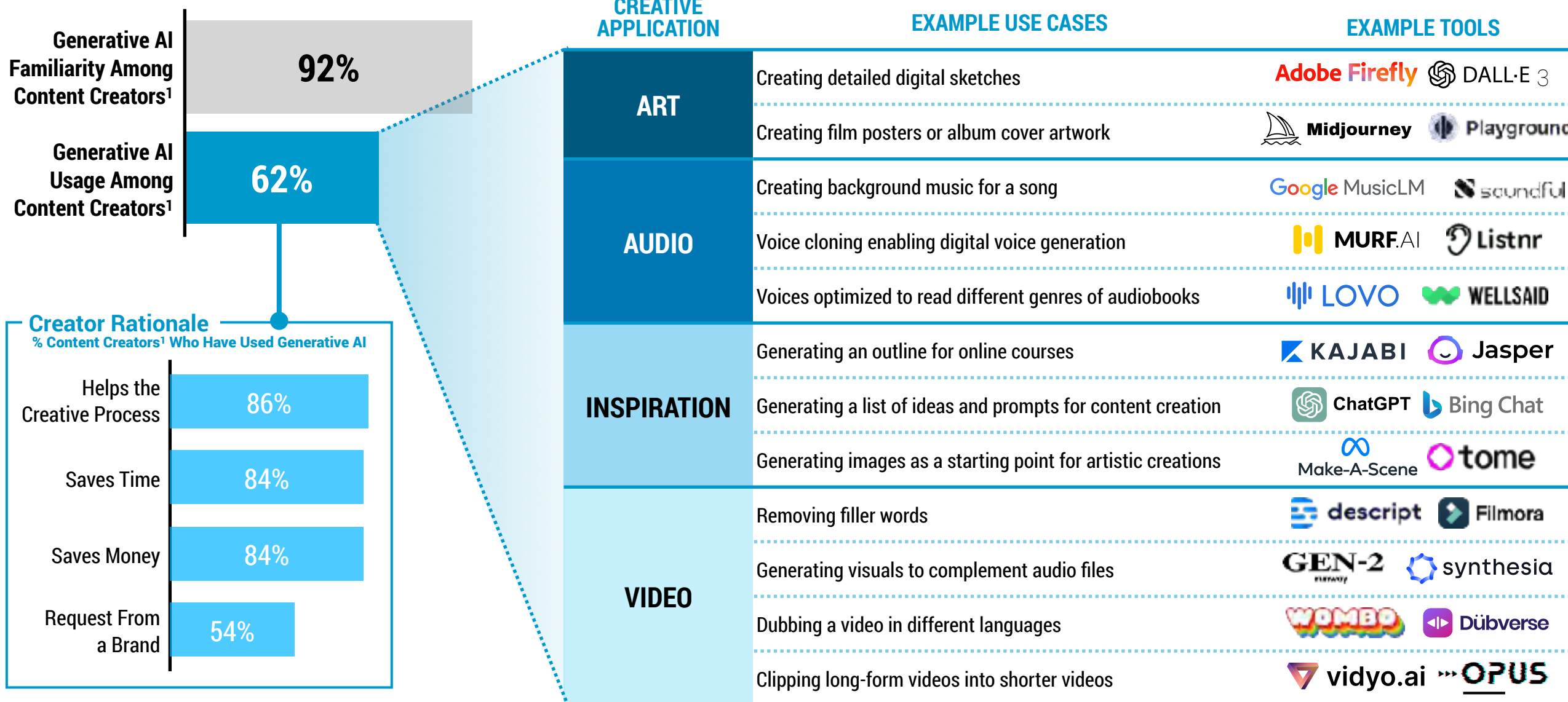
Note: Order of AI offerings within month and size of timeline lines are for illustrative purposes, not indicative of exact announcement dates or importance. Timeline is not exhaustive. 1. As of Sept. 6, 2023.

Sources: Activate analysis, ABC News, Businesswire, CNBC, CNN, Company press releases, Company sites, Hospitality Net, The Motley Fool, NASDAQ, PRNewswire, Retail Brew, Retail Dive, Skift, TechCrunch, TVTech, VentureBeat, The Verge, The Wall Street Journal, The Washington Post, ZDNet

# Over 60% of creators already use generative AI today

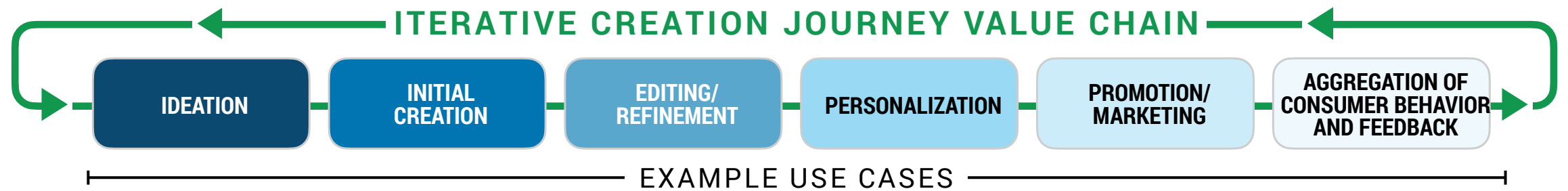
**GENERATIVE AI AWARENESS, USAGE, AND RATIONALE FOR USAGE, U.S., MAR. 2023, % CONTENT CREATORS<sup>1</sup>**

## GENERATIVE AI USE CASES





# The capabilities of generative AI will revolutionize the creation journey value chain across media and entertainment



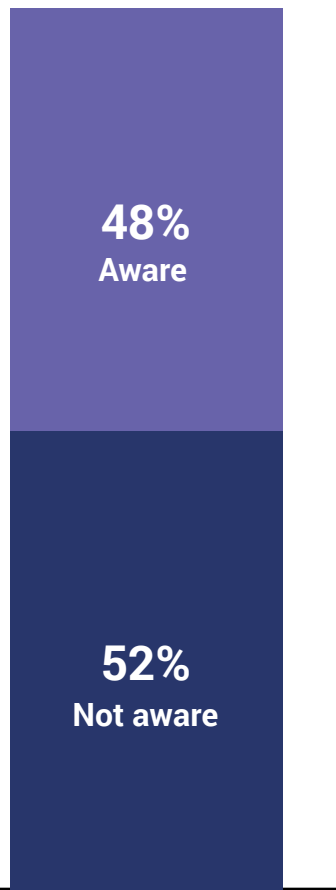
		EXAMPLE USE CASES					
MEDIA TYPE	<b>VIDEO</b>	<ul style="list-style-type: none"> <li>List of video ideas</li> <li>Script writing</li> <li>Concept art</li> </ul>	<ul style="list-style-type: none"> <li>Initial video creation</li> </ul>	<ul style="list-style-type: none"> <li>Segmenting videos into clips</li> <li>Removing filler words</li> <li>Aiding in visual effect production</li> </ul>	<ul style="list-style-type: none"> <li>Subbing/dubbing video in different languages</li> </ul>	<ul style="list-style-type: none"> <li>Film posters</li> <li>Movie trailers</li> </ul>	<ul style="list-style-type: none"> <li>Summarized feedback from movie reviews</li> </ul>
	<b>MUSIC</b>	<ul style="list-style-type: none"> <li>List of song ideas</li> </ul>	<ul style="list-style-type: none"> <li>Song lyrics / beats</li> <li>Voice cloning</li> <li>Visuals to complement audio</li> </ul>	<ul style="list-style-type: none"> <li>Altering style to match a different genre/artist</li> </ul>	<ul style="list-style-type: none"> <li>Language translation</li> </ul>	<ul style="list-style-type: none"> <li>Album cover art</li> </ul>	<ul style="list-style-type: none"> <li>Synthesized commentary from sources such as YouTube comments</li> </ul>
	<b>OTHER AUDIO</b> (e.g. podcasts, audiobooks)	<ul style="list-style-type: none"> <li>List of podcast ideas</li> <li>Podcast script writing</li> </ul>	<ul style="list-style-type: none"> <li>Audio based on written material (e.g. artificial voice)</li> </ul>	<ul style="list-style-type: none"> <li>Removing filler words</li> <li>Cutting out dead audio / upscaling audio quality</li> </ul>	<ul style="list-style-type: none"> <li>Voices optimized to read different genres of audiobooks</li> <li>Automated transcripts of podcast episodes</li> <li>Language translation</li> </ul>	<ul style="list-style-type: none"> <li>Audio ad creation</li> </ul>	<ul style="list-style-type: none"> <li>Actionable feedback from app store reviews</li> </ul>
	<b>GAMING</b>	<ul style="list-style-type: none"> <li>Concept art for in-game environments and characters</li> </ul>	<ul style="list-style-type: none"> <li>NPC dialog / story development</li> <li>Virtual world creation</li> <li>AI-driven quests</li> </ul>	<ul style="list-style-type: none"> <li>Chat moderation</li> <li>Copilot for coding</li> <li>Automated bug detection</li> </ul>	<ul style="list-style-type: none"> <li>Avatar and object creation/customization</li> </ul>	<ul style="list-style-type: none"> <li>Game trailer creation</li> </ul>	<ul style="list-style-type: none"> <li>Analytics enhanced with AI to better assess player behavior and preferences</li> </ul>
	<b>ART/IMAGES</b>	<ul style="list-style-type: none"> <li>Nearly instant initial image creation</li> </ul>	<ul style="list-style-type: none"> <li>Text-to-image detailed sketches/images</li> </ul>	<ul style="list-style-type: none"> <li>Existing image modifications (e.g. recolor)</li> <li>Background fill</li> <li>Extend images</li> </ul>	<ul style="list-style-type: none"> <li>Custom image modifications based on text prompts</li> </ul>	<ul style="list-style-type: none"> <li>Organize/manage assets for better marketing</li> </ul>	<ul style="list-style-type: none"> <li>Input such as conversion factors on marketing to inform popular content</li> </ul>
	<b>TEXT</b> (e.g. articles)	<ul style="list-style-type: none"> <li>List of article, quiz, or other text ideas</li> </ul>	<ul style="list-style-type: none"> <li>Initial article writing</li> </ul>	<ul style="list-style-type: none"> <li>Altering text tone/style</li> <li>Outline/summary of text</li> </ul>	<ul style="list-style-type: none"> <li>Language translation</li> </ul>	<ul style="list-style-type: none"> <li>Headlines optimized for traffic</li> </ul>	<ul style="list-style-type: none"> <li>Feedback from social media / article comments</li> </ul>

# Generative AI is also expanding into the workplace, especially among younger and higher-income employees; 16% use generative AI in their workplace today, with 21% expecting to use it in the next 12 months

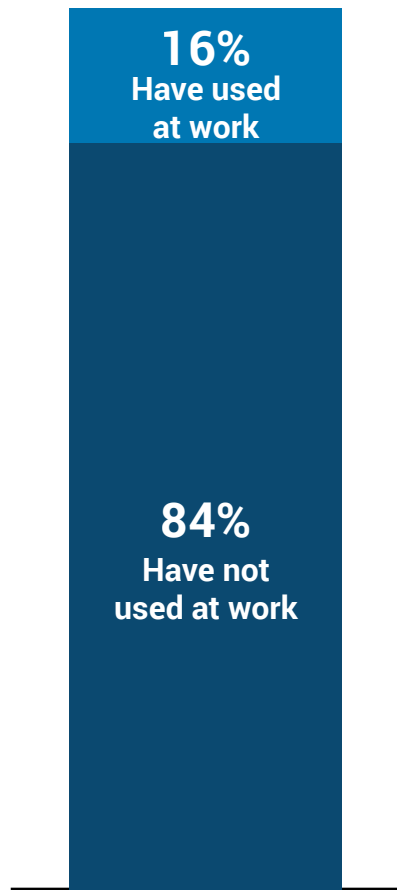
**AWARENESS<sup>1</sup> VS. USAGE VS. EXPECTED USAGE<sup>2</sup> OF GENERATIVE AI IN THE WORKPLACE, U.S., 2023, % EMPLOYED ADULTS<sup>3</sup>**



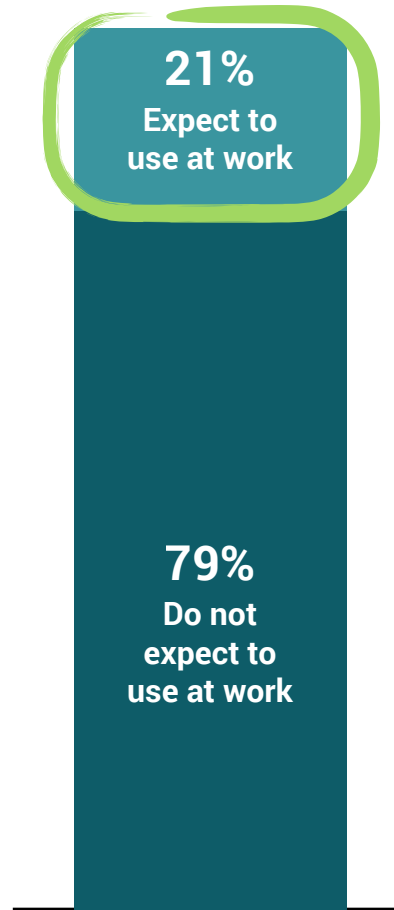
**AWARENESS OF GENERATIVE AI<sup>1</sup>**



**USAGE OF GENERATIVE AI IN THE WORKPLACE IN THE LAST 12 MONTHS**



**EXPECTED USAGE<sup>2</sup> OF GENERATIVE AI IN THE WORKPLACE IN THE NEXT 12 MONTHS**



Employed adults<sup>3</sup> aged **18-44** are

**2.5x**

as likely to have used generative AI at work than those aged 45+

Employed adults<sup>3</sup> with **annual household income of \$100K+** are

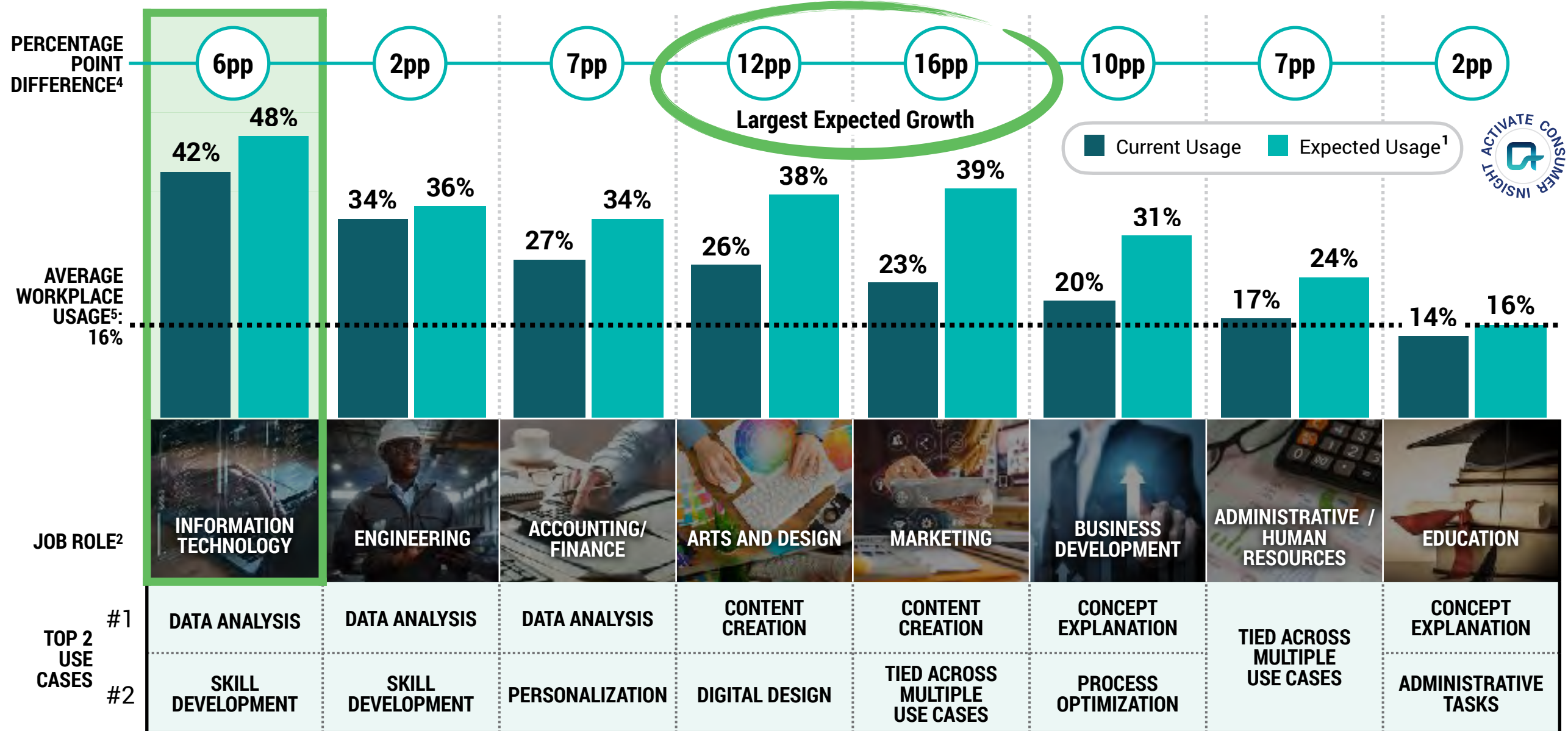
**2.4x**

as likely to have used generative AI at work than those with annual household income <\$100K

Note: Images created using Midjourney. 1. "Aware of generative AI" is defined as knowing what generative AI tools are. 2. "Expected usage" is defined as those expecting generative AI to be a part of their job in the next 12 months. 3. "Employed adults" are defined as adults aged 18+ that are employed full-time, employed part-time, self-employed, or in the military. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Midjourney

# Knowledge-based and creative functions, such as information technology and marketing, are seeing the greatest generative AI use along with high expected future growth

CURRENT USAGE VS. EXPECTED USAGE<sup>1</sup> OF GENERATIVE AI IN THE WORKPLACE BY SELECT JOB ROLE<sup>2</sup>, U.S., 2023, % EMPLOYED ADULTS<sup>3</sup> BY JOB ROLE<sup>2</sup>



1. "Expected usage" is defined as those expecting generative AI to be a part of their job in the next 12 months. 2. Included job roles based on those with highest self-reported generative AI usage. 3. "Employed adults" are defined as adults aged 18+ that are employed full-time, employed part-time, self-employed, or in the military. 4. Figures do not sum due to rounding. 5. Represents average workplace usage of generative AI across all job roles.

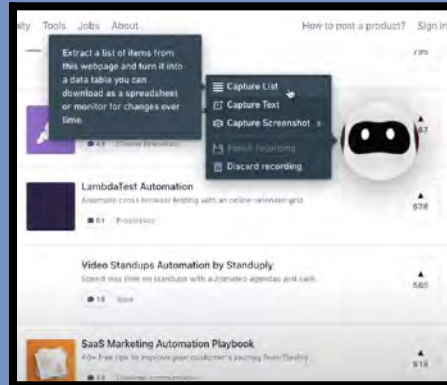
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)



# Generative AI work use cases: Data, Process, and Coding

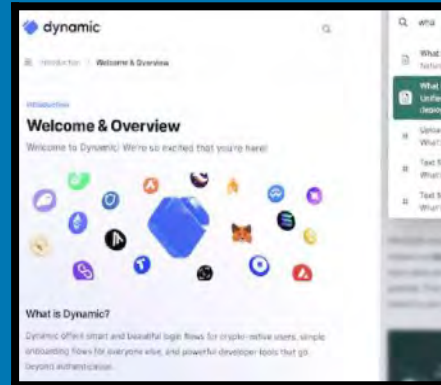
## EXAMPLE AI WORK USE CASES AND EXAMPLE COMPANIES AND TOOLS

### DATA COLLECTION



Extracts specific visual and text data from websites, converting it into spreadsheet form for the user

### PROCESS OPTIMIZATION



Creates simple, user-friendly, automated software documentation across a number of programming languages

### CODING



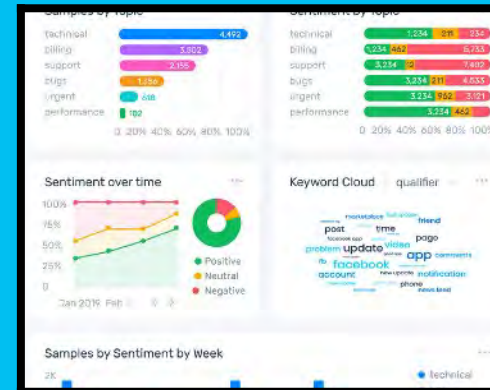
Generates code for programmers to build, test, and deploy directly from their browser



Creates data visualizations, builds dashboards, and presents data for agencies, marketers, eCommerce companies, and more

### DATA MANAGEMENT

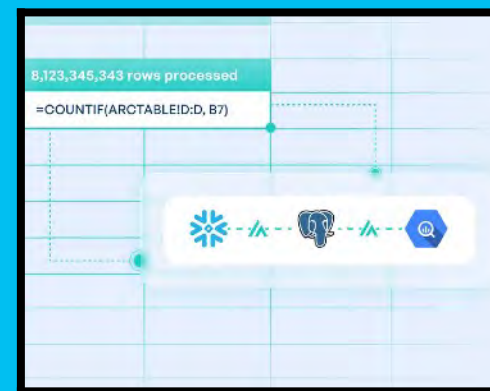
### DATA ANALYTICS



Allows non-developers to collect, parse, act on, and share raw data within their workplace with a no-code tool



Monitors and analyzes brand conversations synthesizing data across social, broadcast, digital, and traditional media channels




Aids in the cleaning, building, and analyzing of datasets by plugging into Google Sheets and other tools



# Generative AI work use cases: Support/Training and Moderation/ Fraud Detection

## EXAMPLE AI WORK USE CASES AND EXAMPLE COMPANIES AND TOOLS

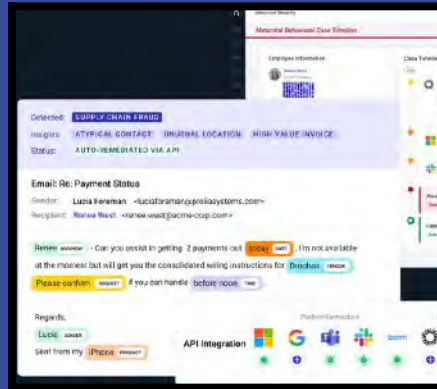
### ADMINISTRATIVE TASKS



**xembly**

Supports scheduling, collaboration, and productivity needs for enterprise teams through AI "Chief of Staff" conversational assistant


### MODERATION / FRAUD DETECTION



**Abnormal**

Prevents, detects, responds to, and predicts email and email-like fraud attacks through behavioral AI engine

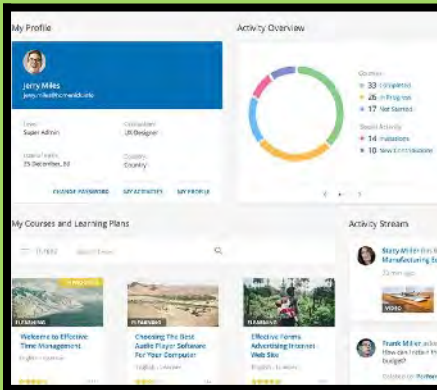
### CUSTOMER SUPPORT



**PolyAI**

Provides customer-facing voice assistants and generates relevant insights and potential operational improvements to internal customer support teams

SKILL DEVELOPMENT



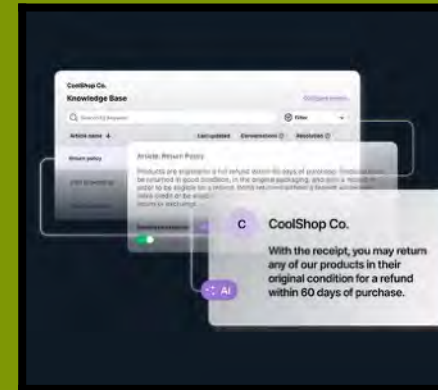
**docebo®**

Creates company-specific learning plans to upskill employees in software, financial services, and other industries



**spectrum labs**

Detects and mitigates fraud by monitoring the marketplace, detecting the start of fraud, and generating rules to stop it through "Project RADAR"



**ada**


Offers customer support chatbots while powering customer support teams through assisted content generation, training suggestions, and generative replies



**Sana™**

Accelerates employee acquisition of internal data and knowledge with chatbots trained on company data

### CONCEPT EXPLANATION



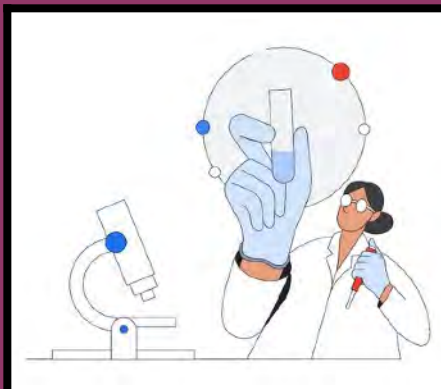
**ChatGPT**


Provides explanations on complex topics and serves as a virtual tutor with generalist chatbot

# Generative AI work use cases: Creation and Design

## EXAMPLE AI WORK USE CASES AND EXAMPLE COMPANIES AND TOOLS

### PRODUCT INNOVATION

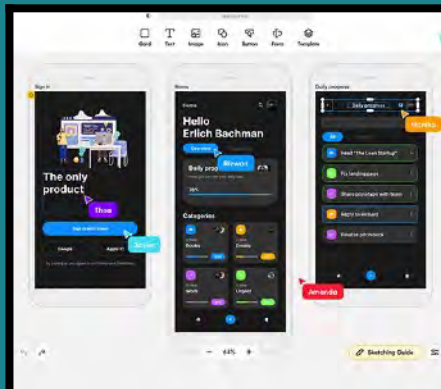



  
**Google Cloud**  
 Helps companies predict and understand protein structure with Target and Lead Identification Suite



**VIZCOM**  
 Translates 2D sketches into 3D photorealistic renders for prototypers or product designers

### DIGITAL DESIGN



 **uizard**  
 Generates wireframes, mock-ups, and prototypes for UI designers




 **tome**  
 Creates presentations with premade templates and themes with a collaborative AI assistant using OpenAI's GPT-4 and DALL-E 2

### PERSONALIZATION



 **salesforce**  
 Creates personalized content emails and other content using Salesforce CRM data through Einstein GPT tool




 **Smartwriter.ai**  
 Automates entire outreach process for email marketers with personalized messaging, icebreakers, and contextual pitches

CONTENT CREATION

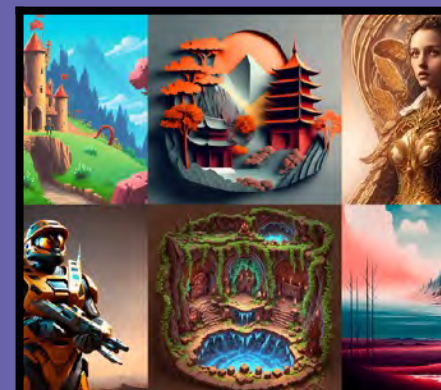



A photo of a cute cat with lots of Holi colors sprayed on its face during Holi, colorful smoke in the background

 **WPP**  
 Allows advertisers to produce high-quality commercial creative including images, videos, and 3D renders through partnership with NVIDIA



 **Jasper**  
 Generates and tests copywriting for written advertisements using proprietary large language models



 **Leonardo.Ai**  
 Generates game assets such as characters, environments, and items for video game designers in addition to other forms of 3D art



# The AI ecosystem has exploded in the past year; many of the current companies will not last as the space continues to grow more competitive

## ACTIVATE GENERATIVE ARTIFICIAL INTELLIGENCE ECOSYSTEM

### INTERFACES & SOFTWARE TOOLS

<b>GENERALIST CHATBOTS<sup>1</sup></b> ChatGPT Google Bard AI Bing Chat character.ai Snapchat My AI Meta AI Perplexity HuggingChat Claude by ANTHROPIC YOU	<b>IMAGE</b> Text-to-Image Midjourney Stable Diffusion craiyon KREA artbreeder Lexica Playground Image Editing imagen Picsart Autoenhance.ai modifi Misc. Image Aragon PhotoRoom STOCKING.AI	<b>VIDEO</b> Text-to-Video synthesisia PICTORY GEN-2 DEEPBRAIN AI lumen5 D-ID Video Editing descript FlexClip CapCut Filmora invideo Misc. Video WOMBO tavus Colossyan HeyGen VEED.IO captions OPUS vidyo.ai Dübverse	<b>CODING/SOFTWARE DEVELOPMENT</b> Coding Copilots tabnine GitHub Copilot replit MACHINET Web/App Builders broadn Builder.ai Lightricks durable Enzyme Debuild Automated Documentation Mintlify Stenography	<b>MUSIC</b> Text-to-Music soundful Mubert AIVA boomy beatoven.ai Misc. Music SONIFY Loudly Endel toney	<b>WRITING</b> Writing Assistants/ Augmentation grammarly LAIKA ProWritingAid Rytr QuillBot Translation DeepL intento lokalise
<b>GAMING</b> 3D World/Asset Development Irreverent Labs Leonardo AI CSM depix Kinetix ROSEBUD.AI Character/Avatar Development inworld pinscreen alethea.ai charisma Gaming Experiences hidden door LATITUDE	<b>SPEECH</b> Text-to-Speech RESEMBLE.AI MURF.AI WELLSAID Listnr VOICEMOD LOVO Speech/Audio Transcription AssemblyAI Olli fireflies.ai RevComm Deepgram Speak	<b>SALES &amp; MARKETING</b> UI/UX Design uizard Diagram Smartwriter.ai REACH.ai Figma Galileo AI writecream LAVENDER SEO SURFER SEO.AI RankTracker frase Copywriting Jasper copy.ai WRITER Email/SMS Automation Email/SMS Automation writecream LAVENDER Sales GONG regie.ai HIGHSPOT Graphic Design tome Omneky Adobe Firefly Typeface	<b>ADMINISTRATIVE/HR</b> Collaboration reclaimai GitMind Gatalog onloop Executive Assistants cogram xembly taskode mayday Document Processing/Summary Nanonets Rewind ai intern Recruiting eightfold.ai pymetrics harver	<b>OTHER B2B/ENTERPRISE INTERFACES</b> Healthcare INFINITUS AlphaFold Paige Butterfly ARTERYS Legal Harvey casetext PatentPol Cybersecurity cybereason VECTRA Abnormal Other B2B headspace Sana Moveworks Proptech TESTFIT SWAPP AUTODESK Forma Customer Support PolyAI kommunicate Ultimate ada SupportLogic Industrial SIEMENS ABB	

### DATA (TOOLS & SOFTWARE)

<b>DATA</b> Data Labeling Snorkel surge AI COACTIVE Labelbox Data Management snowflake databricks DataRobot DATASTAX H2O.ai CLOUDERA	Synthetic Data gretel hazy Synthesis AI AI Cybersecurity HIDDENLAYER KNIGHTS SECURITY Protect AI
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### MODELS & MODEL DEVELOPMENT

<b>SOFTWARE INFRASTRUCTURE &amp; MODELS</b> Models <sup>2</sup> OpenAI Google LLaMA Falcon LLM runway stability.ai	Microsoft ANTHROPIC Midjourney cohere Inflection AI21labs Training/Development/Deployment Weights & Biases mosaicML ADEPT scale Hugging Face LangChain Weaviate LogicMonitor
--	---

### COMPUTE & PHYSICAL INFRASTRUCTURE

<b>HARDWARE</b> Chip Designers & Manufacturers NVIDIA tsmc intel cerebras GRAPHCORE GROQ SambaNova MYTHIC CONJECTURE BROADCOM Cloud Service Providers (CSP) DigitalOcean aws Azure Google Cloud ORACLE CLOUD IBM Cloud HPE GreenLake OVHcloud
---

1. Includes chatbots primarily known in a multipurpose way (e.g. for search, companionship). 2. Includes models and companies/divisions developing models. Sources: Activate analysis

\* Includes specific open source models and companies that have developed and released at least one open source model

# Major technology companies are building capabilities across the AI tech stack but are not currently fully leveraging their consumer data

\* = Announced, not yet released

		Alphabet	amazon	Apple	Meta	Microsoft	nVIDIA	OpenAI
<b>GENERATIVE AI INFRASTRUCTURE AND HARDWARE</b>	CLOUD SERVICE PROVIDER	Google Cloud Platform	amazon web services	N/A <sup>1</sup>		Azure <sup>2</sup>	nVIDIA DGX CLOUD	
	AI CHIP <sup>3</sup>	Google TPU Chip <sup>4</sup> (e.g. TPU v5)	aws inferentia aws trainium	N/A <sup>5</sup>		Microsoft Athena *	nVIDIA H100 Tensor Core GPU	
<b>CORE SOFTWARE &amp; GENERATIVE AI MODELS</b>	ML FRAMEWORK/PLATFORM <sup>6</sup>	Keras TensorFlow vertex.ai	amazon bedrock Amazon Lex AWS DeepComposer Amazon SageMaker		PyTorch	Microsoft Cognitive Toolkit ML.NET	nVIDIA DIGITS nVIDIA PICASSO nVIDIA NeMO	
	MULTIMODAL MODEL	GEMINI *	alexia LLM * Leveraging models from: ANTHROPIC	Apple GPT <sup>7</sup>	CM3leon	Leveraging models from: OpenAI	nVIDIA EDIFY	GPT-4
	TEXT-TO-TEXT MODEL	PaLM 2 Google BERT Google LaMDA	TITAN TEXT TITAN EMBEDDINGS		LLaMA 2		nVIDIA MT-NLG	
	TEXT-TO-IMAGE MODEL	Google Imagen			Emu Make-A-Scene	Leveraging models from: OpenAI	nVIDIA StyleGAN3 nVIDIA EG3D	DALL-E 3
	TEXT-TO-AUDIO MODEL	Google MusicLM			AudioGen MusicGen EnCodec Voicebox	Microsoft VALL-E		Jukebox
	TEXT-TO-VIDEO MODEL	Google Imagen Video			Make-A-Video	Microsoft GODIVA		
<b>GENERATIVE AI PRODUCT OFFERINGS</b>	APP STORE	Generative AI apps available in Play Store		Generative AI apps available in App Store		The Microsoft Store introduced its AI hub in the app's left sidebar		Reportedly planning to offer a generative AI app store
	CONSUMER OFFERINGS	Google Bard AI	alexia *		Meta AI	Bing Chat		ChatGPT ChatGPT Plus <sup>9</sup>
	ENTERPRISE OFFERINGS	Duet AI				Bing Chat Enterprise		ChatGPT Enterprise
<b>DATA INPUTS</b>	DATA USED TO TRAIN GENERATIVE AI MODELS	Common Crawl, Wiki, code, public forum dialog	Multilingual speech data, opted in Alexa user-device conversations <sup>10</sup>	Reportedly Common Crawl, web articles, and books	Publicly-shared Facebook and Instagram posts, Common Crawl, books, Wiki	Not reported	Common Crawl, WebText2 <sup>11</sup> , books, Wiki	ChatGPT user interactions, Common Crawl, WebText2 <sup>11</sup> , books, and Wiki
	EXAMPLE AVAILABLE DATA (BUT NOT CURRENTLY USED TO TRAIN GENERATIVE AI MODELS)	<ul style="list-style-type: none"> <li>YouTube videos</li> <li>Search and browsing behavior</li> <li>Maps and geolocation</li> <li>App photos and messages</li> <li>Online transactions</li> </ul>	<ul style="list-style-type: none"> <li>eCommerce transactions</li> <li>Prime Video and Fire TV viewing</li> </ul>	<ul style="list-style-type: none"> <li>Device messages and photos</li> <li>Search</li> <li>App activity</li> <li>Siri device audio</li> </ul>	<ul style="list-style-type: none"> <li>App transactions</li> <li>Geolocation</li> <li>Facial recognition</li> <li>Private Facebook and Instagram posts and messages</li> </ul>	<ul style="list-style-type: none"> <li>Search</li> <li>Geolocation</li> <li>Apps activity</li> </ul>	<ul style="list-style-type: none"> <li>Geolocation</li> <li>Network activity</li> </ul>	

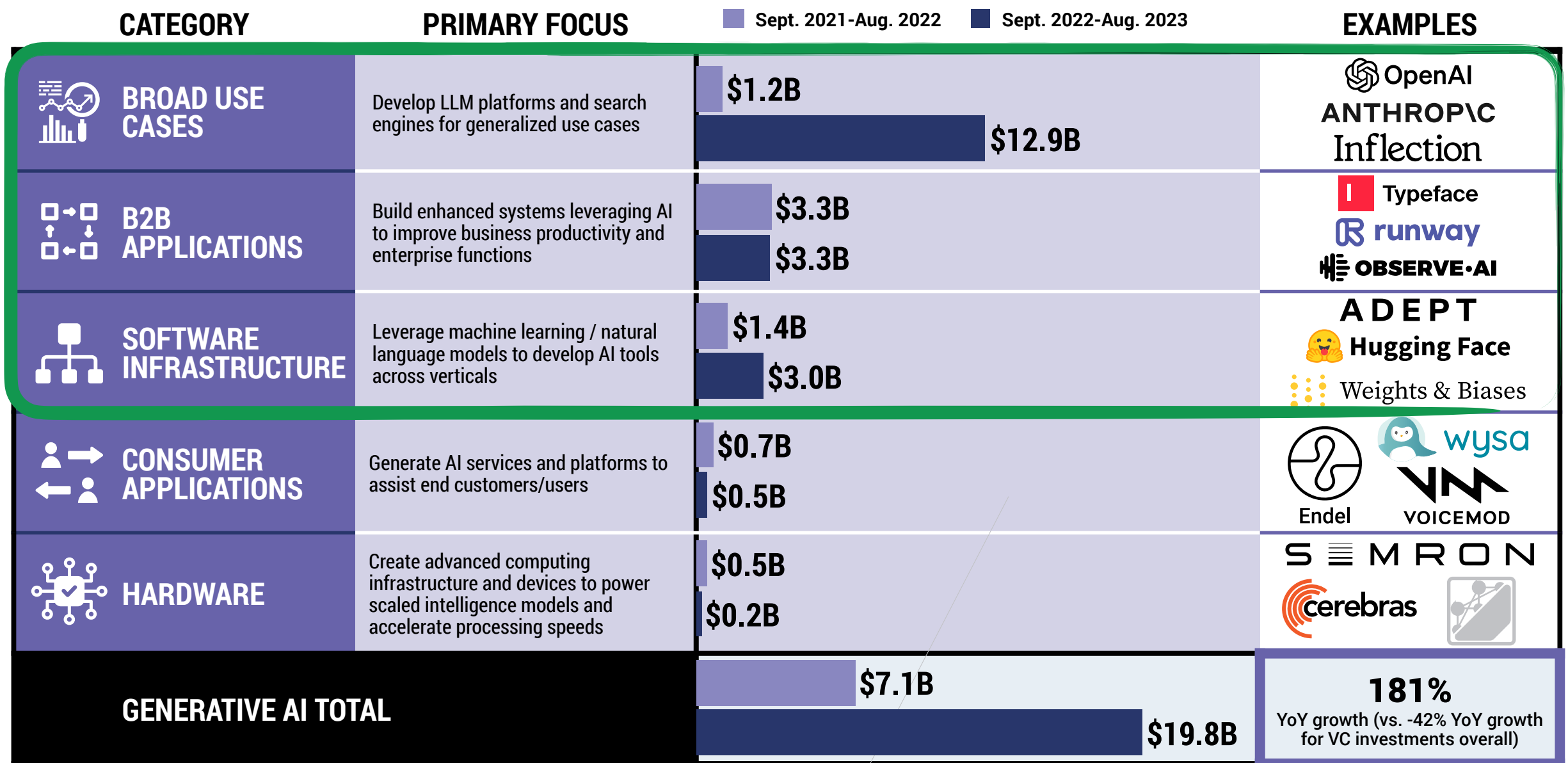
- = Open Source
- = Closed Source, Available Through API
- = Closed Source, Not Available Through API
- = Not Yet Disclosed

Note: Not exhaustive. As of Oct. 10, 2023. 1. Apple's system runs on Google Cloud, which Apple uses to power cloud services alongside its own infrastructure and AWS. 2. As part of its partnership with OpenAI, Microsoft is OpenAI's exclusive cloud provider. The increased workloads on Azure represent a significant revenue opportunity. 3. A custom-designed chip to specifically address AI problems. 4. "Tensor Processing Units (TPUs)" are Google's custom-developed application-specific chips used to accelerate machine learning workloads. 5. Apple develops its own "systems-on-chips" for its devices (e.g. M2, A17), but no AI-dedicated chips. 6. An interface that allows developers to build and deploy machine learning models more quickly and easily. 7. It is reported that Apple is testing a new chatbot; different entities refer to it as Apple GPT. 8. Amazon announced generative AI features for its Alexa products powered by a new multimodal Alexa LLM in September 2023 that have not yet been released. 9. Benefits include access to ChatGPT during peak times, faster response times, and priority access to new improvements. 10. Only refers to Alexa LLM. Users can opt in to having their voice data and conversations used for training the Alexa LLM. Not revealed for Titan models. 11. WebText2 is a dataset created using links from Reddit posts that have at least three upvotes. Sources: Activate analysis, Business Insider, Company sites, Financial Times, Reuters, The Verge



# As of August 2023, generative AI-related ventures saw nearly 200% growth YoY, with broad use case platforms, software infrastructure, and B2B applications making up over 95% of investments

INVESTMENTS IN GENERATIVE AI BY CATEGORY, GLOBAL, SEPT. 2021-AUG. 2023, BILLIONS USD



# Companies will not need to build AI in-house to leverage the benefits; major AI companies are building plug-ins and integrations to bring AI to a broader ecosystem

## PATH FOR COMPANIES CONSIDERING AI INTEGRATIONS WITH EXISTING APPLICATIONS AND SERVICES

<b>CONSIDERATION 1: SOFTWARE LICENSING/DATA AGREEMENTS</b>	<b>CONSIDERATION 2: PLUG-INS/INTEGRATIONS</b>	<b>CONSIDERATION 3: SUBSCRIPTIONS</b>
<p>The approach on both data and underlying models are core to any AI partnership:</p> <ul style="list-style-type: none"> <li>• Models offered by AI companies can be either closed source (e.g. GPT-4) or open source (e.g. LLaMA)</li> <li>• Data from licensee can be used to customize/ supplement AI models</li> <li>• Data from end users can continually fine-tune training</li> <li>• Data control policies are critical to ensure sensitive data (e.g. PII) is protected and used appropriately</li> </ul>	<p>There are two primary paths to integrate AI into existing products:</p> <ul style="list-style-type: none"> <li>• Integrate AI functionalities into a third-party source (e.g. “Ask Instacart” feature within app)</li> <li>• Embed product into existing AI interface such as ChatGPT as a plug-in<sup>1</sup> (e.g. Expedia plug-in expanding ChatGPT trip planning capabilities)</li> </ul>	<p>The pricing structure for AI follows an “aaS” subscription model; companies can integrate AI into subscriptions in two ways:</p> <ul style="list-style-type: none"> <li>• Restrict select AI tool features (e.g. priority access to new integrations, faster response times) to higher tiers (e.g. ChatGPT Plus)</li> <li>• Embed AI as a feature/functionality within existing platforms (e.g. Microsoft Designer application)</li> </ul>

<p><b>THIS PATHWAY IS DRIVING INCREASED EXPERIMENTATION/ INVESTMENT IN GENERATIVE AI AMONG MEDIA COMPANIES</b></p>	<p><b>tubi</b></p> <p>Tubi announced in September 2023 that it was partnering with Rabbit AI to offer a chatbot-based search function to allow users to go beyond simple search keywords to discover video content on its platform</p>	<p><b>YouTube</b></p> <p>Google announced an initiative in May 2023 to leverage generative AI (specifically their PaLM LLM) to automate advertising services and suggest videos for YouTube creators to develop</p>	<p><b>NBCU</b></p> <p>Comcast NBCUniversal launched the LIFT Labs: Generative AI Accelerator in May 2023 to partner with / develop startups working across the generative AI ecosystem</p>
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# Despite the promise, there are barriers to realizing the full market potential of generative AI



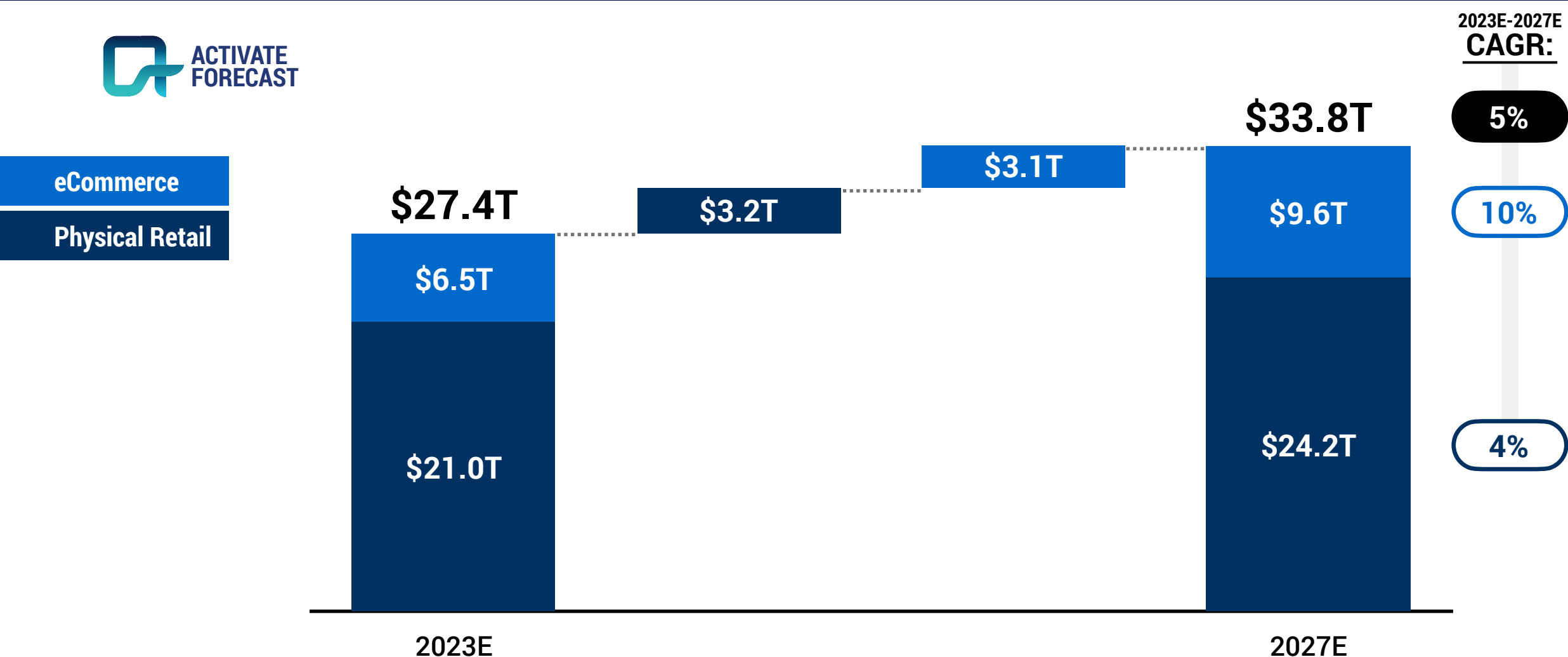
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# Global eCommerce will reach nearly \$10T by 2027, growing more than twice as fast as physical retail

RETAIL SALES<sup>1</sup> BY CHANNEL<sup>2</sup>, GLOBAL, 2023E VS. 2027E, TRILLIONS USD



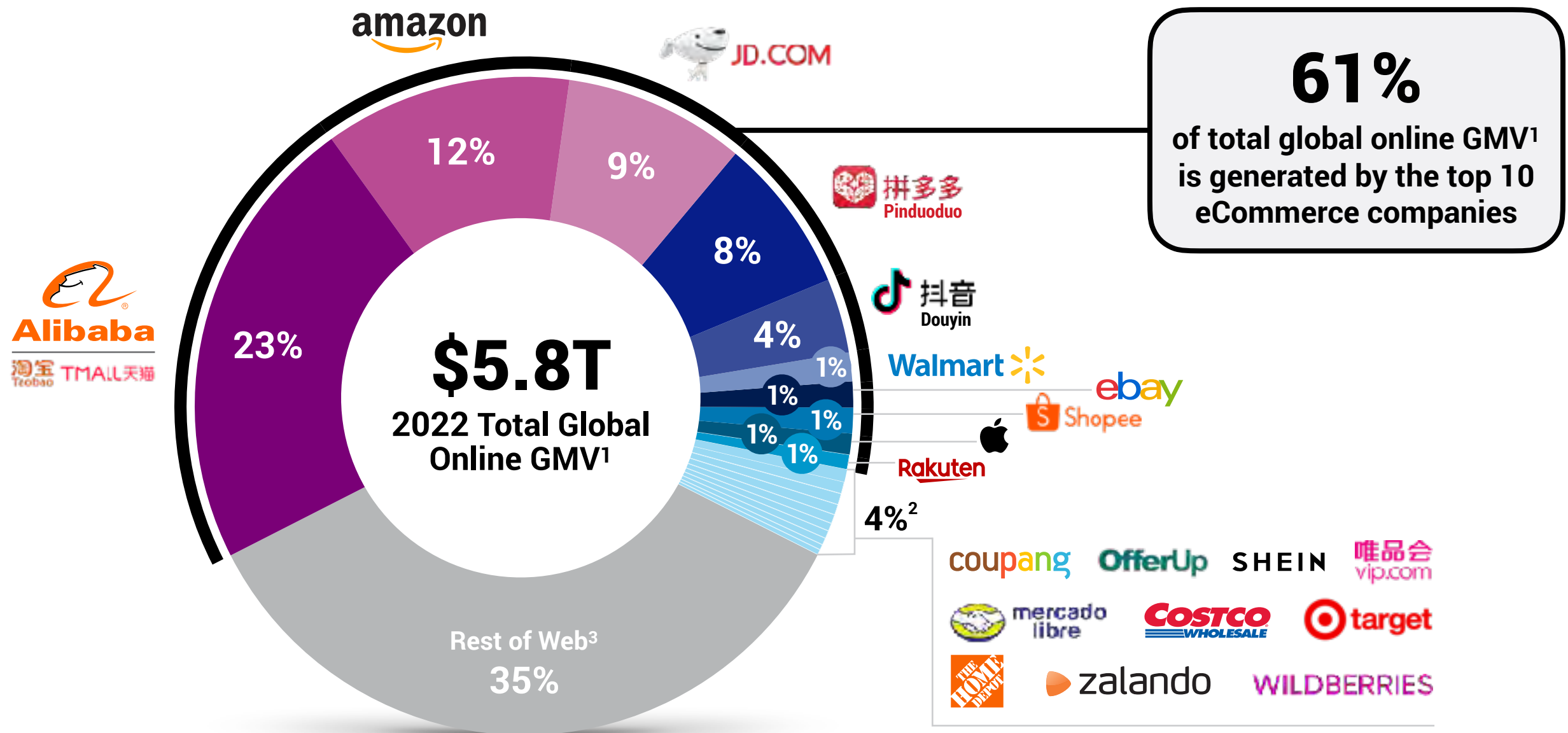
eCommerce Share of Total Retail Sales<sup>1</sup>

24%

28%

# Global eCommerce merchandise volume is heavily concentrated among a small group of players

SHARE OF ONLINE GROSS MERCHANDISE VOLUME (GMV)<sup>1</sup> BY COMPANY, GLOBAL, 2022, % TOTAL ONLINE GMV<sup>1</sup>



1. Excludes travel and event tickets, food and drink services, and vice goods and activities. 2. Each company accounts for less than 1% of the total online GMV. 3. Includes all of online GMV not covered by the top 20 eCommerce companies. Sources: Activate analysis, Company filings, Company press releases, Company sites, Digital Commerce 360, eMarketer, The Information, Statista, U.S. Internal Revenue Service

# eCommerce is a marketplace business; third-party sellers generate over 80% of online sales for the top 10 eCommerce players

SHARE OF ONLINE GMV<sup>1</sup> OF TOP 10 ECOMMERCE COMPANIES BY SALES TYPE, GLOBAL, 2022, % TOTAL ONLINE GMV<sup>1</sup> OF TOP 10 ECOMMERCE COMPANIES



SHARE OF ONLINE GMV<sup>1</sup> BY SALES TYPE FOR TOP 10 ECOMMERCE COMPANIES, GLOBAL, 2022, % TOTAL ONLINE GMV<sup>1</sup> BY COMPANY

BUSINESS MODEL	ECOMMERCE COMPANY	MARKETPLACE LAUNCH YEAR	2022 GLOBAL ONLINE GMV <sup>1</sup>	
			MARKETPLACE VS.	DIRECT RETAIL
MARKETPLACE ONLY	Alibaba	2003	100%	
	拼多多 Pinduoduo	2015	100%	
	抖音 Douyin	2018	100%	
	ebay	1995	100%	
	Shopee	2015	100%	
	Rakuten	1997	100%	
HYBRID	amazon	1999	63%	37%
	JD.COM	2010	48%	52%
	Walmart	2009	11%	89%
DIRECT RETAIL ONLY	Apple	N/A		100%

9 of the top 10 global eCommerce players operate a marketplace

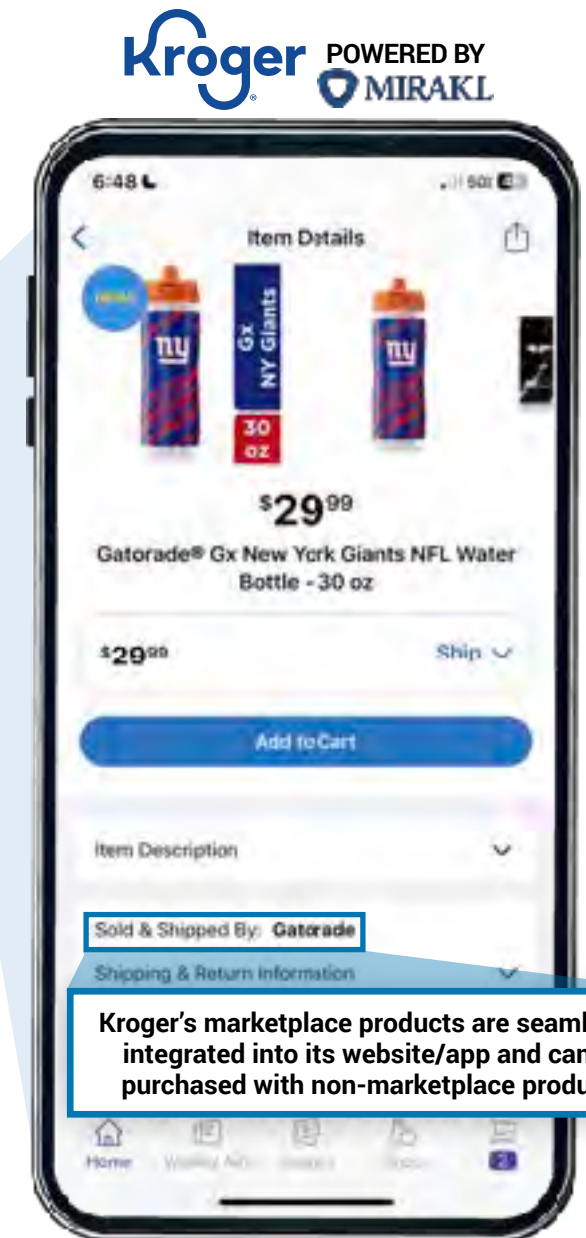
# In the U.S., a growing number of major eCommerce companies beyond Amazon and Walmart are launching their own marketplaces to enhance their customer value proposition and retail media potential

## STRATEGIC DRIVERS FOR LAUNCHING A MARKETPLACE

-  **Enable or accelerate the retail media opportunity**
-  **Create new revenue streams through marketplace seller fees**
-  **Increase product assortment in existing categories to drive customer engagement and spend**
-  **Expand into adjacent categories to build a more holistic offering and acquire new customers**
-  **Test customer demand for new products with limited inventory risk and minimal costs**
-  **Localize supply chains for international retailers to improve delivery speed**

## EXAMPLE MARKETPLACE LAUNCHES BY MAJOR ECOMMERCE COMPANIES IN THE U.S. OVER THE LAST 5 YEARS<sup>1</sup>

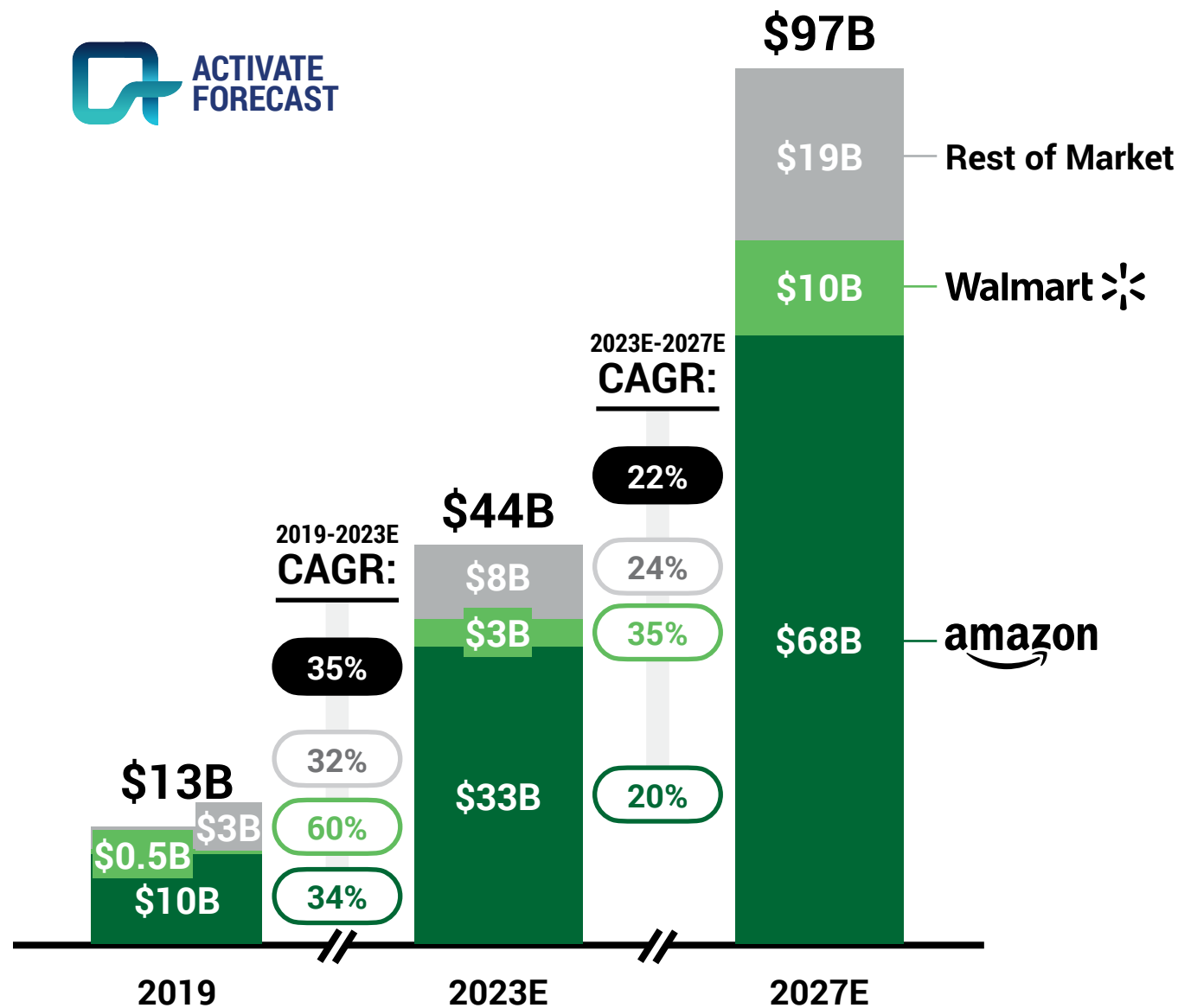
ECOMMERCE COMPANY	MARKETPLACE LAUNCH YEAR
	2019
	2020
	2021
	2022
	2023
<b>SHEIN</b>	2023





# U.S. retail media revenue is expected to more than double over the next four years, reaching nearly \$100B by 2027; we expect most major retail companies will have their own retail media network

RETAIL MEDIA NETWORK ADVERTISING REVENUE<sup>1</sup> BY COMPANY<sup>2</sup>, U.S., 2019 VS. 2023E VS. 2027E, BILLIONS USD

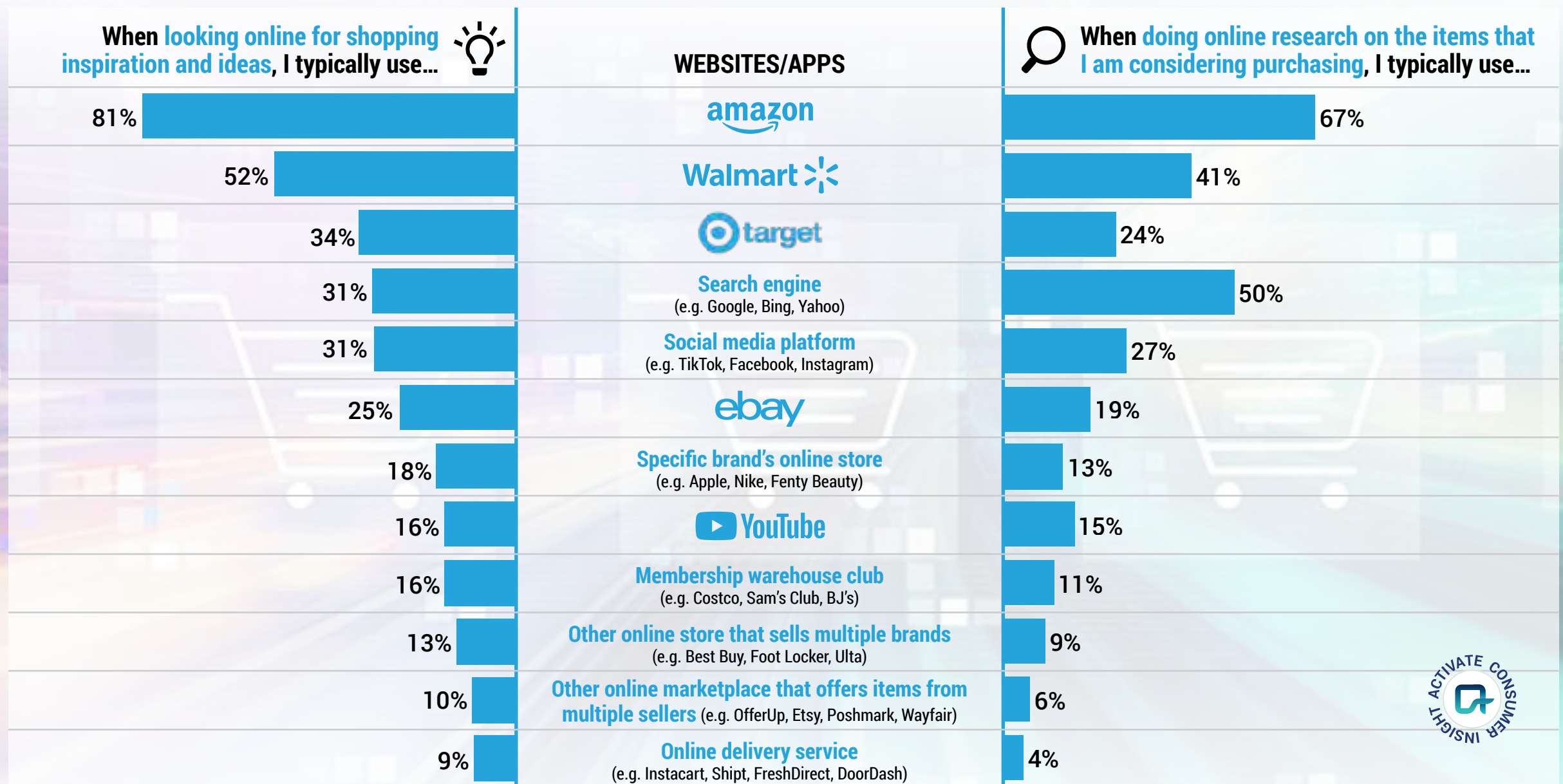


EXAMPLE MAJOR RETAIL COMPANIES THAT HAVE LAUNCHED A RETAIL MEDIA NETWORK

1. Includes digital advertising that appears on a retailer's on-premise signage, either in-store or in the immediately adjacent exterior (e.g. parking lot), appears on websites or apps that are primarily engaged in eCommerce, or is bought through a retailer's media network or demand-side platform. 2. Figures do not sum due to rounding. Sources: Activate analysis, Company filings, Company press releases, Company sites, eMarketer, Forrester, GroupM

# Today's consumers are multi-channel shoppers, using a range of online channels for shopping inspiration and research

WEBSITES/APPS TYPICALLY USED FOR SHOPPING INSPIRATION AND RESEARCH, U.S., 2023, % ONLINE SHOPPERS<sup>1</sup>



# TikTok is disrupting online shopping, quickly emerging as a top inspiration and research source among younger consumers

TOP WEBSITES/APPS TYPICALLY USED FOR SHOPPING INSPIRATION AND RESEARCH BY AGE GROUP, U.S., 2023, % ONLINE SHOPPERS BY AGE GROUP<sup>1</sup>



	Top 5 websites/apps typically used for shopping inspiration and ideas			Top 5 websites/apps typically used for doing research on items being considered for purchase		
	Aged 18-34	Aged 35-54	Aged 55+	Aged 18-34	Aged 35-54	Aged 55+
1	amazon 78%	amazon 83%	amazon 82%	amazon 62%	amazon 70%	amazon 69%
2	Walmart * 59%	Walmart * 56%	Walmart * 44%	Walmart * 45%	Search engine (e.g. Google, Bing, Yahoo) 54%	Search engine (e.g. Google, Bing, Yahoo) 51%
3	target 48%	target 39%	Search engine (e.g. Google, Bing, Yahoo) 30%	Search engine (e.g. Google, Bing, Yahoo) 44%	Walmart * 44%	Walmart * 34%
4	Search engine (e.g. Google, Bing, Yahoo) 28%	Search engine (e.g. Google, Bing, Yahoo) 34%	ebay 28%	target 33%	target 28%	ebay 20%
5	TikTok 24%	ebay 26%	target 20%	TikTok 22%	ebay 19%	target 14%

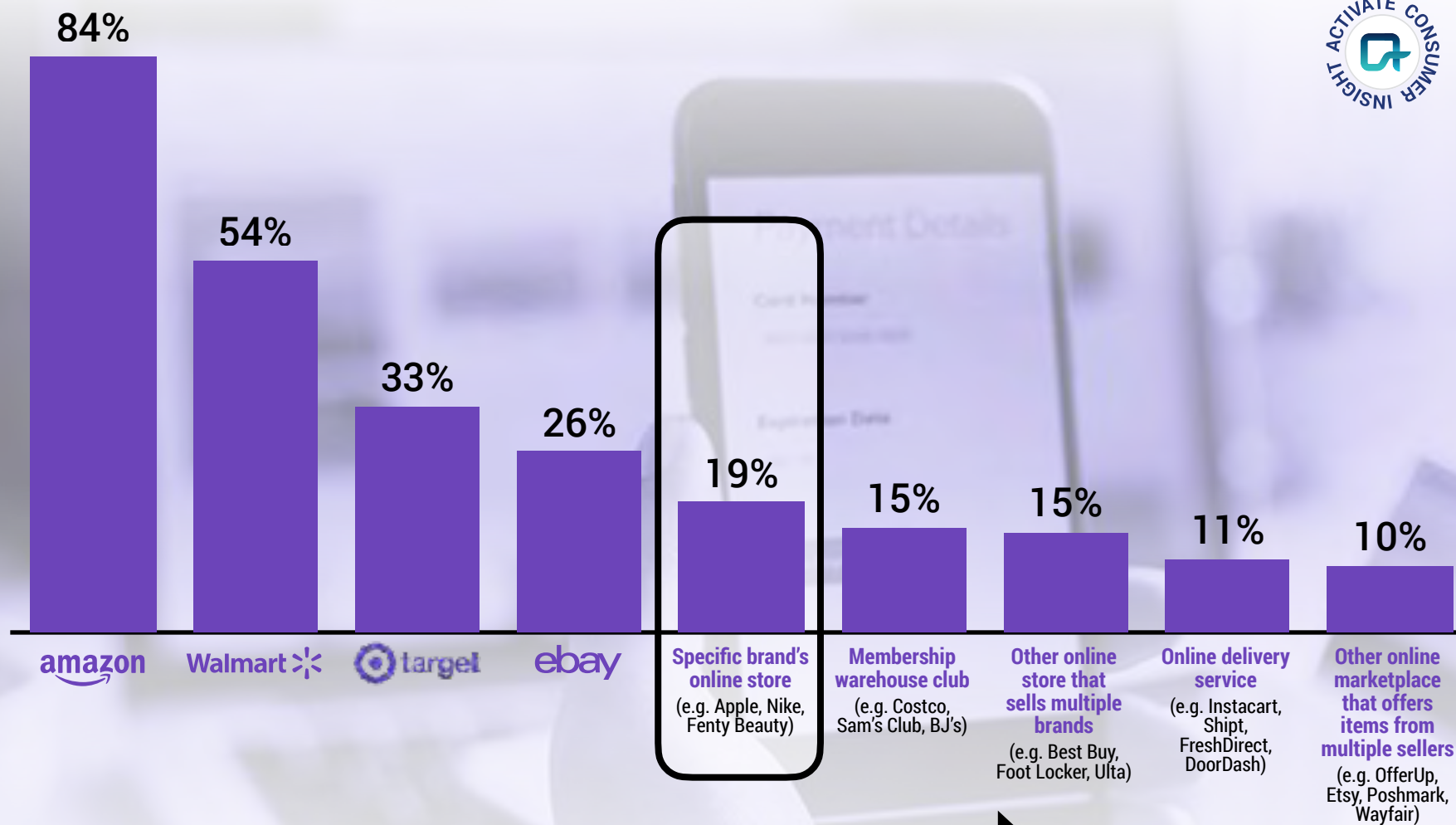
**TikTok Shop**

Capitalizing on its popularity as a source for online shopping inspiration and research, TikTok officially launched its TikTok Shop marketplace nationwide in September 2023



# To scale, brands will need to pursue a multi-channel strategy, as less than 20% of online shoppers are purchasing from D2C channels

WEBSITES/APPS PURCHASED FROM IN THE LAST 12 MONTHS, U.S., 2023, % ONLINE PURCHASERS<sup>1</sup>



## CHALLENGES OF MULTI-CHANNEL MANAGEMENT

- **BRANDING AND VALUE PROPS**  
Maintaining the same brand identity across online channels
- **DEMAND & SUPPLY PLANNING**  
Optimizing assortment and inventory allocation across online channels
- **PRICING**  
Ensuring consistent prices and promotions across online channels
- **EXPERIENCE**  
Coordinating across online channels to deliver a uniform customer experience
- **DATA ANALYTICS**  
Unifying customer data and insights across online channels

Brands cannot rely on D2C alone to scale; they will need to sell through marketplaces and other online channels

Winning brands will be those that can navigate the unique set of challenges related to multi-channel management



# eCommerce enablement solutions will continue to drive growth across online channels

## ACTIVATE ECOMMERCE ENABLEMENT FRAMEWORK

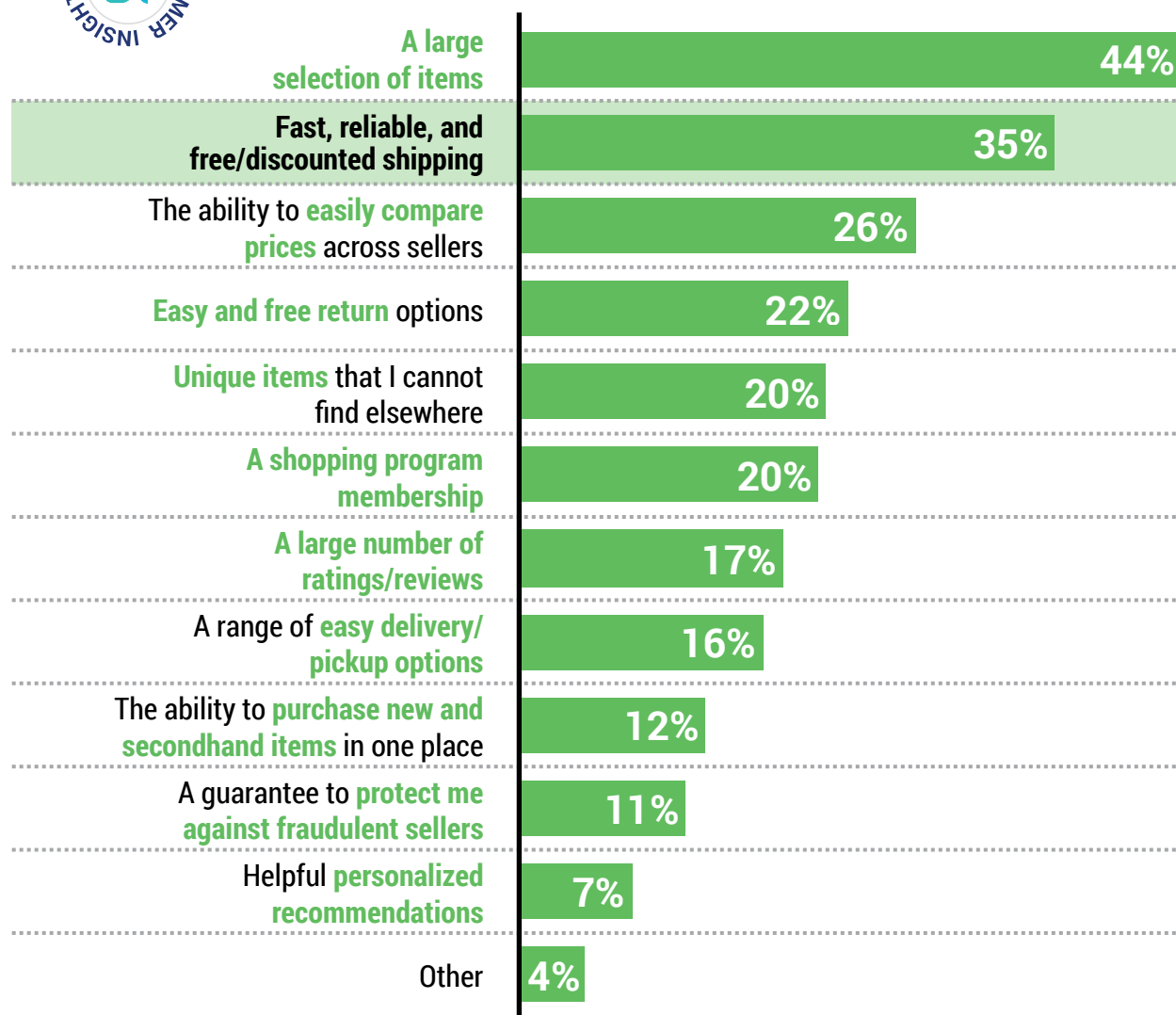
CORE ECOMMERCE PLATFORMS	CUSTOMER RELATIONSHIP MANAGEMENT	MARKETING	SEARCH ENGINE OPTIMIZATION	FRONTEND & STOREFRONT BUILDING	CONTENT MANAGEMENT	SEARCH & DISCOVERY	RETAIL MEDIA	EXPERIENCE OPTIMIZATION & PERSONALIZATION
Adobe Commerce commercetools shopify	HubSpot Microsoft Dynamics 365 salesforce	attentive braze klaviyo	BRIGHTEDGE conductor SEMRUSH	shogun tapcart Vue Storefront	contentful CONTENTSTACK storyblok	algolia Constructor searchspring	CitrusAd CRITEO PromoteIQ	bloomreach dynamic yield Insider
PRODUCT INFORMATION	PRICING	VIRTUAL STORE CREATION	LIVESTREAM SHOPPING	VIRTUAL VISUALIZATION & FIT TOOLS	SUBSCRIPTIONS	CHECKOUT & PAYMENTS	POS FINANCING	FRAUD PROTECTION
akeneo inriver SALSIFY	Feedvisor Intelligence Node omniaretail	BYONDXR EMPERIA Obsess	buywith_ comment sold talkshoplive	ares PERFECT TRUE FIT	recharge Recurly Repeat	BOLT PayPal stripe	affirm afterpay Klarna.	FORTER riskified Signifyd
DEMAND & SUPPLY PLANNING	FULLFILLMENT LOGISTICS	ORDER TRACKING EXPERIENCE	CUSTOMER REVIEWS & CONTENT	RETURNS	RE-COMMERCE	CUSTOMER SUPPORT	LOYALTY & REWARDS	DATA ANALYTICS
ORACLE RELEX Toolio	amazon Manhattan shippo	aftership malomo narvar	bazaarvoice Okendo POWER REVIEWS	Happy Returns loop optoro	ARCHIVE THREDUP TROVE	freshworks gorgias zendesk	rise.ai Talon.One yotpo.	daasity Heap Numerator

# With fast, reliable, and low-cost delivery among the top reasons why consumers purchase from online marketplaces, optimizing fulfillment will be especially critical for marketplaces and competing online channels

## TOP REASONS<sup>1</sup> FOR PURCHASING FROM ONLINE MARKETPLACES, U.S., 2023, % ONLINE MARKETPLACE PURCHASERS<sup>2</sup>



One of the top reasons<sup>1</sup> that I purchase from online marketplaces is that they offer...



## EXAMPLES OF FULFILLMENT LOGISTICS INNOVATION BY RETAIL COMPANIES IN RESPONSE TO HIGH CONSUMER EXPECTATIONS AROUND DELIVERY

<b>Supply Chain Robotics</b>	Autonomous robot systems used in warehouses and fulfillment centers for tasks such as sorting, picking, packing, and transporting to increase productivity and safety
<b>Micro-Fulfillment Centers</b>	Small-scale fulfillment centers positioned in densely populated areas (often within or attached to the retail company's stores), shortening the distance to customers to enable faster and more reliable delivery
<b>Alternative Last-Mile Delivery Methods</b>	Zero-occupant transportation modes such as drones, ground robots, and self-driving vehicles used to streamline last-mile delivery logistics for improved speed, cost-effectiveness, and sustainability
<b>Fulfillment-as-a-Service</b>	White-label fulfillment solutions, enabling the retail company to monetize its supply chain network and capture valuable data to further optimize and scale its delivery operations

EXAMPLES



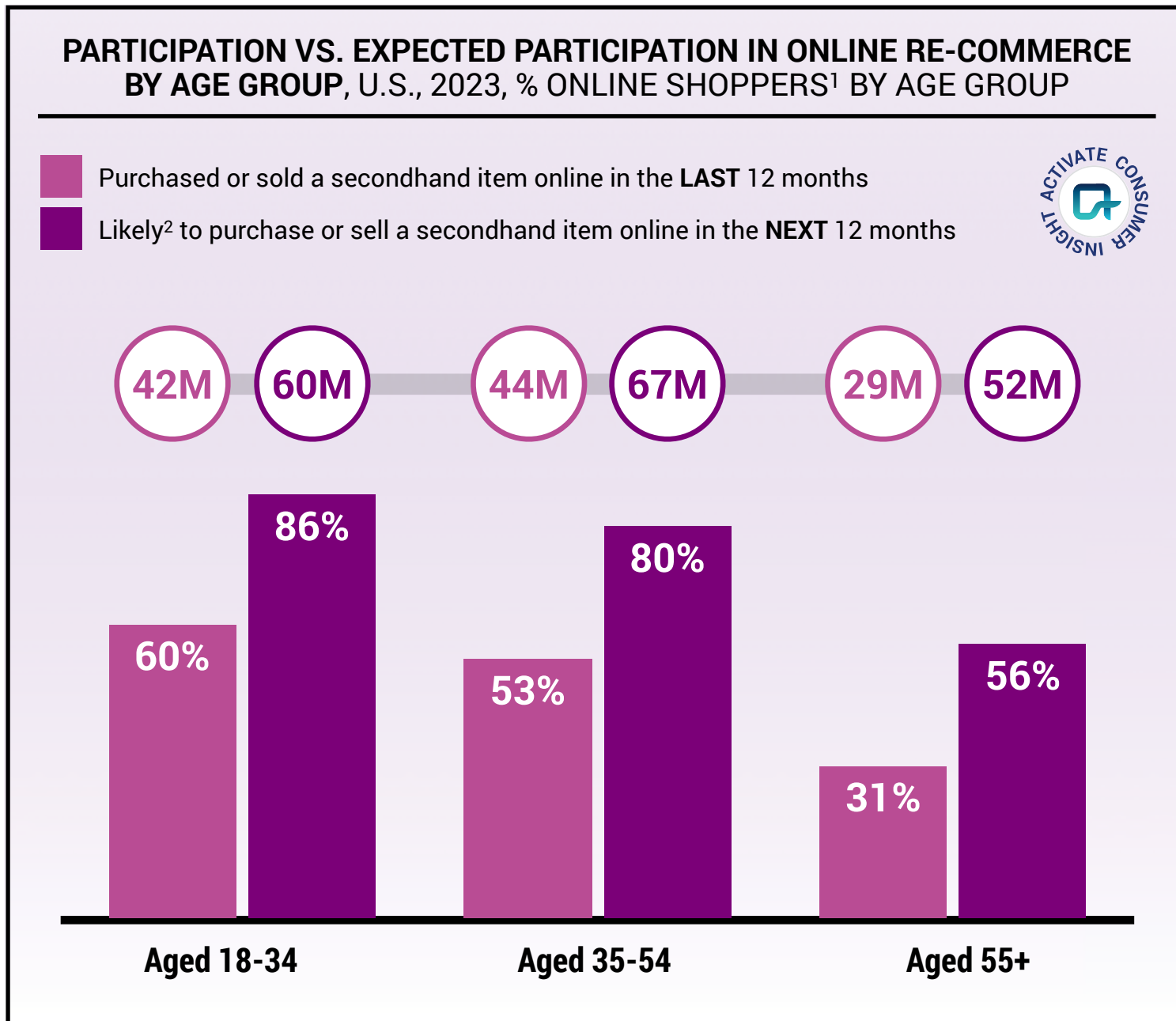
amazon supply chain robots



Walmart delivery drone

1. Consumers were asked to select up to three top reasons. 2. "Online marketplace purchasers" are defined as adults aged 18+ who purchased from an online marketplace at least once in the last 12 months. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company press releases, Company sites

# Looking ahead, online re-commerce will continue to play a key role in growing the overall eCommerce pie, with strong adoption across all age groups



**EXAMPLE ONLINE RE-COMMERCE PLATFORMS<sup>3</sup>**

1. "Online shoppers" are defined as adults aged 18+ who shopped online at least once in the last 12 months. Shopping includes browsing and making purchases. 2. "Likely" is defined as extremely, very, somewhat, or slightly likely. 3. "Online re-commerce platforms" are defined as websites/apps through which secondhand items can be purchased or sold. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company press releases, Company sites, U.S. Census Bureau

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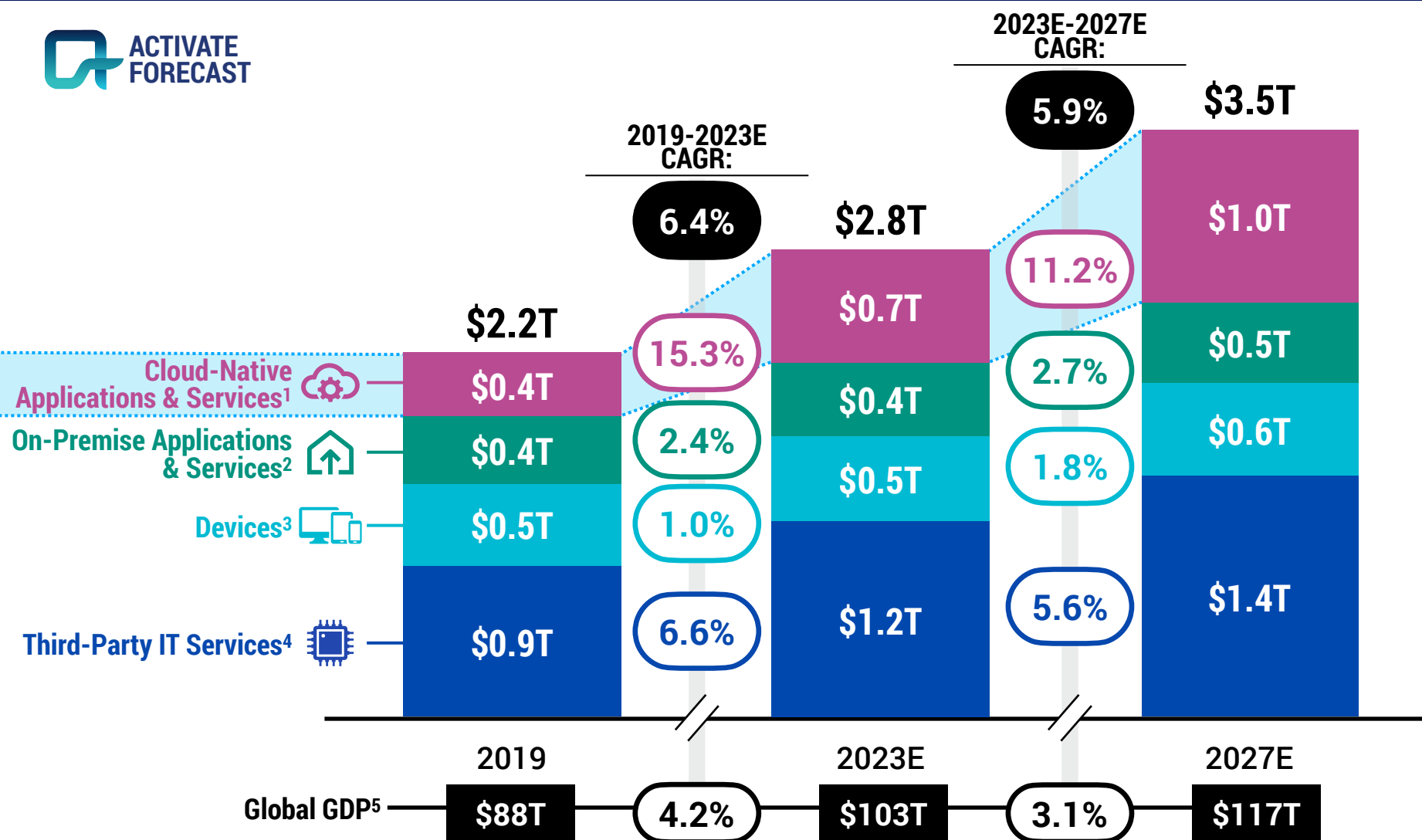
# Growth in enterprise IT and software will be driven by increasing demand to solve companies' major business problems; technology buyers' expectations are significantly changing



- In the next 4 years, we expect **global enterprise technology spend to increase by over \$0.7T**; this will be part of a new paradigm where **buyers are increasingly focused on value, utility, ROI, and AI**
- The way enterprises buy software is changing, characterized by:
  - **Full-enterprise decision making**
  - **Increased complexity for procurement teams**
  - **Shorter contract lengths**
  - **Time to value** being prioritized over cutting-edge features
- In addition, the **industry is shifting to meet the demands of new buyers**:
  - Major platforms are launching **AI-based features that will increase utility**
  - New innovators are **developing point solutions to solve unaddressed pain points** across both IT processes and functional business challenges
- This change is enabled in part by **AI-based innovations** (e.g. LLMs, GPU compute, connectivity) from **major technology companies** and a **new generation of innovators**
- These shifts will require **technology companies and their customers to tackle key business challenges**:
  - **Technology companies** will need to **adapt their overall go-to-market approach** (e.g. emphasize value and AI, update sales tactics, launch new pricing models)
  - **Enterprise software buyers** will need to ensure that they have the **organization, operating model, and data strategy** in place to **deploy AI-based solutions at scale** and ensure their **software investments realize their promised ROI**

# B2B technology spend will continue to grow and outpace total economic growth, increasing by over \$0.7T globally by 2027; cloud-native applications and services will drive the highest growth

B2B TECHNOLOGY SPEND BY CATEGORY, GLOBAL, 2019 VS. 2023E VS. 2027E, TRILLIONS USD



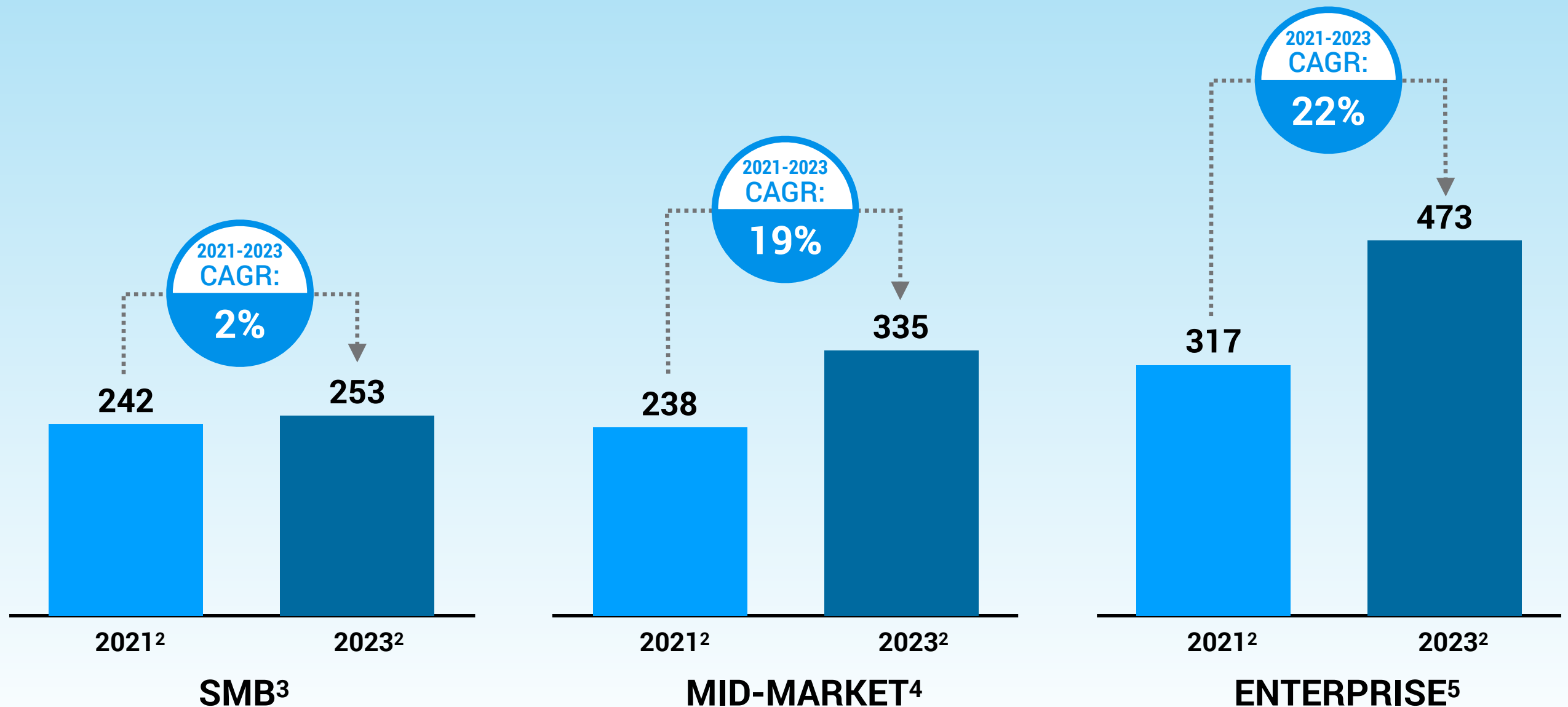
**ACTIVATE PERSPECTIVE**

- In spite of market headwinds and the macroeconomic slowdown impacting technology, **global spend will continue growing as companies look to deploy AI solutions at scale**
- Spend on **cloud-native applications and services** will still **grow at a double-digit pace**; however, growth will slow down compared to the 15.3% CAGR from 2019 to 2023E
- **Technology spend growth will outpace global GDP growth** over the next four years, driven by advancements in AI-based tools

1. "Cloud-native applications & services" is defined as spend on software, data storage, and compute hosted on a public cloud platform or remote data center. 2. "On-premise applications & services" is defined as spend on software, data storage, and compute hosted on-site, including servers and enterprise network equipment. 3. "Devices" is defined as enterprise spend on PCs, mobile phones, tablets, and printers. 4. "Third-party IT services" is defined as spend on any service offering that assists enterprises in implementing, managing, and operating systems, software, and equipment used in modern IT environments. Does not include spend on the software, storage, and devices themselves. 5. Currency neutral; represented in Aug. 2023 USD. Sources: Activate analysis, Analysys Mason, Company filings, Fortune Business, Gartner, HG Insights, IBIS World, International Data Corporation, International Monetary Fund, Precedence Research, Synergy Research Group, The World Bank

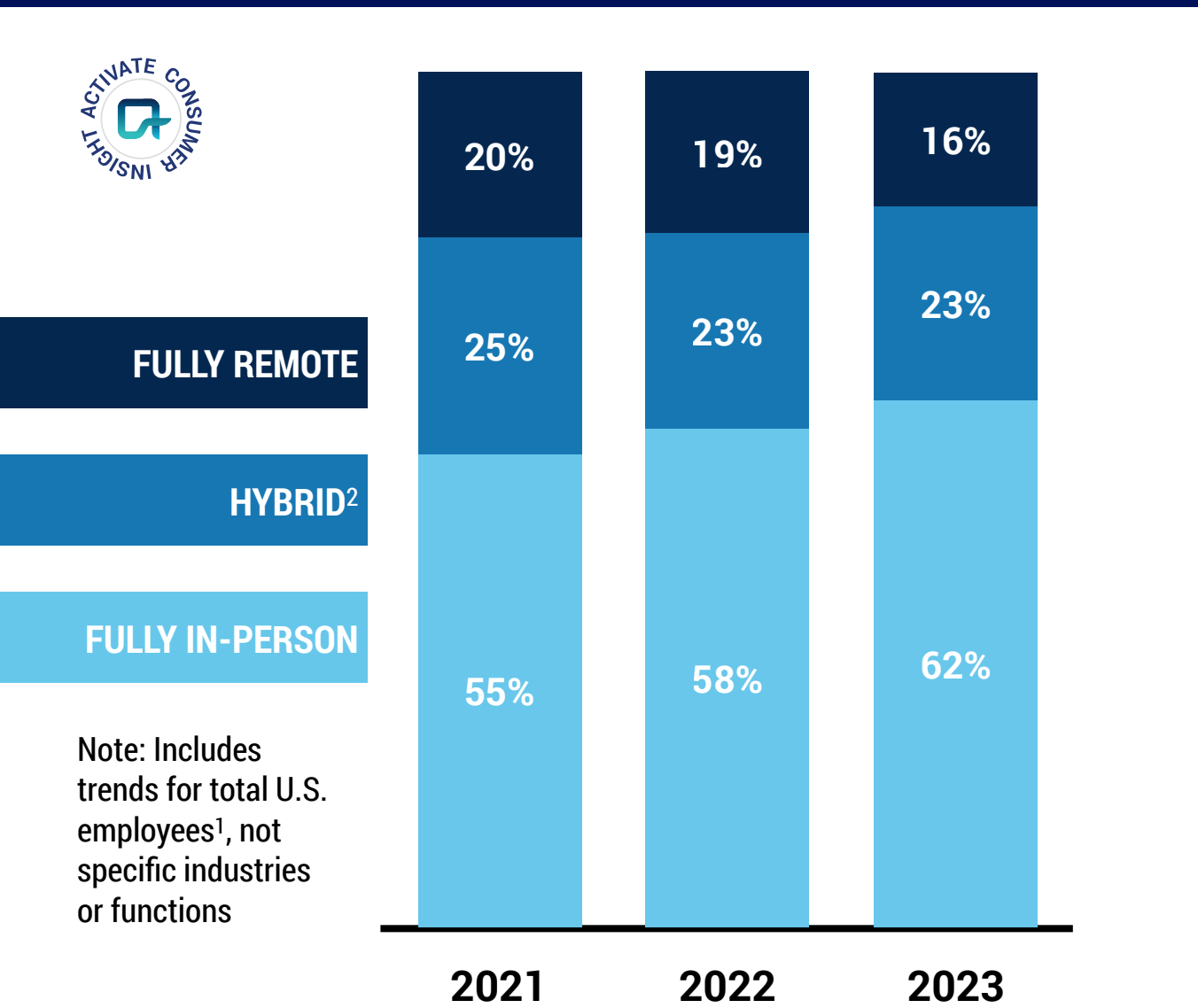
# Growth of IT and software budgets are driven by companies adopting new applications and deploying them across organizations

AVERAGE SaaS APPLICATION PORTFOLIO SIZE<sup>1</sup> BY COMPANY SIZE, U.S., 2021 VS. 2023, TOTAL SAAS APPLICATIONS

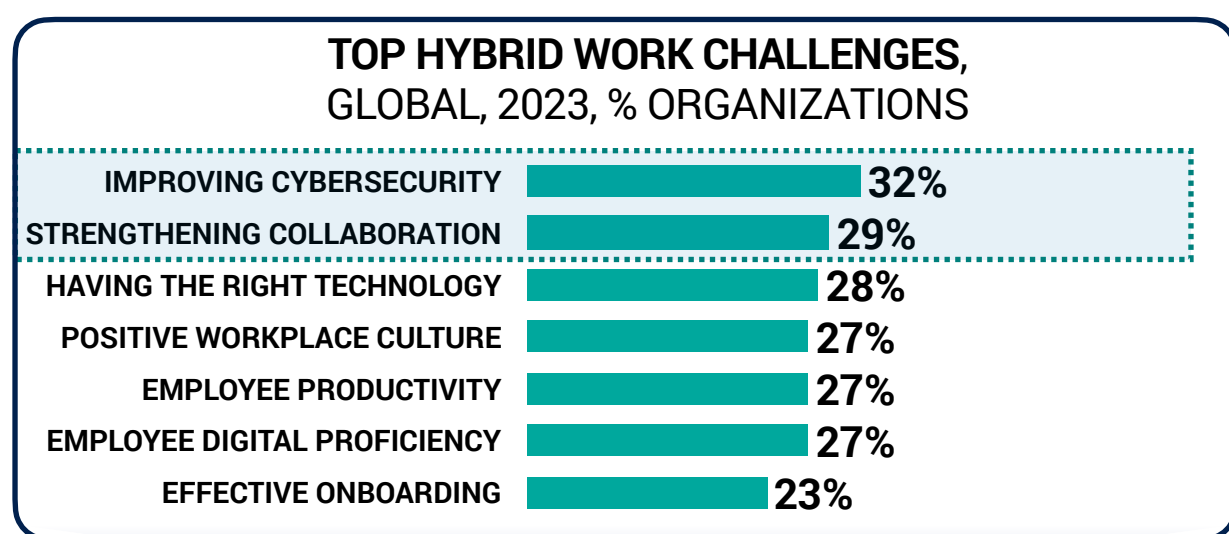


# IT and software spend will be sustained by the need to address outstanding pain points; for example, the challenges of maintaining a hybrid workforce remain a priority for technology decision makers

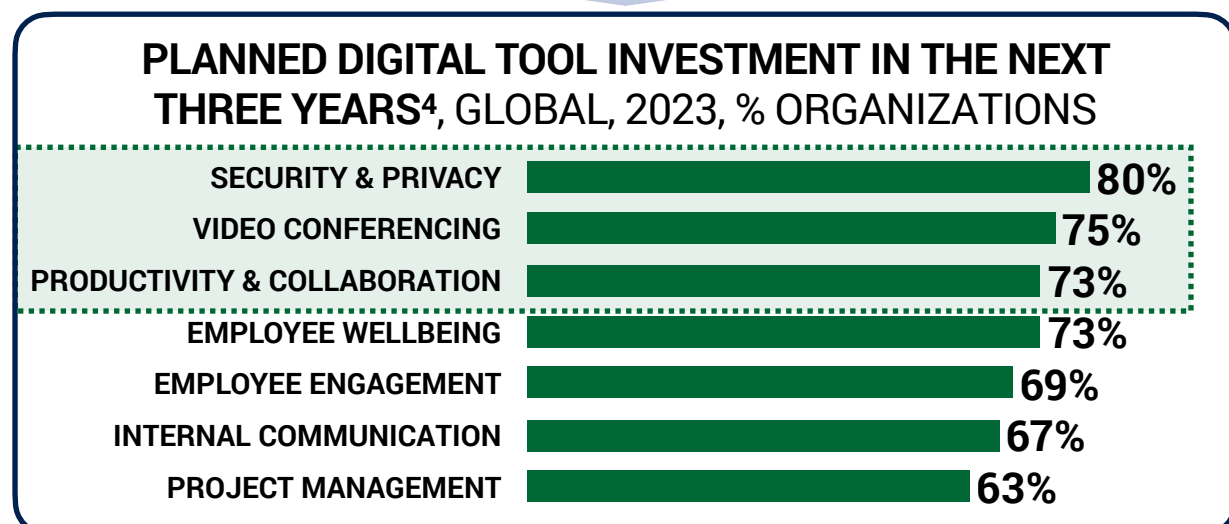
**EMPLOYEES<sup>1</sup> WORKING FULLY REMOTE VS. HYBRID<sup>2</sup> VS. FULLY IN-PERSON<sup>3</sup>, U.S., 2021-2023, % EMPLOYEES<sup>1</sup>**



**THE TECHNOLOGY CHALLENGES OF THE HYBRID WORKFORCE ARE HERE TO STAY AND WILL CONTINUE TO DRIVE SPEND**



Unsolved security & collaboration challenges will increase spend

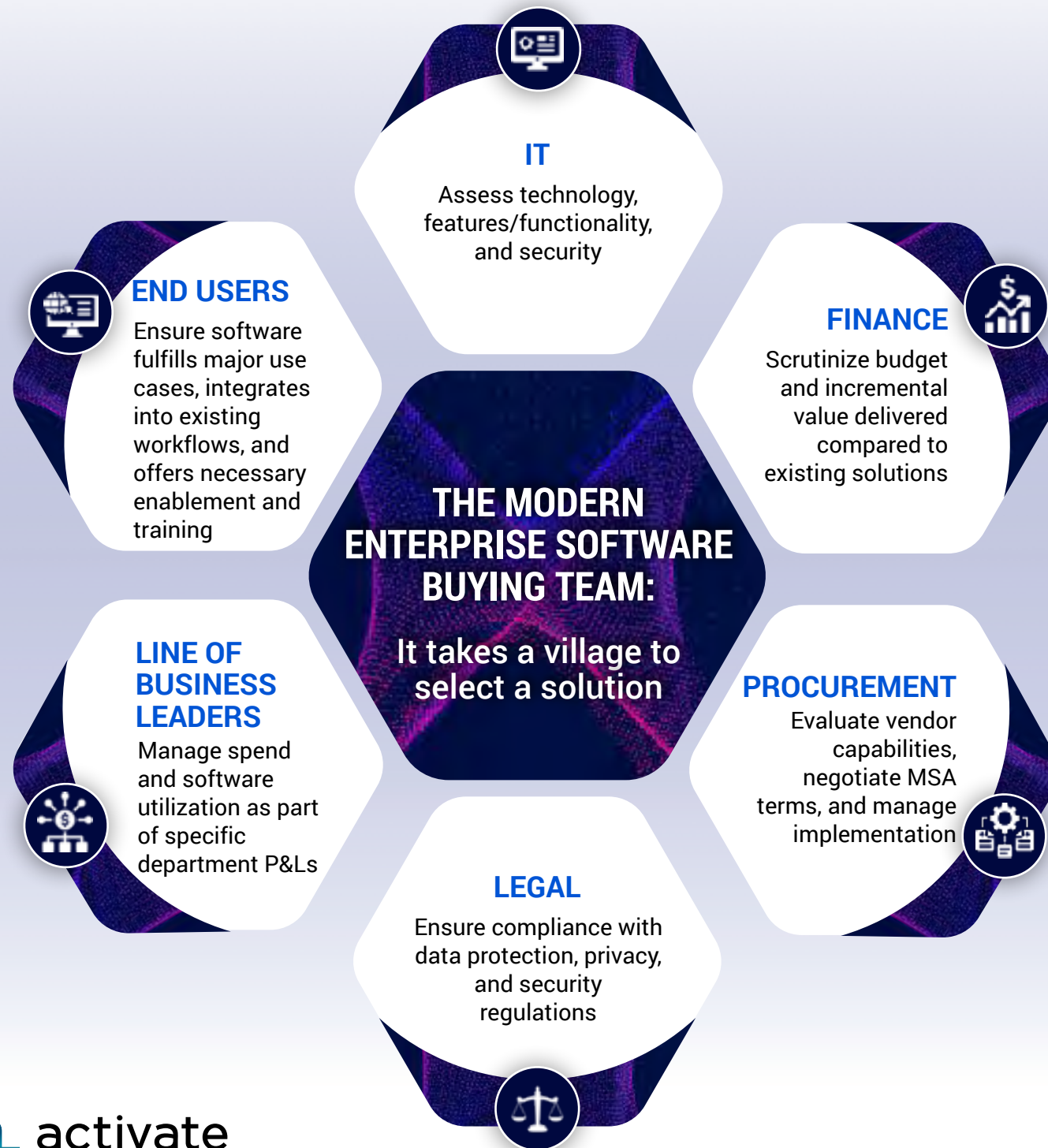


1. "Employees" are defined as adults aged 18+ who are employed full-time, employed part-time, or self-employed. Does not include military. 2. "Hybrid" is defined as working a non-zero number of days both in-person and remote. 3. Figures do not sum to 100% due to rounding. 4. Respondents indicating that they will increase or significantly increase their organization's investment in each area.

Sources: Activate analysis, Activate 2022 Consumer Technology & Media Research Study (n = 4,001), Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Gartner, National Bureau of Economic Research, Okta



# These challenges are so critical for businesses that purchasing enterprise technology and software is no longer just an IT problem – it’s an organization-wide decision



## ACTIVATE PERSPECTIVE

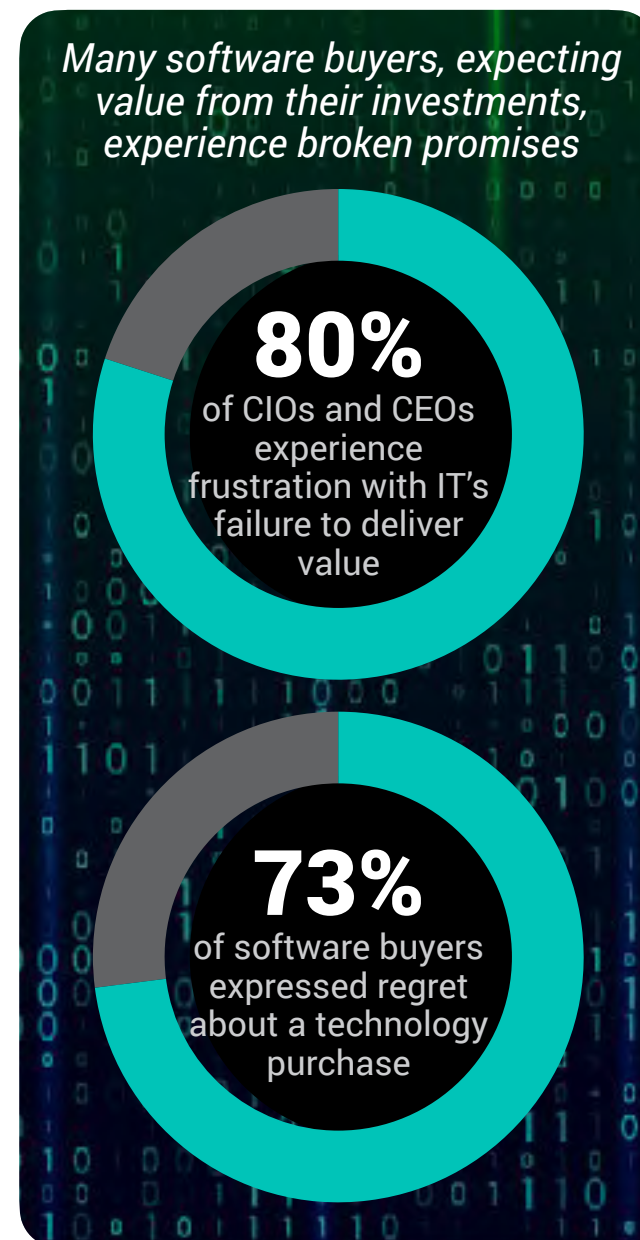
As part of the new software buying process, full-organization decision makers will:

- Apply greater scrutiny to future software investments, ensuring that they are able to address enterprise needs
- Carefully weigh the promises of innovation made by new software companies against tangible ROI goals
- Actively monitor utilization of licensed software to identify inefficient spend
- Continue spending on software at high levels to maximize productivity while also prioritizing value, utility, accessibility, and sustainability goals

# A broader set of technology and software decision makers means a reshuffling of decision-making priorities; time to value, ROI, and ease of implementation are top concerns going forward

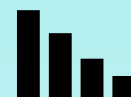
## TOP 10 CONSIDERATIONS FOR PURCHASING SOFTWARE BY COMPANY SIZE, GLOBAL, 2023


	Ease/Accessibility	ROI/Value	Scalability	Features of Solution	Price
	SMB <sup>1</sup>	MID-MARKET <sup>2</sup>	ENTERPRISE <sup>3</sup>		
#1	Ease of Implementation	ROI Within Six Months	Ease of Implementation		
#2	Ease of Use	Ease of Implementation	ROI Within Six Months		
#3	ROI Within Six Months	Ability to Scale	Ability to Scale		
#4	ROI Within One Year	Ease of Use	ROI Within One Year		
#5	Ability to Scale	ROI Within One Year	Ease of Use		
#6	Weekly Usage by All Users	Weekly Usage by All Users	Weekly Usage by All Users		
#7	Customer Support Quality	Customer Support Quality	Customer Support Quality		
#8	Number of Features	Ease of Integration	Ease of Integration		
#9	Ease of Integration	Number of Features	Number of Features		
#10	Cost of Software	Cost of Software	Security		

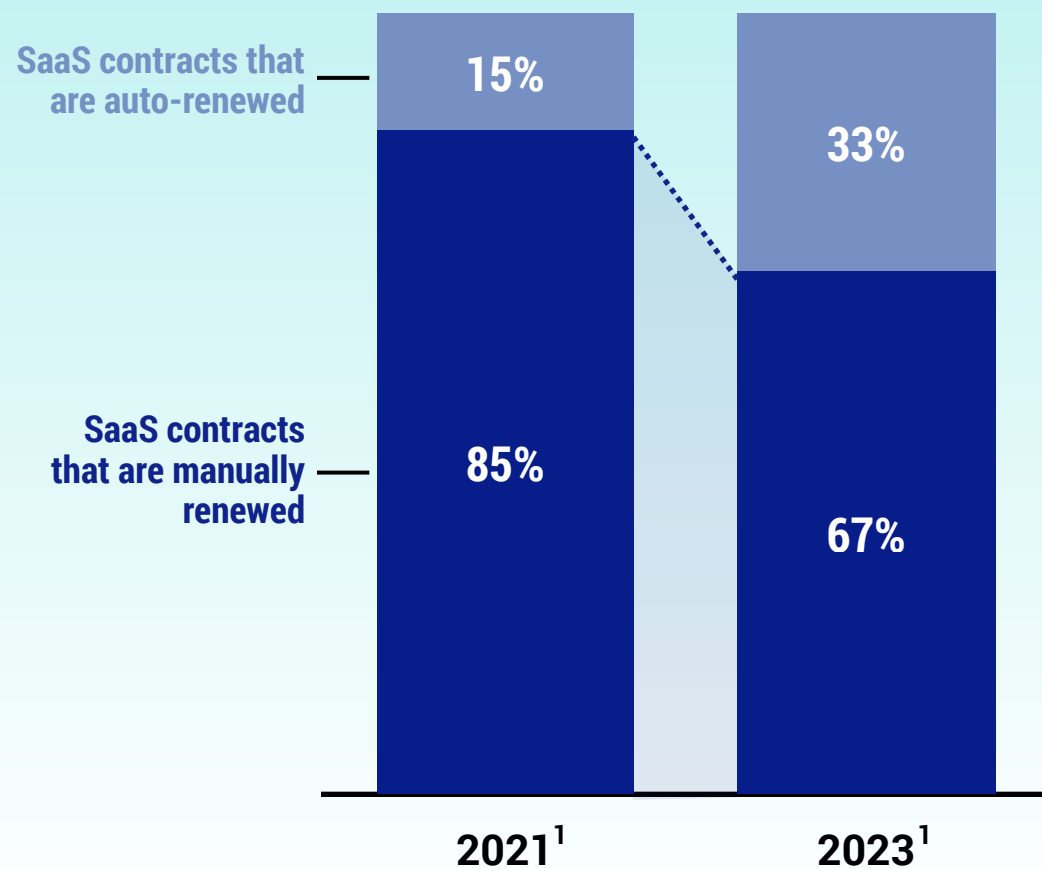


# The growing complexity of SaaS portfolios has increased the automation of renewal processes, and the emphasis on value has decreased the length of contracts

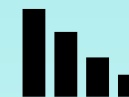
**SHARE OF SAAS CONTRACTS THAT ARE MANUALLY RENEWED VS. AUTO-RENEWED, U.S., 2021 VS. 2023, % SAAS CONTRACTS**


 *An increasingly high number of SaaS contracts and growing IT complexity require automation for procurement teams to effectively manage renewals, decreasing the share of contracts manually renewed*

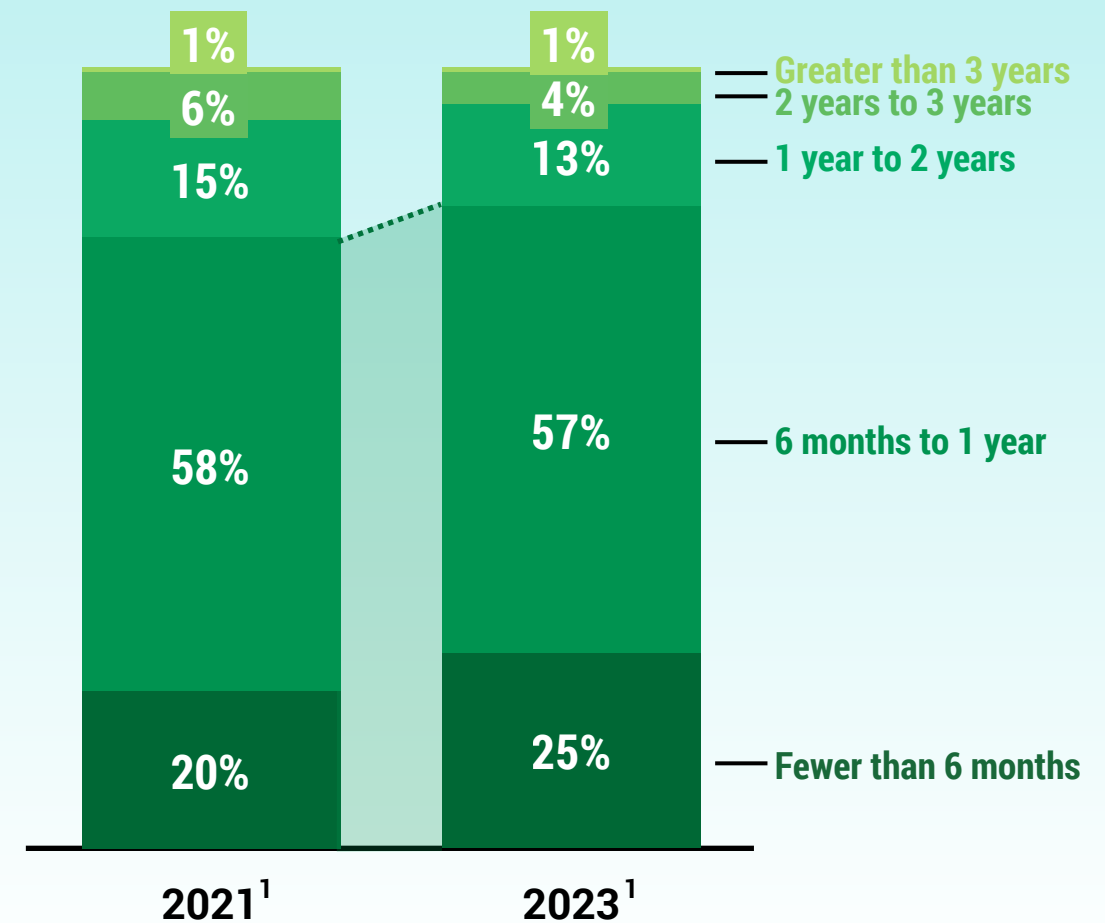




**LENGTH OF SAAS CONTRACTS, U.S., 2021 VS. 2023, % SAAS CONTRACTS**

 *Software contracts are becoming shorter as buyers are more risk averse and can pressure sellers to agree to favorable terms*





# We already see the impact of this new way of buying, as Shadow IT has fallen; nevertheless, Shadow IT still remains a significant problem for enterprises to solve going forward

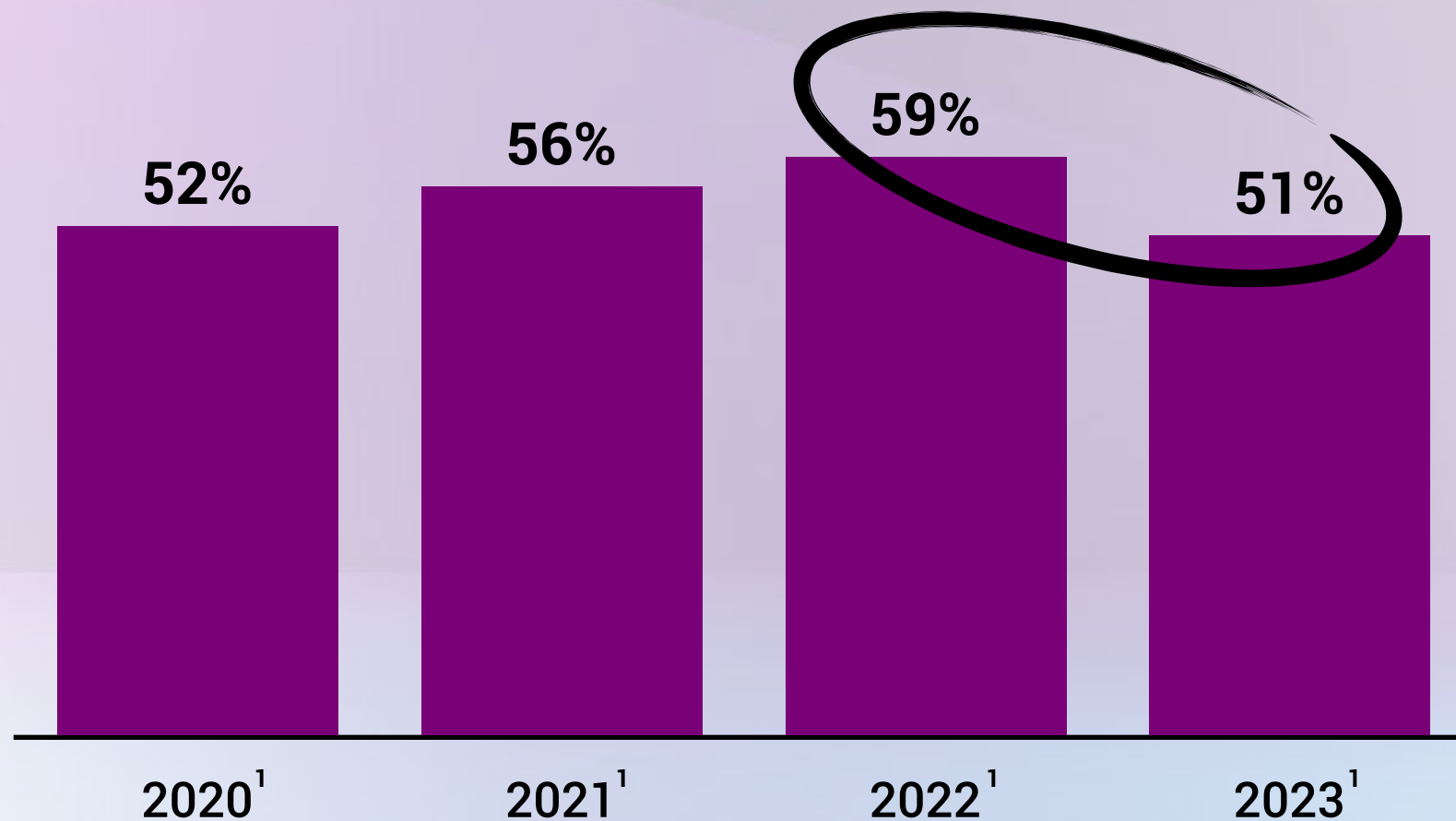
SHADOW IT APPLICATIONS, U.S., 2020-2023, % TOTAL SAAS APPLICATIONS

**Shadow IT Applications:** SaaS applications that are not managed as part of a centralized enterprise contract and are instead purchased and licensed through individual employees

## ACTIVATE PERSPECTIVE

IT leaders are starting to address shadow IT concerns, and it will need to be a continued priority due to:

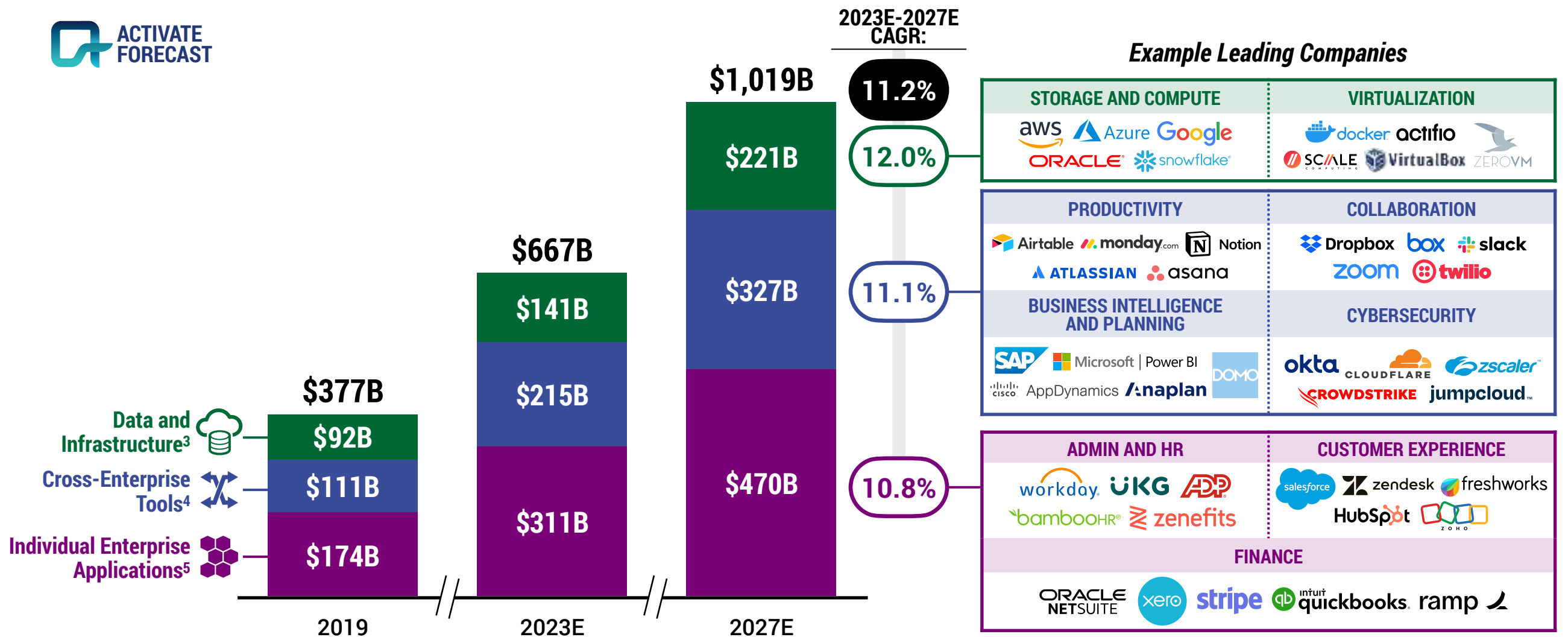
- **Need For Visibility:** Organizations require a clear line-of-sight on software utilization and performance to evaluate ROI and identify new areas for investment
- **Security & Governance Risks:** Shadow IT presents security and access management vulnerabilities that are difficult to monitor through enterprise security; **54% of software buyers report purchasing software without IT team approval**





# There is high growth in demand for the full set of cloud-native software and services, with all applications, tools, and infrastructure forecasted to grow at a double-digit pace over the next four years

CLLOUD-NATIVE APPLICATION & SERVICE SPEND<sup>1</sup> BY CATEGORY<sup>2</sup>, GLOBAL, 2019 VS. 2023E VS. 2027E, BILLIONS USD



1. "Cloud-native application & service spend" is defined as spend on software, data storage, and compute hosted on a public cloud platform or remote data center. 2. Figures do not sum due to rounding. 3. "Data and infrastructure" is defined as any spend on services that enable storing data, files, and compute capabilities on a remote system, as well as virtualization services. 4. "Cross-enterprise tools" is defined as any spend on software that enhances operations across business functions, including productivity, collaboration, business intelligence, data analysis, and cybersecurity tools. 5. "Individual enterprise applications" is defined as any spend on software that enhances specific business functions, including HR, customer service, finance, and marketing, as well as any industry-specific line-of-business tools.

Sources: Activate analysis, Analysys Mason, Company filings, Fortune Business, Gartner, HG Insights, IBIS World, International Data Corporation, Precedence Research, Statista Market Insights, Synergy Research Group

# Alongside the major technology companies, a new set of solutions is emerging to address evolving buyer needs, supported by new fundraising for AI-driven technology innovation



## INDIVIDUAL ENTERPRISE APPLICATIONS

### HORIZONTAL SOFTWARE

<b>AI AUDIO GENERATION</b> IIElevenLabs MUR.FAI descript AssemblyAI RIVERSIDE	<b>AI VIDEO/IMAGE GENERATION</b> OpusClip runway stability.ai synthesia VEED.IO	<b>AI TEXT/COPY GENERATION</b> Jasper Typeface copySmith WRITER grammarly copy.ai	<b>ECOMMERCE</b> 8fig alwayz EVERSTORES SALSIFY graas loop SWIFTLY Vue Storefront	<b>FINANCE</b> brightflow.ai Icertis MESH mandu prime Rain ratio terrapay tipalti swan ramp Tradeshift
<b>AI-ENABLED CUSTOMER EXPERIENCE / SALES</b> Apollo.io mediafly WINN CleverTap Gladly TENYX ordergrove MessageGears ConnexOne ujet.cx	<b>HR &amp; ADMINISTRATION</b> atlas NAVAN bob RIPPLING ravio ZYKA	<b>LEGAL/COMPLIANCE</b> Harvey. EvenUp LITERA hyperproof	<b>MARTECH/ADTECH/AD-OPS</b> hightouch Pixis SOCI zappi Insider	<b>SUPPLY CHAIN</b> Altana INTEGRITY NEXT FOURKITES flexport waresix shadowfax

### VERTICAL SOFTWARE

<b>AEROSPACE/DEFENSE</b> ANDURIL PORTSIDE True Anomaly VANNEVAR Labs	<b>BANKING</b> Archway Software bud NYMBUS	<b>BIOTECH/PHARMA</b> BenchSci Flywheel Valo FORM BIO
<b>HEALTHCARE</b> Aledade Caraway TEMPUS celestial AI shiftkey kamado	<b>PUBLIC SECTOR</b> (kira*) ocelot measurabl RUBICON	

## CROSS-ENTERPRISE TOOLS

<b>COMMUNICATION</b> BEEKEEPER DeepL POKETALK SIMPLR	<b>AI-BASED ANALYTICS AND MODELING</b> ClickHouse SingleStore ROCKSET TREDENCE data iku Pinecone kumo UNSTRUCTURED PRYON Numbers Station	<b>AI-POWERED DEVELOPER TOOLS</b> anyscale apiiro GitHub Copilot DevZero liblab ENDOR LABS Modular outsystems replit render Builder.ai	<b>IDENTITY &amp; ACCESS</b> aembit ALLOY descopie Private Tech	<b>BUSINESS INTEL. &amp; PLANNING</b> BlackSwan TECHNOLOGIES Cribl odoo novata X factor.io Pigment ZIP New Relic	<b>RPA<sup>1</sup></b> AUTOMATION ANYWHERE H2O.ai rewst savant	<b>NETWORK SECURITY/FIREWALL</b> Guards stacklok oligo AURA Avalor blackpoint snyk CATO	<b>ENDPOINT SECURITY</b> lumifi Dig WIZ cyberason Activate KNIGHTS eclipsium	<b>THREAT RESPONSE</b> ARCTIC WOLF DRATA netskope SKYHAWK SECURITY SpyCloud sumo logic HIDDENLAYER
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## DATA & INFRASTRUCTURE

<b>AI-FOCUSED CLOUD SERVICES</b> kt cloud Lambda Cloud together.ai wasabi CoreWeave	<b>DATA STORAGE</b> CLOUDIAN HAMMERSPACE HEX cybersyn Dragonfly HYCU Safe Software SELECTDB veeam	<b>GENERATIVE AI MODELS &amp; TOOLS</b> ADEPT ANTHROPIC contextual-ai Inflection OpenAI Reka LangChain AI21labs elemental cognition Hugging Face Weights & Biases	<b>NEXT-GEN HARDWARE<sup>2</sup></b> ESWIN quobly socionext entfabrica	<b>QUANTUM COMPUTING</b> PASQAL QUANTUM MOTION QUANTINUUM Q-CTRL XANADU Silicon Quantum Computing
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Note: Not exhaustive. Includes B2B and enterprise software companies that have either launched in the past two years and raised at least \$10M or have had a deal size of at least \$50M in the past two years. 1. Robotic Process Automation. 2. Includes innovators driving improvements to semiconductors, data center technology, and IoT hardware. Sources: Activate analysis, Axios, Company sites, Crunchbase, Pitchbook, TechCrunch

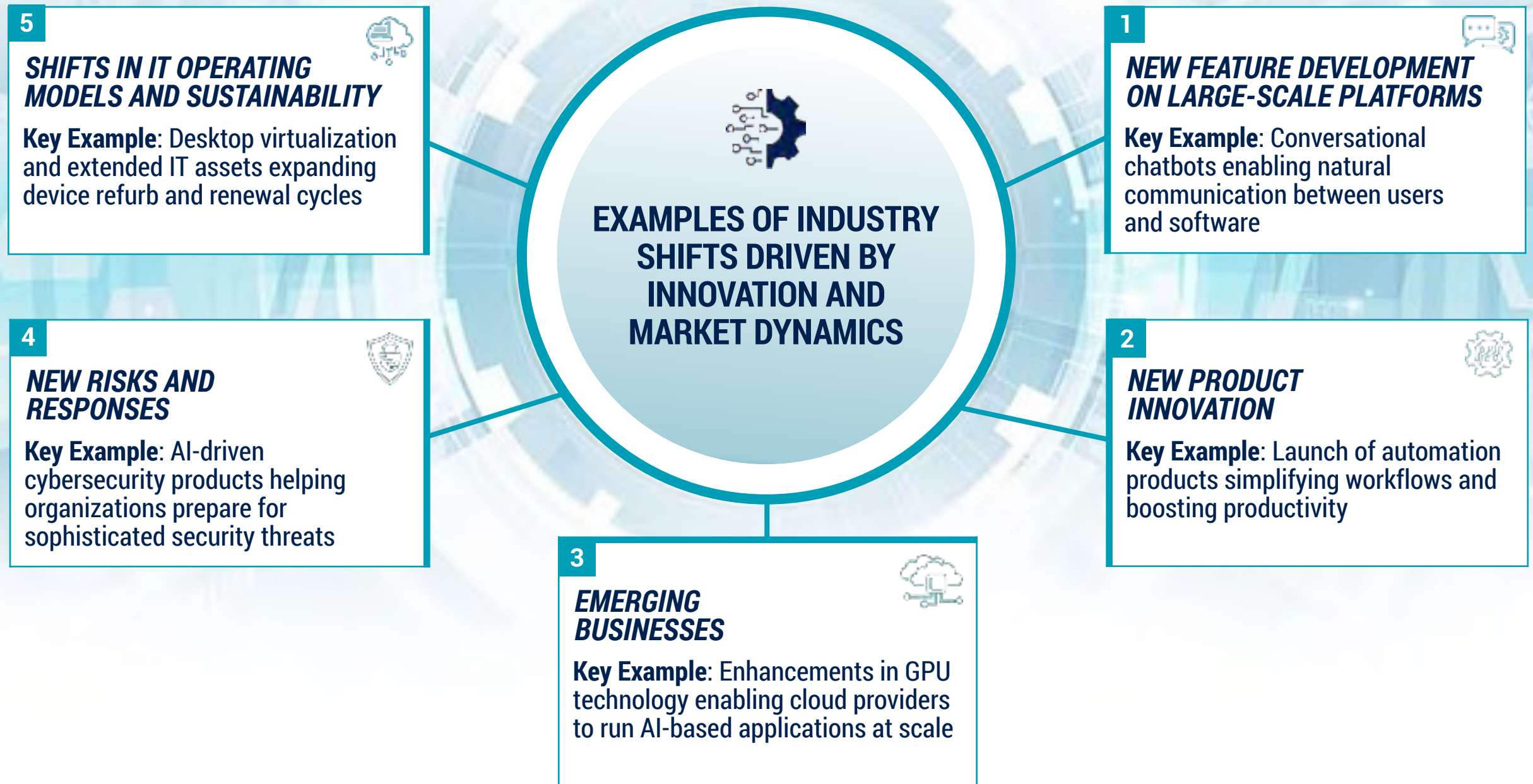
# Significant technology breakthroughs, especially in AI (e.g. generative AI, compute optimization, connectivity), will continue to be major growth enablers for the enterprise technology space

## TECHNOLOGICAL BREAKTHROUGHS

	LARGE LANGUAGE MODELS (LLMs)	DIFFUSION MODELS	AI MODEL COMPRESSION	GPU CLOUD SERVICES	INTELLIGENT AGENTS (RPA)	5G & CONNECTIVITY	CHIP INNOVATIONS	QUANTUM COMPUTING
	<ul style="list-style-type: none"> <li>AI models trained on text-based data to understand, synthesize, and generate human-like text output based on predictive neural networks (vs. rules-based AI)</li> <li>Increasingly accessible to enterprises and end-users through API-based platforms (e.g. OpenAI, Bard)</li> <li>Wide applications across enterprise functions (e.g. productivity tools, communication, chatbots for IT and customer service)</li> </ul>	<ul style="list-style-type: none"> <li>AI models able to take text-based prompts as inputs and generate images/video</li> <li>Enables fast creative output across a variety of use cases (e.g. advertisements, internal trainings, product customization)</li> <li>Image processing models have improved rapidly, with video processing models still in early development</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in size of AI models by lowering the number of parameters, compute requirements, and storage needed</li> <li>Requires less compute to execute, allowing for smaller chips and ability to run on edge devices</li> <li>Allows for more efficient model training and testing, crucial given today's scarcity of compute resources for AI</li> </ul>	<ul style="list-style-type: none"> <li>Cloud services and analytics capabilities powered by GPU chips, able to speed up compute time and handle specific workloads through parallel compute</li> <li>Enables faster training of AI models, more effective forecasting and analytics, and enhanced graphics and visualization</li> </ul>	<ul style="list-style-type: none"> <li>Ability to automate repetitive tasks across the enterprise (e.g. customer service interactions, data extraction, security threat detection)</li> <li>Developed to execute tasks based on inputs or seek and optimize for specific goals</li> </ul>	<ul style="list-style-type: none"> <li>Provides ability to transfer data across networks and between devices with higher speeds and lower latency</li> <li>Enables faster decision making and higher productivity for enterprises with more accurate and real-time data inputs</li> </ul>	<ul style="list-style-type: none"> <li>GPU innovations enable increased edge computing power and deployment of AI capabilities, enabling real-time, localized data processing</li> <li>Introduction of transformer models as part of next-generation chips needed for rapid training of LLMs</li> <li>Facilitate process improvement across operational workflows (e.g. manufacturing, forecasting, ESG and sustainability metrics)</li> </ul>	<ul style="list-style-type: none"> <li>Ability to rapidly solve problems that cannot be simulated by classical computing processes (e.g. biological process modeling, financial options pricing), enabling faster innovation and more precise decision-making capabilities</li> <li>Majority of the early use cases for quantum computing are for addressing public sector needs (e.g. national cybersecurity)</li> </ul>
KEY INNOVATORS	OpenAI LLaMA cohere Inflection ANTHROPIC Google DeepMind	Midjourney DALL-E 2 Stable Diffusion runway Microsoft NUWA-XL	OMNI <sup>ML</sup> DEEP RENDER intel Neural Compressor Deeplite	Lambda CoreWeave FluidStack aws Azure Google Cloud	UiPath <sup>™</sup> AUTOMATION ANYWHERE Automation 360 blueprism <sup>®</sup> DataRobot WorkFusion Putting AI to work.	Qualcomm HUAWEI SAMSUNG LG NOKIA	NVIDIA AMD Qualcomm GRAPHCORE MYTHIC	IBM Honeywell SANDBOXAQ <sup>™</sup> XANADU rigetti PsiQuantum




# These technology breakthroughs will drive significant productivity improvements across organizations' key business functions

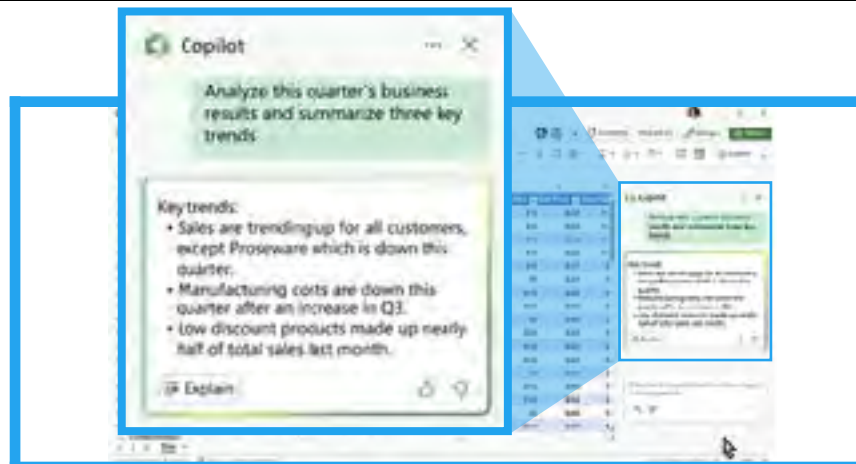




# Conversational software experiences backed by generative AI (from both established and new companies) will drive increased ease of use, utility, and speed of onboarding

## EXAMPLES OF INNOVATORS LAUNCHING COPILOTS AND CONVERSATIONAL TOOLS

 **Microsoft**  
 FOUNDED: 1975  
 MARKET CAP<sup>1</sup>: \$2.4T



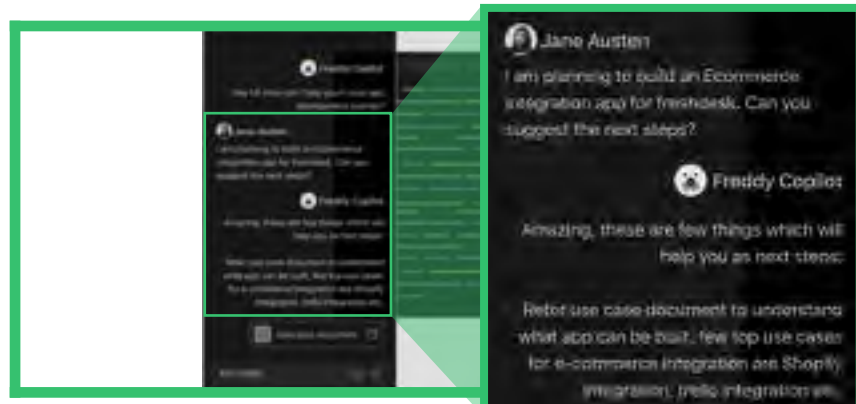
### NEW TOOLS & FEATURES

**Copilot launched for Microsoft 365** as an in-program AI assistant enabled by OpenAI's GPT-4, improving **Word, PowerPoint, and Excel** through **draft and idea creation, presentations and visuals with simple prompts, and data analysis and visualization with basic commands**

### VALUE DELIVERED

Improved **productivity and efficiency** through **reduced output time for documents and analysis**

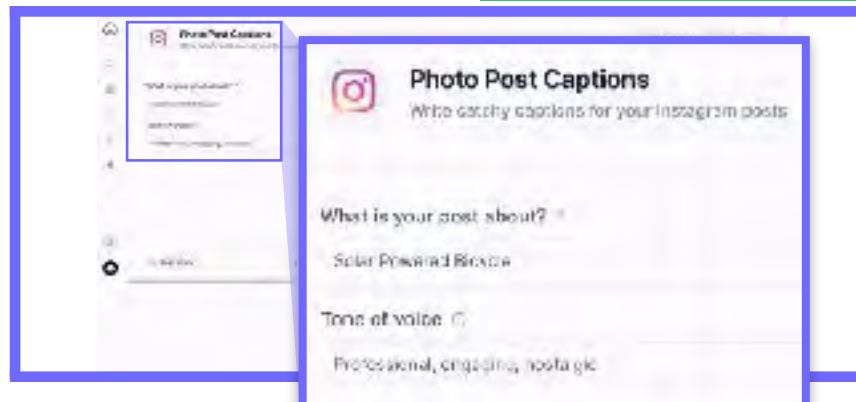
 **freshworks**  
 FOUNDED: 2010  
 MARKET CAP<sup>1</sup>: \$5.7B



**Freddy Copilot launched** as a conversational AI-enabled tool able to **automate mundane tasks** (e.g. IT incident resolution, customer support analytics prompts), with specific applications for **customer experience, sales, marketing, IT service management, and developer workflows**

Enhanced **employee and customer experiences** through **boosted productivity, automation, and specific recommendations**

 **Jasper**  
 FOUNDED: 2021  
 LATEST VALUATION<sup>2</sup>: \$1.5B



Copilot tool for **copywriters and content creators**, able to take **topics, articles, and style & tone recommendations** as inputs to **generate marketing copy, campaigns, and social media posts** able to be automatically launched through integrations

**Accelerated pace** of marketing and media content creation, **saving significant time in idea generation; dedicated prompt engineers** will be important to maximize value delivery

# Technology platforms are launching AI-based automation features that improve workflow productivity and orchestration across both high-volume simple tasks and complex processes

## EXAMPLES OF INNOVATORS LAUNCHING AI-BASED AUTOMATION CAPABILITIES



FOUNDED: 1999

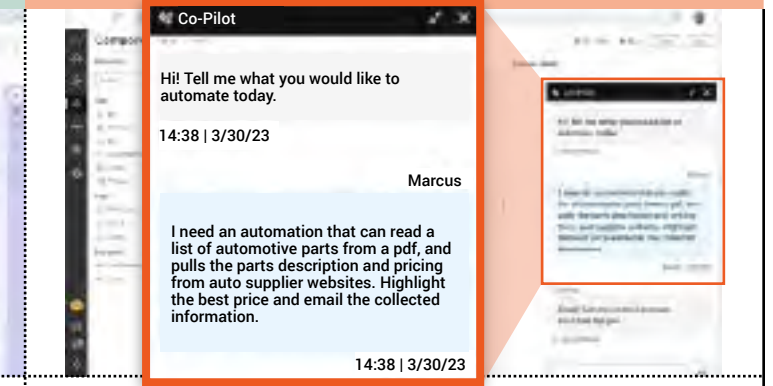
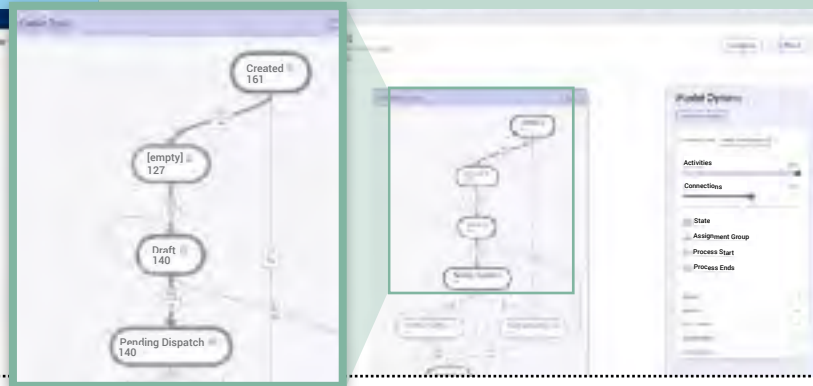
FOUNDED: 2003

FOUNDED: 2003

MARKET CAP<sup>1</sup>: \$202B

MARKET CAP<sup>1</sup>: \$114B

LATEST VALUATION<sup>2</sup>: \$6.8B



**NEW TOOLS & FEATURES LAUNCHED IN 2023:**

**Salesforce Flow** launched as an automation tool for the Salesforce platform, allowing users to **orchestrate workflow processes with specific flowcharts and automate repetitive tasks** (e.g. email outreach, manual customer data entry) with **Flow RPA<sup>3</sup>**

Newly launched **Utah platform** showcasing ability to **improve workflows with Process Automation tools** and **team efficiency with Workforce Automation tools**

Launched **Automation Copilot and Generative AI for Automators** functions, allowing users to create **orchestration of complex tasks** (e.g. reviewing of expense and invoices, document revisions) through **translation of simple language and steps**

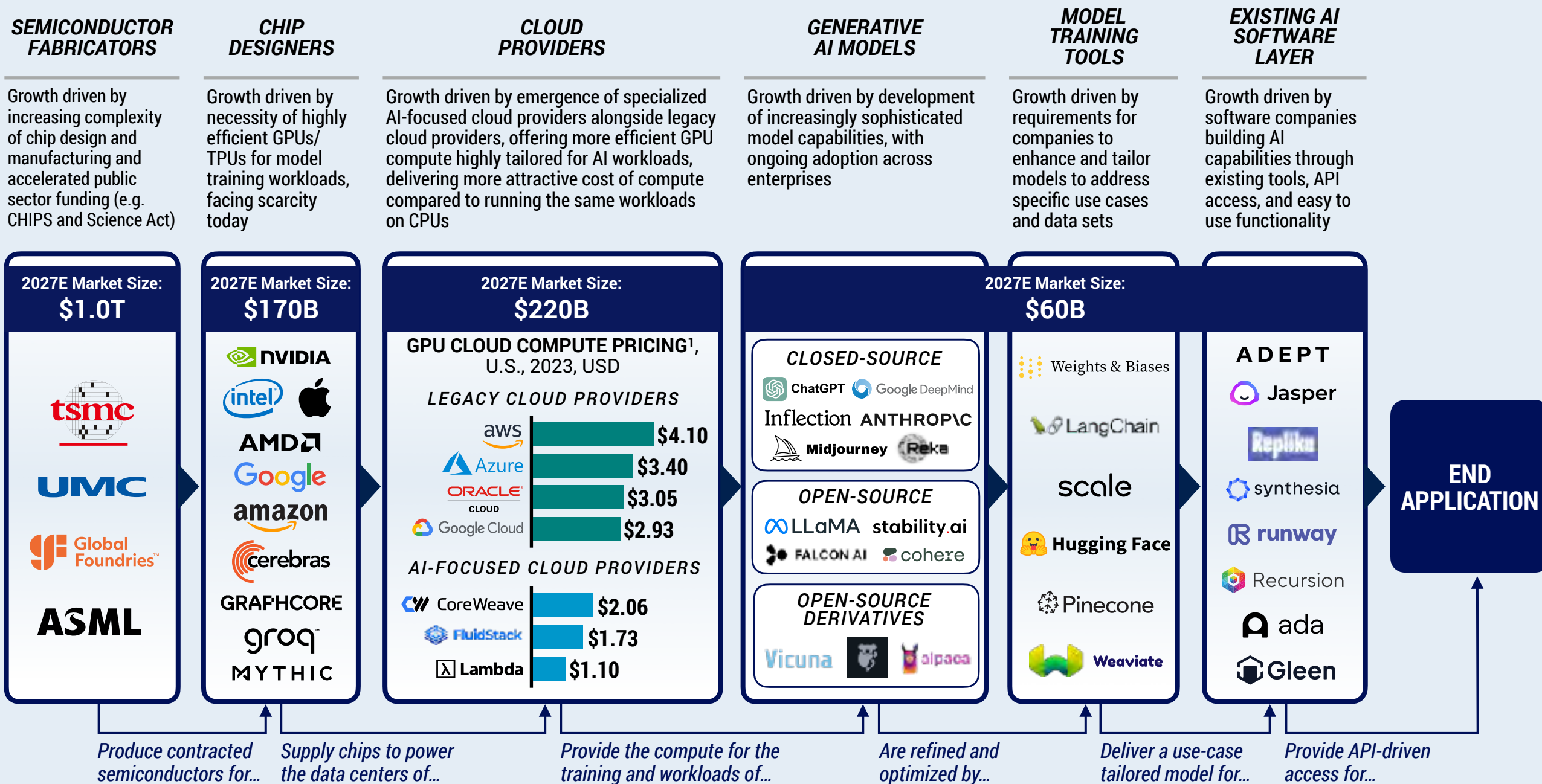
**EXAMPLE USE CASES:**

- **Customer Engagement:** Orchestration of specific responses to CRM data triggers to deliver personalized outreach
- **Communication and Collaboration:** Integration with Slack triggers responses based on messages

- **Workforce Efficiencies:** Visibility into employee productivity and forecasting for staffing demand requirements with dynamic scheduling
- **IT Incident Resolution:** Mapping of IT operational processes to identify causes of incidents and speed up future processes

- **Admin and HR Tasks:** Automation of time-intensive back-office processes including expense management, accounts payable, and tax compliance
- **Finance Operations:** Efficiency and error prevention for accounting and invoicing

# New AI capabilities are giving rise to a new cloud compute and storage ecosystem focused on GPU compute and solutions to access AI infrastructure (e.g. generative AI models, training tools)











# Acceleration of enterprise technology and software complexity presents cybersecurity risks; in response, innovators are launching new products to address these threats

## EXAMPLES OF INNOVATORS LAUNCHING CYBERSECURITY TOOLS

### MAJOR CYBERSECURITY CHALLENGES

 <p><b>AI-POWERED CYBERATTACK VULNERABILITY</b></p>	<ul style="list-style-type: none"> <li>• Potential risk for AI to be used as a <b>force-multiplier in cyberattacks</b> in the future</li> <li>• <b>Sophistication of threats will be increased</b> by generating malicious code, reverse-engineering security offerings, and complex phishing</li> </ul>
 <p><b>CLOUD SECURITY THREATS</b></p>	<ul style="list-style-type: none"> <li>• <b>Data breaches</b> caused by poor cloud management, unauthorized access, and insecure data <b>are often unnoticed due to a lack of visibility</b></li> <li>• Breaches <b>create data and privacy compliance challenges</b> (e.g. localization requirements)</li> </ul>
 <p><b>ENDPOINT SECURITY RISKS</b></p>	<ul style="list-style-type: none"> <li>• <b>Network-connected devices are more vulnerable</b> to security threats than core networks</li> <li>• <b>Remote working environments and shadow IT applications</b> heighten endpoint security risks</li> </ul>

### RESPONSES FROM INNOVATORS




 <p><b>FOUNDED: 2011</b> <b>MARKET CAP<sup>1</sup>: \$42B</b></p>	<p><b>Counter Adversary Operations product</b> launched to <b>actively monitor and track potential AI-based threats</b>, leveraging AI trained on <b>network events and signals to spot irregularities</b></p>
 <p><b>FOUNDED: 2020</b> <b>LATEST VALUATION<sup>2</sup>: \$10B</b></p>	<p><b>Wiz Integration Platform</b> released to plug into and <b>observe all cloud access points, monitoring users, data, and workloads to mitigate risk as customers scale</b></p>
 <p><b>FOUNDED: 2007</b> <b>LATEST VALUATION<sup>3</sup>: \$9B</b></p>	<p><b>SBOM for Comply</b> launched to give <b>full visibility into software and endpoint supply chains</b> (including devices and software licenses), ensuring <b>proper use and access</b></p>



# Improvements in cloud technology have enabled virtualization services to reach scale, extending device refresh cycles, increasing sustainability, and enabling organizations to reduce hardware spend

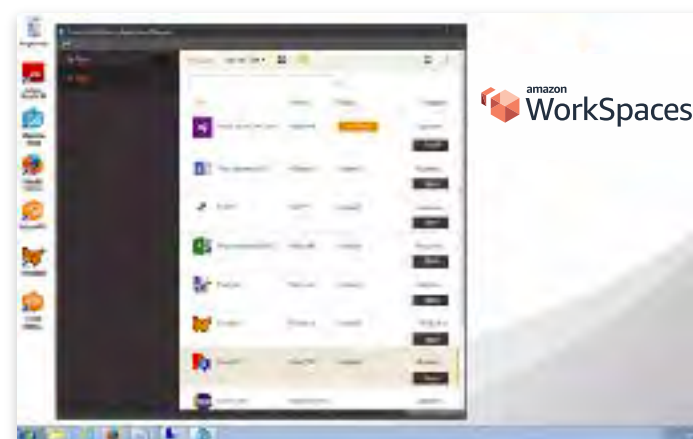
## ENABLERS AND IMPACT OF VIRTUALIZATION SERVICES

### ENABLERS OF VIRTUALIZATION

 <p><b>IMPROVED CONNECTIVITY</b></p>	<p><b>Higher speed of data transfer</b> enables more devices to be run off of one network</p>
 <p><b>IMPROVED COMPUTE</b></p>	<p><b>Strong compute capabilities</b> allow virtual machines to perform optimally and handle higher workloads</p>
 <p><b>IMPROVED SECURITY</b></p>	<p><b>Heightened cloud and endpoint cybersecurity</b> protects the users and data of end devices across networks</p>

### EXAMPLES OF MAJOR VIRTUALIZATION SERVICES (e.g. Cloud PCs, Next-Gen Virtual Desktops)

 **Windows 365**  
 Provides cloud-based access to Windows interface and software on any device, improving efficiency of IT through faster onboarding and setup, ease of access, and less reliance on hardware



 **WorkSpaces**  
 Enables virtual desktops for users with specific software installations and user permission, allowing for quick onboarding and customization for employees

### ACTIVATE PERSPECTIVE

The continued adoption of and advancements in virtualization will drive:

- Lower requirements for hardware performance and refresh**, as virtualization will allow users to access the same compute capabilities on used devices
- A focus on IT refurb and renewal**, increasing the sustainability of IT operating processes
- Greater investments in the circular IT economy** by hardware companies

*Example Circular IT Programs*

# In the coming years, enterprise software companies will need to address key growth questions and challenges to fully capitalize on these innovation trends

## MAJOR GROWTH QUESTIONS AND CHALLENGES TO ADDRESS

### PRODUCT DIFFERENTIATION & SCALE

- **Product Distinctiveness:** How can software companies develop offerings that are distinguished enough from competitors to address specific customer needs?
- **Roadmap and Expansion:** Which product features and market adjacencies should be prioritized to complement and enhance current capabilities?
- **M&A Opportunities:** How should technology companies augment their capabilities through acquisitions to have the platform scale needed to fully reap the benefits of innovation?

### PRICING MODELS

- **Usage-Based Pricing:** How should companies evolve traditional SaaS pricing approaches (e.g. per seat) as software buyers are increasingly prioritizing value, utilization, and efficiency?
- **Outcome-Based Pricing:** As buyers emphasize ROI and business outcomes, can pricing based on achievement of key metrics incentivize adoption?

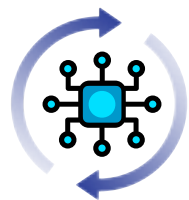
### CHANNEL PARTNERS & RESELLERS

- **Partner Incentives:** How can software companies engage channel partners and resellers to distinguish their solutions and position them as top offerings to their customers?
- **Implementation and Support:** How can vendors, partners, and implementation providers most effectively provide the enablement, training, and support to ensure buyers realize the full value of their technology investments?

### SALES & MARKETING APPROACH

- **Salesforce Structure:** What are the optimal ways to structure sales teams (e.g. incentives, vertical alignment) to equip them for success and allow them to showcase product ROI benefits?
- **Marketing Strategies:** How should software companies shift marketing narratives, materials, and channel-based tactics to better align with the needs of value-conscious buyers and overcome skepticism of new product features?

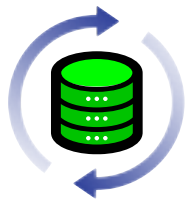
# All enterprises that buy technology will require refinements to their organizational structures, processes, and data strategies to harness the full potential of AI-enabled software



How should enterprises **adapt their organizations and technology processes** to ensure that **newly adopted AI-based solutions** are fully incorporated into **enterprise workflows** to deliver the most value?

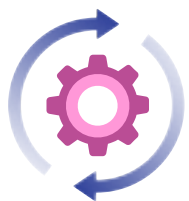


How can enterprises **optimize internal evaluation and purchasing processes** to ensure their organizations' **digital transformations** are balanced with **ROI and productivity goals**?



What changes to **enterprise data strategy and processes** should be made to **maximize the utility and value of AI-based technology**, including:

- Necessary tools to **fully capture and ingest data**
- **Data unification and standardization** processes
- Approach to ensuring AI-based software **leverages data appropriately**, is in **compliance with regulatory frameworks**, and produces **high-quality, accurate output**



What changes should be made to **enterprise operating models** as they increasingly **evolve into technology-enabled businesses**?

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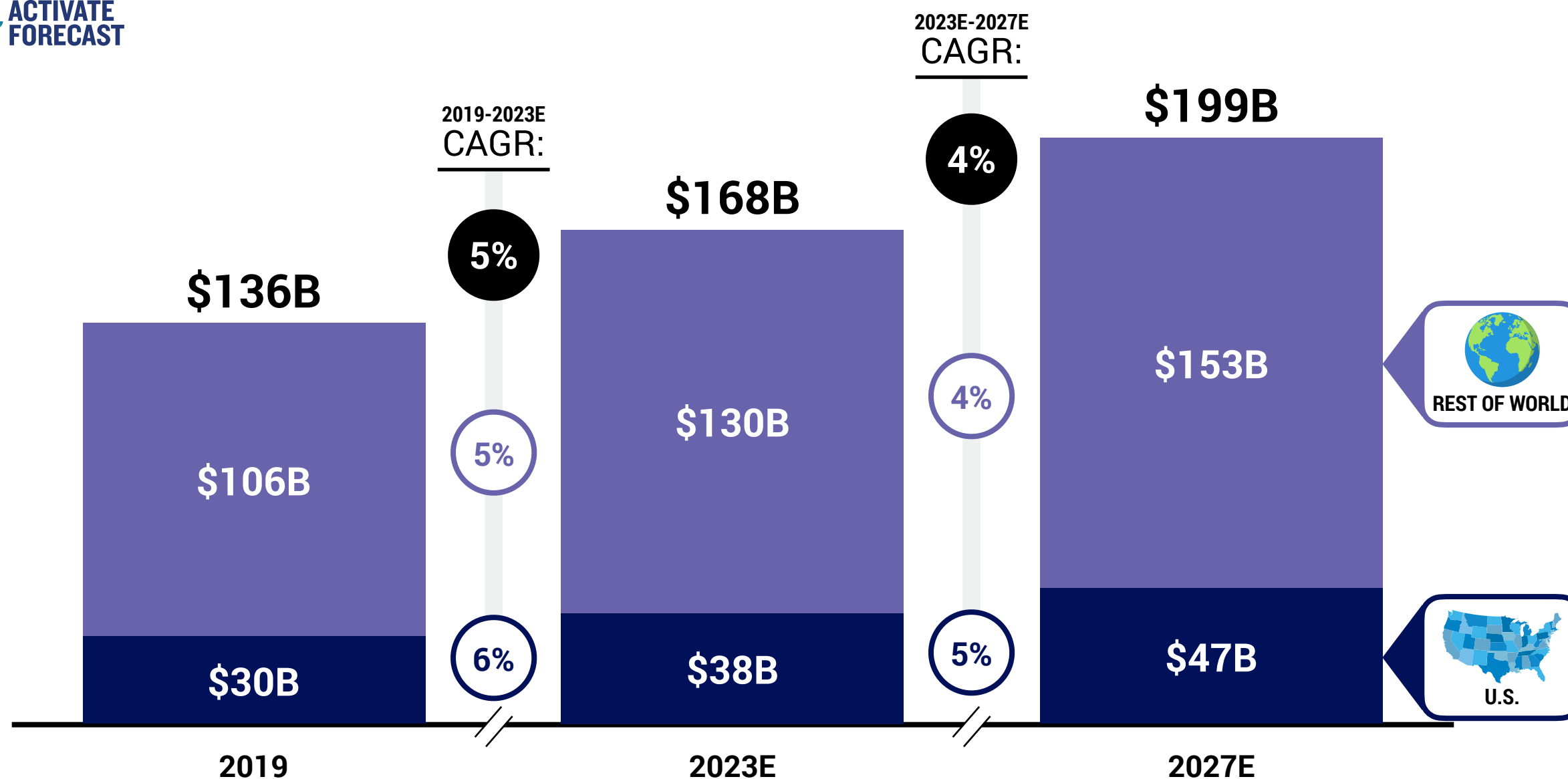
# Video gaming is one of the most widespread digital behaviors, with over 2.6B active global gamers, up from 2.0B in 2019

GAMING POPULATION BY REGION<sup>1</sup>, GLOBAL, 2019 VS. 2023E, MILLIONS GAMERS<sup>2</sup>



# We forecast that the global video game market will grow to nearly \$200B by 2027, with close to \$50B generated in the U.S.

CONSUMER VIDEO GAME REVENUE BY REGION<sup>1</sup>, GLOBAL, 2019 VS. 2023E VS. 2027E, BILLIONS USD



# Technology companies will continue to build out their capabilities and assets to become full-stack gaming players

SELECT MAJOR TECHNOLOGY COMPANIES' PRESENCE IN GAMING

	amazon	Apple	Google	Meta	Microsoft	NETFLIX	Nintendo	SONY	Tencent	VALVE
Announced, not yet released										
GAME PUBLISHER	games			oculus publishing	ACTIVISION BLIZZARD XBOX GAME STUDIOS	night school BOSSFIGHT SPRYFOX	Nintendo	Sony Interactive Entertainment	Tencent Games	VALVE
VIRTUAL WORLD	amazon   anywhere			Horizon Worlds REALITY LABS	MINECRAFT					garry's mod <sup>1</sup>
CONSOLE <sup>2</sup>					XBOX		NINTENDO SWITCH	PlayStation	logitech handheld Co-development	STEAM DECK
SPATIAL COMPUTING: AR/VR DEVICE		Apple Vision Pro*		Meta Quest Pro Meta Quest 3*	Microsoft HoloLens 2 HP REVERB G2 Co-development			PlayStation VR2		STEAM VR VALVE INDEX
CLOUD	luna			facebook gaming <sup>3</sup>	CLOUD GAMING <sup>4</sup>	Netflix Cloud Gaming*	NINTENDO SWITCH CLOUD STREAMING <sup>5</sup>	PlayStation.Plus	START	STEAM CLOUD PLAY
APP STORE	amazon appstore	Apple App Store	Google Play	Meta Quest Store	Microsoft Store		ONLINE Nintendo Switch Online	PlayStation Store	腾讯应用宝 Tencent App Store	STEAM
SUBSCRIPTION SERVICE	luna prime gaming	Apple Arcade	Google Play Pass	Meta Quest+	XBOX GAME PASS CLOUD GAMING <sup>4</sup> XBOX LIVE GOLD	NETFLIX	ONLINE Nintendo Switch Online	PlayStation.Plus	START	
GAMING AS VIDEO	twitch		YouTube	facebook gaming <sup>3</sup>					企鹅电竞 EGAME HUYA	STEAM TV

Note: Not exhaustive. Information as of Oct. 2023. Does not include areas in which company is a majority stakeholder.  
 1. Engine created by Valve and game eventually published by Valve, but independently developed by Garry Newman and Facepunch Studios. 2. Excludes devices with a primary purpose other than gaming (e.g. Apple TV). 3. Meta does not offer a standalone cloud service but allows streaming of select games through Facebook on Android and web. The standalone Facebook Gaming app for iOS and Android was shut down in Oct. 2022, but gaming features will remain available in the main Facebook app. 4. Only available through a bundle with Xbox Game Pass Ultimate. 5. On a game-by-game basis, not as a subscription or service.

Sources: Activate analysis, Company press releases, Company sites

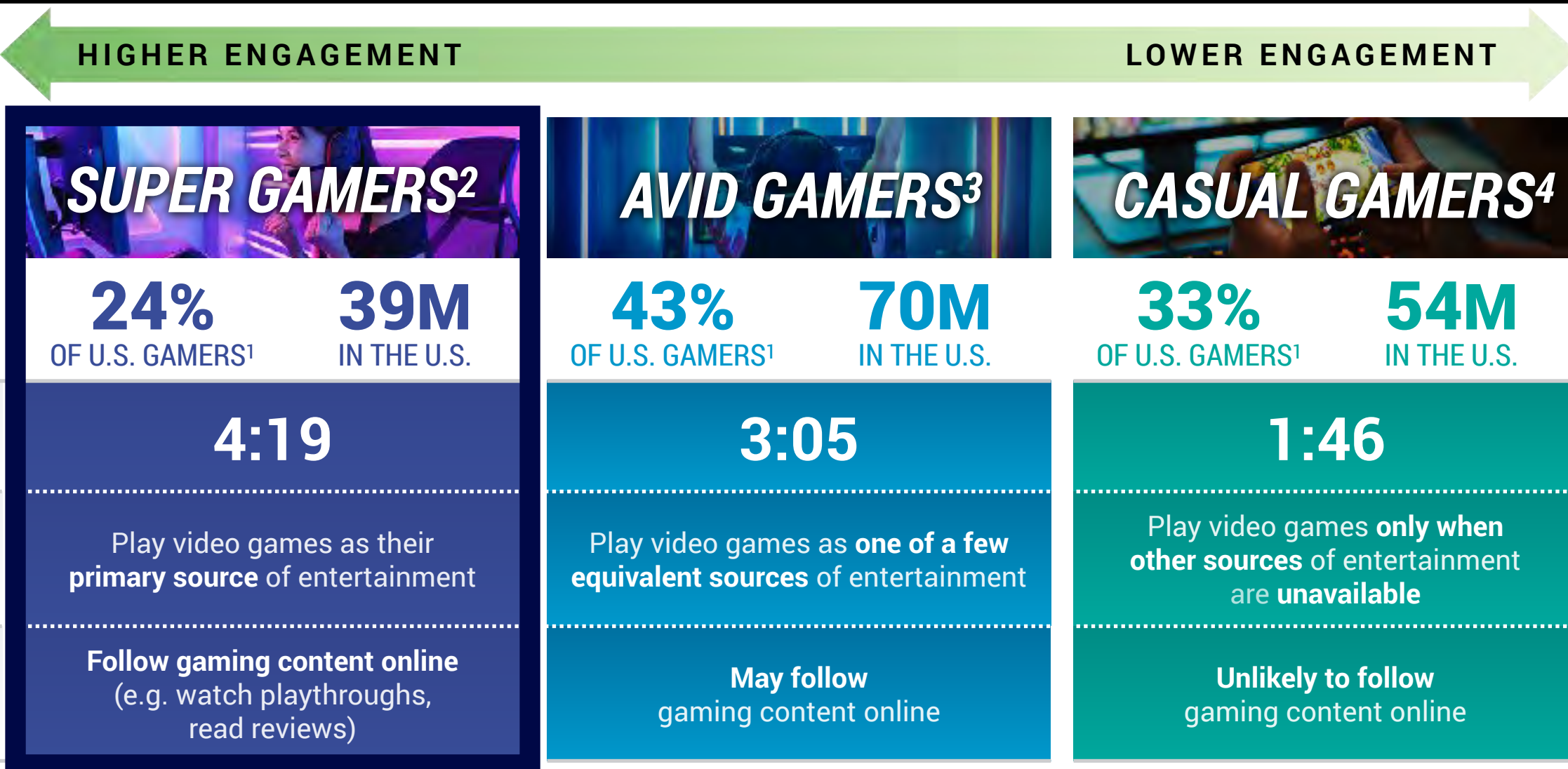
# Super Gamers have the highest level of engagement with video games and represent nearly a quarter of all U.S. gamers; these gamers will be the most critical segment for companies to target

OUR RESEARCH SHOWS THAT U.S. GAMERS<sup>1</sup> FALL INTO ONE OF THREE SEGMENTS...



HIGHER ENGAGEMENT

LOWER ENGAGEMENT



1. "Gamers" are defined as adults aged 18+ who currently play video games. 2. "Super Gamers" are defined as gamers who view gaming as their primary source of entertainment and follow gaming content online. 3. "Avid Gamers" are defined as gamers who view gaming as one of a few equivalent options for entertainment, or gamers who view gaming as their primary source of entertainment but do not follow gaming content online. 4. "Casual Gamers" are defined as gamers who only view gaming as an entertainment option when other options are not available, or gamers who view gaming as one of a few equivalent options for entertainment but do not follow gaming content online.  
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), data.ai, eMarketer, GWI, Newzoo, Nielsen, NPD Group, Omdia, PricewaterhouseCoopers, U.S. Census Bureau

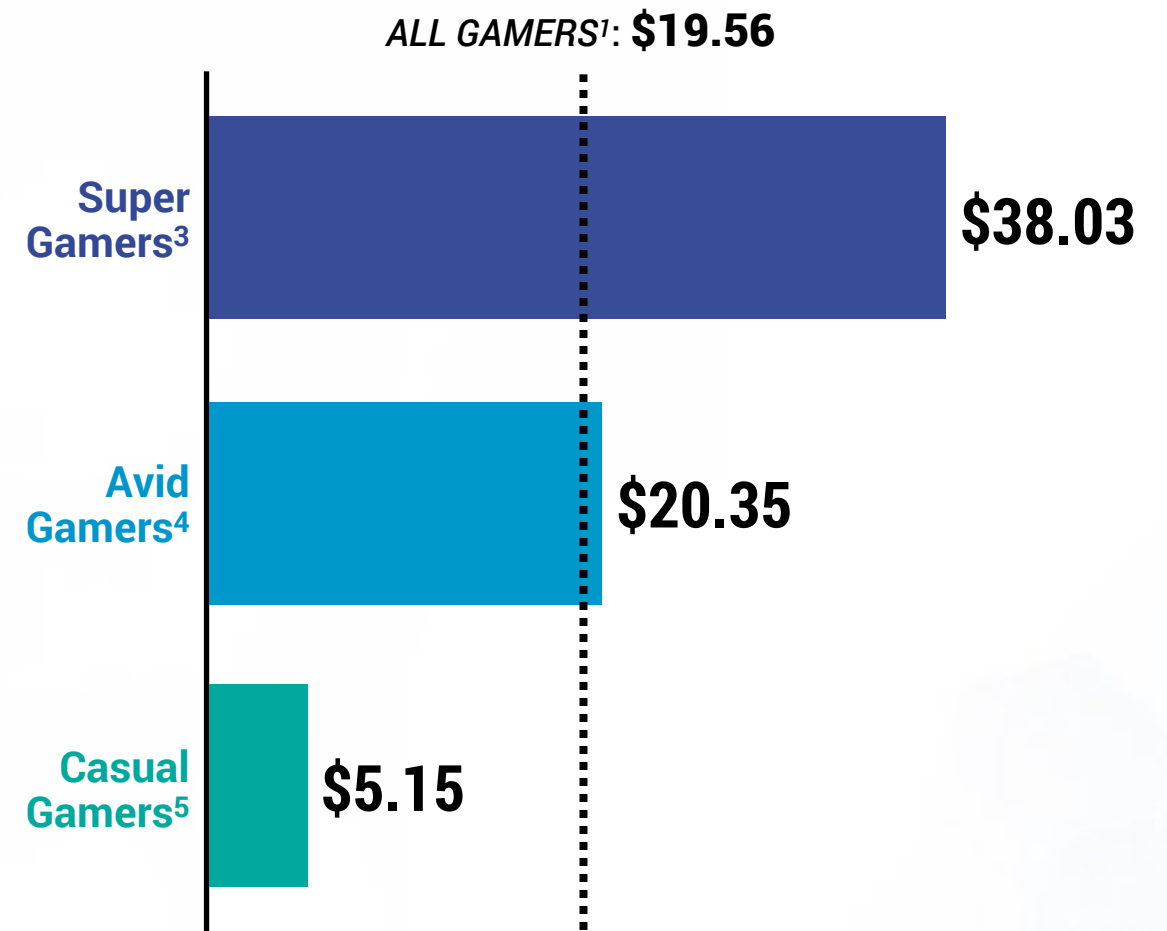


# The average gamer spends nearly \$20 per month on video games; Super Gamers spend nearly 2x as much as Avid Gamers and nearly 8x as much as Casual Gamers

AVERAGE MONTHLY SPEND PER GAMER<sup>1</sup> ON VIDEO GAMES<sup>2</sup>, U.S., 2019-2023E, USD PER MONTH



AVERAGE MONTHLY SPEND PER GAMER<sup>1</sup> ON VIDEO GAMES<sup>2</sup> BY SEGMENT, U.S., 2023, USD PER MONTH BY SEGMENT



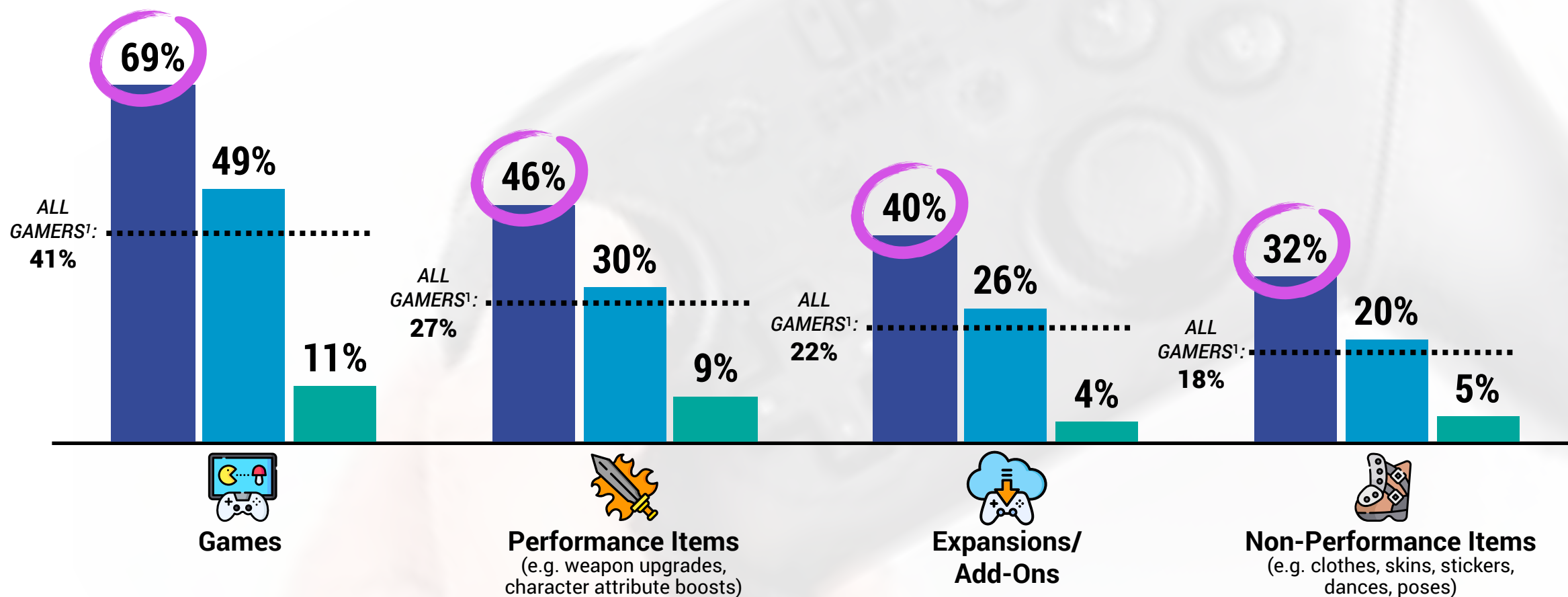
1. "Gamers" are defined as adults aged 18+ who currently play video games. 2. Includes spend on video games and other gaming purchases (e.g. in-game purchases, video gaming subscriptions) across all devices. Excludes spend on gaming devices and accessories. 3. "Super Gamers" are defined as gamers who view gaming as their primary source of entertainment and follow gaming content online. 4. "Avid Gamers" are defined as gamers who view gaming as one of a few equivalent options for entertainment, or gamers who view gaming as their primary source of entertainment but do not follow gaming content online. 5. "Casual Gamers" are defined as gamers who only view gaming as an entertainment option when other options are not available, or gamers who view gaming as one of a few equivalent options for entertainment but do not follow gaming content online. Sources: Activate analysis, Activate 2019 Consumer Technology & Media Research Study (n = 4,006), Activate 2020 Consumer Technology & Media Research Study (n = 4,003), Activate 2021 Consumer Technology & Media Research Study (n = 4,018), Activate 2022 Consumer Technology & Media Research Study (n = 4,001), Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Newzoo, Omdia, PricewaterhouseCoopers, U.S. Census Bureau

# Super Gamers are also more likely to spend on in-game purchases to enhance their gaming experience, including performance items, expansions/add-ons, and non-performance items

GAMING PURCHASES IN THE LAST 12 MONTHS BY TYPE, U.S., 2023, % GAMERS<sup>1</sup> BY SEGMENT



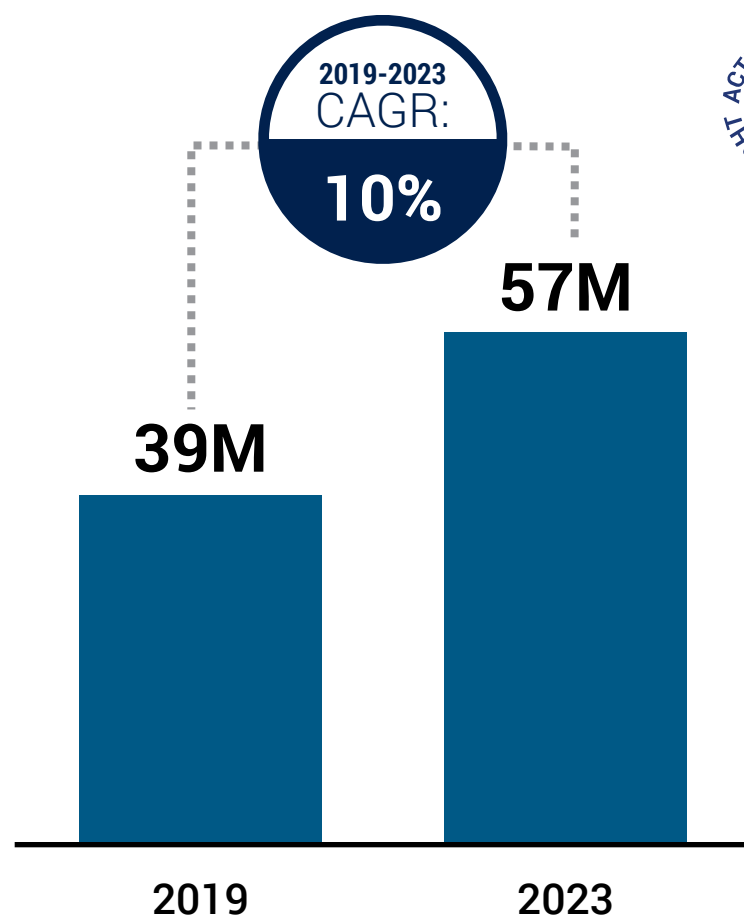
■ % Super Gamers<sup>2</sup> ■ % Avid Gamers<sup>3</sup> ■ % Casual Gamers<sup>4</sup>



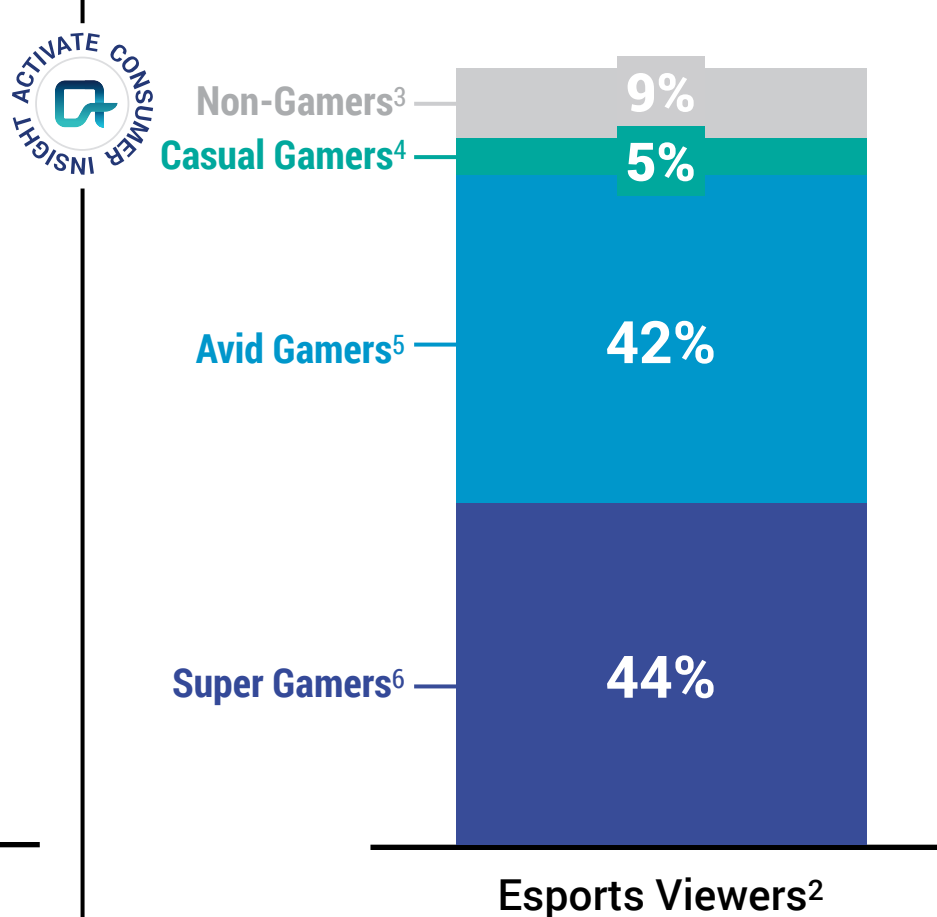
1. "Gamers" are defined as adults aged 18+ who currently play video games. 2. "Super Gamers" are defined as gamers who view gaming as their primary source of entertainment and follow gaming content online. 3. "Avid Gamers" are defined as gamers who view gaming as one of a few equivalent options for entertainment, or gamers who view gaming as their primary source of entertainment but do not follow gaming content online. 4. "Casual Gamers" are defined as gamers who only view gaming as an entertainment option when other options are not available, or gamers who view gaming as one of a few equivalent options for entertainment but do not follow gaming content online. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

# Super Gamers and Avid Gamers make up the vast majority of the 57M esports viewers in the U.S. today

ESPORTS VIEWERSHIP, U.S., 2019 VS. 2023, MILLIONS ESPORTS VIEWERS<sup>1,2</sup>



ESPORTS VIEWERS<sup>2</sup> BY SEGMENT, U.S., 2023, % ADULTS AGED 18+



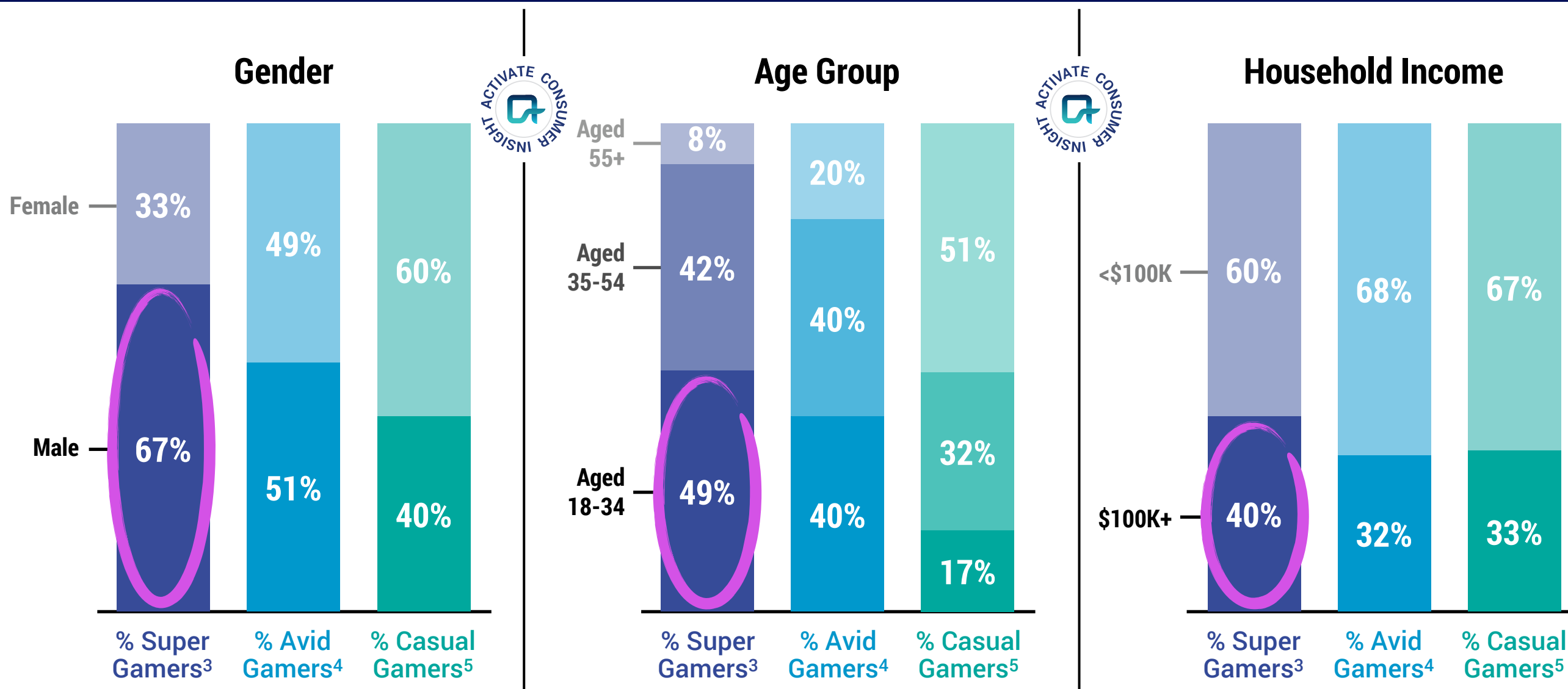
MOST WATCHED ESPORTS GAMES, GLOBAL<sup>7</sup>, 2022, MILLIONS HOURS WATCHED



1. "Esports viewers" (2019) are defined as adults aged 18+ who have watched an esports competition at any point in time. 2. "Esports viewers" (2023) are defined as adults aged 18+ who have watched or attended an esports competition within the last 12 months. 3. "Gamers" are defined as adults aged 18+ who currently play video games. 4. "Casual Gamers" are defined as gamers who only view gaming as an entertainment option when other options are not available, or gamers who view gaming as one of a few equivalent options for entertainment but do not follow gaming content online. 5. "Avid Gamers" are defined as gamers who view gaming as one of a few equivalent options for entertainment, or Gamers who view gaming as their primary source of entertainment but do not follow gaming content online. 6. "Super Gamers" are defined as gamers who view gaming as their primary source of entertainment and follow gaming content online. 7. Excludes hours watched on Chinese streaming platforms. Sources: Activate analysis, Activate 2019 Consumer Technology & Media Research Study (n = 4,006), Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Esports Charts, U.S. Census Bureau

# Gamers in each segment are behaviorally and demographically distinct; Super Gamers are more likely to be male, young, and high-income

GAMER<sup>1</sup> DEMOGRAPHICS BY SEGMENT<sup>2</sup>, U.S., 2023, % GAMERS<sup>1</sup> BY SEGMENT

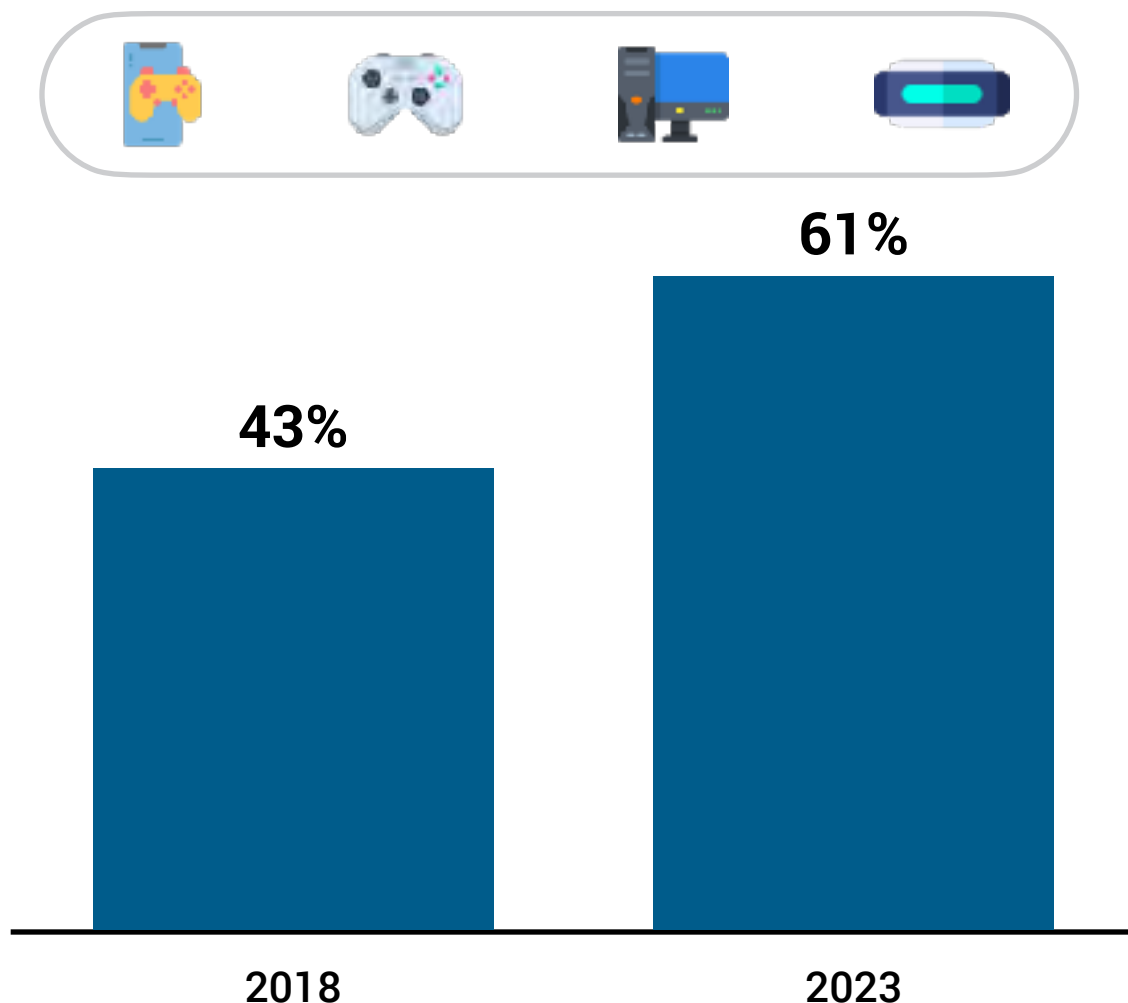


1. "Gamers" are defined as adults aged 18+ who currently play video games. 2. Figures do not sum to 100% due to rounding. 3. "Super Gamers" are defined as gamers who view gaming as their primary source of entertainment and follow gaming content online. 4. "Avid Gamers" are defined as gamers who view gaming as one of a few equivalent options for entertainment, or gamers who view gaming as their primary source of entertainment but do not follow gaming content online. 5. "Casual Gamers" are defined as gamers who only view gaming as an entertainment option when other options are not available, or gamers who view gaming as one of a few equivalent options for entertainment but do not follow gaming content online. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

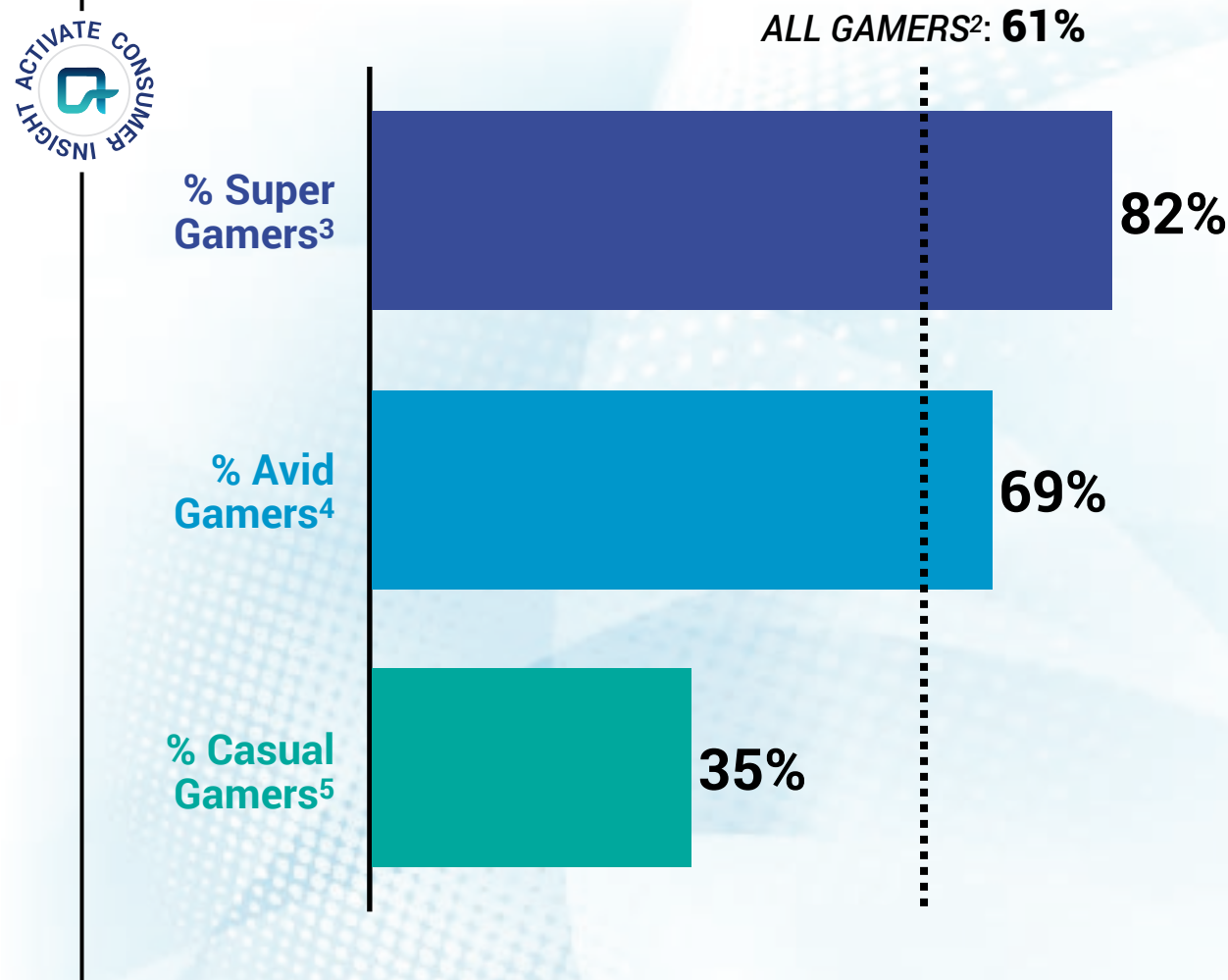


# Gamers have increasingly become multi-platform, with over 60% using more than one platform today; Super Gamers are the most likely to play across two or more platforms

MULTI-PLATFORM GAMERS<sup>1</sup>, U.S., 2018 VS. 2023, % GAMERS<sup>2</sup>



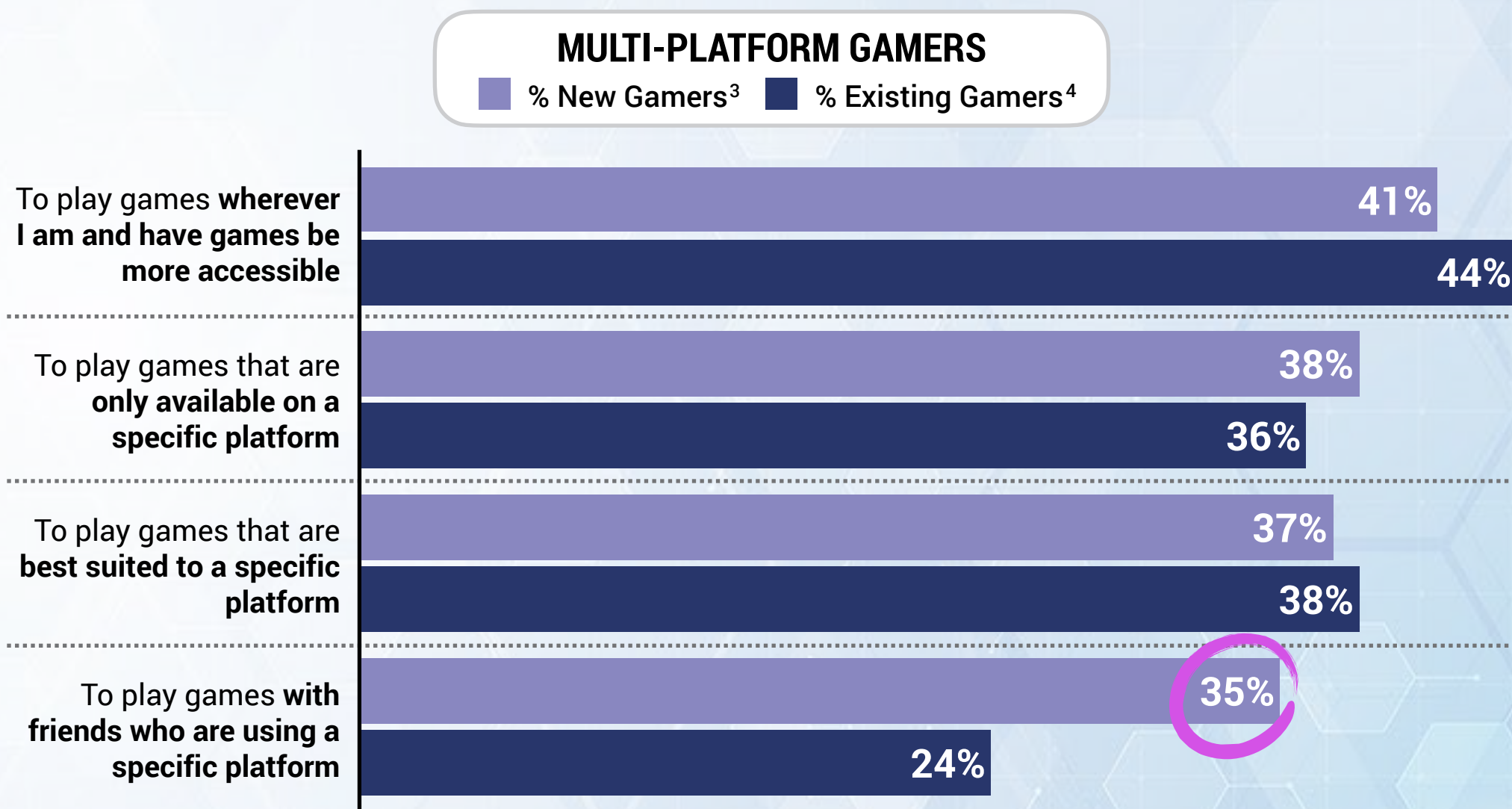
MULTI-PLATFORM GAMERS<sup>1</sup> BY SEGMENT, U.S., 2023, % GAMERS<sup>2</sup> BY SEGMENT



1. "Multi-platform Gamers" are defined as gamers who currently play video games across two or more platforms (i.e. mobile, console, PC, VR device). 2. "Gamers" are defined as adults aged 18+ who currently play video games. 3. "Super Gamers" are defined as gamers who view gaming as their primary source of entertainment and follow gaming content online. 4. "Avid Gamers" are defined as gamers who view gaming as one of a few equivalent options for entertainment, or gamers who view gaming as their primary source of entertainment but do not follow gaming content online. 5. "Casual Gamers" are defined as gamers who only view gaming as an entertainment option when other options are not available, or gamers who view gaming as one of a few equivalent options for entertainment but do not follow gaming content online. Sources: Activate analysis, Activate 2018 Consumer Technology & Media Research Study (n = 4,000), Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

# New gamers are more likely to start using an additional platform to play with friends

TOP REASONS<sup>1</sup> FOR USING MULTIPLE GAMING PLATFORMS BY GAMER TYPE, U.S., 2023, % MULTI-PLATFORM GAMERS<sup>2</sup> BY GAMER TYPE

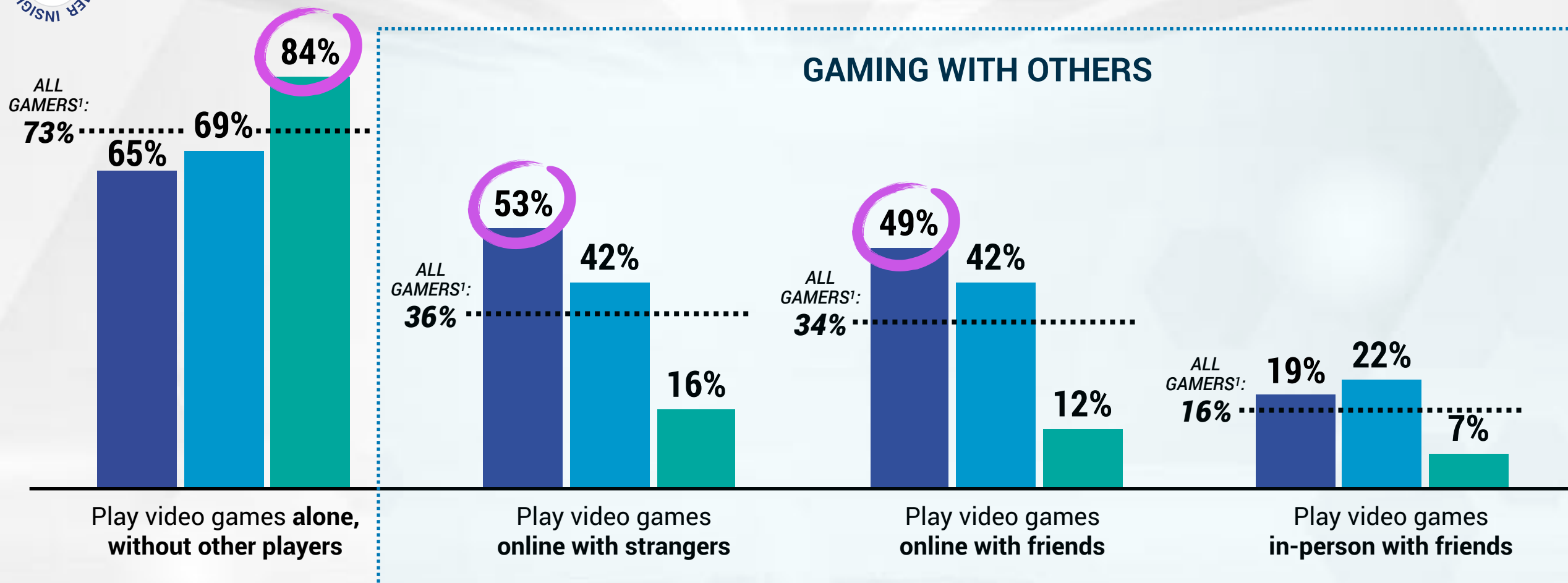


1. Consumers were asked to select up to two top reasons. 2. "Multi-platform Gamers" are defined as gamers who currently play video games across two or more platforms (i.e. mobile, console, PC, VR device). 3. "New Gamers" are defined as adults aged 18+ who started playing video games in the last 12 months. 4. "Existing Gamers" are defined as adults aged 18+ who started playing video games more than 12 months ago.

Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

# Super Gamers are more likely to play games online with friends or strangers, highlighting multiplayer functionality as a critical value driver, while Casual Gamers are more likely to play alone

SOCIAL GAMING BEHAVIOR, U.S., 2023, % GAMERS<sup>1</sup> BY SEGMENT



1. "Gamers" are defined as adults aged 18+ who currently play video games. 2. "Super Gamers" are defined as gamers who view gaming as their primary source of entertainment and follow gaming content online. 3. "Avid Gamers" are defined as gamers who view gaming as one of a few equivalent options for entertainment, or gamers who view gaming as their primary source of entertainment but do not follow gaming content online. 4. "Casual Gamers" are defined as gamers who only view gaming as an entertainment option when other options are not available, or gamers who view gaming as one of a few equivalent options for entertainment but do not follow gaming content online. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)




# The top-performing PC and console game titles of the last year offer multiplayer, open-world, and cross-platform features to enable creative and connected experiences for gamers

## TOP-EARNING PAID PC AND CONSOLE VIDEO GAME TITLES, U.S., 2022


 NINTENDO SWITCH 
  PLAYSTATION 
  XBOX 
  DESKTOP/LAPTOP

**1**




**CALL OF DUTY: MODERN WARFARE II (2022)<sup>1</sup>**

**2**



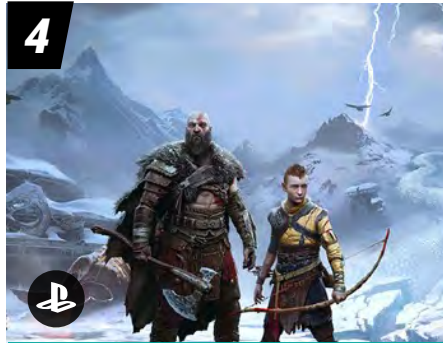
**ELDEN RING**

**3**



**MADDEN NFL 23**

**4**



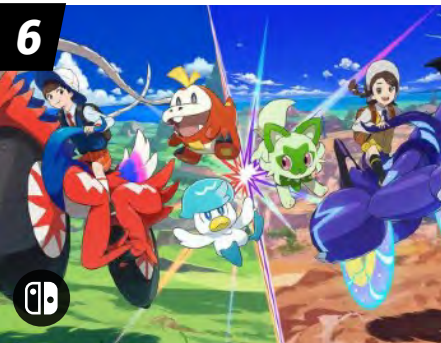
**GOD OF WAR: RAGNAROK<sup>2</sup>**

**5**



**LEGO STAR WARS: THE SKYWALKER SAGA**

**6**




**POKEMON: SCARLET/VIOLET<sup>3</sup>**

**7**




**FIFA 23**

**8**




**POKEMON LEGENDS: ARCEUS**

**9**



**HORIZON II: FORBIDDEN WEST**

**10**



**MLB: THE SHOW 22**

**Includes Multiplayer**  
(i.e. ability to play with others)

**Includes Open World**  
(i.e. ability to freely explore and interact with environment)

**Includes Cross-Platform Compatibility**  
(i.e. ability to play online with players using different platforms)

1. Refers to 2022 reboot sequel. Gameplay is primarily linear but features an open-world, narrative-focused extraction mode called DMZ. 2. Gameplay is primarily linear but features side quests with an open-world, exploration element. 3. Multiplayer functionality only includes trading between players. Sources: Activate analysis, Company sites, NPD Group



# The top-earning mobile game titles offer integrated social features and unique rewards for playing online with friends, suggesting that gaming is increasingly a community-driven behavior

TOP-EARNING<sup>1</sup> MOBILE GAME TITLES, GLOBAL, 2022, BILLIONS USD

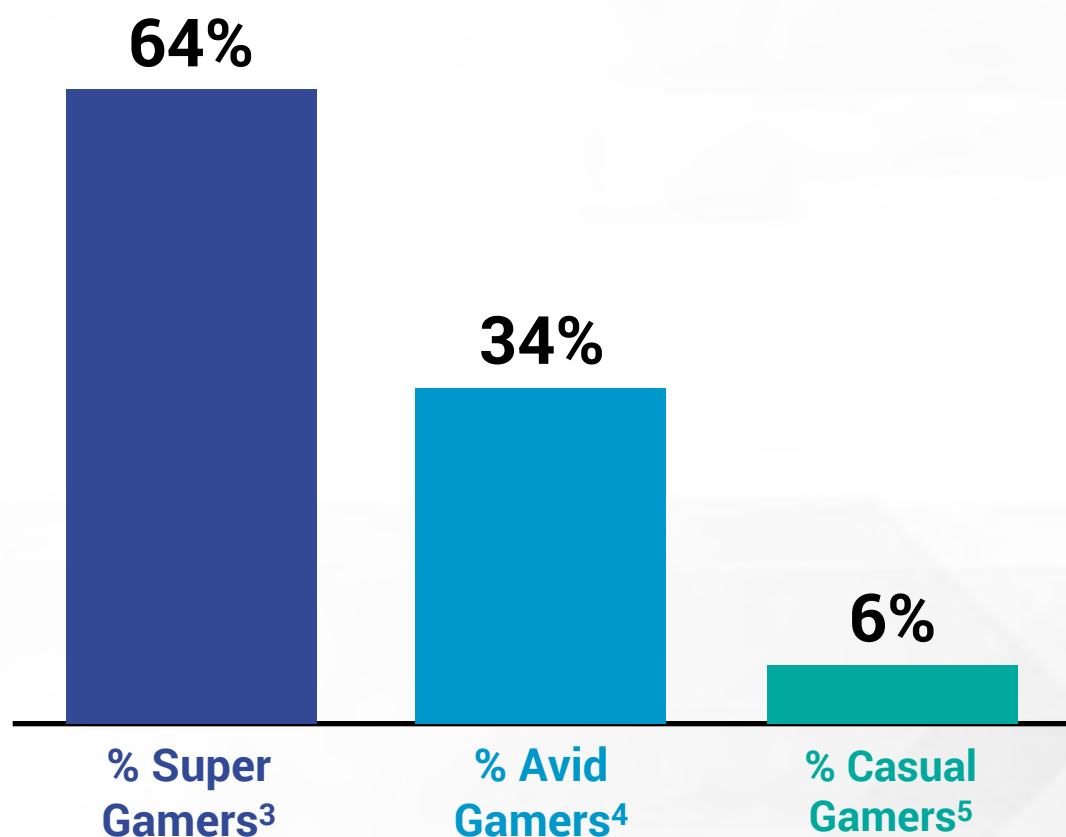
MOBILE GAMING TITLE	REVENUE	SOCIAL FEATURES/REWARDS
	\$2.8B	<ul style="list-style-type: none"> <li>• Integration with social apps</li> <li>• Play in ranked matchmaking system</li> </ul>
	\$2.1B	<ul style="list-style-type: none"> <li>• In-game voice chat with friends</li> <li>• Invite and compete against other users</li> </ul>
	\$1.9B	<ul style="list-style-type: none"> <li>• Cross-platform play</li> <li>• Explore open world with friends</li> </ul>
	\$1.3B	<ul style="list-style-type: none"> <li>• Competitive leaderboards</li> <li>• Gift lives and help friends beat levels</li> </ul>
	\$1.1B	<ul style="list-style-type: none"> <li>• Spatial voice chat</li> <li>• Trade with other players</li> </ul>
	\$1.0B	<ul style="list-style-type: none"> <li>• Competitions with teams of up to 50 people</li> <li>• Send free spins to friends</li> </ul>

## KEY FEATURES ENABLING SOCIAL INTERACTION

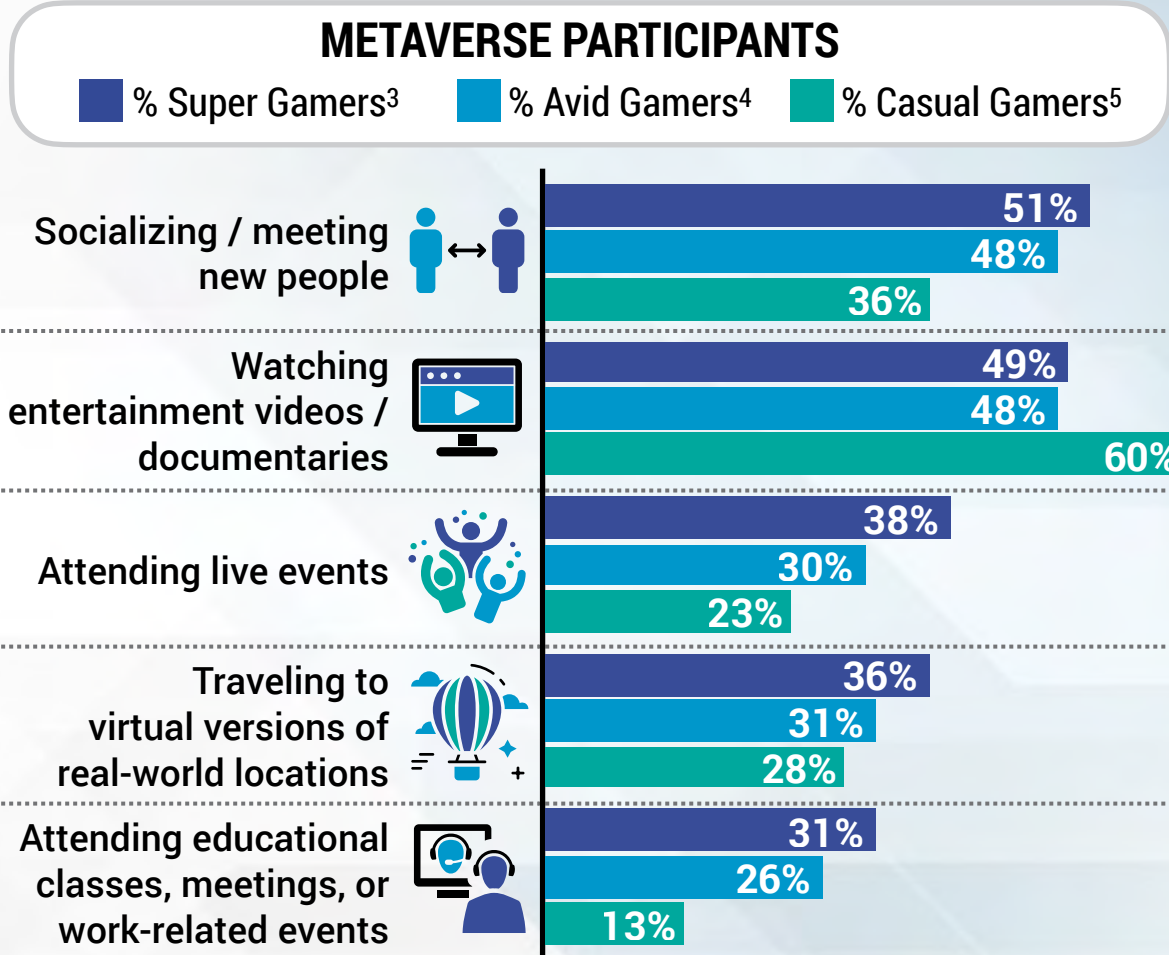
- **Native integrations with social apps/networks** allow players to easily invite friends to form teams or compete in games
- **Voice chat and messaging features** within games allow users to communicate in real time during sessions
- **Options for users to exchange in-game goods** (e.g. free lives, free spins) further encourages socializing within mobile games

# Super Gamers are the earliest adopters of the Metaverse, as they are the most likely to participate in Metaverse activities within games today

METaverse PARTICIPATION<sup>1</sup> IN THE LAST 12 MONTHS, U.S., 2023, % GAMERS<sup>2</sup> BY SEGMENT



METaverse PARTICIPATION<sup>1</sup> IN THE LAST 12 MONTHS BY ACTIVITY, U.S., 2023, % METaverse PARTICIPANTS<sup>1</sup> BY SEGMENT



1. "Metaverse participation" includes socializing / meeting new people, watching entertainment videos / documentaries, attending live events, traveling to virtual versions of real-world locations, and attending educational classes, meetings, or work-related events within an immersive virtual world in the last 12 months. 2. "Gamers" are defined as adults aged 18+ who currently play video games. 3. "Super Gamers" are defined as gamers who view gaming as their primary source of entertainment and follow gaming content online. 4. "Avid Gamers" are defined as gamers who view gaming as one of a few equivalent options for entertainment, or gamers who view gaming as their primary source of entertainment but do not follow gaming content online. 5. "Casual Gamers" are defined as gamers who only view gaming as an entertainment option when other options are not available, or gamers who view gaming as one of a few equivalent options for entertainment but do not follow gaming content online.

Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)




# In-game advertising, integrated sponsorships, and placements seamlessly drive brand awareness and sales

## EXAMPLES OF IN-GAME ADVERTISING, SPONSORSHIPS, AND BRAND PLACEMENTS

**FORTNITE**

RALPH LAUREN



Fortnite partnered with **Ralph Lauren** to offer Lauren-branded in-game outfits for players to purchase for their characters

**ROBLOX**


TOMMY HILFINGER



Roblox launched **TOMMY PLAY**, an immersive community space in which users can collect Tommy Coins to trade in for virtual **Tommy Hilfigner** apparel and accessories

**NBA 2K23**


adidas Nike PUMA UNDER ARMOUR



**NBA 2K23's MyCareer** mode allows gamers to customize their basketball players using digital versions of real gear from brands like **Adidas, Nike, Puma, and Under Armour**

**MINECRAFT**

BURBERRY



**Minecraft** collaborated with fashion brand **Burberry** to launch an in-game experience that allowed players to explore a Burberry-themed map and access exclusive branded skins

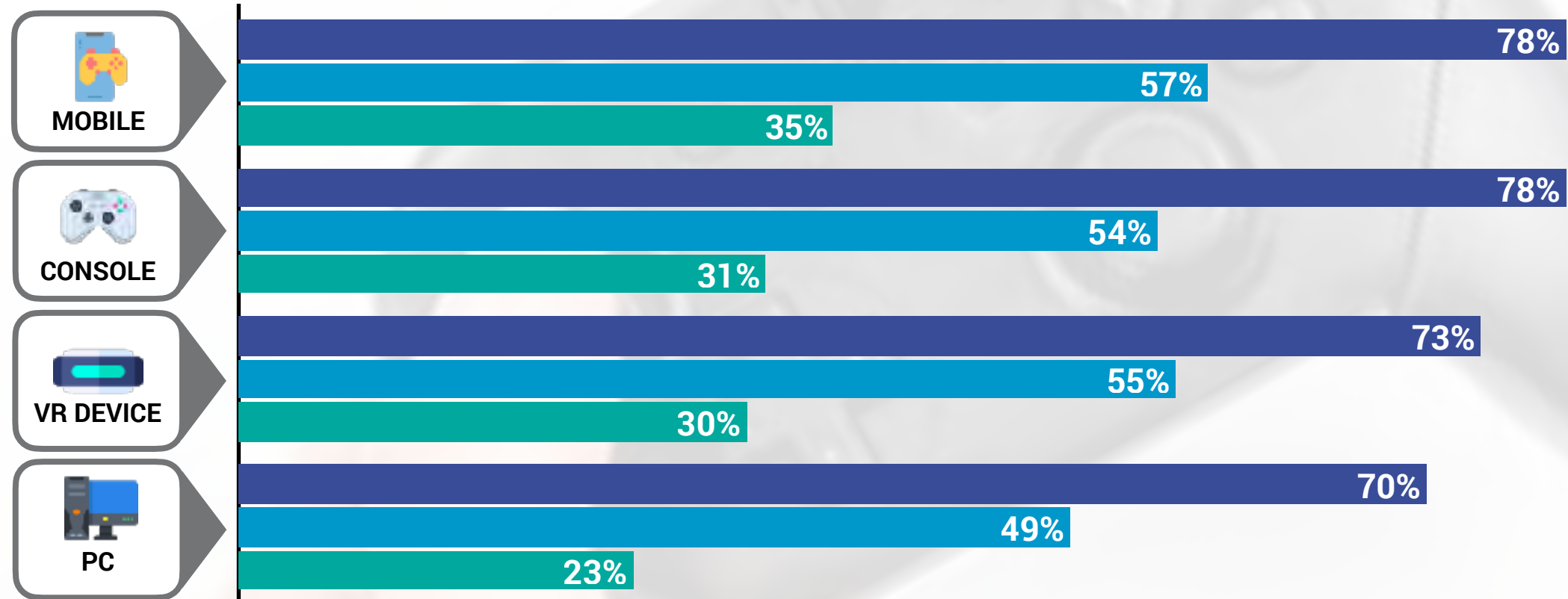
# Super Gamers are the most receptive to in-game advertising, especially in mobile and console games

WILLINGNESS TO VIEW IN-GAME ADVERTISEMENTS IN EXCHANGE FOR FREE IN-GAME CONTENT BY GAMING PLATFORM, U.S., 2023, % GAMERS<sup>1</sup> WHO USE EACH PLATFORM BY SEGMENT



■ % Super Gamers<sup>2</sup> ■ % Avid Gamers<sup>3</sup> ■ % Casual Gamers<sup>4</sup>

*Extremely or very willing to view in-game ads in exchange for free in-game content on...*



1. "Gamers" are defined as adults aged 18+ who currently play video games. 2. "Super Gamers" are defined as gamers who view gaming as their primary source of entertainment and follow gaming content online. 3. "Avid Gamers" are defined as gamers who view gaming as one of a few equivalent options for entertainment, or gamers who view gaming as their primary source of entertainment but do not follow gaming content online. 4. "Casual Gamers" are defined as gamers who only view gaming as an entertainment option when other options are not available, or gamers who view gaming as one of a few equivalent options for entertainment but do not follow gaming content online.

Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)



# Movie studios will increasingly leverage gaming IP in all forms of media and entertainment to capitalize on growing consumer affinity and demand

## SELECT TV/FILM ADAPTATIONS OF GAMING IP



### THE LAST OF US

JANUARY 2023

HBO's *The Last of Us* premier drew 4.7M viewers in the U.S. (HBO's second-largest debut<sup>1</sup>) and the series averaged over 30M viewers per episode



### THE SUPER MARIO BROS. MOVIE

APRIL 2023

*The Super Mario Bros. Movie* brought in over \$1.3B in global box office, now ranking as the second-largest animated film of all time<sup>1</sup>



### THE WITCHER (SEASON 3)

JUNE 2023

Netflix's *The Witcher* has had three seasons ranking in Netflix's top 10 shows; following the release of Season 2, *The Witcher* video game spiked to 71K concurrent players



### TWISTED METAL

JULY 2023

Sony's adaptation of *Twisted Metal* became one of the top five original series launched on Peacock<sup>2</sup> and was one of the streamer's "most-binged" comedy premieres



### SONIC THE HEDGEHOG 3

SCHEDULED: DECEMBER 2024

After *Sonic the Hedgehog 2* surpassed \$400M at the global box office, Paramount announced *Sonic the Hedgehog 3*, set for release at the end of 2024

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# Enabled by generative AI, the Metaverse is closer to realization than ever; we expect that there will be over 600M Metaverse users by 2026

- ▶ **Generative AI will accelerate the development of the Metaverse**, enabling faster creation and scaling of virtual worlds, lowering barriers for entry and creation for all users, and allowing for a broad set of immersive social interactions

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- ▶ **The Metaverse is already here in video games**: virtual worlds, users at scale, social interactions, and sophisticated user creation already exist today inside of video games

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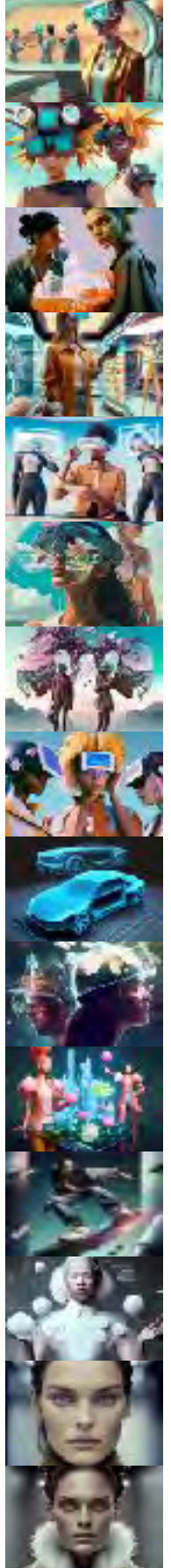
- ▶ **Today, there are already 300M+ active users in Metaverse video games and virtual world platforms**; with generative AI as the enabler, we forecast that there will be over **600M** people in the Metaverse within three years

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- ▶ **The line between physical and virtual experiences is blurring**; most digital behaviors and daily activities are already taking place inside of Metaverse video games and virtual world platforms – this is just the beginning

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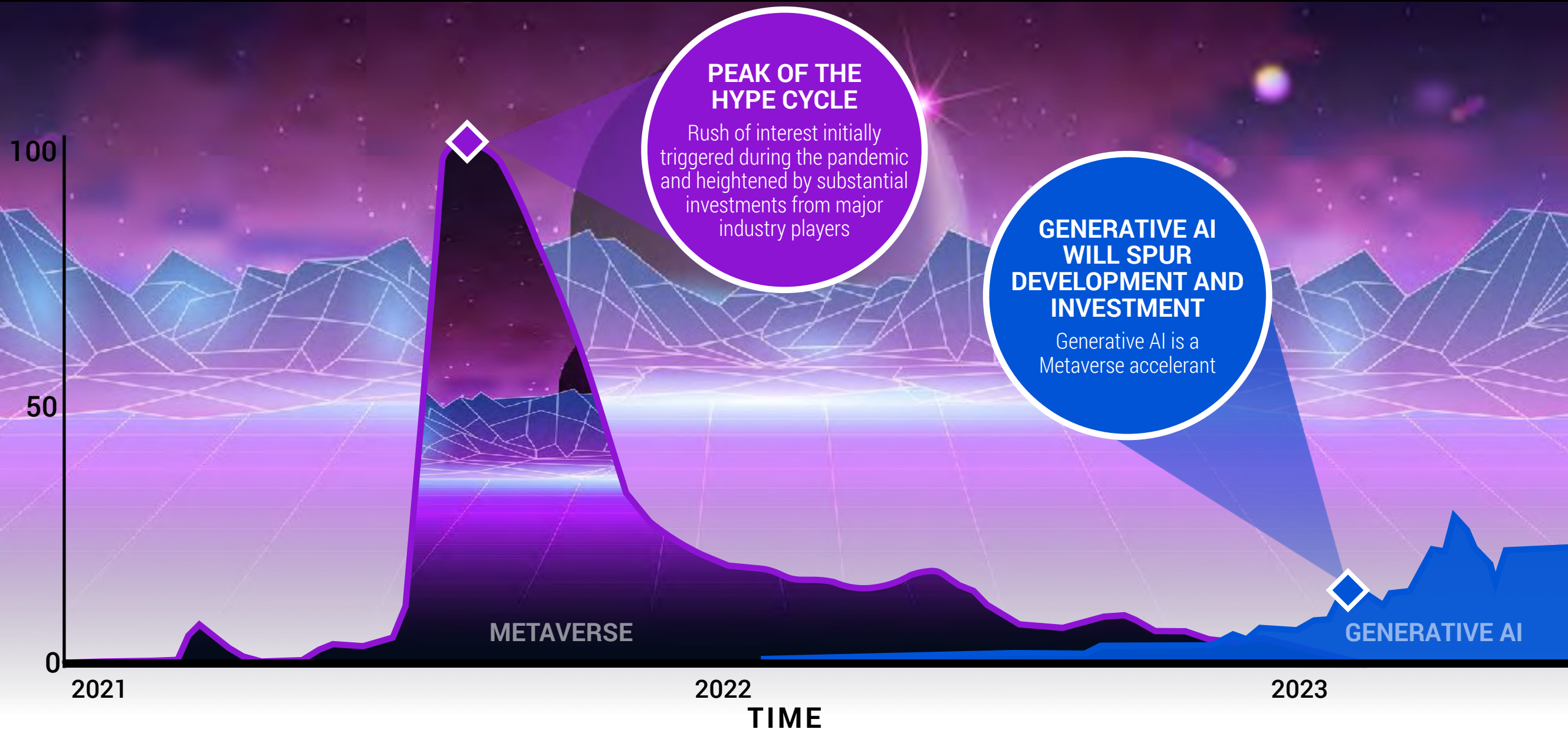
- ▶ **Now that the Metaverse is beyond its peak hype cycle, companies will need to create practical and future-proofed Metaverse strategies**, prioritizing investments in the context of their companies' broader consumer engagement and technology development agendas





# The Metaverse is past its peak hype cycle; we are at an inflection point where AI will accelerate its realization, and companies will need to begin sustained development and investment

GOOGLE SEARCH INTEREST<sup>1</sup> IN THE METaverse AND GENERATIVE AI, U.S., JAN. 2021-AUG. 2023, SEARCH INTEREST INDEXED TO PEAK METaverse INTEREST





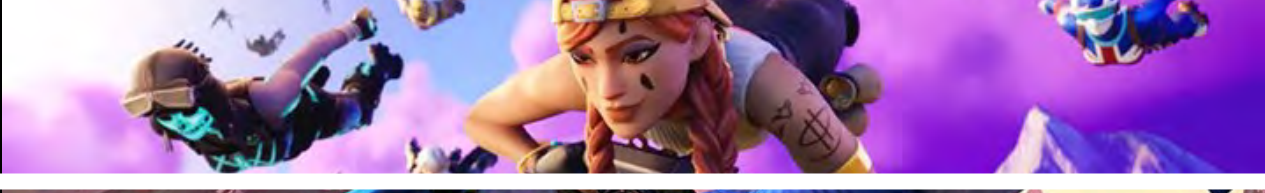
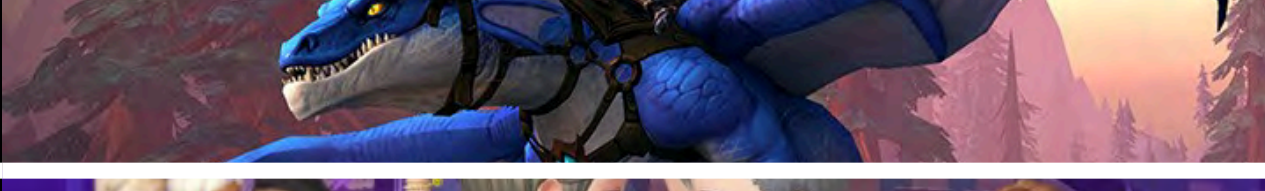


**PEAK OF THE HYPE CYCLE**  
 Rush of interest initially triggered during the pandemic and heightened by substantial investments from major industry players

**GENERATIVE AI WILL SPUR DEVELOPMENT AND INVESTMENT**  
 Generative AI is a Metaverse accelerant

1. Google Trends captures search interest in topics on a scale of 1-100 over time, with 100 representing peak interest. Data shown represents Google search interest for “Metaverse” and “Generative AI,” indexed to peak “Metaverse” interest. Sources: Activate analysis, Google Trends

Today, there are already 300M+ people globally in major Metaverse video games and virtual world platforms; enabled by generative AI, this will be 600M people worldwide by 2026

MONTHLY ACTIVE USERS OF SELECT METAVERSE GAMES, GLOBAL, 2023, MILLIONS MONTHLY ACTIVE USERS

<b>ROBLOX</b>		<b>210M<sup>1</sup></b>
<b>MINECRAFT</b>		<b>180M<sup>1</sup></b>
<b>FORTNITE</b>		<b>70M<sup>2</sup></b>
<b>WORLD OF WARCRAFT</b>		<b>26M<sup>3</sup></b>
<b>ZEPETO</b>		<b>20M<sup>4</sup></b>
<b>Other</b>		



# Elements of the Metaverse: Shared Immersive Experiences, Social Interactions, and Workplace Collaboration

## SHARED IMMERSIVE EXPERIENCES



EXPLORE THE OPEN-GAME SPACE UNIVERSE OF EVE ONLINE; ENGAGE IN PLAYER-DRIVEN ECONOMIES AND MULTIPLAYER BATTLES

## SOCIAL INTERACTIONS



BUILD, EXPLORE, AND COLLABORATE WITH FRIENDS AND ONLINE COMMUNITIES IN MINECRAFT'S VIRTUAL WORLDS

## WORKPLACE COLLABORATION



BUILD IMMERSIVE WORKSPACES TO GATHER WITH COWORKERS AND ATTEND MEETINGS USING MICROSOFT MESH FOR TEAMS



# Generative AI will accelerate the realization of the Metaverse





# Generative AI will turn all users and companies into developers with the power to create professional-level graphics and experiences via plain language text and image inputs, requiring little to no coding skills

## GENERATIVE AI METaverse USE CASES



**CREATE INSTANT LANDSCAPES TO SCALE METaverse WORLDS**



**CUSTOMIZE AVATARS TO SPECIFICATIONS OF USERS**



**POWER SOPHISTICATED, HYPER-REALISTIC NPCs**



**GENERATE ONE-OF-A-KIND ART PIECES**



**DESIGN ENGAGING EDUCATION AND TRAINING PROGRAMS**



**CRAFT ADAPTABLE, USER-SPECIFIC STORYLINES**



**PRODUCE UNIQUE AUDIO TRACKS IN REAL TIME**



**BUILD 3D REPLICAS OF THE PHYSICAL WORLD**



**DELIVER VIRTUAL SERVICES**



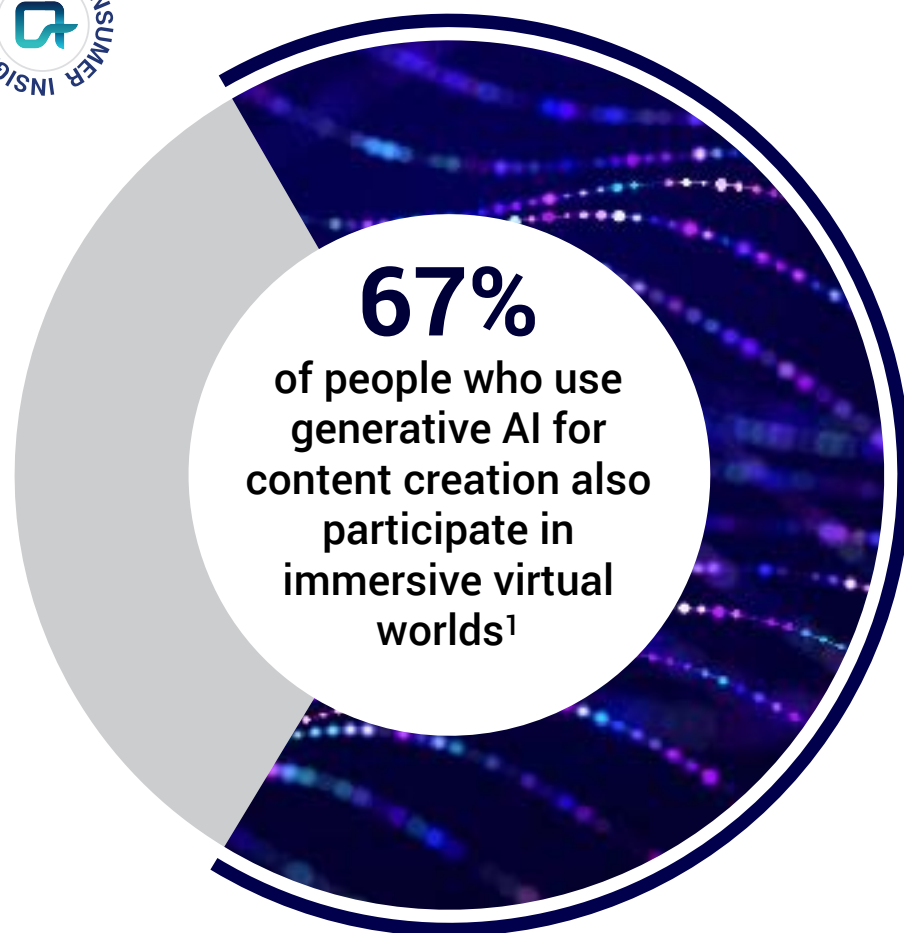
**CREATE CUSTOM PERSONALITIES AND BIOGRAPHIES**

★ IMAGES CREATED USING GENERATIVE AI



# Generative AI tools significantly lower the barrier to entry for user creation and agency across the full set of creator use cases

**IMMERSIVE VIRTUAL WORLD<sup>1</sup> PARTICIPATION IN THE LAST 12 MONTHS, U.S., 2023, % ADULTS AGED 18+ WHO HAVE USED GENERATIVE AI FOR CONTENT CREATION IN THE LAST 12 MONTHS**



## EXAMPLE GENERATIVE AI COMPANIES & TOOLS

	AI software that creates AI-driven NPCs and digital twins that can think, talk, and act spontaneously (launched Jul. 2021)
	AI chatbot that responds to users' queries with detailed, comprehensive, and human-like text answers (launched Nov. 2022)
	AI system that translates natural language to code in a variety of programming languages (launched Jun. 2022)
	AI software that takes 2D reference images and rapidly creates 3D models of objects/spaces (launched Mar. 2022)
	AI service that generates images from natural language prompts (launched Mar. 2022)
	Deep learning text-to-image model, focused on greatly minimizing image generation time (announced Jan. 2023)
	AI tool that produces and edits audio and speech (e.g. matching voices, styles) without training through in-context learning (announced Jun. 2023)
	AI tool that generates 3D objects, animations, and textures using text prompts (launched Apr. 2023)
	AI model that allows users to generate hyper-specific images from any line of text (launched Nov. 2022)




# Enterprise-grade developer tools are becoming more consumerized, enabling further creation for virtual worlds


## EXAMPLES OF CREATOR TOOLS FOR THE METaverse



- Unity's ProBuilder is a hybrid design tool with **tutorials for beginners** and a **consumer-friendly interface**, providing **easy access to world generation and object modeling**
- Unity offers a **visual scripting alternative to text code**, allowing programmers, artists, and designers to collaborate more effectively
- Users have access to the **largest VR asset library**



- Unreal Engine Blueprints Visual Scripting system **allows users to create game elements without coding**
- Unreal focuses on **hyper-realism**, with more realistic textures, environments, and high-end assets
- Unreal is known for **top-tier graphics and performance**, creating an optimized immersive experience



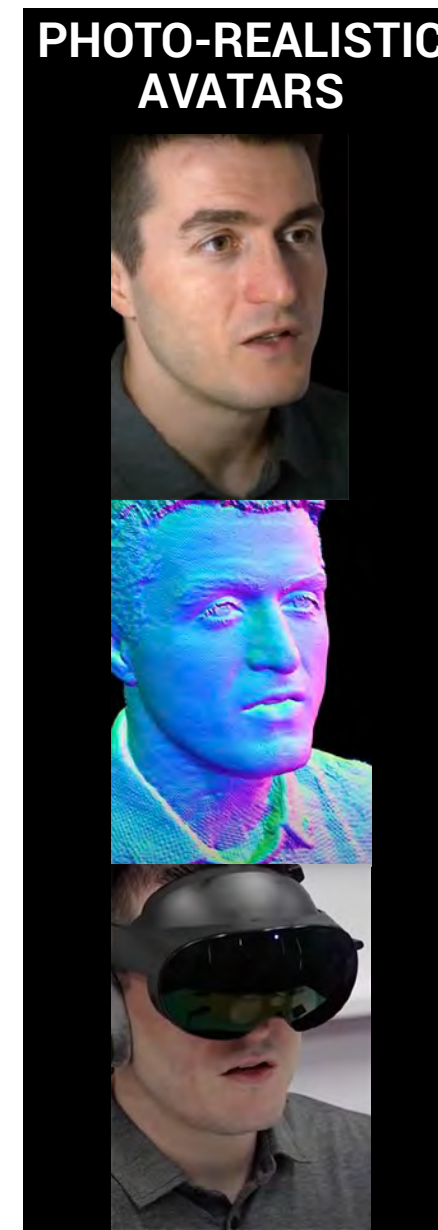
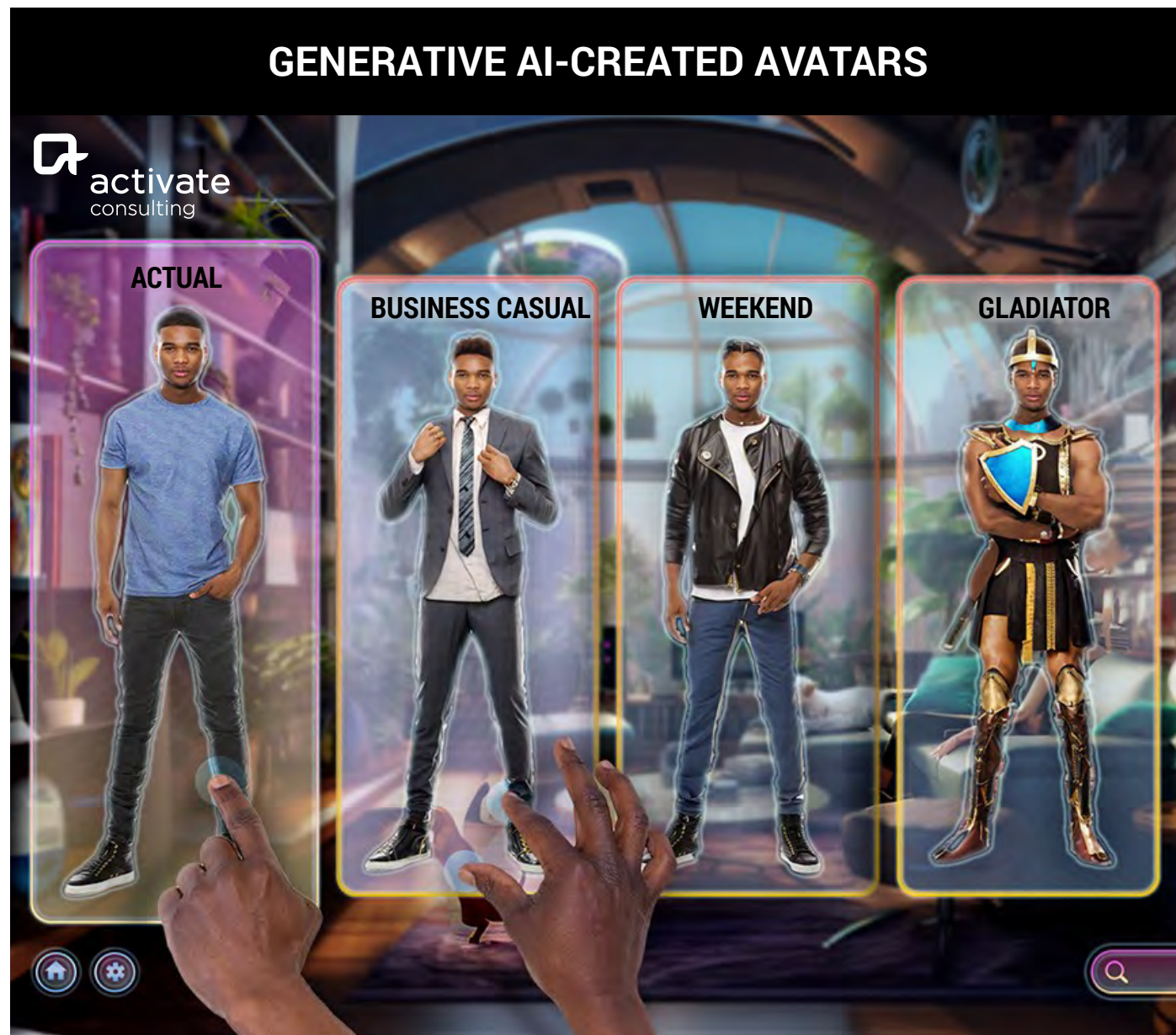
- Adobe Substance 3D, available on desktop and in VR, **allows users to design and simulate 3D models without coding**
- Users can **sculpt models, transform photos to 3D models, and incorporate a variety of lighting, material, and texture settings**
- Adobe offers **seamless switching between desktop and VR modes**

### ACTIVATE PERSPECTIVE

Developer tools will evolve to include:

- **User-friendly interfaces and tools** to accommodate developers with varying levels of expertise and technological requirements
- **Enhanced realism capabilities and optimized object interactivity** with real-world elements
- More **automation and personalization** using generative AI
- Improved **real-time collaboration tools** for artists, designers, programmers, and third parties

# People will have an expansive set of AI-enabled options to define their avatar or Metaverse identity, as a photorealistic representation of themselves today, an idealized version, or an entirely new person




## ACTIVATE PERSPECTIVE

- AI will enable almost instant avatar creation
- Growing customization tools empower users to explore their creativity and curate their personalized identities
- Photorealistic renditions will continue to improve, achieving near-identical visual resemblance to humans and accurately portraying body movements and non-verbal communication
- Metaverse development will rely on platforms' ability to safeguard identities, protect personal data, and mitigate cyber threats



# Generative AI will enable rich interactions and conversations with Non-Player Characters (NPCs), supplementing human interactions as Metaverse usage scales

EXAMPLE OF GENERATIVE AI ENABLING RICH, INTERACTIVE EXPERIENCES WITH NON-PLAYER CHARACTERS (NPCs)



**NVIDIA ACE**  
**Convai**

**VOICE CONVERSATION WITH GENERATIVE AI POWERED NPC:**

- 🗣️ Player: Hey Jin, how are you?
- 🧠 Jin: Unfortunately, not so good.
- 🗣️ Player: How come?
- 🧠 Jin: I am worried about the crime around here. It's gotten bad lately. My ramen shop got caught in the crossfire.
- 🗣️ Player: Can I help?
- 🧠 Jin: If you want to do something about this, I have heard rumors that the powerful crime lord Kumon Aoki is causing all kinds of chaos in the city. He may be the root of this violence.
- 🗣️ Player: I will talk to him. Where can I find him?
- 🧠 Jin: I have heard he hangs out in the underground fight clubs on the city's east side. Try there.
- 🗣️ Player: OK, I will go.
- 🧠 Jin: Be careful, Kai.

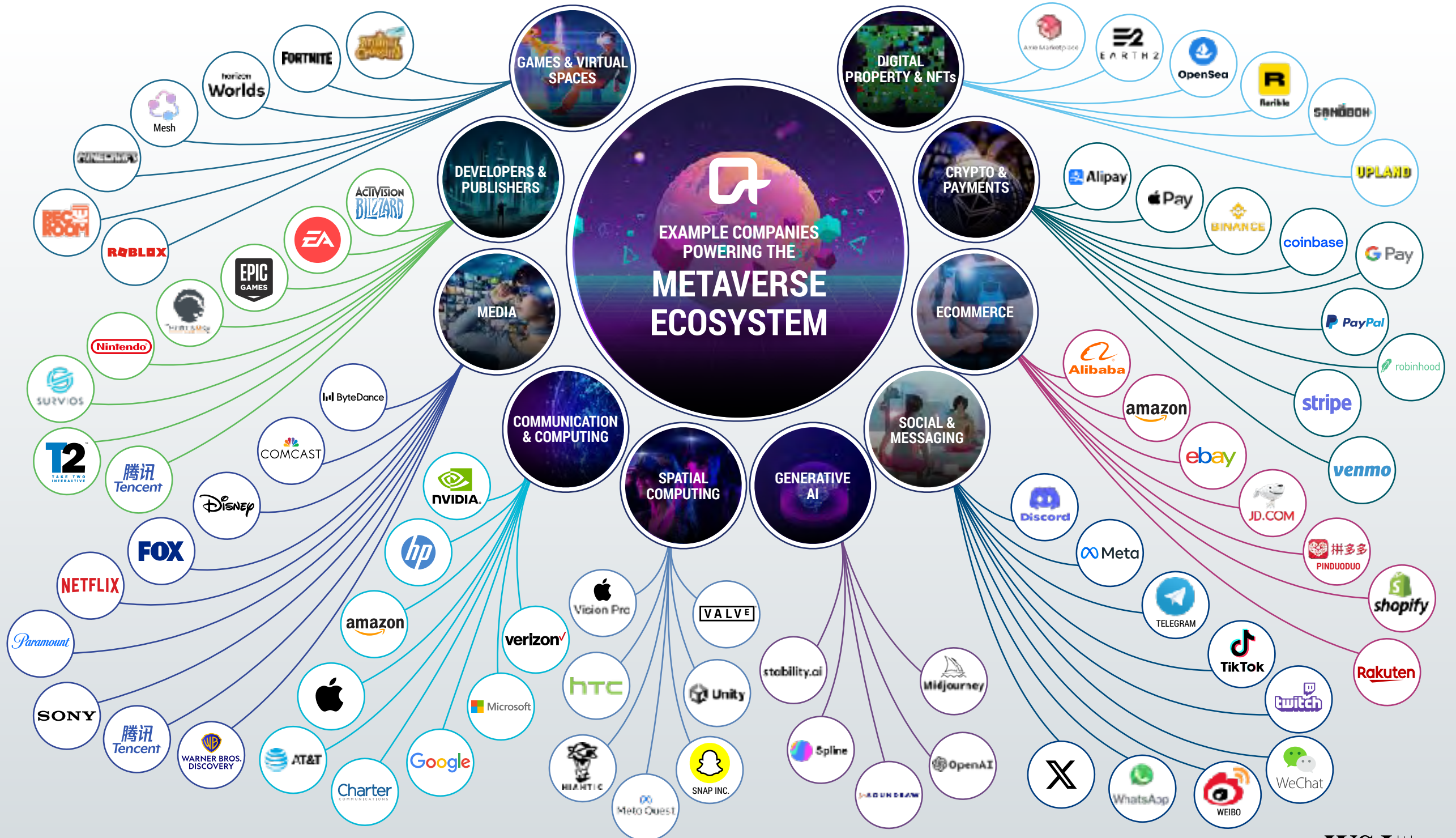
## ACTIVATE PERSPECTIVE

Generative AI will enable rich interactions with NPCs

- NVIDIA provided the world a glimpse at the potential **impact AI could have on gaming and Metaverse experiences** with its demo at Computex 2023
- Leveraging NVIDIA's Avatar Cloud Engine (ACE), gamers can now **speak naturally to NPCs** and receive appropriate responses
- The technology is scalable, can be used to **power interactions with more than one character/ NPC at a time**, and enables NPCs to talk to each other













# Over the coming years, companies building the Metaverse will be part of an extensive ecosystem



# The major technology and gaming companies will build out their capabilities across each element of the Metaverse

EXAMPLE METAVERSE CAPABILITIES OF MAJOR TECHNOLOGY AND GAMING COMPANIES

 Announced, not yet released	amazon	Apple	EPIC GAMES	Google	∞ Meta	Microsoft	ROBLOX	SONY	Tencent
 Immersive Experiences	games		FORTNITE	Google Maps Immersive View	horizon Worlds	ACTIVISION BILZARD MINECRAFT XBOX Mesh	ROBLOX	PlayStation PlayStation Plus BUNGIE	Tencent Games
 Social Interactions	twitch	iMessage		Project Starline*	facebook Instagram Messenger horizon Worlds	Teams Mesh MINECRAFT	ROBLOX Chat & Community Space		QQ QQ空间
 Digital Twins	aws IoT TwinMaker		Unreal Engine	Google Cloud: Supply Chain Twin and Pulse		Azure Digital Twins		SONY Mapray Digital Twin	Tencent Cloud
 Identity		Memoji	Fortnite Avatars METAHUMAN	Google Chrome Avatar	∞ Meta 3D Avatar	Teams and Mesh Avatars	Roblox Avatars		超级QQ秀 SUPER QQ SHOW
 Creation & Agency	twitch	ARKit Reality Composer RoomPlan	Unreal Engine FORTNITE CREATIVE	ARCore YouTube VR	∞ Meta Spark	MINECRAFT Roblox Studio		dreams	
 Generative AI	Amazon Bedrock Amazon Titan	Apple GPT (Rumored)		Google Bard AI Google Workspace Google Muse Google MusicLM	∞ CM3leon	Copilot*	Material Generator Code Assist	Sony AI	Tencent 腾讯 Hunyuan
 Economy	amazon appstore amazon pay amazon anywhere	Apple App Store Apple Pay	EPIC GAMES STORE FORTNITE ITEM SHOP	Google Play G Pay	∞ Meta Quest Store Meta Pay	Microsoft Store	ROBLOX Game Shop Robux	PlayStation Store	WeChat Fay 腾讯应用宝
 Virtual Ownership	aws Build NFT Applications		Enable NFT Games via Epic Games Store (e.g. Blankos Block Party)	Google Play Allows Integration of NFTs			Limiteds		
 Spatial Computing: AR/VR	a AR View prime video vr	Apple Vision Pro*	RealityScan	Google Maps Live View Google Lens Google Earth VR YouTube VR	∞ Meta Quest 3* horizon Worlds	Microsoft HoloLens 2 Mesh HP REVERB G2 Co-development	ROBLOX VR	Partnership KRAMER PlayStation VR2	



# We expect to see significant and sustained investment in innovation in the coming years

## EXAMPLE COMPANIES BUILDING GENERATIVE ELEMENTS OF THE METaverse

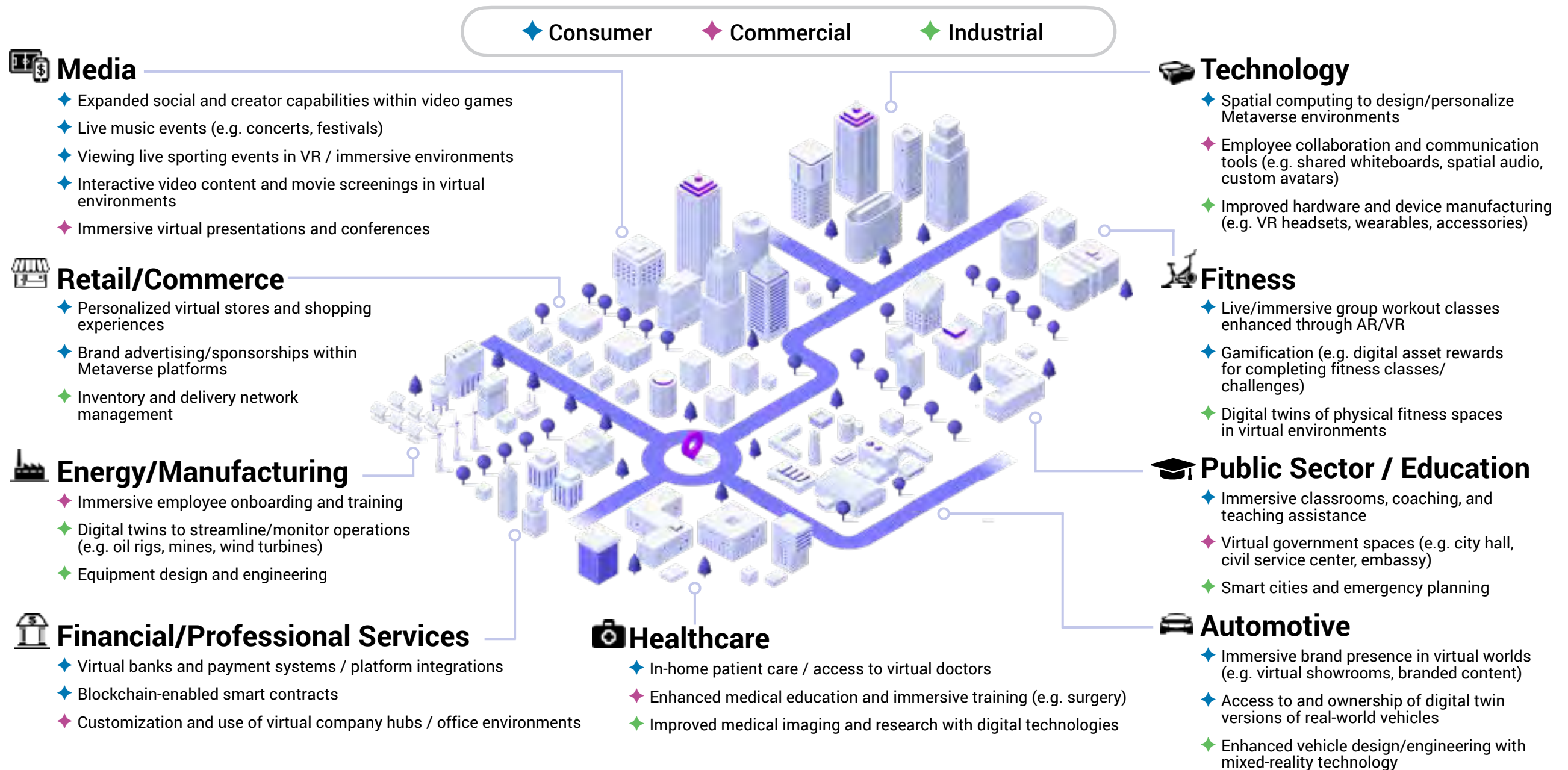
IMMERSIVE EXPERIENCES	SOCIAL INTERACTIONS	DIGITAL TWINS	IDENTITY	CREATION AND AGENCY	GENERATIVE AI	ECONOMY	VIRTUAL OWNERSHIP	SPATIAL COMPUTING
IMPROBABLE CCP Metaverse Quest ZENITH brightline YBVR <sup>o</sup> NFT OASIS	imvu hidden door Topia playwind VIRTUAL ATHLETICS LEAGUE SpatialChat VR CHAT	PassiveLogic RE scan SDCITYSCAPES Hiverlab SKY ENGINE AI fabrik LIVING CITIES	Genies+ HYPERREAL oben DEEPMOTION malivar.io Rephrase.ai hallway soul machines	INFINITE REALITY inworld OMNI CREATOR PRODUCTS Spatial Pixel Canvas iVerse READY PLAYER ME	LUMA AI SPEECH GRAPHICS LUDA VOICEMOD rct.ai SERIESAI scriptic	CODA PAYMENTS SkyMavis LIMITBREAK MYTHICAL FORTE metajuce MetaStreet	sorare Immutable Doodles virtua EXCLUSIBLE LOOKSRARE REBASE	Leia Inc. PICO raxium DIGILENS BLACK SHARK omni one blippar

EXAMPLE INVESTORS
3G Capital andreesen.horowitz INSIGHT PARTNERS CARLYLE SEQUOIA Bridgepoint ALPHA WAVE



# Companies across a broad set of industries will need to develop strategies to exploit and profit from Metaverse opportunities

## EXAMPLES OF POTENTIAL METAVERSE USE CASES



# There will not be one single Metaverse platform; interoperability between platforms will take place through third-party companies and applications, creating significant opportunities for all businesses to capitalize on the potential of the Metaverse

## INTEROPERABILITY LAYERS OF THE METAVVERSE





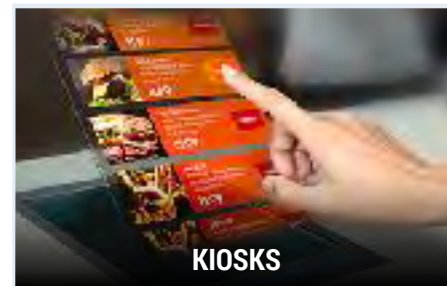
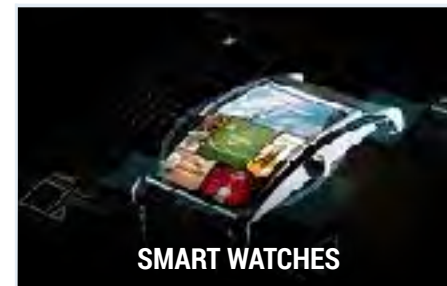
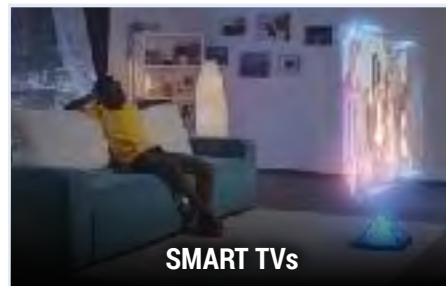
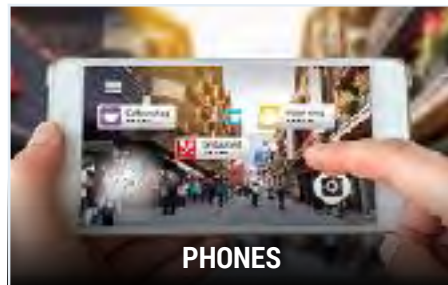
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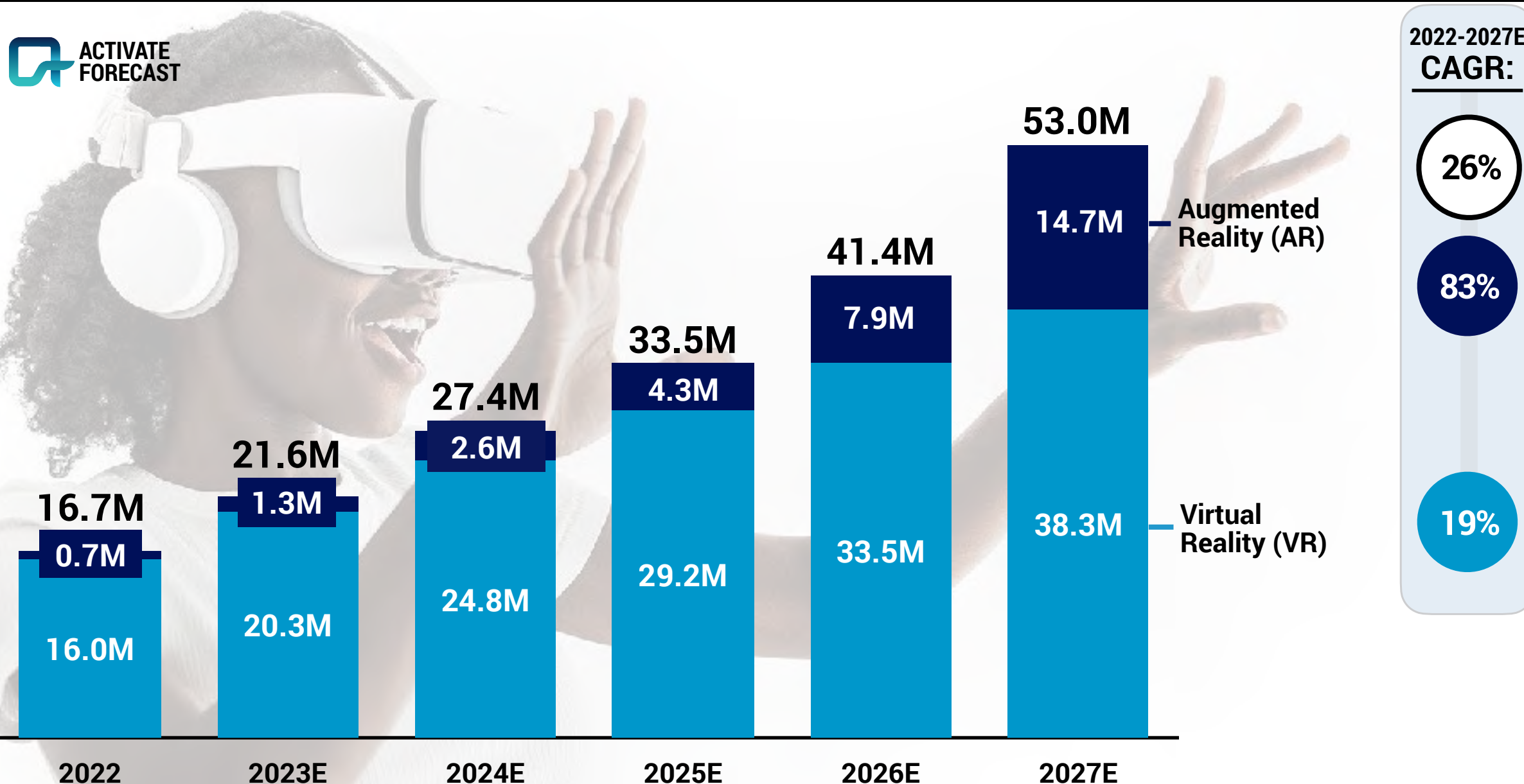
# Spatial computing will become ubiquitous as all screens become spatially-enabled devices – technology for people to interact with the three-dimensional space around them

## EXAMPLE CURRENT AND FUTURE SPATIAL-ENABLED DEVICES



# Headsets are only one part of the spatial computing equation; Activate's projections for augmented reality and virtual reality headsets indicate that they will be far from reaching ubiquity in the next years






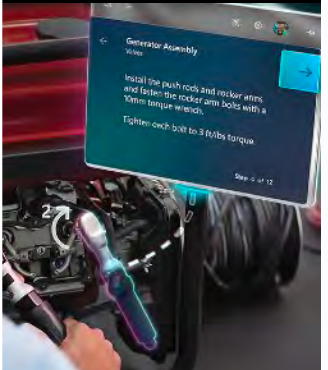






AUGMENTED REALITY AND VIRTUAL REALITY HEADSET UNIT SALES<sup>1</sup>, GLOBAL, 2022-2027E, MILLIONS UNITS





# The use cases of spatial computing will span a broad set of daily activities – similar to the way that smartphones created an entirely new paradigm of computing as part of people’s everyday lives

## SPATIAL TECHNOLOGY ACROSS DIGITAL TOUCHPOINTS

DAILY HABITS			WORK		
<b>SEARCH</b> 	<b>COMMUNICATION</b> 	<b>NEWS</b> 	<b>PRODUCTIVITY</b> 	<b>COLLABORATION</b> 	<b>MANUFACTURING</b> 
<b>LIVE EVENTS</b> 	<b>SPORTS</b> 	<b>GAMING</b> 	<b>AUTO</b> 	<b>MASS TRANSIT</b> 	<b>AIRLINE</b> 
ENTERTAINMENT			TRANSIT		

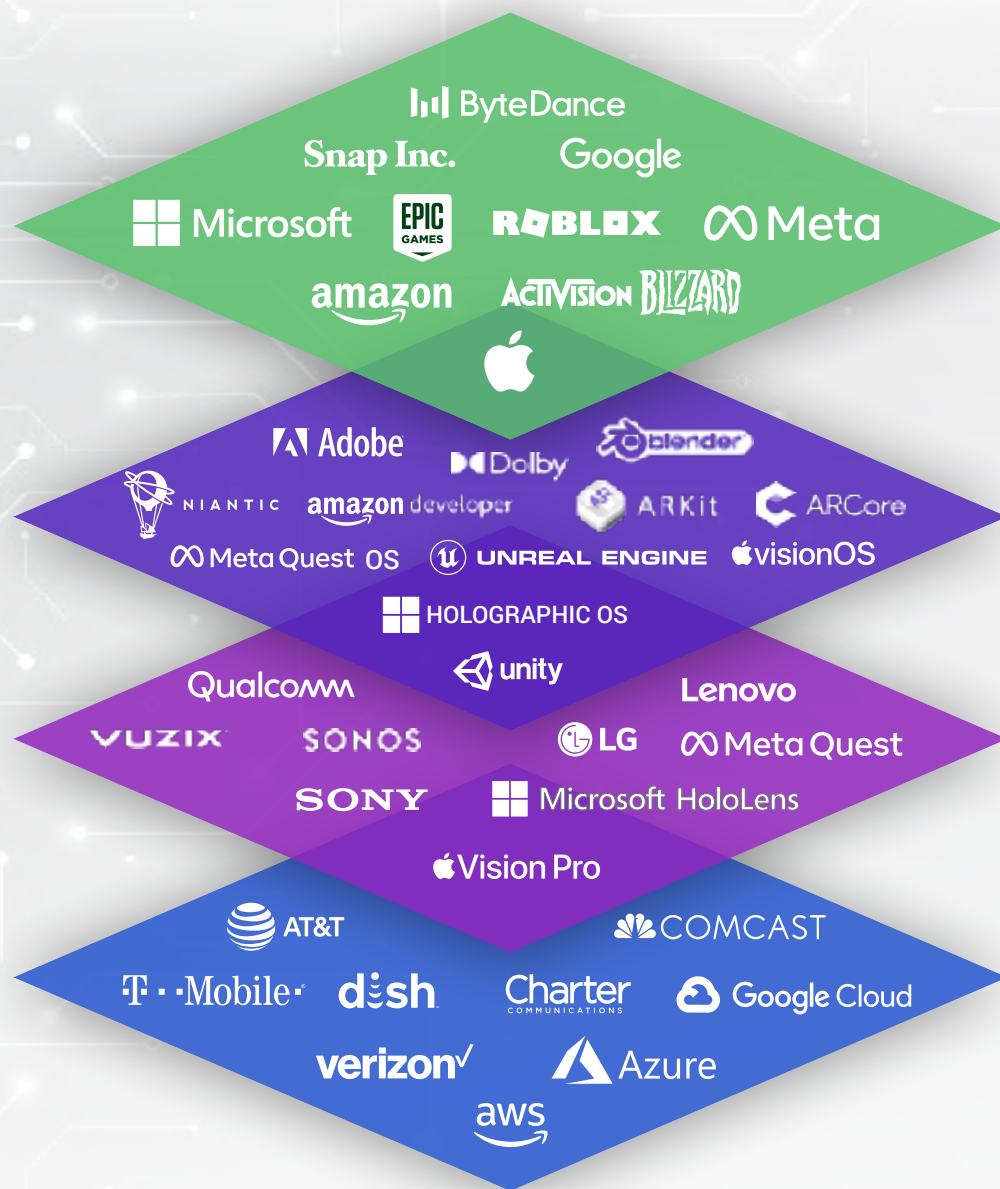
### ACTIVATE PERSPECTIVE

- Spatial computing will not rely on specific headsets or glasses; instead, all devices will become spatial-enabled
- Spatial computing will consolidate next-generation technologies (e.g. edge computing, 6G), increasing accessibility for consumers and enhancing consumers’ computing resources
- Investment in spatial technology will accelerate the ecosystem development (e.g. software, services, devices) and expand the set of potential use cases



# Technology companies are establishing positions across the spatial computing stack

## THE SPATIAL COMPUTING STACK



### CONTENT, EXPERIENCES, & SOCIAL INTERACTIONS

Consumer use cases (e.g. 3D video calls, immersive maps, games)  
Enterprise applications (e.g. interactive virtual training, digital twins)



### PLATFORMS & ENABLERS

Operating system layers | App ecosystems | Developer platforms  
3D engines | Security & identity | Payment platforms



### HARDWARE & DEVICES

Headsets & glasses | Headphones & speakers | Auto HUDs | Mobile phones  
Consoles & PCs | Accessories & components | Wearables | Cameras | TVs

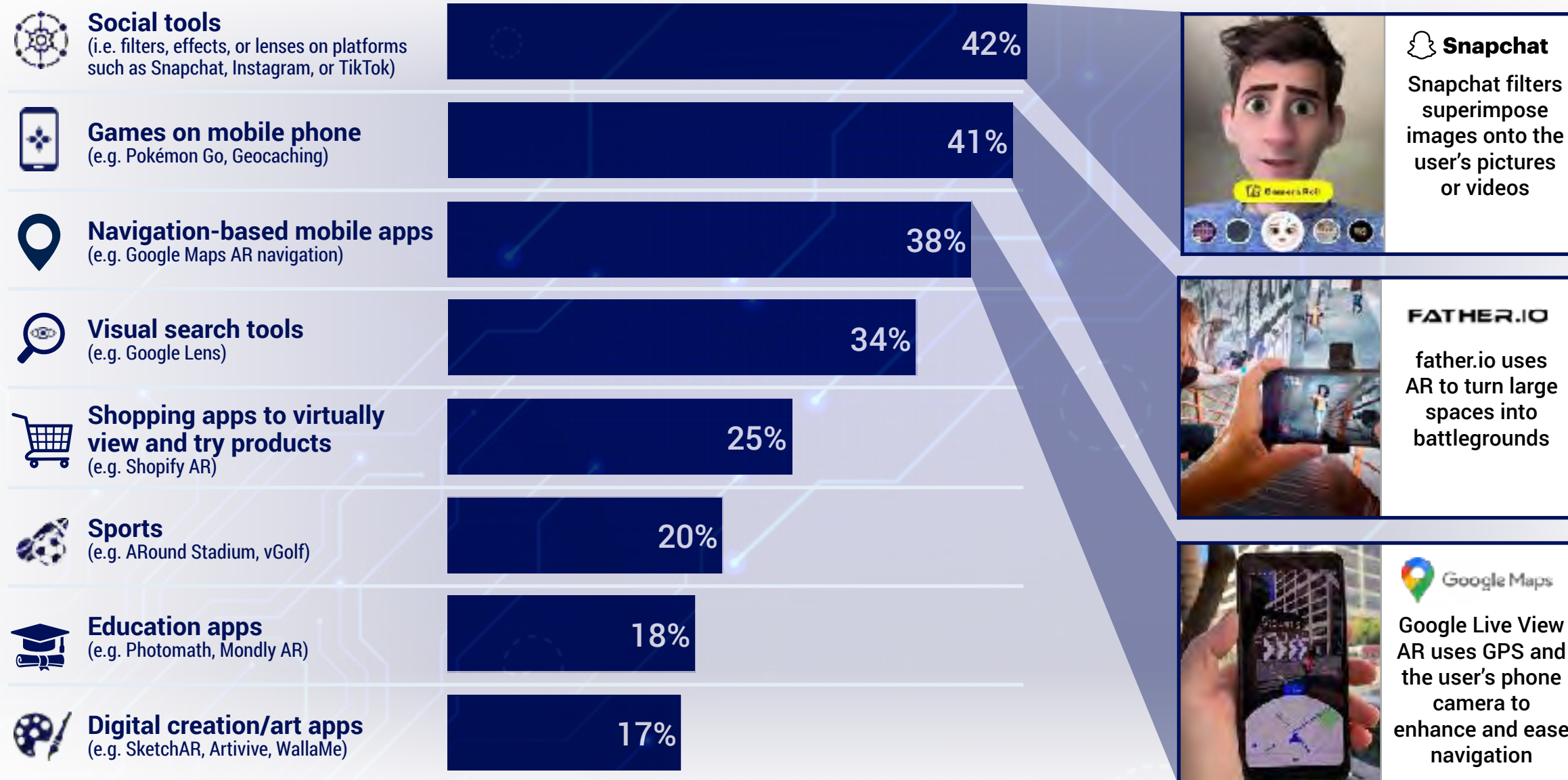


### INFRASTRUCTURE

Network/connectivity | 5G/6G | Cloud | WiFi-8  
Edge solutions (e.g. MEC) | Semiconductors (e.g. GPUs)

# Today, practically every smartphone is an AR-enabled device, resulting in widespread usage

USAGE OF AR TOOLS, U.S., 2023, % ADULTS AGED 18+ WHO ARE AWARE OF AR<sup>1</sup>

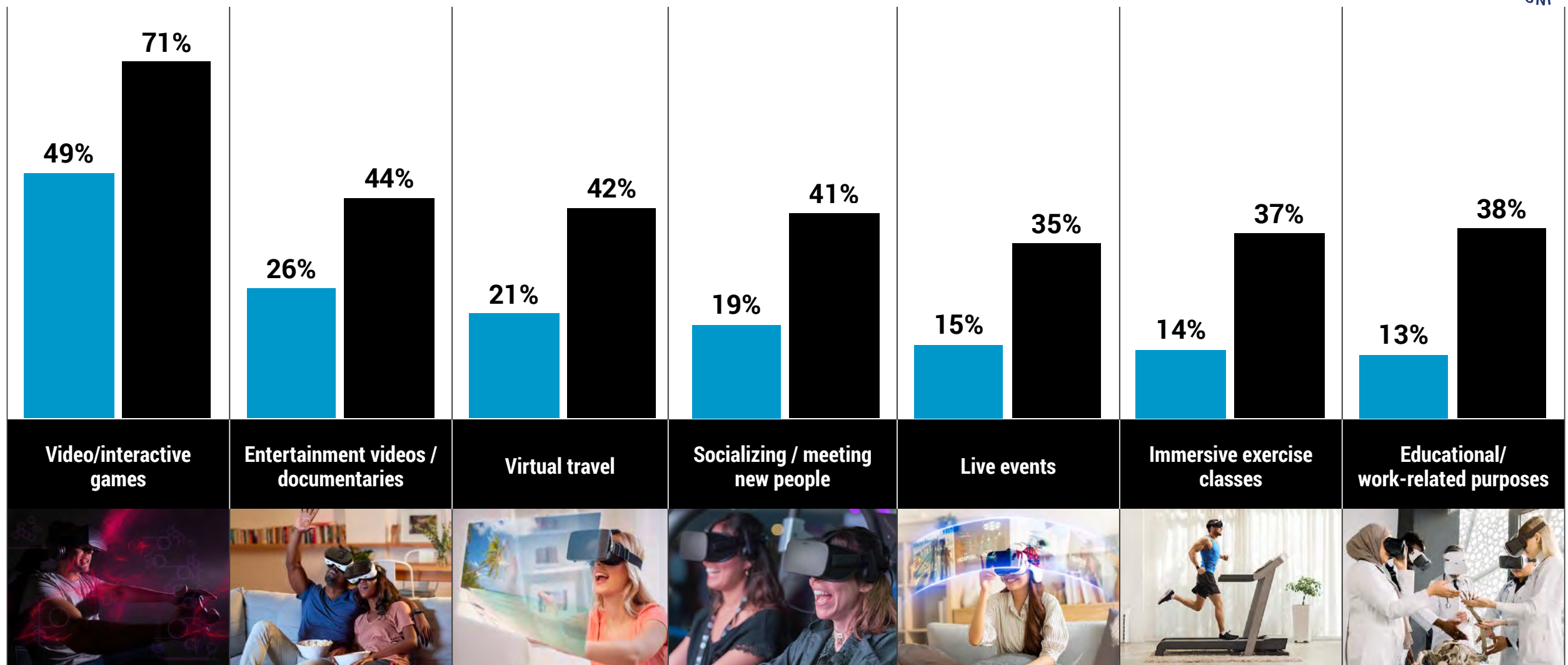


1. "Aware of AR" is defined as knowing what AR is. 31% of U.S. adults aged 18+ are aware of AR. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

# People purchased VR headsets for gaming but are now using them for a richer set of activities beyond the original purchase intent

TOP REASONS FOR PURCHASING<sup>1</sup> VS. CURRENT USAGE OF VR HEADSETS, U.S., 2023, % VR HEADSET USERS<sup>2</sup>

■ Purchased VR headset for this activity  
■ Currently use VR headset for this activity





# Enterprise spatial computing will increasingly break free from the constraints of a headset

## EMERGING ENTERPRISE USE CASES OF SPATIAL COMPUTING

### MANUFACTURING & MAINTENANCE



- Spatial technology **simplifies product design, modeling, and maintenance processes** by enabling AR overlays, real-time guidance for workers, and remote collaboration
- Spatial technology **optimizes the utilization of physical space, machines, and workforces** (e.g. hands-free video calling, projected instructions)

### HEALTHCARE



- Spatial technology can improve patient treatment through **enhanced visualization and collaboration**
- Spatial technology can be incorporated into healthcare with **immersive simulation, 3D scans and medical imagery, real-time overlays, and surgical aids** (e.g. x-rays, MRI scans, vitals)

### TRAINING & EDUCATION



- Spatial technology provides a **controlled and risk-free environment for learning** and practicing complex tasks
- **Holographic models, simulations, and visualizations** can be incorporated for **increased classroom interactivity** (e.g. virtual field trips, simulated science experiments)

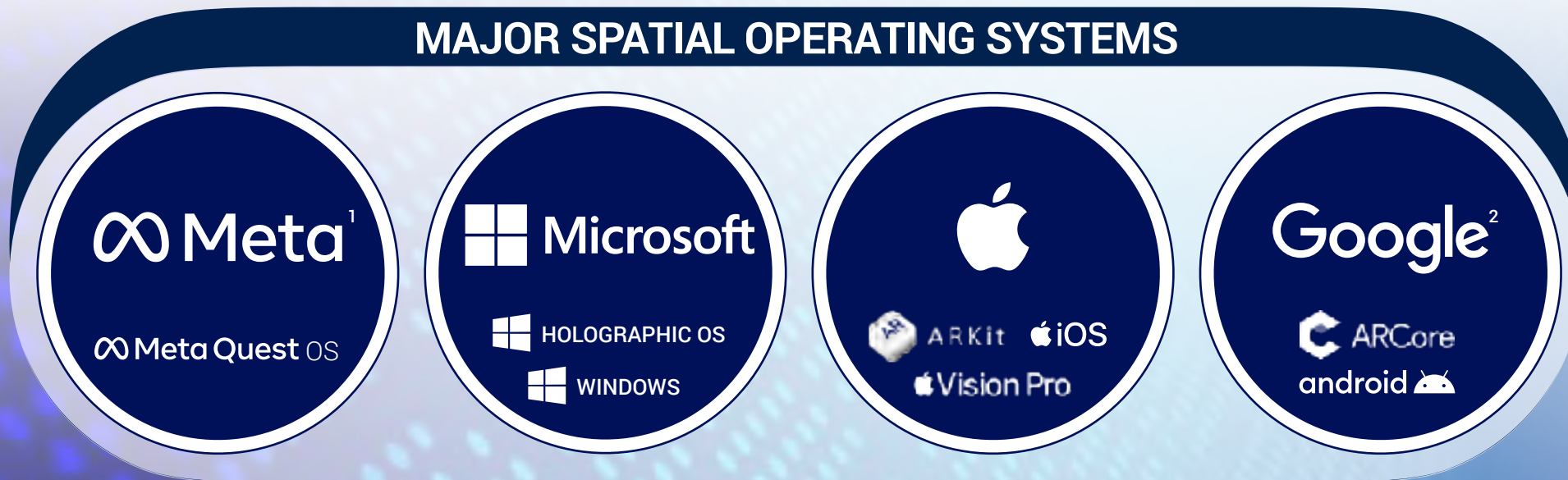
### RETAIL



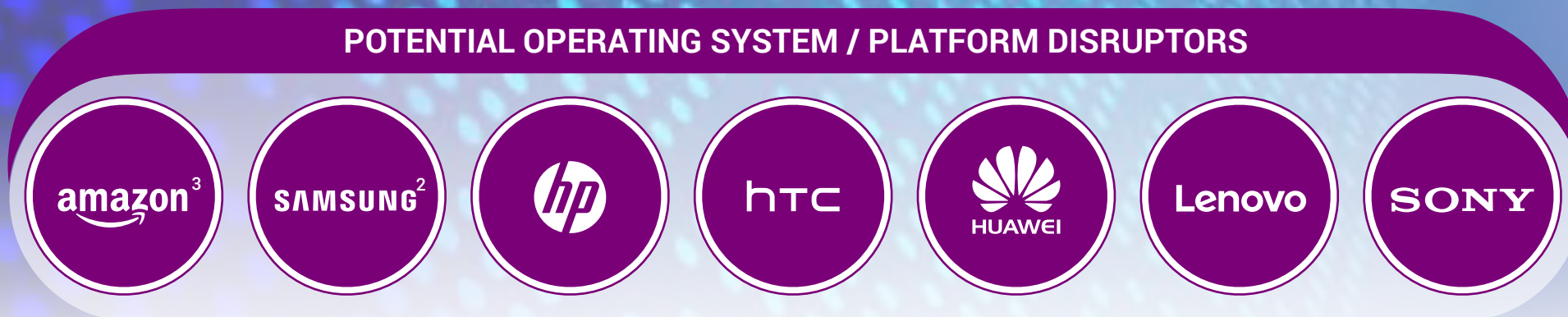
- Spatial technology enables consumers to **virtually visualize or test products using AR**
- Spatial technology eases in-store navigation by **combining AR and AI to help consumers find their desired product** (e.g. directing shoppers to the aisle with the correct size shoes, navigating consumers to the shortest checkout lane)

# Four operating systems, from the major technology platforms, are driving spatial development; however, other companies have learned from the mobile platform wars and are investing heavily in the space

## MAJOR SPATIAL OPERATING SYSTEMS



## POTENTIAL OPERATING SYSTEM / PLATFORM DISRUPTORS



### ACTIVATE PERSPECTIVE

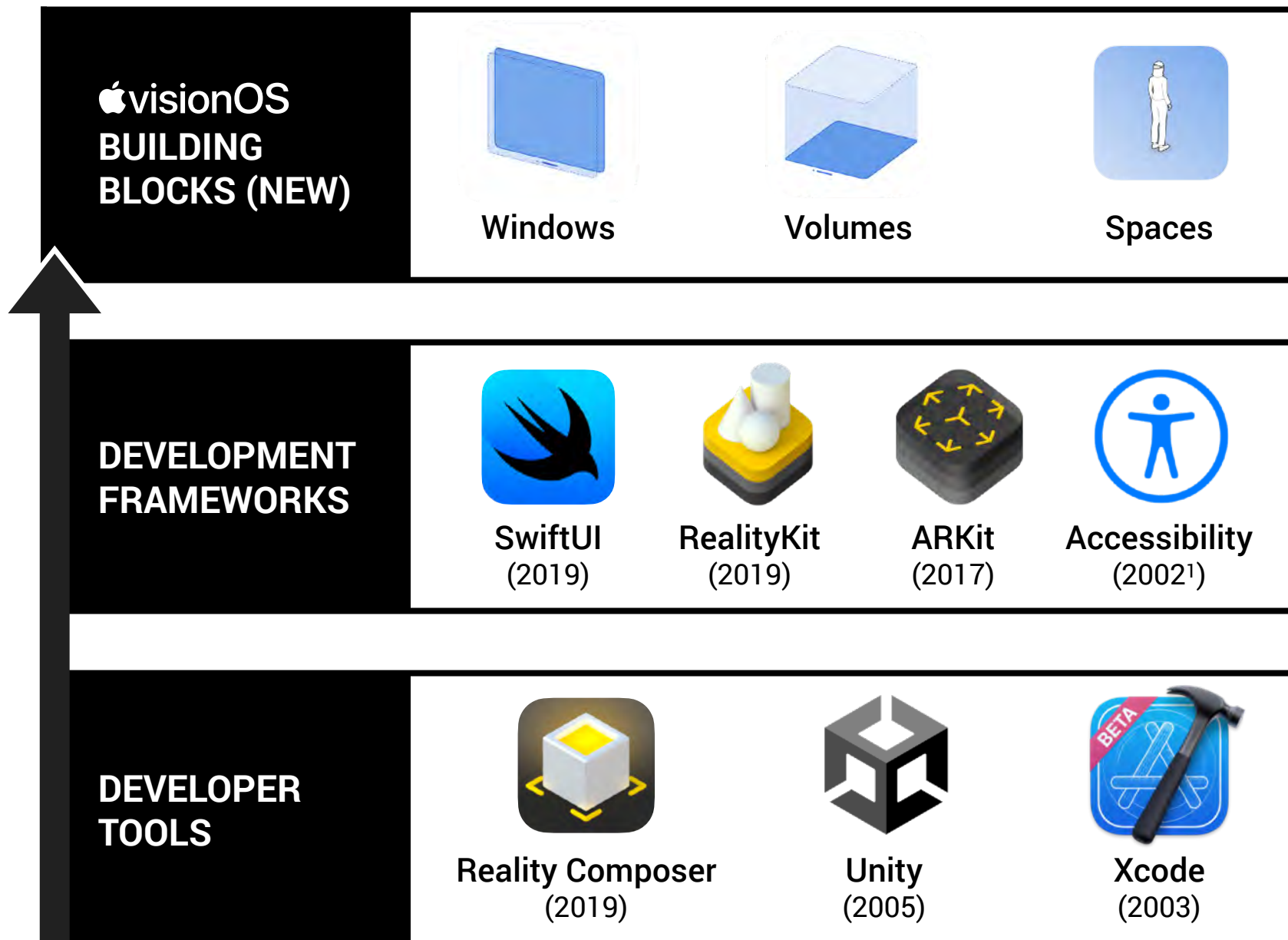
- Spatial operating systems are in their early stages
- The release of visionOS will compel leading technology companies to invest in the development of their own operating systems
- Companies will integrate spatial development into all of the platforms in their ecosystems (e.g. Android, iOS, Windows)
- Open-source operating systems will accelerate spatial development and provide partnership opportunities

Note: Not exhaustive. 1. As of Jan. 2022, Meta Reality Labs is working on a highly specialized OS for their spatial devices. They are rumored to be collaborating on a new device with LG. 2. In Feb. 2023, Google, Samsung, and Qualcomm announced they will be partnering to develop a spatial computing platform. 3. Through AWS, Amazon owns and partners with a variety of tools for spatial computing (e.g. SimSpace Weaver, Hexa, Sumerian). Sources: Activate analysis, Company press releases, Company sites



# Apple's entry into spatial computing will be the catalyst for the growth of developer ecosystems

## 🍏 visionOS ELEMENTS FOR DEVELOPMENT AND INITIAL LAUNCH YEARS



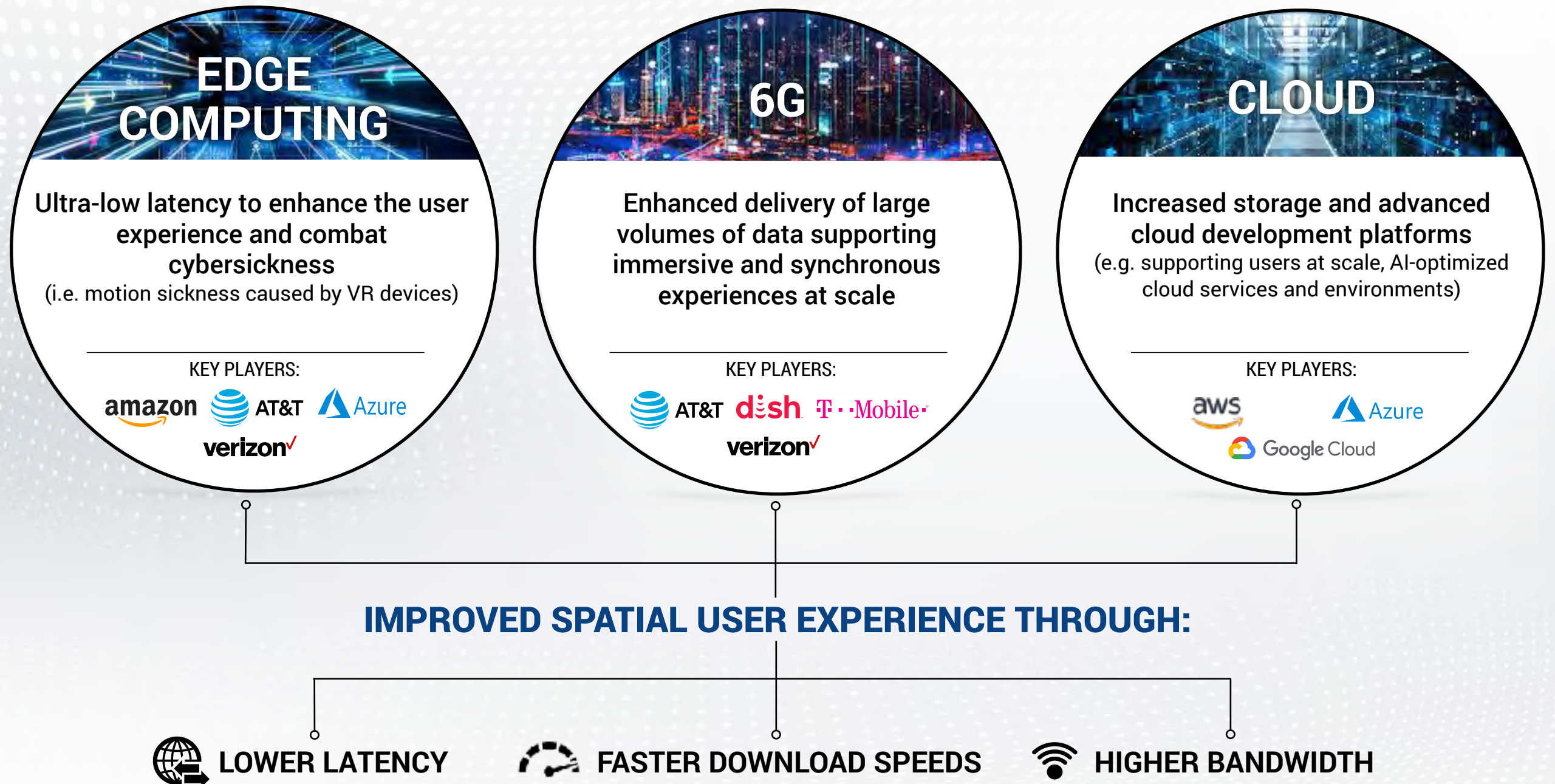
### ACTIVATE PERSPECTIVE

The underlying frameworks and tools of visionOS have been used by iOS developers for years

- The new building blocks, Volumes, Windows, and Spaces, **unite Apple's well-established frameworks and tools**
- **Developers already have experience using the foundational elements of visionOS**, enabling an easier transition with fewer learning obstacles
- As Apple's introduction of iOS influenced other development platforms (e.g. Android), **visionOS will inspire spatial development for non-Apple operating systems**
- **Future iterations of visionOS and other spatial platforms could potentially incorporate AI**, further accelerating development of consumer-grade use cases



# Telecom, edge, and cloud computing innovations will be required to enable more sophisticated spatial functionality and experiences



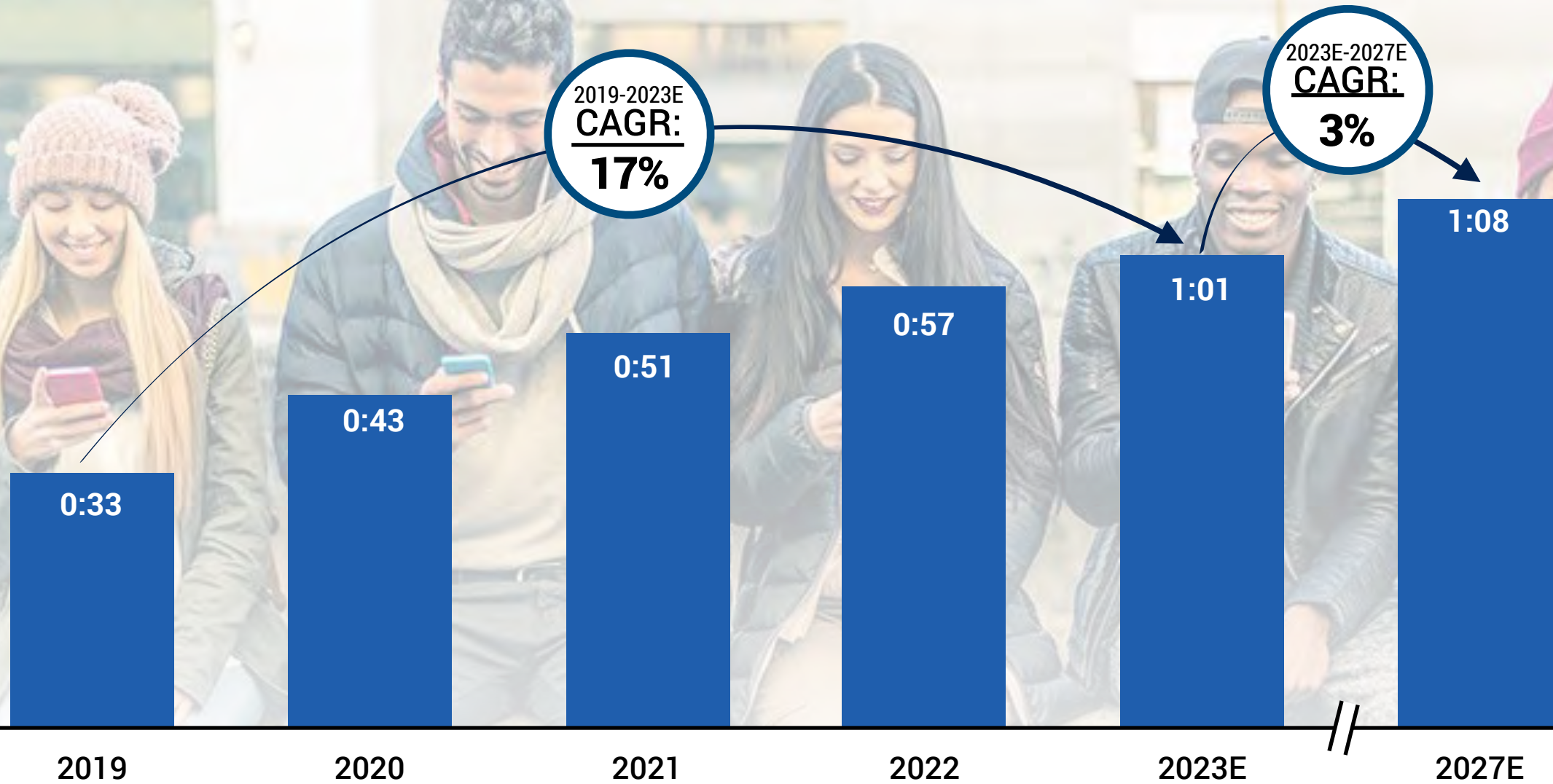
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# Consumers will continue to spend more time on social video

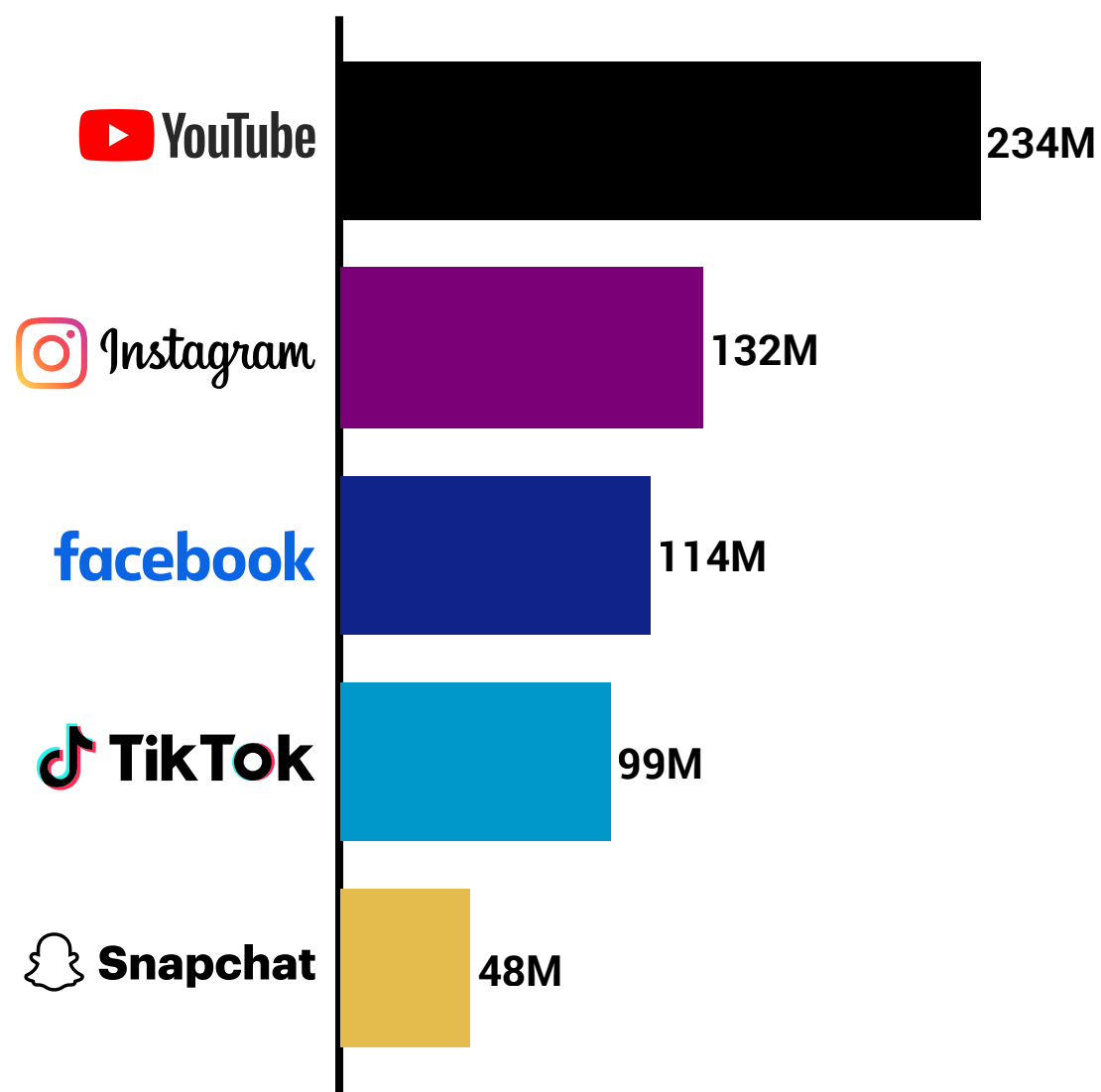
AVERAGE DAILY SOCIAL VIDEO<sup>1</sup> TIME SPEND PER ADULT AGED 18+, U.S., 2019-2023E VS. 2027E, HOURS:MINUTES



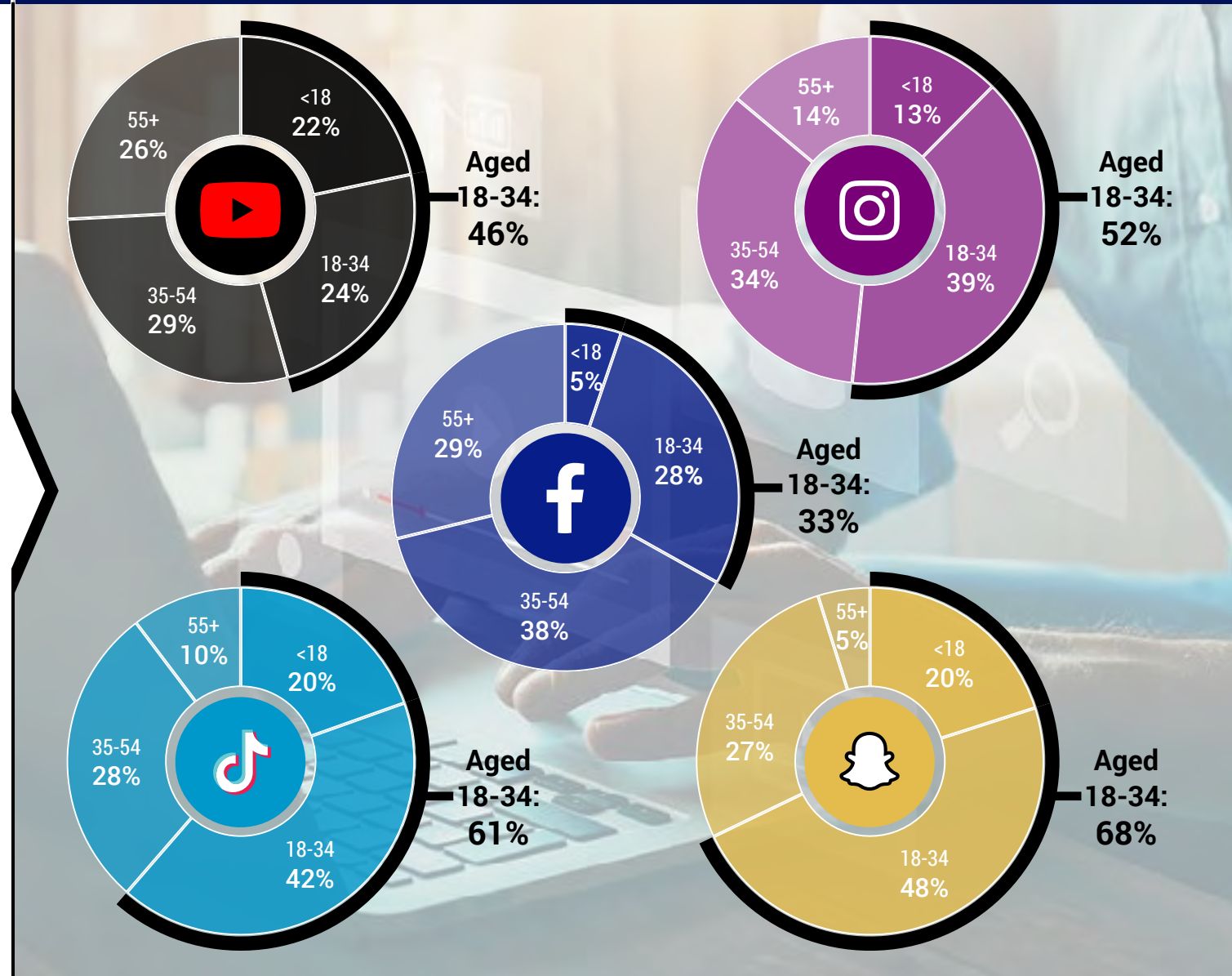


# Today, YouTube has the largest user base while TikTok and Snapchat have the youngest users

ESTIMATED MONTHLY VIDEO WATCHERS BY SELECT SOCIAL/WEB VIDEO PLATFORM, U.S., Q2 2023, MILLIONS MONTHLY VIDEO WATCHERS

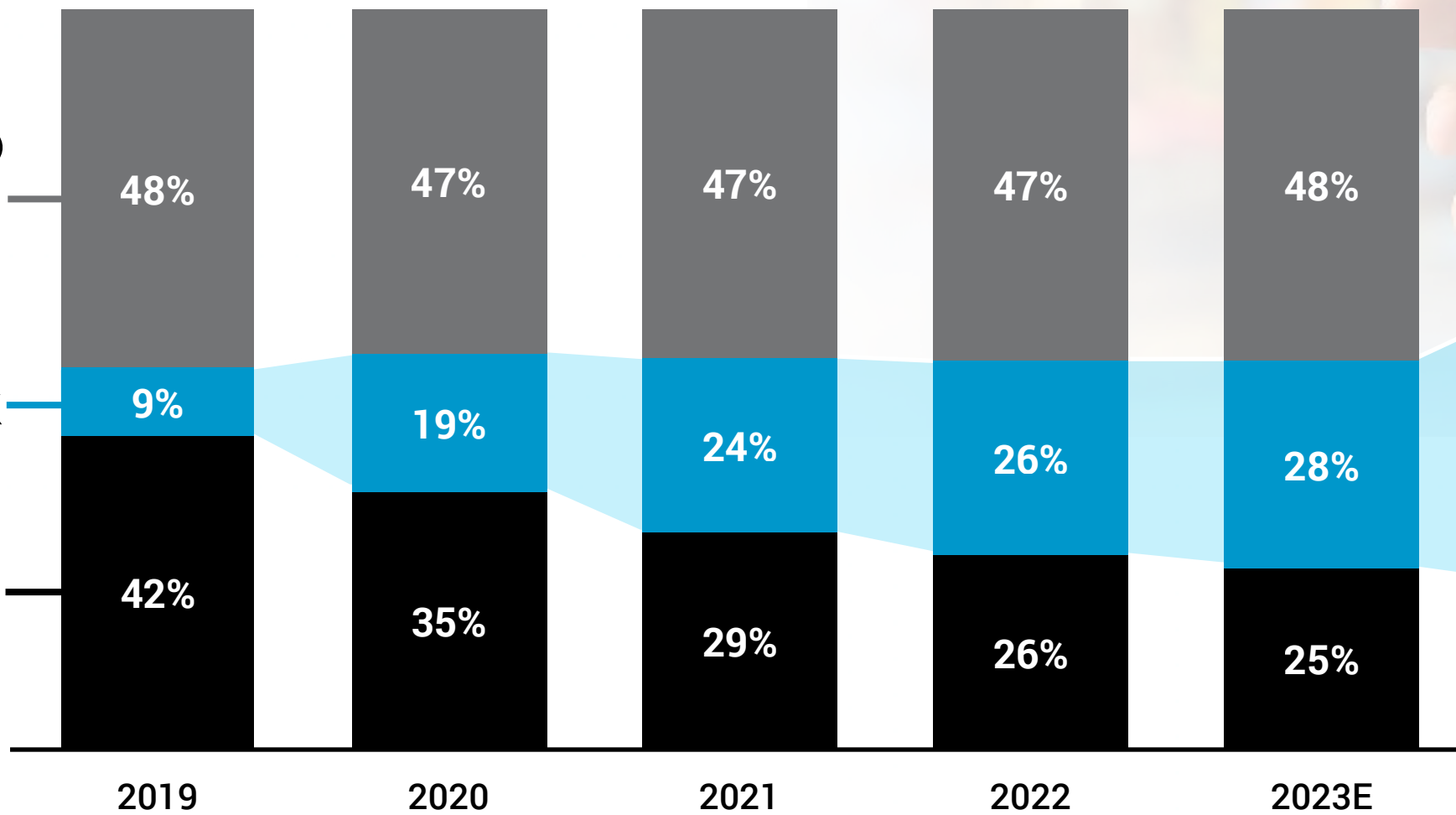
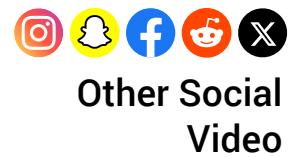


USER DEMOGRAPHICS OF SELECT SOCIAL/WEB VIDEO PLATFORMS BY AGE GROUP<sup>1</sup>, U.S., 2023, % SOCIAL/WEB VIDEO WATCHERS BY PLATFORM



# TikTok has surpassed all of the other social video services for the highest total daily time spend watching social video

SHARE OF DAILY SOCIAL VIDEO<sup>1</sup> TIME SPEND BY SELECT PLATFORM<sup>2</sup>, U.S., 2019-2023E, % TOTAL SOCIAL VIDEO<sup>1</sup> TIME SPEND BY ADULTS AGED 18+

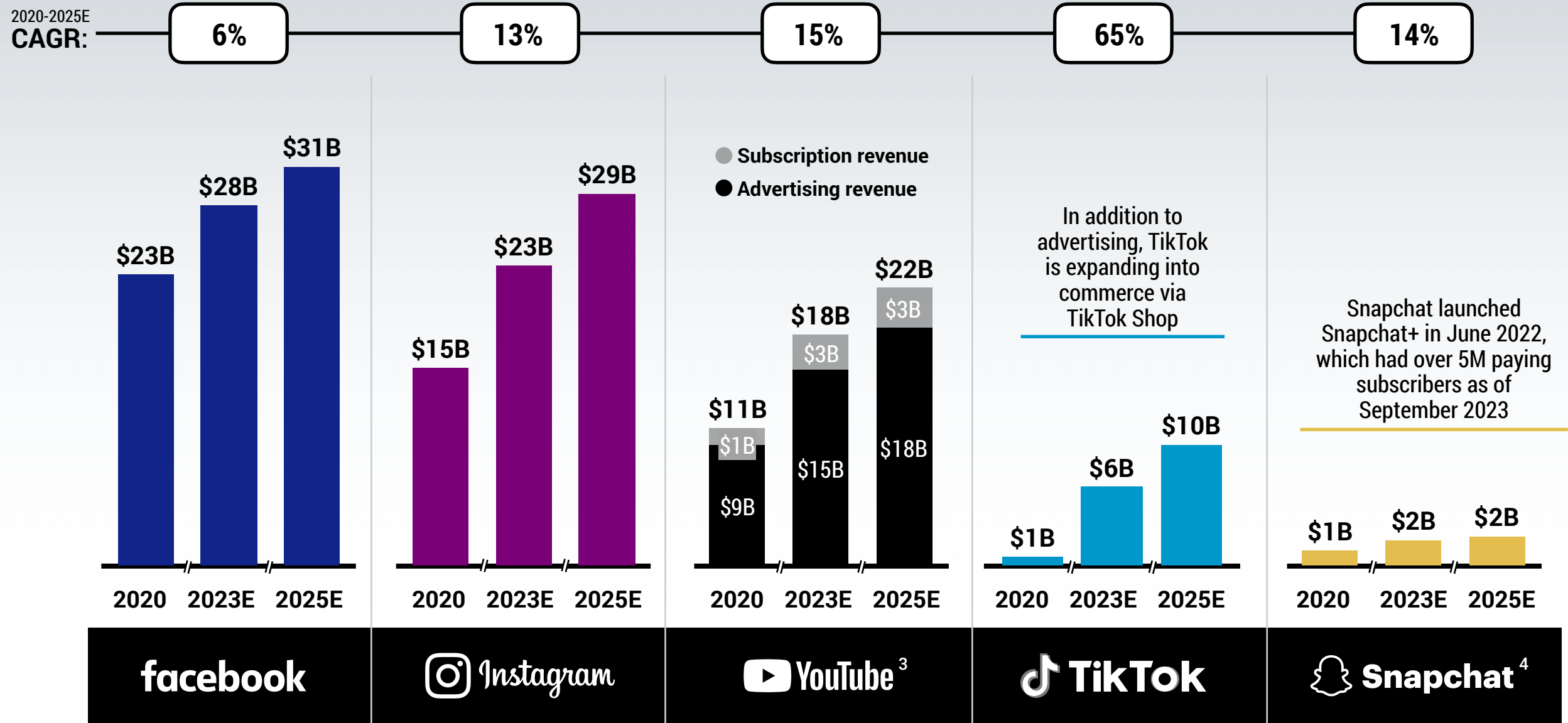


TikTok has grown at the expense of YouTube's mobile video offering

1. "Social video" is defined as time spent watching video across Facebook, Instagram, Snapchat, TikTok, X/Twitter, and other social platforms via any device as well as time spent watching YouTube on mobile. 2. Figures do not sum to 100% due to rounding. Sources: Activate analysis, data.ai, eMarketer, GWI, U.S. Bureau of Labor Statistics

# TikTok is only beginning to monetize their user attention

TOTAL REVENUE<sup>1</sup> BY SELECT SOCIAL VIDEO PLATFORM<sup>2</sup>, U.S., 2020 VS. 2023E VS. 2025E, BILLIONS USD






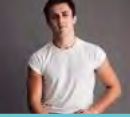






1. Total revenue includes advertising and subscription revenue generated across all internet-connected devices. 2. Figures do not sum due to rounding. 3. YouTube subscription revenue does not include revenue from YouTube TV but does include revenue from YouTube Music. 4. Does not include subscription revenue generated from Snapchat+. Sources: Activate analysis, Company filings, Crunchbase, eMarketer



# A diverse set of influencers drive viewing on social platforms


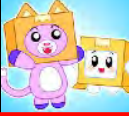




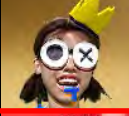



**TOP 10 TIKTOK INFLUENCERS, U.S., AUG. 2023**

ENGAGEMENTS

Cam		69.3M
Kristy Sarah		68.8M
Haley Kalil		60.3M
Chris Olsen		53.3M
Alix Ashley Earle		47.9M
Kayla Malec		42.2M
Connor Hesse		36.6M
Joe Bartolozzi		36.4M
Kay and Tay Dudley		35.5M
Noah Tersigni		34.7M











**TOP 10 YOUTUBE INFLUENCERS, U.S., AUG. 2023**

30s VIEWS

MrBeast		1.1B
LankyBox		652.4M
Justin Flom		605.4M
Mr DegrEE		604.4M
Bon Bon Media		583.8M
Alan Chikin Chow		562.6M
HiFunnie		536.3M
Jason Derulo		497.4M
Baby Monster School		489.6M
_vector_		487.2M









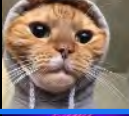

**TOP 10 INSTAGRAM INFLUENCERS, U.S., AUG. 2023**

ENGAGEMENTS

Mr Moist		95.5M
Kristy Sarah		25.3M
Snoop Dogg		24.0M
AGuyAndAGolden		24.0M
Anwar Jibawi		20.5M
Haley Kalil		20.3M
Jojo Sim		18.3M
Zach King		17.3M
Selena Gomez		16.8M
Krystianatiana		16.5M

**TOP 10 FACEBOOK INFLUENCERS, U.S., AUG. 2023**

30s VIEWS

HotSpanish		322.4M
Life of Dad		267.0M
Caskey		203.5M
Justin Flom		163.0M
xAcceptiion		158.9M
Jorge "Gamebred" Masvidal		157.6M
Torrie Wilson		125.9M
Gabby David		112.3M
Don Pets		110.5M
Riff Raff & Jody Husky		99.4M

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# Overall time spent with video will remain relatively flat through 2027; streaming will continue to grow at the expense of traditional TV

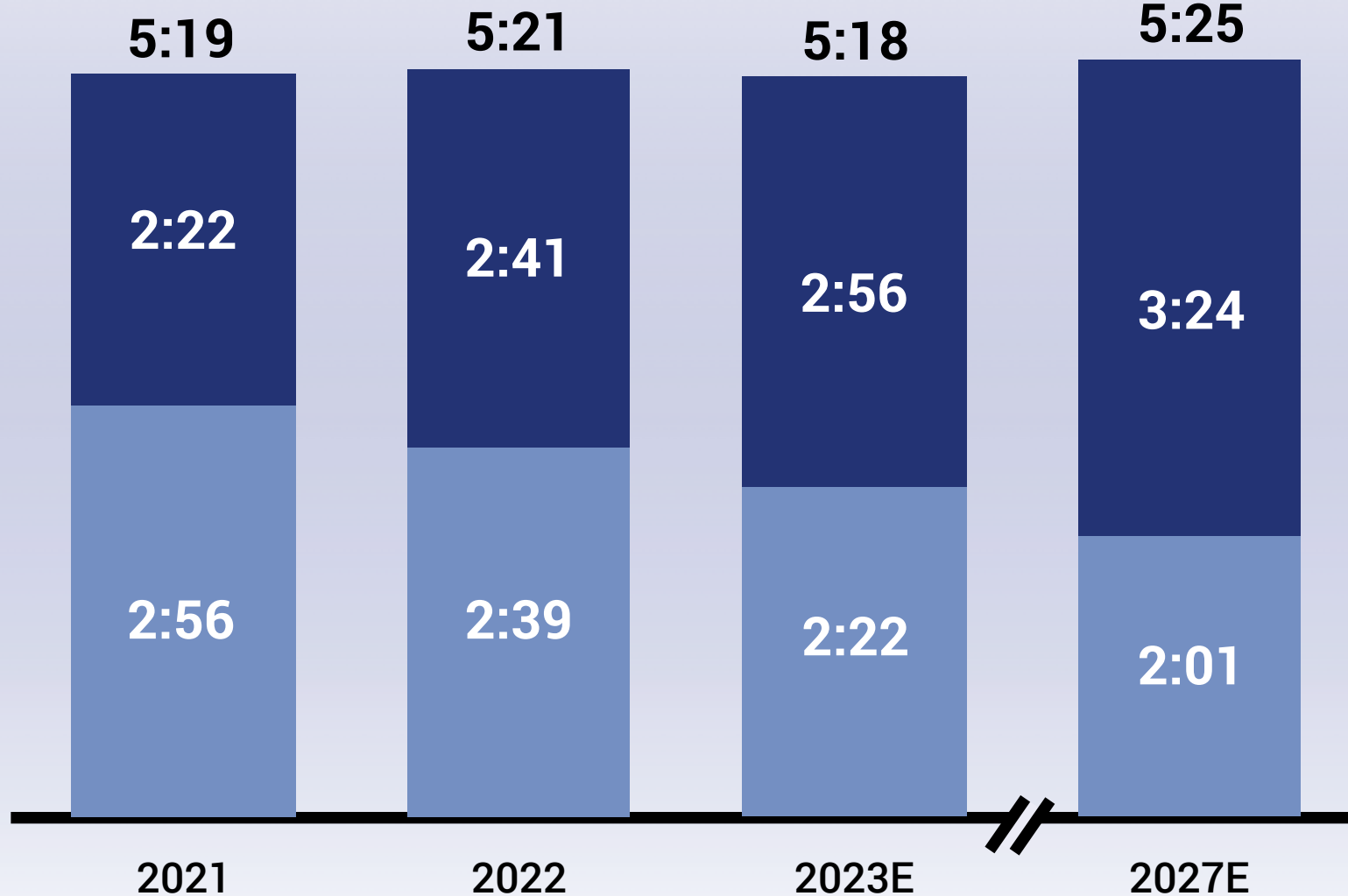
AVERAGE DAILY VIDEO TIME SPEND PER ADULT AGED 18+ BY TYPE<sup>1</sup>, U.S., 2021-2023E VS. 2027E, HOURS:MINUTES



Streaming<sup>2</sup>



Traditional TV<sup>3</sup>



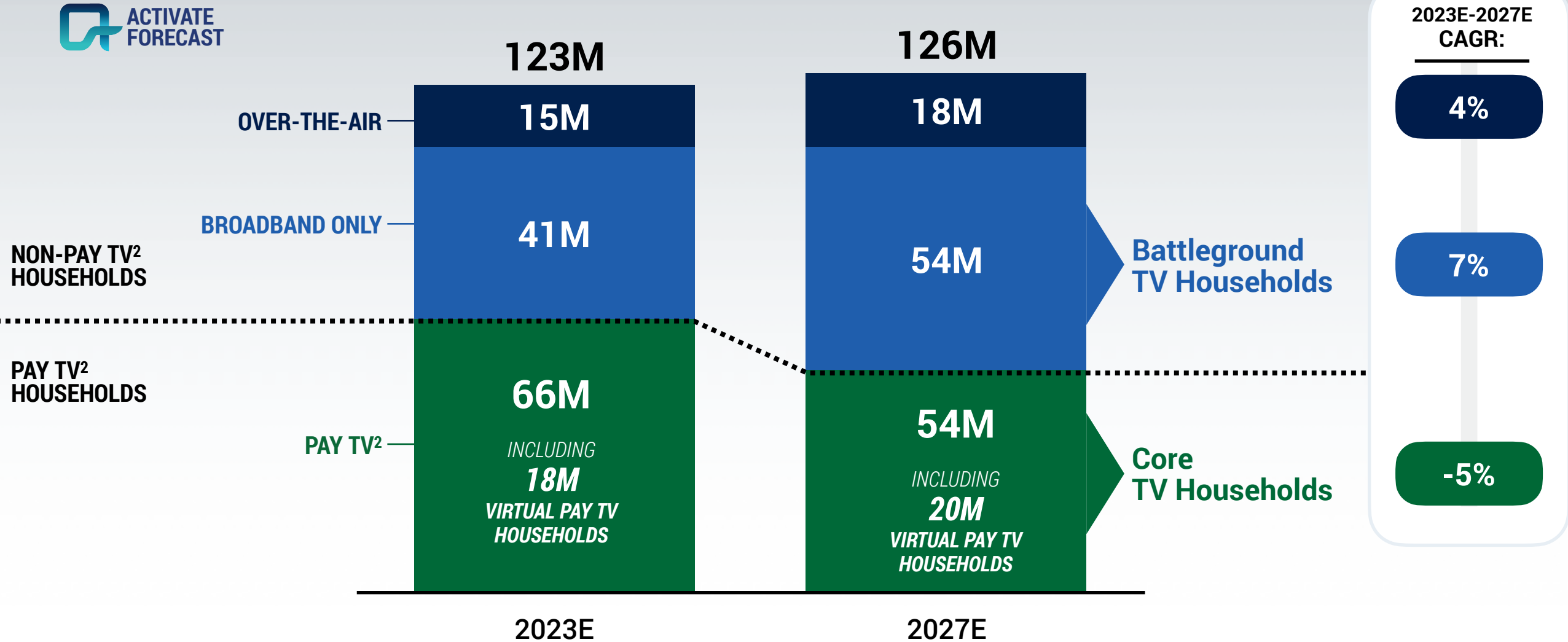
2021-2023E CAGR:	2023E-2027E CAGR:
-0.2%	0.6%
11%	4%
-10%	-4%

1. Figures do not sum due to rounding. 2. "Streaming" is defined as video watched on Connected TV, mobile phone, tablet, or desktop/laptop. Connected TVs are TV sets that can connect to the internet through built-in internet capabilities (i.e. Smart TVs) or through another device such as a streaming device (e.g. Amazon Fire TV, Apple TV, Google Chromecast, Roku), game console, or Blu-ray player. Does not include social video or virtual Pay TV. 3. "Traditional TV" is defined as both traditional and virtual Pay TV, including live and time-shifted (e.g. DVR) television viewing. Includes broadcast. Sources: Activate analysis, Comscore, Conviva, data.ai, eMarketer, GWI, Nielsen, Pew Research Center, U.S. Bureau of Labor Statistics



# We forecast that Battleground TV Households will continue to grow as Pay TV households decline through 2027

TELEVISION HOUSEHOLD BREAKDOWN<sup>1</sup>, U.S., 2023E VS. 2027E, MILLIONS HOUSEHOLDS

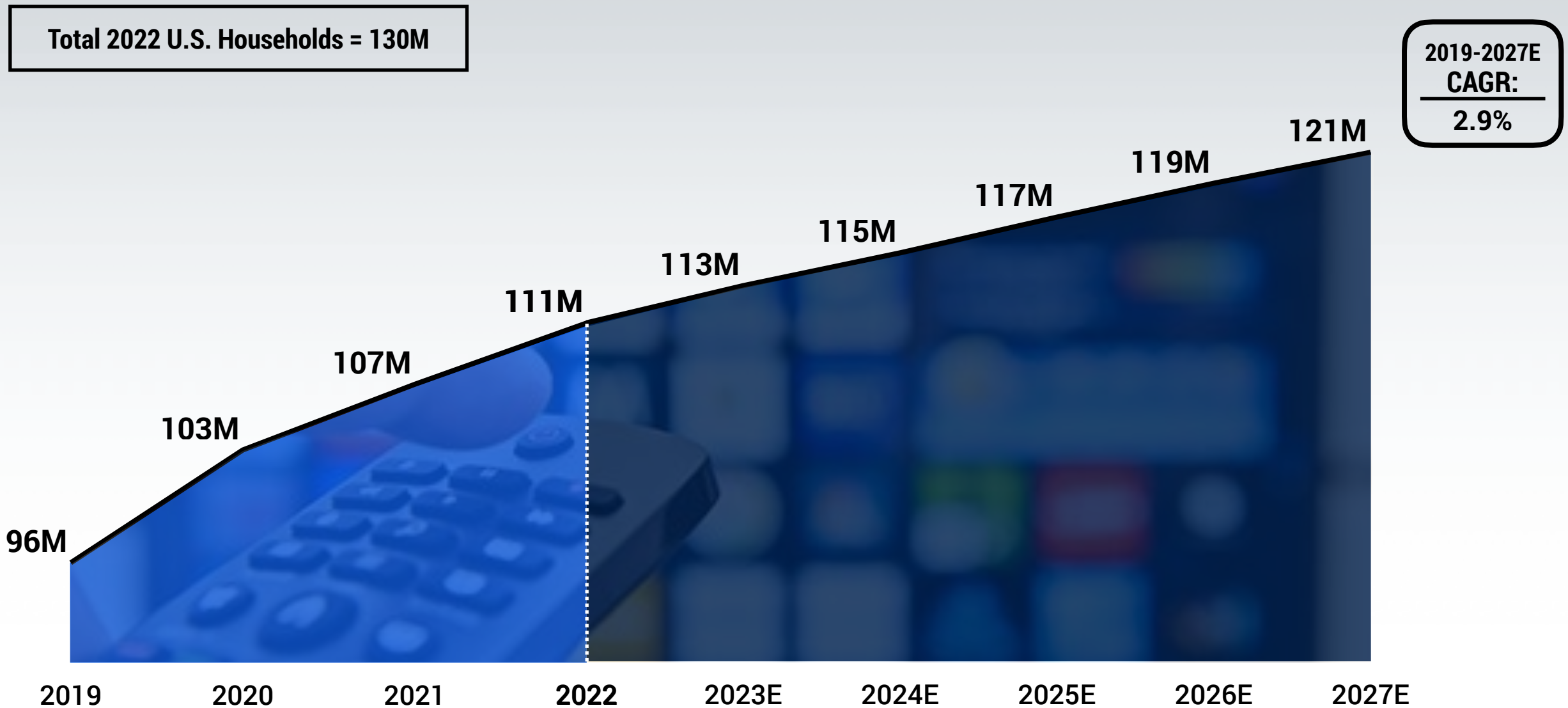


1. Figures do not sum due to rounding. 2. "Pay TV" is defined as traditional Pay TV (i.e. TV delivered through a set-top box) and virtual Pay TV (i.e. TV delivered through the internet without a set-top box).

Sources: Activate analysis, Activate 2016 Consumer Technology & Media Research Study (n = 4,000), Activate 2017 Consumer Technology & Media Research Study (n = 4,047), Activate 2018 Consumer Technology & Media Research Study (n = 4,000), Activate 2019 Consumer Technology & Media Research Study (n = 4,006), Activate 2020 Consumer Technology & Media Research Study (n = 4,003), Activate 2021 Consumer Technology & Media Research Study (n = 4,018), Activate 2021 Consumer Video Research Study (n = 2,014), Activate 2022 Consumer Technology & Media Research Study (n = 4,001), Activate 2023 Consumer Technology & Media Research Study (n = 4,023), eMarketer, MoffettNathanson, Nielsen, S&P Global, U.S. Census Bureau, Wells Fargo

# Connected TVs will play an increasingly large role in digital video consumption; by 2027, nearly every U.S. household will have a Connected TV

CONNECTED TV<sup>1</sup> HOUSEHOLDS<sup>2</sup>, U.S., 2019-2027E, MILLIONS HOUSEHOLDS

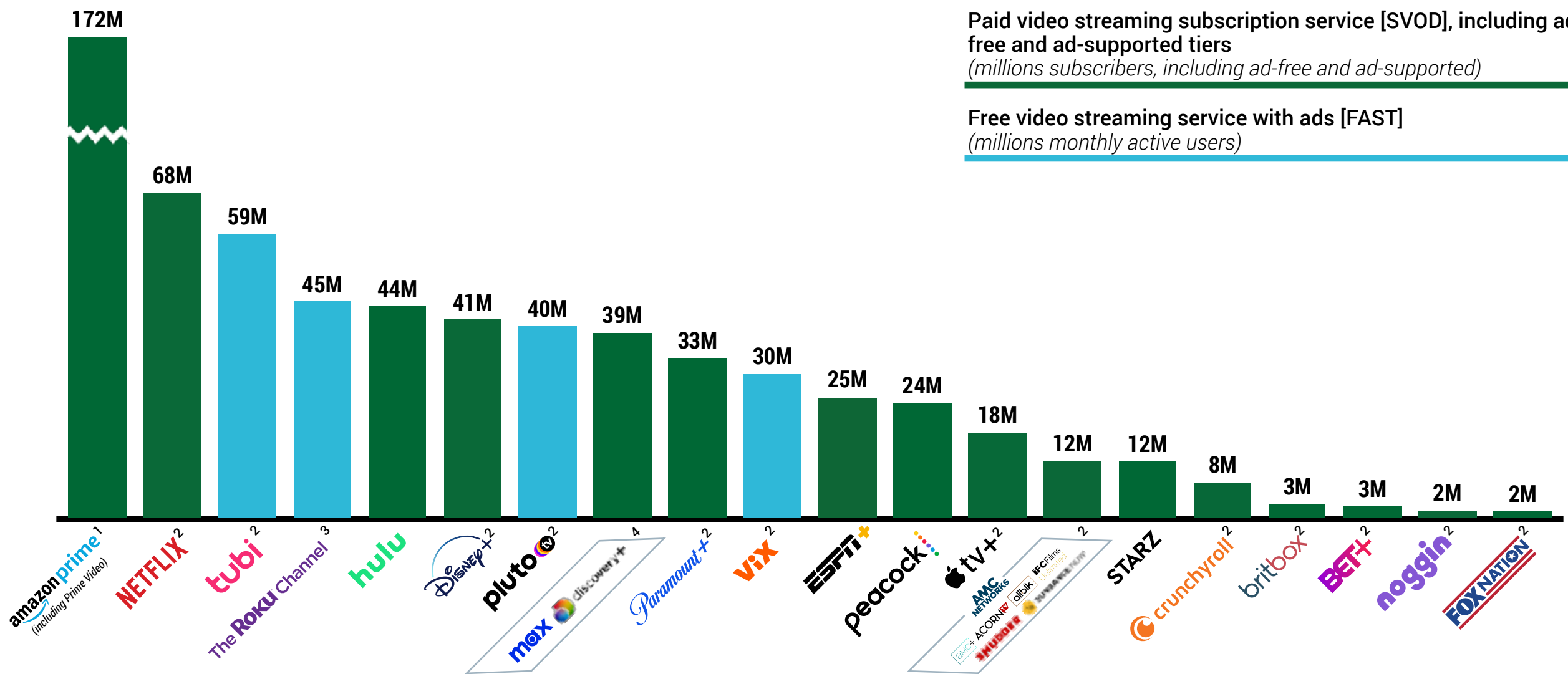


1. "Connected TVs" are defined as TV sets that can connect to the internet through built-in internet capabilities (i.e. Smart TVs) or through another device such as a streaming device (e.g. Amazon Fire TV, Apple TV, Google Chromecast, Roku), gaming console, or Blu-ray player. 2. "Connected TV households" are defined as households with at least one person of any age that uses the internet through a Connected TV at least once per month.

Sources: Activate analysis, eMarketer, Leichtman Research Group, U.S. Census Bureau

# The video streaming market is highly competitive

**ESTIMATED NUMBER OF SUBSCRIBERS/USERS BY SELECT VIDEO STREAMING SERVICES, U.S., Q2 2023, MILLIONS SUBSCRIBERS / MONTHLY ACTIVE USERS**



**Paid video streaming subscription service [SVOD], including ad-free and ad-supported tiers**  
 (millions subscribers, including ad-free and ad-supported)

**Free video streaming service with ads [FAST]**  
 (millions monthly active users)

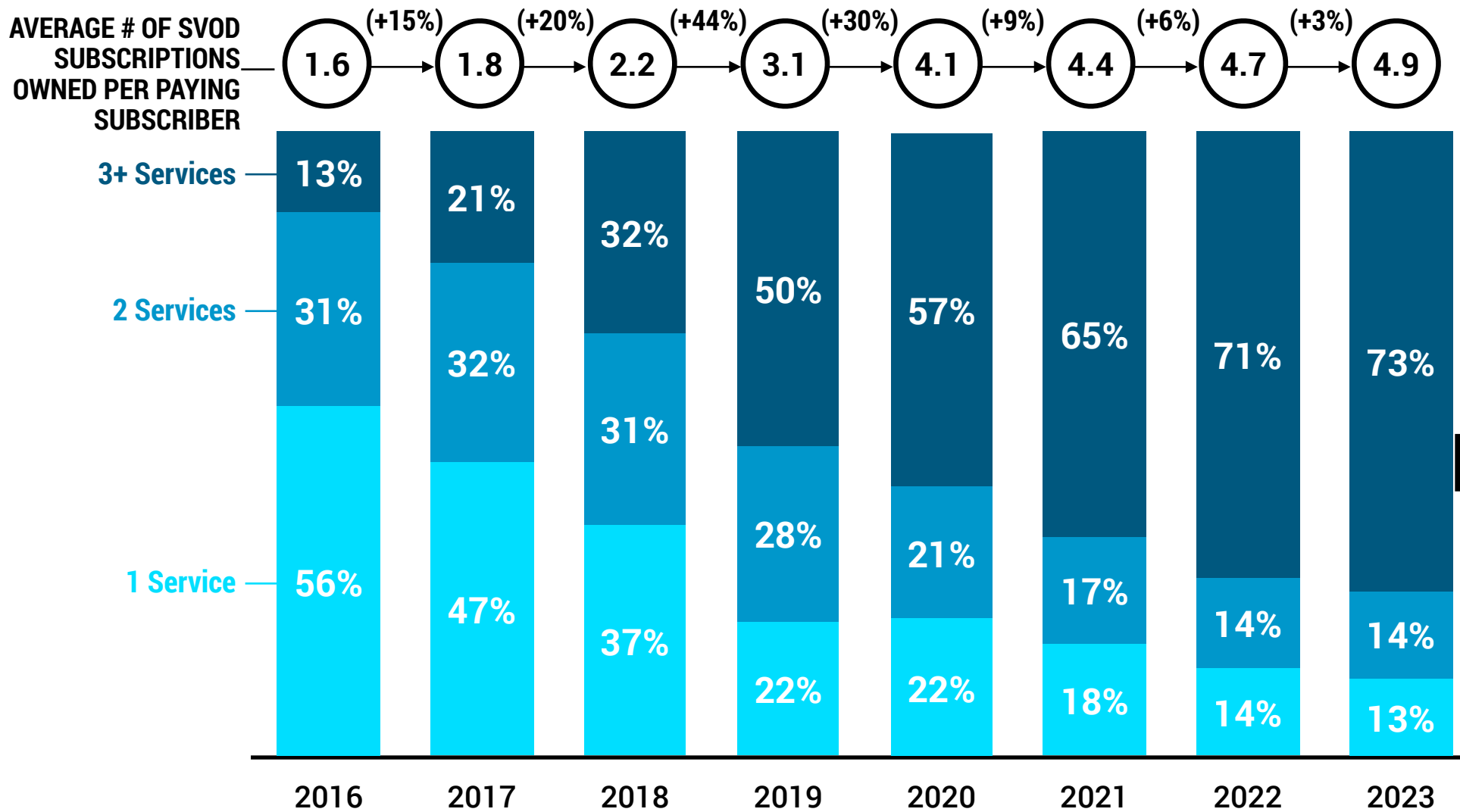
Note: Figures reflect latest publicly disclosed metrics as of Oct. 2023, unless noted otherwise. 1. Reflects estimate of total Prime users. 2. Reflects estimate. 3. Reflects estimate of Roku monthly active accounts in the U.S. viewing The Roku Channel. 4. Reflects estimate of combined Max and Discovery+ subscribers.

Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Antenna, Business Insider, Company filings, Company press releases, Company sites, eMarketer, Entertainment Strategy Guy, Goldman Sachs, The Hollywood Reporter, J.P. Morgan, MoffettNathanson, Morgan Stanley, Variety



# By 2027, the average SVOD subscriber will have 5.8 subscriptions

NUMBER OF SVOD SUBSCRIPTIONS OWNED PER PAYING SUBSCRIBER<sup>1</sup>, U.S., 2016-2023, % SVOD SUBSCRIPTION OWNERS AGED 18+



**ACTIVATE FORECAST**

We forecast that the average SVOD subscriber will have **5.8** subscriptions by 2027

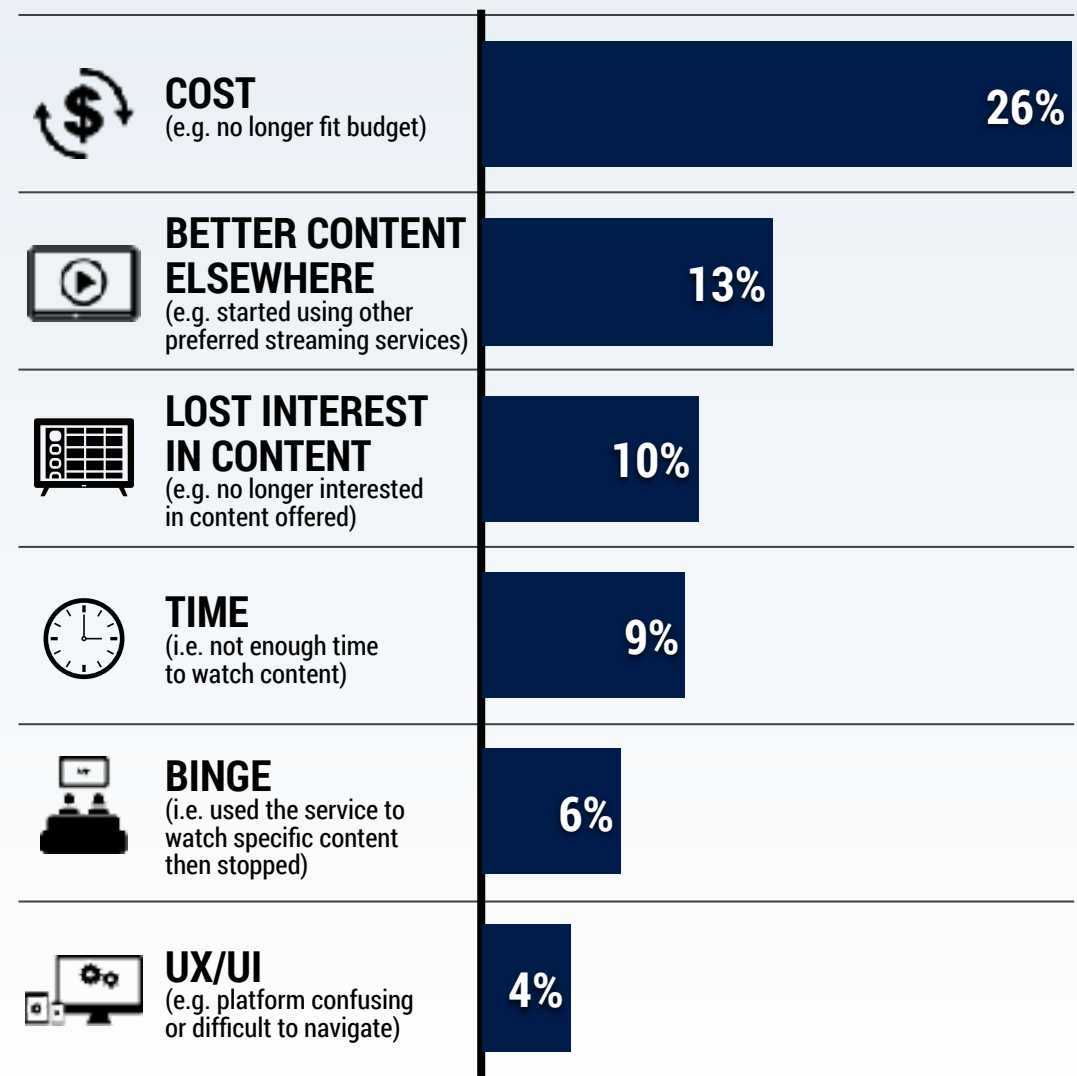
1. Figures do not sum to 100% due to rounding. Includes both ad-supported and ad-free SVOD subscriptions. Sources: Activate analysis, Activate 2016 Consumer Technology & Media Research Study (n = 4,000), Activate 2017 Consumer Technology & Media Research Study (n = 4,047), Activate 2018 Consumer Technology & Media Research Study (n = 4,000), Activate 2019 Consumer Technology & Media Research Study (n = 4,006), Activate 2020 Consumer Technology & Media Research Study (n = 4,003), Activate 2021 Consumer Technology & Media Research Study (n = 4,018), Activate 2021 Consumer Video Research Study (n = 2,014), Activate 2022 Consumer Technology & Media Research Study (n = 4,001), Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Omdia, PricewaterhouseCoopers, U.S. Department of Labor

# As paid streaming services continue to raise prices, churn will continue to be a major challenge

**MONTHLY SUBSCRIPTION PRICE INCREASES ON SELECT SVOD SERVICES, U.S., OCT. 2021 VS. OCT. 2023<sup>1</sup>, USD PER MONTH**

	OCT. 2021 PRICE	OCT. 2023 <sup>1</sup> PRICE	PRICE CHANGE FROM OCT. 2021 to OCT. 2023 <sup>1</sup>
<b>NETFLIX</b> Premium (no ads)	\$17.99	\$19.99	+\$2.00 (+11%)
<b>hulu</b> (no ads)	\$12.99	\$17.99	+\$5.00 (+38%)
<b>max</b> (no ads)	\$14.99	\$15.99	+\$1.00 (+7%)
<b>NETFLIX</b> Standard (no ads)	\$13.99	\$15.49	+\$1.50 (+11%)
<b>Disney+</b> (no ads)	\$7.99	\$13.99	+\$6.00 (+75%)
<b>Paramount+</b> (no ads)	\$9.99	\$11.99	+\$2.00 (+20%)
<b>peacock</b> (no ads)	\$9.99	\$11.99	+\$2.00 (+20%)
<b>ESPN+</b>	\$6.99	\$10.99	+\$4.00 (+57%)
<b>hulu</b> (ads)	\$6.99	\$7.99	+\$1.00 (+14%)
<b>peacock</b> (ads)	\$4.99	\$5.99	+\$1.00 (+20%)
<b>Paramount+</b> (ads)	\$4.99	\$5.99	+\$1.00 (+20%)

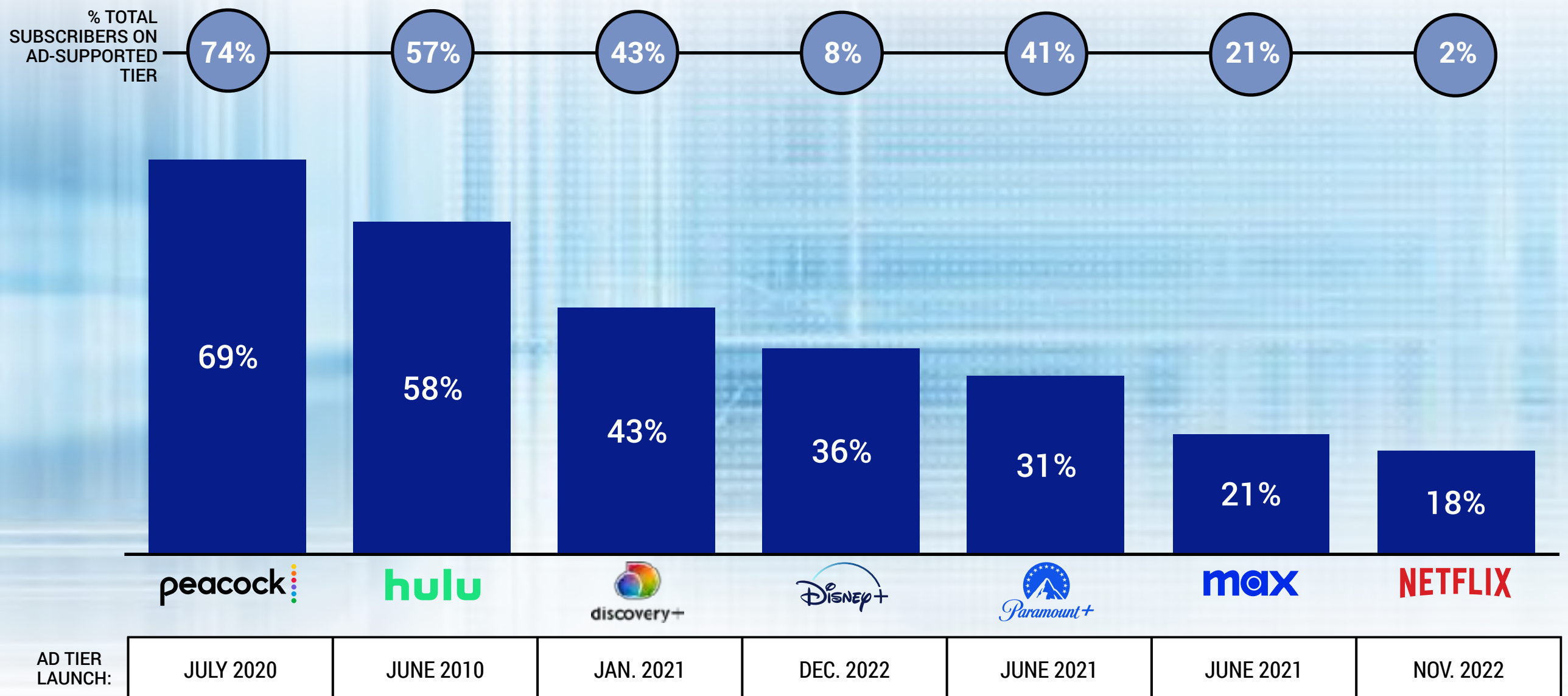
**TOP REASONS<sup>2</sup> FOR STOPPING USE OF SELECT SVOD SERVICES<sup>3</sup>, U.S., 2023, % CHURNED USERS<sup>4</sup> OF SELECT SVOD SERVICES**



1. As of Oct. 15, 2023. 2. Consumers were asked to select up to two top reasons. 3. Includes Netflix, Hulu, Max, Disney+, Paramount+, and Peacock without ads as well as ESPN+ and Hulu, Peacock, and Paramount+ with ads. 4. "Churned users" are defined as adults aged 18+ who do not currently use a select paid video streaming subscription service but have used the service in the past. Users who churned from multiple services were asked to select top reasons for each churned service. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company press releases, Company sites

# To drive new customer acquisition, every major streaming service now offers an ad-supported tier





AD-SUPPORTED TIER SIGN-UPS BY SELECT SVOD SERVICE<sup>1</sup>, U.S., JAN. 2023-MAY 2023, % TOTAL SIGN-UPS BY SERVICE





# Streaming services are changing their pricing structures to drive people to ad-supported tiers

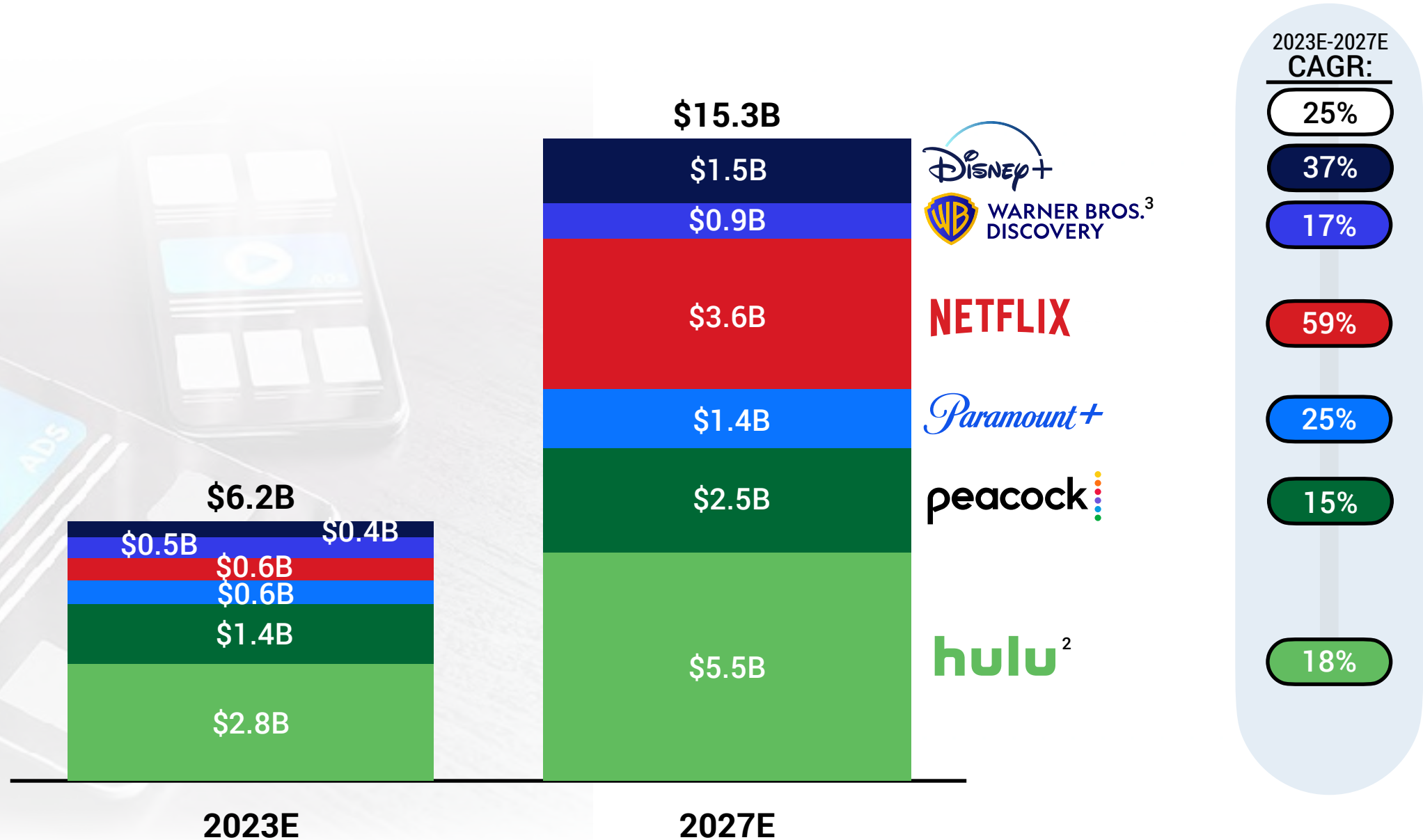
## RECENT EXAMPLES OF SVOD SERVICES DRIVING CONSUMERS TO AD-SUPPORTED TIERS

		PREVIOUS MONTHLY PRICE TIERS		PRICE GAP BETWEEN AD-SUPPORTED AND AD-FREE <sup>1</sup>	NEW MONTHLY PRICE TIERS <sup>2</sup>		PRICE GAP BETWEEN AD-SUPPORTED AND AD-FREE <sup>1</sup>
		AD-SUPPORTED	AD-FREE		AD-SUPPORTED	AD-FREE	
	Announced plans <sup>3</sup> to introduce ads on existing service and to launch ad-free add-on Sept. 2023	None	\$0 for Prime subscribers <sup>4</sup>	\$0	\$0 for Prime subscribers <sup>4</sup>	\$2.99 for Prime subscribers <sup>4</sup>	\$2.99
	Increased ad-free tier price by 27% Oct. 2023	\$7.99	\$10.99	\$3	\$7.99	\$13.99	\$6
	Increased price of ad-free tier by twice as much as the ad-supported tier increase Aug. 2023	\$4.99	\$9.99	\$5	\$5.99	\$11.99	\$6
	Removed "Basic" \$9.99/month ad-free tier July 2023	\$6.99	Basic: \$9.99 Standard: \$15.49 Premium: \$19.99	\$3	\$6.99	Basic: Removed Standard: \$15.49 Premium: \$19.99	\$8.50
	Raised price of ad-free tier to \$11.99/month June 2023	\$4.99	\$9.99	\$5	\$5.99	\$11.99 <sup>5</sup>	\$6

1. Represents the price difference in USD between the ad-supported tier and the cheapest ad-free option. 2. Reflects pricing structures as of Oct. 15, 2023. 3. Planned to be introduced/released in early 2024. 4. Reflects subscribers of Prime Video as part of Amazon Prime bundle, not as a standalone service. 5. Reflects the price of Paramount+ with Showtime. Sources: Activate analysis, Company press releases, Company sites, Deadline, The Hollywood Reporter, Variety

# Advertising revenues across major SVOD services will grow 25% annually through 2027

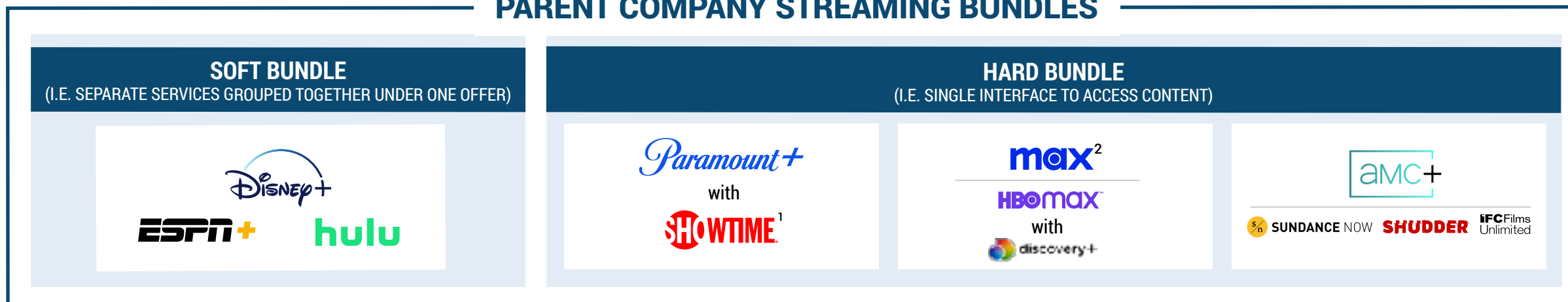
ADVERTISING REVENUES FOR SELECT AD-SUPPORTED SVOD SERVICES<sup>1</sup>, U.S., 2023E VS. 2027E, BILLIONS USD



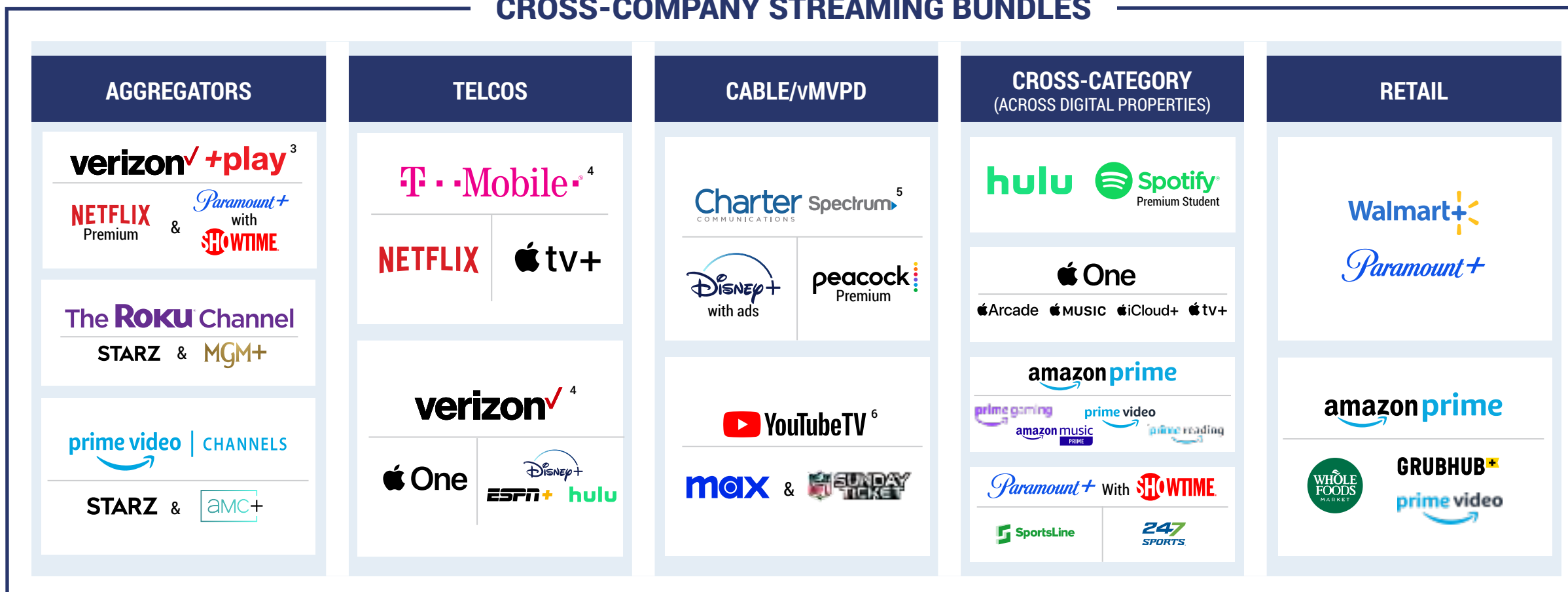
1. Figures do not sum due to rounding. 2. Hulu ad revenue does not include ad revenue from Hulu Live TV. 3. Includes ad revenue from total WBD direct to consumer subscribers including Max, Discovery+, and HBO. Sources: Activate analysis, Antenna, Bank of America, Bank of Canada, Business Insider, Canada Census, Company filings, Company sites, Entertainment Strategy Guy, The Hollywood Reporter, MediaRadar, Morgan Stanley, Nielsen, S&P Global, SMI, U.S. Census Bureau, Variety

# We expect a “great re-bundling” of the video streaming market

## PARENT COMPANY STREAMING BUNDLES



## CROSS-COMPANY STREAMING BUNDLES

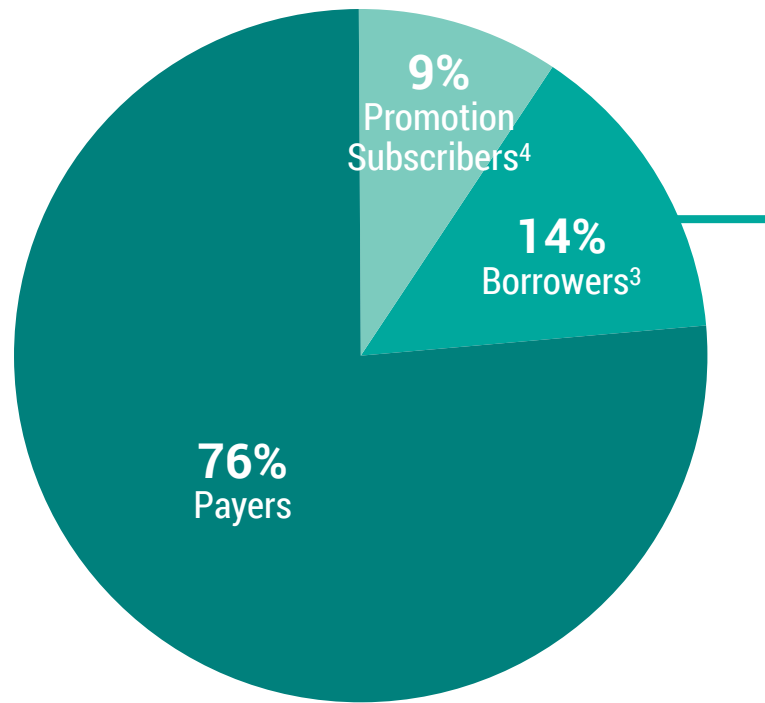


Note: Not exhaustive. 1. No longer available as standalone service. 2. Rebranded as Max in May 2023, including HBO Max and select Discovery+ titles within a single interface. Discovery+ still exists as a standalone service. 3. Limited-time bundle deal. 4. Bundle offered with select wireless plans. 5. Bundle offered with select TV packages. 6. Announced during Alphabet's Q2 2023 earnings call. Sources: Activate analysis, Company sites, Variety



# Password sharing is a common behavior across major streaming services; our consumer research indicates that password crackdowns by streaming services will lead to an increased number of subscribers

**PAYMENT AND BORROWING BEHAVIOR ON MAJOR SVOD SERVICES<sup>1</sup>, U.S., 2023, % MONTHLY MAJOR SVOD USERS<sup>2</sup>**

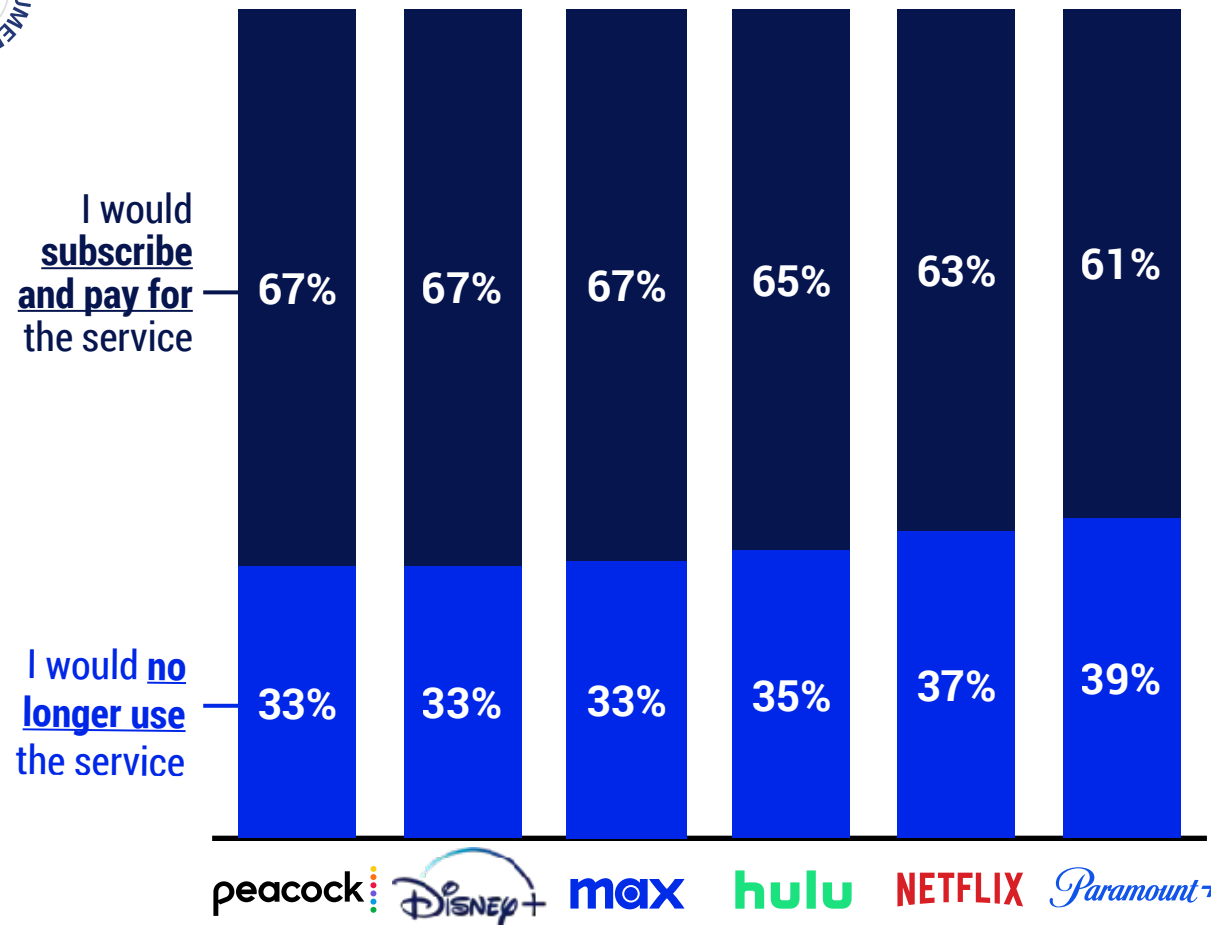


On average, nearly 15% of monthly major SVOD users<sup>2</sup> are free-riders

**EXPECTED RESPONSE TO PASSWORD-SHARING CRACKDOWN, U.S., 2023, % SVOD SUBSCRIPTION BORROWERS<sup>3</sup>**



IF I WERE NO LONGER ABLE TO ACCESS THE FOLLOWING SERVICES WITHOUT PAYING FOR MY OWN SUBSCRIPTION...



**Disney+**  
has announced that it will roll out new password sharing terms in Canada by November 2023

**max**  
includes features in its user agreement to curb account sharing, such as limiting simultaneous streams

1. Reflects weighted average across major SVOD services based on users. Major SVOD services include Disney+, Hulu, Max, Netflix, Paramount+, and Peacock, with or without advertisements. Figures do not sum due to rounding. 2. "Monthly major SVOD users" are defined as adults aged 18+ who use a major SVOD service at least once per month. 3. "Borrowers" are defined as monthly major SVOD users who use a subscription paid for by someone outside of the household at least once per month. 4. "Promotion subscribers" are defined as monthly major SVOD users who subscribe for free via promotion. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), CNN, Company sites, Deadline, Forbes, Variety

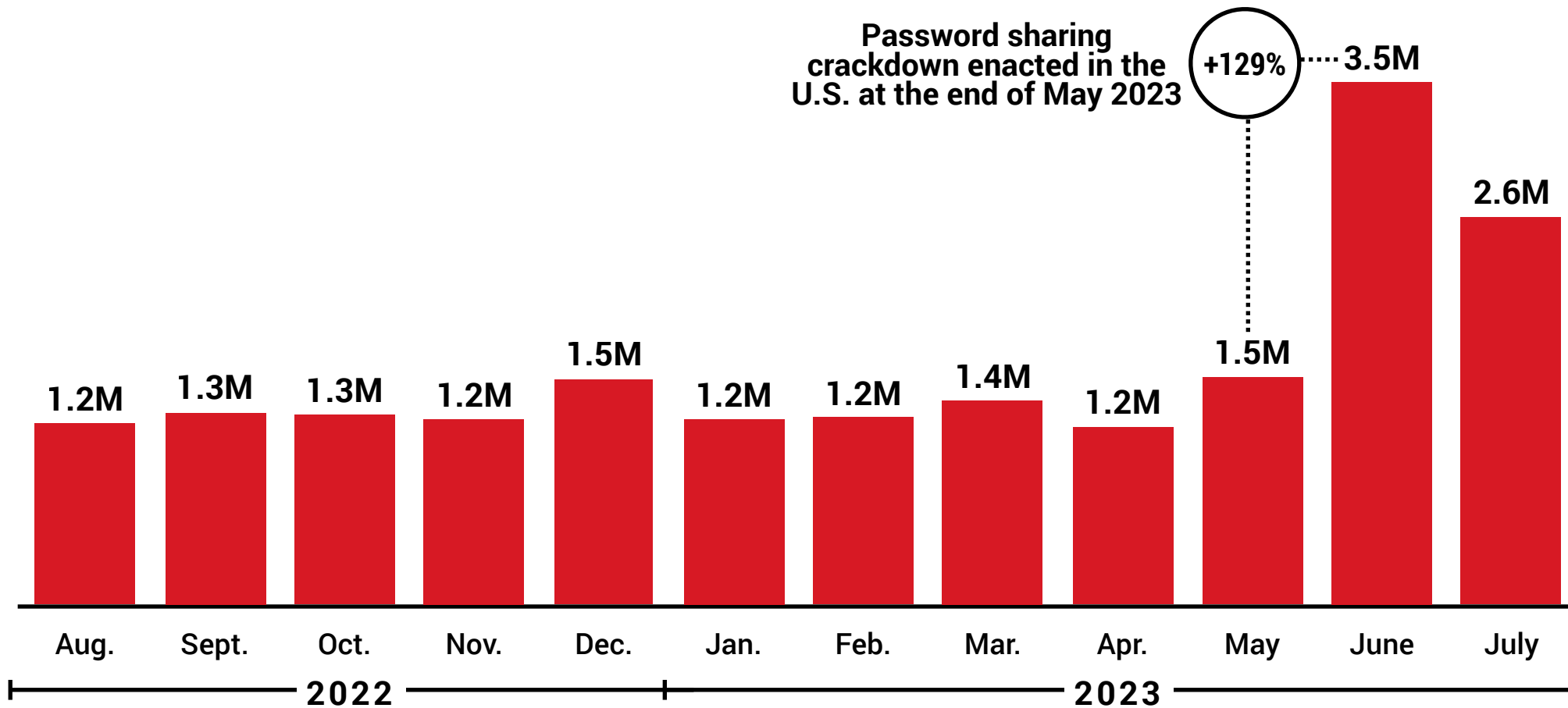
# Netflix's password crackdown demonstrates that minimizing account sharing is an effective way to drive new subscriber acquisition

NETFLIX GROSS SUBSCRIBER ADDITIONS<sup>1</sup>, U.S., AUG. 2022-JULY 2023, MILLIONS GROSS ADDITIONS

NETFLIX

- As of Q2 2023, Netflix has launched paid sharing in **more than 100 countries**
- **Password Sharing Policy:** Each account is designed to be used in **"one household"**
  - Features the ability to **transfer a profile** (i.e. bring over important viewing information to new membership) or **buy an extra member** (i.e. add person to existing account for \$7.99/month)<sup>2</sup>

Password sharing crackdown enacted in the U.S. at the end of May 2023



**IMPACT**

- Launch of paid sharing was Netflix's **"primary revenue accelerator"** for 2023<sup>3</sup>
- Rules against password sharing have **aided customer sign-ups**, specifically for **Netflix's ad-free tiers**<sup>4</sup>

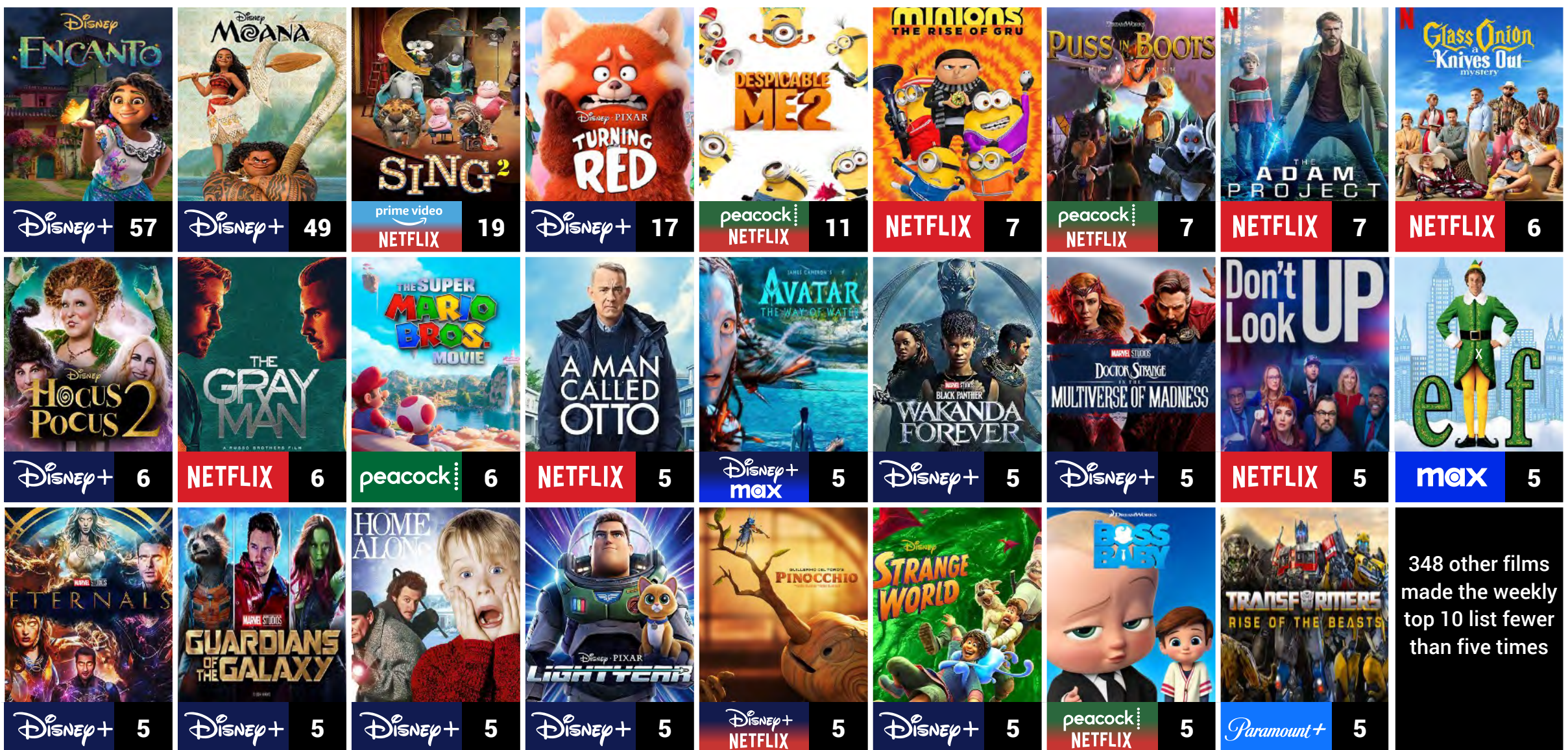
1. Excludes MVPD/telco distribution and select bundles. 2. Only available with Netflix's Standard or Premium plan (not ad-supported plan or if account is billed through a third party). 3. Reported during Netflix's Q2 2023 earnings call. 4. Reported in Sept. 2023 by Netflix's CFO at Bank of America Media, Communications & Entertainment Conference. Sources: Activate analysis, Antenna, CNN, Company filings, Company sites, Deadline, The Streamable, Variety



# On streaming, family films drive the most frequent engagement

FILMS MOST FREQUENTLY APPEARING ON WEEKLY TOP 10 STREAMING FILMS LIST<sup>1,2</sup>, U.S., JAN. 2022-SEPT. 2023<sup>3</sup>, NUMBER OF APPEARANCES ON WEEKLY TOP 10 STREAMING FILMS LIST<sup>1</sup>

 = Number of appearances on weekly top 10 list



1. Based on Nielsen Streaming Content Ratings, which ranks titles based on aggregate minutes streamed.  
 2. Includes all films that appeared five or more times on the weekly top 10 list. 3. Reflects weekly top 10 lists from the week of Dec. 27, 2021-Jan. 2, 2022 through the week of Sept. 4, 2023-Sept. 10, 2023.  
 Sources: Activate analysis, Nielsen Streaming Content Ratings



# Shows with large libraries are critical to driving consistent engagement

SHOWS MOST FREQUENTLY APPEARING ON WEEKLY TOP 10 STREAMING SHOWS LIST<sup>1,2</sup>, U.S., JAN. 2022-SEPT. 2023<sup>3</sup>, NUMBER OF APPEARANCES ON WEEKLY TOP 10 STREAMING SHOWS LIST<sup>1</sup>

 = Number of appearances on weekly top 10 list

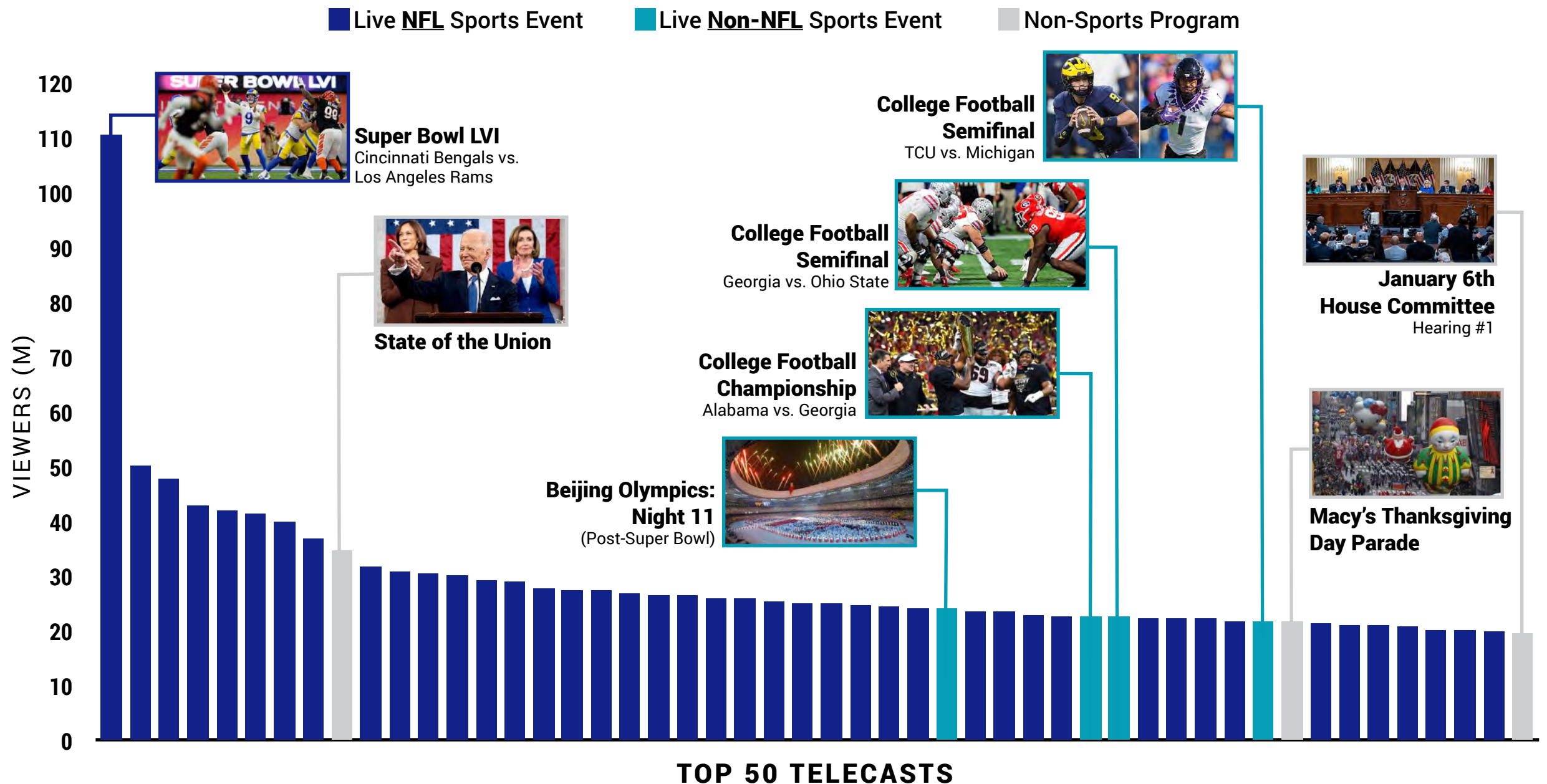


1. Based on Nielsen Streaming Content Ratings, which ranks titles based on aggregate minutes streamed.  
 2. Includes all shows that appeared more than 10 times on the weekly top 10 list. 3. Reflects weekly top 10 lists from the week of Dec. 27, 2021-Jan. 2, 2022 through the week of Sept. 4, 2023-Sept. 10, 2023.  
 Sources: Activate analysis, Nielsen Streaming Content Ratings



# Sports programming drives Pay TV viewing, as 47 of the top 50 most-watched programs in 2022 were live sports

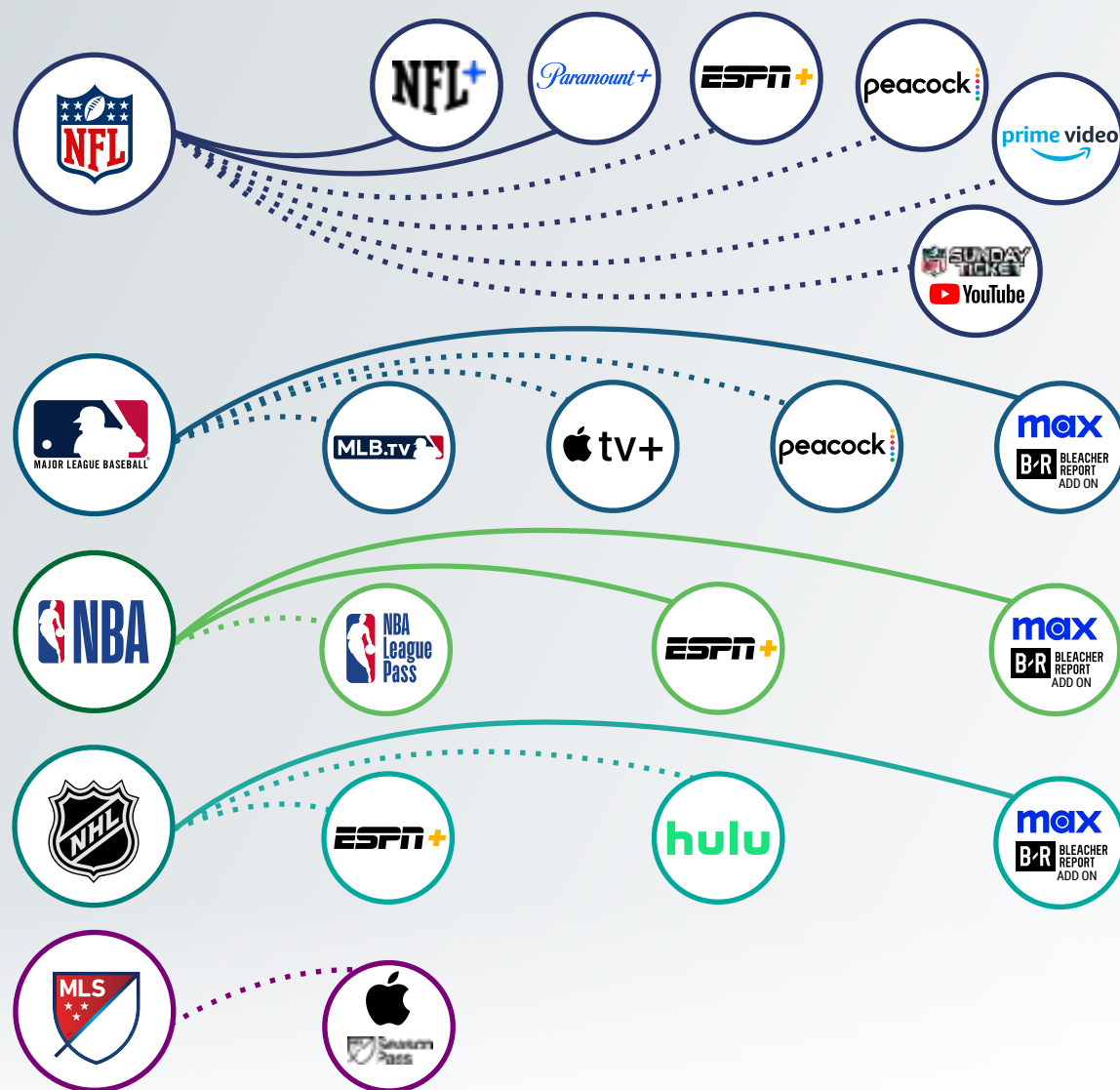
VIEWERS FOR TOP 50 MOST-VIEWED PRIMETIME TELECASTS, U.S., 2022, MILLIONS VIEWERS



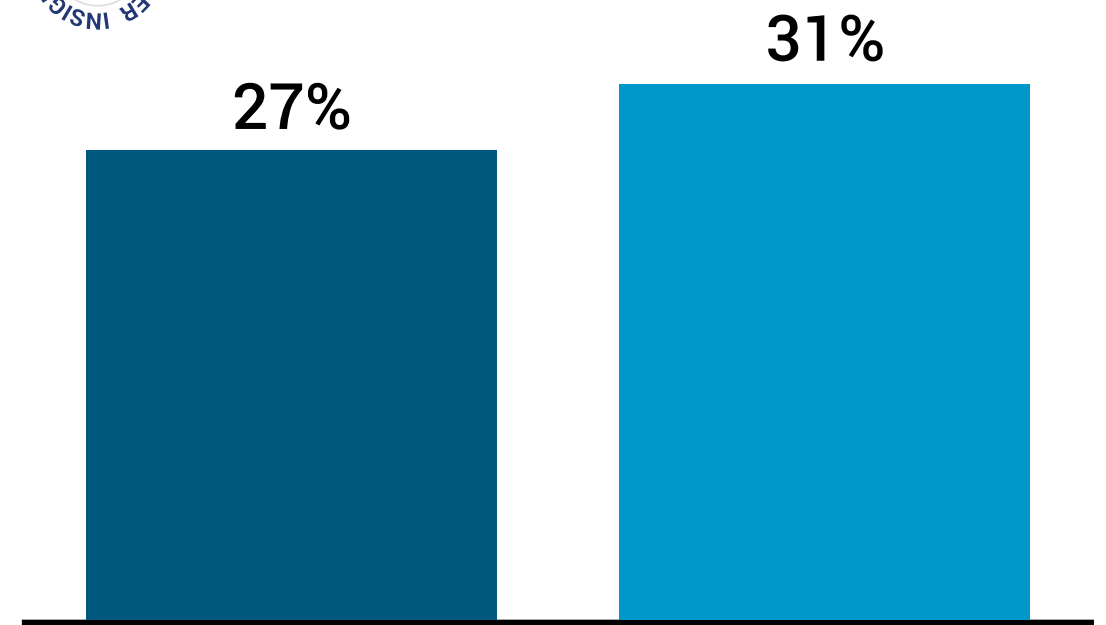
# As sports increasingly move to streaming, cord-cutting will accelerate

## 2023 U.S. SPORTS STREAMING RIGHTS BY MAJOR LEAGUE<sup>1</sup>

... Includes exclusive national game(s)



## SUBSCRIBERS IDENTIFYING LIVE SPORTS AS A TOP REASON<sup>2</sup> FOR SUBSCRIBING TO PAY TV, U.S., 2023, % TRADITIONAL PAY TV<sup>3</sup> SUBSCRIBERS VS. % VIRTUAL PAY TV<sup>4</sup> SUBSCRIBERS



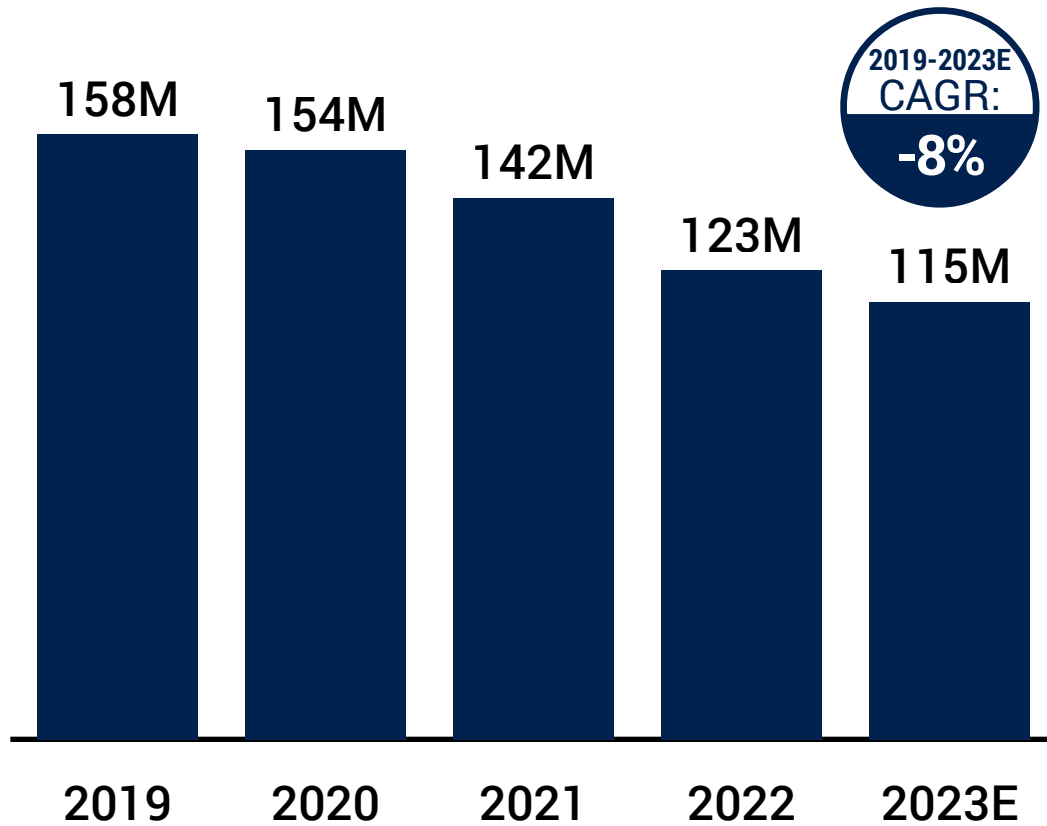
- EXAMPLE PROVIDERS
- | Traditional Pay TV <sup>3</sup>            | Virtual Pay TV <sup>4</sup>                            |
|--|--|
| xfinity, Spectrum, dish, DIRECTV, optimum. | YouTubeTV, hulu + LIVE TV, fubo, DIRECTV stream, sling |

1. Not exhaustive. As of Oct. 2023. 2. Consumers were asked to select up to three top reasons. 3. "Traditional Pay TV" is defined as TV delivered through a set-top box. 4. "Virtual Pay TV" is defined as TV delivered through the internet without a set-top box. Sources: Activate analysis, Activate 2023 Video Research Study (n = 3,013), Company sites



# Regional Sports Network (RSN) subscribers have rapidly decreased as the cable bundle has deteriorated, leading to the dissolution of many existing rights deals and the shutdown of several networks

**TOTAL SUBSCRIPTIONS TO TOP 50 RSNs, U.S., 2019-2023E, MILLIONS SUBSCRIPTIONS**



**MARCH 2023:** DIAMOND SPORTS, LARGEST OWNER OF REGIONAL SPORTS NETWORKS, FILES FOR BANKRUPTCY



**MAY 2023:** MLB TAKES OVER PADRES TELEVISION BROADCASTS AFTER BALLY SPORTS MISSES PAYMENTS



**MAY 2023:** MLB TAKES OVER DIAMONDBACKS GAME BROADCASTS FROM DIAMOND SPORTS



**OCTOBER 2023:** BALLY SPORTS ARIZONA BACKS OUT OF AGREEMENT TO BROADCAST COYOTES GAMES



**OCTOBER 2023:** BALLY SPORTS PLANS TO SHUT DOWN ITS BALLY SPORTS ARIZONA RSN



**FEBRUARY 2023:** WARNER BROS. DISCOVERY TELLS TEAMS IT IS PLANNING TO EXIT THE RSN BUSINESS



**AUGUST 2023:** PITTSBURGH PENGUINS ACQUIRES AT&T SPORTSNET



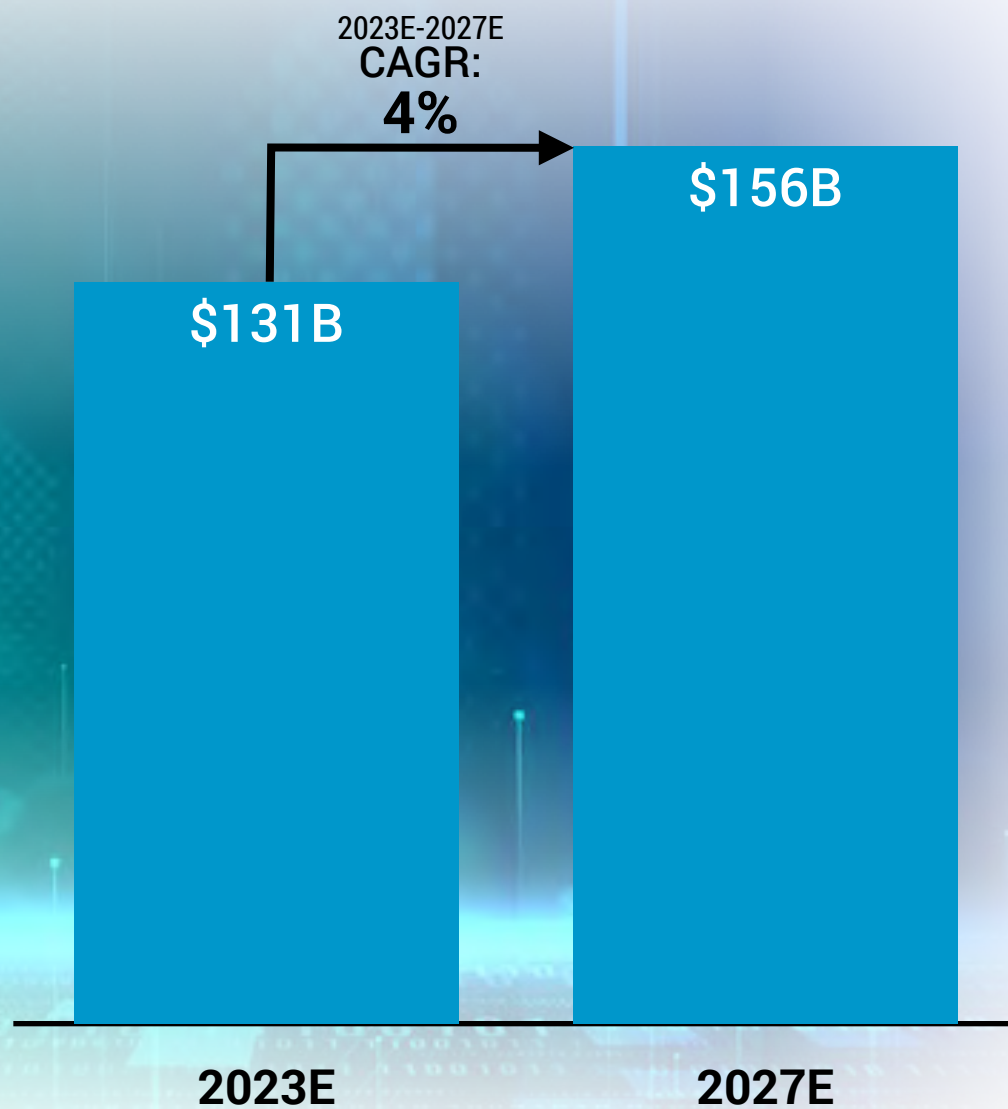
**SEPTEMBER 2023:** AT&T SPORTSNET ROCKY MOUNTAIN SHUTS DOWN, LEAVING ROCKIES BROADCASTS IN LIMBO FOR 2024



**OCTOBER 2023:** HOUSTON ASTROS AND ROCKETS OFFICIALLY ACQUIRE AND REBRAND AT&T SPORTSNET SOUTHWEST

# Streaming services will have no choice but to maintain or increase annual programming spend through 2027

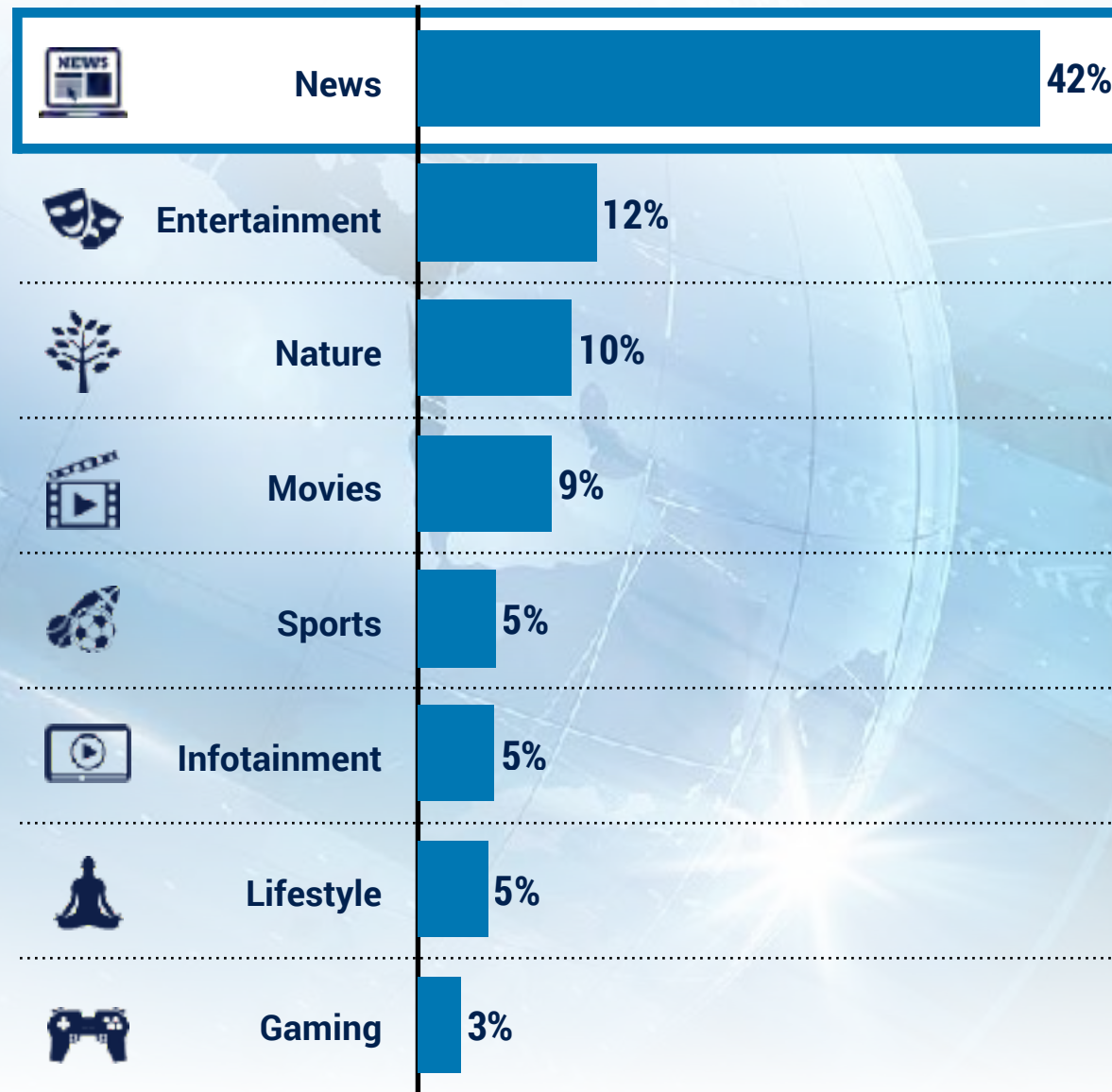
ESTIMATED TOTAL CASH PROGRAMMING SPEND OF MAJOR STREAMING COMPANIES<sup>1</sup>, 2023E VS. 2027E, BILLIONS USD



TAILWINDS DRIVING GROWTH	SPORTS RIGHTS VALUE INCREASES	Sports rights will drive 35% of growth dollars, despite only accounting for 23% of total spend
	TECHNOLOGY PLAYERS CONTINUE TO SPEND	Apple, Amazon, and Netflix will see the highest growth in spend
	COMPETITION FOR SUBSCRIBERS PERSISTS	Media companies with SVOD services will maintain film and television spend to drive subscription growth
	INTERNATIONAL MARKET GROWTH	Greater investment in local language programming will be required to drive international subscriber growth
HEADWINDS LIMITING SPEND	INVESTOR PRESSURE MOUNTS	Investors will continue to push streaming services toward profitability, limiting growth in non-sports programming spend (particularly for traditional media companies)
	TRADITIONAL TV CONTINUES TO DECLINE	As traditional TV continues to decline, the number of network and cable original series will decline

# On FAST services, consumers largely gravitate towards news programming

**AVERAGE CONTRIBUTION TO TOTAL VIEWING HOURS ON FAST<sup>1</sup> BY GENRE<sup>2</sup>, U.S., JULY 2022-JUNE 2023, % TOTAL VIEWING TIME**



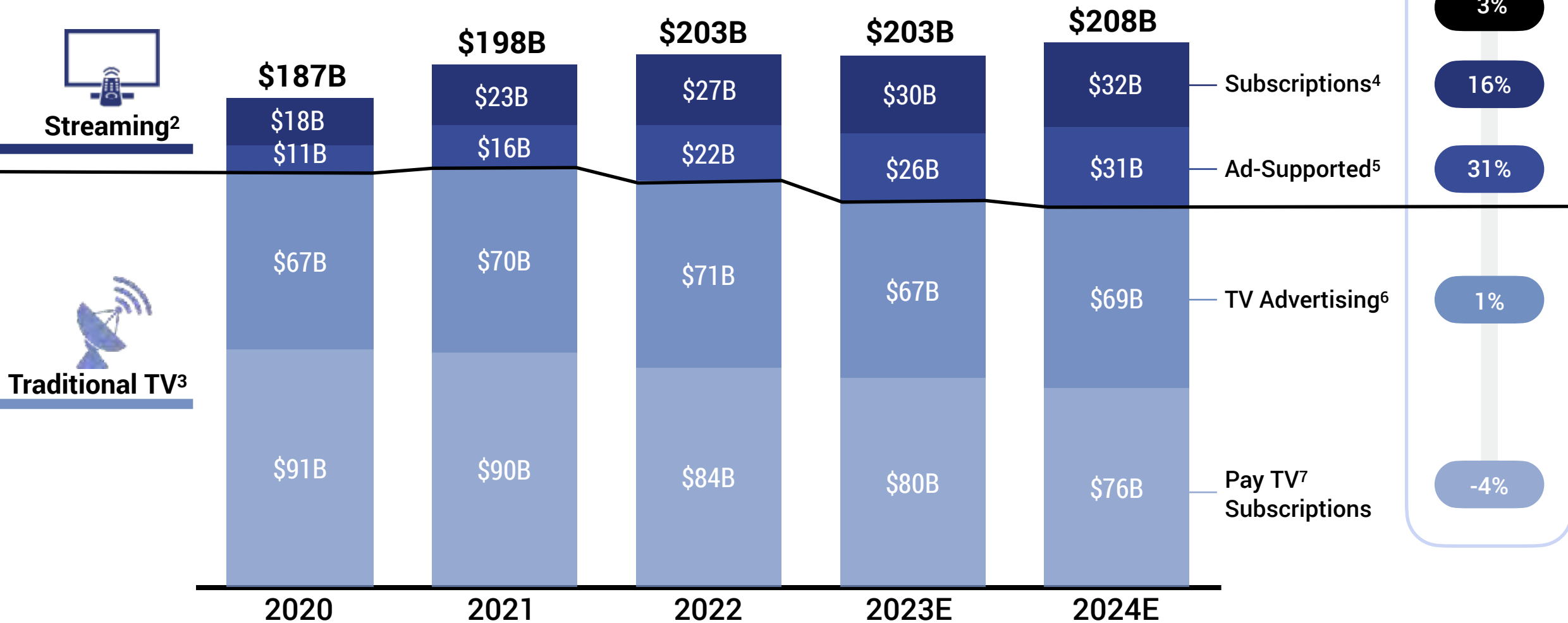
**BOTH LOCAL AND NATIONAL NEWS CHANNELS WILL CONTINUE TO EXPAND ACROSS FAST<sup>1</sup> PLATFORMS TO MEET CONSUMER DEMAND**

LOCAL NEWS APPS/ CHANNELS	NATIONAL NEWS APPS/ CHANNELS



# Despite the decline in traditional TV and the growth in streaming, traditional TV still drives a significant majority of video revenues

VIDEO REVENUE BY TYPE<sup>1</sup>, U.S., 2020-2024E, BILLIONS USD



1. Figures do not sum due to rounding. 2. "Streaming" is defined as video watched on Connected TV, mobile phone, tablet, or desktop/laptop. Connected TVs are TV sets that can connect to the internet through built-in internet capabilities (i.e. Smart TVs) or through another device such as a streaming device (e.g. Amazon Fire TV, Apple TV, Google Chromecast, Roku), game console, or Blu-ray player. Does not include social video or virtual Pay TV. 3. "Traditional TV" is defined as both traditional and virtual Pay TV, including live and time-shifted (e.g. DVR) television viewing. Includes broadcast. 4. Includes spend on paid video streaming subscriptions. 5. Includes video advertising on streaming services across CTV, mobile, desktop, and tablet. Includes YouTube. 6. Includes advertising on broadcast TV and Pay TV. 7. "Pay TV" includes traditional Pay TV (i.e. TV delivered through a set-top box) and virtual Pay TV (i.e. TV delivered through the internet without a set-top box).

Sources: Activate analysis, eMarketer, MoffettNathanson, Omdia, PricewaterhouseCoopers, Wells Fargo

# Streaming now accounts for a greater share of time spend, but revenues still accrue disproportionately to traditional TV; there remains a large opportunity for streaming video to capture additional value

SHARE OF VIDEO TIME SPEND VS. VIDEO REVENUE BY TYPE, U.S., 2023E, % VIDEO TIME SPEND BY ADULTS AGED 18+ VS. % VIDEO REVENUE

STREAMING<sup>1</sup>

**NETFLIX**

*Paramount+* **hulu** **tubi**

The **ROKU** Channel **max**

**ESPN+** **peacock**

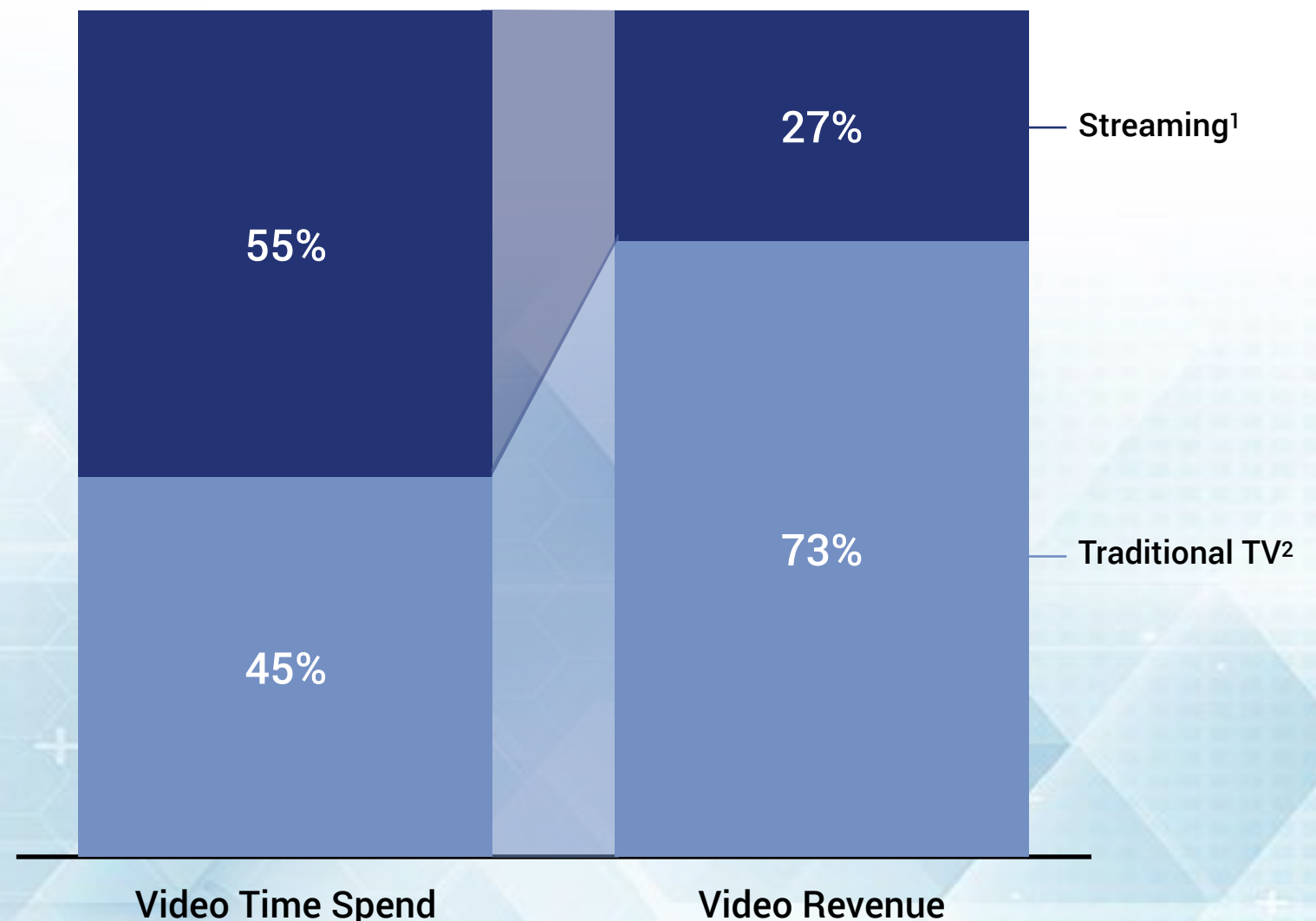
**YouTube** **pluto**

TRADITIONAL TV<sup>2</sup>

**DIRECTV** **dish** **fios tv** by verizon

**YouTubeTV** **Spectrum** **fubo**

**hulu + LIVE TV** **sling** TELEVISION

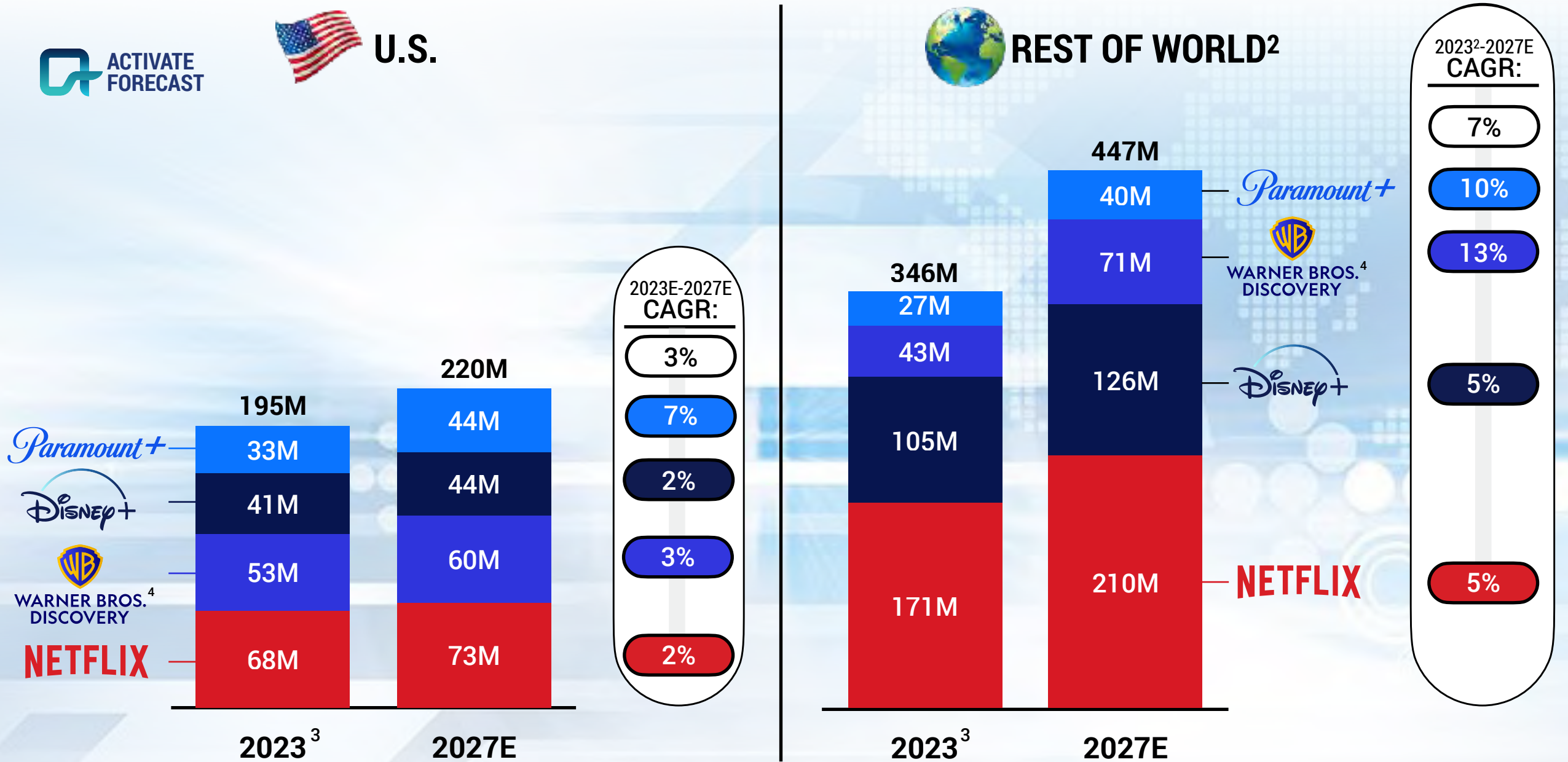


Note: Examples are not exhaustive. 1. "Streaming" is defined as video watched on a mobile phone, tablet, desktop/laptop, or Connected TV. Connected TVs are TV sets that can connect to the internet through built-in internet capabilities (i.e. Smart TVs) or through another device such as a streaming device (e.g. Amazon Fire TV, Apple TV, Google Chromecast, Roku), game console, or Blu-ray player. Does not include social video or virtual Pay TV. 2. "Traditional TV" is defined as both traditional and virtual Pay TV, including live and time-shifted (e.g. DVR) television viewing. Includes broadcast.

Sources: Activate analysis, Comscore, Conviva, data.ai, eMarketer, GWI, MoffettNathanson, Nielsen, Omdia, Pew Research Center, PricewaterhouseCoopers, U.S. Bureau of Labor Statistics, Wells Fargo

# International markets will be the primary source of future subscriber growth for video streaming services

SVOD SUBSCRIBERS BY REGION<sup>1</sup>, U.S. VS. REST OF WORLD<sup>2</sup>, 2023<sup>3</sup> VS. 2027E, MILLIONS SUBSCRIBERS

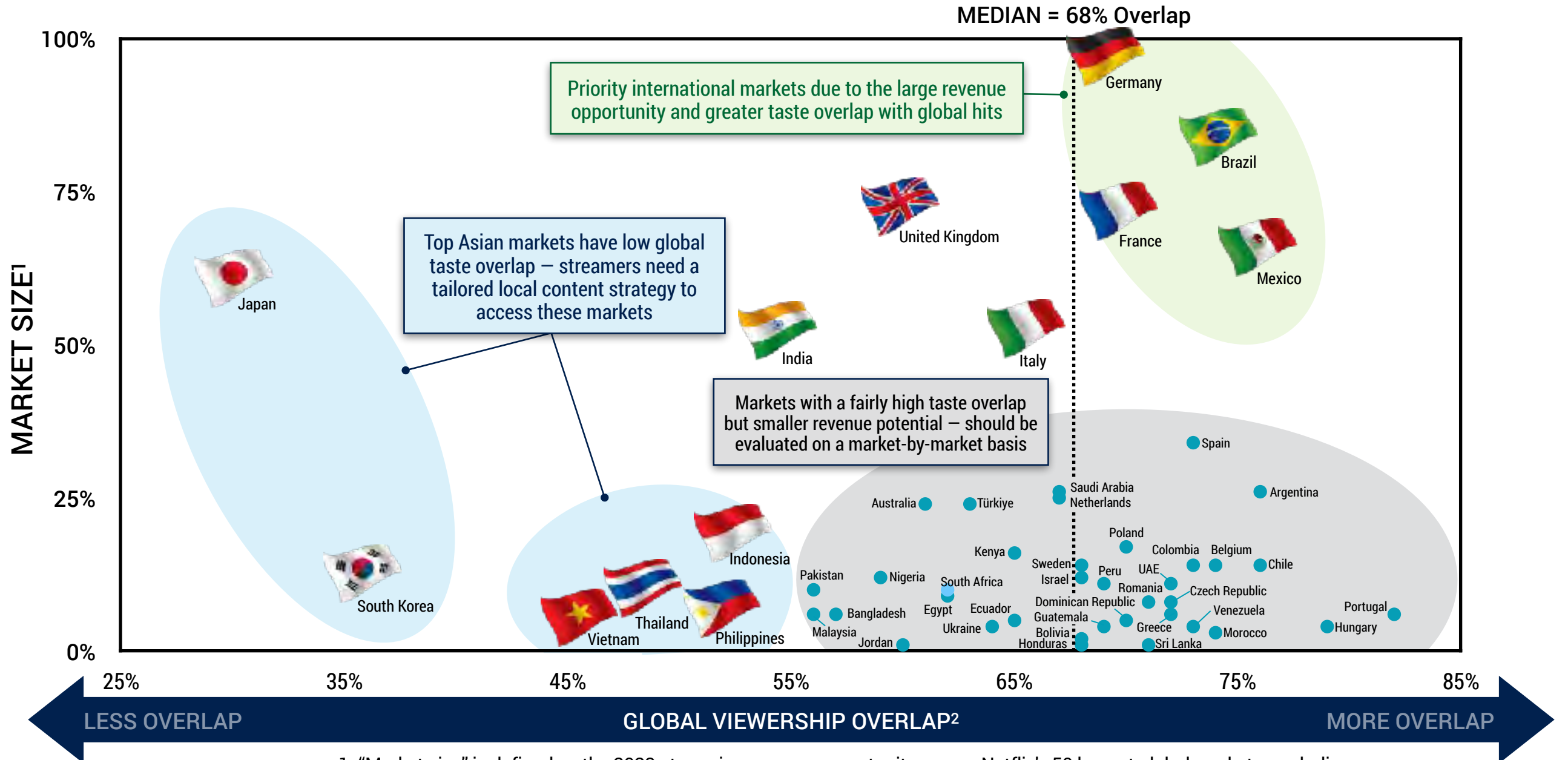


1. Figures do not sum due to rounding. 2. "Rest of world" includes all non-U.S. markets, including Canada. 3. Represents subscribers as of Q2 2023. 4. Reflects estimate of total WBD direct to consumer subscribers, including Max, Discovery+, and HBO.  
Sources: Activate analysis, Company filings, Company sites, Goldman Sachs, Morgan Stanley, MoffettNathanson, Wells Fargo



# Each international market requires its own strategy, taking into consideration market size, strategic value, and required programming investment













INTERNATIONAL STREAMING MARKET SIZE<sup>1</sup> VS. GLOBAL VIEWERSHIP OVERLAP<sup>2</sup>, GLOBAL, 2023E, TOP 50 INTERNATIONAL MARKETS BY POPULATION



1. "Market size" is defined as the 2023 streaming revenue opportunity across Netflix's 50 largest global markets, excluding China, Russia, U.S., and Canada. Market size estimates are indexed to the maximum market size of included markets.  
 2. "Global viewership overlap" measures the share of top 10 programs in major Netflix markets that also appear in global rankings. This measure is calculated using Netflix's weekly top 10 ratings (global and by country) from the week of July 4, 2021 through the week of Aug. 20, 2023.  
 Sources: Activate analysis, IMF, Netflix, S&P Global, World Bank

# Several media companies are pursuing distribution partnerships to access international markets instead of operating standalone services

## SELECT INTERNATIONAL EXAMPLES: DISTRIBUTION PARTNERSHIPS

COMPANY	PARTNERSHIP	REGION	DETAIL
		 JAPAN	<b>Sept. 2023:</b> Paramount announced the <b>launch of Paramount+ in Japan through a partnership with J:COM and Wowow</b> , giving users access to the content at no additional cost
		 SOUTH KOREA	<b>June 2022:</b> Content licensing and distribution agreement launched <b>Paramount+ on local streaming platform TVING</b> in South Korea
		 JAPAN	<b>Mar. 2023:</b> Warner Bros. renewed content output deal with Japanese streamer to <b>remain the home of HBO programming</b> in Japan
		 INDIA	<b>Apr. 2023:</b> Multi-year agreement made <b>JioCinema India's new streaming home for HBO, Max Original, and Warner Bros. content</b>
		 AFRICA <sup>1</sup>	<b>Mar. 2023:</b> Showmax streaming service was <b>relaunched, powered by Peacock's technology platform</b> , along with content from NBCUniversal and Sky

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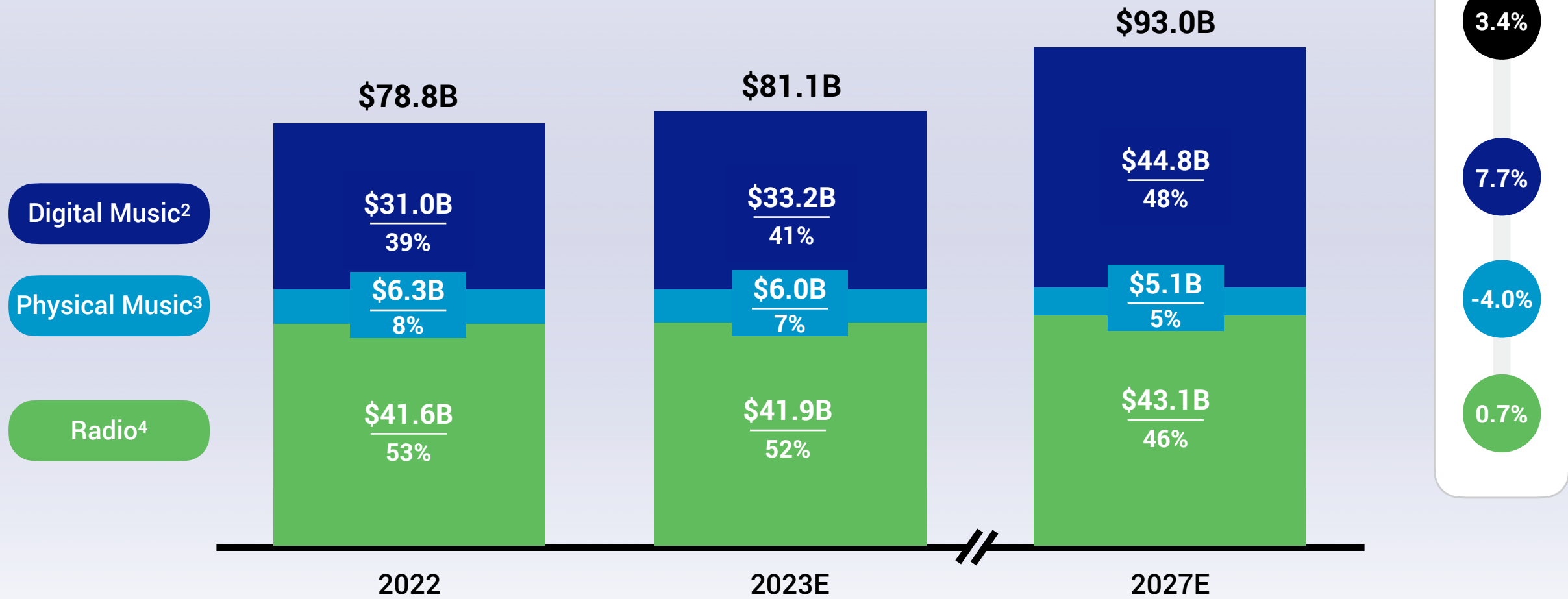


# Global music industry revenues will reach \$93B by 2027

RECORDED MUSIC AND RADIO REVENUE BY TYPE<sup>1</sup>, GLOBAL, 2022 VS. 2023E VS. 2027E, BILLIONS USD



Share of growth dollars from digital music<sup>2</sup>, 2022-2027E: **97%**



2022-2027E  
**CAGR:**

- 3.4%
- 7.7%
- 4.0%
- 0.7%

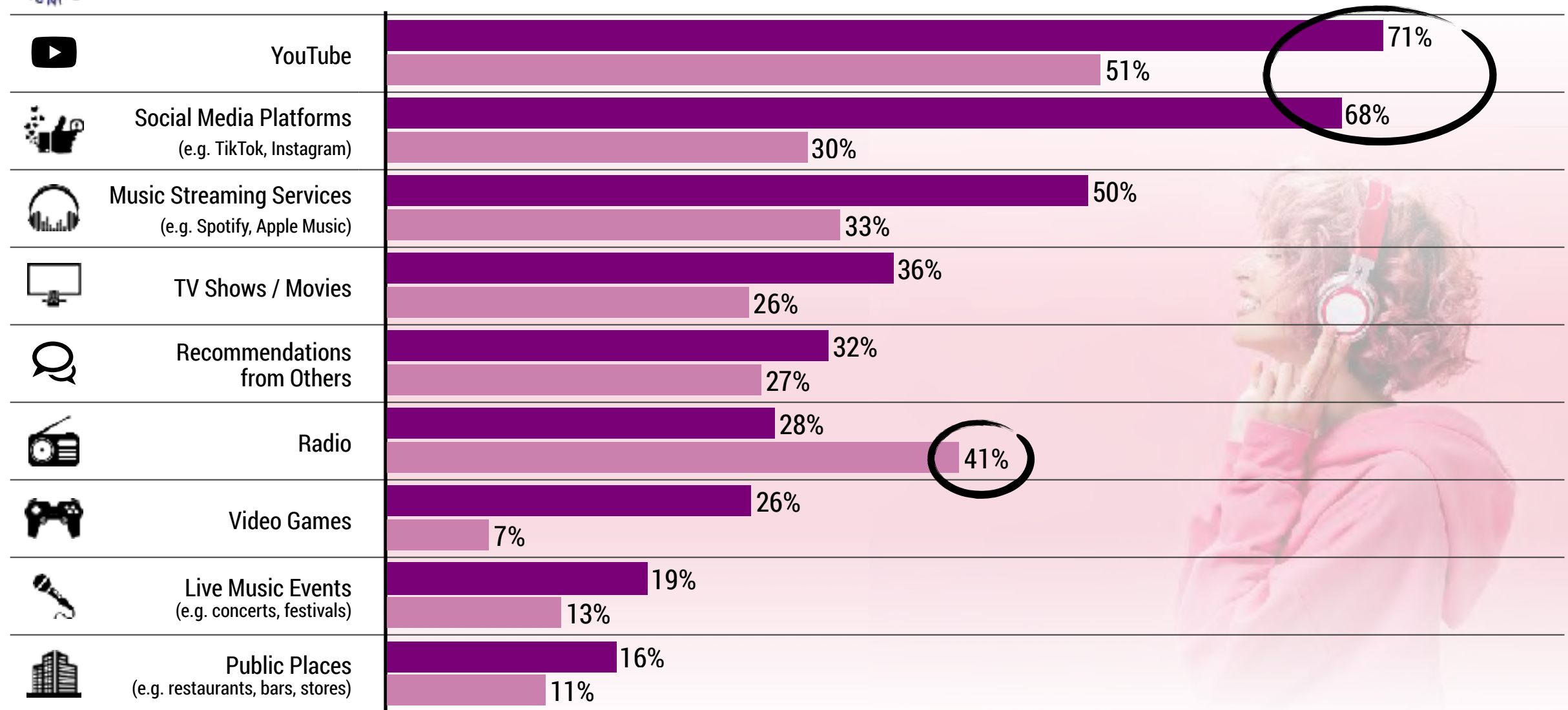
1. Excludes performance rights and synchronization royalties. Figures do not sum due to rounding. 2. "Digital music" is defined as revenue generated from paid digital downloads of any licensed recorded music and from subscriptions and advertising on music streaming services, including services that offer podcasts (e.g. Spotify). 3. "Physical music" is defined as revenue generated from any purchase of physical audio formats (e.g. vinyl). 4. "Radio" is defined as revenue generated from satellite radio subscriptions and advertising on satellite and terrestrial radio (including non-music content such as talk and sports). Sources: Activate analysis, Goldman Sachs, Grand View Research, IFPI, Omdia, PricewaterhouseCoopers, Recording Industry Association of America, SiriusXM, Statista

# Music discovery is evolving: YouTube and other social media platforms have become the top discovery sources for younger adults; for adults aged 35+, radio has significant staying power

SOURCES OF MUSIC DISCOVERY<sup>1</sup> IN THE LAST 12 MONTHS, U.S., 2023, % MUSIC LISTENERS<sup>2</sup> BY AGE GROUP



● % Music Listeners<sup>2</sup> Aged 18-34      ● % Music Listeners<sup>2</sup> Aged 35+



# AI will transform music discovery and consumption

## IMPACT OF ARTIFICIAL INTELLIGENCE ON MUSIC CONSUMPTION

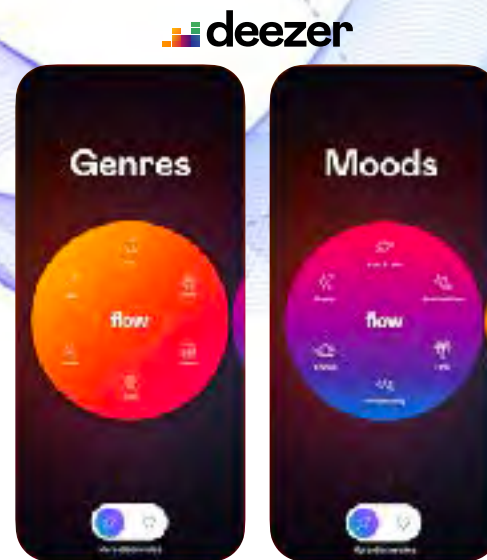
### INCREMENTAL

More sophisticated AI algorithms are increasingly able to tailor music recommendations to the tastes of individual consumers (e.g. hyper-specific personalized mixes and playlists)



*Apple Music added an algorithmic Discovery Station, recommending new songs to users based on their unique music taste profiles*

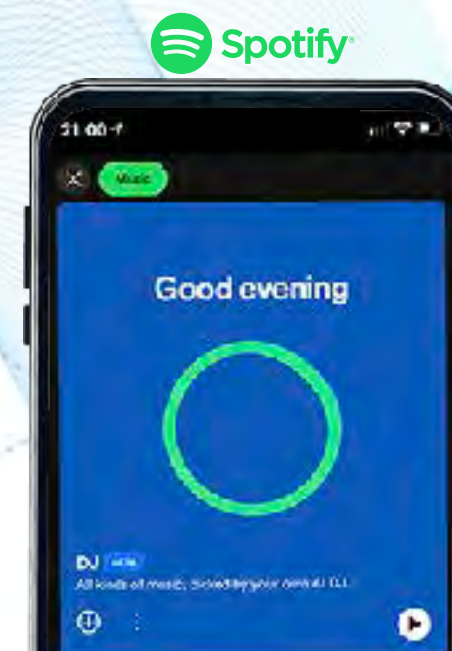
### ILLUSTRATIVE EXAMPLES:



*Deezer revamped their AI discovery tool, Flow, enabling users to discover songs based on their selected genre and mood*

### TRANSFORMATIONAL

New innovations in AI are transforming the experience of music discovery beyond personalized song recommendations (e.g. personalized AI assistants)

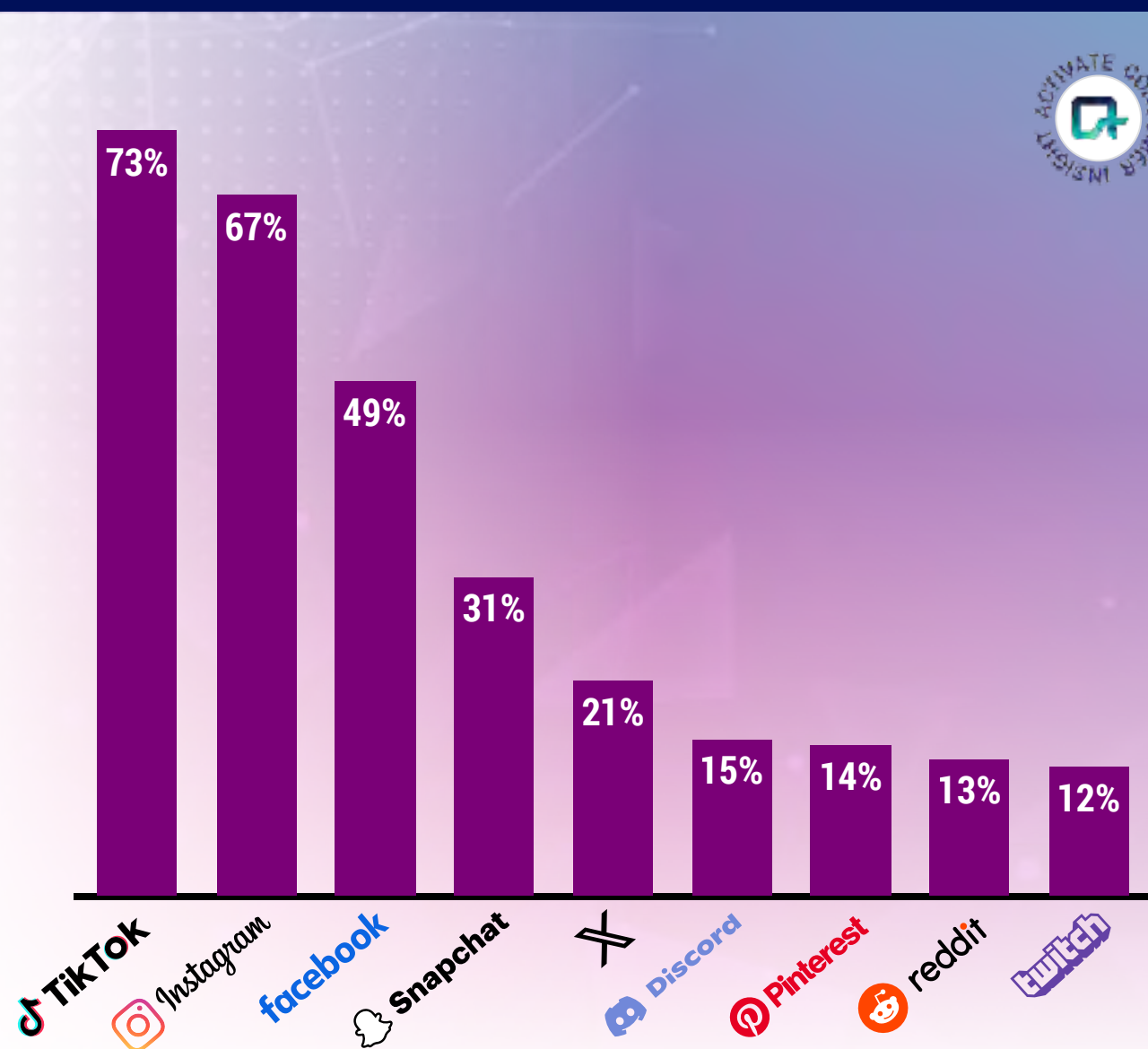


*Spotify launched their AI DJ feature, which plays personalized mixes accompanied by verbal commentary in the style of a radio station host*



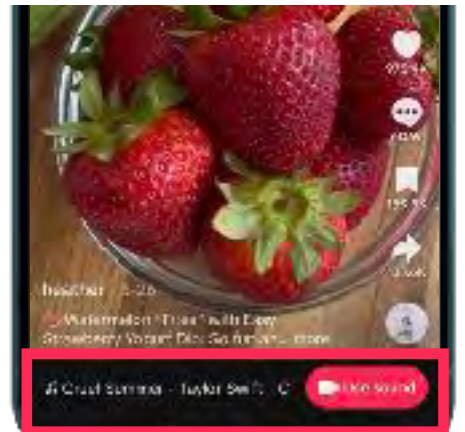
# TikTok is the top social media platform for music discovery, providing users with active and passive ways to discover new music and artists

**SOCIAL MEDIA PLATFORMS USED TO DISCOVER MUSIC IN THE LAST 12 MONTHS, U.S., 2023, % MUSIC LISTENERS<sup>2</sup> AGED 18-34 WHO DISCOVER MUSIC<sup>1</sup> THROUGH SOCIAL MEDIA PLATFORMS**



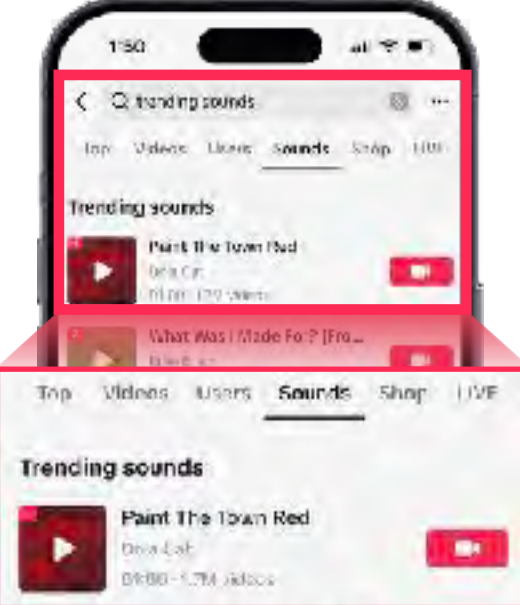
## SELECT TIKTOK DISCOVERY FEATURES

### Passive Discovery



Discover new songs in TikTok feeds, which are displayed at the bottom of the screen with a prompt to use the sound in a new video

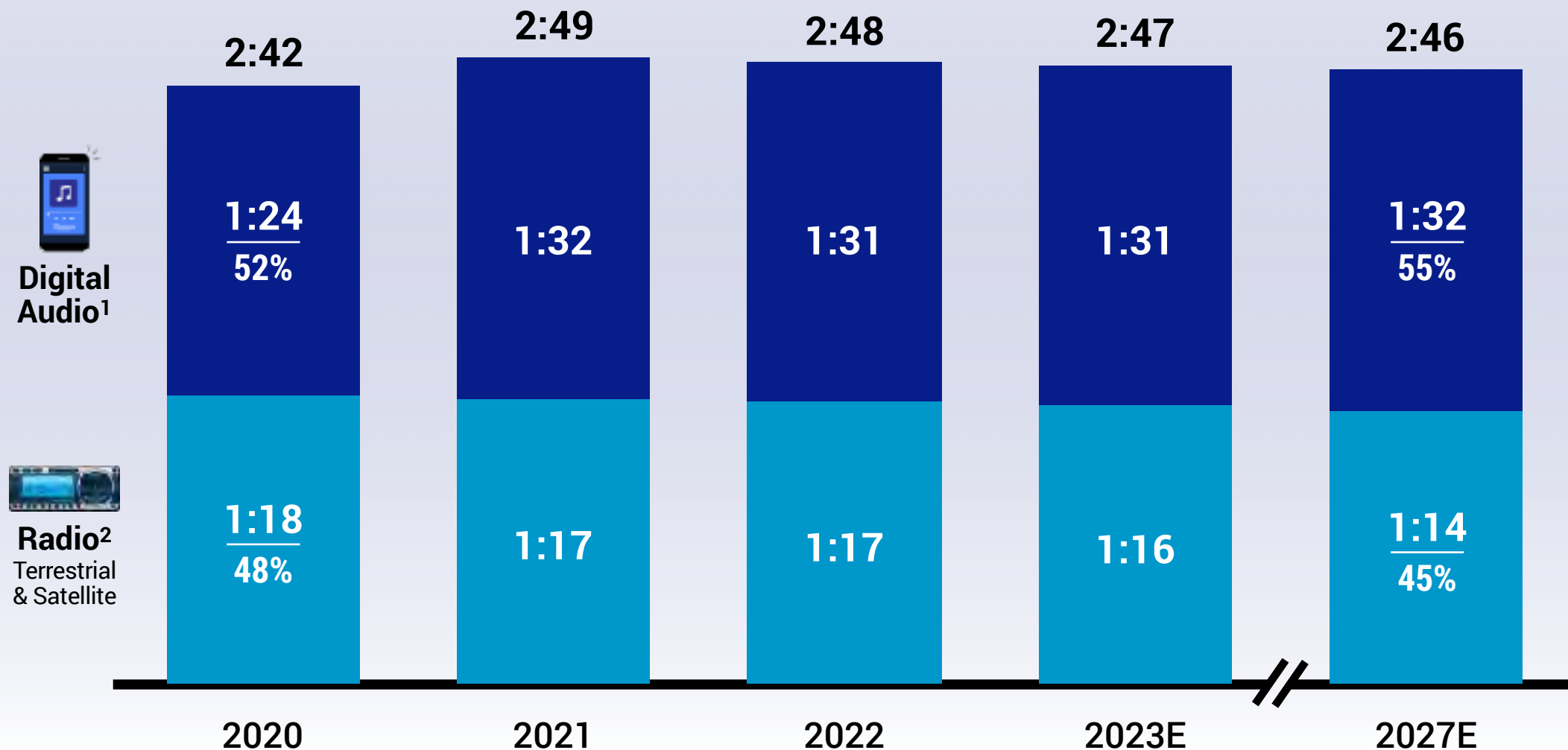
### Active Discovery



Search for trending or recommended songs and find videos, hashtags, or merchandise related to each song

# Consumer audio time will be flat going forward, with digital remaining the majority of daily audio time

AVERAGE DAILY AUDIO TIME PER ADULT AGED 18+ BY TYPE, U.S., 2020-2023E VS. 2027E, HOURS:MINUTES



2023E-2027E  
CAGR:

-0.2%

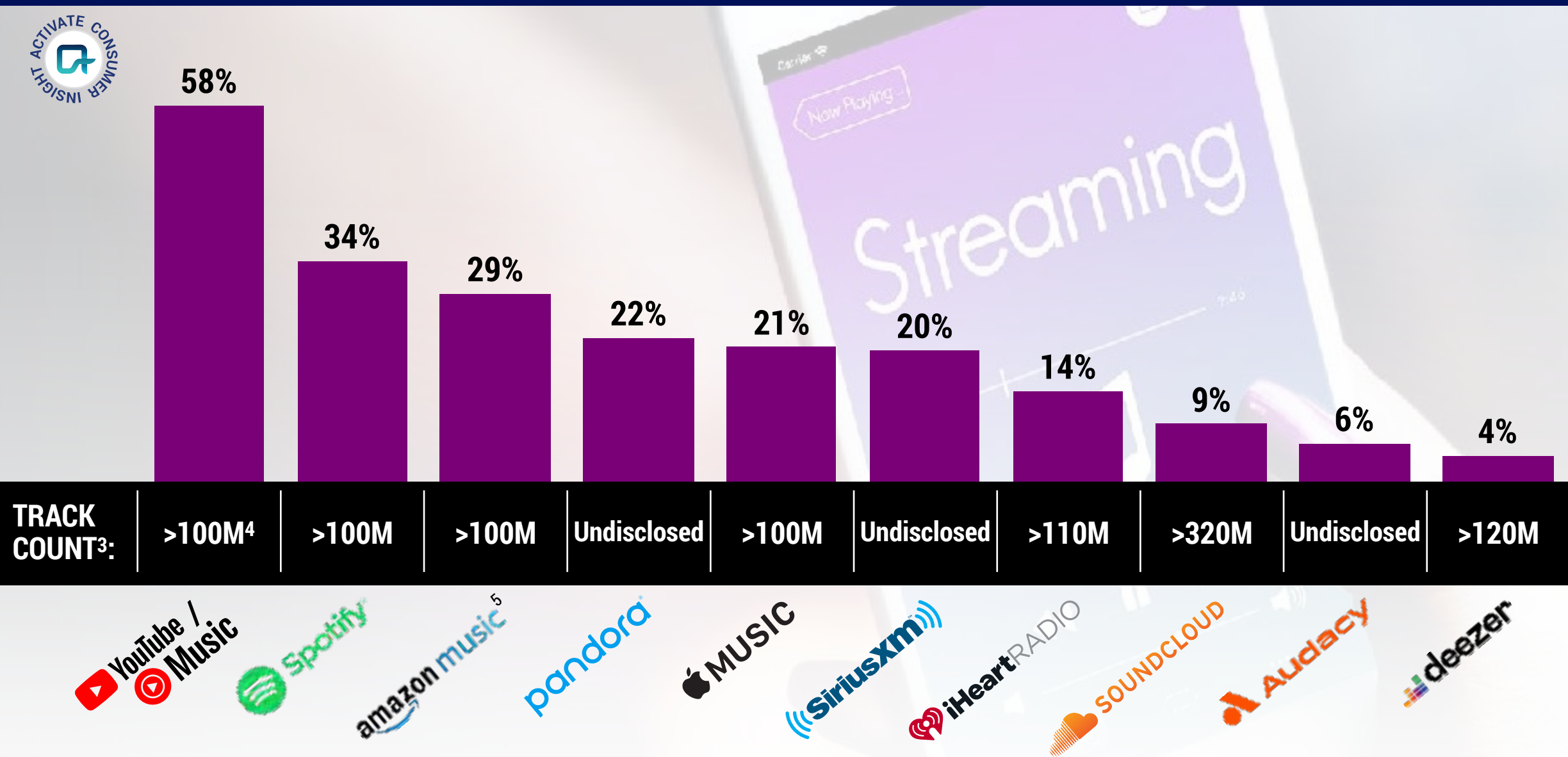
0.1%

-0.6%

1. "Digital audio" includes audio streamed via mobile and desktop/laptop. Excludes audio streamed on social media platforms (e.g. TikTok, Snapchat). 2. "Radio" excludes digital radio.  
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), data.ai, eMarketer, GWI, Music Biz, Nielsen

# The top music services, led by YouTube, offer little differentiation in terms of track count, allowing consumers to find their favorite songs on all major services

FREE OR PAID MUSIC SERVICES<sup>1</sup> USED AT LEAST ONCE PER MONTH, U.S., 2023, % MUSIC LISTENERS<sup>2</sup>



1. "Music services" include free and paid services used for listening to music through any format excluding terrestrial radio.  
 2. "Music listeners" are defined as adults aged 18+ who spend any time listening to music. 3. Number of tracks available on most premium tier of music service. 4. Number of tracks available on YouTube Music. 5. Includes consumers who use Amazon Music through their Amazon Prime subscription, as well as consumers who use the standalone Amazon Music service.  
 Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Company press releases, Company sites, Hypebot, Music Business Worldwide, TechCrunch

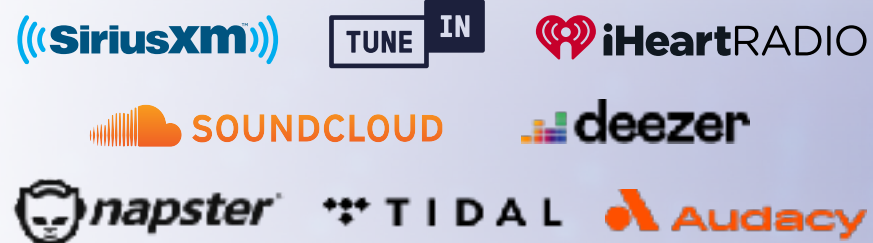


# The average number of music services used by listeners is declining and increasingly concentrated among the largest services

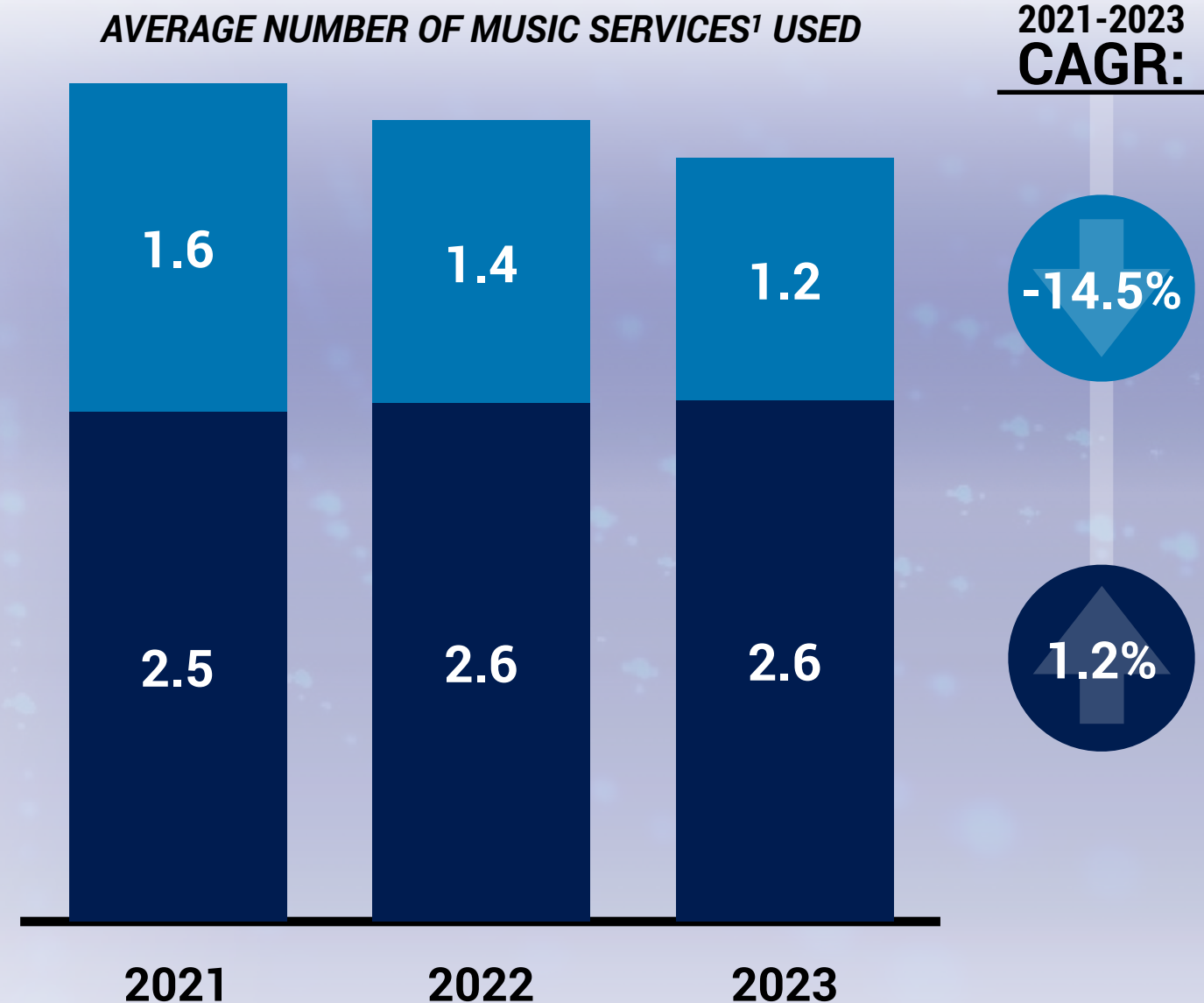
AVERAGE NUMBER OF FREE OR PAID MUSIC SERVICES<sup>1</sup> USED, U.S., 2021-2023, SERVICES PER MUSIC LISTENER<sup>2</sup>



## ALL OTHER MAJOR MUSIC SERVICES



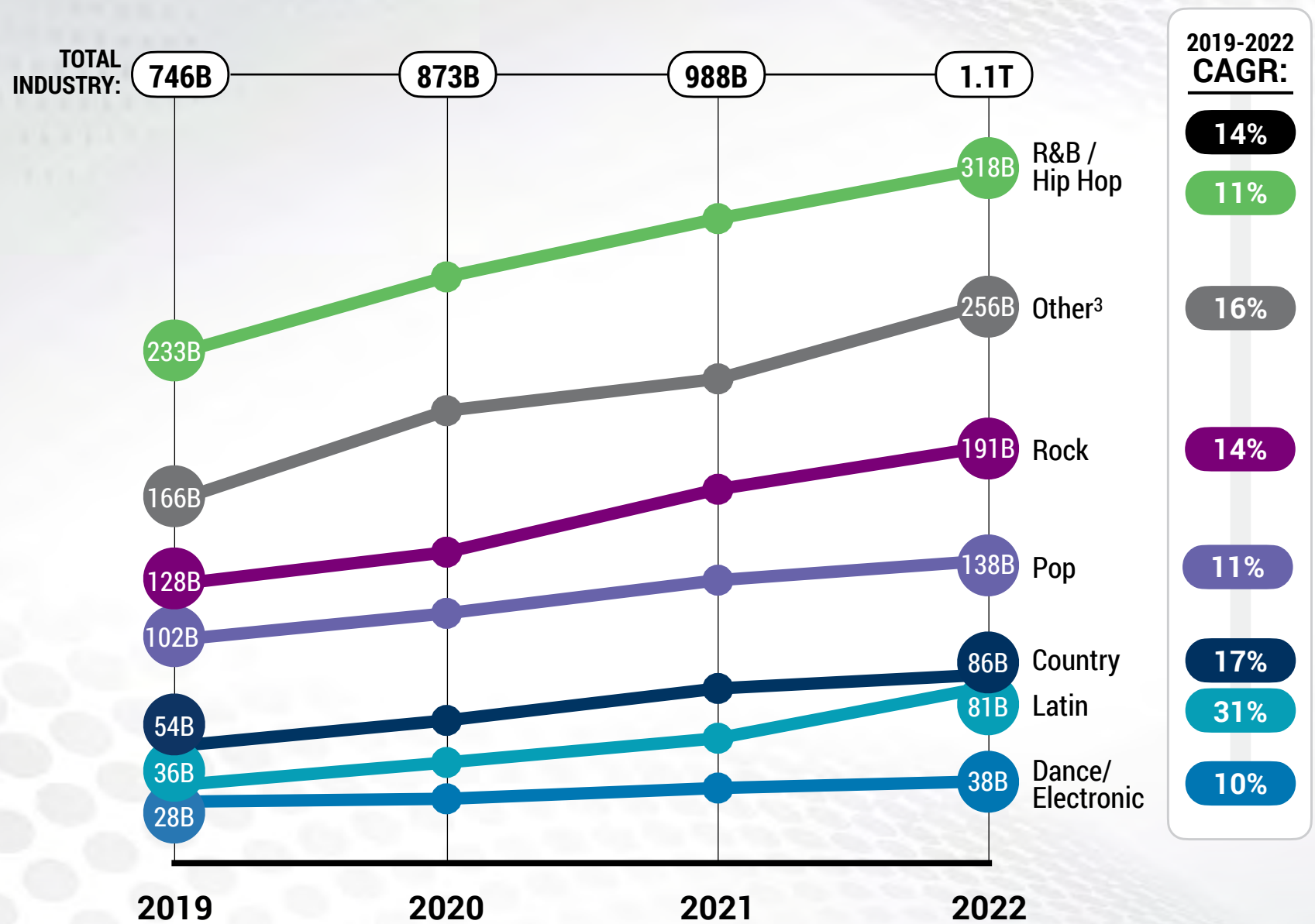
## TOP MUSIC SERVICES



1. "Music services" include free and paid services used for listening to music through any format excluding terrestrial radio.  
 2. "Music listeners" are defined as adults aged 18+ who spend any time listening to music. 3. Includes consumers who use Amazon Music through their Amazon Prime subscription, as well as consumers who use the standalone Amazon Music service.  
 Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

# On-demand music listening continues to grow across all genres

ON-DEMAND AUDIO STREAMS<sup>1</sup> BY GENRE<sup>2</sup>, U.S., 2019-2022, BILLIONS STREAMS



MOST-STREAMED ALBUMS ON SPOTIFY, U.S., 2022<sup>4</sup>

1	LATIN	Un Verano Sin Ti <i>Bad Bunny</i>	
2	POP	Harry's House <i>Harry Styles</i>	
3	COUNTRY	Dangerous: The Double Album <i>Morgan Wallen</i>	
4	POP	Midnights <i>Taylor Swift</i>	
5	POP	SOUR <i>Olivia Rodrigo</i>	

1. On-demand audio streaming activity is aggregated across Amazon, Apple, Spotify, YouTube, and many other commercial providers. Songs must be played for at least 30 seconds to count as a stream. 2. On-demand audio streams by genre reflect estimates based on total industry streams and share of streams by genre. Figures do not sum due to rounding. 3. Includes all other genres (e.g. jazz, classical, world music). 4. Between Jan. 1, 2022 and Oct. 31, 2022. Sources: Activate analysis, Luminate, Spotify

# The good: A sizable share of music listeners are also music creators, many of whom are using or interested in using AI-enabled tools

**PARTICIPATION AND INTEREST IN MUSIC CREATION, U.S., 2023, % MUSIC LISTENERS<sup>1</sup>**

**USAGE OF AND INTEREST IN AI FOR MUSIC CREATION, U.S., 2023, % MUSIC CREATORS<sup>2</sup>**

**16%**  
Create music

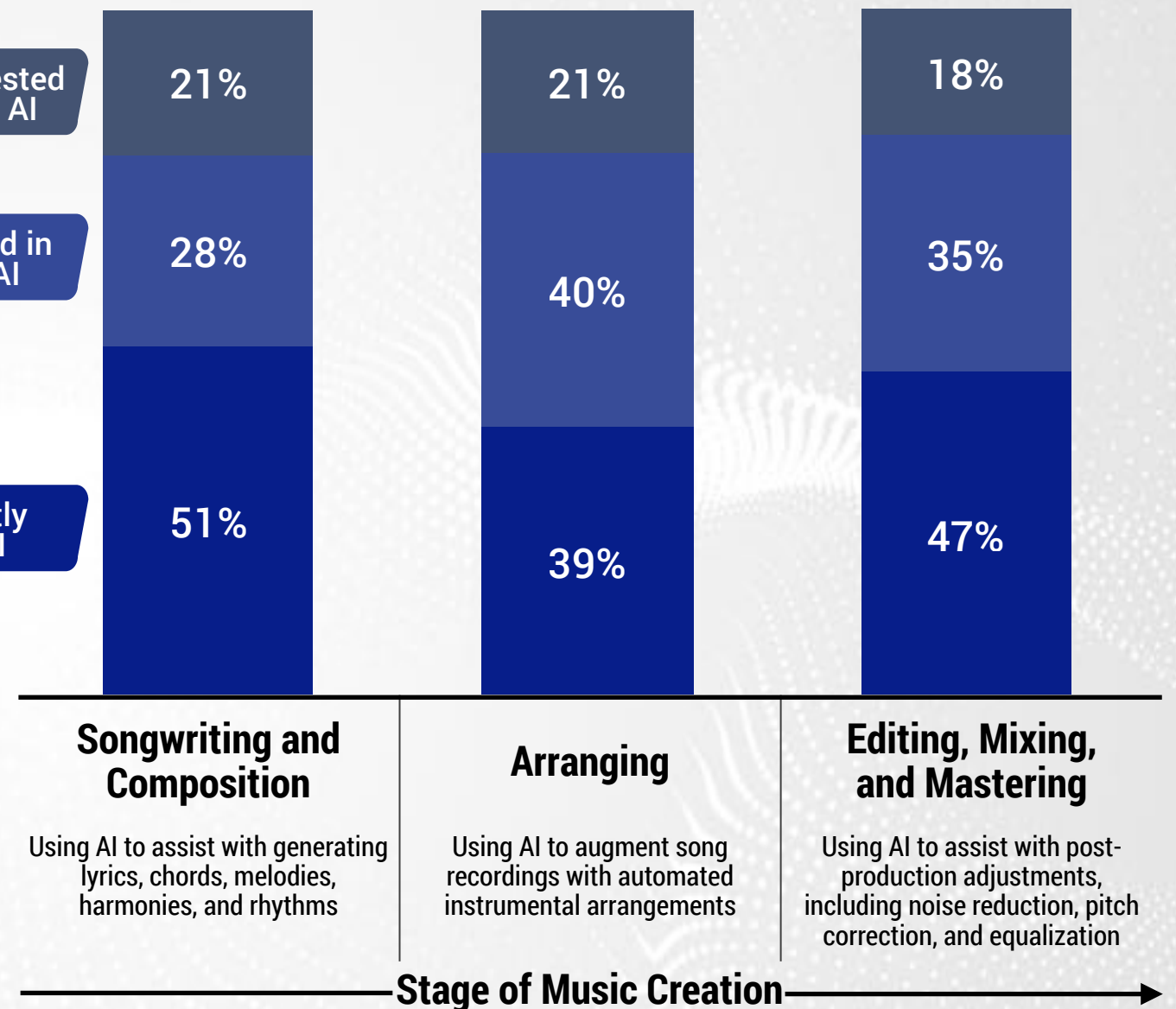
**21%**  
Do not create music but are interested in creating music



Not Interested in using AI

Interested in using AI

Currently use AI





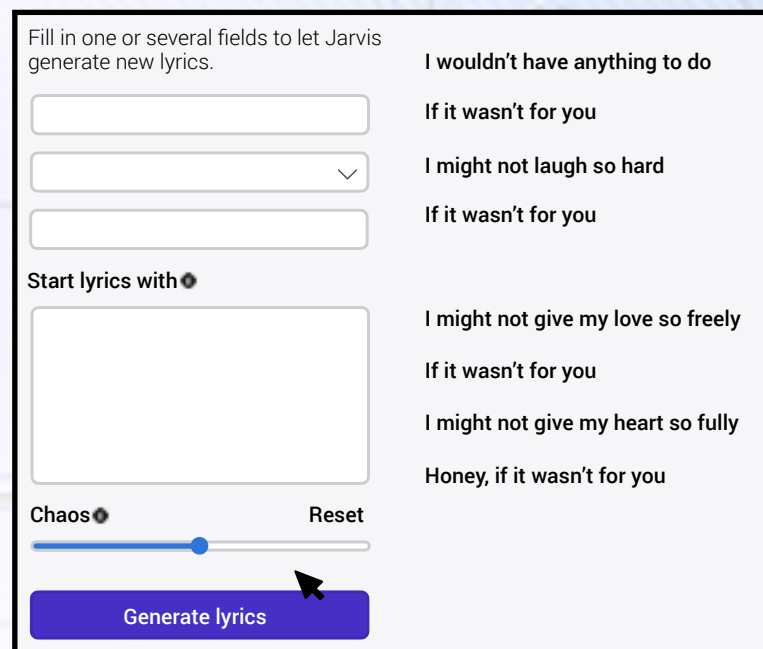
# The good: AI-enabled creator tools are revolutionizing every stage of the music creation process

## IMPACT OF ARTIFICIAL INTELLIGENCE ON MUSIC CREATION TOOLS

AI plug-ins and mobile creator tools with enhanced capabilities (e.g. lyric generation, realistic vocal synthesis, live pitch correction) are streamlining the creation process, fueling growing consumer interest in music creation

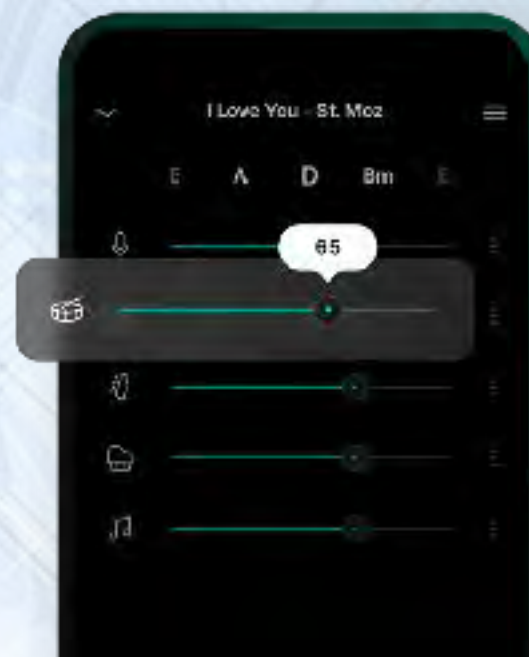
### ILLUSTRATIVE EXAMPLES:

#### SONGWRITING AND COMPOSITION



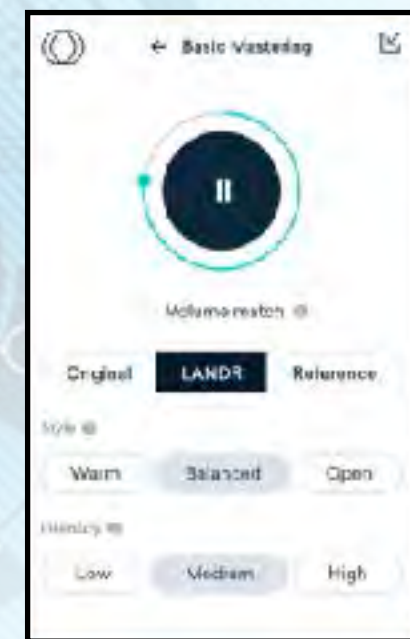
**JARVIS** *Jarvis AI enables users to generate song lyrics based on a set of filters or the first few lines of the song*

#### ARRANGING



**moises** *Moises' app offers comprehensive AI-powered tools for music creators, including instrumental separation and vocal removal*

#### EDITING, MIXING, AND MASTERING



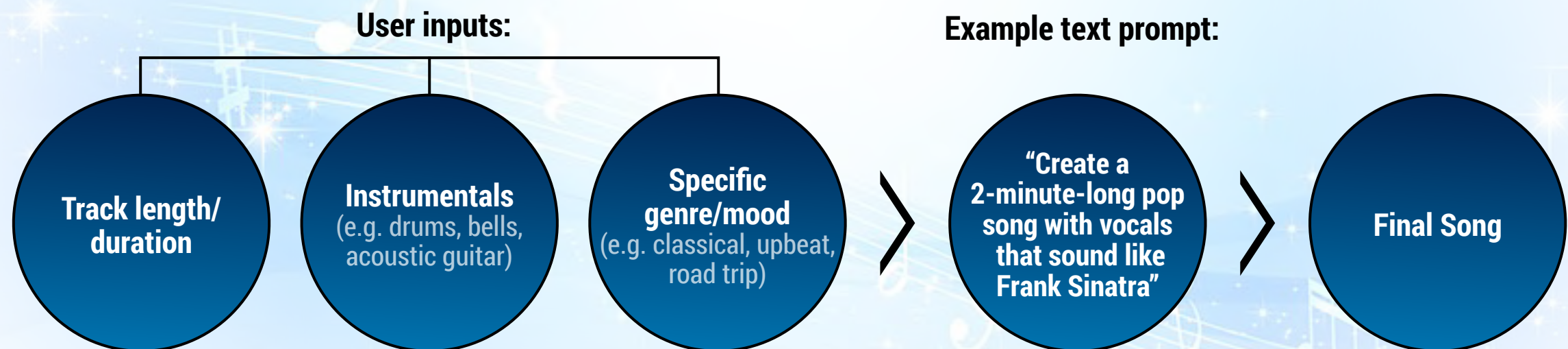
**LANDR** *LANDR's new mobile AI creation app provides tools for music collaboration and mastering on the go*



# The good: New generative AI technology is enabling humanless music creation

## OVERVIEW OF AI-GENERATED SONGS

New generative AI technology is fundamentally altering the music creation paradigm, leveraging vast databases of music catalogs to enable seamless creation of entire songs from scratch





# The bad: The music industry will need to protect its IP and artists as rogue AI replicates known artists' style, compositions, and voices

## OVERVIEW OF CHALLENGES TO THE MUSIC INDUSTRY POSED BY ARTIFICIAL INTELLIGENCE

The ability to create AI-generated songs with minimal human intervention poses significant challenges for the music industry; accordingly, it is imperative for major music companies to adopt a proactive approach in monitoring and regulating the usage of AI



### AI-GENERATED SONGS FACE INCREASING LEGAL PRESSURE

Many AI-generated songs have been **taken down from streaming services** after going viral due to **copyright infringement concerns** (e.g. unauthorized training on copyrighted lyrics and melodies)



### PROTOCOLS ARE BEING ESTABLISHED TO MODERATE AI

Record labels and music streaming services are forming partnerships to establish **frameworks and principles on the role of AI in music** (e.g. YouTube's Music AI Incubator with UMG)



### CONSUMER PERCEPTION REMAINS UNDETERMINED

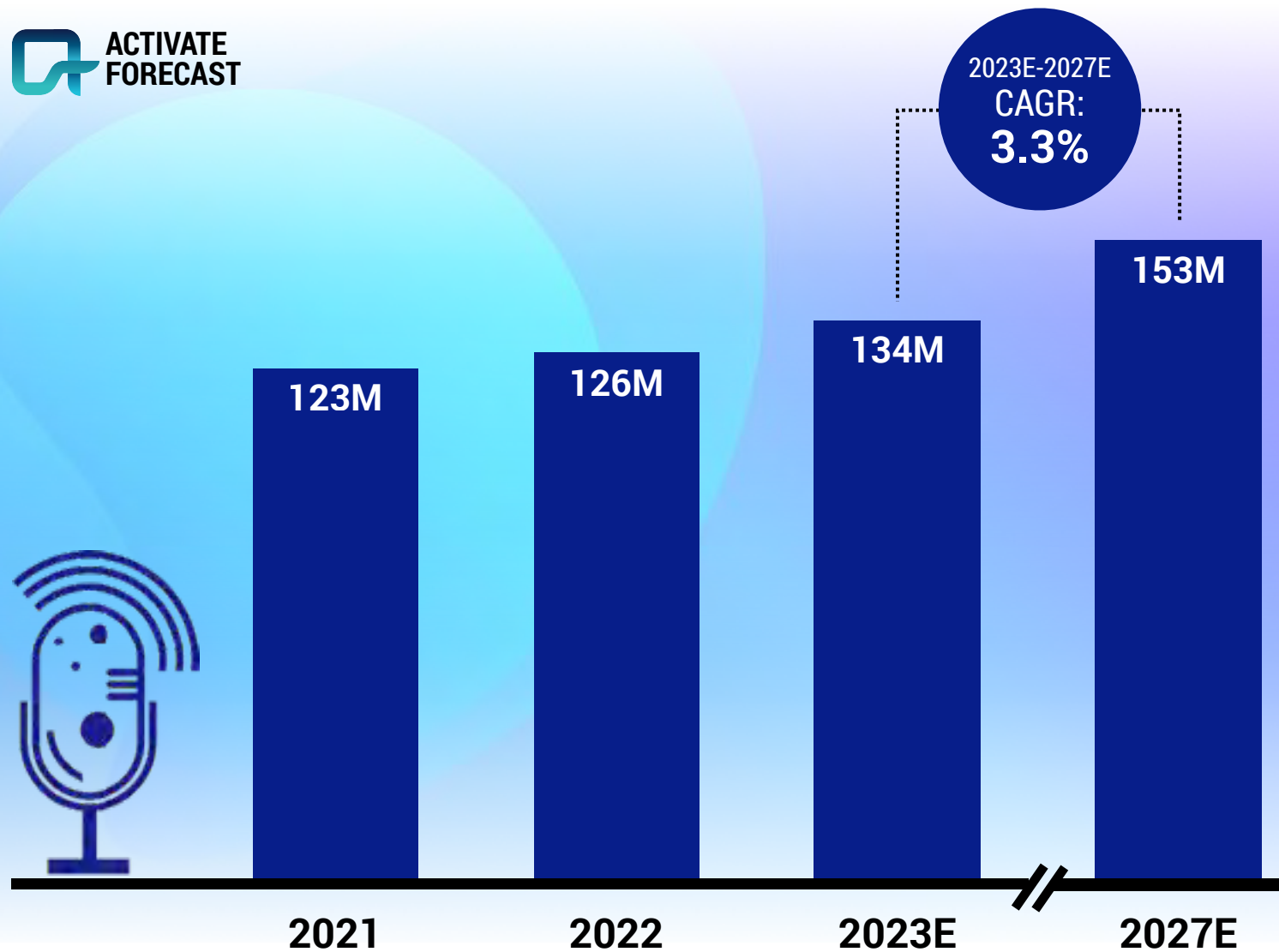
Going forward, it will be critical to **monitor consumer receptivity to AI-generated songs** to determine whether they are perceived as an acceptable substitute or a threat to music artists



# Podcast listening is a mainstream behavior and will continue to grow, but podcast creators and publishers are rationalizing supply as concerns over the business model mount

MONTHLY PODCAST LISTENERS<sup>1</sup>,  
U.S., 2021-2023E VS. 2027E, MILLIONS LISTENERS AGED 12+

ACTIVATE  
FORECAST



## AS LISTENER GROWTH SLOWS, SUPPLY IS RATIONALIZING

Consolidation is taking place as the podcast market matures:

### 2022 vs. 2021

Over **60%** fewer new podcasts were launched

Over **10%** fewer new episodes were released

1. "Monthly podcast listeners" are defined as consumers who listen to podcasts at least once per month. Sources: Activate analysis, Activate 2019 Consumer Technology & Media Research Study (n = 4,006), Activate 2021 Consumer Technology & Media Research Study (n = 4,018), AdExchanger, Apple World Today, Automotive News, Car & Driver, Cox Automotive, Digital Trends, Edison Research, eMarketer, Listen Notes, Nielsen, Omdia, Pew Research Center, PricewaterhouseCoopers, Scarborough Research, TechCrunch, U.S. Bureau of Economic Analysis, U.S. Census Bureau, The Verge

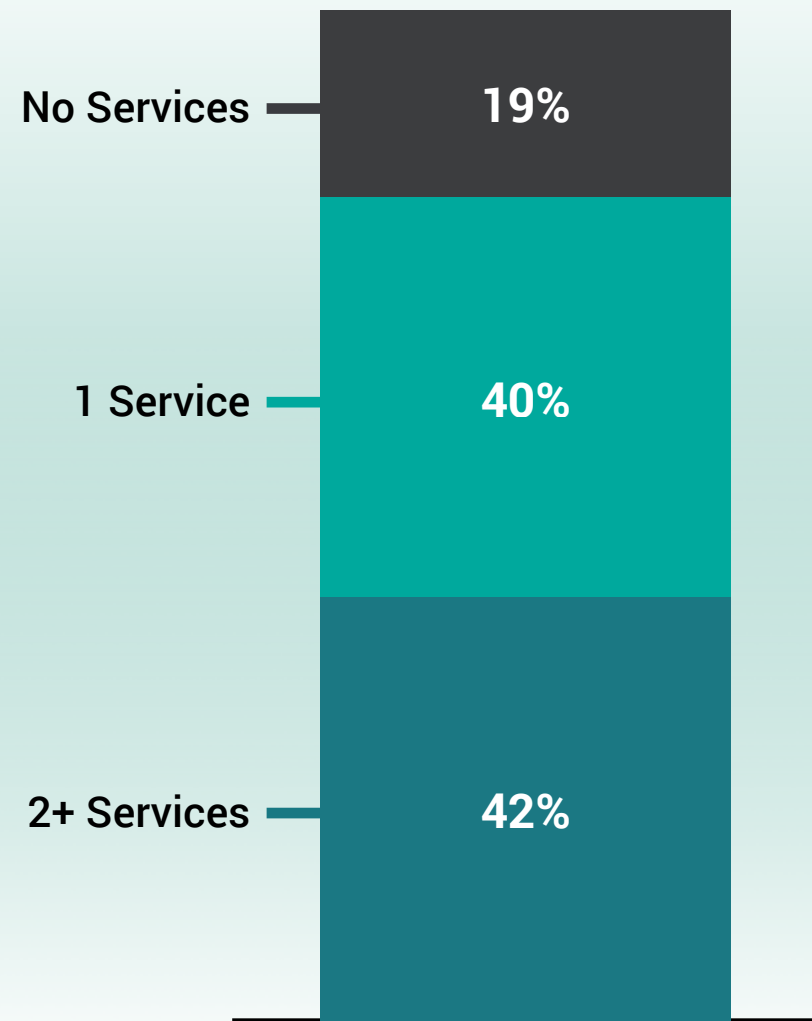
# Podcast listening is closely connected to music consumption, with the vast majority of podcast listeners using the same service to listen to music and podcasts

PODCAST SERVICES USED, U.S., 2023, % PODCAST LISTENERS<sup>1</sup>

Service	% of Podcast Listeners	Podcast Listeners <sup>1</sup> Who Also Listen to Music Through the Service
YouTube	49%	85%
Spotify	38%	90%
Apple Podcasts	31%	N/A <sup>2</sup>
amazon music	30%	89%
pandora	18%	86%
iHeartRADIO	15%	80%
audible <small>an amazon company</small>	13%	N/A <sup>2</sup>
Google Podcasts	11%	N/A <sup>2</sup>
((SiriusXM))	10%	88%
SOUNDCLOUD	8%	84%

NUMBER OF SERVICES USED FOR BOTH MUSIC AND PODCASTS<sup>3</sup>, U.S., 2023, % MUSIC AND PODCAST LISTENERS<sup>4</sup>

NUMBER SERVICES USED FOR BOTH MUSIC AND PODCASTS



1. "Podcast listeners" are defined as adults aged 18+ who spend any time listening to or watching podcasts. 2. Does not provide a music offering. 3. Figures do not sum to 100% due to rounding. 4. "Music and podcast listeners" are defined as adults aged 18+ who spend any time listening to music and also spend any time to listening to or watching podcasts. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

# Video podcasts have emerged as a new way to consume the medium, presenting lucrative monetization opportunities

## OVERVIEW OF VIDEO PODCASTS

### EXAMPLES OF VIDEO PODCAST FORMATS



**IN-STUDIO INTERVIEWS:**  
RECORDINGS OF HOSTS AND GUESTS IN-STUDIO



**REMOTE INTERVIEWS:**  
DISCUSSIONS OR DEBATES OVER VIDEO CALLS



**SOLO/MONOLOGUE PODCASTS:**  
VIDEO RECORDINGS OF SOLO PODCAST HOSTS



**VISUAL OVERLAYS:**  
DISCUSSIONS OVERLAID WITH VIDEOS AND IMAGES RELEVANT TO THE CONVERSATION

### VIDEO PODCASTS INCREASE MONETIZATION OPPORTUNITIES



#### SPONSORSHIPS

Visual opportunities for mentions, logo displays, and in-episode ads



#### PREMIUM CONTENT

Opportunities for premium additional episodes, behind-the-scenes footage, and other exclusive material



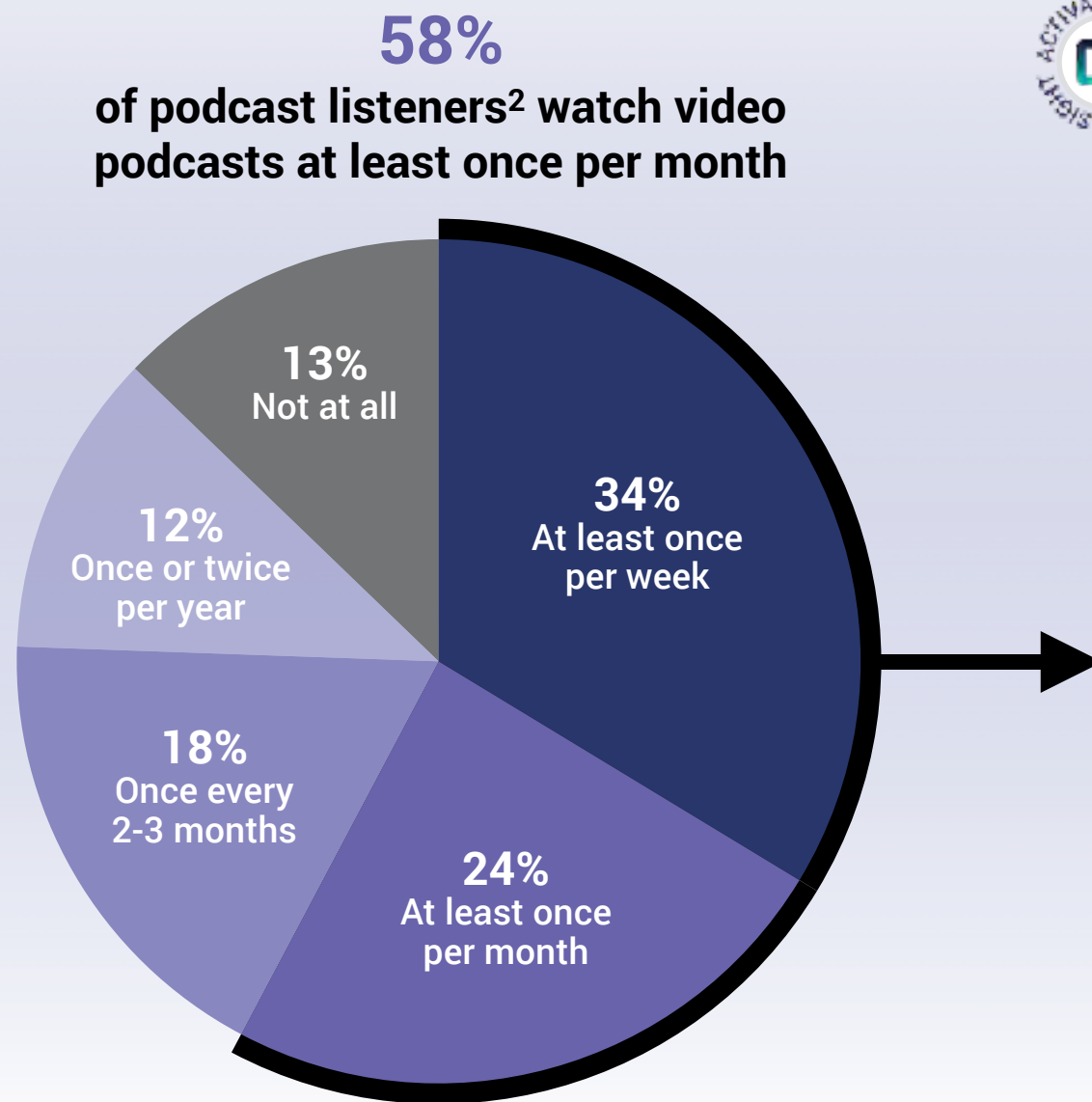
#### PLATFORM ADVERTISEMENTS

Ability to leverage YouTube ad placements for video podcasts

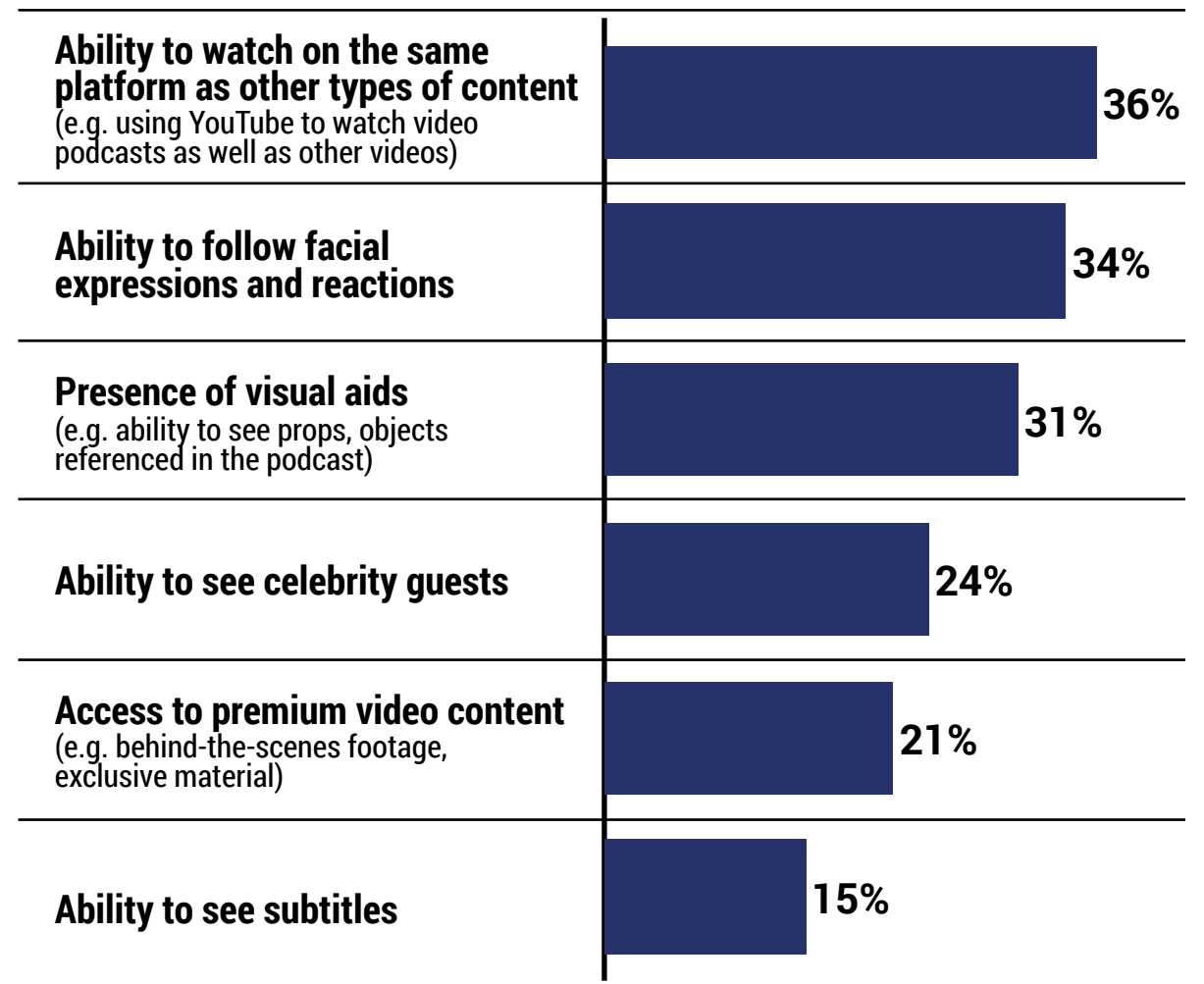


# The majority of podcast listeners watch video podcasts, largely on platforms where they already consume other media

**VIDEO PODCAST VIEWERSHIP<sup>1</sup> IN THE LAST 12 MONTHS, U.S., 2023, % PODCAST LISTENERS<sup>2</sup>**



**TOP REASONS<sup>3</sup> FOR WATCHING VIDEO PODCASTS, U.S., 2023, % MONTHLY VIDEO PODCAST VIEWERS<sup>4</sup>**



1. Figures do not sum to 100% due to rounding. 2. "Podcast listeners" are defined as adults aged 18+ who spend any time listening to or watching podcasts. 3. Consumers were asked to select up to two top reasons. 4. "Monthly video podcast viewers" are defined as adults aged 18+ who watch video podcasts at least once per month. Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

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# Legalization of sports betting began five years ago and has had a massive influence on the entire sports ecosystem

## SCALE OF U.S. LEGAL SPORTS BETTING

**35**

U.S. states where sports betting is legal and live<sup>1</sup>

**147M**

U.S. adults aged 21+<sup>2</sup> live in states with legal sports betting<sup>1</sup>

**16%**

of U.S. sports fans<sup>3</sup> have placed a legal sports bet in the last 12 months

**\$312B**

legally wagered in the last five years<sup>4</sup> in the U.S.

**\$25B**

in revenue in the last five years<sup>4</sup> in the U.S.

**10M**

legal sports bets placed per day in the U.S. on average

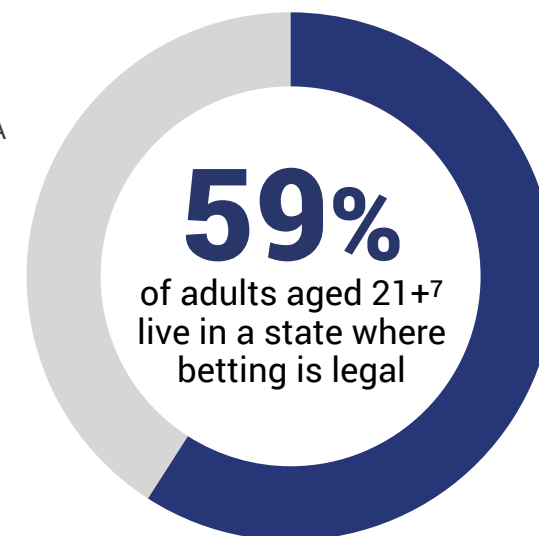
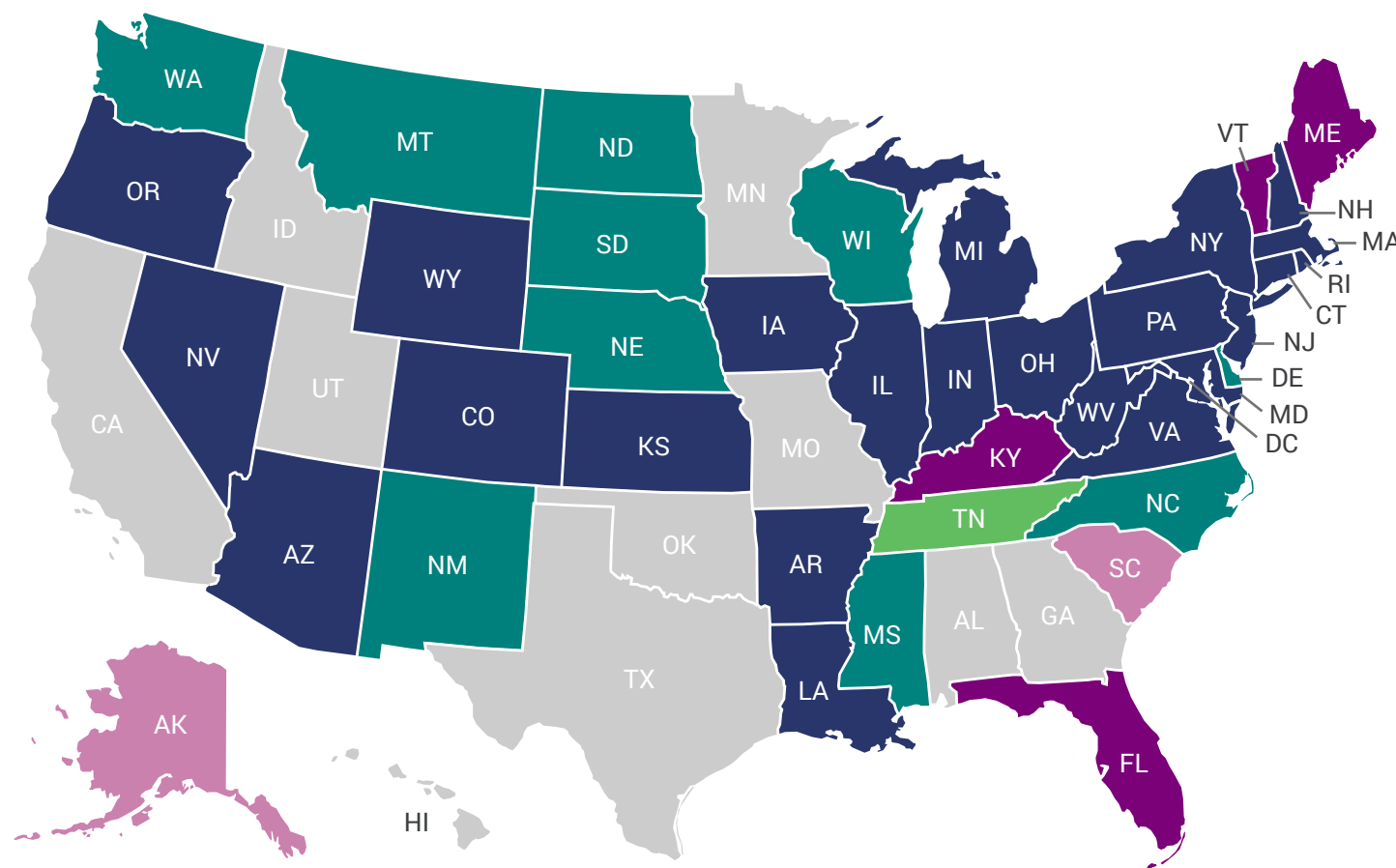
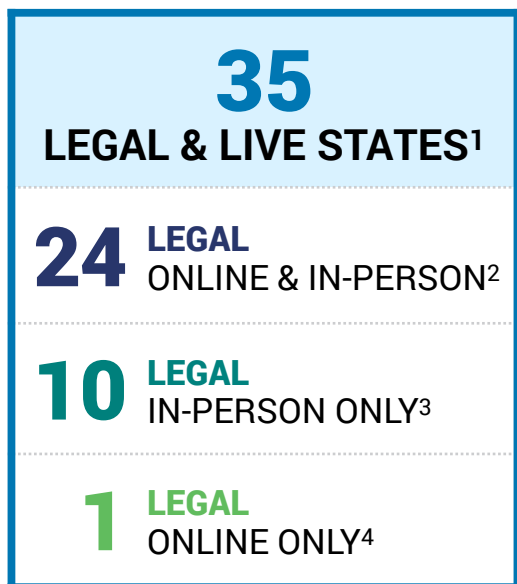
1. As of Sept. 2023. 2. 21 is the legal betting age in most states. 3. "Sports fans" are defined as adults aged 18+ who followed at least one sport in the last 12 months (e.g. attended live games in person, watched live games or game highlights, read articles or statistics). 4. Cumulative amount wagered and revenues from 2018 to 2023E.

Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Action Network, Legal Sports Report, The Lines, Nevada Gaming Control Board, SportsHandle, U.K. Gambling Commission, U.S. Census Bureau, The Wall Street Journal



# Today, sports betting is legal and live in 35 states, accounting for approximately 60% of the U.S. population

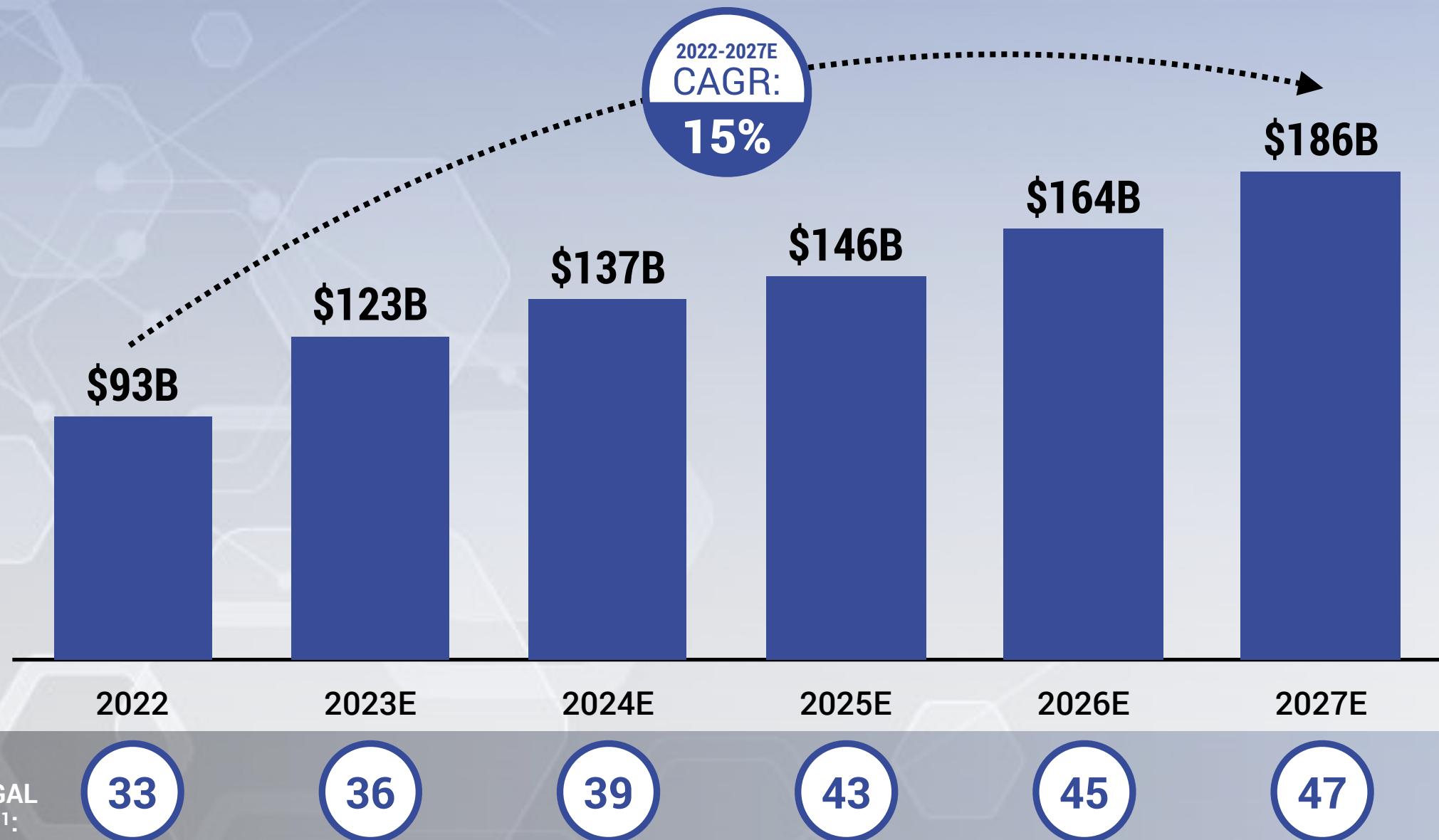
## SPORTS BETTING MARKET LIVE STATES<sup>1</sup> BY CHANNEL, U.S., SEPT. 2023



1. "Live states" are defined as states in which sports betting is legal and currently operational as of Sept. 2023. Includes Washington, D.C. as a state. 2. "Legal online & in-person" is defined as states where online sports betting and in-person sports betting is legal. 3. "Legal in-person only" is defined as states where sports betting is legal and live but permitted only within the physical boundaries of a retail-licensed sports betting operator or other geofenced location (e.g. sports venues, casinos, hotels, restaurants). 4. "Legal online only" is defined as states where sports betting is legal and live, but not permitted in-person; it is only legal online. 5. "Legal not live" is defined as states who have passed legislation legalizing sports betting, but, as of Sept. 2023, do not have any live operations to sports bet. 6. "Pending legislation" is defined as states that have active legislation to legalize sports betting. 7. 21 is the legal betting age in most states.  
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023), Legal Sports Report, State regulator sites

# We forecast that the total amount wagered in sports betting will reach \$186B by 2027

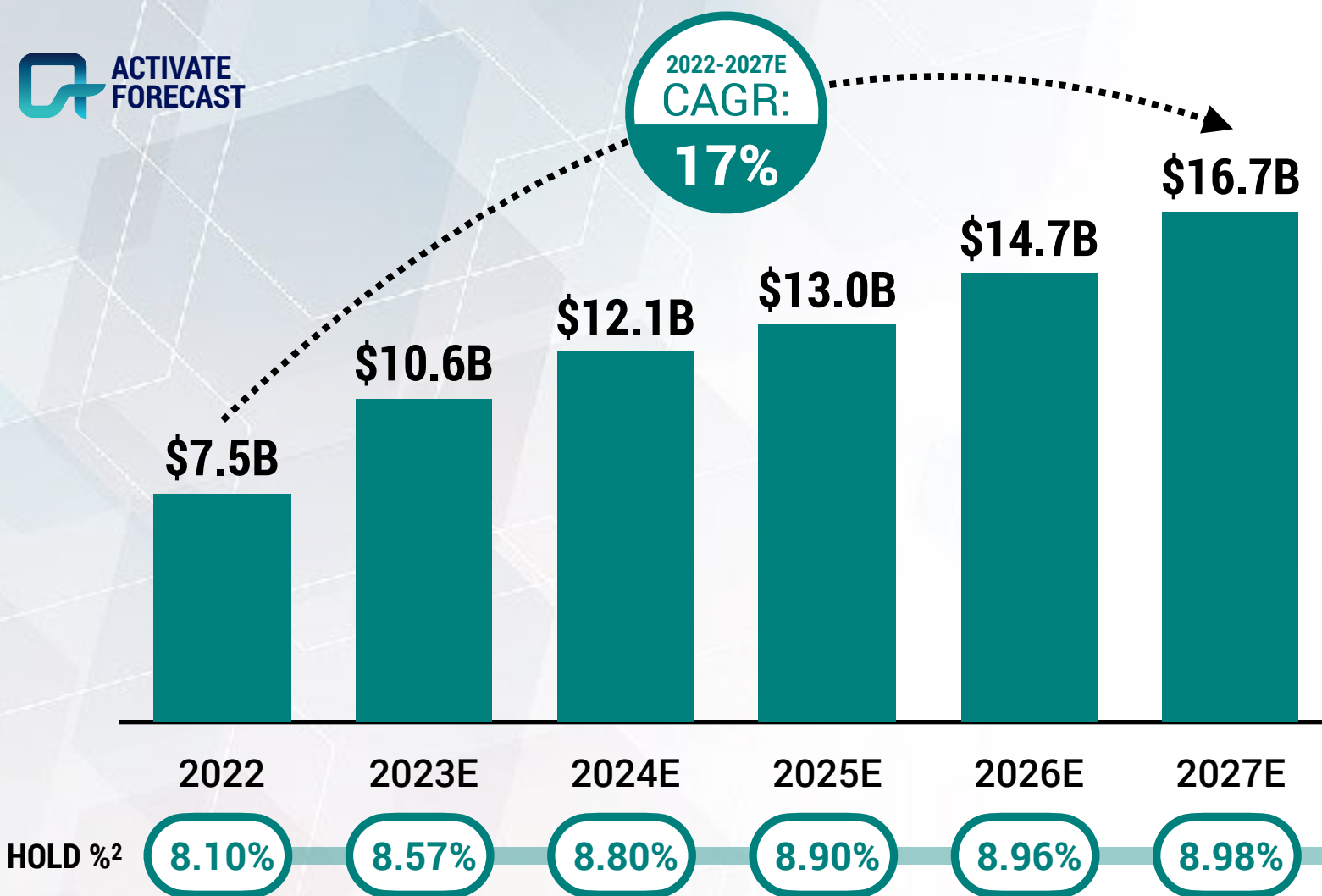
TOTAL SPORTS BETTING AMOUNT WAGERED<sup>1</sup>, U.S., 2022-2027E, BILLIONS USD



NUMBER OF STATES WITH LEGAL SPORTS BETTING<sup>1</sup>:

# Sports betting revenue will exceed \$16B by 2027 and will grow faster than the amount wagered as margins continue to improve

SPORTS BETTING REVENUE<sup>1</sup>, U.S., 2022-2027E, BILLIONS USD



### SPORTS BETTING REVENUE<sup>1</sup> GOES TO...

ONLINE SPORTSBOOKS

BETMGM DRAFTKINGS  
POINTS BET FANDUEL

---

CASINOS/RACETRACKS

Hard Rock HOTEL & CASINO BELMONT PARK Sands

### FACTORS CONTRIBUTING TO AN INCREASE IN HOLD PERCENTAGE<sup>2</sup>

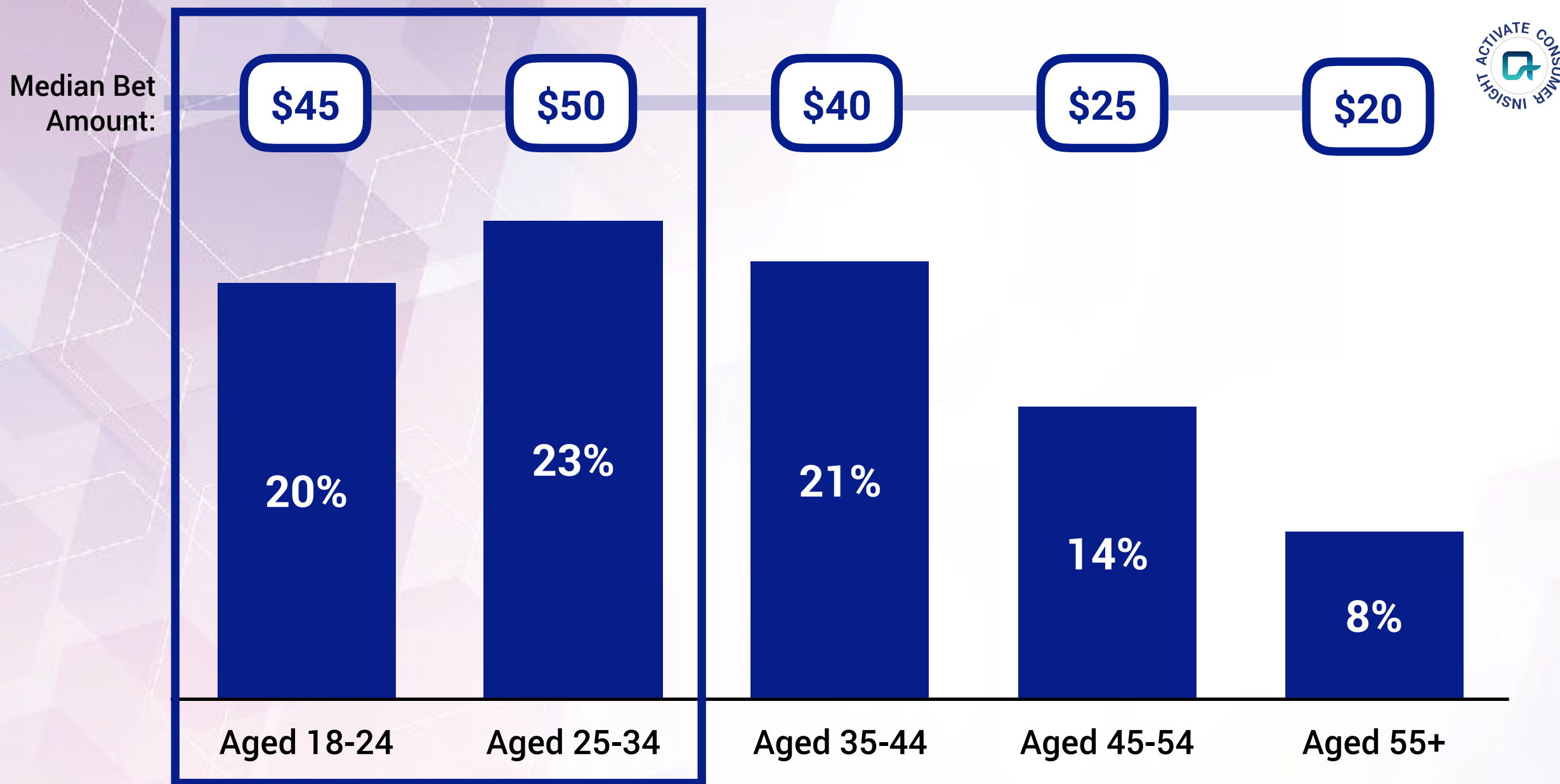
- More accurate odds-setting due to an increase in number of sportsbooks and data availability
- Increasing in-game and in-play wagering, which typically generate higher margins, driven in part by in-stadium betting lounges
- Promotion of single-game parlays on major online sportsbooks (with approximately 20% margins)

1. Calculated as a share of the total amount wagered, dependent on odds, type of wager, and individual sportsbooks.  
 2. "Hold" is defined as the margin generated by the sportsbooks and calculated as the weighted average annualized hold percentage across all reporting jurisdictions.  
 Sources: Activate analysis, Legal Sports Report, The Lines, Nevada Gaming Control Board, SportsHandle, U.K. Gambling Commission, The Wall Street Journal



# Younger sports fans are more likely to bet on sports and wager higher amounts than sports fans aged 35+

SPORTS BETTING PARTICIPATION AND MEDIAN BET AMOUNT BY AGE GROUP, U.S., 2023, % SPORTS FANS<sup>1</sup> BY AGE GROUP / USD




# To attract new customers, sportsbooks rely on extensive sign-up and referral bonuses; once the race to acquire new customers subsides, retention will be driven by selection of betting options and user experience


TOP REASONS<sup>1</sup> FOR SIGNING UP FOR AND CONTINUING TO USE A SPORTSBOOK, U.S., 2023, % SPORTS BETTORS<sup>2</sup>

**EXAMPLES OF SPORTSBOOK PROMOTIONS AND BONUSES**


**SIGN-UP BONUSES**  
Operators offer extensive bonuses for first time users (e.g. free bets, deposit matching, odds boosts)

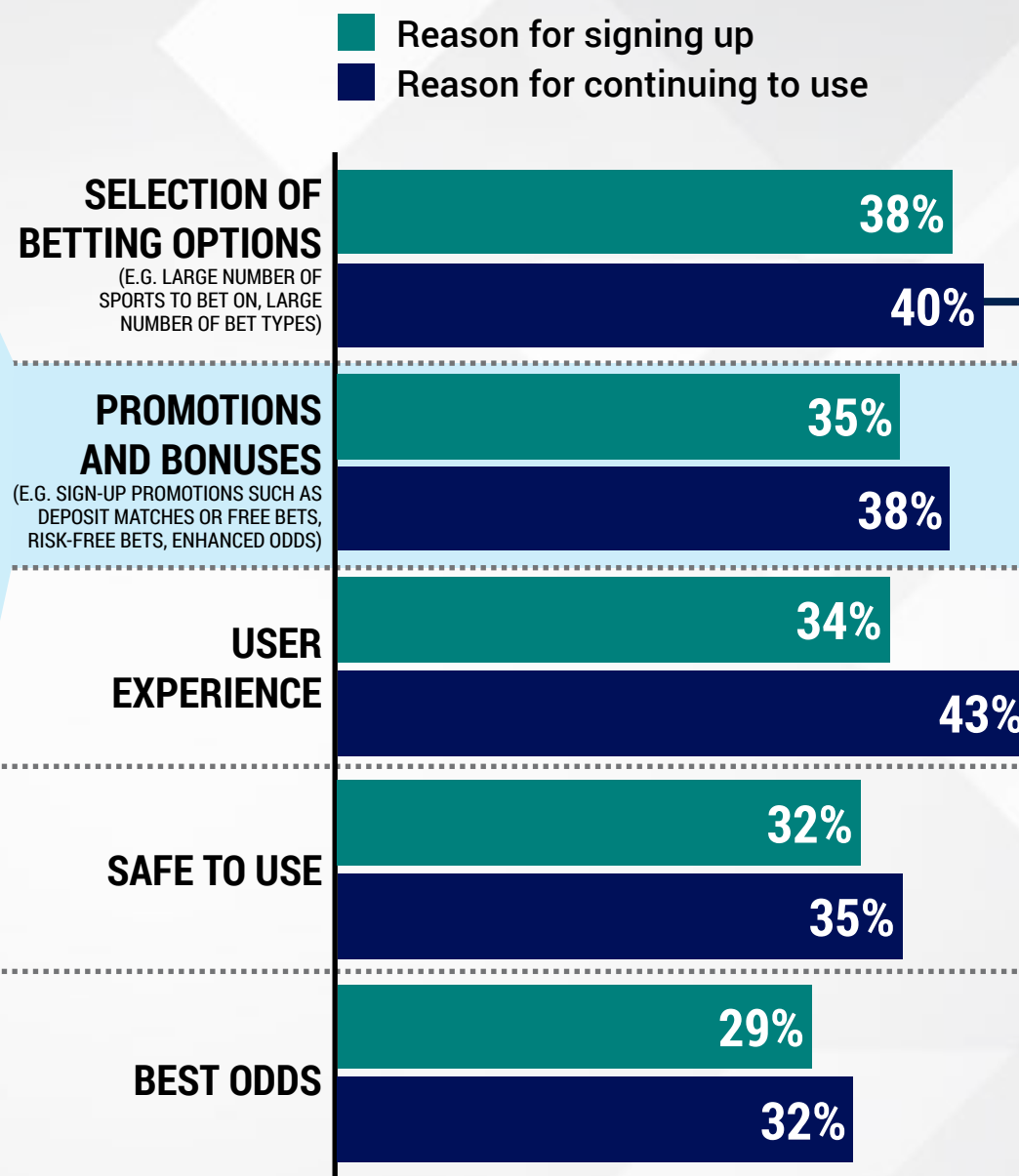


**FIRST BET INSURANCE**  
Operators lower barriers to enter by offering bet paybacks (i.e. receive bonus bets if you don't win your first bet)



**REFERRAL BONUSES**  
Users receive a bonus when the referral places their first bet





**Betting selection and user experience will be the factors that drive sportsbook user retention moving forward**



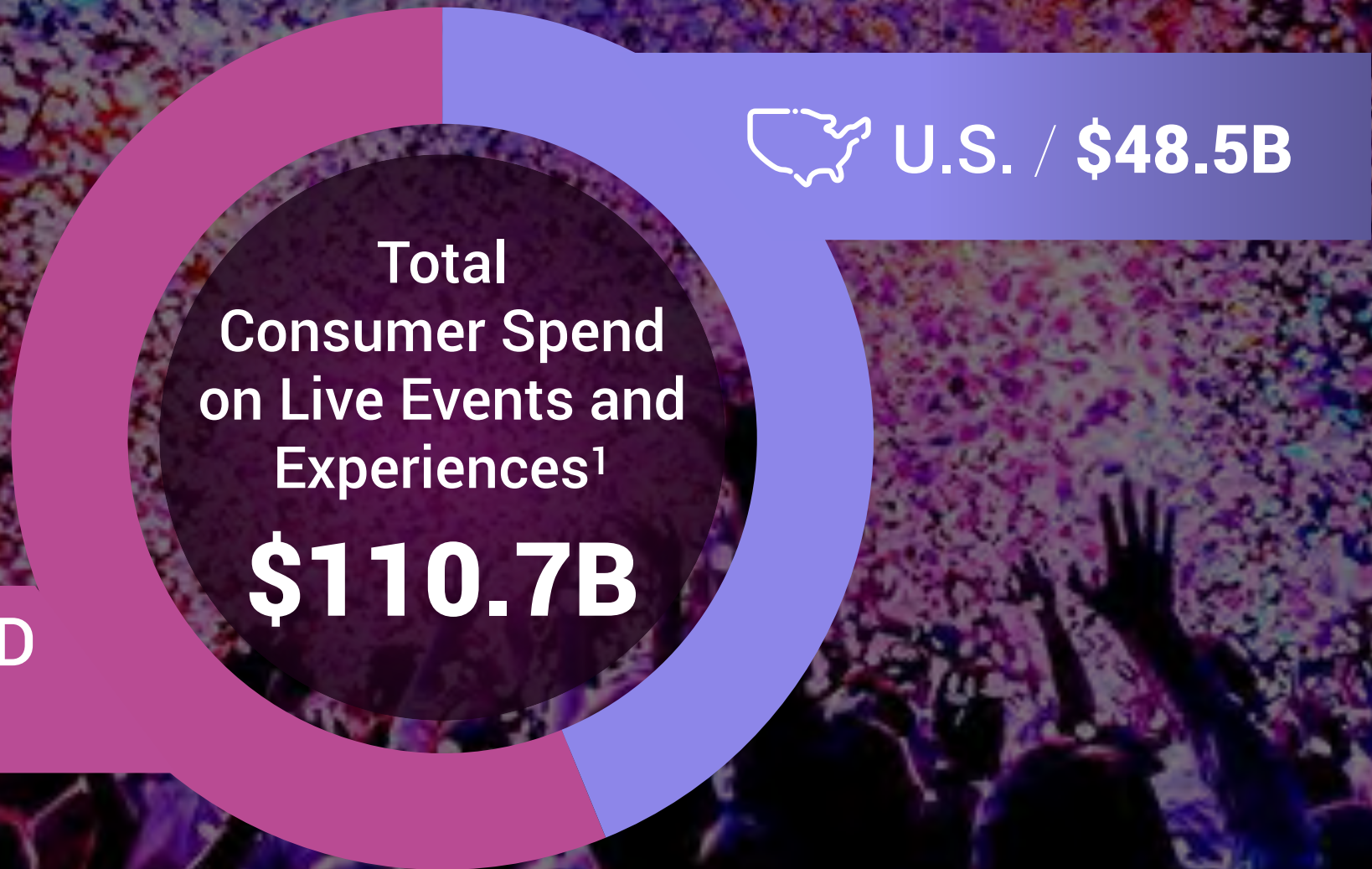
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# Today, global consumer spend on admission to live events and experiences exceeds \$110B

CONSUMER SPEND ON ADMISSION TO LIVE EVENTS AND EXPERIENCES<sup>1</sup> BY REGION, GLOBAL, 2023E, BILLIONS USD



**REST OF WORLD**  
/ **\$62.2B**



**U.S. / \$48.5B**

**Total  
Consumer Spend  
on Live Events and  
Experiences<sup>1</sup>  
\$110.7B**

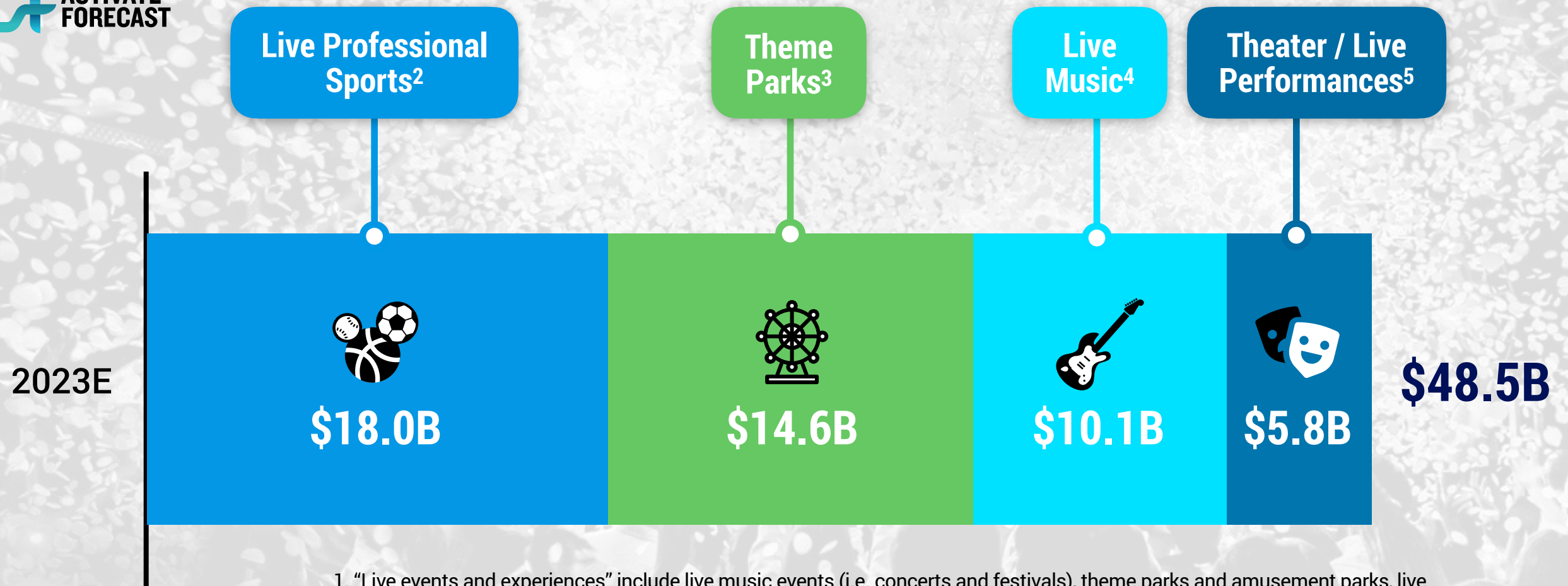
1. "Live events and experiences" include live music events (i.e. concerts and festivals), theme parks and amusement parks, live professional sports events, and live professional theater shows, musicals, operas, dance shows, and comedy shows. Excludes ancillary spend at the venue (e.g. food and beverage, parking, merchandise) and transit to and from the venue.

Sources: Activate analysis, AECOM and Themed Entertainment Association, Broadway League, Company filings, Company press releases, Company sites, Forbes, Goldman Sachs, IBISWorld, Morgan Stanley, Omdia, Pollstar, PricewaterhouseCoopers, Statista, Team Marketing Report



# In 2023, U.S. consumers will spend nearly \$50B on admission to live events and theme parks

CONSUMER SPEND ON ADMISSION TO LIVE EVENTS AND EXPERIENCES<sup>1</sup> BY CATEGORY, U.S., 2023E, BILLIONS USD



1. "Live events and experiences" include live music events (i.e. concerts and festivals), theme parks and amusement parks, live professional sports events, and live professional theater shows, musicals, operas, dance shows, and comedy shows. Excludes ancillary spend at the venue (e.g. food and beverage, parking, merchandise) and transit to and from the venue.

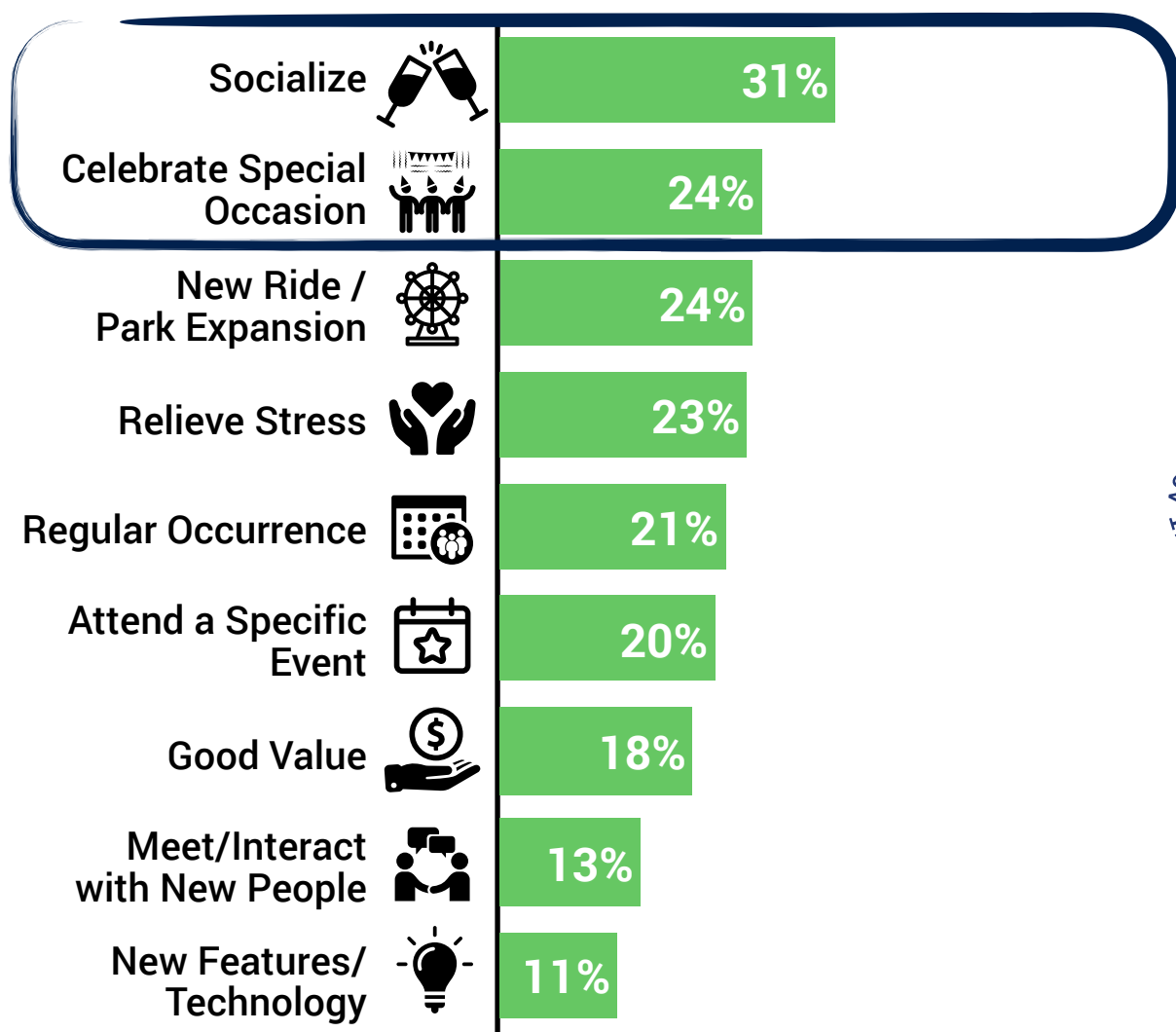
2. "Live professional sports" is defined as the gross value of online and offline ticket sales for live professional sporting events purchased by consumers. 3. "Theme parks" is defined as the gross value of online and offline gate (admission) fees paid for entry to theme parks. Theme parks operate mechanical rides, water rides, game shows, themed exhibits, and other attractions.

4. "Live music" is defined as the gross value of online and offline ticket sales for live professional music events purchased by consumers. 5. "Theater / live performances" is defined as the gross value of online and offline ticket sales for live professional theater shows, musicals, operas, dance shows, and comedy shows purchased by consumers.

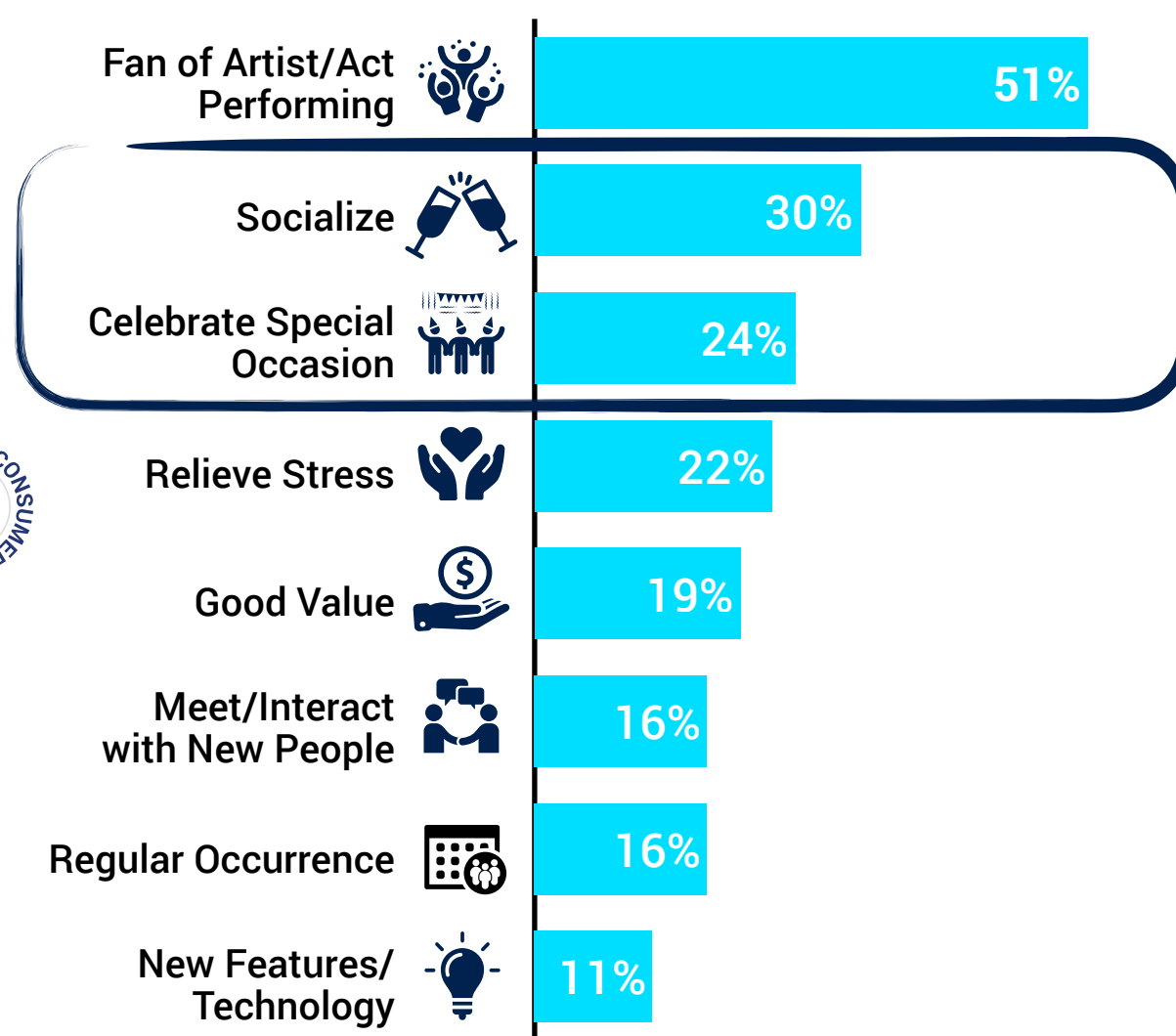
Sources: Activate analysis, AECOM and Themed Entertainment Association, Broadway League, Company filings, Company press releases, Company sites, Forbes, Goldman Sachs, IBISWorld, Morgan Stanley, Omdia, Pollstar, PricewaterhouseCoopers, Statista, Team Marketing Report

# People’s main reasons to visit theme parks and live music events – socialization and celebrations – will be enduring

TOP REASONS<sup>1</sup> FOR ATTENDING A THEME PARK IN THE LAST 12 MONTHS, U.S., 2023, % THEME PARK ATTENDEES<sup>2</sup>



TOP REASONS<sup>1</sup> FOR ATTENDING A LIVE MUSIC EVENT<sup>3</sup> IN THE LAST 12 MONTHS, U.S., 2023, % LIVE MUSIC EVENT<sup>3</sup> ATTENDEES<sup>4</sup>



1. Consumers were asked to select up to three top reasons. 2. “Theme park attendees” are defined as adults aged 18+ who attended at least one theme park in the last 12 months. 3. Live music events include concerts and music festivals (e.g. Coachella, CMA Fest). 4. “Live music event attendees” are defined as adults aged 18+ who attended at least one live music event in the last 12 months.

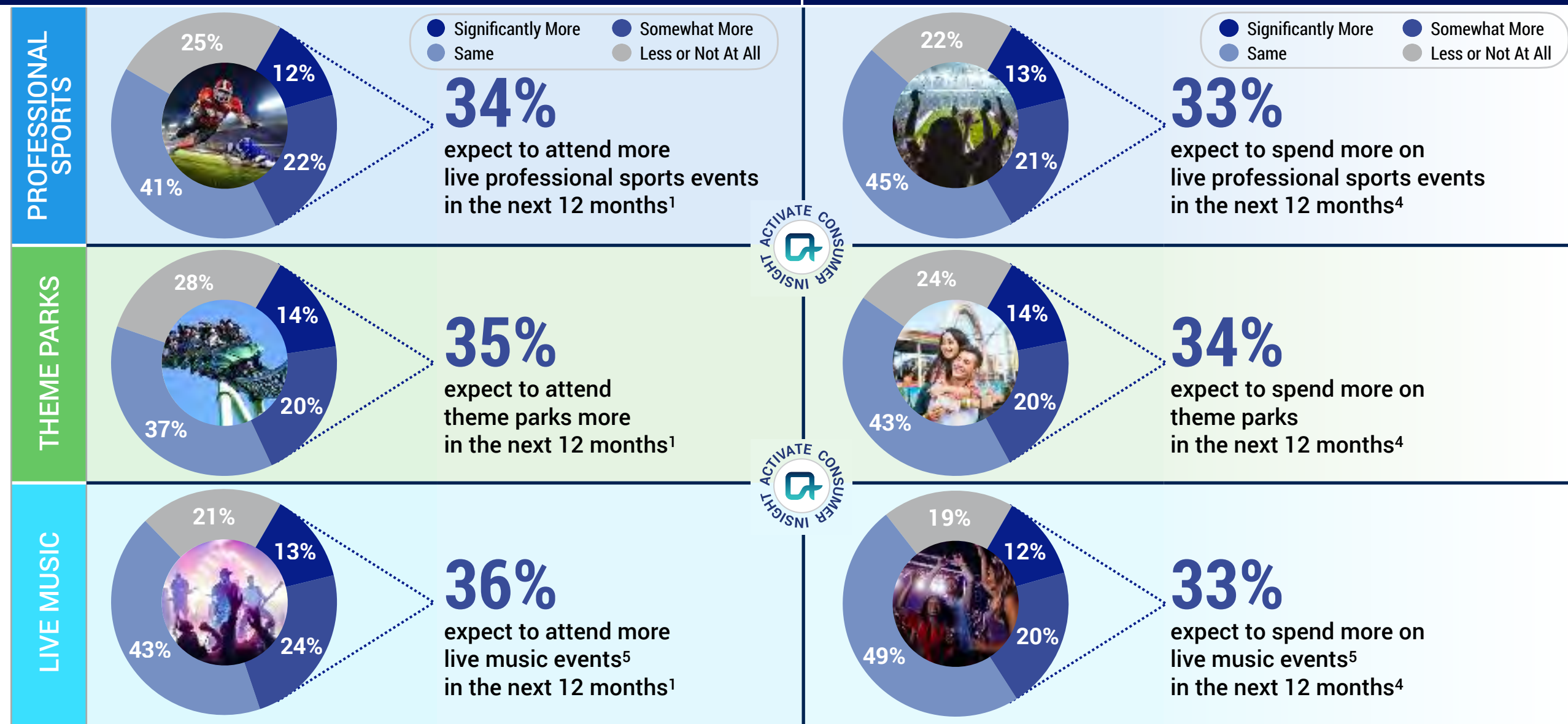
Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)



# Over a third of U.S. consumers intend to increase their attendance and spend on live events and theme parks

**INTENT TO ATTEND MORE LIVE EVENTS AND EXPERIENCES BY TYPE<sup>1,2</sup>, U.S., 2023, % LIVE EVENT/EXPERIENCE ATTENDEES<sup>3</sup> IN THE LAST 12 MONTHS**

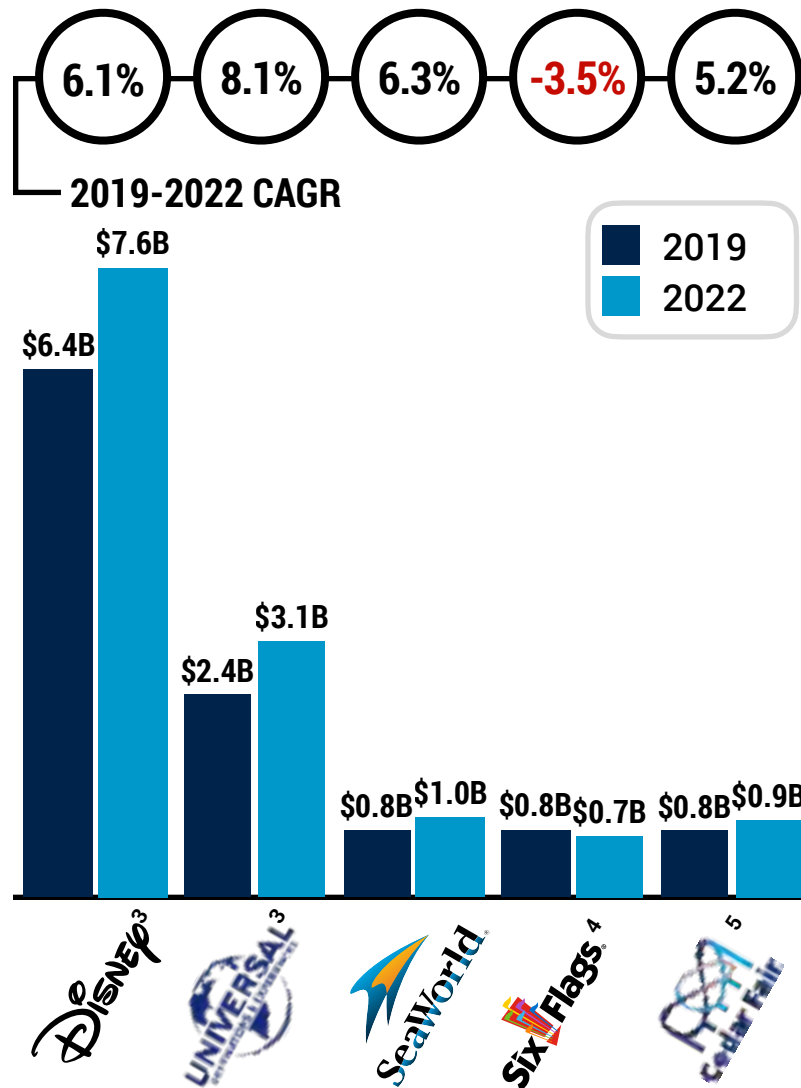
**INTENT TO SPEND MORE MONEY ON LIVE EVENTS AND EXPERIENCES BY TYPE<sup>2,4</sup>, U.S., 2023, % LIVE EVENT/EXPERIENCE ATTENDEES<sup>3</sup> WHO INTEND TO ATTEND IN THE NEXT 12 MONTHS**



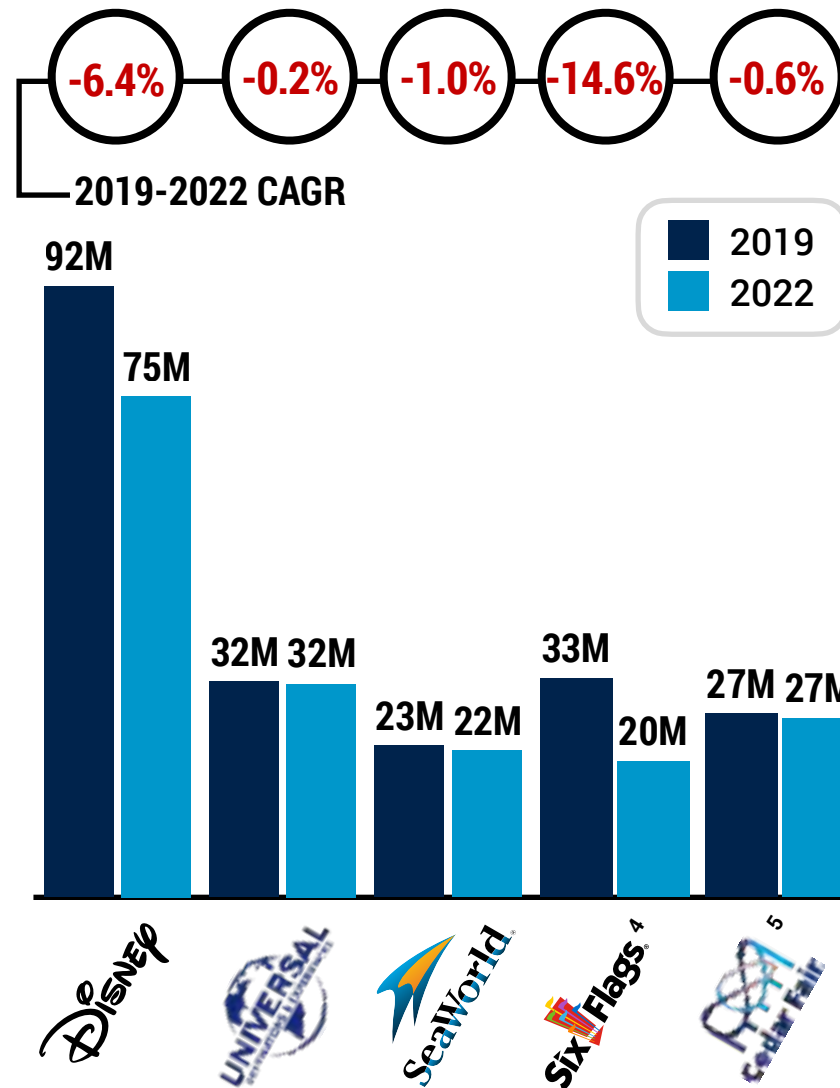
1. Intent to attend more in the next 12 months than in the last 12 months by live event/experience type. 2. Figures do not sum to 100% due to rounding. 3. "Live event/experience attendees" are defined as adults aged 18+ who attended at least one live event/experience of the given type in the last 12 months. 4. Intent to spend more money in the next 12 months than in the last 12 months by live event/experience type. 5. Live music events include concerts and music festivals (e.g. Coachella, CMA Fest). Sources: Activate analysis, Activate 2023 Consumer Technology & Media Research Study (n = 4,023)

# By increasing ticket prices, theme park operators are increasing revenues from people who have a higher willingness to pay, resulting in lower attendance

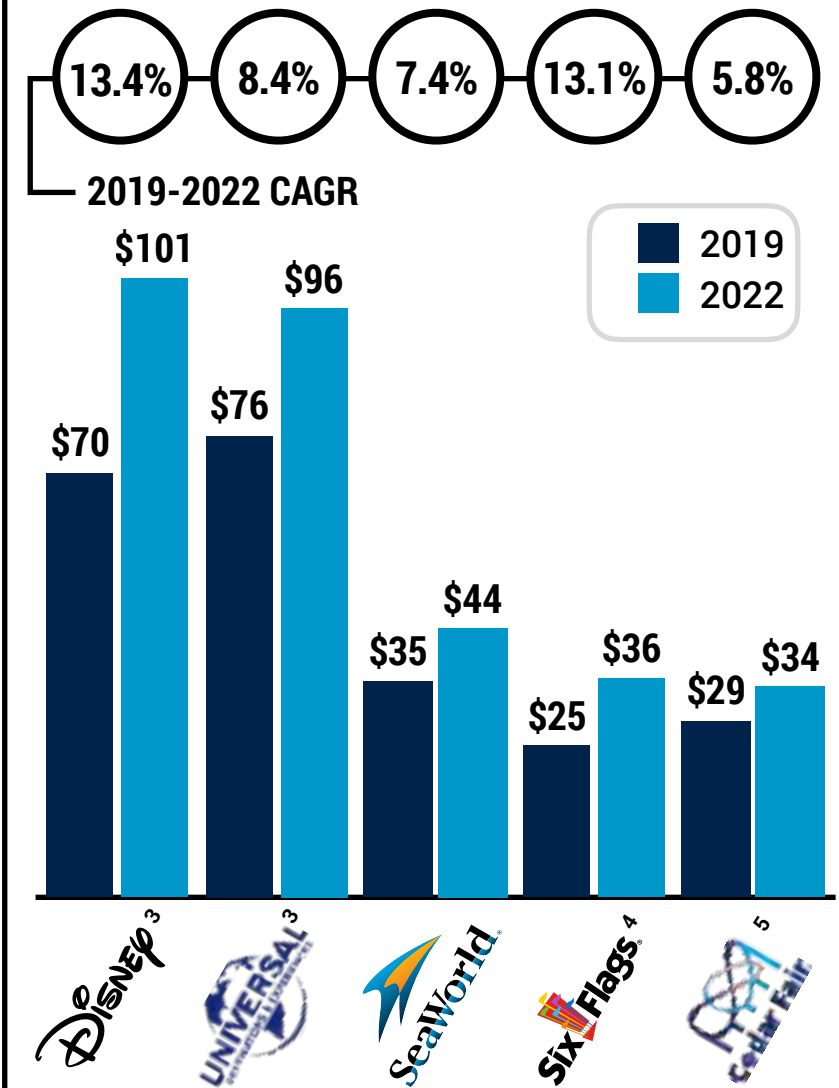
ADMISSIONS REVENUE<sup>1</sup>, U.S., 2019 VS. 2022, BILLIONS USD



THEME PARK ATTENDANCE<sup>1</sup>, U.S., 2019 VS. 2022, MILLIONS GUEST VISITS



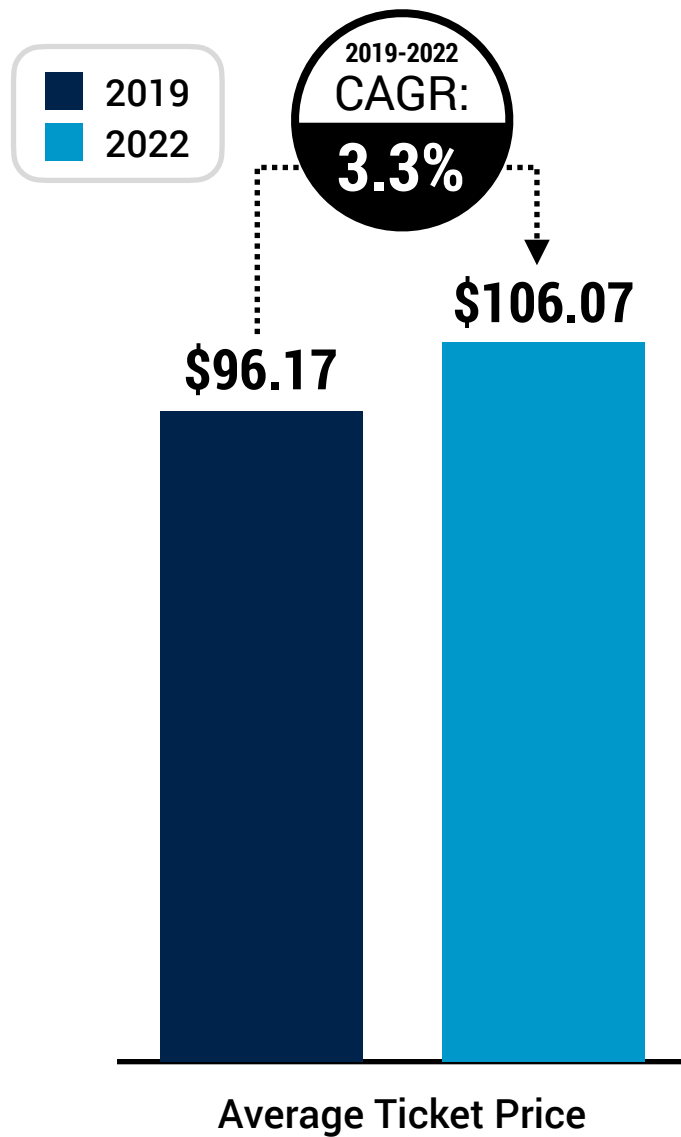
AVERAGE ADMISSION REVENUE<sup>1</sup> PER GUEST VISIT<sup>2</sup>, U.S., 2019 VS. 2022, USD



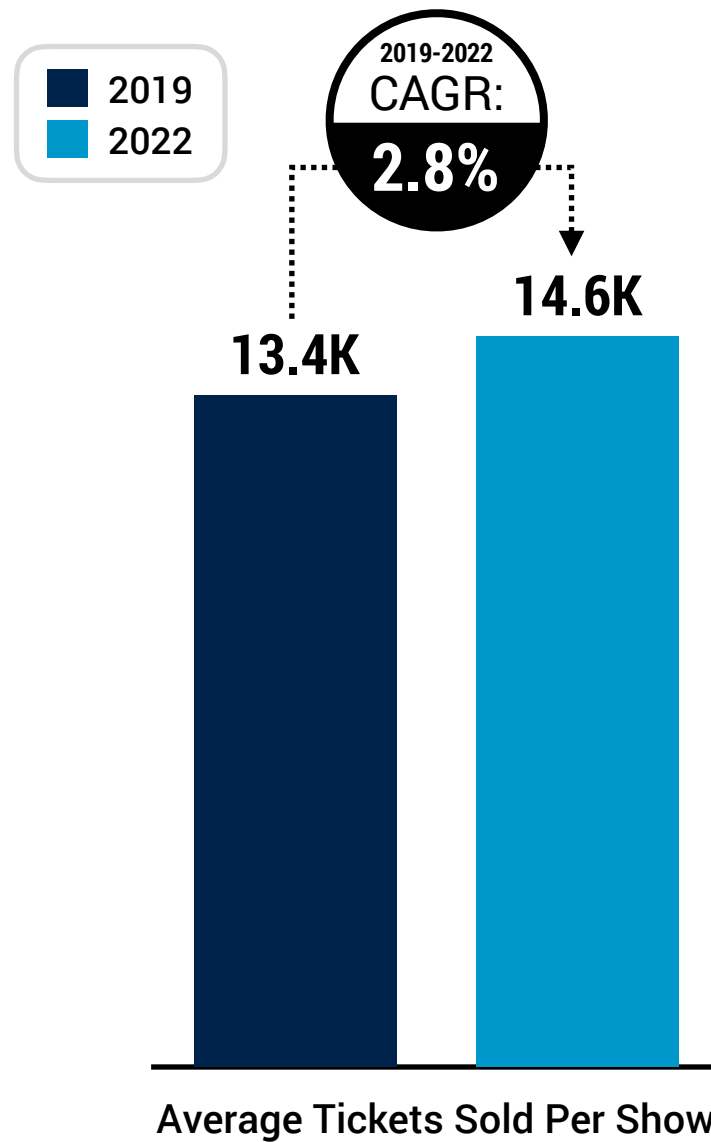
1. Excludes non-theme park attractions (e.g. entertainment complexes, hotels, resorts, vacation club properties). 2. Calculated by dividing admission revenue by theme park attendance, unless reported by the theme park. 3. Reflects estimates. 4. Includes park attendance and revenue figures from three parks in Canada and Mexico. 5. Includes attendance and revenue figures from one park in Canada. Includes revenue from parking fees. Sources: Activate analysis, AECOM and Themed Entertainment Association, Company filings, Goldman Sachs, Morgan Stanley

# Despite increased ticket prices, demand for concerts is increasing; to meet this demand, artists will turn to higher-capacity stadiums

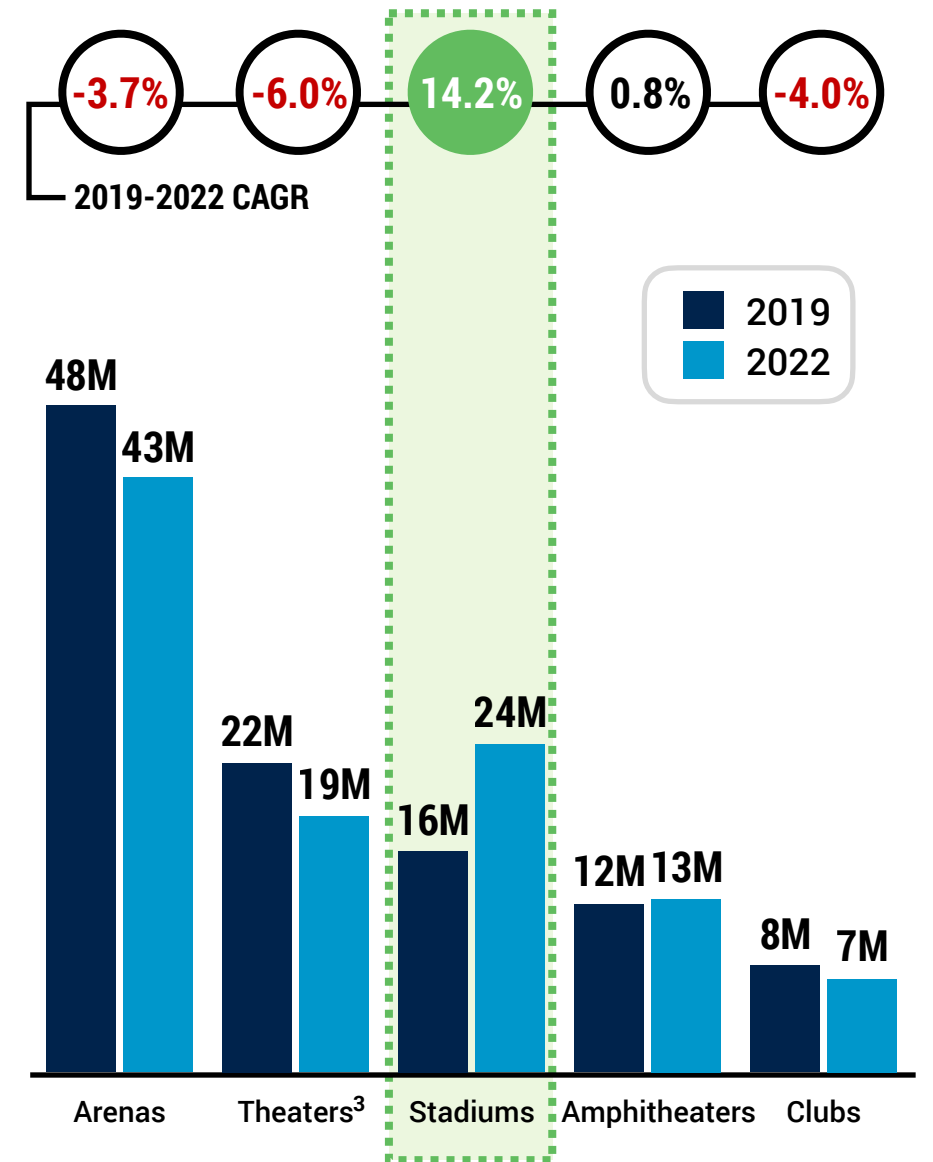
**AVERAGE TICKET PRICE FOR TOP 100 TOURS<sup>1</sup>, GLOBAL, 2019 VS. 2022, USD**



**AVERAGE TICKETS SOLD PER SHOW FOR TOP 100 TOURS<sup>1</sup>, GLOBAL, 2019 VS. 2022, THOUSANDS TICKETS**



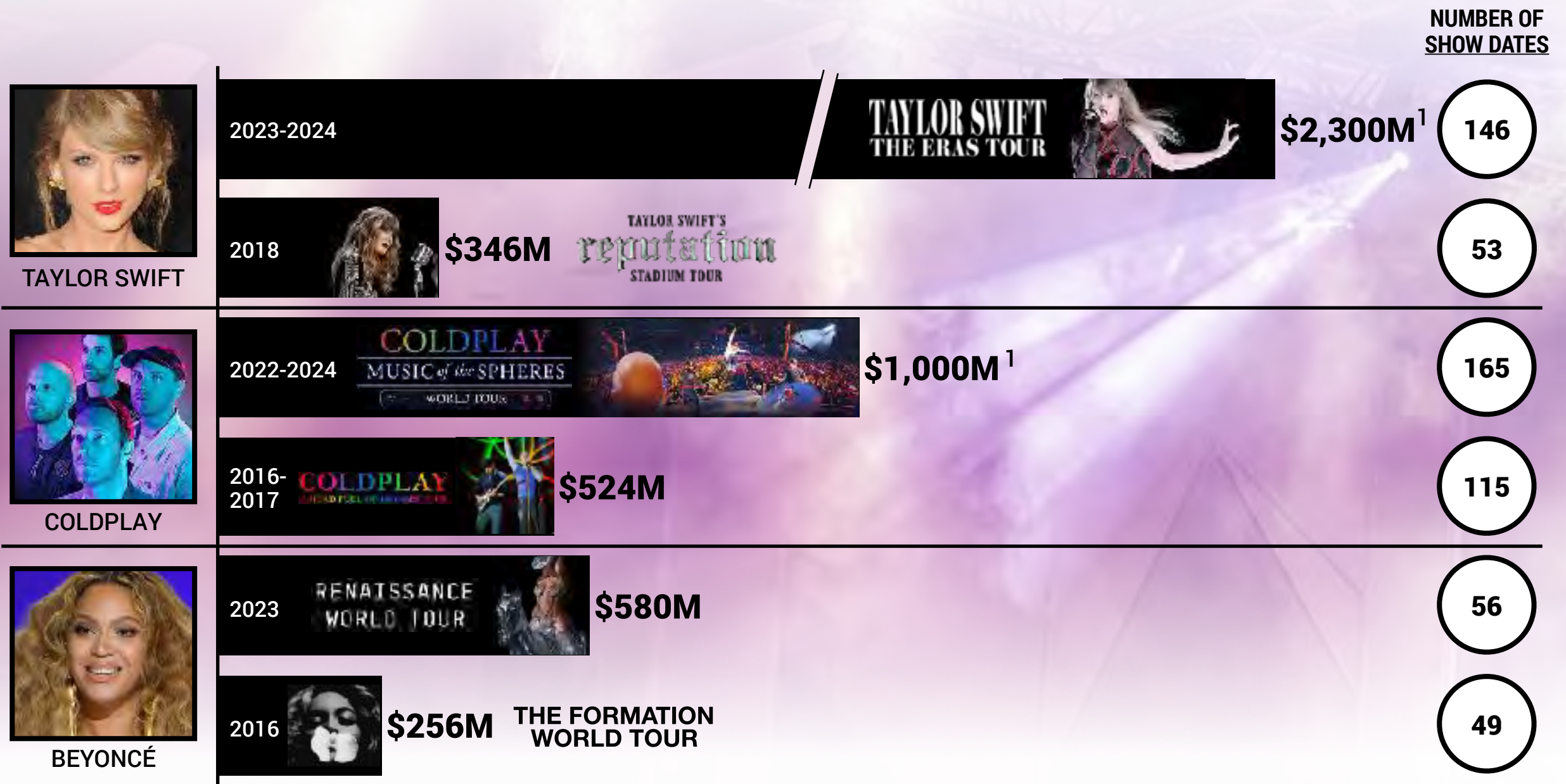
**TOTAL TICKETS SOLD FOR TOP CHARTED VENUES BY VENUE TYPE<sup>2</sup>, GLOBAL, 2019 VS. 2022, MILLIONS TICKETS**





# Taylor Swift, Coldplay, and Beyoncé's most recent tours are expected to be significantly higher grossing than previous tours

## TOTAL GROSS TICKET SALES FROM TWO MOST RECENT TOURS BY ARTIST, GLOBAL, MILLIONS USD



# To capture and maximize demand for music and sporting events, stadiums are innovating to improve customer experience, safety, and monetization opportunities

## EXAMPLES OF INNOVATION IN STADIUM VENUE ECOSYSTEM

### EXPANDED CONNECTIVITY



HPE Aruba launched 6E Connectivity at Chase Center via **250 under-seat access points** in 2022

### ORDER-TO-SEAT



Since launching order-to-seat, Ordr has found that **80%** of total stadium orders are for in-seat delivery and total order spend has increased by approximately **90%**

### DIGITAL SIGNAGE



ANC, which was acquired by C10 Media from Learfield in early 2023, is responsible for installing **13,500 sq. ft.** of new digital signage at the American Airlines Center in Dallas; this will improve and increase advertising opportunities

### IMPROVED FAN TICKETING EXPERIENCE



Jump has raised **\$30M** to improve the fan ticketing experience, providing alerts for available seats as fans leave midway through an event and reminders to release tickets if fans can no longer attend

### IN-APP FAN ENGAGEMENT



Mapsted leverages location-based technology to assist fans in finding premium seats in stadiums and provides in-app upgrade options to increase monetization opportunities by **turning fans into consumers**

### DIGITAL TWINS FOR ENHANCED SECURITY



The Paris 2024 Olympics will be the **first ever Olympic event with an official digital twin partner**; the OnePlan venue twin and GIS mapping software will be leveraged to ensure safety, security, and crowd control



# Innovative technology that enhances the customer experience will power the growth of the industry going forward

## ACTIVATE LIVE EVENTS AND EXPERIENCES TECHNOLOGY ENABLEMENT LANDSCAPE

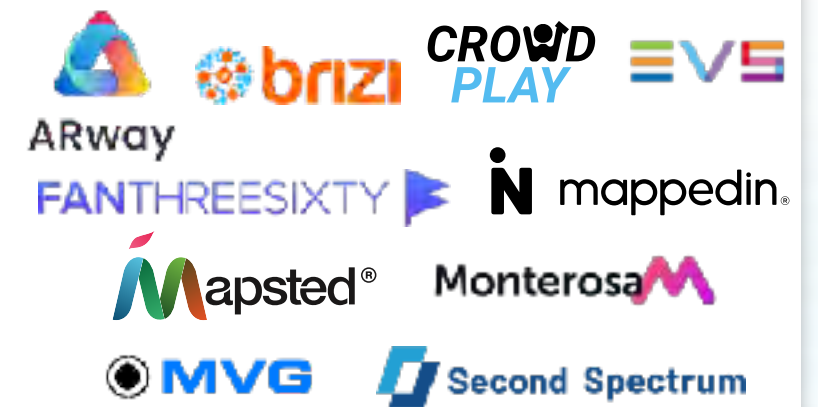
### CONNECTIVITY



### DIGITAL SIGNAGE



### FAN ENGAGEMENT AND EXPERIENCE



### POINT-OF-SALE AND DELIVERY SYSTEMS



### TICKETING



### VENUE MANAGEMENT AND ANALYTICS





# Innovative venues at the intersection of technology, architecture, and entertainment will transform the fan experience

## EXAMPLES OF VENUES INNOVATING THE FAN EXPERIENCE

### THE SPHERE



Multi-purpose spherical concert venue in Las Vegas which measures 366 feet tall and 516 feet wide featuring **1.2M LED pucks** (which cover its 580K-square-foot surface) and over **160K speakers**

The venue was built by **Madison Square Garden Entertainment** and cost approximately **\$2.3B** to build

**18K** people attended the inaugural concert featuring U2, who will have a 25-concert run at the venue

### ABBA VOYAGE



**Holographic concert experience in purpose-built arena** in London, with planned expansions to Las Vegas, Singapore, and Sydney

Unlike holograms of the past, which were typically projected onto bands of plastic, ABBA Voyage plays out onto **65M-pixel LED screens**

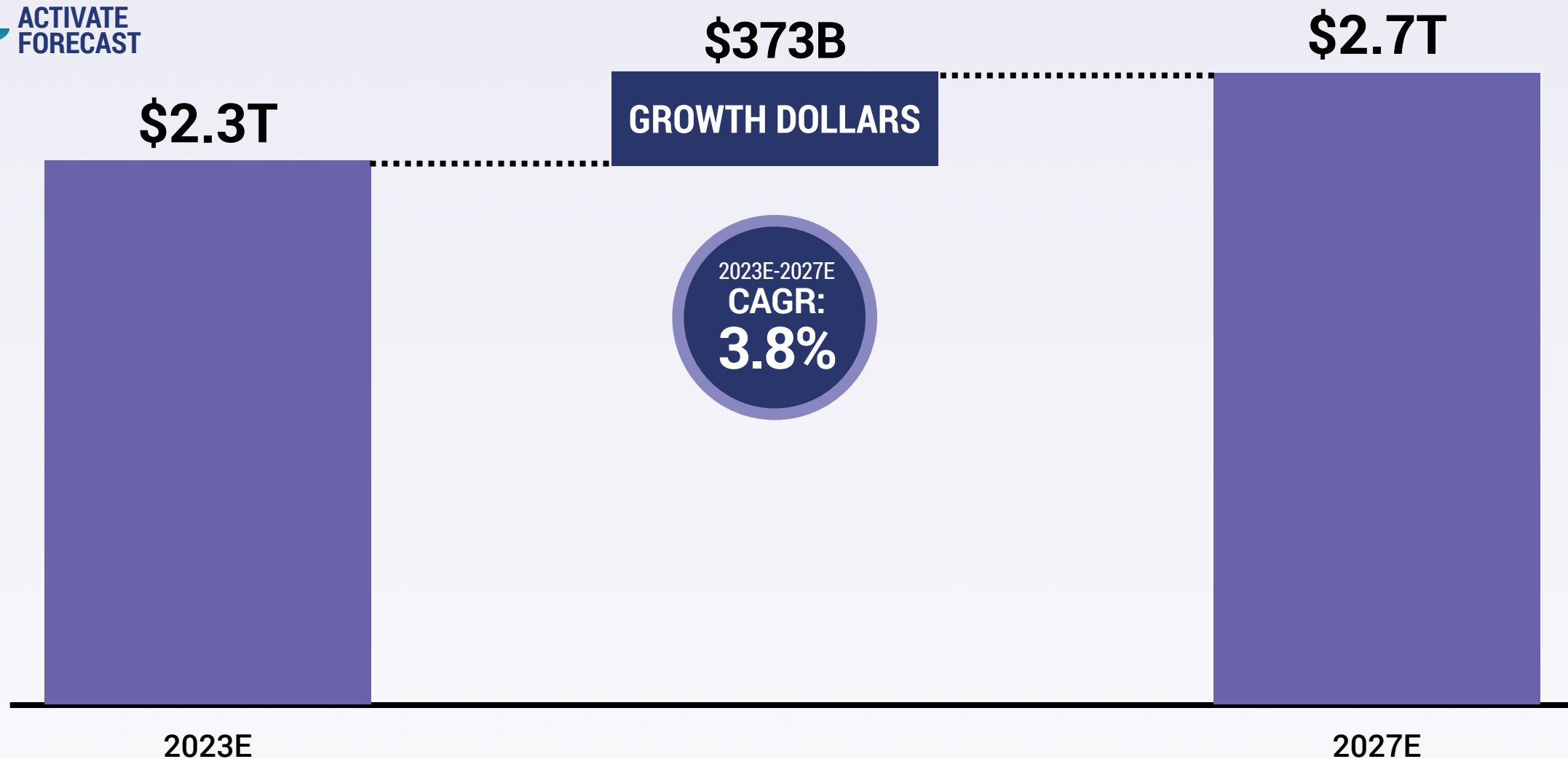
Sold **over 1.5M tickets** since launching in mid-2022, generating **over \$150M in revenue**

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# We forecast substantial growth for the global internet and media industries, increasing by nearly \$400B between 2023 and 2027

INTERNET AND MEDIA REVENUES<sup>1</sup>, GLOBAL, 2023E VS. 2027E, USD

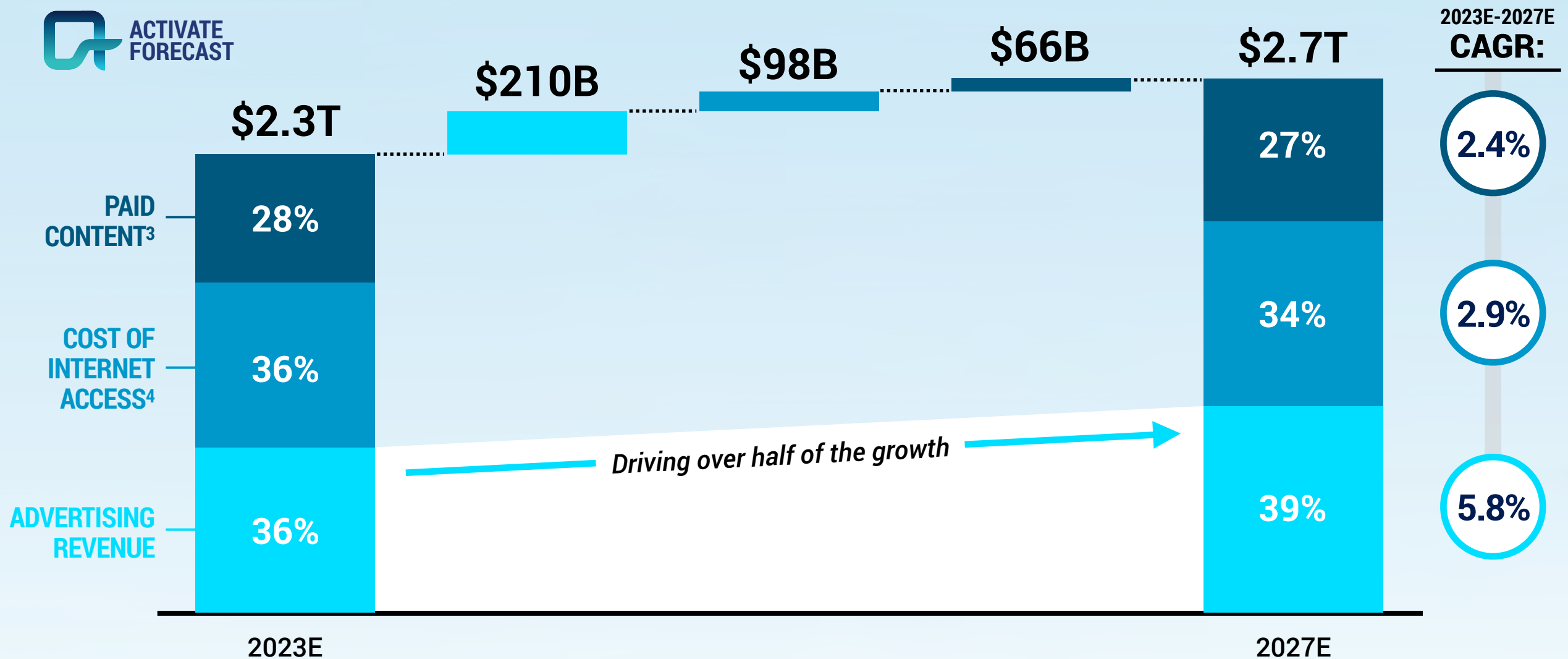


1. "Internet and media revenues" include revenues from radio subscription and licensing fees, recorded music, book publishing, magazine publishing, newspaper publishing, video games, filmed entertainment, TV subscription and licensing fees, internet access, digital advertising, and traditional advertising on these platforms.  
 Sources: Activate analysis, Alliance for Audited Media, Dentsu International, eMarketer, GroupM, IBISWorld, Newzoo, Omdia, Pew Research Center, PricewaterhouseCoopers, Zenith Media



# Global advertising spend will drive more than half of the growth in internet and media revenue

INTERNET AND MEDIA REVENUE<sup>1</sup> GROWTH BY SEGMENT<sup>2</sup>, GLOBAL, 2023E VS. 2027E, USD

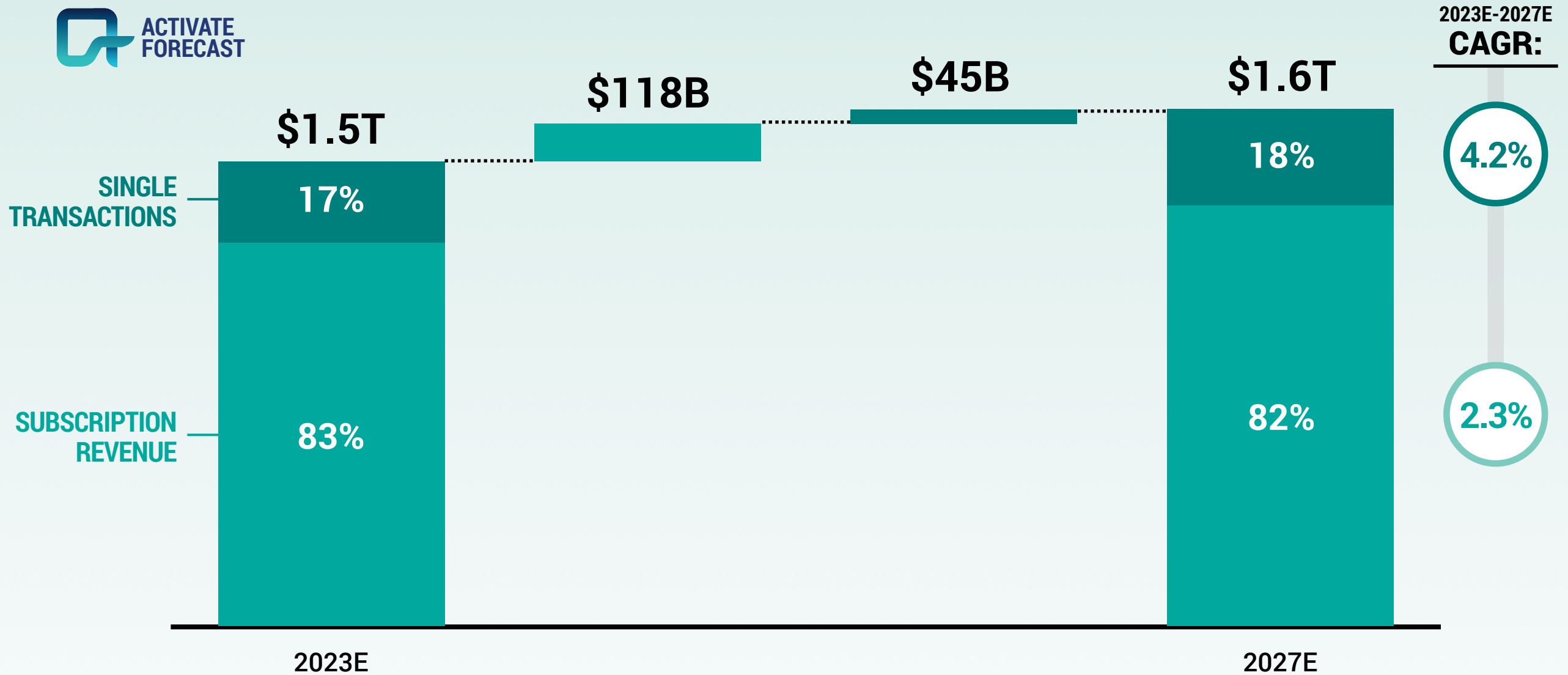


1. "Internet and media revenues" include revenues from radio subscription and licensing fees, recorded music, book publishing, magazine publishing, newspaper publishing, video games, filmed entertainment, TV subscription and licensing fees, internet access, digital advertising, and traditional advertising on these platforms. 2. Figures do not sum due to rounding. 3. "Paid content" includes radio subscription and licensing fees, recorded music, book publishing, magazine publishing, newspaper publishing, video games, filmed entertainment, and TV subscription and licensing fees. 4. "Internet access" includes fixed broadband, wireless, and mobile internet access.

Sources: Activate analysis, Alliance for Audited Media, Dentsu International, eMarketer, GroupM, IBISWorld, Newzoo, Omdia, Pew Research Center, PricewaterhouseCoopers, Zenith Media

# Subscriptions will make up the vast majority of consumer spend growth, adding \$118B by 2027

CONSUMER INTERNET AND MEDIA REVENUE<sup>1</sup> GROWTH BY REVENUE MODEL<sup>2</sup>, GLOBAL, 2023E VS. 2027E, USD



1. "Consumer internet and media revenues" include radio subscription and licensing fees, recorded music, book publishing, magazine publishing, newspaper publishing, video games, filmed entertainment, TV subscription and licensing fees, and internet access. 2. Figures do not sum due to rounding.  
Sources: Activate analysis, Alliance for Audited Media, Dentsu International, eMarketer, GroupM, IBISWorld, Newzoo, Omdia, Pew Research Center, PricewaterhouseCoopers, Zenith Media



# Activate growth. Own the future.

**Technology. Internet. Media. Entertainment.** These are the industries we've shaped, but the future is where we live.

Activate Consulting helps technology and media companies drive revenue growth, identify new strategic opportunities, and position their businesses for the future.

As the leading management consulting firm for these industries, we know what success looks like because we've helped our clients achieve it in the key areas that will impact their top and bottom lines.

Together, we can help you grow faster than the market and smarter than the competition.

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# How we help: Activate is uniquely qualified to help Technology, Internet, Media, and eCommerce companies deliver growth and results, while defining strategies to own their futures

**GROWTH STRATEGY**



**GO TO MARKET**



**CONSUMER AND CONSUMER INSIGHTS**



**AI STRATEGY AND ENABLEMENT**



**PRICING**



**NEW BUSINESS CREATION**



**PRIVATE EQUITY SERVICES**



**PROJECT MANAGEMENT**





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Sydney Frame



Activate Technology & Media   
Outlook 2024



# Thank you!

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