

Cross-Platform
FUTURE IN FOCUS
U.S. **2017**



About this report

The 2017 U.S. Cross-Platform Future in Focus leverages several data sources unique to comScore:

The report is based primarily on behavioral measurement from **comScore Media Metrix® Multi-Platform**, which provides unduplicated reporting of digital audiences across desktop computers, smartphones and tablets; **comScore Mobile Metrix®**, which provides unduplicated reporting of mobile web and app audiences across both smartphones and tablets; and **comScore Video Metrix® Multi-Platform**, which provides a single, unduplicated measure of digital video consumption across smartphones, tablets, desktops and over-the-top (OTT) devices. The report also includes survey-based mobile data from **comScore MobiLens®**, search data from **comScore qSearch™**, online retail spending data from **comScore e-Commerce Measurement™**, advertising measurement data from **comScore validated Campaign Essentials™ (vCE®)** and **comScore Brand Survey Lift™ (BSL™)**, as well as cross-platform data from **comScore Xmedia™**, viewing data from comScore's suite of **TV** and **video-on-demand** measurement services and new connected home measurement via the **comScore Total Home Panel™**.

Important Definitions:

Total Digital: The combination of desktop and mobile.

Mobile: The combination of smartphone and tablet. When data is referring specifically to smartphones or tablets, it will be labeled accordingly.

Unique visitor: A person who visits an app or digital media property at least once over the course of a month.

Pay-TV: Subscription-based television services that are delivered via a traditional cable, telco or satellite service operator.

Digital Video Recorder (DVR): An electronic device used to record live television and watch later. Viewing via a DVR is often referred to as time-shifted recorded viewing.

Video-on-Demand (VOD): Refers to video content that is made available via the traditional cable, telco or satellite service operators for on-demand viewing, as opposed to the regularly scheduled live TV viewing or time-shifted DVR viewing.

Over-the-Top (OTT): Refers to video content that is transmitted via the internet to one's television set, instead of via the traditional cable, telco or satellite service operators.

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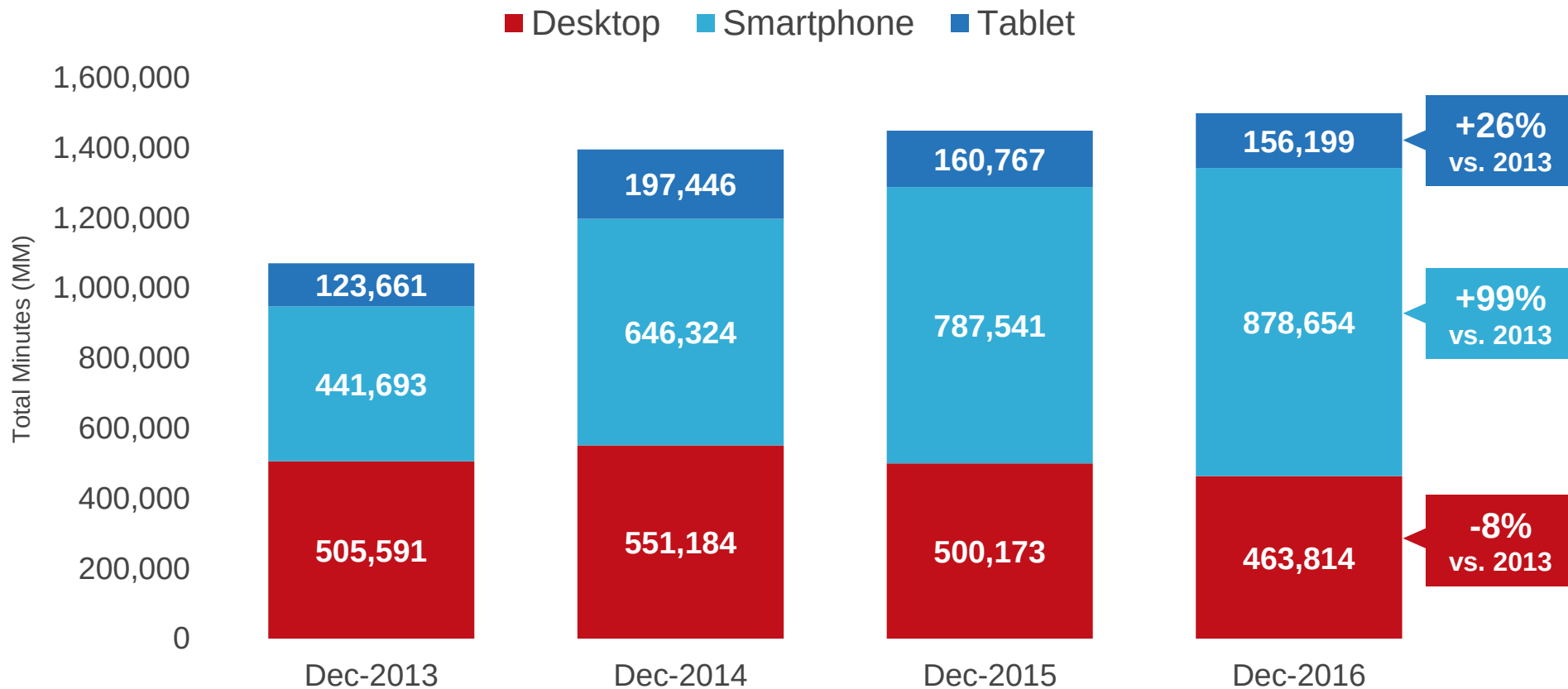
A large white circle with a subtle drop shadow is centered on the left side of the slide. The background is a solid purple color with a fine grid of small white dots. Several thin, white dotted lines curve across the background, creating a sense of motion or a network.

Multi-Platform

Smartphone usage has doubled in the past three years, and since 2014 it's driven all of the growth in digital media time spent

Growth in Digital Media Time Spent in Minutes (MM)

Source: comScore Media Metrix Multi-Platform & Mobile Metrix, U.S., Dec 2013 - Dec 2016

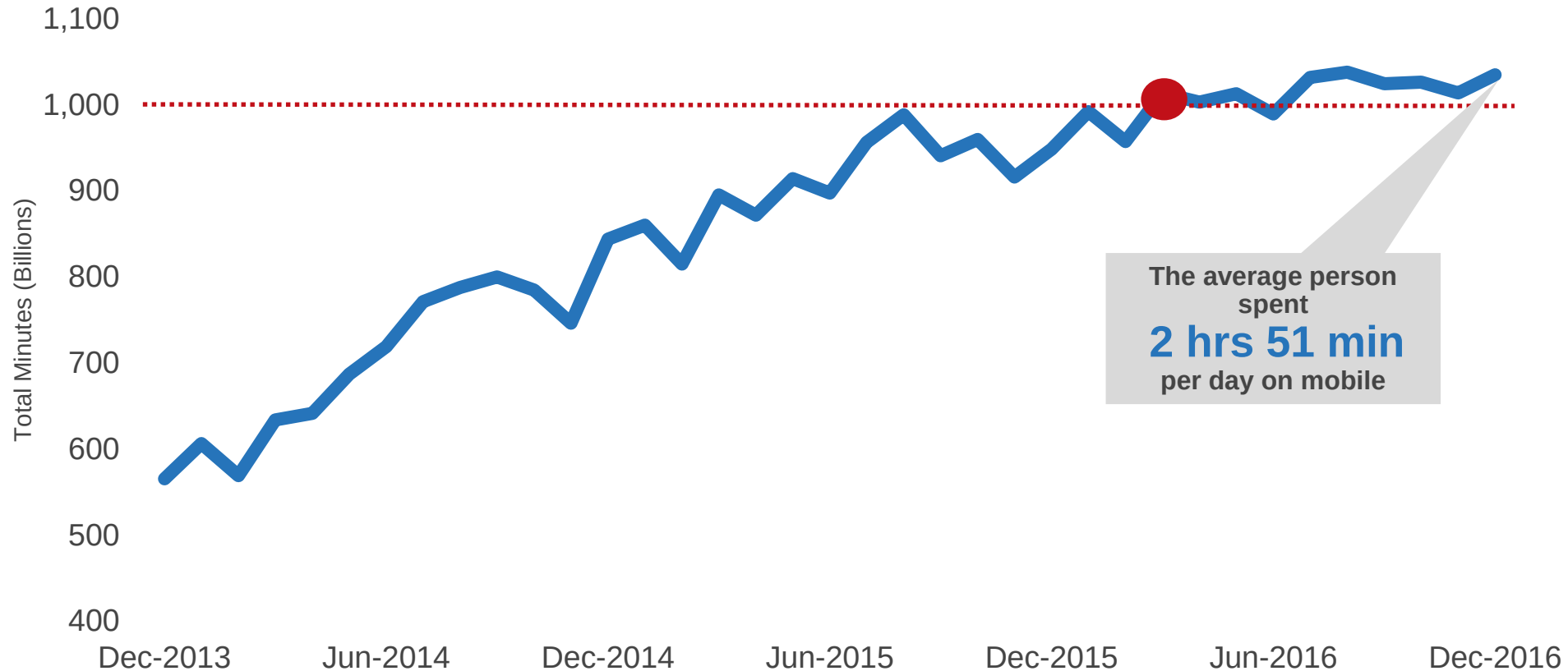


INSIGHT

Total digital media usage is up 40% since 2013, with mobile – particularly smartphones – driving those gains. The smartphone has continued to expand on its role in digital, even in just the last two years, as desktop and tablets have both experienced modest declines in engagement during this period.

Mobile media usage surpassed the 1 trillion monthly minute milestone in March 2016 and continues to rise

Total Minutes (Billions) Spent on Mobile
Source: comScore Mobile Metrix, U.S., Age 18+, Dec 2013 – Dec 2016



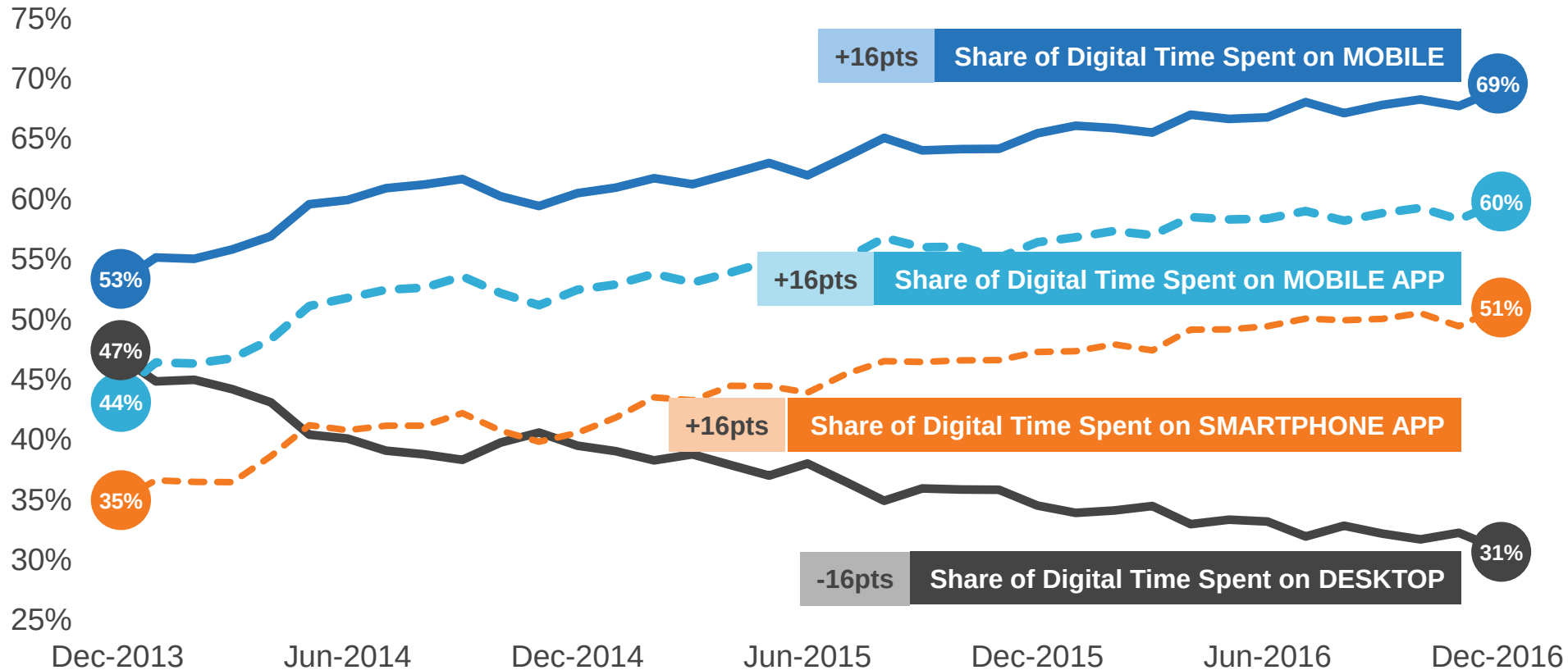
INSIGHT

Mobile time spent continues to progress upward, hitting a huge milestone in reaching an eye-popping level of one trillion minutes of aggregate media consumption per month in 2016. This is nearly double what desktop internet usage accounted for at its peak.

Mobile now represents almost 7 in 10 digital media minutes, and smartphone apps alone account for half of all digital time spent

Share of Digital Media Time Spent by Platform

Source: comScore Media Metrix Multi-Platform & Mobile Metrix, U.S., Total Audience, Dec 2013 – Dec 2016



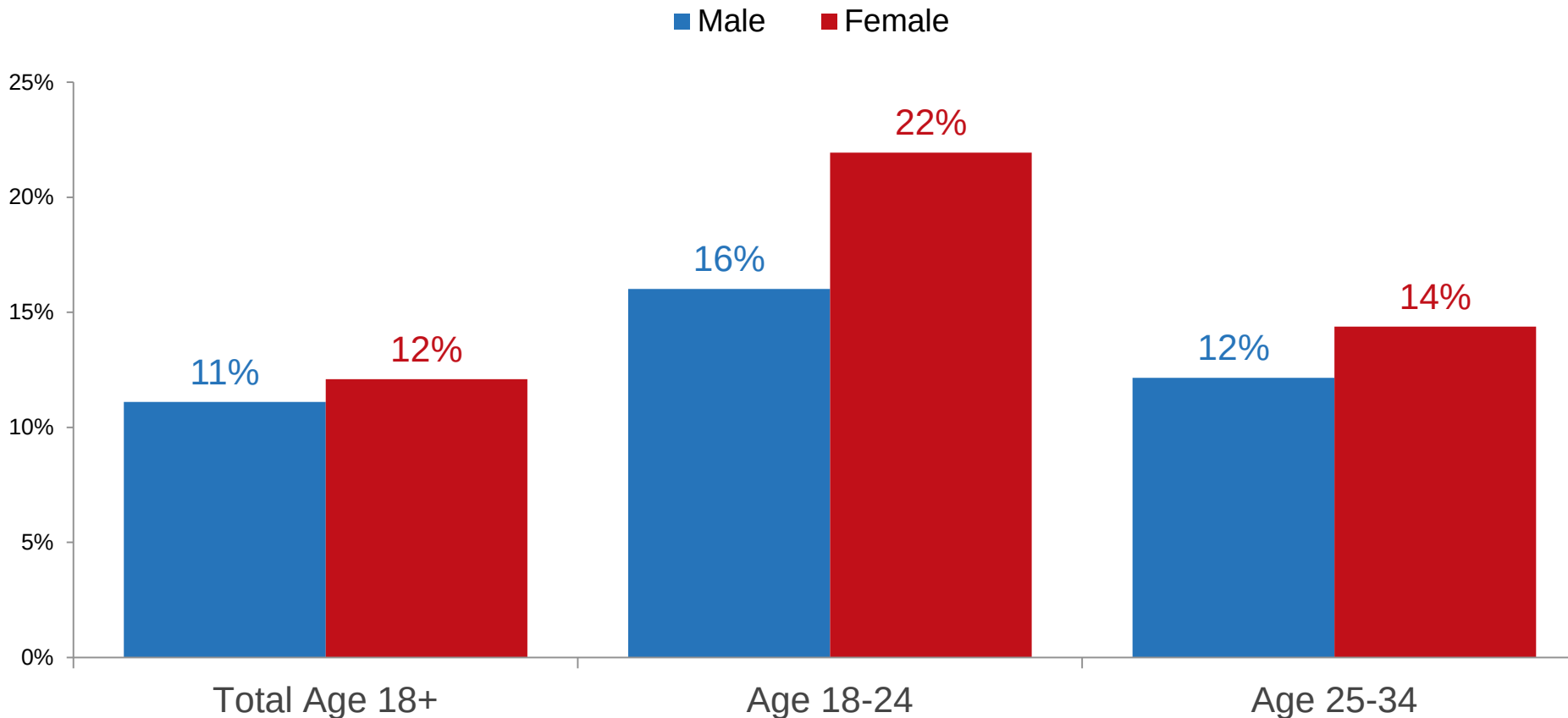
INSIGHT

With desktop engagement faltering in recent years, it has lost share to mobile – which now accounts for 69% of digital media time spent. Mobile apps now drive 60% of digital time spent, and smartphone apps alone currently account for a majority of digital media consumption.

Nearly one in eight U.S. internet users are now mobile-only, with 18-24 year-old women the highest skewing for this behavior

Mobile-Only Share of Digital Audience by Age Segment

Source: comScore Media Metrix Multi-Platform, U.S., Age 18+, Dec 2016



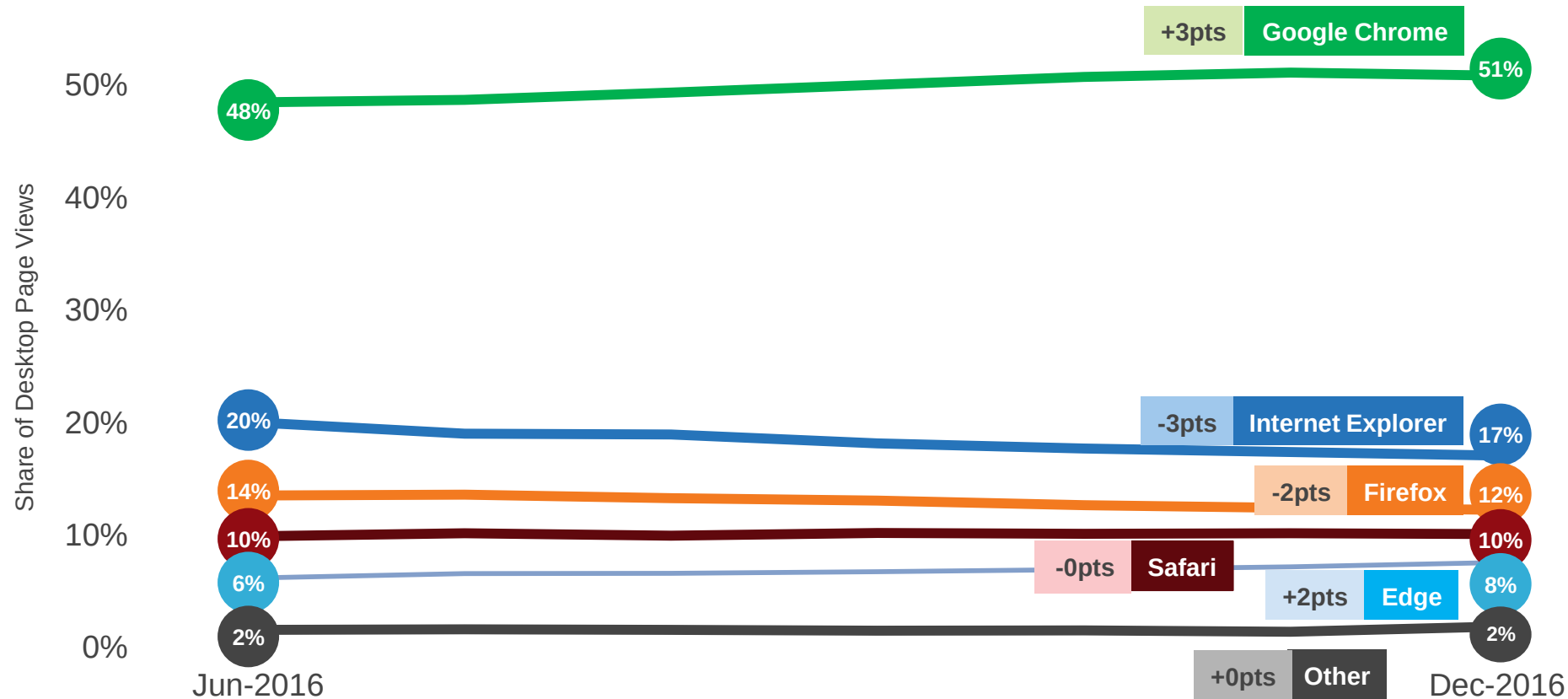
INSIGHT

The mobile-only internet user is an emerging group within the digital media ecosystem. Millennials are more likely to rely exclusively on their mobile devices, with the heaviest skews occurring among college-aged adults and females.

Digital Media

Google Chrome continues to widen its market share lead for desktop browser activity, capturing a majority share of all page views in 2016

Share of Desktop Browser Activity
Source: comScore Custom Analytics, U.S., Total Audience



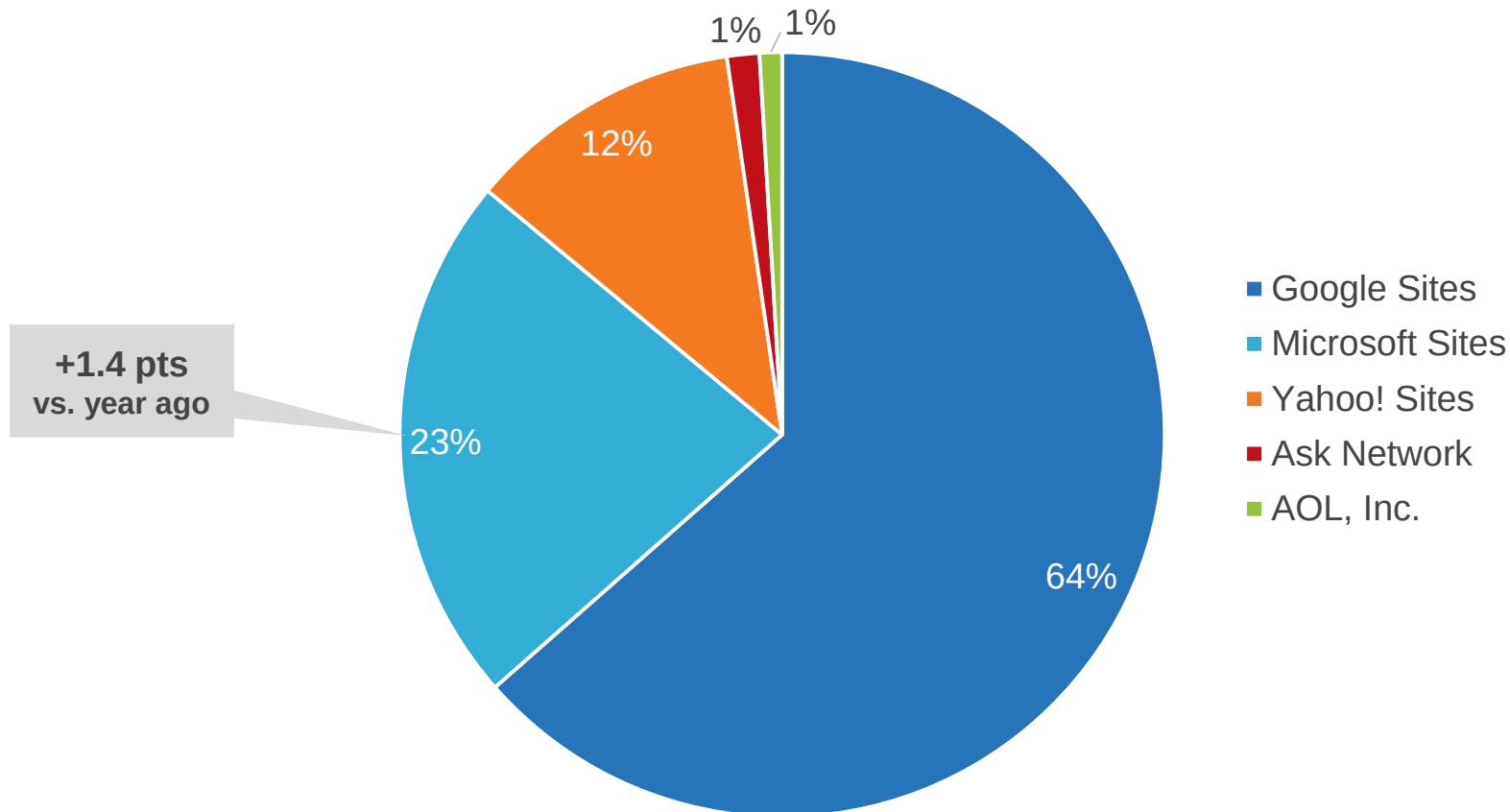
INSIGHT

Google Chrome gained three percentage points of the desktop browser market in the 2nd half of 2016, now with more than 50% of all page views. Microsoft's Edge browser also saw gains, eating into the share of Microsoft's Internet Explorer browser.

Microsoft's search engine Bing has grown its desktop search market share over the past year, but the market is for the most part stable

Desktop Explicit Core Search Share

Source: comScore qSearch, U.S., Q4 2016



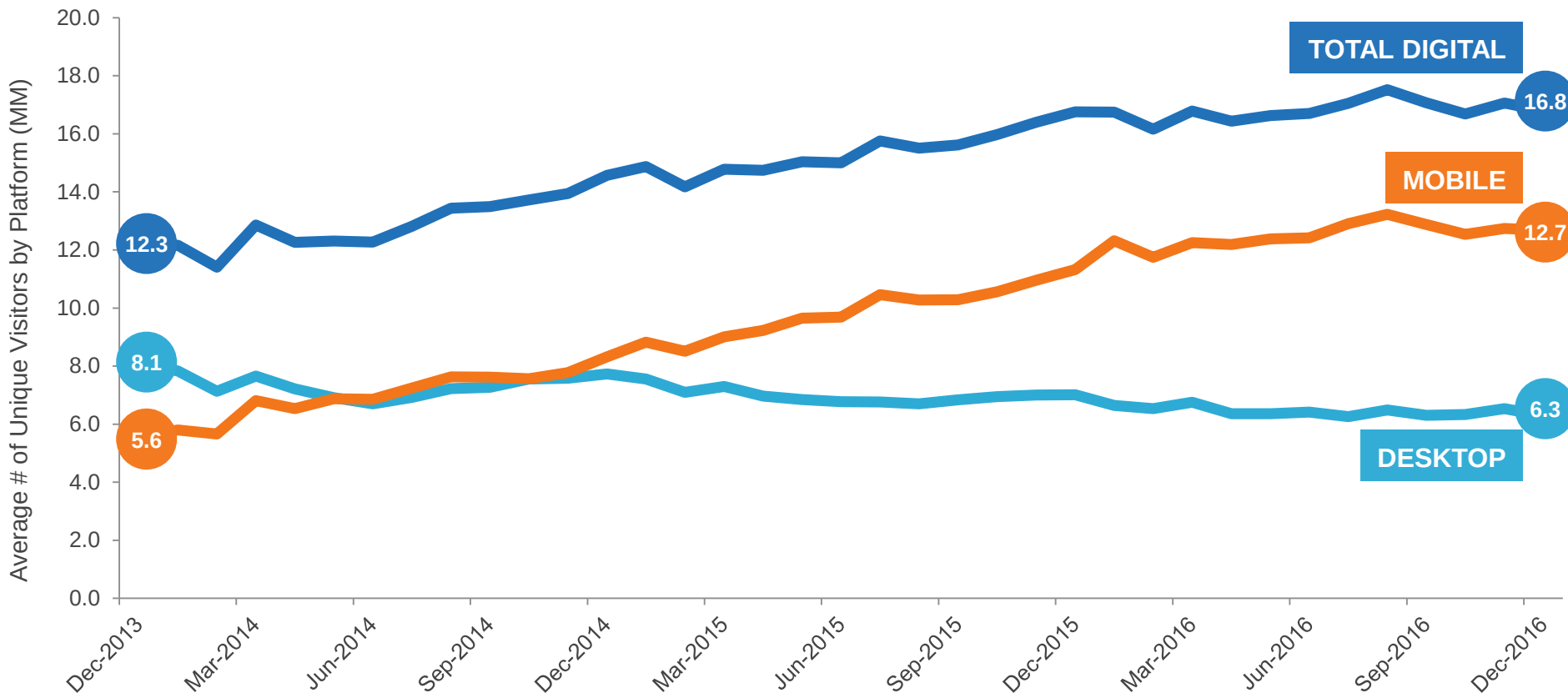
INSIGHT

The desktop search market has stabilized in recent years with share shifts from year to year tending to be relatively modest. Market leader Google remained stable, but #2 player Microsoft Bing did manage to grow its share by more than one percentage point.

Digital media audiences continue to grow on the back of mobile, which is now 2x that of the average desktop audience

Growth in Top 1000 Digital Media Property Audiences

Source: comScore Media Metrix Multi-Platform, U.S., Dec 2013 – Dec 2016



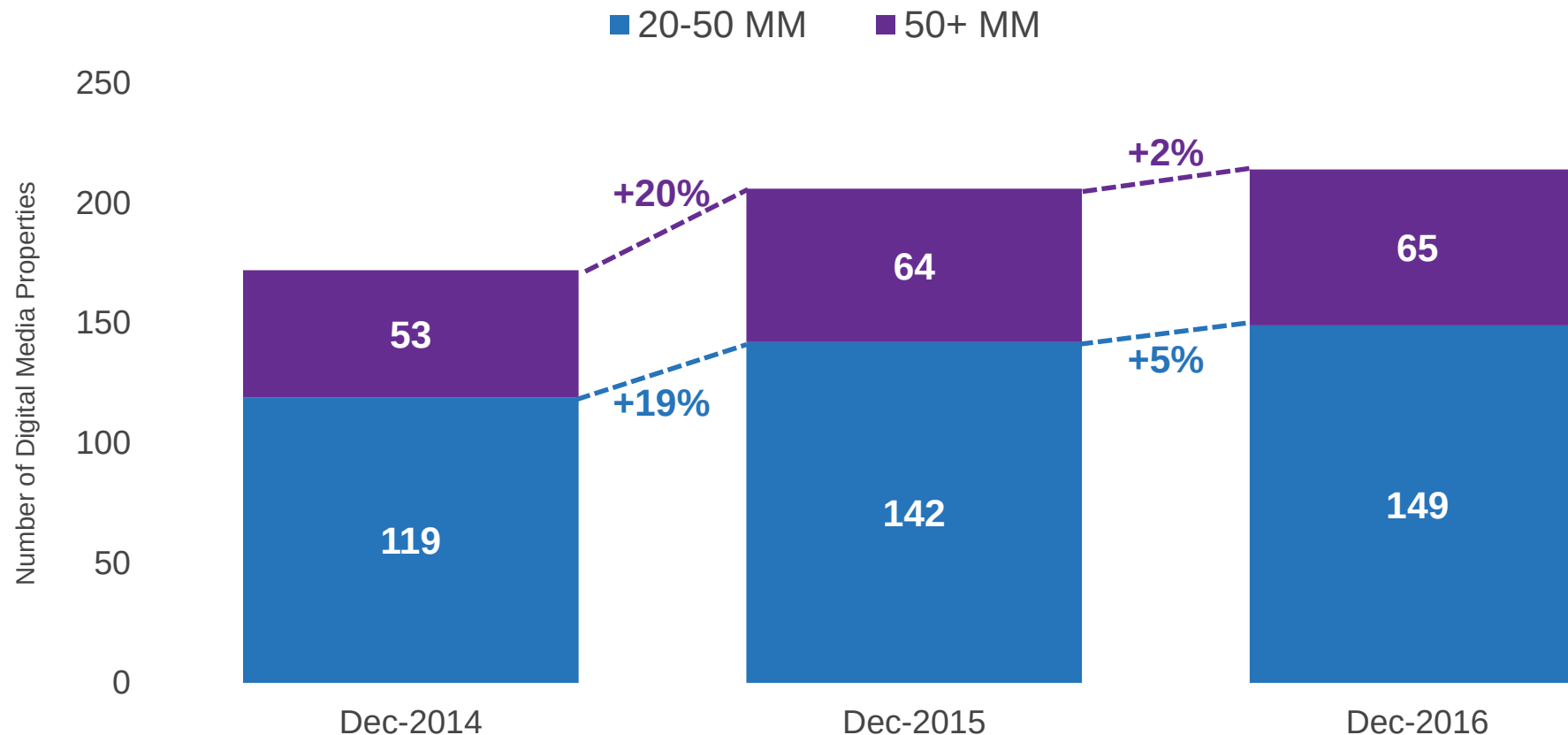
INSIGHT

Over the past three years, digital media audiences of the Top 1000 properties have surged to an average 16.8 million visitors per month, up 38% in the past three years. All of that growth has been due to mobile, which jumped 127% in that time, and is now 2x that of the Top 1000 desktop audience.

Digital is delivering audiences at scale, but the number of newly emerging large-scale media properties is flattening

Number of Digital Media Properties Reaching Unique Visitor Thresholds

Source: comScore Media Metrix Multi-Platform, U.S., Dec 2016 / Dec 2015 / Dec 2014



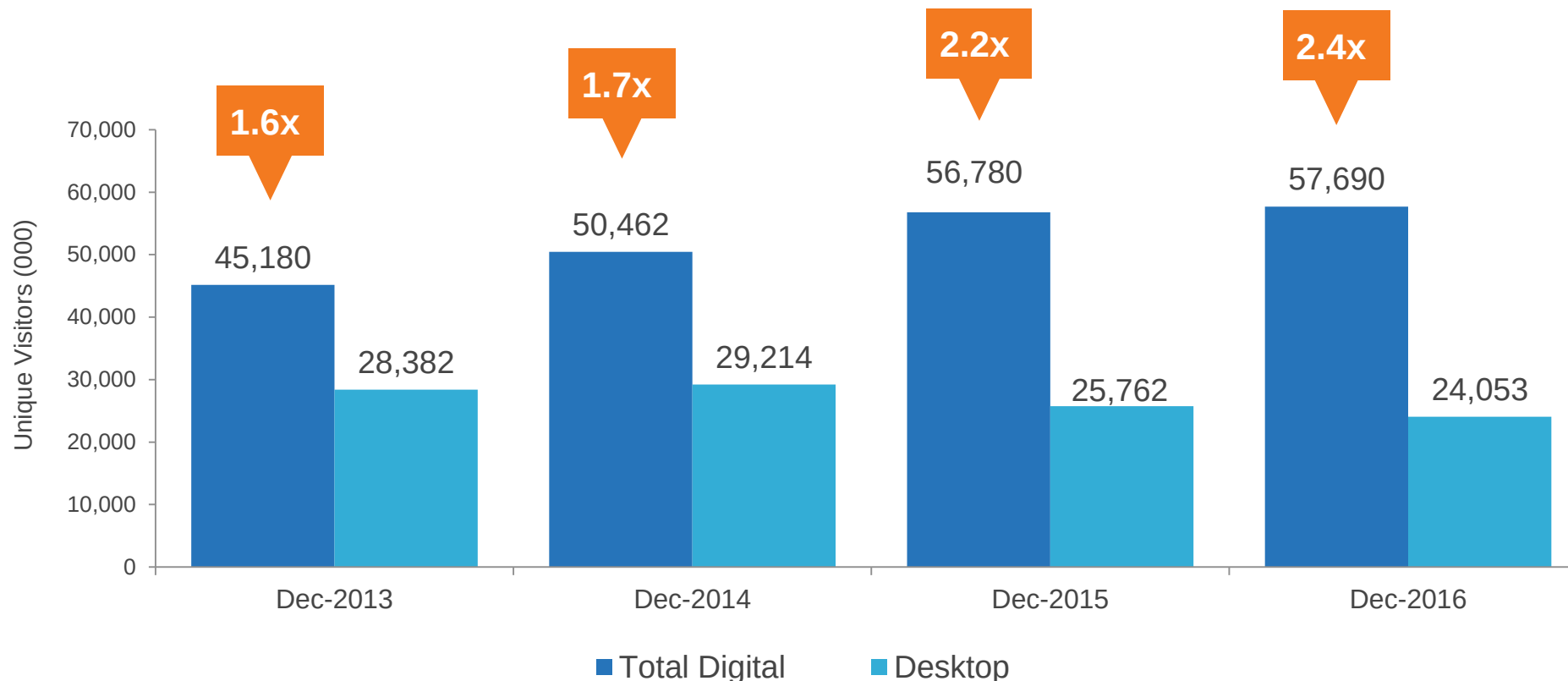
INSIGHT

While 2015 saw a big jump in the number of digital media properties reaching large audiences of 20+ million (+34), 2016 saw much more modest gains (+8). Are we now nearing a point of audience maturity for digital media properties?

For the Top 100 properties, incremental mobile audiences extend their desktop audiences by a factor of 2.4x

Median Audience Sizes for the Top 100 Digital Media Properties

Source: comScore Media Metrix Multi-Platform, U.S., Dec 2013 - Dec 2016



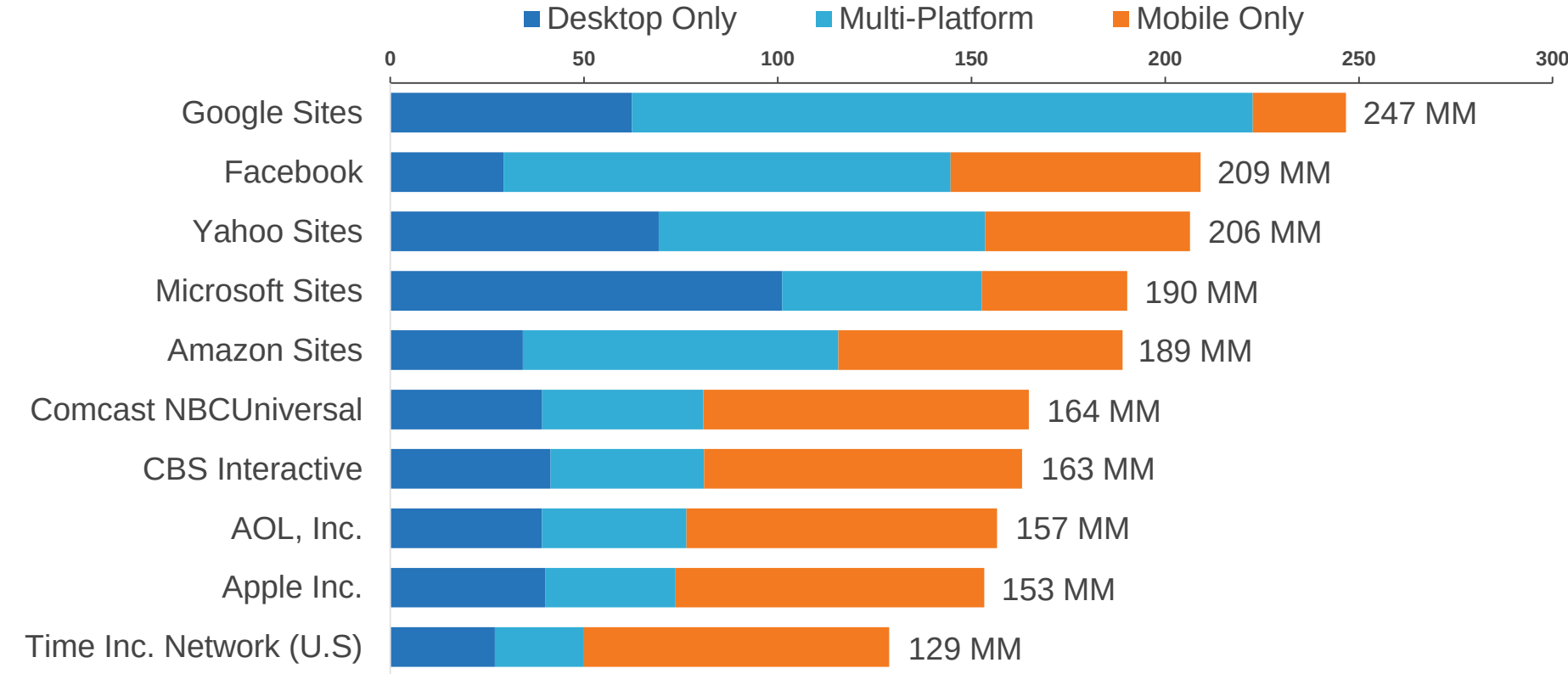
INSIGHT

Mobile audiences continue to be an important contributor to total digital audience. This year mobile helped boost the audiences of the Top 100 digital media properties by 2.4x vs. desktop alone, a multiple that has grown steadily in the past few years.

Google Sites, Facebook and Yahoo Sites remain the top digital media properties and the only ones with 200+ MM visitors

Top Digital Properties: Unique Visitors (MM) by Platform

Source: comScore Media Metrix Multi-Platform, U.S., Dec 2016



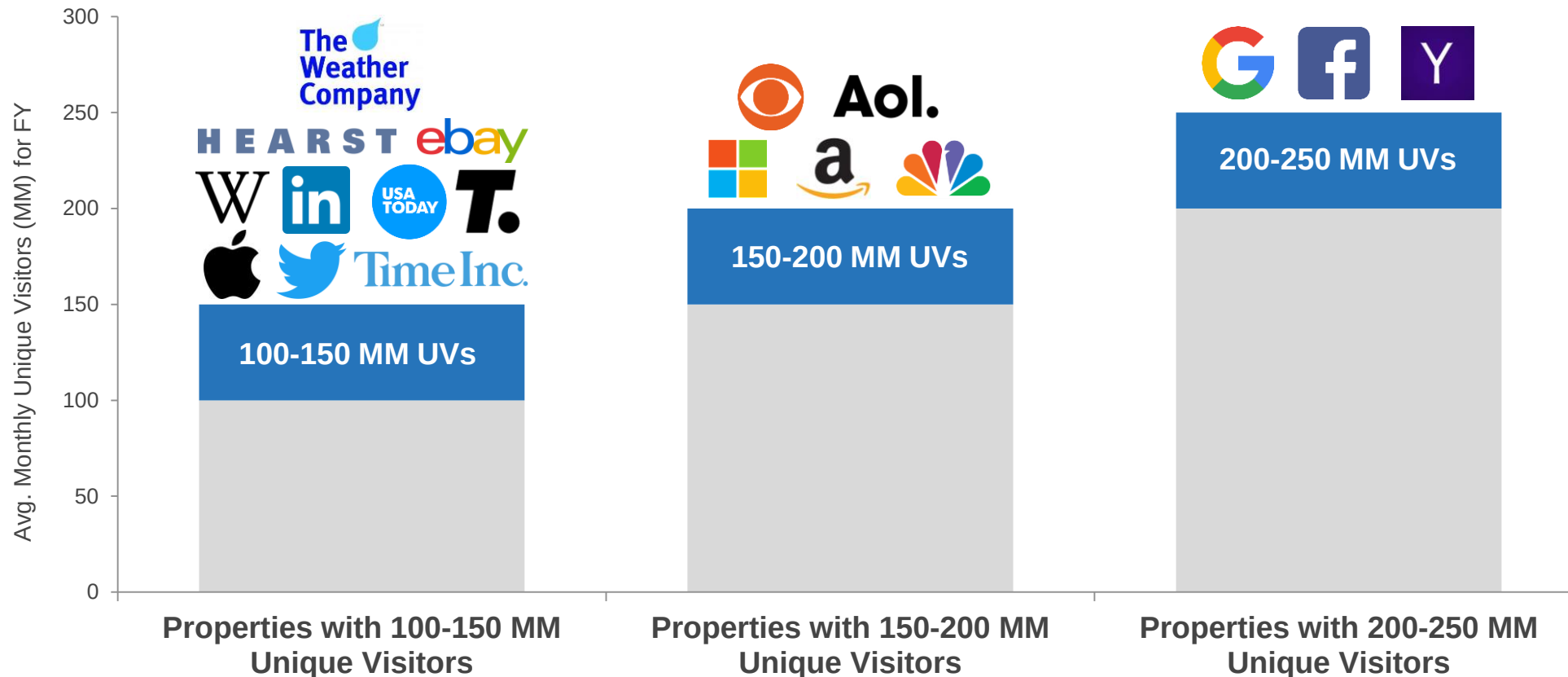
INSIGHT

The average Top 10 digital media property has 39% of its audience visiting only on mobile and 34% visiting on both mobile and desktop. For five of the Top 10, a majority of their digital media audiences are mobile-only visitors, highlighting the importance of mobile as a primary touchpoint for many large digital media companies.

There were 21 digital media properties that reached at least 100 million U.S. visitors per month across 2016

Digital Media Properties By Audience Tier

Source: comScore Media Metrix Multi-Platform, U.S., Jan 2016 – Dec 2016



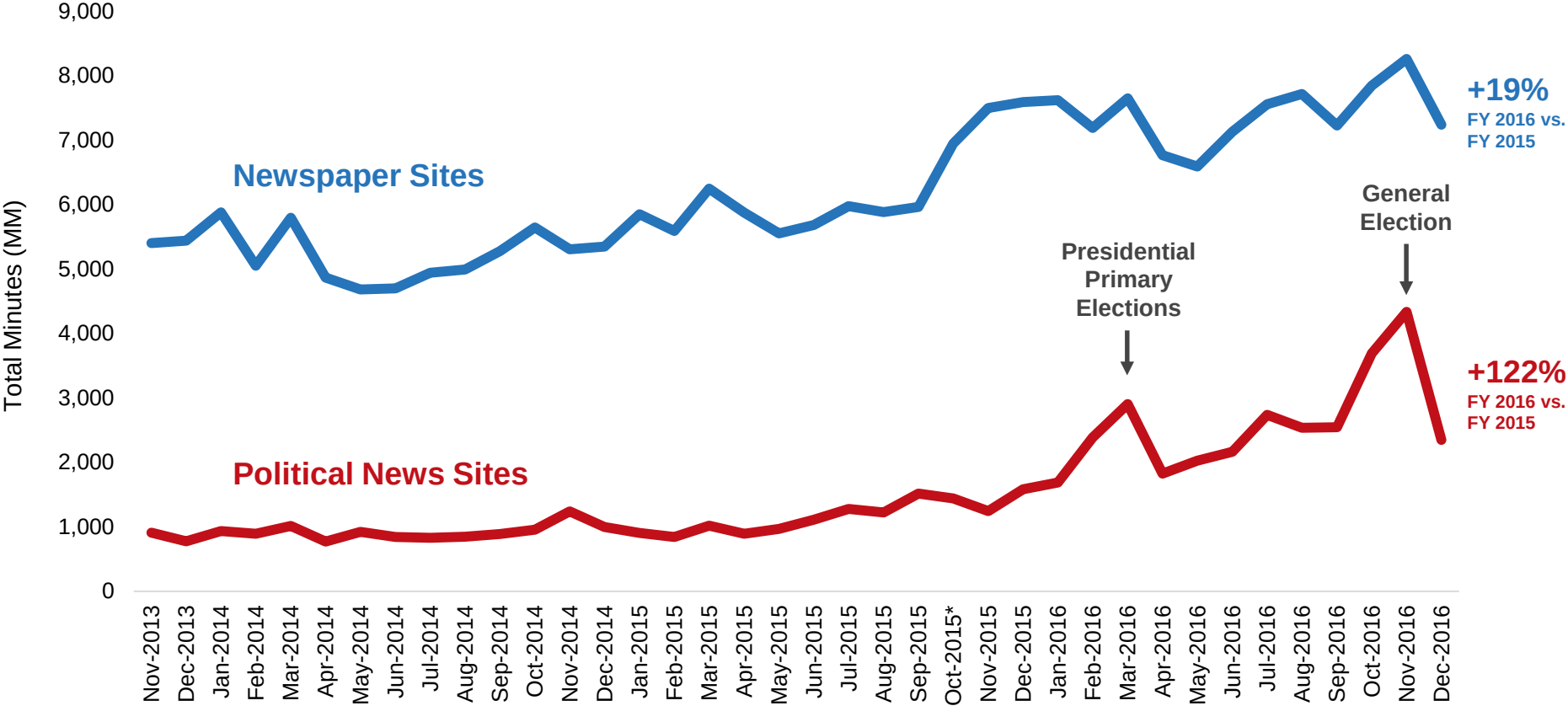
INSIGHT

After the big three, the 2nd tier of digital media properties consists of some of the most established brands from the early days of the internet and a couple large TV publishers that have built a huge following on digital over the years. The 3rd tier consists of a mix of legacy print publishers, TV networks, social media sites and others.

A major digital media trend in 2016 was growth in news consumption as the U.S. presidential election captivated Americans' attention

Newspapers and Political News Categories: Total Minutes (MM)

Source: comScore Media Metrix Multi-Platform, U.S., Nov 2013 - Dec 2016



INSIGHT

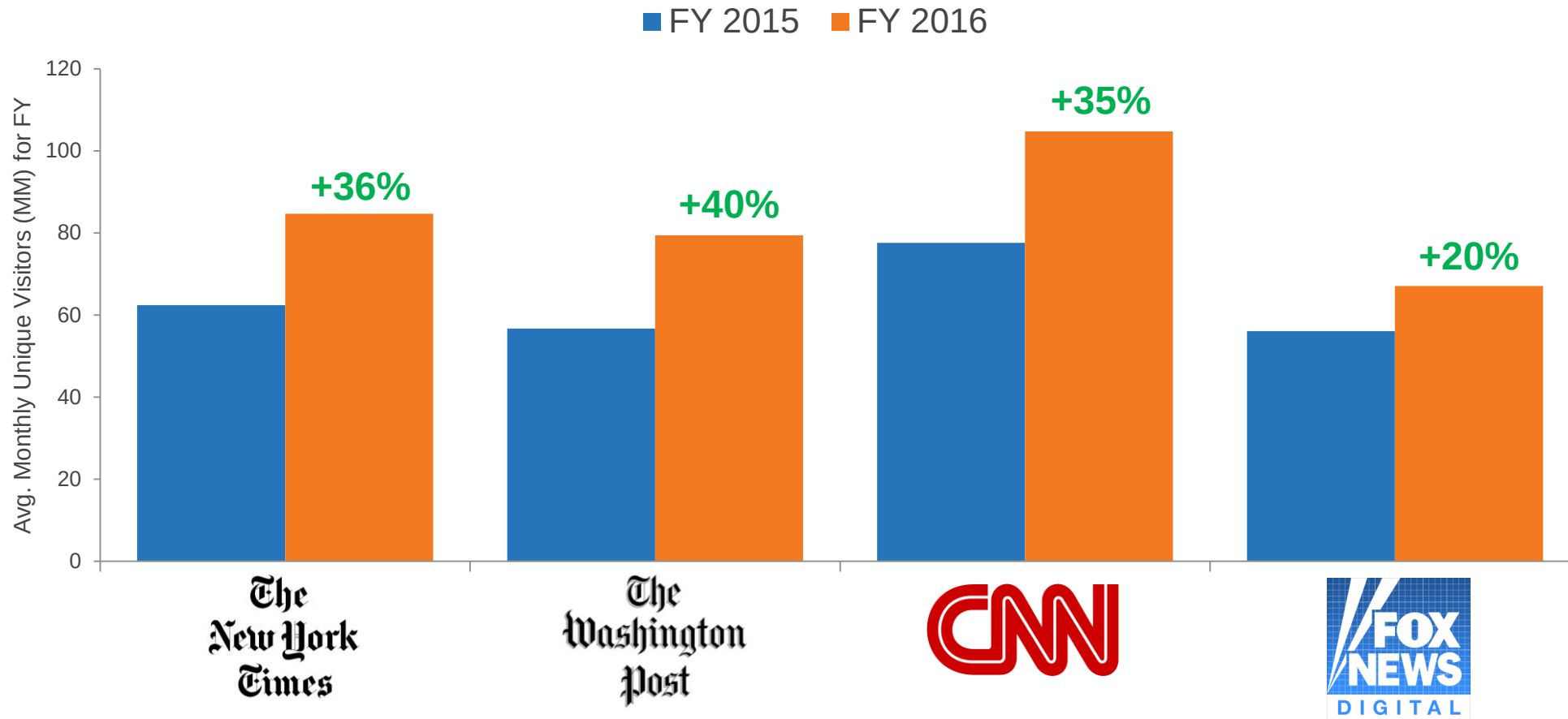
The U.S. presidential election was the biggest news story of the year, and digital news sites posted strong gains over the course of its 18-month news cycle. Interest reached its apex in November, as the general election coverage resulted in all-time highs in readership for many digital newspapers and political news destinations.

* Total Minutes for the Newspapers category in October 2015 was recalculated to remove the impact of overstated data for an individual mobile news app that had a substantial impact on topline category time spent.
** Newspapers and Political News are two sub-categories within the broader News/Information category and are not fully inclusive of all news properties. There is also a small amount of duplication between the two sub-categories.

Certain leading print and TV news brands saw huge digital audience growth as consumers demanded election coverage

Y/Y Digital Audience Growth of Select Leading Print and TV News Organizations Based on Average Monthly Unique Visitors for Full Year

Source: comScore Media Metrix Multi-Platform, U.S., Full Year 2016 / Full Year 2015



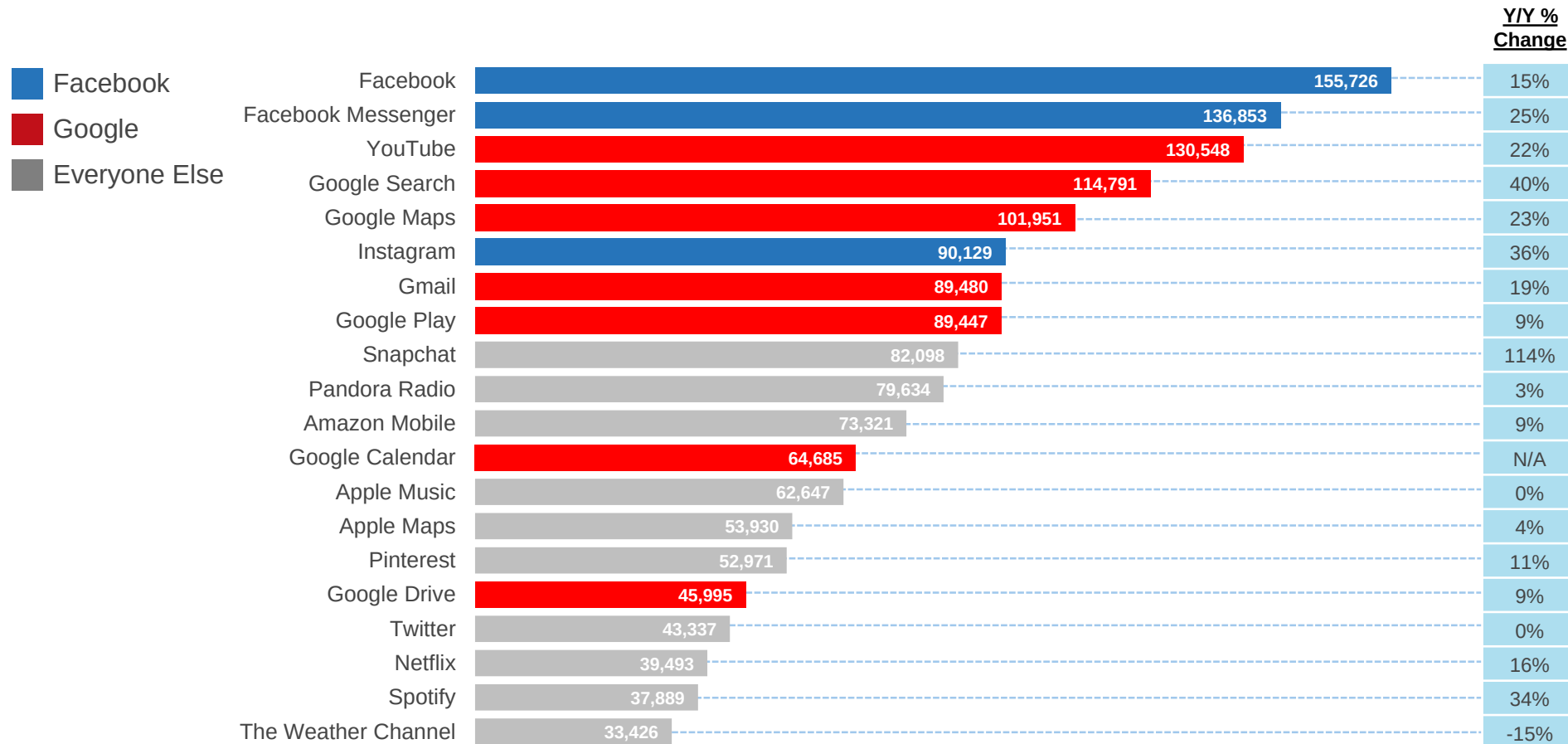
INSIGHT

The New York Times, Washington Post, CNN and Fox News were among the news organizations that had a huge year in 2016 covering the U.S. Presidential Election. While traffic peaked in October and November – with the NYT and WaPo surpassing 100 MM UVs for the first time in their respective histories – traffic was elevated throughout much of the year.

Facebook and Google own the Top 8 mobile apps and 10 of the Top 20, while Snapchat is the top app not owned by either company

Top 20 Mobile Apps by Unique Visitors (000) with Y/Y Growth

Source: comScore Mobile Metrix, U.S., Age 18+, December 2016



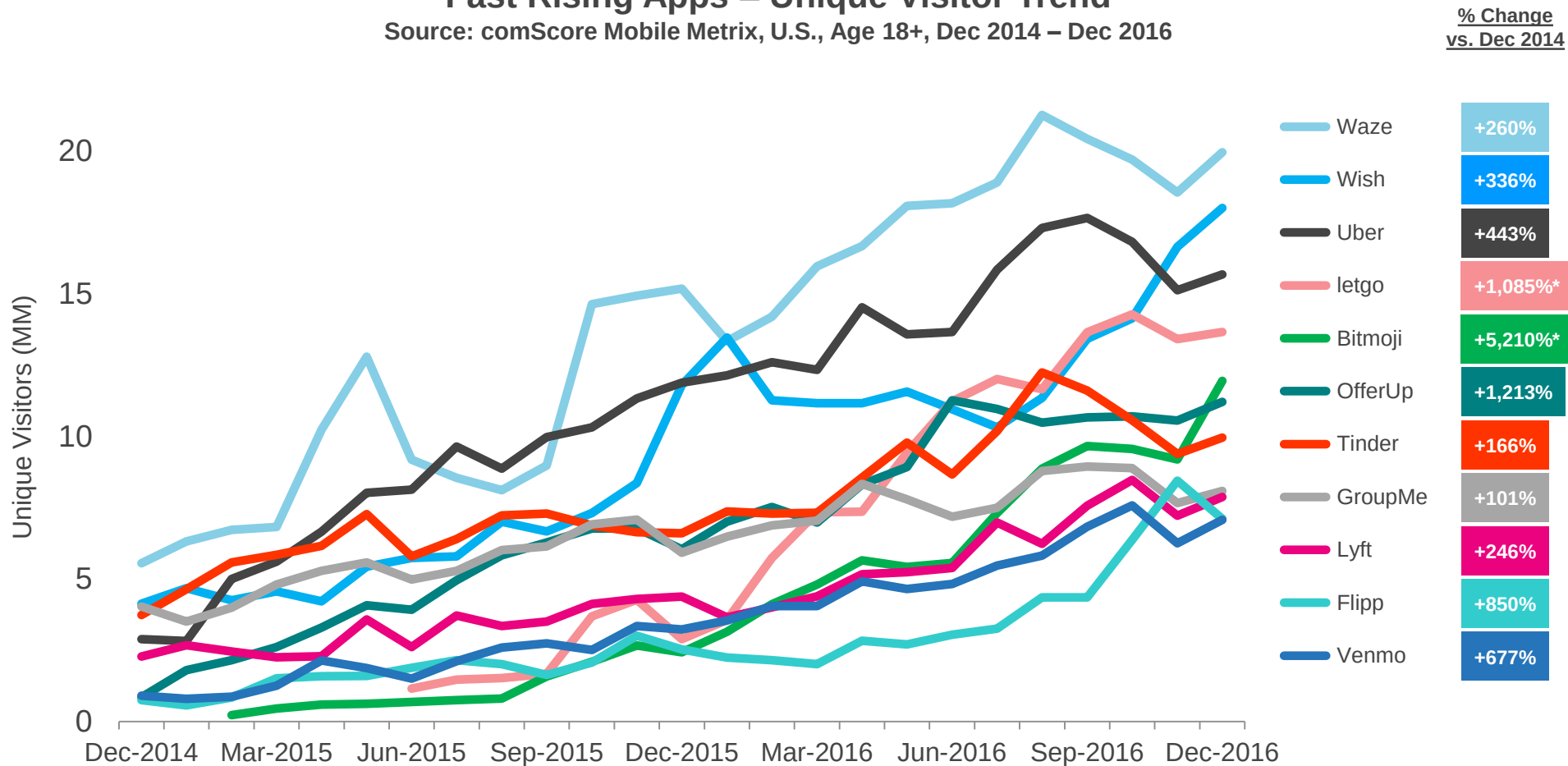
INSIGHT

Google and Facebook have strong app portfolios that account for a high percentage of the top-ranked apps. The two companies own the top eight positions on the list, while Snapchat, Pandora and Amazon are the biggest apps from outside that mix.

Many of the fastest growing apps are services that improve existing real-world behaviors, such as hailing cabs and paying cash to friends

Fast Rising Apps – Unique Visitor Trend

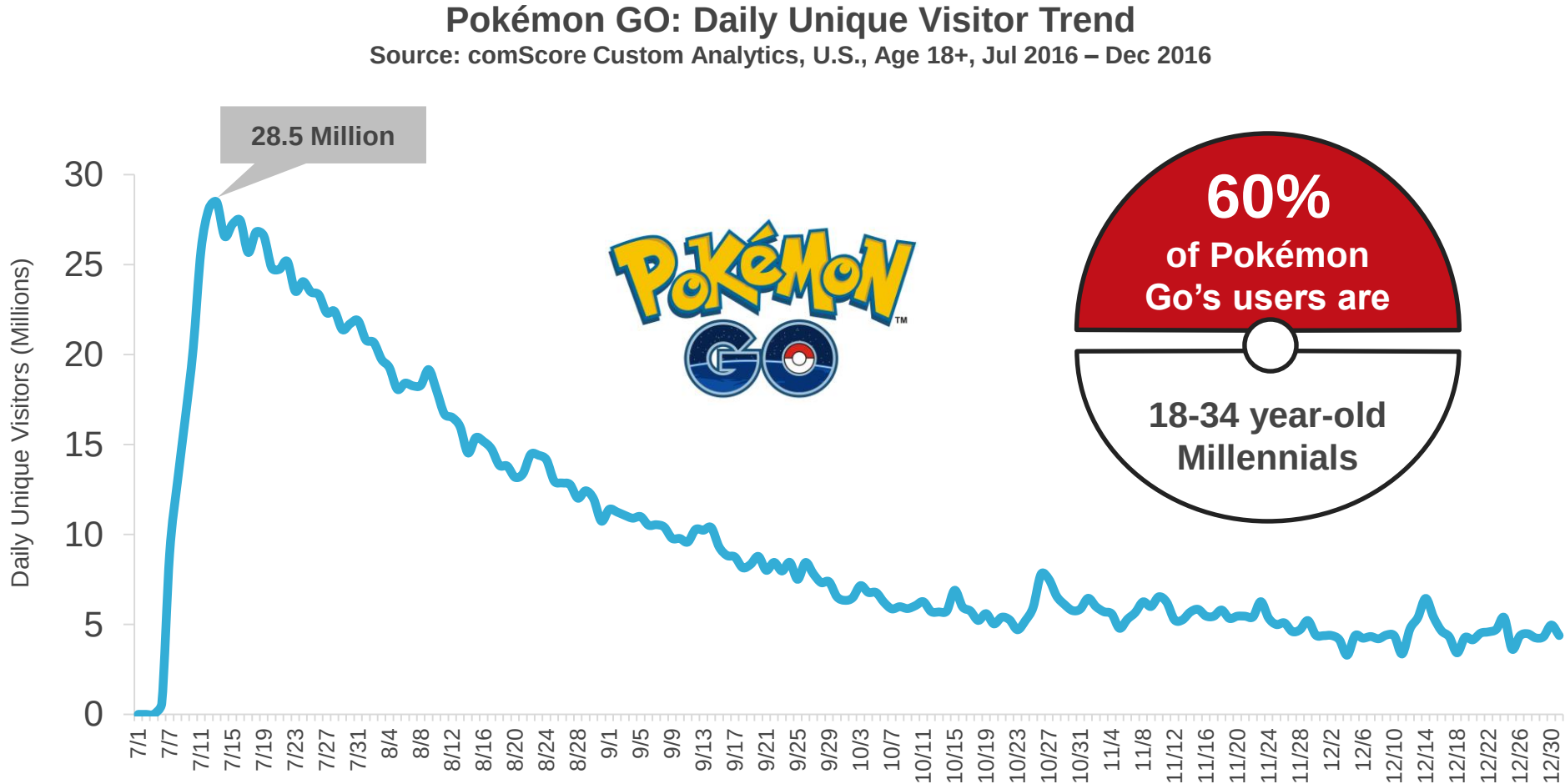
Source: comScore Mobile Metrix, U.S., Age 18+, Dec 2014 – Dec 2016



INSIGHT

Apps like Waze, Uber and Lyft are improving the way we get around; Tinder makes dating easier; Fitbit lets you to track your personal fitness metrics and Venmo makes it simple to digitally transfer money to friends. Bitmoji, the fastest growing app of this select group, enables self-expression through the use of personal cartoon avatars.

Pokémon GO was a mobile app phenomenon that quickly surged to attract a huge audience but has since come back down to earth



INSIGHT

Pokémon GO – a location-based augmented reality game – launched on July 6th, and in just a matter of days it was consistently capturing more than 20 million daily users. It peaked at 28.5 million daily users on July 13th and, though eventually tailing off, provided an important glimpse into the potential of augmented reality to engage users.

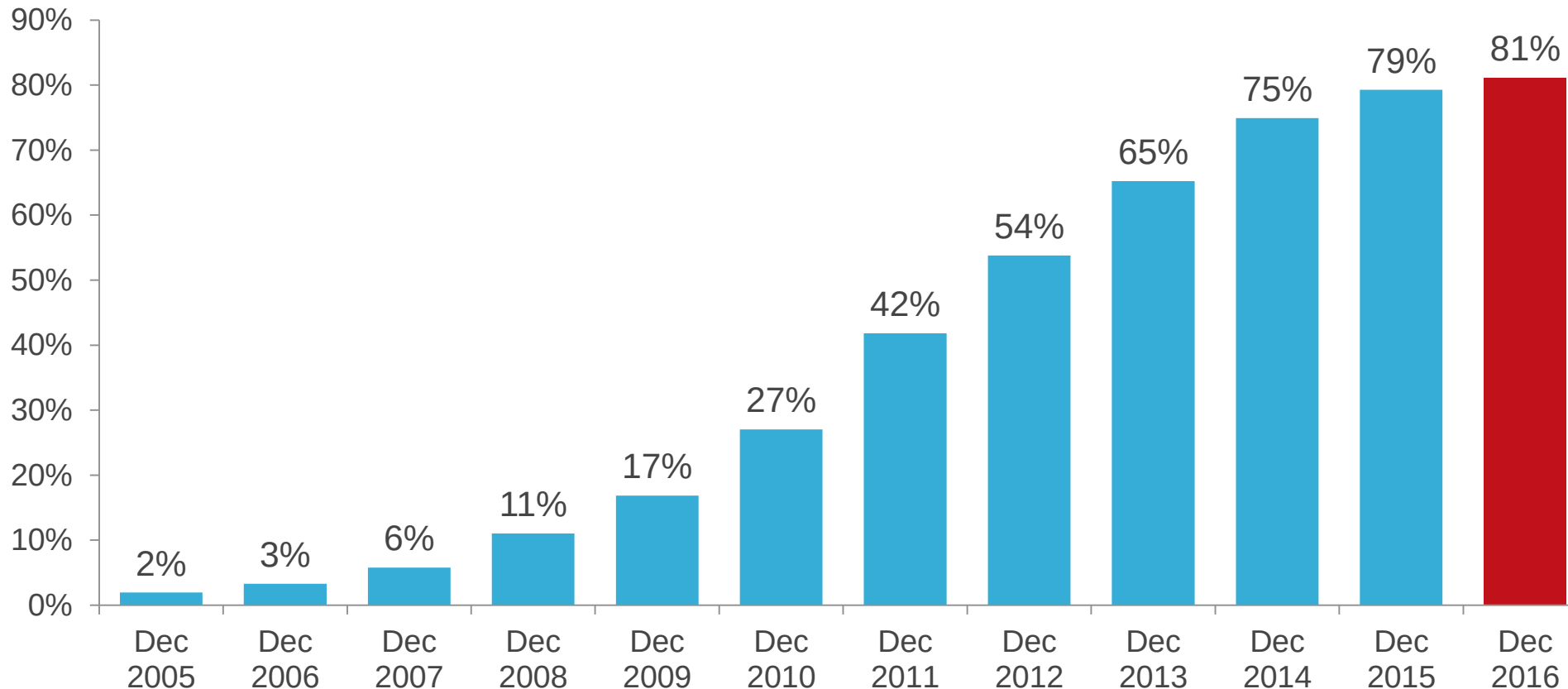


Mobile

U.S. smartphone penetration eclipsed 80% in 2016, but growth is slowing as market adoption concludes its 'late majority' stage

Smartphone Penetration of Mobile Phone Market

Source: comScore MobiLens, U.S., Age 13+, 3 Mo. Avg. Ending Dec 2005 - 3 Mo. Avg. Ending Dec 2016



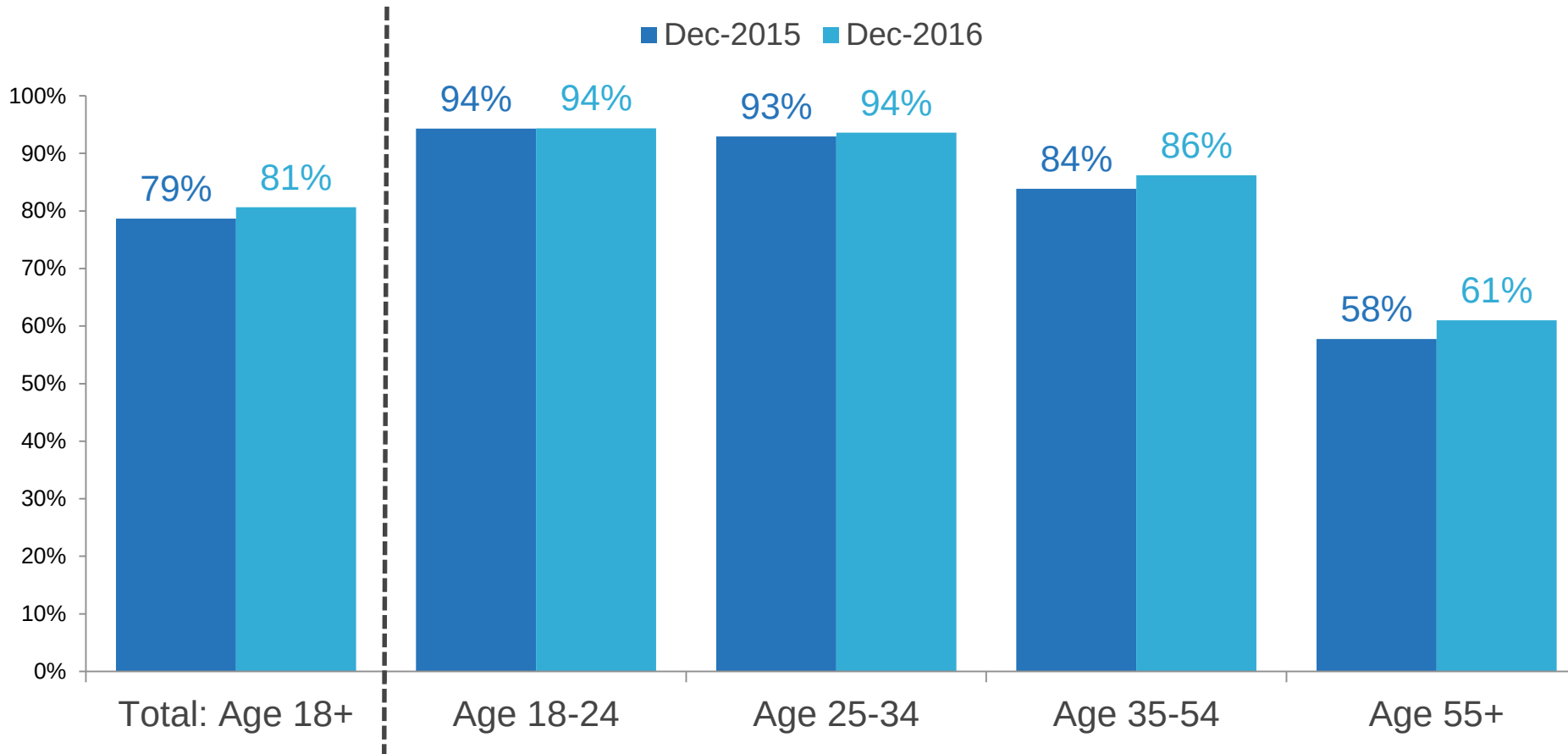
INSIGHT

Since the end of 2005, smartphone penetration of the mobile phone market has grown from next to nothing to 81%. Just five years ago that penetration figure was roughly half of what it is today at 42%. The remaining uncaptured market is mostly technology laggards who don't necessarily have a high likelihood of ever making the switch.

Smartphone penetration among Millennials is already near its saturation point, while the oldest users still have room to grow

Smartphone Penetration by Age Segment

Source: comScore MobiLens, U.S., Age 18+, 3 Mo. Avg. Ending Dec 2016 / Dec 2015



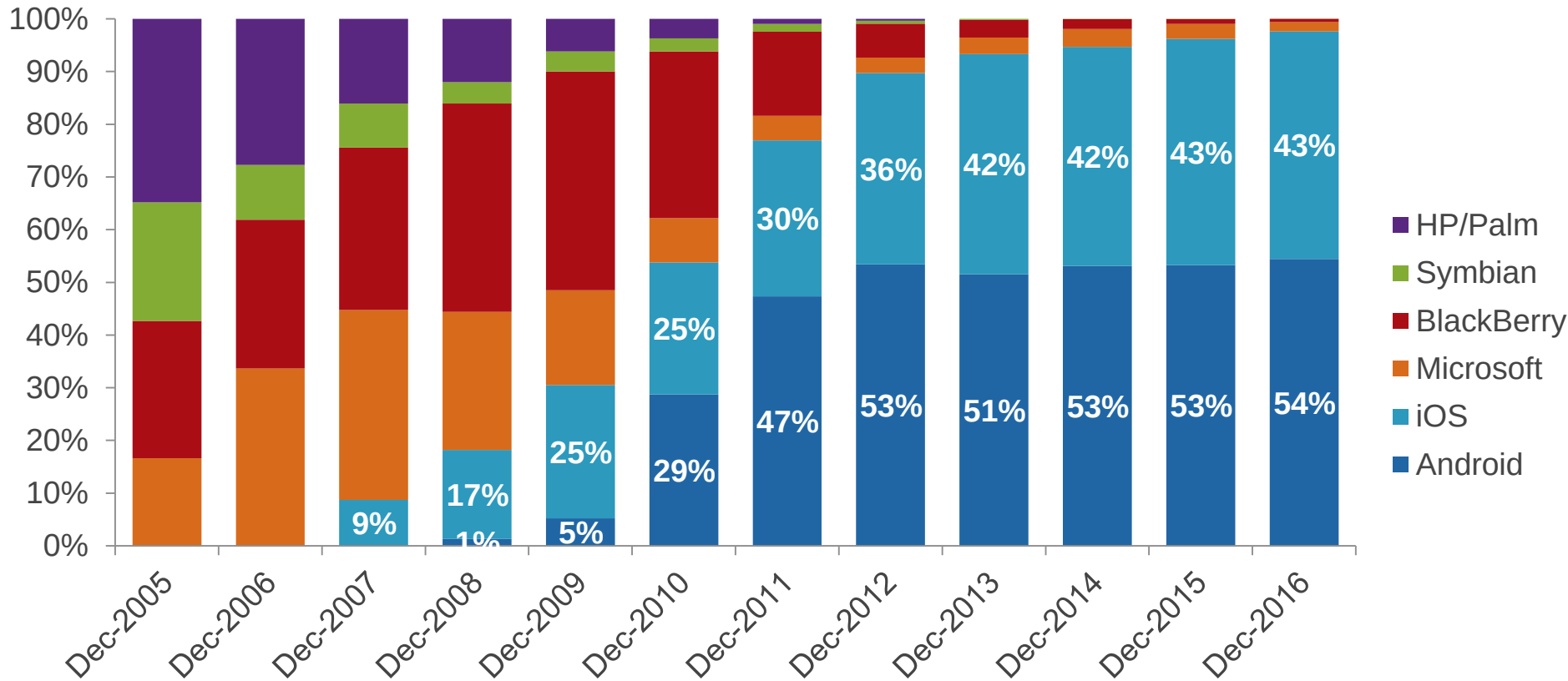
INSIGHT

Millennial smartphone penetration has been relatively flat since 2015, which is expected considering it is already solidly above 90%. The 55-and-older segment has the most room for growth and experienced the biggest bump with a 3-point increase in 2016. Still, it will likely be a slow climb to reach 80 or 90% penetration.

The U.S. market share for smartphone operating systems has stabilized in recent years with Android #1 and iOS a strong #2

Smartphone Platform Market Share: Long-Term Trend

Source: comScore MobiLens, U.S., Age 13+, 3 Mo. Avg. Ending Dec 2005 - 3 Mo. Avg. Ending Dec 2016



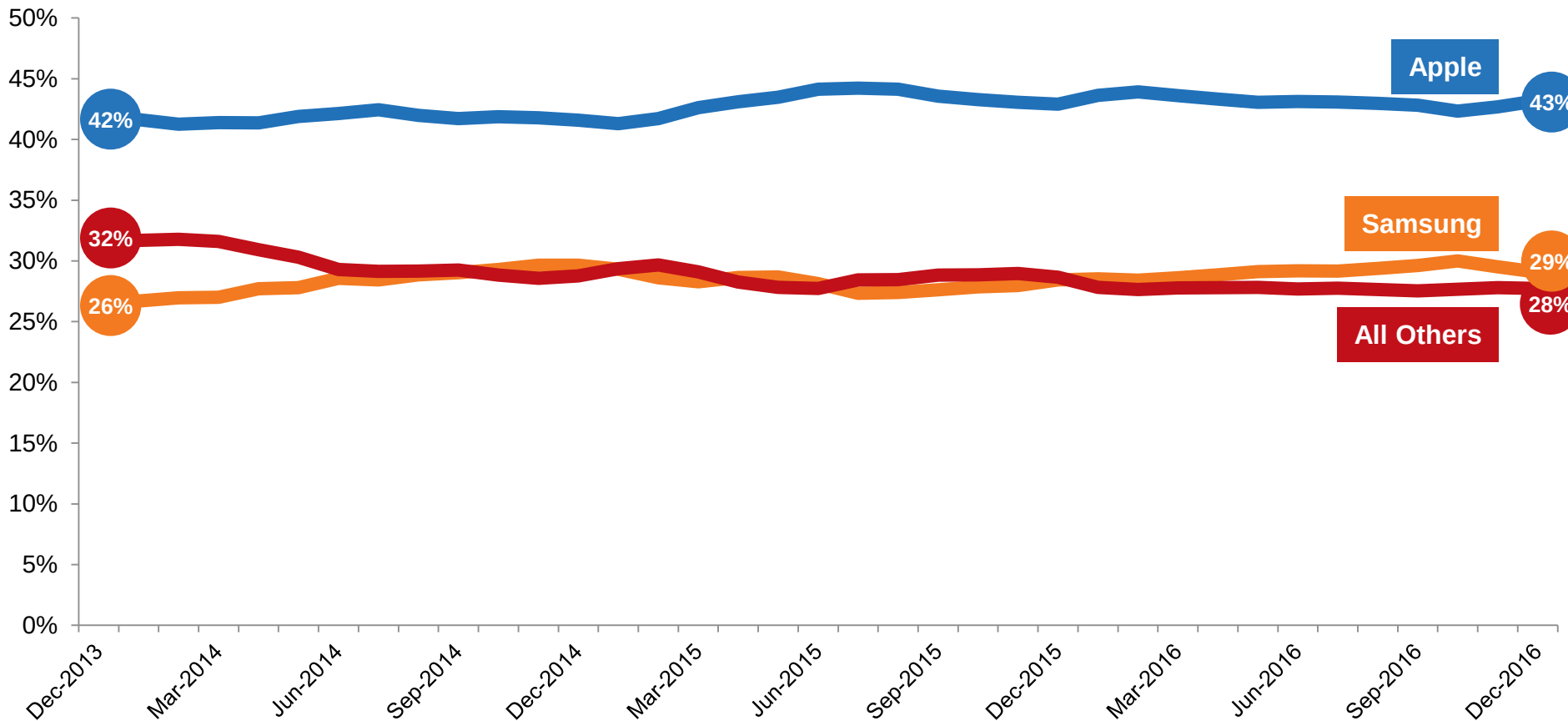
INSIGHT

Smartphone OS market share has shifted immensely from its early years, but has remained relatively stable since 2013. It now appears that the most popular device for accessing the internet will be dominated by two major players' software platforms for the foreseeable future.

But Apple remains the largest smartphone OEM at 43%, with the remaining share split about evenly between Samsung and all others

Smartphone OEM Market Share: 3-Year Trend

Source: comScore MobiLens, U.S., Age 13+, 3 Mo. Avg. Ending Dec 2013 - 3 Mo. Avg. Ending Dec 2016



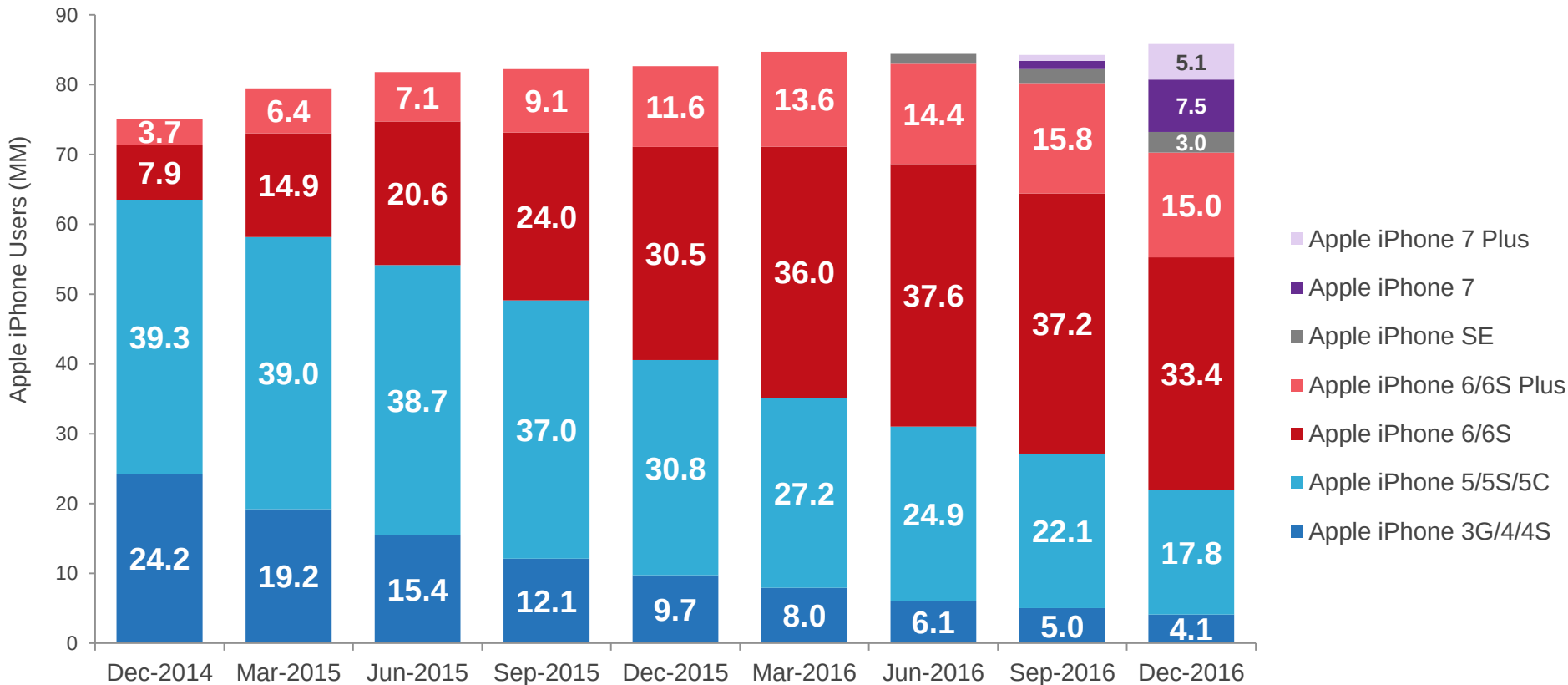
INSIGHT

In the past three years, the U.S. market share for smartphone original equipment manufacturers (OEMs) has seen minor growth from Apple and Samsung at the expense of most others. Like the smartphone software market, the OEM market is maturing in the U.S.

iPhone owners were rapidly upgrading to the 6 models, until September when the latest 7 models were introduced

Trend of U.S. Apple iPhone Users (MM) by Device Family

Source: comScore MobiLens, U.S., Age 13+, 3 Mo. Avg. Ending Dec 2014 - 3 Mo. Avg. Ending Dec 2016



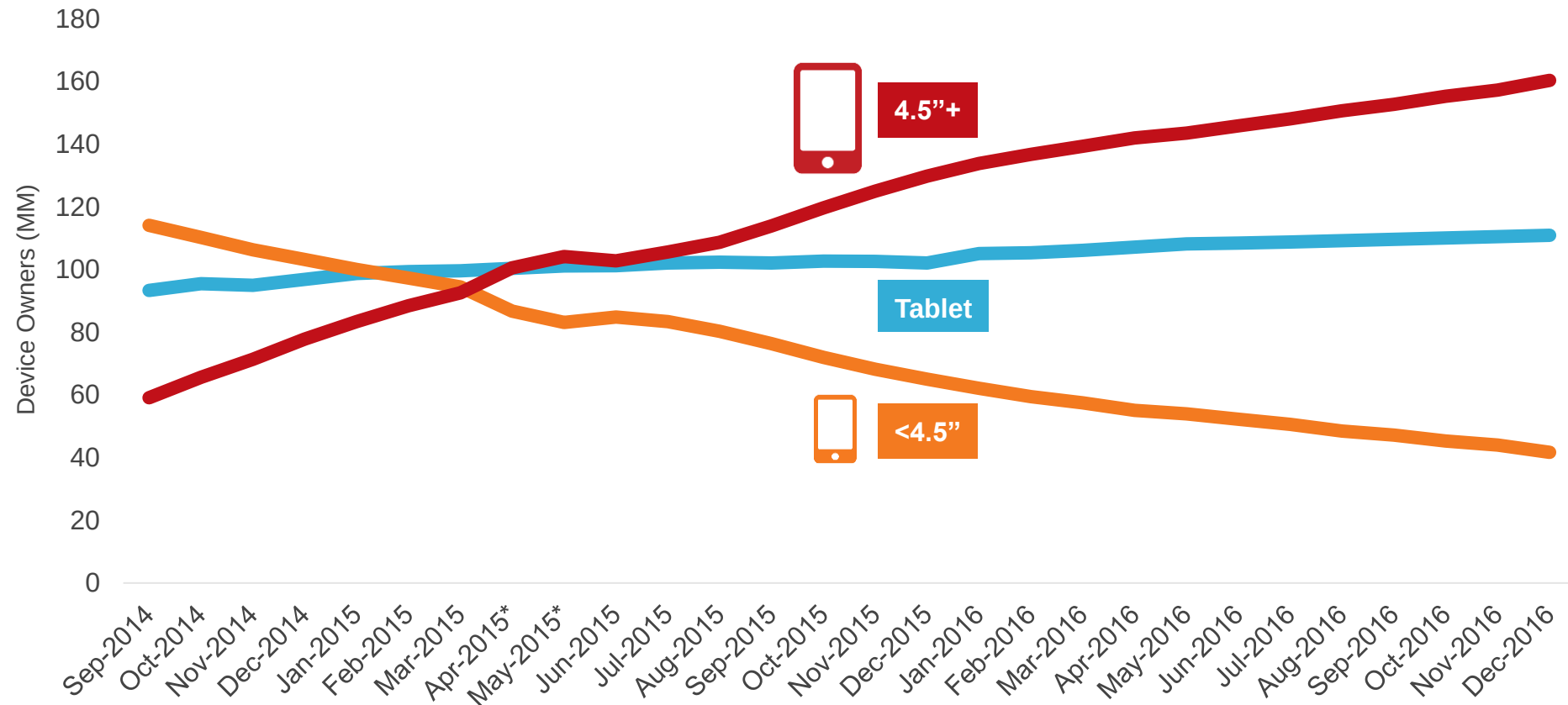
INSIGHT

Apple's iPhone 3, 4, and 5 models collectively lost nearly 42 million users since 2014, but more than made that up by gaining 37 million new iPhone 6 and 6 Plus users, and another 16 million users of its latest SE, 7 and 7 Plus models.

The smartphone market has transitioned heavily to large screen models, which now outnumber small screen devices by 4x

Device Ownership by Smartphone Screen Size and Tablet

Source: comScore MobiLens, U.S., Age 13+, 3 Mo. Avg. Ending Sep 2014 - 3 Mo. Avg. Ending Dec 2016



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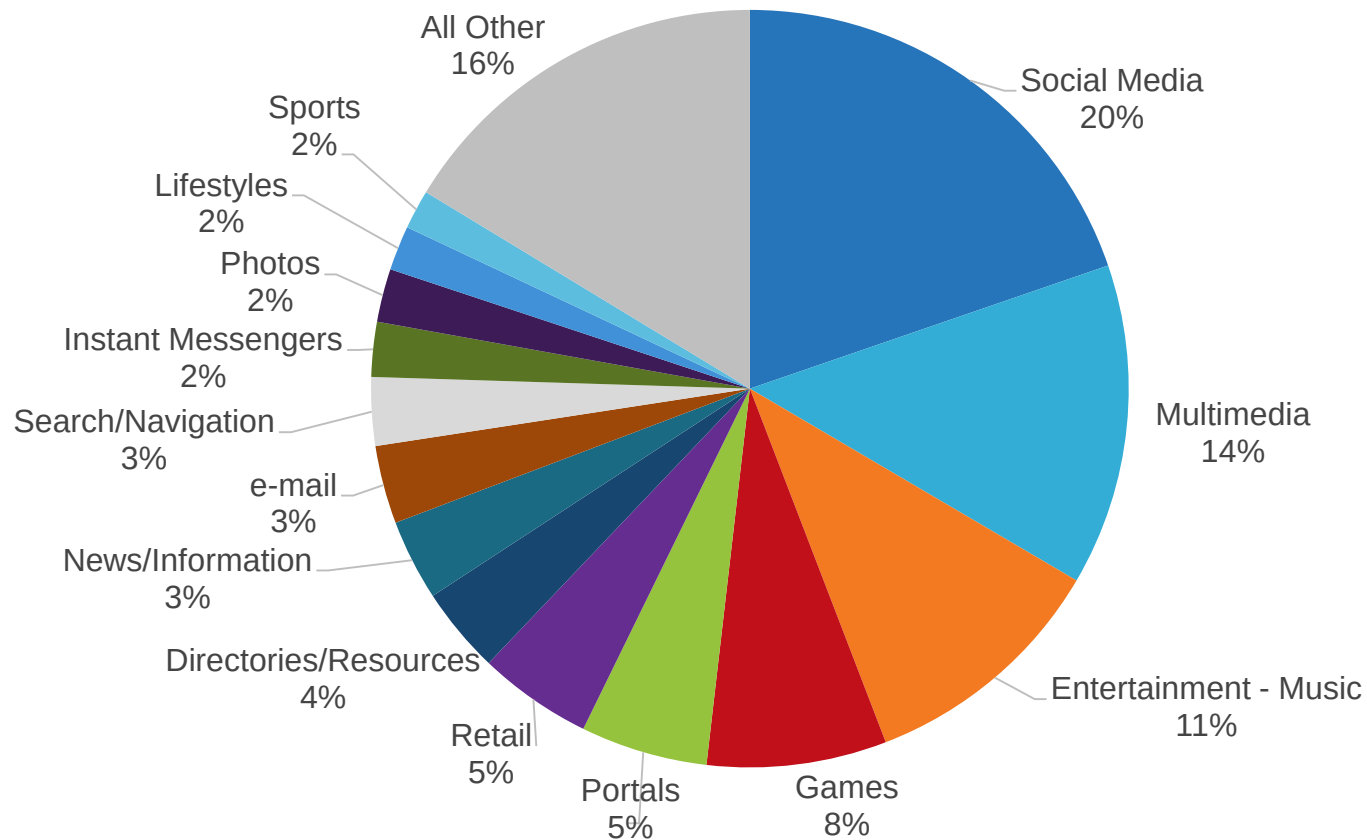
More consumers are adopting smartphones with a 4.5" display or greater, while tablet ownership growth has pulled back in recent years. This correlation could be due to tablets and larger screen smartphones sharing many of the same use cases.

Social & Video Platforms

Social media and video viewing are the two most popular online activities, together accounting for more than a third of all internet time

Share of Total Digital Time Spent by Content Category

Source: comScore Media Metrix Multi-Platform, U.S., Total Audience, December 2016



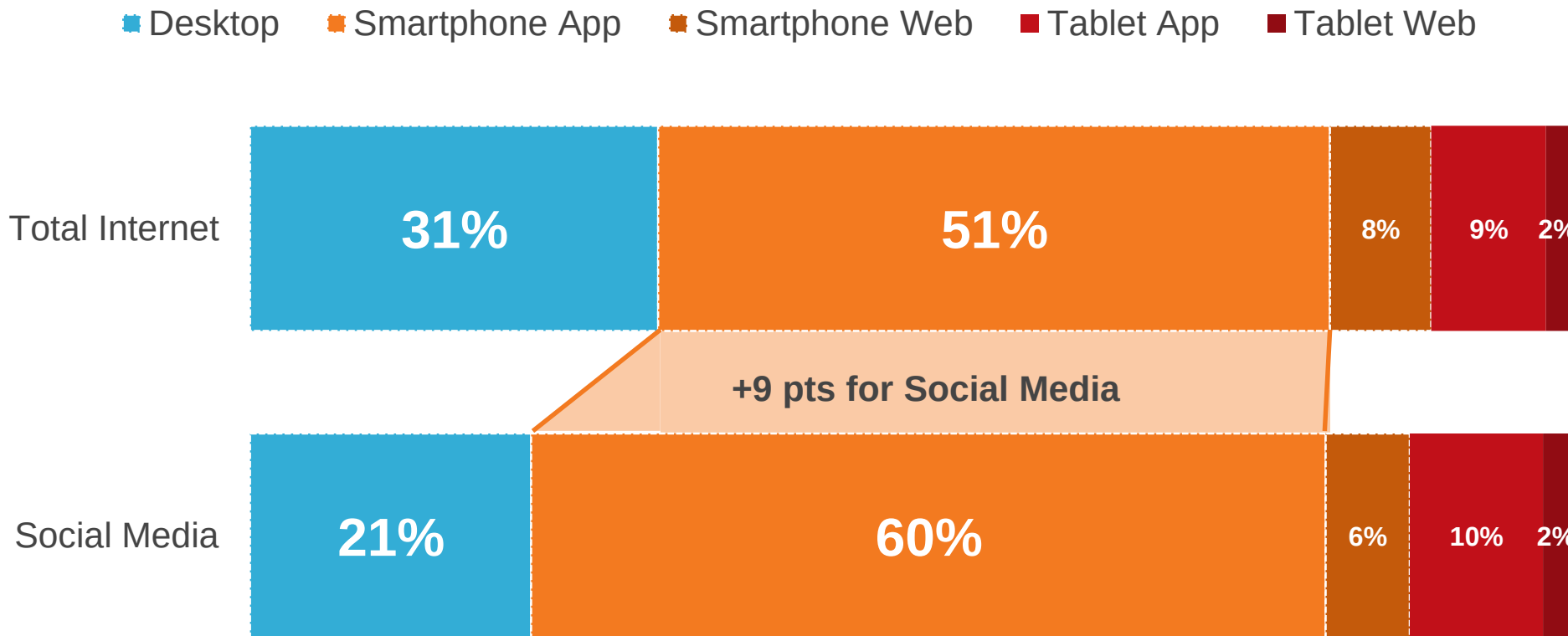
INSIGHT

Social Media leads all categories in engagement, accounting for 1 out of 5 minutes spent online. The next largest categories being Multimedia, Music and Games highlight that digital is being increasingly used for entertainment – now more so than ever with the rise of mobile and consumers' need to make use of their "in-between" time.

The smartphone app is by far the most popular access point for social media usage, with greater relative usage than the internet as a whole

Share of Time Spent on Social Media vs. Total Internet Across Different Platforms

Source: comScore Media Metrix Multi-Platform & Mobile Metrix, U.S., Dec 2016



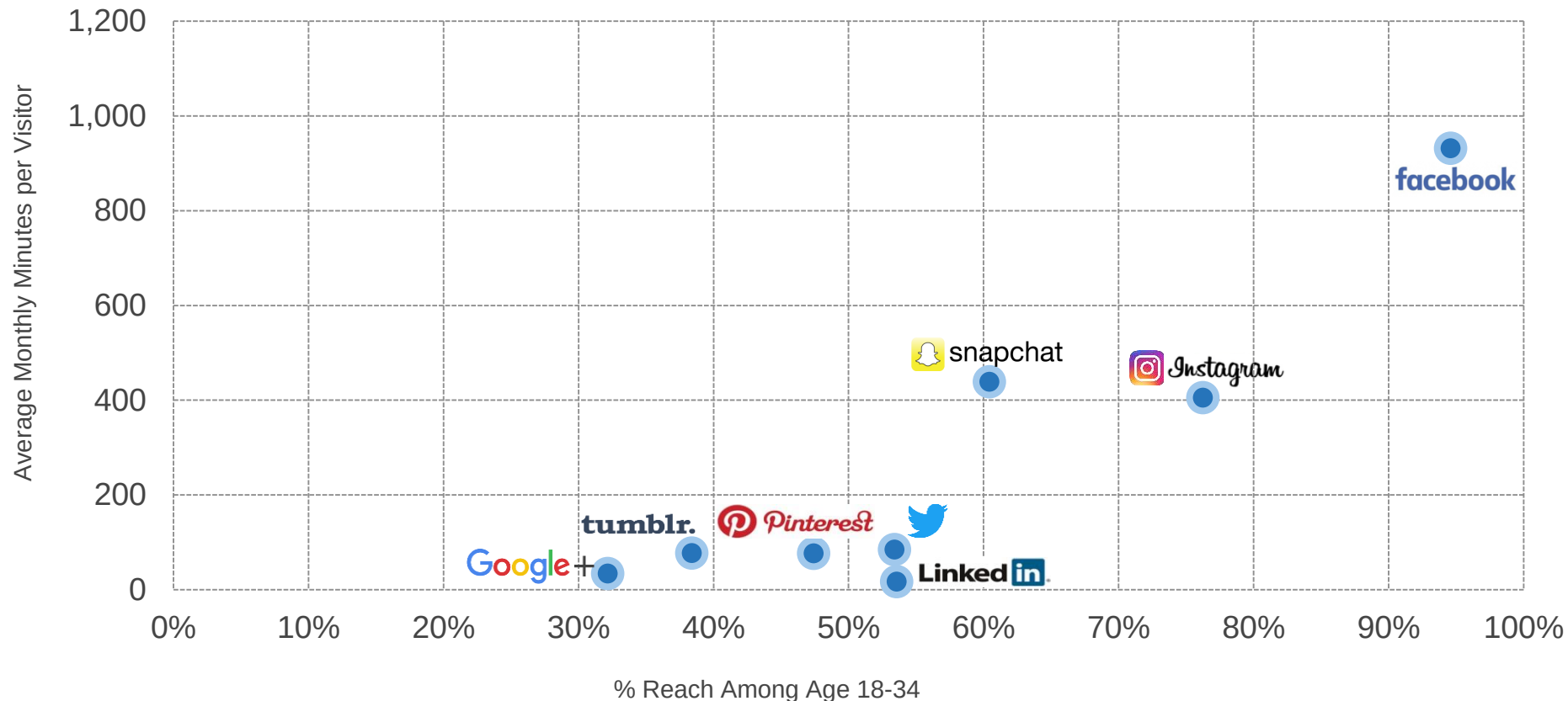
INSIGHT

The vast majority of social media consumption (70%) occurs on mobile apps, driven largely by smartphones. The smartphone app is the dominant social platform in the U.S., accounting for 60% of all social media time spent, which is 9 percentage points greater than the internet as a whole.

Millennials use several social networks regularly, with Facebook commanding the lead in both audience size and engagement

Age 18-34 Digital Audience Penetration vs. Engagement of Leading Social Networks

Source: comScore Media Metrix Multi-Platform, U.S., Dec 2016



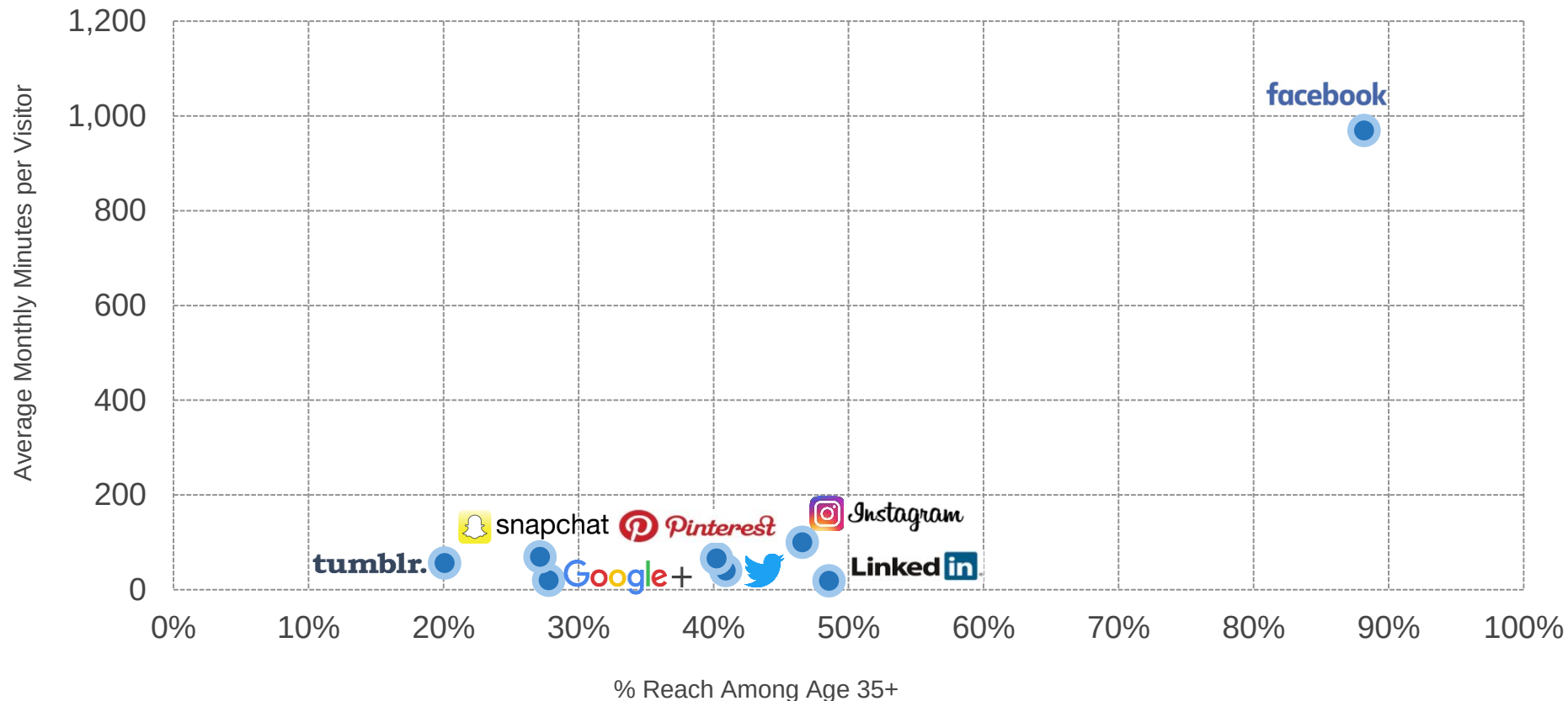
INSIGHT

After Facebook, Snapchat has the highest engagement per visitor among Millennials, just slightly ahead of Instagram – which is 2nd in terms of penetration. Millennials overall have a more diverse diet of social media platforms they engage with on a regular basis.

The 35+ population also uses Facebook heavily, but doesn't spread its attention across other networks to the extent Millennials do

Age 35+ Digital Audience Penetration vs. Engagement of Leading Social Networks

Source: comScore Media Metrix Multi-Platform, U.S., Dec 2016



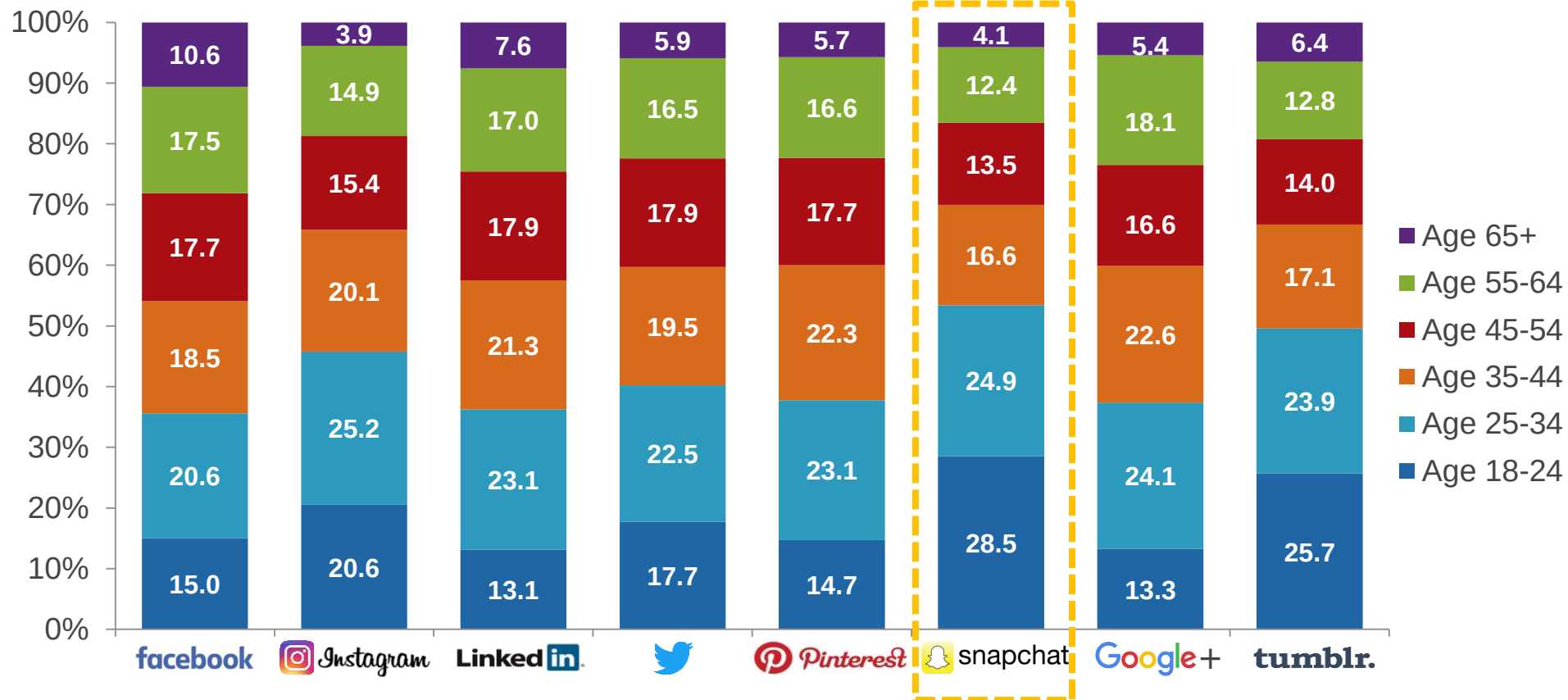
INSIGHT

Age 35+ users show a higher relative preference for Facebook in relation to other social media platforms. They do have high penetration among several others beyond Facebook, but they don't engage with any other platforms for more than 100 minutes per month.

While Facebook's users mirror the internet as a whole, Snapchat, Instagram and Tumblr have a younger audience profile

Age Demographic Composition % of Major Social Networks

Source: comScore Media Metrix Multi-Platform, U.S., Age 18+, Dec 2016



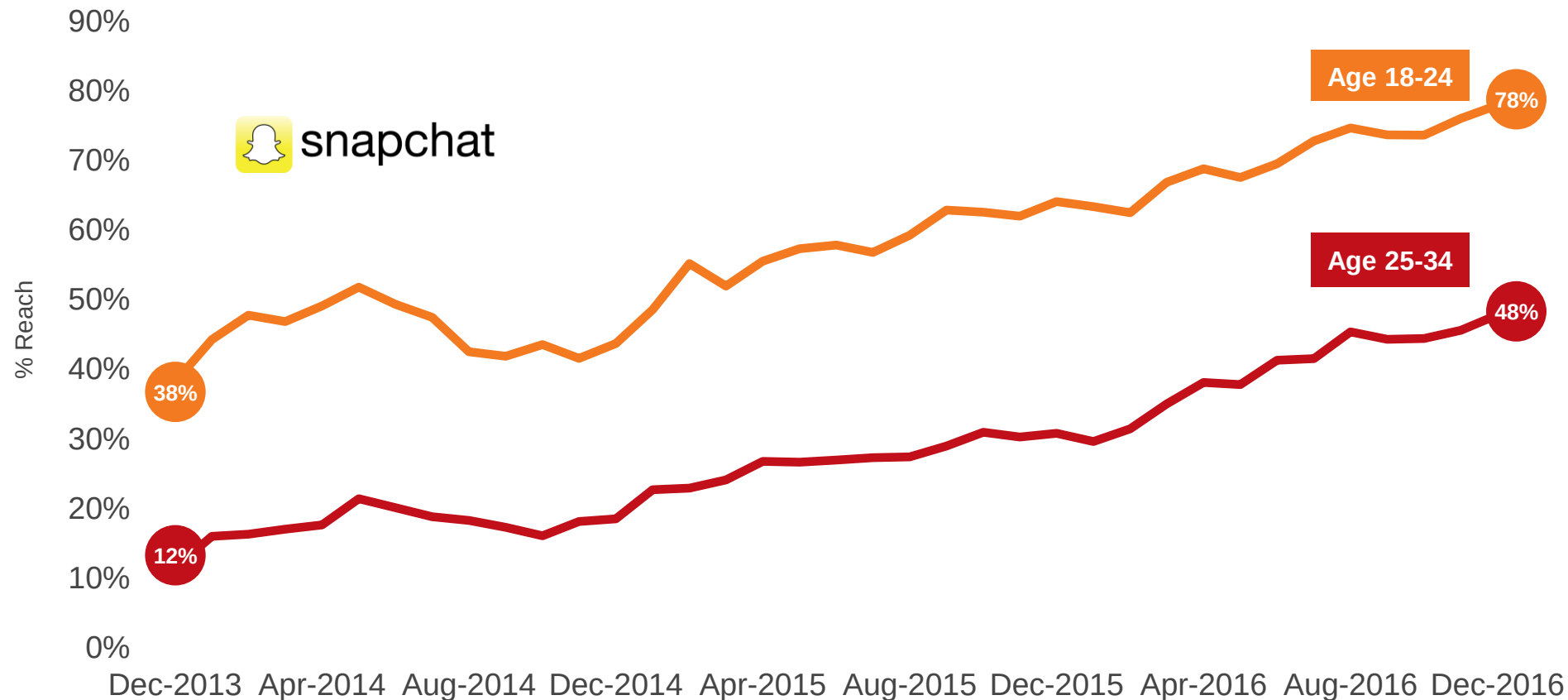
INSIGHT

Snapchat is the youngest skewing social network with more than half of its users between the ages of 18-34. It's demographic composition is now much more diverse in age than a year ago, as adoption among the 35+ population has improved.

Snapchat has rapidly gained adoption among Millennials and now attracts most 18-24 year-olds and almost half of 25-34 year-olds

Snapchat Smartphone App Penetration by Age

Source: comScore Mobile Metrix, U.S., Age 18+, Dec 2013 – Dec 2016



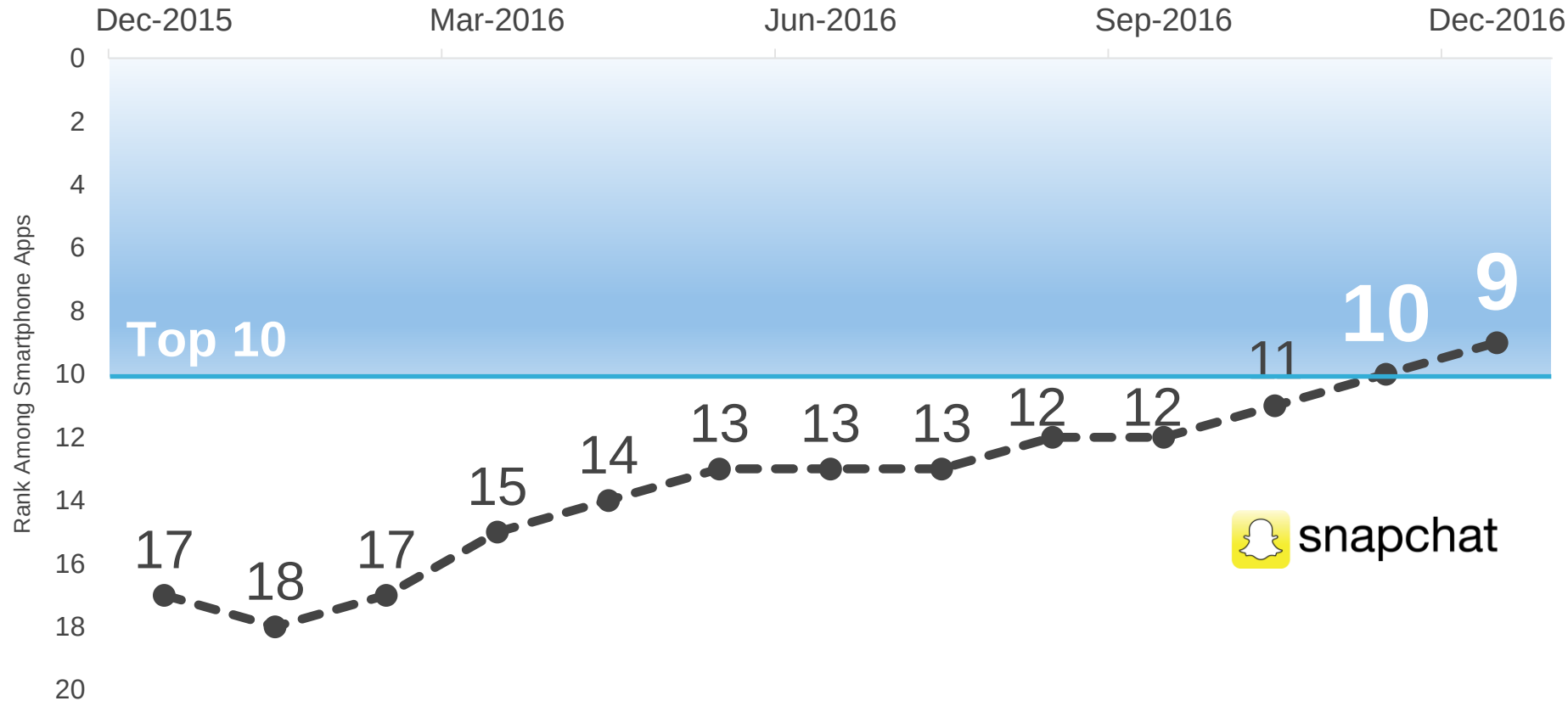
INSIGHT

Snapchat's strength among younger demographics is well-established and is especially good at reaching the coveted Millennials demographic. With a firm grasp on the college-age segment, Snapchat has made huge gains in penetration older Millennials as it gains more mainstream market adoption.

Snapchat steadily climbed the app rankings to crack the Top 10 in 2016, as mobile video becomes a new communication medium

Snapchat Rank in Audience Penetration Among Smartphone Apps

Source: comScore Mobile Metrix, U.S., Age 18+, Dec 2015 - Dec 2016



INSIGHT

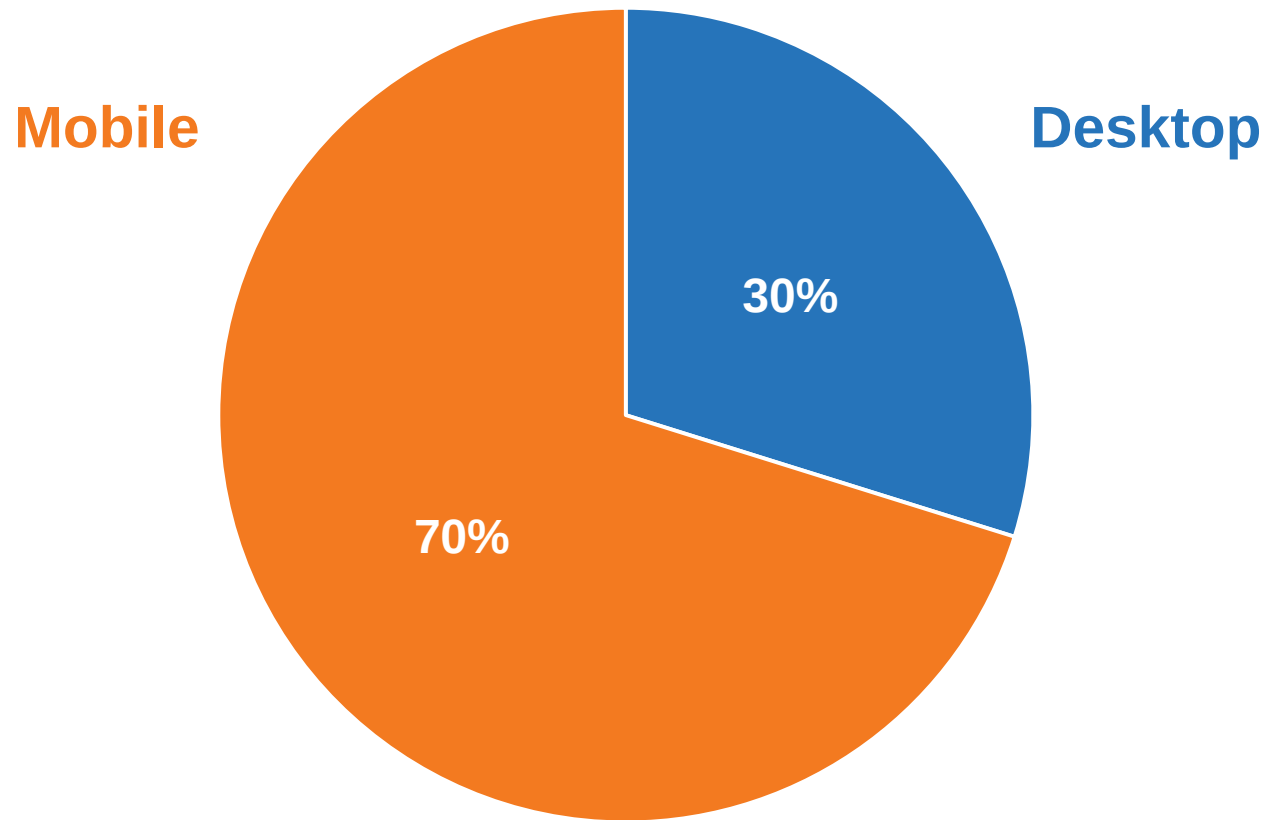
Snapchat's continued gains in adoption has led to a steady increase in its rank among the top smartphone apps. November 2016 marked the first month Snapchat cracked the Top 10, and it followed that up by jumping another spot to #9 to close out 2016.

YouTube has also seen success with mobile video, with 7 out of 10 minutes of their viewing now happening on smartphones and tablets



YouTube Share of Time Spent by Digital Platform

Source: comScore Video Metrix Multi-Platform, U.S., December 2016



INSIGHT

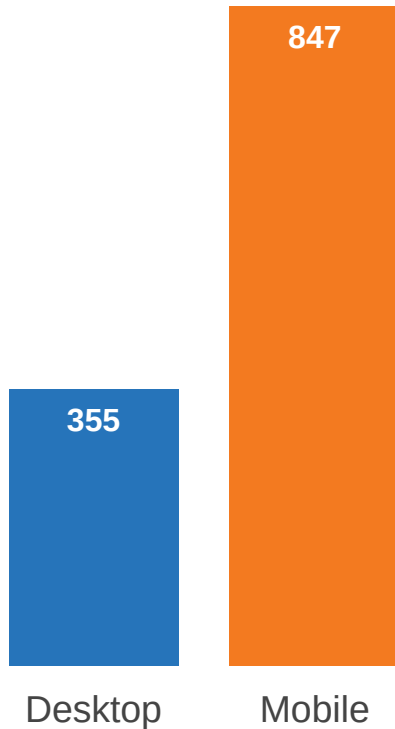
YouTube, which was originally launched in the desktop era, has seen usage shift heavily to mobile in recent years, with more than 2x as much viewing on mobile than on desktop. This disparity is even more pronounced among 18-49 year-olds and women.

Mobile YouTube viewing is shorter-form but much more frequent, leading to 3x as many video views on mobile overall

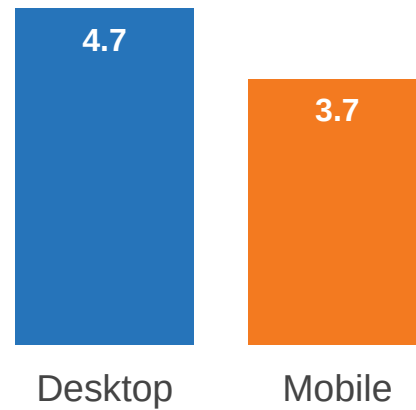


YouTube: Engagement Metrics by Platform
Source: comScore Video Metrix Multi-Platform, U.S., December 2016

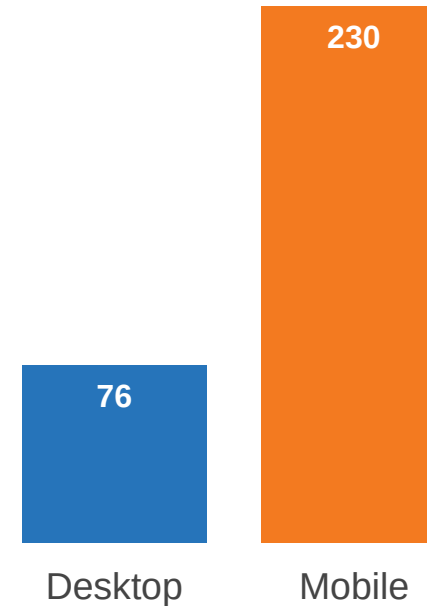
Average Monthly Minutes
per Viewer



Average Minutes
per Video View



Average Monthly Videos
Watched per Viewer



INSIGHT

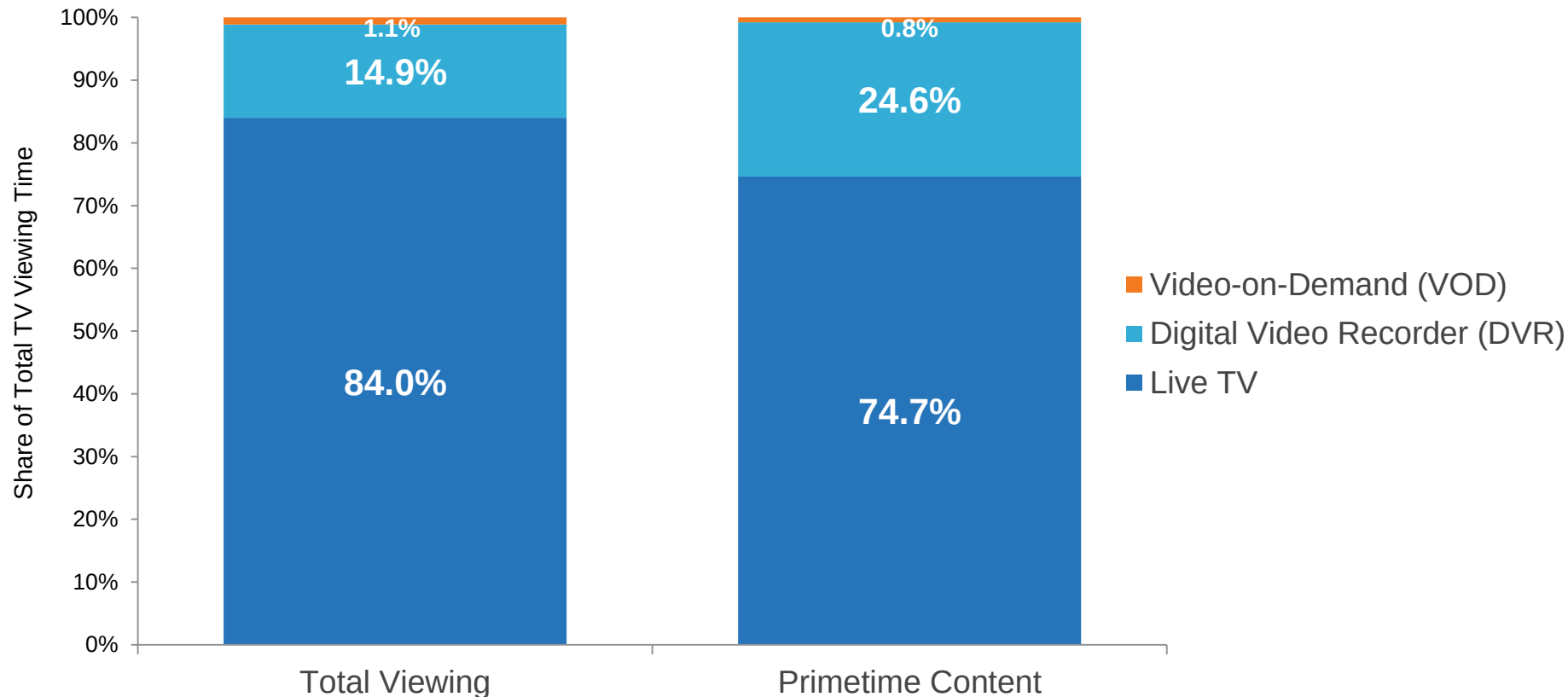
Viewers tend to watch longer videos on desktop than on mobile, but they watch a lot more videos overall on mobile. The portability and accessibility of mobile devices allow for frequent short-form video viewing experiences throughout the day.

TV & Cross-Platform

Live viewing still dominates total TV time, but time-shifted viewing is more prevalent with primetime content

Share of Total TV Viewing Time: Live, DVR & VOD

Source: comScore TV Essentials, U.S., FY 2016, Live +15 Day DVR; comScore State of VOD Trend Report



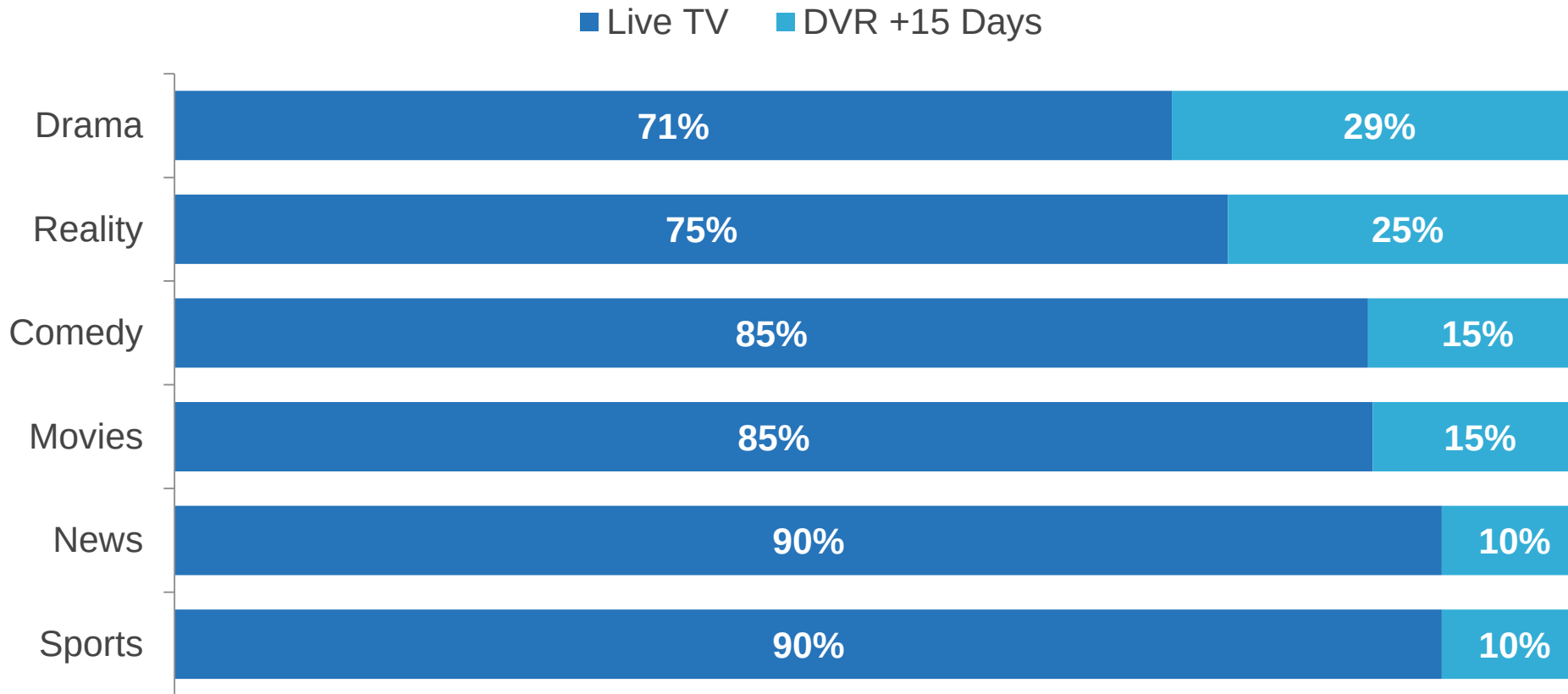
INSIGHT

Live TV still makes up the bulk of TV viewing hours, but time-shifted viewing on DVR accounts for a significant percentage of the total viewing hours, particularly for primetime content. Video-on-demand (VOD) only accounts for 1% of TV viewing time.

There's a wide variance in time-shifted TV viewing by genre, with News and Sports content still skewing heavily toward live viewing

Live TV and DVR Time Split by Genre

Source: comScore TV Essentials, U.S., FY 2016, Live +15 Day DVR



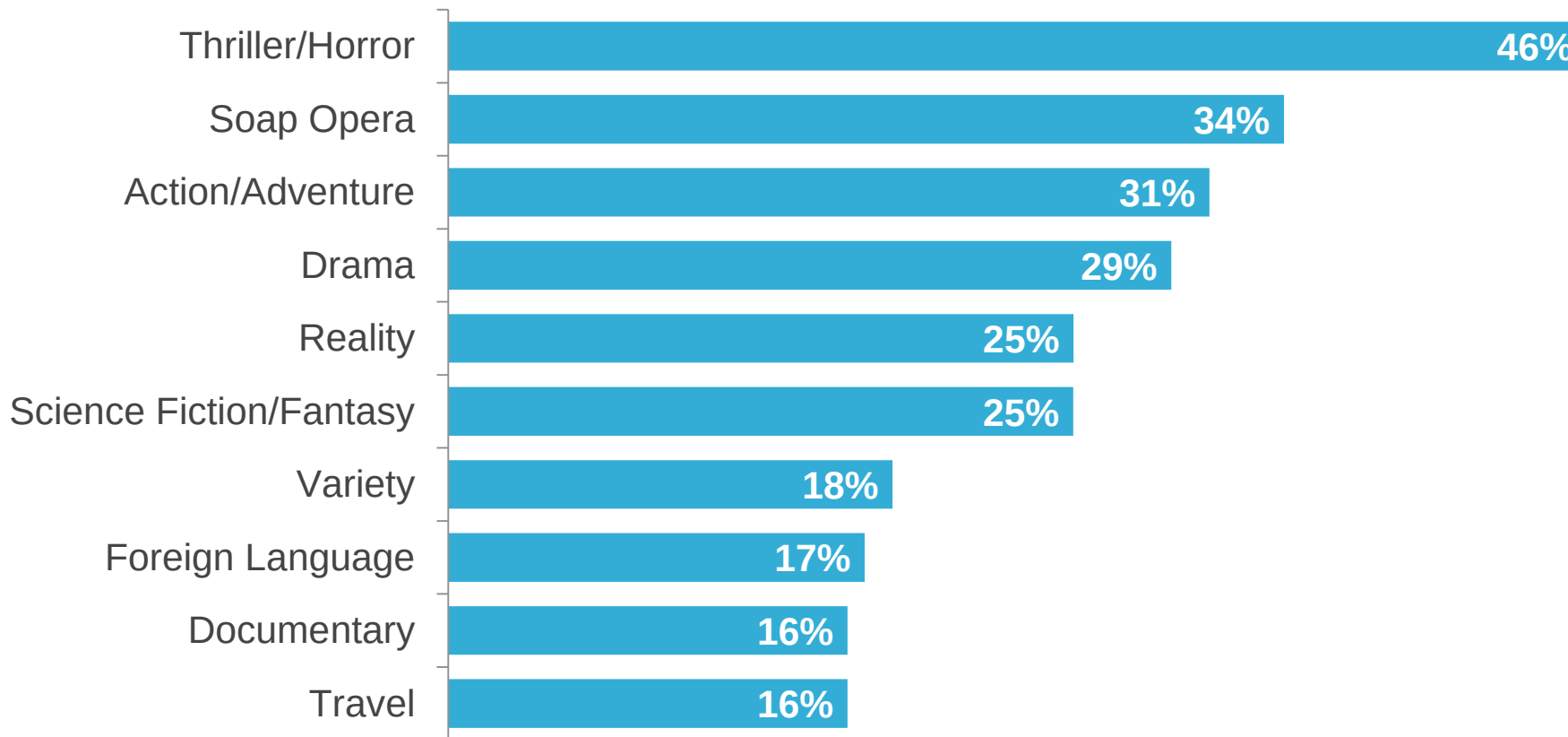
INSIGHT

Not surprisingly, the News and Sports genres still see the vast majority of viewing time happening live since content relevance declines quickly post-event. Meanwhile, Dramas have a much higher percentage of time-shifted viewing since these programs tend to have week-to-week storylines that viewers want to keep current with, but don't always need to watch on the day and time they originally air.

Time-shifted DVR usage is especially popular among genres with dramatic, original programming

Genres with Highest Percentage of Time-Shifted DVR Viewing

Source: comScore TV Essentials, U.S., FY 2016, +15 Day DVR



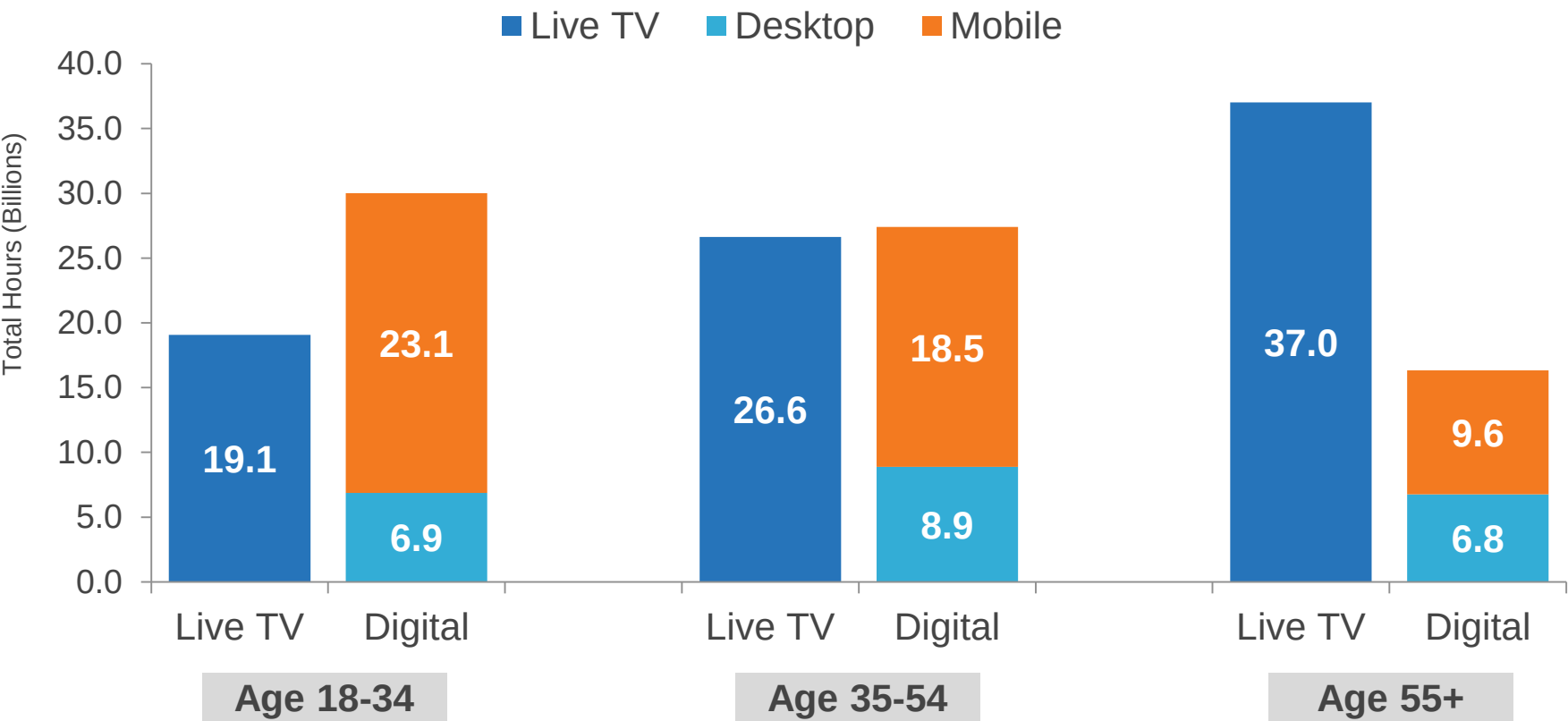
INSIGHT

Genres with ongoing storylines that viewers follow week-to-week, or that require a full episode's worth of attention, see more time-shifted viewing. This time-shifting varies greatly even within the Top 10, with Thriller/Horror seeing nearly 3x more time-shifting than Travel content.

Millennials and Gen Xers spend more time on digital media than watching live TV, a sign of shifting media consumption dynamics

Hours Spent on Platform by Demographics

Source: comScore Xmedia (Custom) and Media Metrix Multi-Platform, U.S., Q4 2016



INSIGHT

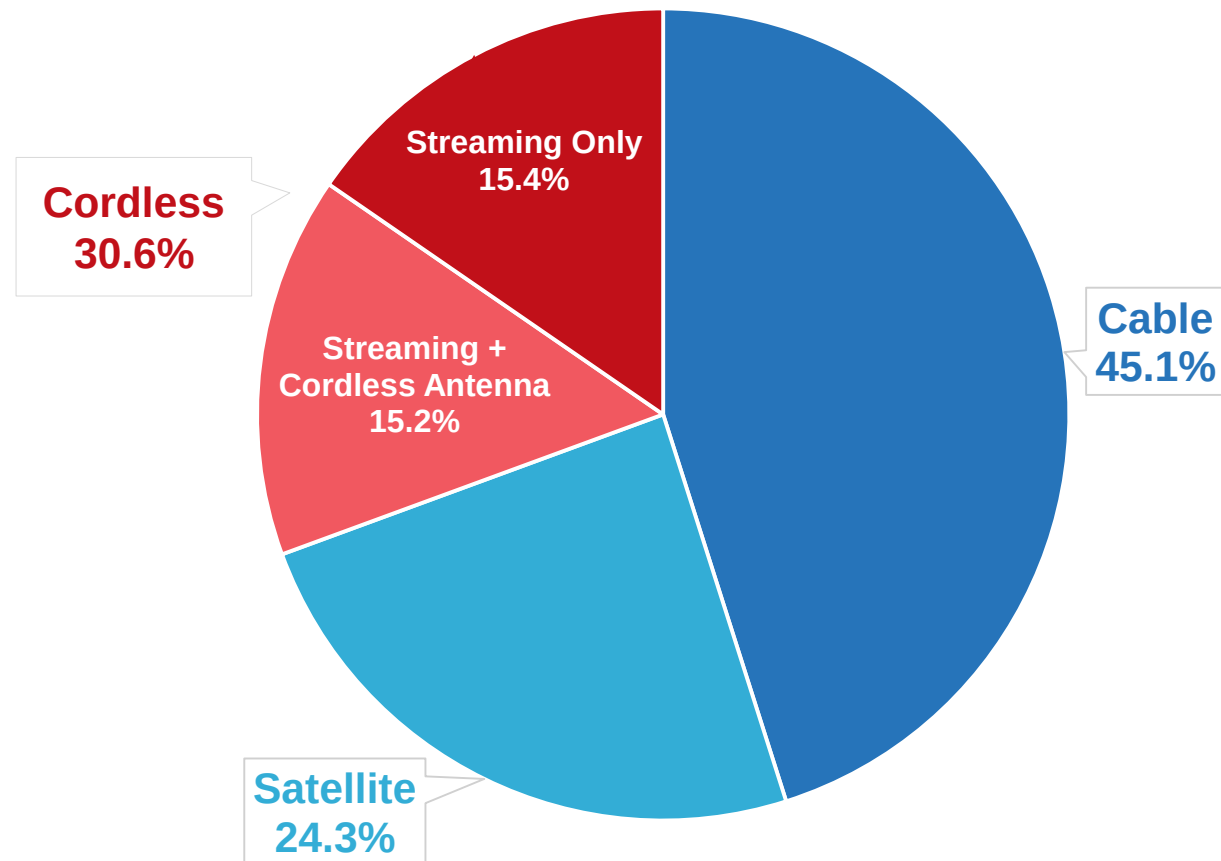
The younger demographic segments are more likely to spend time on their mobile device and less likely to spend time watching live TV. In fact, Millennials already spend more time on mobile than they do watching live TV. It should be noted, however, that younger viewers are likely watching more TV via OTT services and time-shifted via DVR and video-on-demand (VOD).

* Time spent on desktop and mobile accounts for all content consumption on these devices (i.e. websites and apps), not just digital video.

Nearly 1/3rd of the OTT audience is 'cordless' and doesn't subscribe to pay-TV, with half of those being 'streaming only' households

Over-the-Top (OTT) Households by TV Service Type

Source: comScore Total Home Custom Reporting, U.S., December 2016



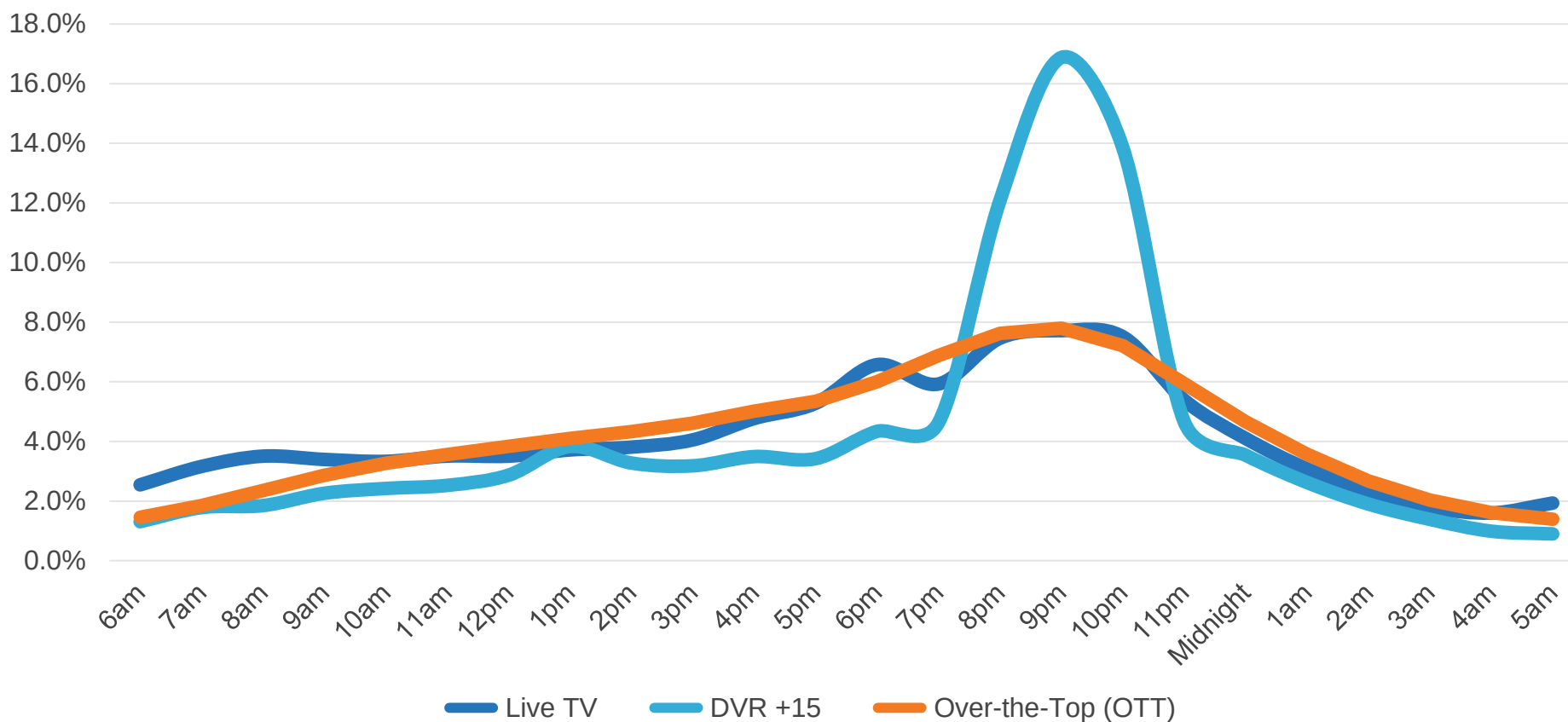
INSIGHT

Although there are many over-the-top households who use these services as a replacement for pay-TV, more than two-thirds of OTT households use it as a supplement to their cable or satellite service package. Only 15% of OTT households depend solely on this content for all of their TV viewing.

Live TV, DVR and OTT all have the same 'primetime' with viewing peaking in the evening hours, though it's most pronounced for DVR

Household Share of TV Viewing Type by Daypart

Source: comScore TV Essentials & Total Home Custom Reporting, U.S., December 2016



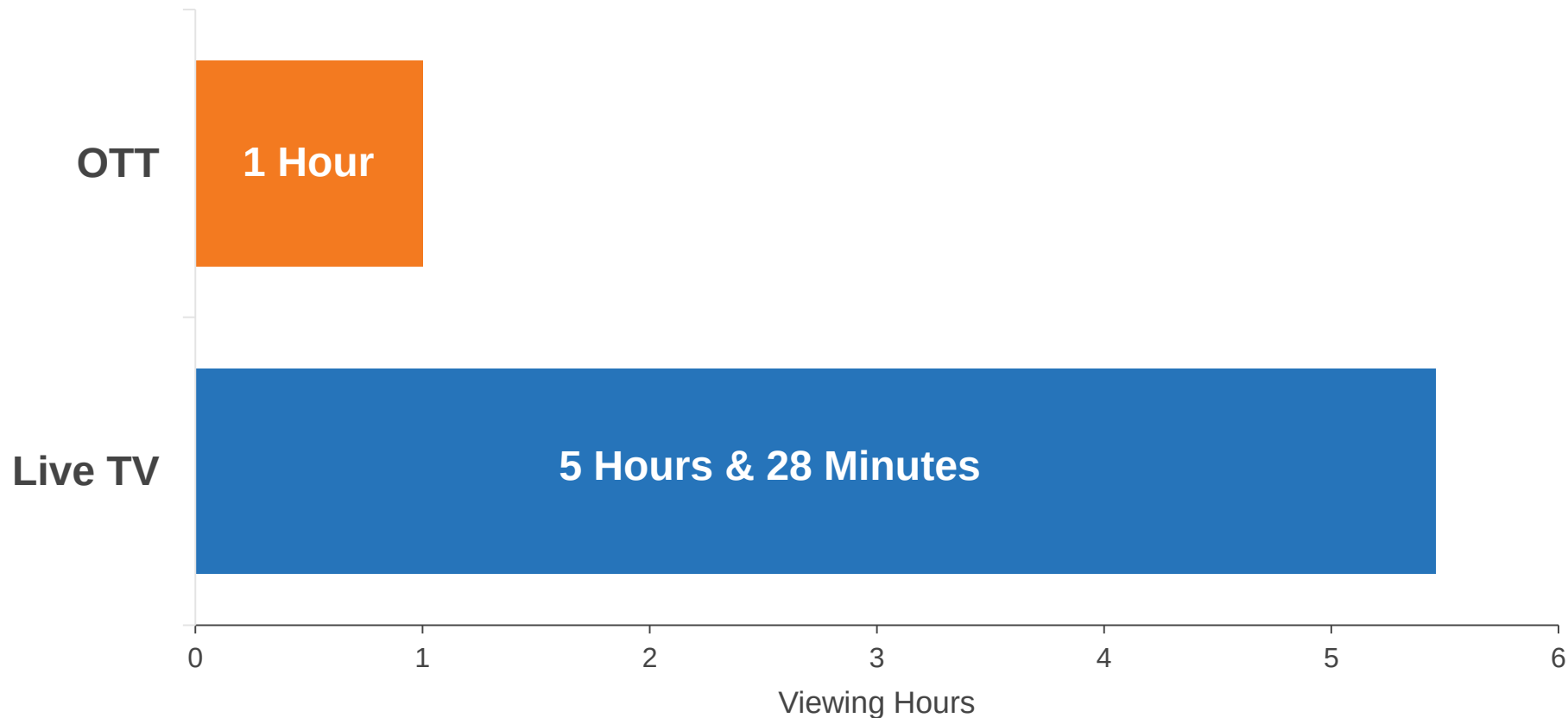
INSIGHT

The evening hours are primetime for all types of TV viewing. DVR sees the highest percentage of consumption during this time, as viewers save their favorite programs for the most convenient time to watch – often that window after dinner and before bed. The peak viewing hour for all three is during the 9 PM hour.

Households with both TV and OTT still watch more than 5 hours of live TV for every one hour spent watching OTT content

Ratio of Live TV Viewing Hours per Hour of OTT Viewing in HHs with Both Services

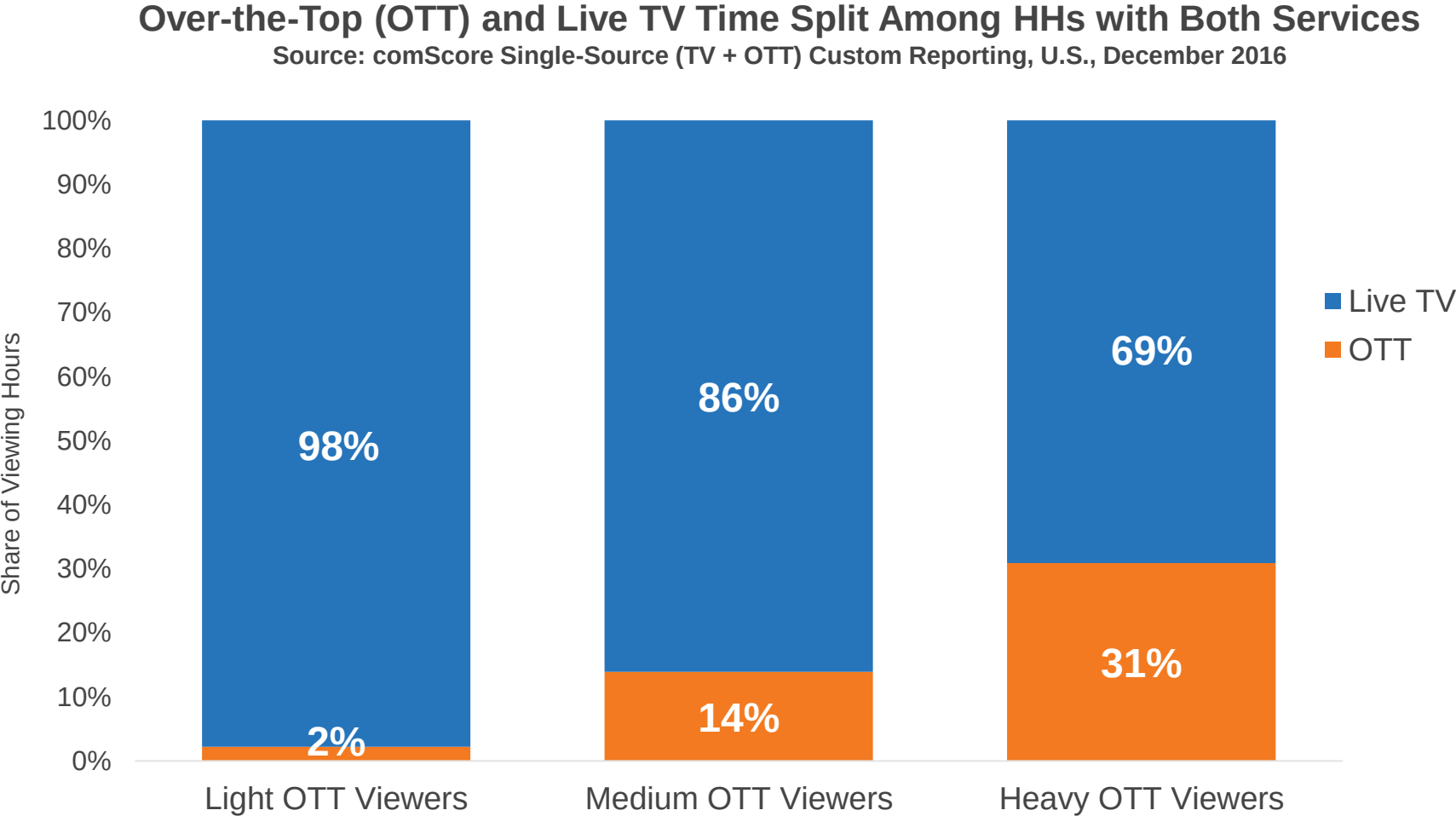
Source: comScore Single-Source (TV + OTT) Custom Reporting, U.S., December 2016



INSIGHT

Among households that watch both traditional television and OTT, live TV still dominates total viewing time. While OTT has been carving out more viewing time in the typical home, this data suggests that it's supplemental rather than primary for homes with both viewing options.

In combined viewing households, even the heaviest OTT viewers consume more than twice as much live TV content as OTT



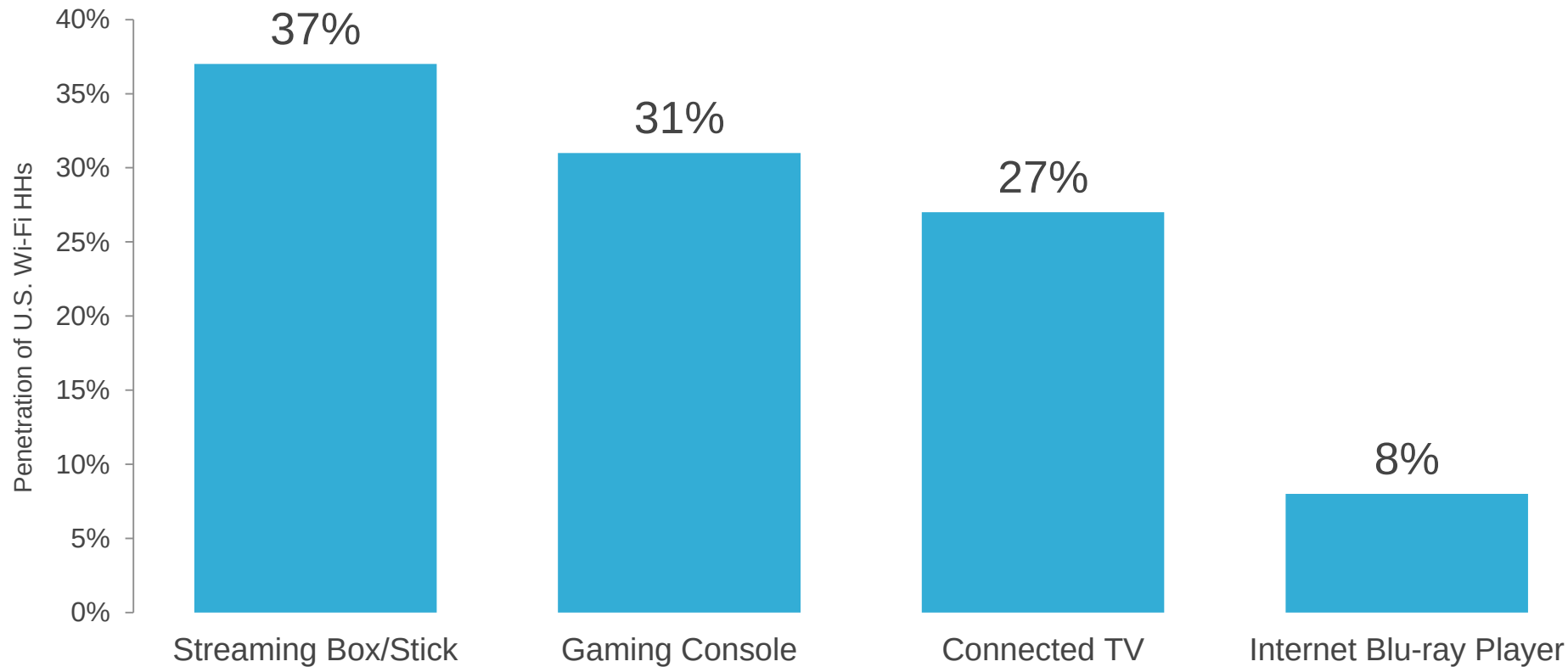
INSIGHT

Among households that watch traditional TV and OTT content, even the heaviest OTT households still spend a lot more time watching live TV. Despite the availability of more ‘on-demand’ content than ever before, viewers still have a tendency to watch what’s on.

A variety of connected devices are now being used to watch OTT content, with streaming boxes and sticks the most popular

Connected Home Devices: Penetration of U.S. Wi-Fi Households

Source: comScore Connected Home, U.S., December 2016



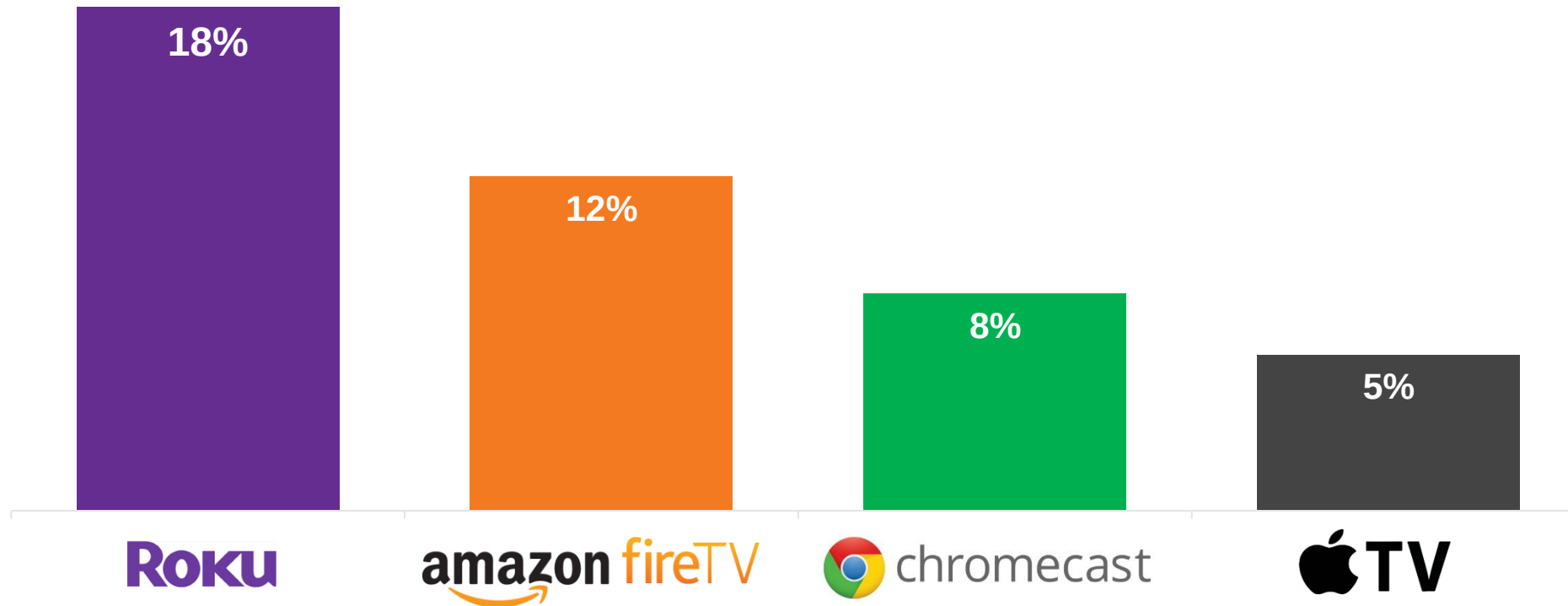
INSIGHT

Households have several tech options for streaming over-the-top TV content to their television sets. Streaming boxes/sticks, such as Roku devices, have the highest household penetration, but gaming consoles and “smart” TVs are other popular options.

Roku is the most popular box or stick for streaming video, but Amazon, Google and Apple remain key players in this market

TV Streaming Boxes/Sticks: Penetration of U.S. Wi-Fi Households

Source: comScore Connected Home, U.S., December 2016



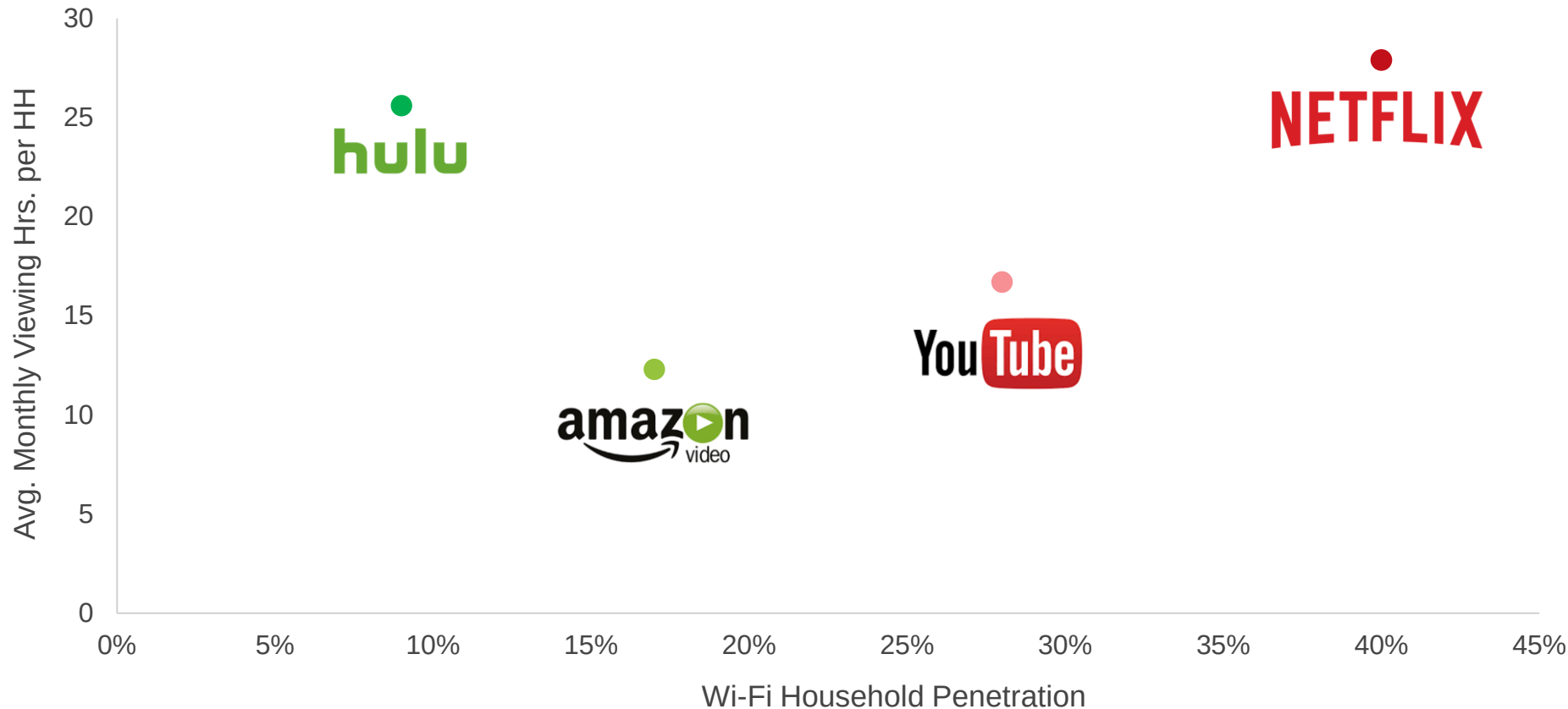
INSIGHT

With streaming boxes/sticks as the most popular method for streaming OTT content, many of the largest technology companies are battling to be the platform-of-choice for consumers' living rooms. Despite the competition from huge tech companies with deep wallets, Roku is currently the market leader.

Netflix leads the major over-the-top streaming services in both household penetration and viewing engagement

Selected Over-the-Top (OTT) Streaming Services by Wi-Fi Household Penetration & Engagement

Source: comScore OTT Intelligence, U.S., December 2016



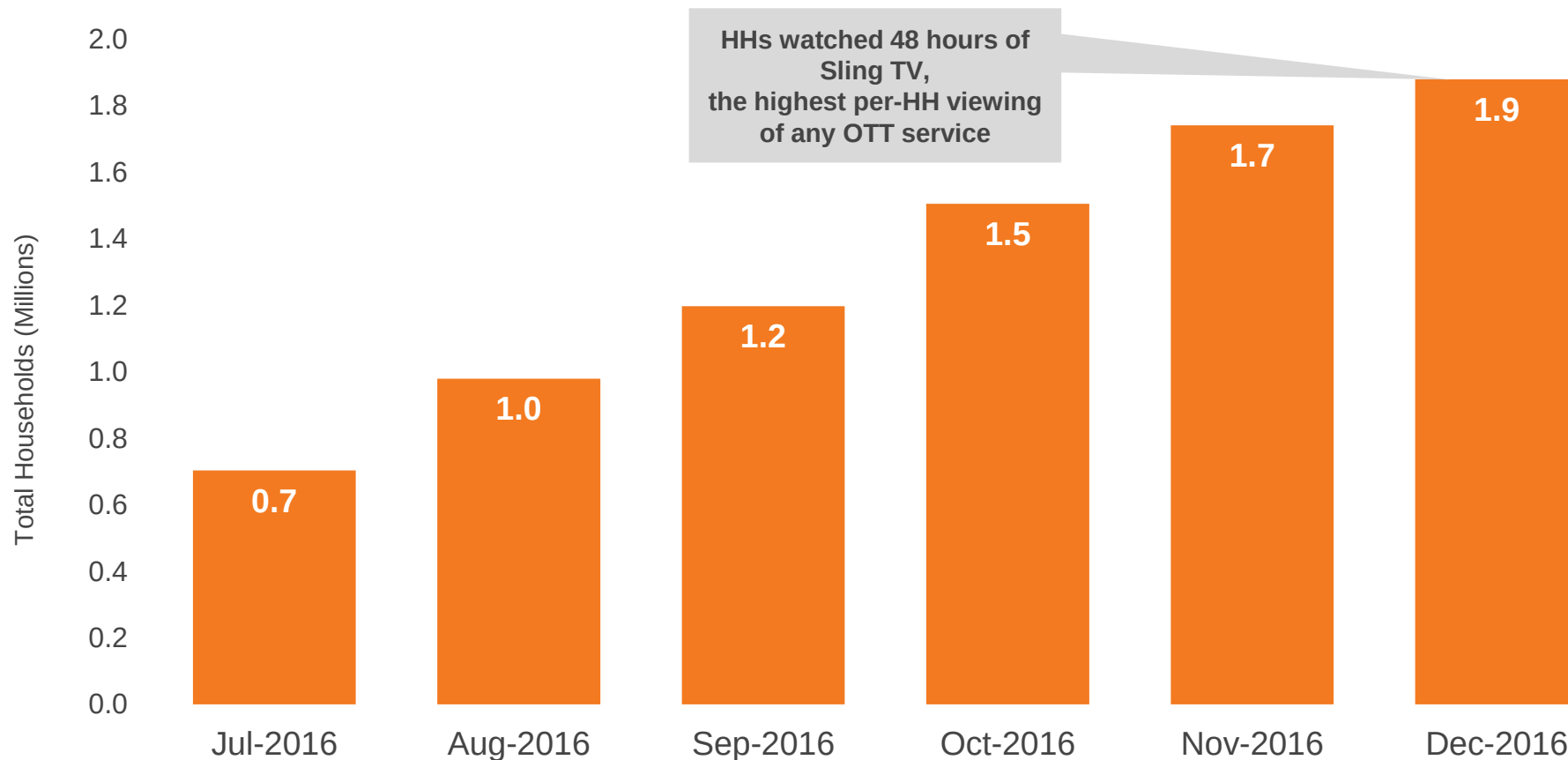
INSIGHT

Netflix has the highest household penetration and viewing time per month among the major OTT content services. Hulu isn't as widely penetrated but attracts comparable viewing engagement on a per-household basis. YouTube and Amazon are also in the mix and have solid positions in the OTT market.

Sling TV, a popular 'skinny bundle' option, has seen adoption quickly accelerate in OTT households in the second half of 2016

Sling TV Household Reach (Millions)

Source: comScore OTT Intelligence, U.S., 3 Mo. Avg. Ending Jul 2016 - 3 Mo. Avg. Ending Dec 2016



INSIGHT

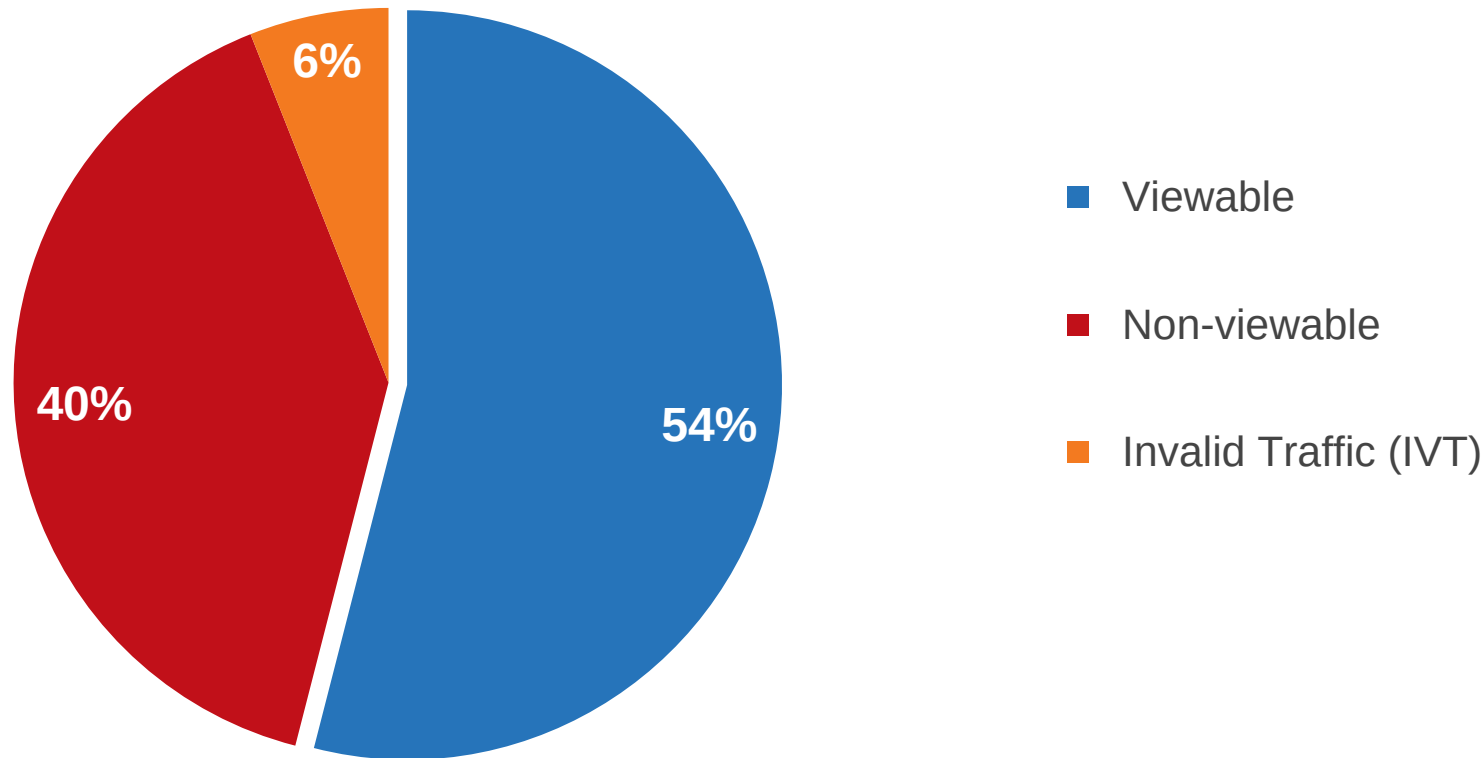
Sling TV, which is a less expensive, less robust alternative to cable, was being used in nearly two million households by the end of 2016. PlayStation Vue and DirecTV Now are similar services offering live streaming packages of pay-TV channels, in what will likely be an increasingly common trend to attract cord-cutters and cord-nevers.

Advertising

Nearly half of digital ad impressions can't have an impact because they're not viewable or not delivered to a human

Percentage of Viewable Desktop Ad Impressions in U.S.

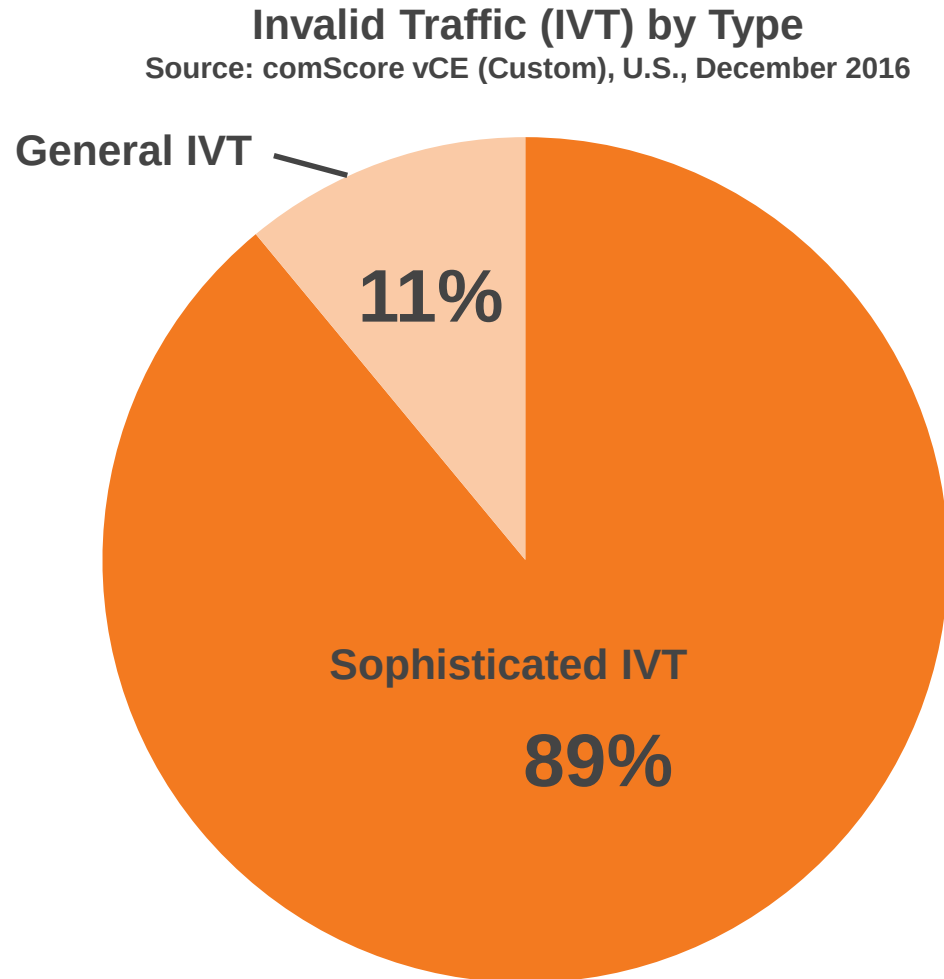
Source: comScore vCE Benchmarks, U.S., Q4 2016



INSIGHT

Nearly half of all desktop ad impressions are unable to deliver an advertising impact. While most of these non-viewable ads are simply delivered to parts of the web page that are out of view, a meaningful percentage is being delivered to bots and other forms of invalid traffic that is by definition not viewable to a human.

Sophisticated IVT is the overwhelming majority of invalid ad traffic, requiring advanced detection methods to combat this form of waste



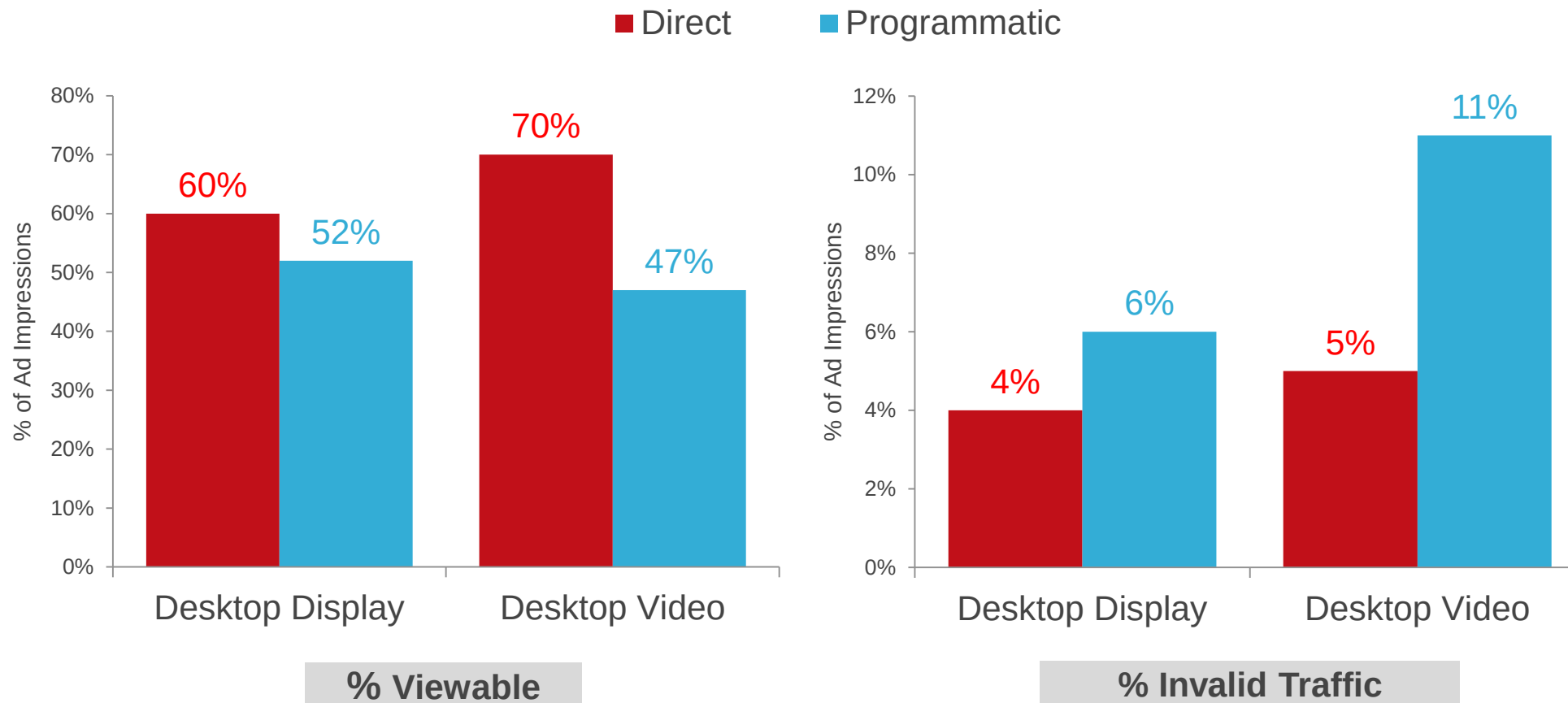
INSIGHT

Sophisticated IVT, which according to the Media Rating Council (MRC) includes “traffic originating from hijacked devices, malware or misappropriated content,” accounts for the vast majority of invalid traffic. Sophisticated detection techniques are therefore required for advertisers to mitigate the potential for waste.

Directly bought digital display and video ad inventory is more viewable and has a lower incidence of invalid traffic

Percentage of Viewable Ad Impressions & Invalid Traffic (IVT) – Display vs. Video

Source: comScore vCE Benchmarks, U.S., Q4 2016



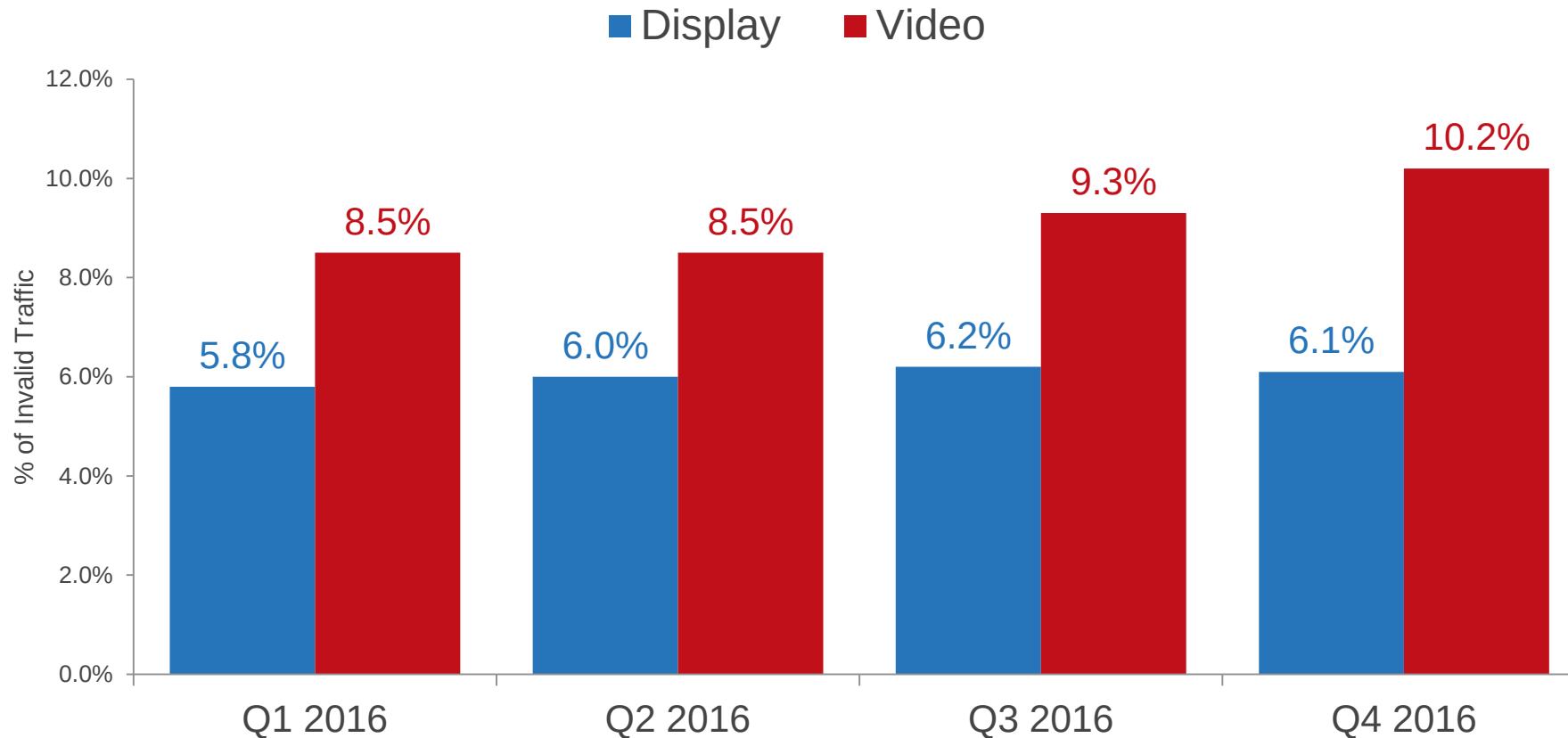
INSIGHT

Direct ad buys and display ads tend to outperform programmatic buys and video ads, respectively, when it comes to appearing in view and being seen by humans. Programmatic video ads are the most susceptible to low rates of viewability and high rates of invalid traffic.

Invalid traffic levels have been stable for display ads, but the problem is growing for higher-CPM video ads

U.S. Desktop Invalid Traffic Comparison: Display vs. Video Norms

Source: comScore vCE Benchmarks, U.S., 2016



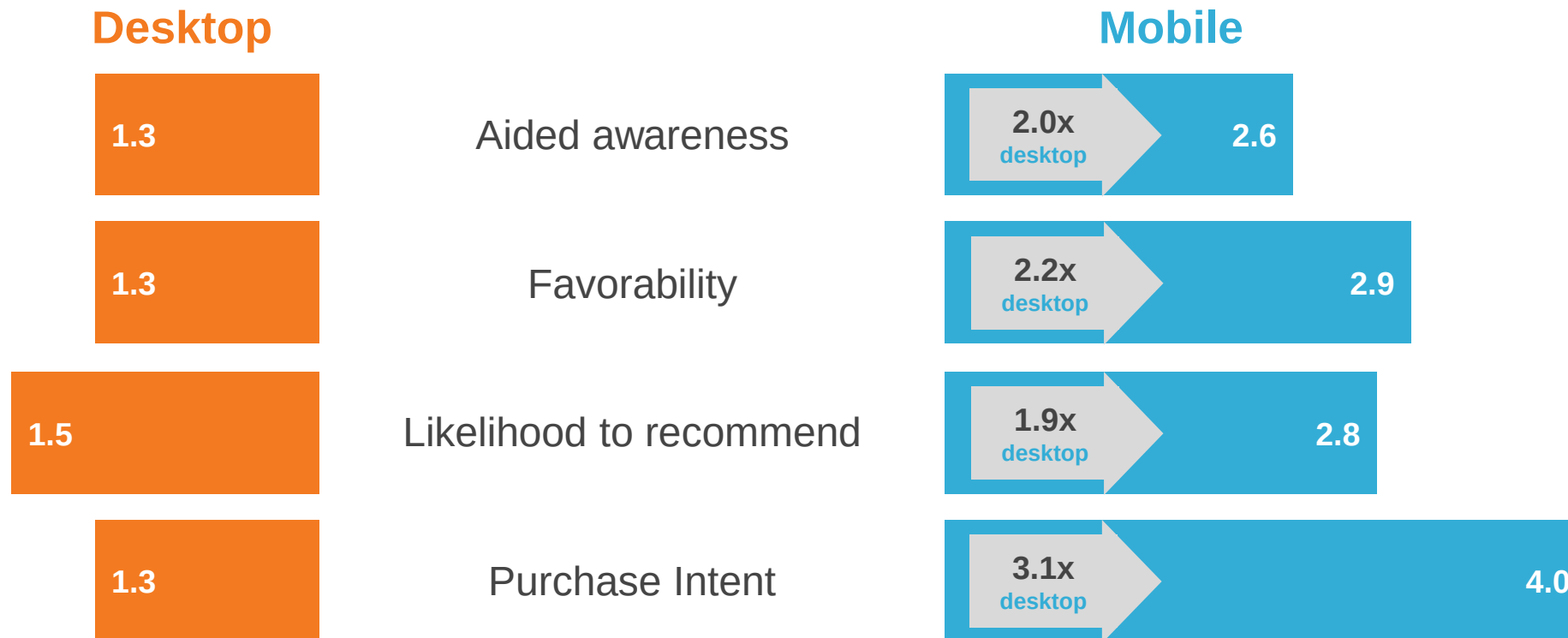
INSIGHT

Given the higher CPMs for video, advertising on the medium has become increasingly susceptible to invalid traffic. This will continue to be a challenge for the industry, underscoring the importance of sophisticated detection techniques.

Both desktop and mobile ads deliver branding effectiveness, but mobile performs better – particularly at the bottom of the funnel

Percentage Point Lift in Brand Metrics for Desktop and Mobile Ads

Source: comScore BSL and BSL Mobile Benchmarks, U.S., 2014 - 2016



INSIGHT

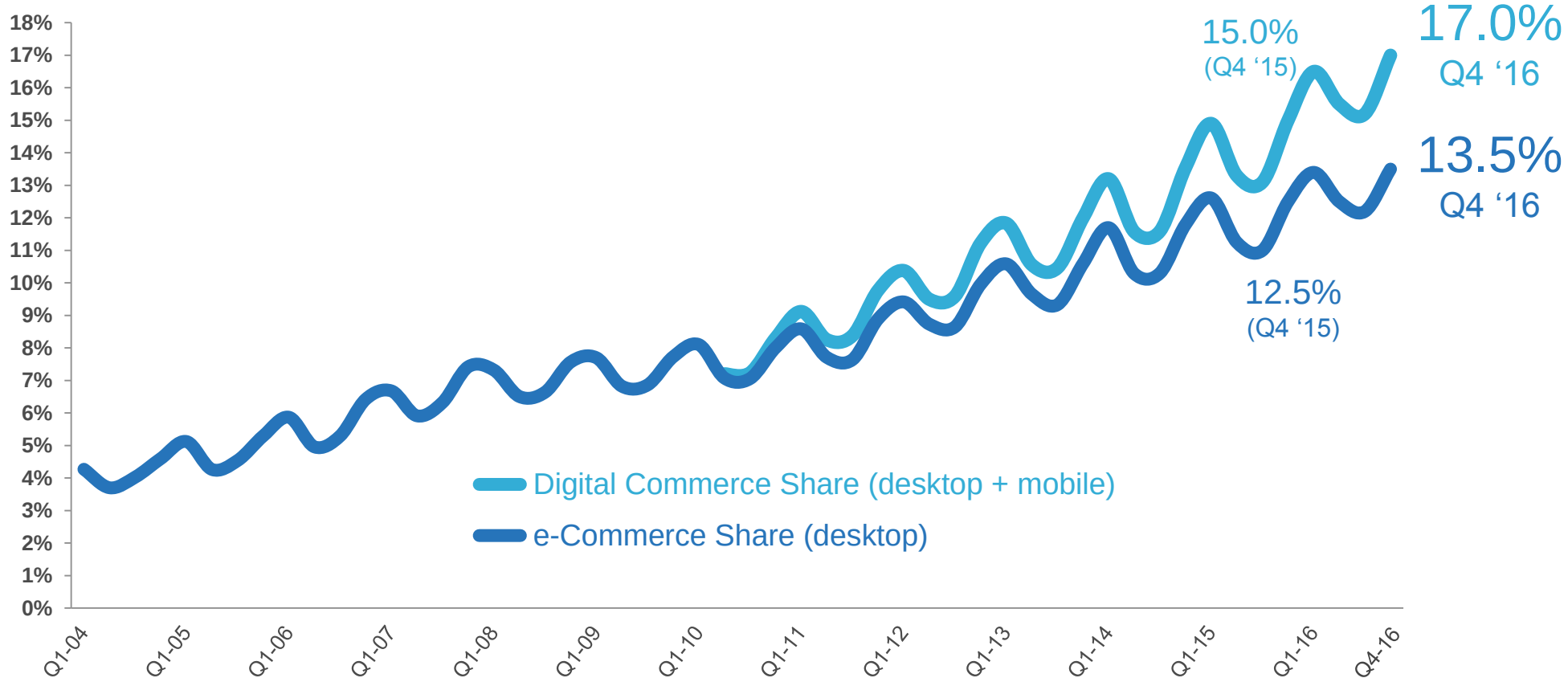
Mobile ads caused point lifts up to 3x greater than ads on desktop across four key brand metrics and performed especially strong in middle and bottom-funnel metrics, such as favorability, intent to buy and likelihood to recommend. Less ad clutter and proximity to point of purchase may be driving better effectiveness for mobile ads.

E-Commerce

By Q4 2016, total digital commerce had grown to account for more than 1 out of every 6 discretionary retail dollars

Desktop & Mobile Digital Commerce Share of Corresponding Consumer Spending*

Source: U.S. Dept. of Commerce, comScore e-Commerce & m-Commerce Measurement, U.S., 2004 - 2016



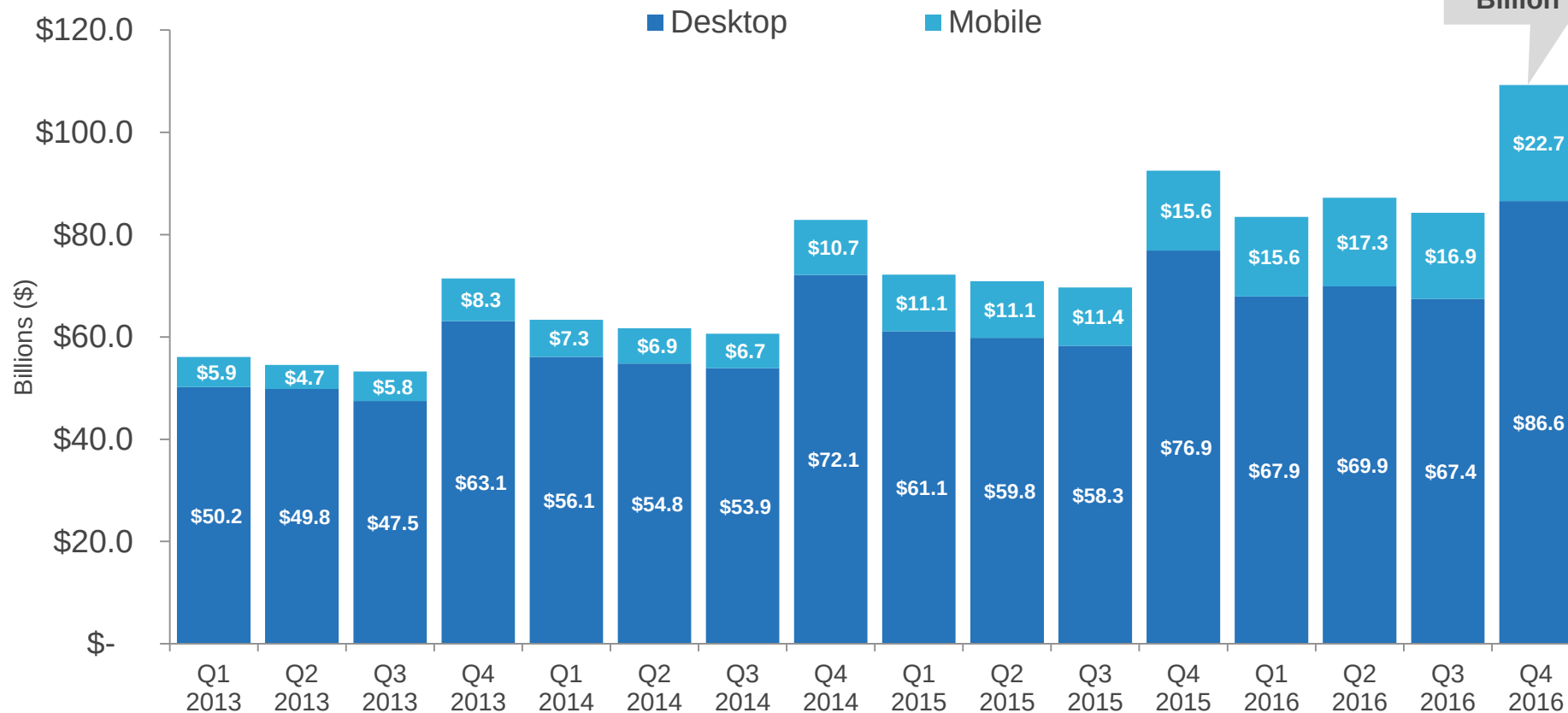
INSIGHT

Digital's share of consumer discretionary spending, which peaks in seasonally colder months, reached an all-time high in Q4 2016 at 17%. Digital commerce share appears to be accelerating slightly in recent years due to the impact of mobile.

Boosted by a growing share of mobile, total digital commerce surpassed the \$100 billion mark in Q4 2016 for the first time

U.S. Quarterly Online Retail Spending by Platform

Source: comScore e-Commerce & m-Commerce Measurement, U.S., 2013 - 2016



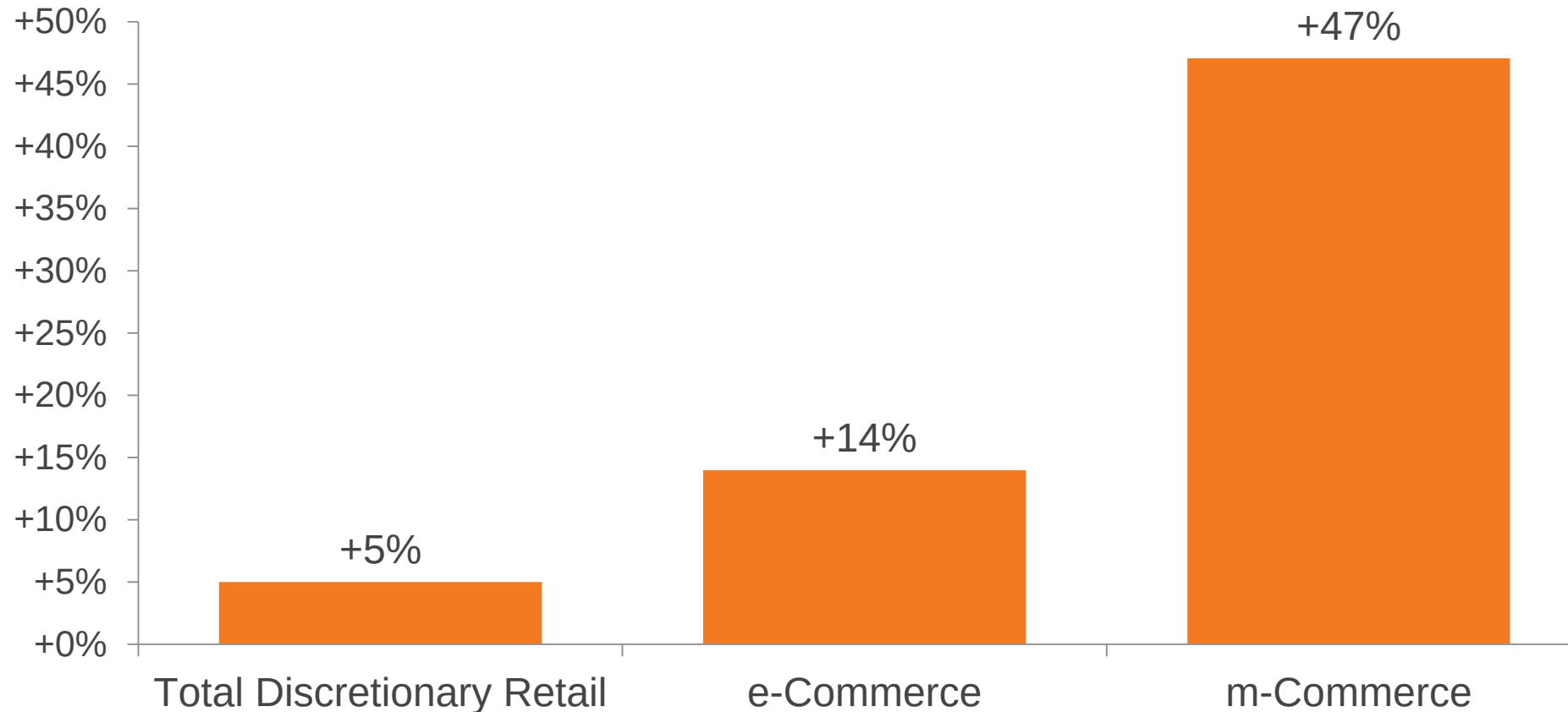
INSIGHT

While desktop spending has continued to grow every year, mobile is now driving much of the growth and contributing an increasing share of online discretionary retail sales. Mobile pushed digital commerce to its highest quarterly total ever in Q4.

Mobile commerce growth rates far outpaced those of desktop e-commerce and bricks-and-mortar in 2016

Full Year 2016 Y/Y Retail Spending Growth by Channel

Source: U.S. Dept. of Commerce, comScore M-Commerce and E-Commerce Measurement, U.S., FY 2016 / FY 2015



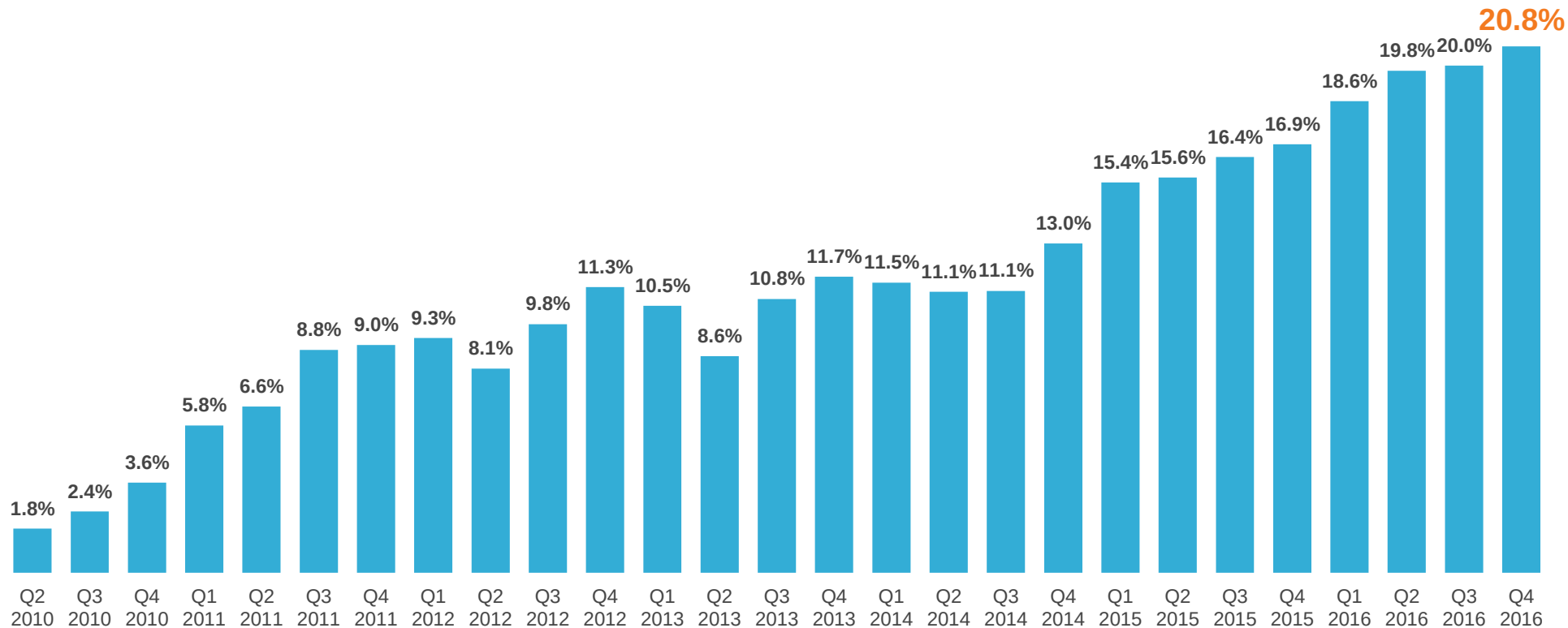
INSIGHT

2016 was a strong year for U.S. discretionary retail, with e-commerce contributing some of the strongest gains. Mobile commerce, which is still a smaller market than desktop and brick-and-mortar, saw the fastest growth rate at 47% -- far outpacing the two other primary retail channels.

Mobile commerce continues to gain share of digital commerce, surpassing the 20% mark in the second half of the year

Quarterly Trend in Mobile Commerce as a Share of Total Digital Commerce

Source: comScore M-Commerce and E-Commerce Measurement, U.S., Q2 2010 – Q4 2016



INSIGHT

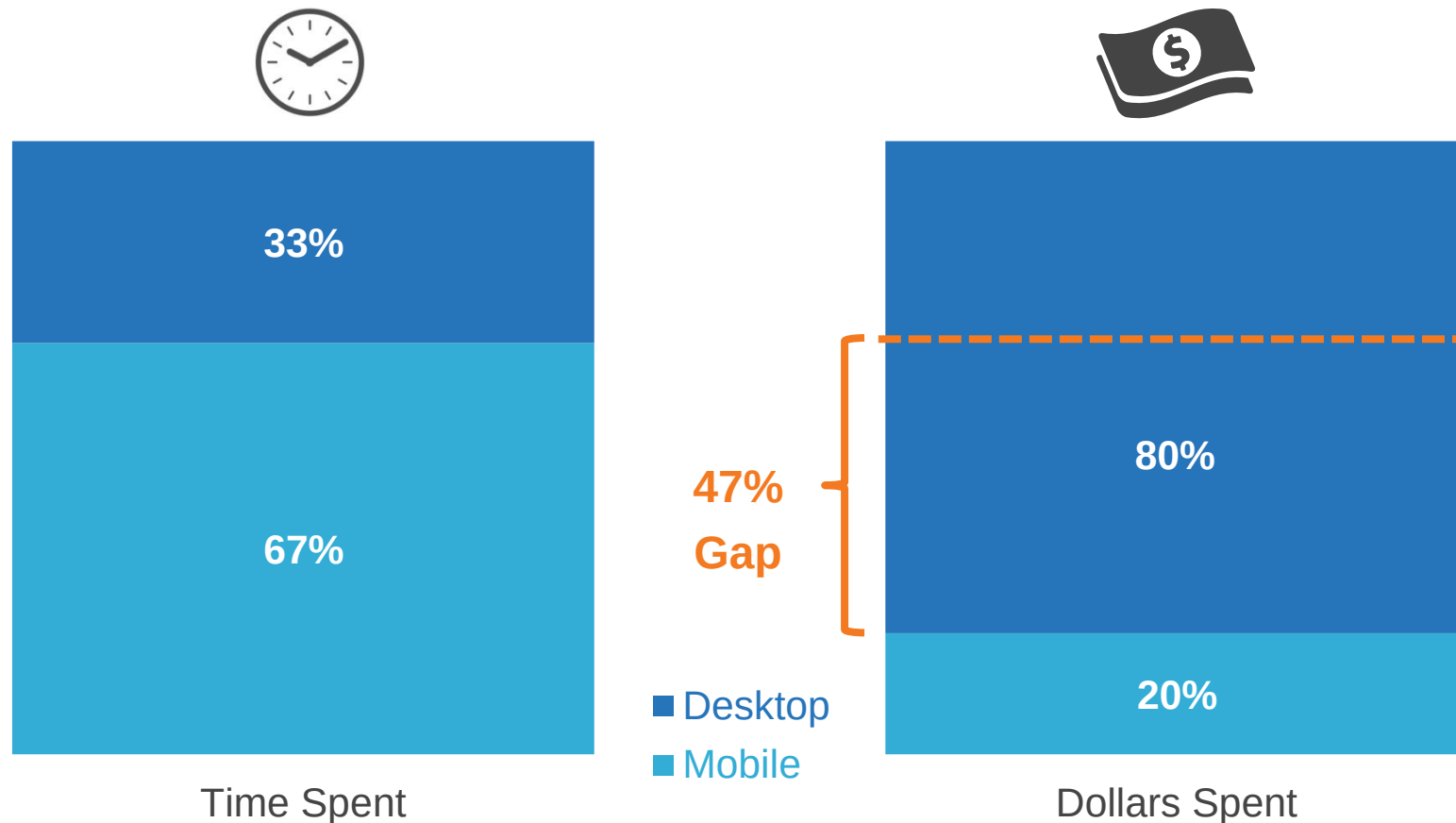
M-commerce has come a long way in the past 6 years and now contributes about 1 in every 5 dollars spent via digital commerce. 2016 saw a continuation of the platform's gains in its percent share of the total market, as consumers become increasingly comfortable transacting on their smartphones and tablets.

However, in 2016, dollars still significantly lagged digital media time spent on mobile, highlighting the mobile conversion challenge

2016 Share of Retail Time Spent vs. Spending by Platform

Source: comScore M-Commerce and E-Commerce Measurement, U.S., FY 2016

INSIGHT

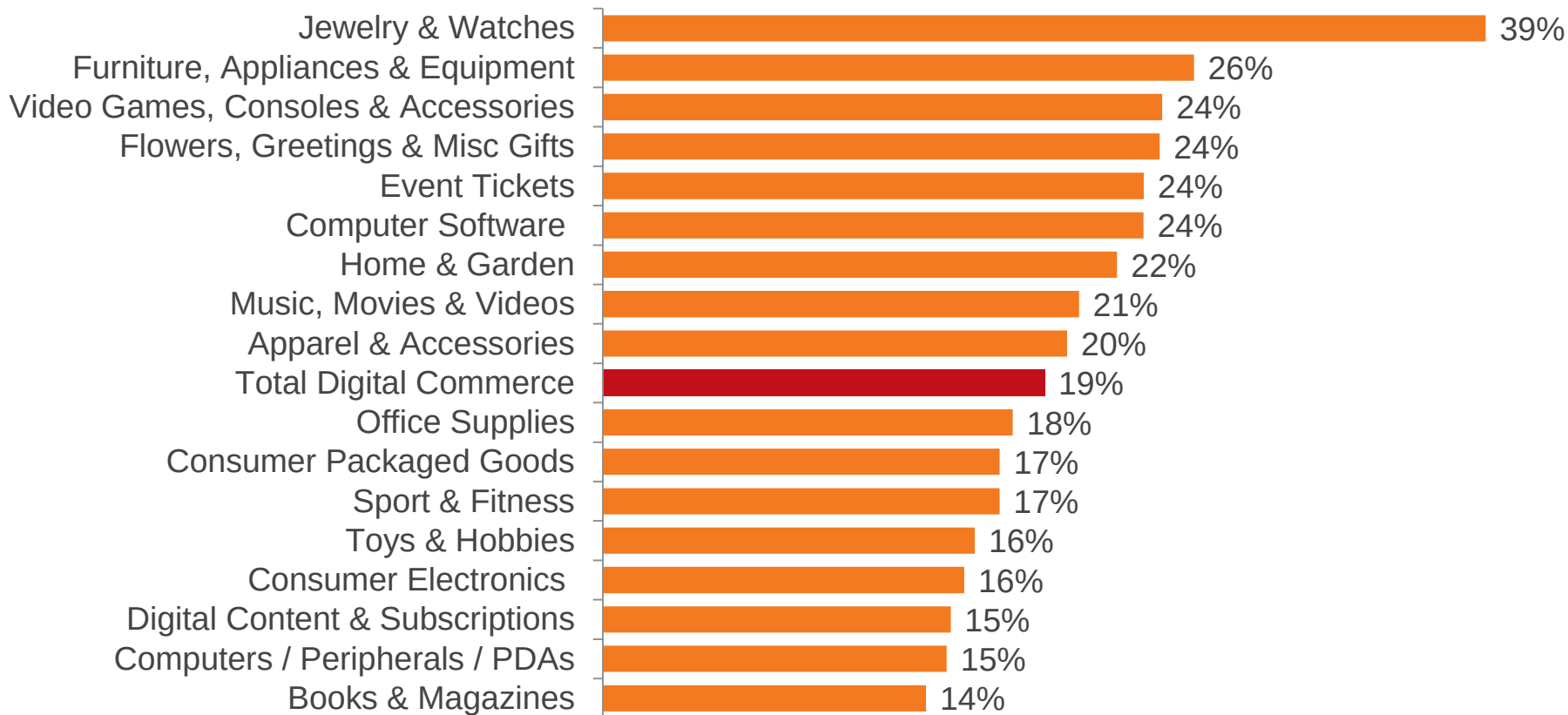


Mobile accounted for 67% of time spent shopping online, but only 20% of digital retail spend in 2016. Factors such as security concerns and smaller screen size continue to add friction to mobile purchases. While this m-commerce monetization gap will narrow once mobile's share of time spent stabilizes, the two aren't likely to ever reach equilibrium.

Several e-commerce product categories grew more than 20% in 2016, led by Jewelry & Watches and Furniture & Appliances

Y/Y % Change in Total Retail Digital Commerce Dollars by Category

Source: comScore E-Commerce and M-Commerce Measurement, U.S., FY 2016 vs. FY 2015



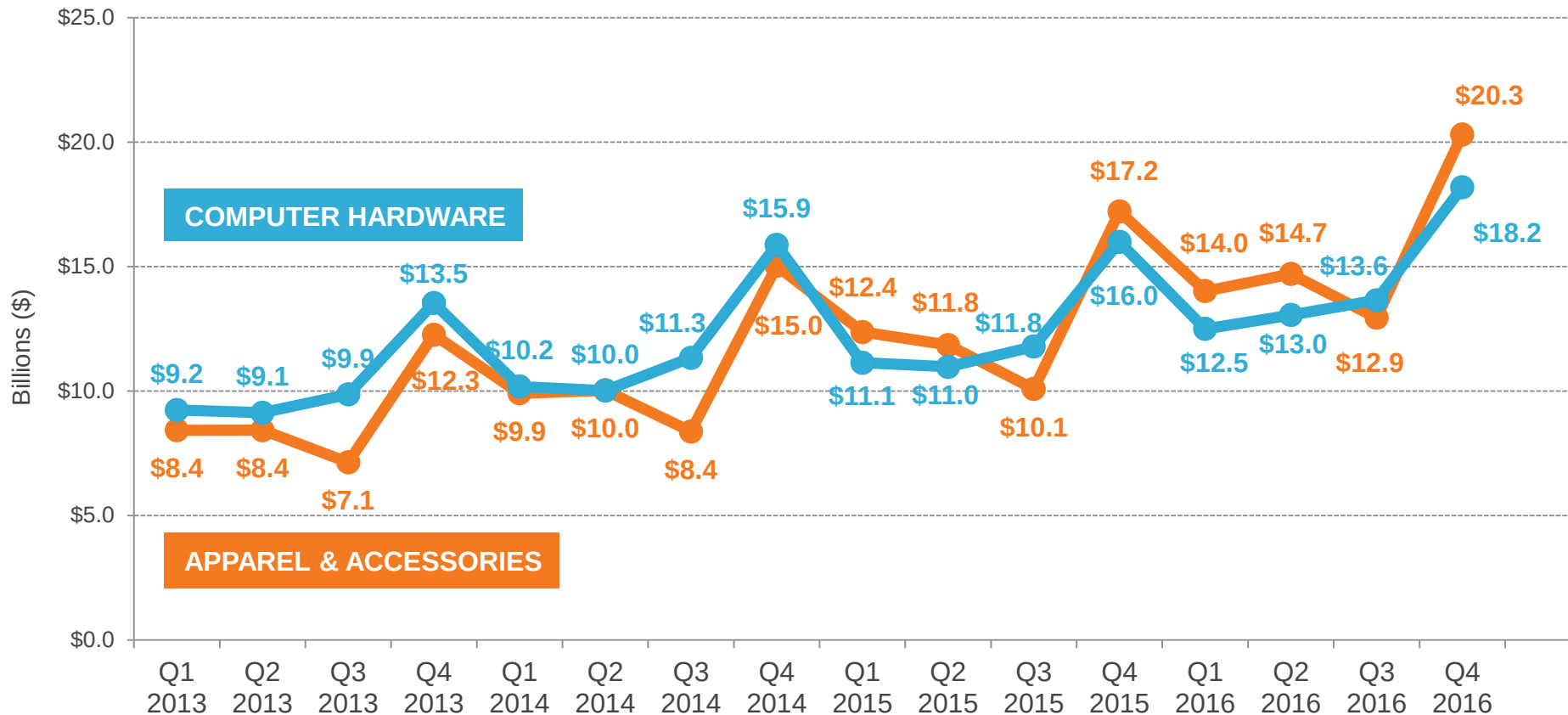
INSIGHT

Online retail grew 19% year-over-year in 2016, with the fastest growing categories seeing most of their gains on mobile. The fact that the top couple of product categories by growth contain more expensive and complicated items shows that consumers are becoming more comfortable making these types of purchases on their smartphones and tablets.

Apparel & Accessories is now the clear #1 product category online, edging out Computer Hardware for the 2nd straight year

Digital Commerce Sales by Category: Apparel & Accessories vs. Computer Hardware

Source: comScore E-Commerce & M-Commerce Measurement, U.S., Q1 2013 – Q4 2016



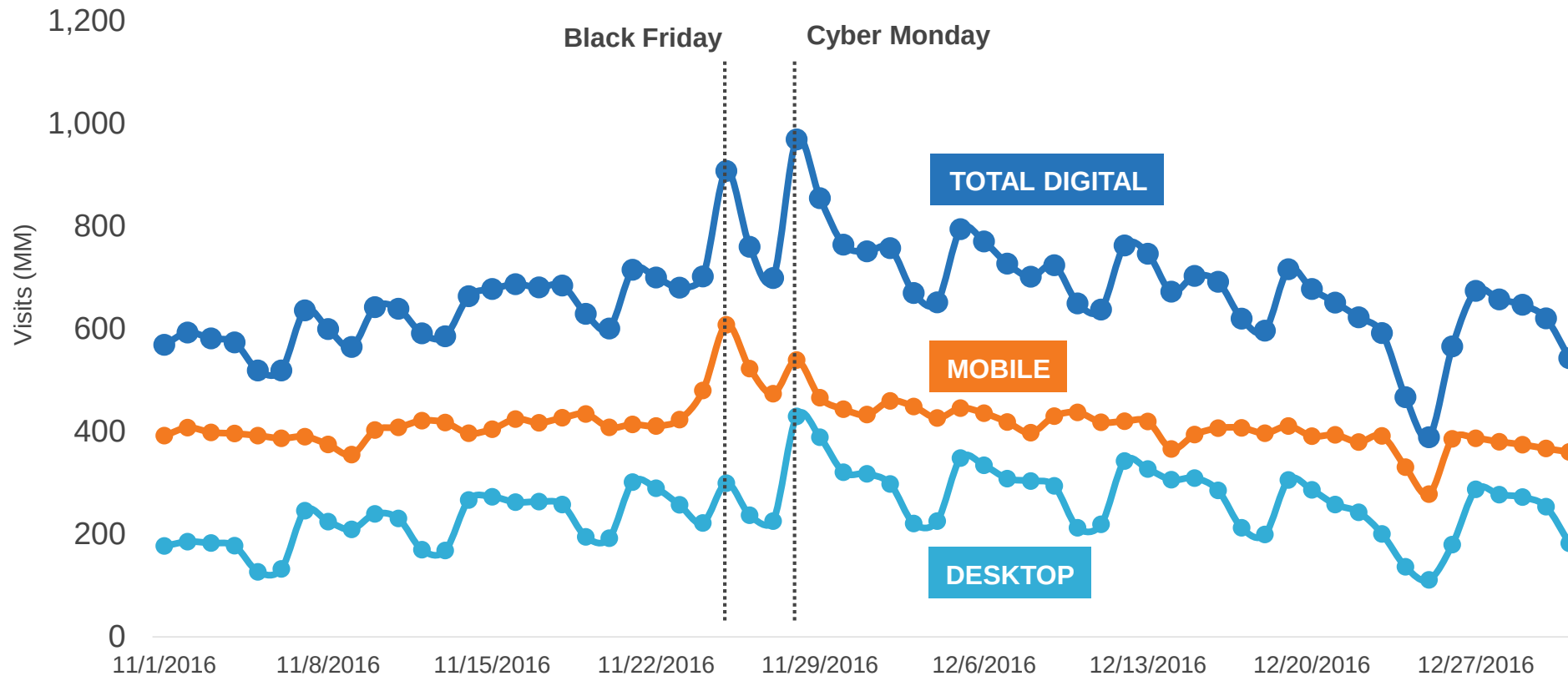
INSIGHT

Computer Hardware was the longtime #1 category in digital commerce, but Apparel & Accessories has emerged over the last few years to establish itself as the new #1. Gains in mobile commerce, along with consumers' increasing comfort with online returns, have helped boost the category to new heights.

The 2016 holidays saw retail traffic peak on Black Friday and Cyber Monday, with mobile outpacing desktop every day this season

2016 Holiday Season: Digital Retail Visits (MM) by Platform

Source: comScore Custom Analytics, U.S., Nov 1 – Dec 31, 2016



INSIGHT

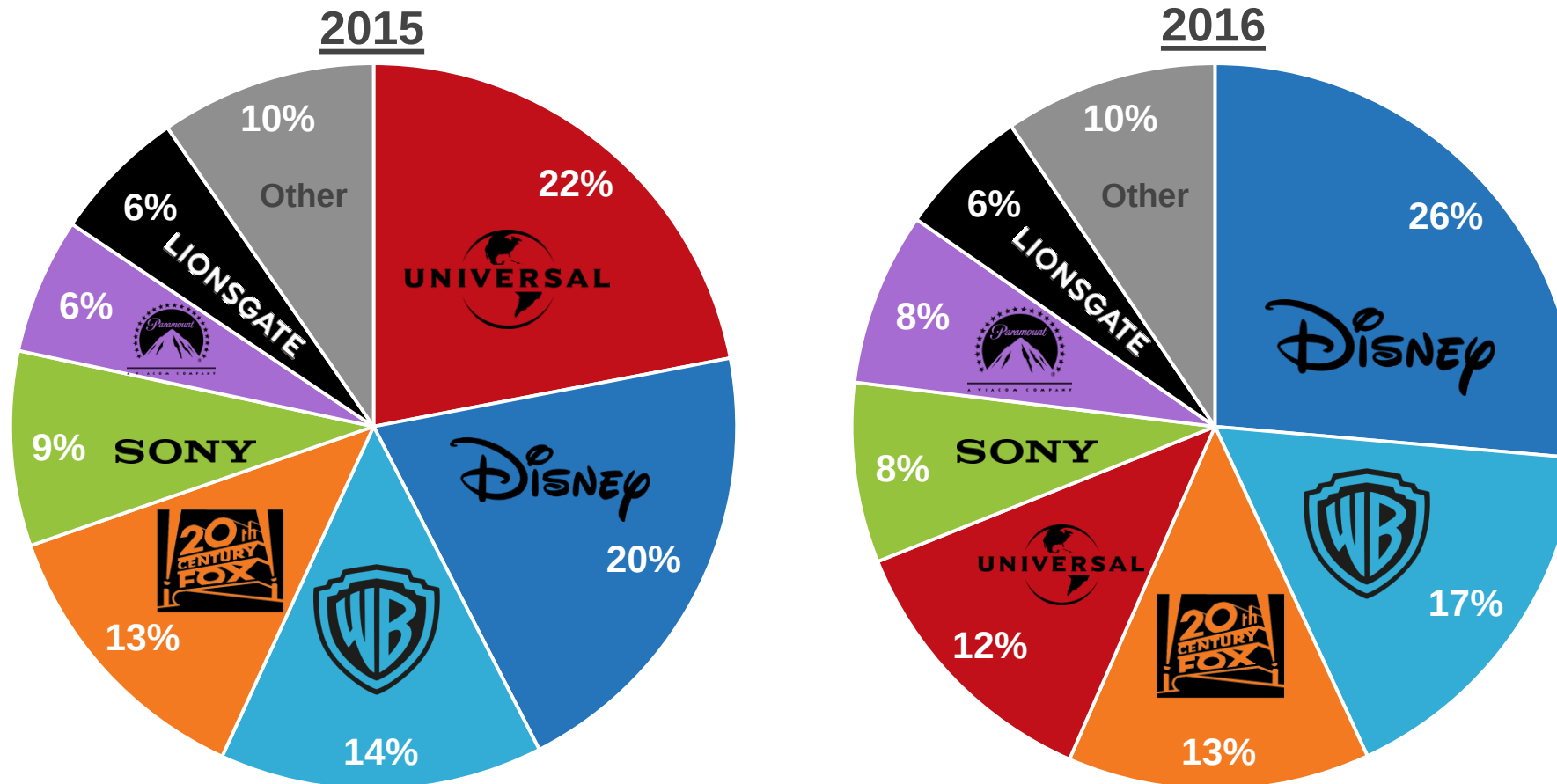
Mobile accounted for 62% of all online retail visits this holiday season and outpaced desktop every single day of the season. Mobile visits peaked on Black Friday, while desktop visits peaked on Cyber Monday, which saw more overall retail traffic than any other day in 2016.

Box Office

Disney led all film studios in 2016 market share, taking in more than a quarter of the box office dollars on the strength of its franchises

North America Box Office Market Share by Film Studio in 2016 vs. Year Ago

Source: comScore Box Office Essentials, North America, FY 2016 vs. FY 2015



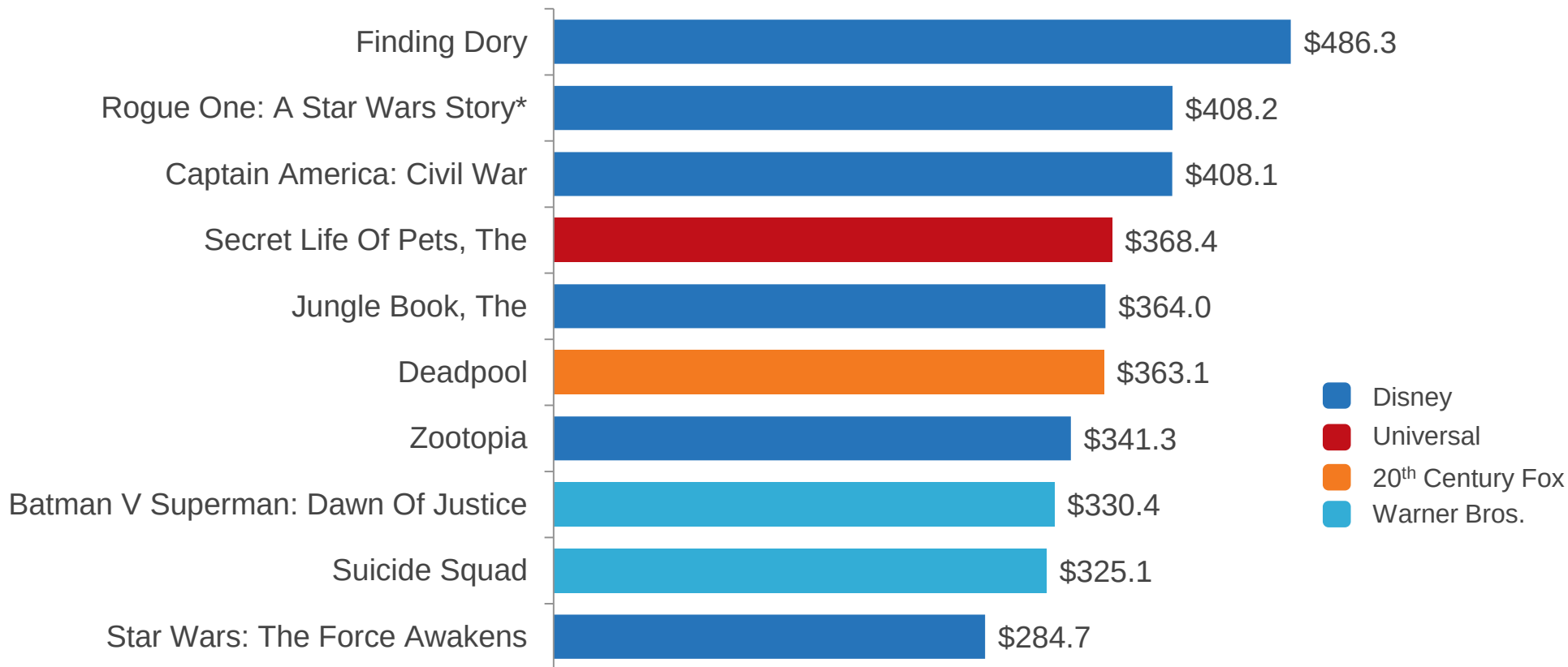
INSIGHT

Disney had a huge 2016 at the box office, growing its market share by 6 percentage points from a year ago. Warner Bros. and Paramount also grew their market shares, while Universal couldn't quite match its level of success from 2015, boosted by *Jurassic World*, *Furious 7* and *Minions*. Overall, the "Big Seven" major studios took in more than 90% of the 2016 box office dollars.

Finding Dory led the 2016 domestic box office as one of six Disney films to rank in the Top 10

Top 10 Grossing Box Office Movies in 2016 (\$ Millions)

Source: comScore Box Office Essentials, North America, Jan. 1 – Dec. 31, 2016



INSIGHT

As was the case in 2015, the Top 10 in 2016 featured mostly action movies and animated family-friendly films, with Disney distributing four of the top five films in 2016. Impressively, *Star Wars: The Force Awakens* cracked this past year's Top 10 despite being released in mid-December 2015.



20th Century Fox had the top two digital movie rentals of 2016 with Deadpool and The Martian

Top 20 Digital Movie Purchases & Rentals in 2016
Source: comScore Digital Download Essentials, U.S., Jan. 1 – Dec. 31, 2016

RANK	TITLE	STUDIO
1	Deadpool (2016)	Fox
2	Martian, The (2015)	Fox
3	Zootopia (2016)	Disney
4	Star Wars: Episode VII - The Force Awakens (2015)	Disney
5	Batman V Superman: Dawn Of Justice (2016)	Warner
6	The Hunger Games: Mockingjay - Part 2 (2015)	Lionsgate
7	Revenant, The (2015)	Fox
8	Captain America: Civil War (Theatrical)	Disney
9	Daddy's Home (2015)	Paramount
10	Suicide Squad (2016)	Warner
11	Intern, The (2015)	Warner
12	Big Short, The (2015)	Paramount
13	Finding Dory (2016)	Disney
14	13 Hours: The Secret Soldiers Of Benghazi (2016)	Paramount
15	Bridge Of Spies (2015)	Disney
16	Sicario (2015)	Lionsgate
17	Star Trek Beyond (2016)	Paramount
18	Hateful Eight, The	Starz Entertainment
19	Central Intelligence (Unrated) (2016)	Warner
20	X-Men: Apocalypse (2016)	Fox

INSIGHT

As was the case last year, 20th Century Fox was home to two of the biggest movies in 2016 in terms of total digital purchases and rentals. As with the top grossing box office movies, action films tended to be most popular among audiences, even on the “small screen,” but comedies and sci-fi films also had notable success this year.

Key Takeaways

Key Themes for 2017

1

The Maturation of Mobile

The U.S. smartphone market is nearing saturation and the tablet market has flattened. Advances in device technology are now growing incrementally rather than by leaps and bounds.

While mobile now dominates digital media usage, consumption is beginning to stabilize and the days of huge growth are over. Digital media audiences are in the latter stages of a multi-year boom.

Consumer usage trends always shift faster than dollars, but now is the time for the economics to catch-up with behavior. This will be enabled by better measurement, improved industry standards and less friction in running mobile ad campaigns.

2

A Cross-Platform Ecosystem Emerges

Digital media has gone cross-platform, and more devices than ever before are being used to access content inside the home.

Desktop and mobile media usage are converging with traditional TV and OTT, as consumers watch their favorite content through any number of devices, including smart TVs, streaming boxes and gaming consoles.

The cross-platform era will be defined by a media-agnostic view of the consumer and comparable metrics to facilitate efficient media planning, buying and selling.

3

Advertising Gets Back to the Basics

Today's media environment is fragmented, messy and complex. Siloed platforms, varying ad formats, and disparate buying and selling processes all add friction that inhibit coordinated marketing strategies.

Issues of digital ad viewability and fraud only add to the confusion, erode trust, and distract from how advertising performance ought to be measured.

Ad measurement is finally getting back to basics with a return to the metrics that matter – reach, frequency, impressions, demographics – which are every bit as relevant today as they have ever been. But they are also getting more advanced, with the ability to go deeper on audience descriptors and tying to behavioral outcomes.

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