

Q2
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**QUARTERLY
MOBILE INDEX**

PubMatic's Quarterly Mobile Index (QMI) report was created to provide both publishers and advertisers with key insights into the mobile advertising industry.

ABOUT PUBMATIC'S QUARTERLY MOBILE INDEX

By analyzing over 12 trillion advertiser bids flowing each month through PubMatic's platform, we can observe real-time developments in the mobile space that may allude to broader digital industry trends. We can then compare this information to other published data to further understand changes in the mobile landscape. We are committed to providing best-in-class mobile tools and services, and we believe that information sharing is crucial in aligning the digital industry towards best practices and, ultimately, growth in mobile advertising.

Note that directional data might not be comparable with prior reports.

KEY TREND

01

WITH APPS AT THE CORE, MOBILE REMAINS THE ENGINE OF PROGRAMMATIC AD SPEND EXPANSION

Double-digit mobile ad spend growth continued in Q2 2018, with a majority of the expenditures going to apps. Market wide predictions of plateauing desktop ad spend are beginning to be realized.



AD SPEND SHIFT TOWARD MOBILE INTENSIFIES

Worldwide mobile ad spend enabled by PubMatic technology rose 25% YOY in Q2 2018. Desktop ad spend will remain highly relevant in absolute terms for years to come, but market wide forecasts increasingly agree that mobile will serve as the growth driver for programmatic.

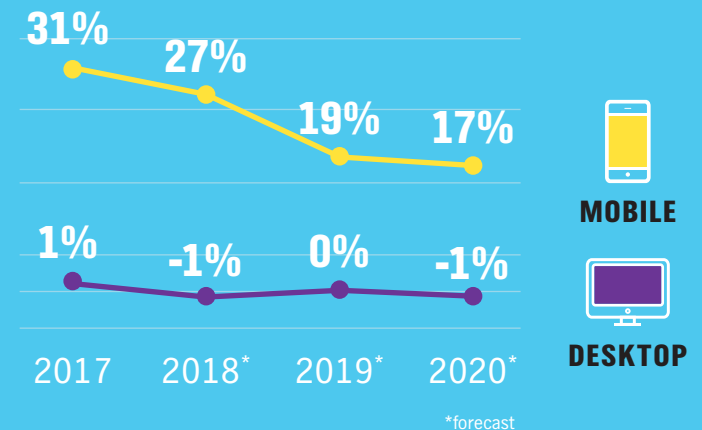
Worldwide mobile ad spend is expected to rise 27% YOY in 2018, with desktop ad budgets experiencing a 1% YOY decline over the same period. Mobile ad budgets are expected to continue to rise by double-digit rates each year through 2020, while desktop will register flat or negative yearly changes during the same period.¹

MOBILE AD SPEND WORLDWIDE, Q2 2018



+25%
YOY CHANGE

DIGITAL AD SPEND GROWTH RATE WORLDWIDE, BY PLATFORM¹

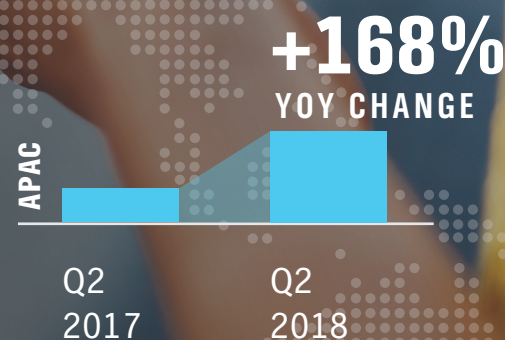
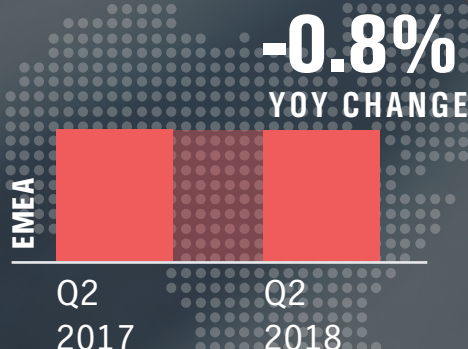
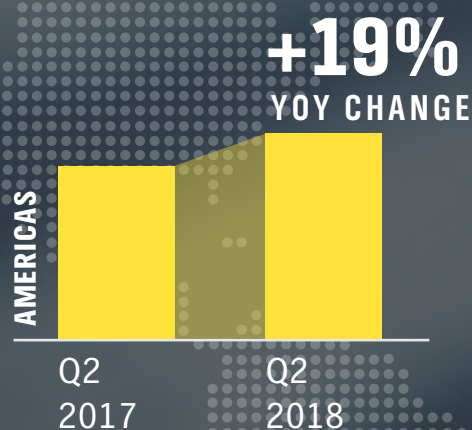


¹State of Global Internet," Barclays, based on information from Magna Global and Interactive Advertising Bureau (IAB), with eMarketer calculations, January 2018

MOBILE VOLUME GROWTH DRIVERS DIFFER BY REGION

Across the PubMatic platform, monetized mobile ad impression volume rose 26% YOY in Q2. APAC registered the greatest expansion with a 168% YOY rate, including triple-digit growth rates for both mobile web and apps. In the Americas, a 19% YOY volume expansion was primarily driven by in-app growth. Meanwhile, mobile volume in EMEA remained flat as advertiser concerns ahead of the launch of the European Union's General Data Protection Regulation (GDPR) held back spending.²

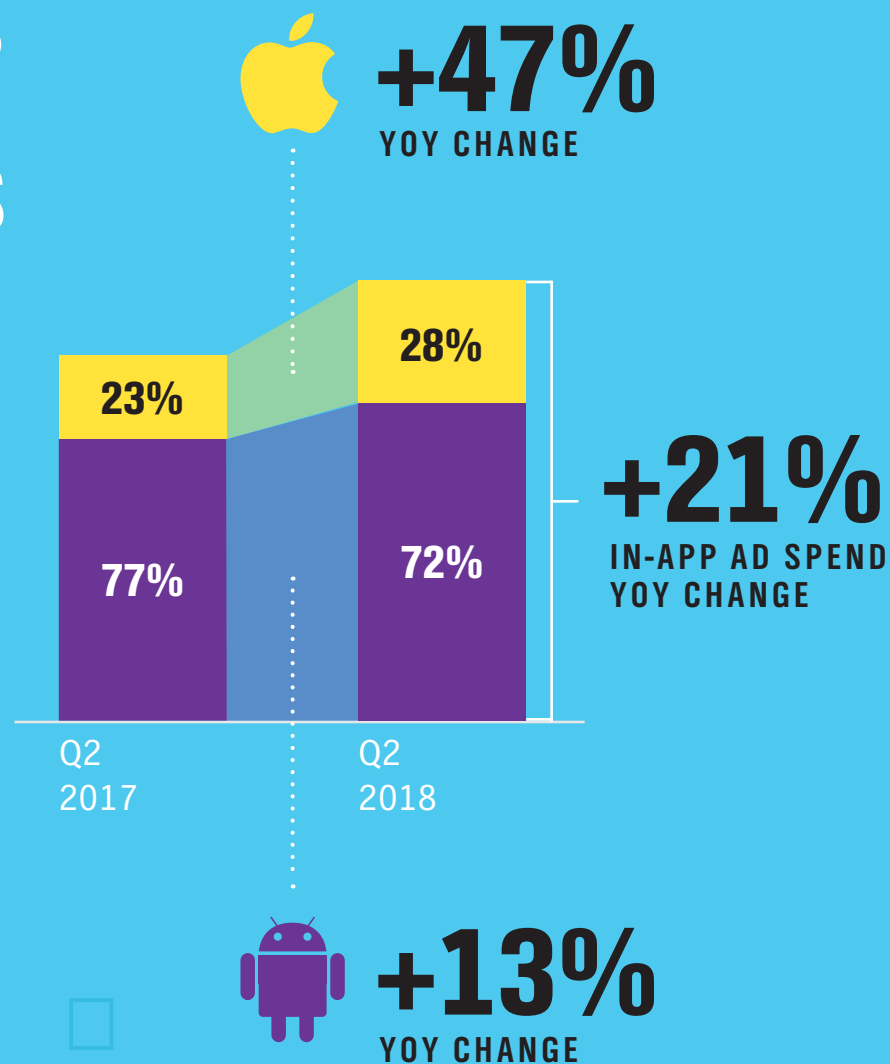
MONETIZED MOBILE IMPRESSION VOLUME WORLDWIDE, BY REGION



² "GDPR Laws Are Causing Panic in Europe," Sara Fischer, Axios, May 2018

APPS TAKE THE LION'S SHARE OF MOBILE AD SPEND, DRIVEN BY IOS

Already representing more than half of mobile ad spend worldwide, in-app ad spend growth remained strong at 21% YOY in Q2 2018. The in-app expansion was primarily driven by a 47% YOY growth rate via iOS, while Android rose 13% YOY.



IN-APP eCPMS REGISTER HIGHEST GROWTH RATE OF ALL PLATFORMS

Mobile web eCPMs declined 16% YOY as a result of downward pricing pressure from 56% YOY growth in volume, compared to a 31% YOY expansion in spend. As advertisers continued to funnel ad budgets into mobile apps, in-app eCPMs rose 11% YOY in Q2 2018. Desktop eCPMs improved 5% YOY during the same period.

DESKTOP



IN-APP



MOBILE WEB



KEY TREND

02

IN-APP SURGE FUELS MOBILE VIDEO AD SPEND INCREASE

Attracted by a massive mobile video viewership around the globe, investment in the coveted format through handheld devices is rising. Accelerating in-app video ad spend growth is hardly surprising considering that apps already represent the majority of daily mobile video viewing.³

³ eMarketer, April 2018



DIGITAL VIDEO AD SPEND SHIFTING TO MOBILE

As video consumption continues to shift toward mobile, the portion of digital video ad spend devoted to handheld devices nearly tripled between Q2 2017 and Q2 2018.

DIGITAL VIDEO AD SPEND, BY PLATFORM

MOBILE
Q2 2018
46%

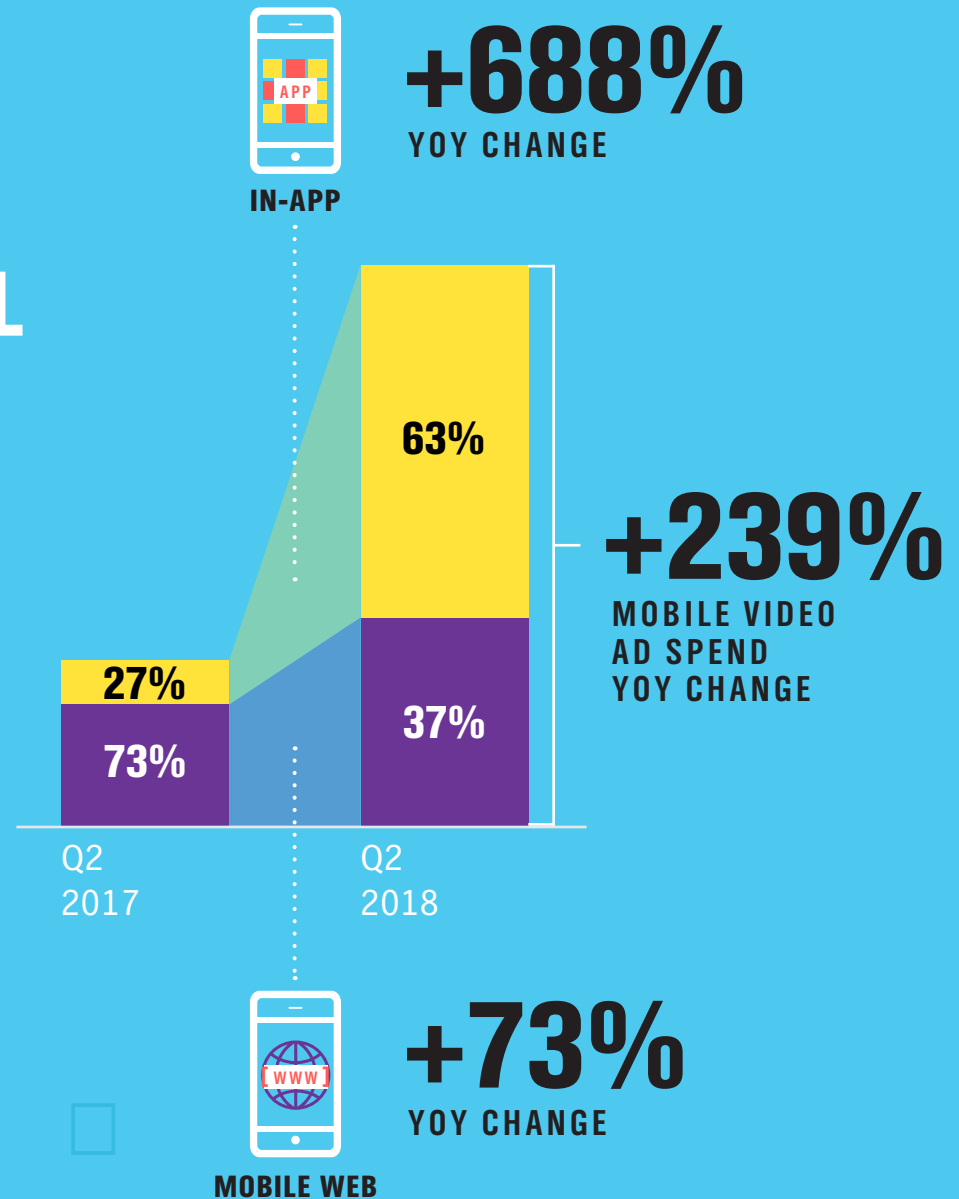
MOBILE
Q2 2017
17%

DESKTOP
Q2 2018
54%

DESKTOP
Q2 2017
83%

EXPONENTIAL IN-APP GROWTH DROVE MOBILE DIGITAL VIDEO AD SPEND

Apps represent the vast majority of time spent watching mobile video. Mobile video ad spend is increasingly matching this trend with in-app rising 688% YOY to take a 63% share in Q2 2018.



BROKEN DOWN BY FORMAT, NEARLY ONE THIRD OF IN-APP AD SPEND WAS DEVOTED TO VIDEO

Almost one third (31%) of in-app mobile ad expenditures through our platform were spent on video in Q2 2018. Video is expected to take a 22% share of US mobile programmatic display ad budgets in 2018.⁴

VIDEO SHARE
OF US MOBILE
PROGRAMMATIC
AD SPEND, 2018⁴
22%



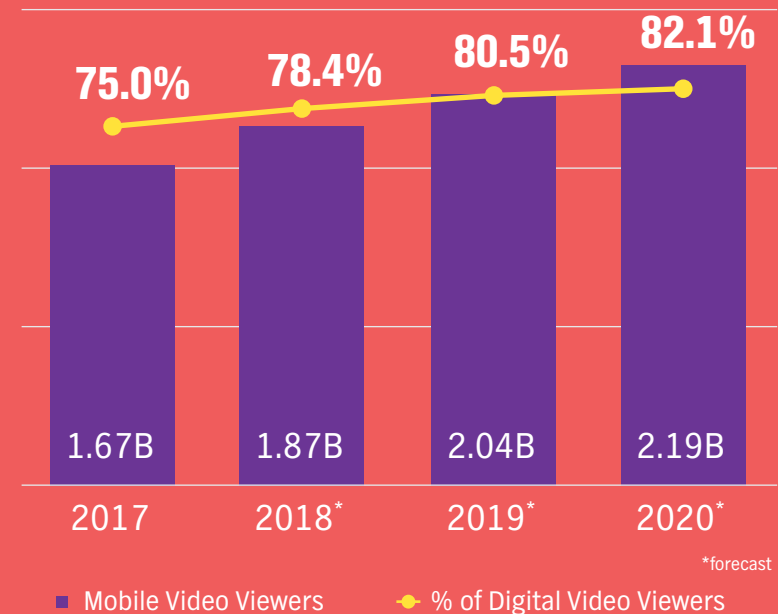
VIDEO SHARE
OF GLOBAL IN-APP
AD SPEND, Q2 2018
31%



⁴ eMarketer, March 2018

MOBILE VIDEO AUDIENCE REACHES MASS MARKET PROPORTION

The number of individuals who will watch digital video through a mobile device at least once per month is expected to reach 1.87 billion globally in 2018.⁵ That is more than three-quarters of all digital video viewers worldwide.

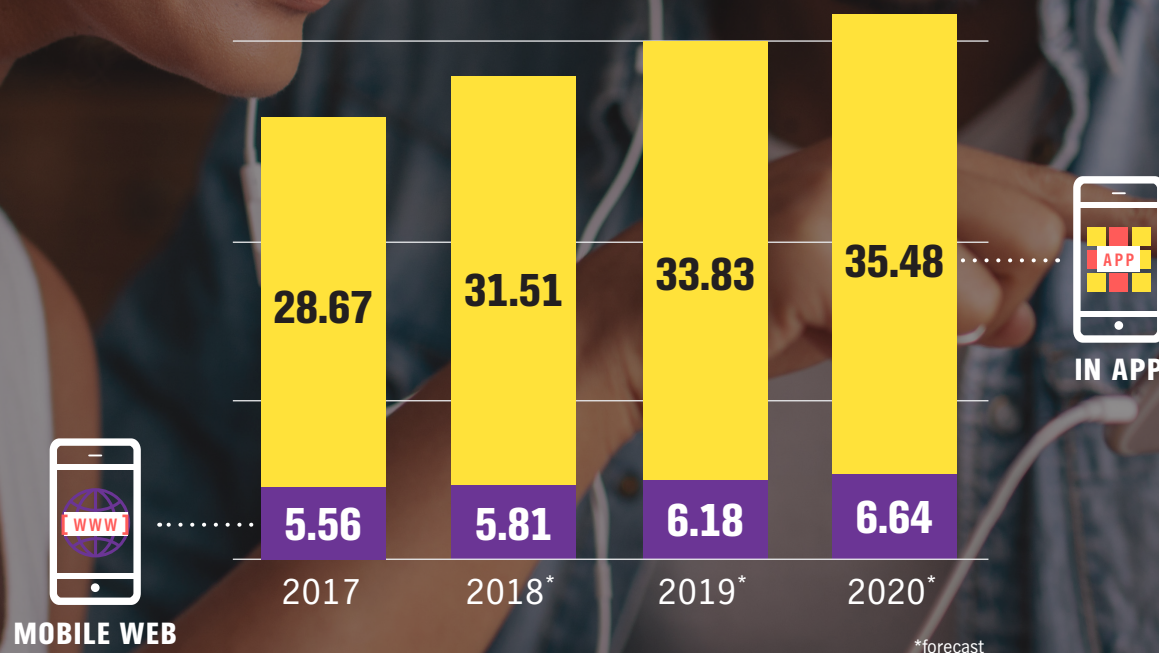


⁵ "Global Digital Video Viewers: eMarketer's Estimates and Forecast for 2016-2021, with YouTube and Mobile Video Numbers," Corey McNair, eMarketer, February 2018

MAJORITY OF MOBILE VIDEO CONSUMPTION OCCURS VIA APPS

Daily time spent watching mobile video will surpass 37 minutes among US adults in 2018, with in-app video consumption representing 85% of the total.⁶

US DAILY TIME SPENT WITH MOBILE VIDEO, IN MINUTES



⁶ eMarketer, April 2018

KEY TREND

03

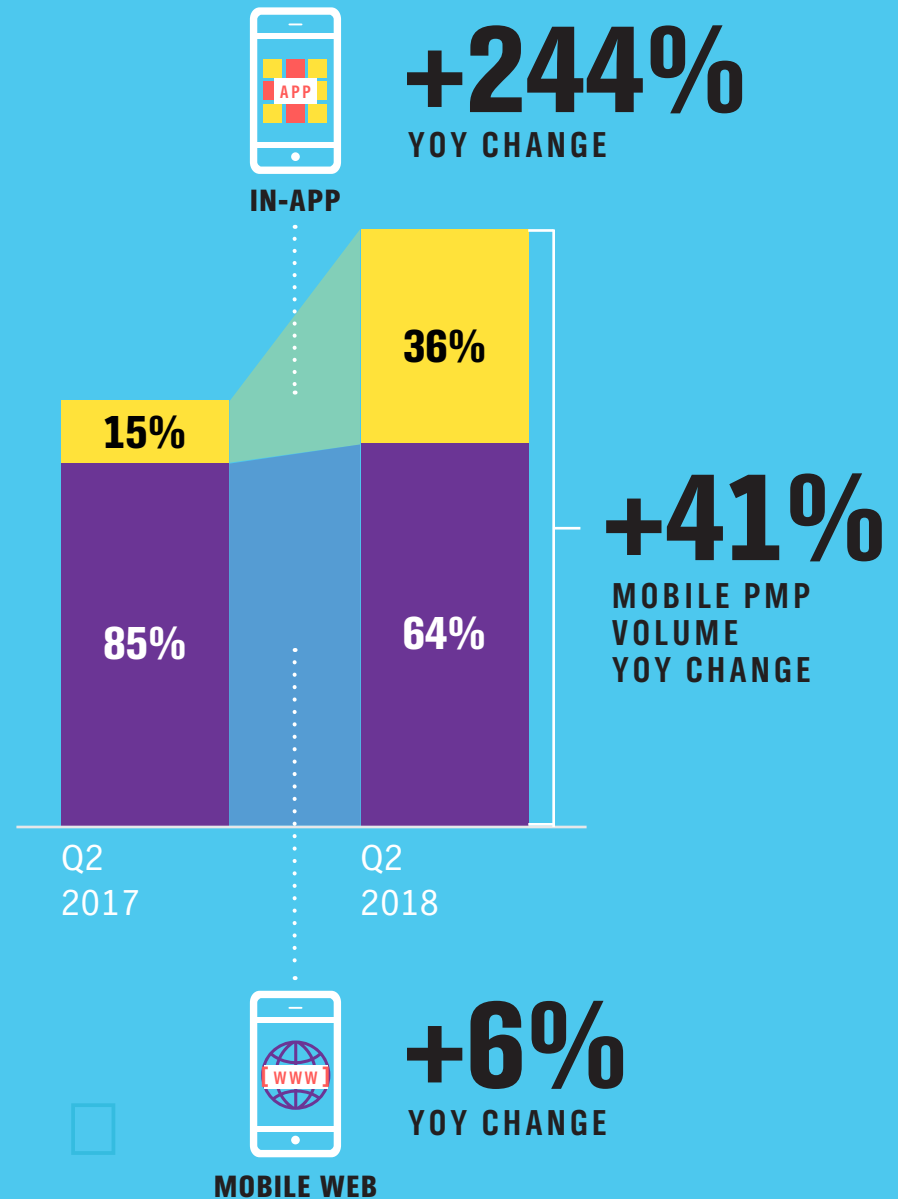
IN-APP PRIVATE MARKETPLACES FLOURISH

Consumer preference for apps over mobile browsers is attracting ad budgets. Advertisers are leveraging in-app private marketplaces (PMPs) both as a conduit to improve campaign ROI and as an additional layer of protection against fraud.



IN-APP PMP VOLUME GROWING FASTEST

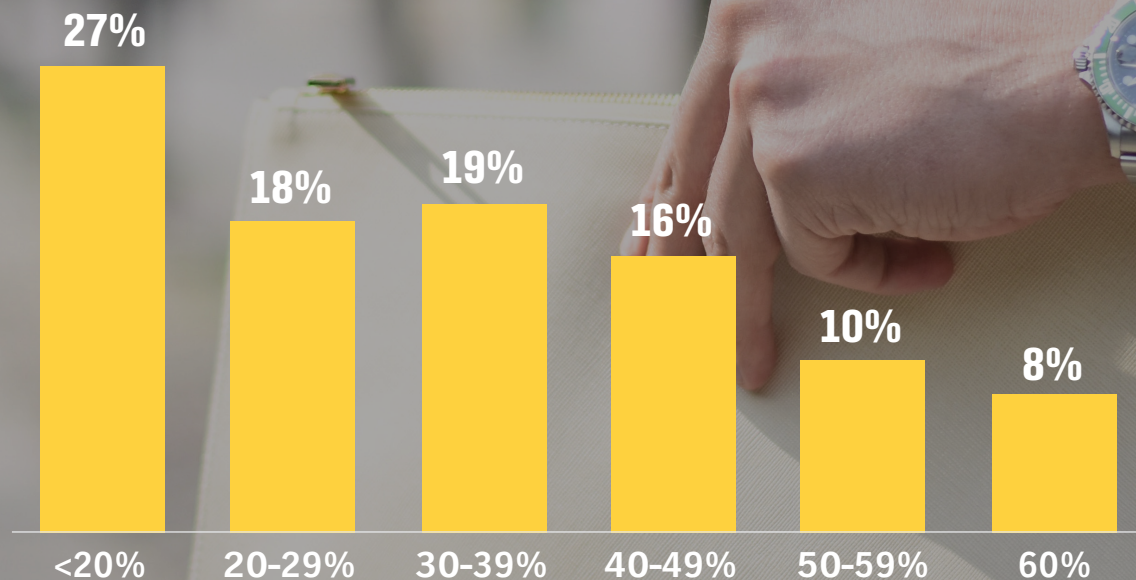
Coming from an already significant base the previous year, monetized in-app PMP impressions rose 244% YOY globally to reach a 36% share of mobile PMP volume in Q2 2018. By comparison, PMP volume improved a modest 6% YOY via mobile web and was down 13% YOY on desktop.



AD FRAUD CONCERNS RAISE INTEREST IN PMPS

Ad fraud remains a concern among in-app advertisers, with over half of mobile ad executives saying that 30% or more of their in-app ad budgets are susceptible to ad fraud.⁷ At the same time, in-app advertising is hard to pass up considering that US adults are expected to spend 167 minutes per day on mobile apps, compared to a grand total of just over 20 minutes in the mobile web.⁸ It is likely that in-app PMPs are perceived by ad buyers as a conduit to safer inventory consumed by highly engaged app users.

PERCENT OF IN-APP AD
SPEND SUBJECT TO FRAUD,
ACCORDING TO MOBILE AD
EXECUTIVES WORLDWIDE⁷



⁷ "Mobile Fraud: Marketer's Massive Hidden Threat," Forrester Consulting and AppsFlyer as cited by eMarketer, December 2017

⁸ eMarketer, April 2018

A woman with dark curly hair, wearing a white blazer, is seated at a wooden desk in a modern office. She is looking down at a smartphone in her hands. A laptop is open in front of her. In the background, another person is blurred, and office shelves and plants are visible.

ADVERTISERS INCORPORATE APPS IN OMNICHANNEL PMP STRATEGIES

Multi-faceted PMP strategies, inclusive of mobile apps and web alongside other channels, are likely to generate higher ROI. A recent PMP campaign ran by an appliance brand over eight channels saw a 468% brand lift in purchase intent, compared to the 8.4% industry average.⁹

⁹ Nielsen as cited by the American Marketing Association (AMA), December 2017



KEY TREND

04

WORLD CUP HIGHLIGHTS KEY ROLE OF PROGRAMMATIC ON MOBILE FOR MAJOR SPORTING EVENTS

The quadrennial soccer extravaganza delivered a sharp increase in weekly mobile ad spend for publishers in the sports vertical worldwide. Host region EMEA experienced the greatest expenditure boost attributable to the World Cup, while APAC publishers benefited from a major eCPM improvement. Mobile ad spend in sports sites had slowed around the GDPR launch, but the trend quickly reverted as ad buyers and sellers appeared to gain confidence about compliance with the new privacy framework,¹⁰ just in time for the World Cup Finals.

¹⁰ "A Month After GDPR Takes Effect, Programmatic Ad Spend Has Started to Recover," Seb Joseph, Digiday, June 2018



WORLD CUP ATTRACTS MASS MOBILE AUDIENCE

After scoring a huge success with over 1 billion online viewers — mostly via desktop — during the 2014 World Cup,¹¹ this year's competition was expected to extend that success by tapping into a 3.3 billion mobile internet user base worldwide, 60% of which use broadband connections.¹² According to May 2018 polling, a combined 21% of internet users worldwide said they intended to watch or listen to the World Cup via handheld devices.¹³

¹¹ "Attendance in FIFA's Global Stadium Exceeds 1 Billion Fans," FIFA, July 2014

¹² "The Mobile Economy 2018," GSMA, May 2018

¹³ "Attitudes Towards the FIFA World Cup 2018 in Russia," Ipsos, June 2018

WORLD CUP BOOSTS MOBILE AD SPEND ON SPORTS SITES

Soccer's crown jewel pushed mobile ad spend in the sports vertical up to 50% above the weekly average worldwide in Q2 2018, putting it well above the normal Q2 range (standard deviation) in the last two weeks of June. The marquee event all but cancelled an apparent slowdown in spending over the weeks around the May 25th launch of GDPR in the European Union.

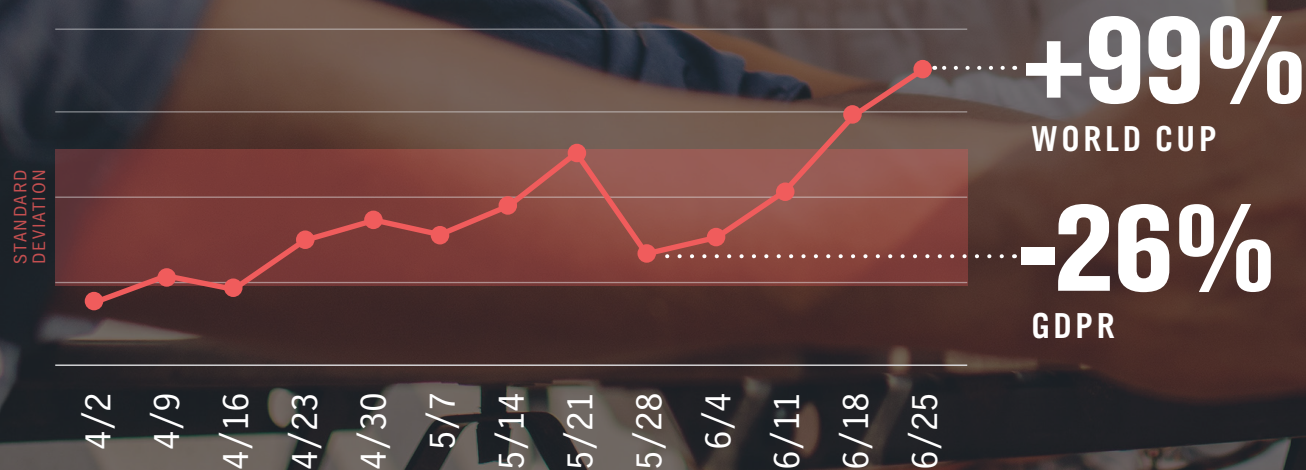
WEEKLY MOBILE AD SPEND WORLDWIDE, SPORTS VERTICAL, Q2 2018



ROBUST WORLD CUP BUMP IN EMEA

This year's schedules were favorable for fans in EMEA, with the region represented by 21 national teams, or two-thirds of the 32 squads participating. Advertisers in EMEA invested accordingly, pushing mobile ad spend in the sports vertical well above the standard deviation. During the last week of June, the halfway point in the month-long tournament, mobile ad spend nearly doubled the Q2 weekly average. Ahead of the tournament, the GDPR launch had caused a 26% slowdown on mobile ad spend during the week of May 28th, but the change remained well within the normal weekly spending range for the sports vertical.

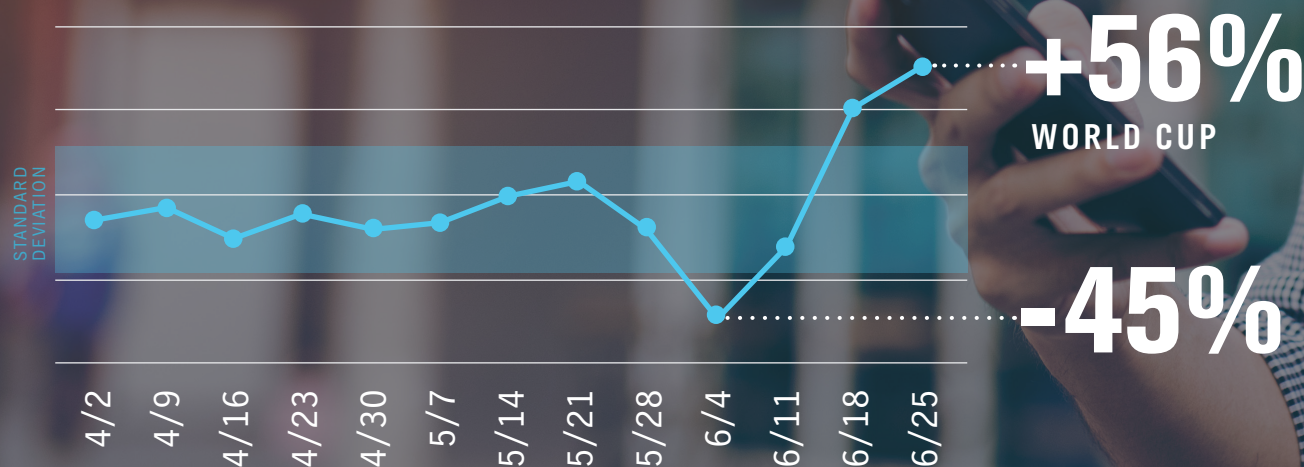
WEEKLY MOBILE AD SPEND IN EMEA, SPORTS VERTICAL, Q2 2018



APAC GETS PAST SHORT-LIVED DIP WITH STRONG WORLD CUP IMPROVEMENT

Sports publishers experienced a 45% reduction in mobile ad spend the first week of June — possibly a pullback ahead of the World Cup kick off on June 14. This proved to be a blip as tournament-related spending rolled in the following week. Mobile ad spend in the sports vertical peaked in the final week of Q2, reaching a 56% premium over the region's weekly average that quarter.

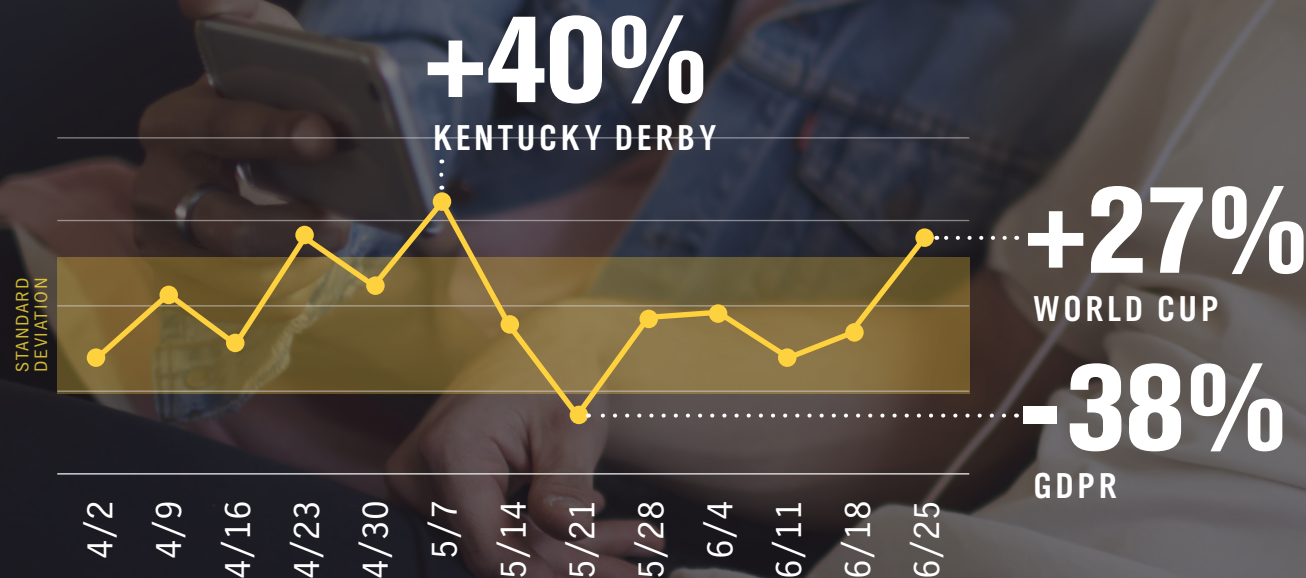
WEEKLY MOBILE AD SPEND IN APAC, SPORTS VERTICAL, Q2 2018



WORLD CUP IMPACT IN THE AMERICAS, POSITIVE BUT RELATIVELY MUTED

The Americas experienced the mildest World Cup boost with 27% higher mobile ad spend the last week of June compared to regional weekly averages in Q2 2018. While the spike was noticeable, peak mobile ad spend in the region actually occurred in the first week of May, following the Kentucky Derby. Two factors may have conflated to limit the World Cup bump in the Americas: Programmatic mobile ad spend in the region is dominated by the US; with US Soccer failing to qualify for the World Cup, digital viewership was somewhat tamed, thus providing programmatic ad buyers with less incentive to increase spending.

WEEKLY MOBILE AD SPEND IN THE AMERICAS, SPORTS VERTICAL, Q2 2018



A man with a beard and mustache, wearing a denim shirt, is smiling and looking at a smartphone held in his hands. The background is blurred, showing a wooden table and a glass of wine.

HALF OF TELEMUNDO'S WORLD CUP LIVESTREAMS WATCHED VIA MOBILE

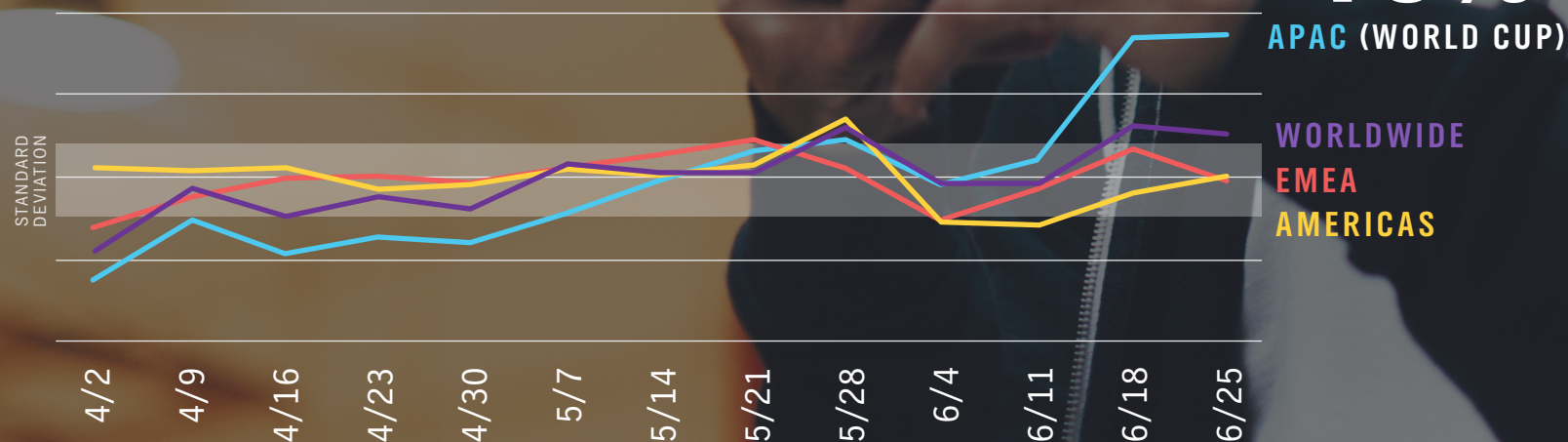
Spanish-language broadcaster Telemundo reported that, by the end of the group stage, its online coverage of the World Cup in the US approached 11 million unique viewers and had surpassed 105 million livestreams, half of which occurred on a mobile device.¹⁴

¹⁴ "Half of Telemundo's Live Digital Viewers for the World Cup are Watching on Mobile Devices," Sahil Patel, Digiday, July 2018

LOCALIZED WORLD CUP IMPACT ON eCPMS

Global mobile eCPMs in the sports vertical were 20% to 30% higher than the Q2 average during World Cup dates. A closer look by region reveals that eCPMs in APAC climbed more than 70% above the average, as Starcom, powered by Publicis Media Asia Pacific, partnered with PubMatic on the exclusive launch of a Targeted PMP which significantly improved campaign performance for South East Asia advertisers. Across the Americas and EMEA, mobile eCPMs in the sports vertical remained within one percentage point of each region's weekly average during the same period.

WEEKLY MOBILE eCPM VARIANCE BY REGION, SPORTS VERTICAL, Q2 2018



QMI Methodology

PubMatic's yield and data analytics team analyzes over 12 trillion advertiser bids on a monthly basis, utilizing the company's best-in-class analytics capabilities. The Q2 2018 QMI incorporates impressions, revenue and eCPM data from these reports to provide a high-level analysis of key trends within the mobile advertising industry. Data is from the second quarter of 2018 (i.e., April 1, 2018 to June 30, 2018), as well as the corresponding prior year periods. Analysis is based on PubMatic-sourced data except as noted. Percentages in some figures may not sum to 100% due to rounding. "Monetized impressions" or "paid impressions" are defined as impressions that were sold through the PubMatic platform, and "eCPM" is defined as the cost per one thousand impressions.

Disclaimer: This QMI may include inaccuracies or typographical errors, and is based on operational data that has not been audited or reviewed by a third party. It may contain forward-looking statements about future results and other events that have not yet occurred. Actual results may differ materially from PubMatic's expressed expectations due to future risks and uncertainties, and past performance or trends are no guarantee of future results. PubMatic does not intend to update the information contained in this QMI if any information or statement contained herein later turns out to be inaccurate.



About PubMatic

PubMatic is a publisher-focused sell-side platform for an open digital media future. Featuring leading omni-channel revenue automation technology for publishers and enterprise-grade programmatic tools for media buyers, PubMatic's publisher-first approach enables advertisers to access premium inventory at scale. Processing over 12 trillion advertiser bids per month, PubMatic has created a global infrastructure to drive publisher monetization and control over their ad inventory. Since 2006,

PubMatic's focus on data and technology innovation has fueled the rise of the programmatic industry as a whole. Headquartered in Redwood City, California, PubMatic operates 13 offices and six data centers worldwide.

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