

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 13 trillion global 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. At PubMatic, we are committed to providing best-in-class mobile tools and services, and 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.



01

In-app launches video ad spending to new heights

KEY TREND

02

Header bidding unwraps mobile video ad revenue potential

NEY TREND

Holiday shopping shifts earlier, boosting global ad spending





The time is now to prioritize the mobile in-app video experience.

Almost all mobile programmatic ad spending comes from apps.1 In the age of mobile, and now video, buyers are attracted to in-app video experiences that can reach a steady stream of engaged audiences. As media shifts towards more interactive, dynamic formats, publishers who are poised in-app are primed to capture the growing ad revenue opportunity. To provide optimum viewing experiences and maximize ad efforts, it is important for publishers to ensure high quality inventory standards and for advertisers to tailor campaigns at welcomed levels of ad engagement to the right audiences.

"Mobile programmatic ad spending share, in-app vs mobile web," Smaato, February 2018

Employ mobile header bidding for video ad inventory to optimize monetization strategies.

Despite cost, resource and time-prohibitive implementation efforts, in-app header bidding usage continues to grow because its benefits are clear. As both mobile and video ad demand continues to soar, publishers and app developers who invest in video header bidding solutions in-app will extend their inventory monetization efforts. Like the web space, in-app waterfalls are inefficient auction methods that can cause slow load times if bid or technical issues arise, which is an especially undesirable experience for video ads.²

Aptly timed inventory grooming maximizes ad revenue.

It is critical to align inventory preparation strategies to shifting consumption trends. Publishers and app developers should focus on content development and inventory quality controls far in advance of marquee shopping events. More importantly, inventory quality grooming before peak times optimizes monetization efforts. Publishers are leveraging tactics such as Open Measurement SDK, PMP, and app-ads.txt tactics to gain better control, while building trust and transparency with brands.

'Mobile Video Monetization 2019," eMarketer, November 2019



IN-APP LAUNCHES VIDEO AD SPENDING TO NEW HEIGHTS

Video is one of the most powerful tools in the mobile advertising toolkit. Viewers retain 95% of a message from video as opposed to only 10% from text.3 Then, it is no surprise that video ad spending exploded across the digital advertising landscape over the last year. With media consumption increasingly shifting in-app where users are most captive, the opportunity growth for video ad spending looms large.

³ "How To Incorporate Video Into Your Social Media Strategy," Lyndsi Stafford, Forbes, July 2017

MOBILE AD SPENDING EXPANDS THANKS TO STRONG IN-APP PERFORMANCE

The mobile programmatic opportunity is booming as advertisers direct their attention on engaged mobile audiences through automated channels. Overall mobile platform spending rose 47% over last quarter, driven by in-app ads which spiked 62%. During the same period last year, in-app ads rose 58%, pointing to an acceleration this coming year.



+47%

Qo(CH

+28%
QOQ
CHANGE

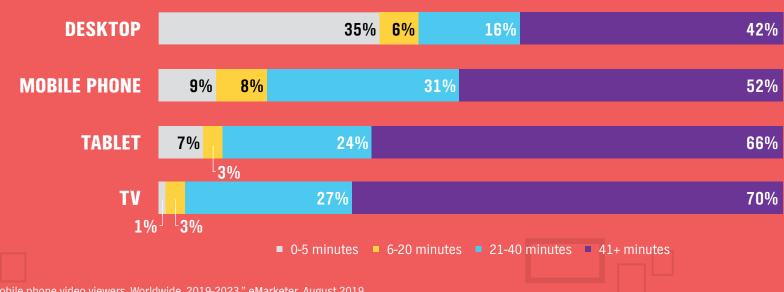
Q2 2019 Q3 2019

Q4 2019

LONG FORM CONTENT ACCOUNTS FOR THE MAJORITY OF MOBILE TIME SPENT

Two billion users worldwide watch videos on their mobile devices in 2020.⁴ This population continues to rise as viewers increasingly shift media consumption behaviors away from traditional screens. Once ignited by short-form video programming, 83% of time spent watching mobile digital videos is now on programming that are at least 21 minutes long, which is typically comprised of episodic and cinematic media content.⁵

SHARE OF TIME SPENT WATCHING DIGITAL VIDEO WORLDWIDE, BY DEVICE AND VIDEO LENGTH (% OF TOTAL)⁵

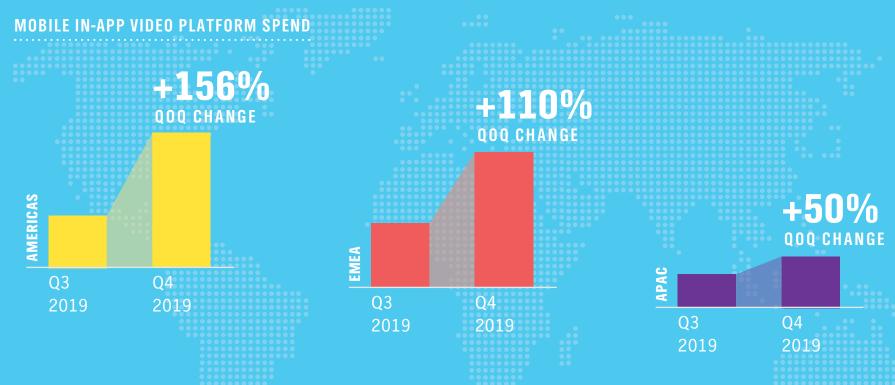


⁴ "Mobile phone video viewers, Worldwide, 2019-2023," eMarketer, August 2019

⁵ "Global Video Index: Q2 2019," BrightCove, September 24, 2019

IN-APP VIDEO SPENDING EXPANDS ACROSS ALL REGIONS GLOBALLY

Following high mobile network connection speeds in North America and Western Europe, in-app video ad spending more than doubled in both regions over last quarter, and grew faster than the same time last year. APAC also saw strong growth this quarter; in-app video spending rose 50% in the region. With faster network speeds and a push towards more interactive media, mobile video is expected to account for 79% of mobile data traffic by 2022.⁶



⁶ "Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2017-2022 White Paper," Cisco, February 2019

02

HEADER BIDDING UNWRAPS MOBILE VIDEO AD REVENUE POTENTIAL

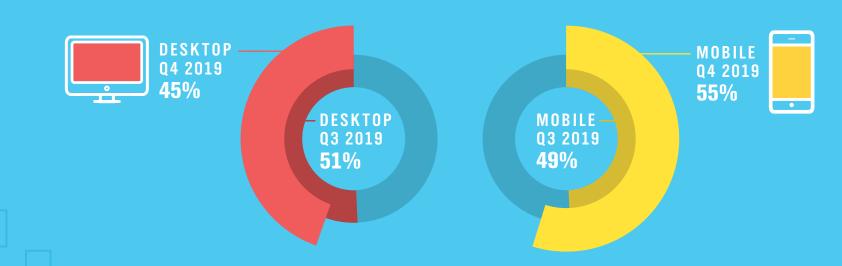
2019 was a pivotal year for header bidding. While it is familiar territory in the web space, header bidding is met with scaling challenges in-app due to labor intensive SDK integrations, and latency issues from the resulting SDK weight. Though many publishers are investing their resources in-app, there is still more opportunity to grow. Surging mobile in-app video ads are beckoning for header bidding to better streamline the ecosystem.



MOBILE SURPASSED DESKTOP HEADER BIDDING AD SPENDING

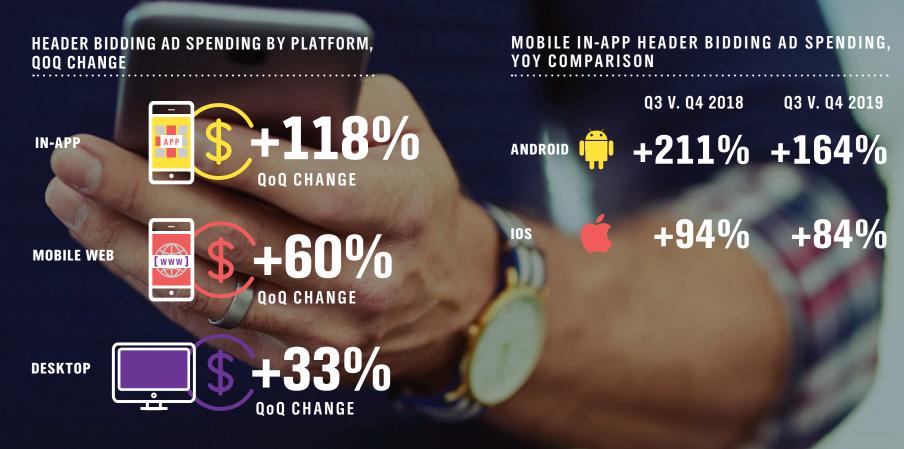
Overall header bidding ad spending rose 51% over last quarter, showing slower growth than last year, signifying market maturity. The majority of this growth came from mobile devices—propelling the mobile share of header bidding to 55% percent—a significant shift from 49% last quarter.

HEADER BIDDING AD SPENDING SHARE, BY DEVICE



HEADER BIDDING PRACTICES MOVE IN-APP

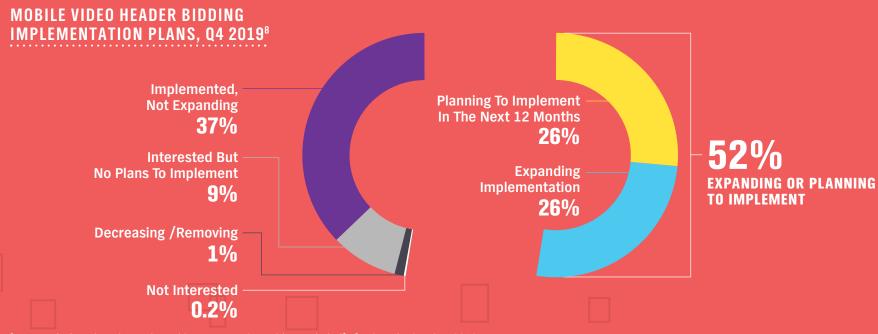
The adoption of first-price auction and less labor-intensive SDK-level integration efforts is finally allowing in-app ads make significant strides in header bidding transactions. Mobile in-app header bidding spending doubled over last quarter, with strong performance across Android and iOS platforms. It maintained slightly more tempered Q4 growth trends relative to last year.



⁷ "The Rise of True In-App Header Bidding," Mathew Broughton, ExchangeWire, July 2019

PUBLISHERS INVEST IN HEADER BIDDING TO BETTER MONETIZE MOBILE VIDEO INVENTORY

Mobile video header bidding ad spending grew 2.4 times over last quarter, far outpacing display growth. While it is still early days for video header bidding, many publishers are actively opening up their inventory to capture future revenue opportunities. More than half of global publishers were reported expanding or planning to implement video header bidding solutions on mobile.⁸



⁸ A commissioned study conducted by Forrester Consulting on behalf of PubMatic, October 2019.
Base: 622 director level and above sales, operations, and IT professionals at publishers and media companies in the US, Europe, and APAC

 $_{\odot}$ 2020 PUBMATIC, INC. ALL RIGHTS RESERVED Q4 2019 QUARTERLY MOBILE INDEX / 11

03

HOLIDAY SHOPPING SHIFTS EARLIER, BOOSTING GLOBAL AD SPENDING

More people do their holiday shopping on mobile than ever before. Retailers use mobile platforms as a complement to their existing strategies to drive online sales or shoppers into physical stores. While advertisers concentrate ad buys around Black Friday/Cyber Monday and days before Christmas, the holiday shopping season is starting earlier than previous years. Demonstrating quality inventory is critical during the holiday season to build trust with advertisers.

⁹ "More people will shop on mobile than desktop this holiday," Lisa Rowan, Retail Dive, November 2019



HOLIDAY AD SPENDING PEAKS ON BLACK FRIDAY AND AGAIN BEFORE CHRISTMAS

While ad spending rises throughout Q4, spending is focused around peak shopping days: Black Friday, Cyber Monday and the week leading up to Christmas. Black Friday continues to be the biggest holiday event for brand advertisers to convert target customers online or in-store.





WORLDWIDE MOBILE AD SPEND, Q4 2019

HOLIDAY AD SPENDING SURGE OCCURS EARLIER THAN LAST YEAR Holiday ad spending surges the week leading up to Black Friday. However, in Q4 2019, the surge began almost two weeks before Black Friday; ad spending spiked 25%, noticeably higher than 2018 when it rose 16% over the same period. WORLDWIDE MOBILE AD SPEND, Q4 2018 VS Q4 2019 PRE-SHOPPING **EVENT BOOST** CYBER BLACK MONDAY FRIDAY Week 1* Week 2 Week 3 Week 4 Week 5 Week 6 Week 7 Week 8 Week 9 Week 10 Week 11 Week 12 *Week 1 is Indexed © 2020 PUBMATIC, INC. ALL RIGHTS RESERVED Q4 2019 QUARTERLY MOBILE INDEX / 14

QMI Methodology

PubMatic's yield and data analytics team analyzes over 13 trillion advertiser bids on a monthly basis, utilizing the company's best-in-class analytics capabilities. The Q4 2019 QMI incorporates impressions, revenue and eCPM data from these reports to provide a high-level analysis of key trends within the mobile advertising industry. 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.



PubMatic delivers superior revenue to publishers by being the sell-side platform of choice for agencies and advertisers. The PubMatic platform empowers independent app developers and publishers to maximize their digital advertising monetization while enabling advertisers to increase ROI by reaching and engaging their target audiences in brand-safe, premium environments across ad formats and devices. Since 2006, PubMatic has created an efficient, global infrastructure

and remains at the forefront of programmatic innovation. Headquartered in Redwood City, California, PubMatic operates 14 offices and nine data centers worldwide.

PubMatic is a registered trademark of PubMatic, Inc. Other trademarks are the property of their respective owners.

PUBMATIC CONTACT

Research Contact:

contact: Press Contact:

SUSAN WU

Director, Marketing Research pubmaticteam@broadsheetcomms.com

susan.wu@pubmatic.com

Sales Contacts:

JEFFREY HIRSCH

Chief Commercial Officer jeffrey.hirsch@pubmatic.com

EMMA NEWMAN

Chief Revenue Officer, EMEA emma.newman@pubmatic.com

BROADSHEET COMMUNICATIONS

JASON BARNES

Chief Revenue Officer, APAC jason.barnes@pubmatic.com

JAAN JANES

VP, Customer Success, US jaan.janes@pubmatic.com

KYLE DOZEMAN

VP, Advertiser Solutions, US kyle.dozeman@pubmatic.com

