

A large, stylized sculpture of a horse, rendered in a digital, circuit-like aesthetic. The horse is composed of intricate patterns of teal and blue circuitry, with glowing orange and red lights at its eyes and joints. The background is a dense field of binary code (0s and 1s) in shades of blue and green, creating a sense of depth and digital space. The overall composition is dynamic and futuristic.

# Measuring digital advertising revenue to infringing sites

TAG US benchmarking study

September 2017

The EY logo, consisting of the letters 'EY' in a bold, white, sans-serif font. A yellow diagonal bar is positioned above the 'Y', extending from the top right towards the center of the logo.

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## Executive summary

Digital advertising has grown at a significant pace over the past several years. Although it offers many advantages for the media and advertising industry, such as ad targeting, cost efficiencies and data enrichment, it also presents some serious challenges.

One of the main problems facing digital advertisers is digital piracy: the illegal practice of using websites and peer-to-peer networks to host or access copyright-protected content, such as videos and music, without authorization. Piracy not only harms the supply side by cutting into revenue, it also damages advertisers' brand integrity, even linking them to fraud and other criminal activity.

Increasingly, the industry is looking to data to understand the impact of piracy and how to fight it. In November 2015, Ernst & Young LLP (EY) published the findings of a US benchmarking study performed for the Interactive Advertising Bureau, titled "What is an untrustworthy supply chain costing the US digital advertising industry?" That study found that infringed content had cost content owners an estimated \$2.4 billion annually in lost revenue. At that time, we cautioned that unless proper action were taken, piracy usage levels could increase, driven by technological improvements, increasing bandwidth, aids to protect anonymity, a growing moral acceptance of piracy and other factors.

Now, EY takes a closer look at piracy in the digital advertising area. In 2016, the Trustworthy Accountability Group (TAG) commissioned EY's Media & Entertainment Advisory practice to perform a benchmarking study gauging the impact of digital piracy and the effectiveness of quality control in the US market.

The study found that in 2016, digital advertising revenue linked to infringed media was an estimated \$111 million, including \$36 million from premium advertisers and \$75 million from non-premium advertisers, such as gaming, dating and virtual private network security services. Although this estimate is far from trivial, it is a relatively low percentage of the overall US digital ad revenue of more than \$60 billion.

Our research also indicated that quality control steps are having a positive impact. Initiatives such as appropriate language in insertion orders, use of ad verification vendors, and use of lists to block undesirable sites were found to have kept an estimated \$102 million to \$177 million out of the pirates' pockets.



# ADVERTISING

## Study background and objectives

TAG was created in 2015 to foster transformational improvement at scale across the digital advertising ecosystem, focusing on ad-supported infringed content as well as fraudulent traffic, malware and digital media transparency.

In commissioning this EY study, TAG set forth two objectives:

**Objective 1.** Estimate the annual revenue that piracy operations earn from digital ads served linked to copyright-infringed content

**Objective 2.** Estimate the financial impact of the quality control steps taken by the digital ad industry to address this area

The purpose of the study was to provide TAG with objective estimates to assist in evaluating the effectiveness of their current infringed-content program as well as the overall impact of all the quality control initiatives being performed by the industry.

EY conducted this study independently on behalf of TAG between July 2016 and July 2017. The data used in the study was provided by various digital advertising ecosystem participants.

EY did not audit the information given to it and provides no opinion or other forms of assurance with respect to the report's findings.

EY wishes to thank TAG for the opportunity to perform this study; the TAG Anti-Piracy Working Group co-chairs, John Montgomery of GroupM and David Green of NBCUniversal, who served as guiding hands during the various stages of the project; and The Trade Desk and Pathmatics, the two principal data sources for the project.

## Digital piracy and quality control

### How digital piracy harms the industry

The most common types of infringed content are video, music, live events, video games, books and software.

From a business perspective, copyright infringement operators generate revenue through advertising, donations, subscriptions and direct transactions, and by collecting money for infecting with malware any computers that visit the sites they operate.

The media and advertising industry is impacted by infringed content in several ways. First, when consumers access content illegally, media supply-side entities – content owners, content creators, cable operators, movie theaters and streaming services – lose revenue in the form of advertising, subscription sales or ticket sales.

Second, advertisers' brand integrity suffers when their ads are served alongside infringed content, as the advertisers appear to be supporting illegal activity.

Finally, advertisers can be associated with fraud and criminal activity if an infringed site infects a consumer's computer with malware that directs browsers to drive fraudulent traffic.

### Battling the piracy problem

Many digital advertising industry participants are taking various quality-control steps to fight the corruption, including:

- ▶ Contract wording from the buy side (e.g., advertisers and agencies)
- ▶ Use of "do not advertise" lists at multiple levels to block ads being served to these sites
- ▶ Use of data analytics firms to identify ads being served at these sites and then inform the brands
- ▶ Legal action by content owners

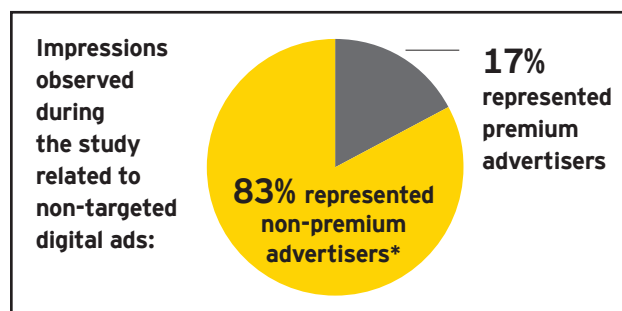
## Findings, by the numbers

### Objective 1.

To estimate the ad revenue linked to infringed media content, we analyzed 672 websites with a high degree of infringing content that also serve advertising (see appendix for full methodology).

Ad revenue equals volume (expressed as impressions) multiplied by rate (expressed as CPMs, or cost per thousand impressions). Rates vary according to advertiser quality. In the programmatic targeted digital ad marketplace on infringing sites, our study observed:

	Display rates	Video rates
Premium advertisers (i.e., public companies and recognizable brands) paying estimated rates	\$5 CPM	\$14 CPM



# \$111m

The estimated 2016 digital ad revenue linked to infringed media. This figure breaks down as follows:

**\$75m**  
non-premium  
advertisers\*

**\$36m**  
premium  
advertisers

\*Examples of non-premium advertisers include gaming, dating and virtual private network (VPN) security services.

### Objective 2.

To estimate the financial impact of industry efforts to combat online ad-supported piracy, we combined the impression levels noted in Objective 1 with the \$14 video and \$5 display CPMs to estimate the ad revenue if no quality control existed.

If the industry were taking no quality-control steps and digital piracy operators served only premium advertisers, we estimate that those operators could earn **\$213m** annually from digital ads.

In actuality, they earned an estimated **\$111m** from those ads in 2016. The difference of **\$102m** is a strong indication that quality-control efforts are having a significant effect.

Another consideration is that non-premium advertisers are likely targeting pirating sites on purpose and would not be easily persuaded to abandon them. As a result, the use of quality-control for brand integrity is largely not applicable or relevant. Therefore the estimated impact of current industry actions could be increased to **\$177m** if we consider only the current estimate of **\$36m** for premium advertisers (i.e., \$213m-\$36m = \$177m).

# \$102m-\$177m

estimated amount kept out of pirates' pockets in 2016 due to industry efforts to combat ad-supported digital piracy

See the appendix for details on the estimation methodology and calculations.



## Key takeaways

- ▶ The various quality-control steps taken by the industry (e.g., contract wording from the buy side, use of monitoring lists at multiple levels to block ads being served to these sites) appear to be having a positive impact (range of estimated annual impact is \$102m to \$177m) in the US market. For example, as it relates to non-targeted ads, we observed a larger percentage (67%) coming from non-premium advertisers, such as gaming, dating and virtual private network (VPN) security services. As these advertisers are not likely to be concerned with brand integrity and are likely targeting infringed content sites on purpose because of the demographic (e.g., infringed content users want to protect their anonymity and are a good target for a VPN security service advertiser), it may prove difficult to eliminate their ad-serving to these sites. However, by implementing appropriate quality assurance measures, these advertisers, and the advertising networks that serve them, will become increasingly isolated, reducing revenue to the sites and discouraging any ad network with ambitions to serve legitimate sites from doing business with the infringing sites and the companies that want their ads to appear there.
- ▶ While the \$111m ad revenue estimate represents less than 1% of the total US digital advertising market, that figure must be evaluated in the context of the overall harm that infringing content inflicts upon content producers. In the November 2015 US benchmarking study performed for the Interactive Advertising Bureau titled "What is an untrustworthy supply chain costing the

US digital advertising industry?," EY estimated that the revenue cost from infringed content was \$2.4 billion. Given the lack of investment associated with distributing infringing materials – the websites do not pay for any of the content they make available – the \$111m must be seen as an important incentive for the infringing websites to stay in business. If that estimated level could be significantly reduced, the sites would lose a major source of revenue and a reason to continue operating. Moreover, although the infringing sites can also make money by subscriptions, donations, malware installations, and non-premium advertising, premium advertising is not only especially lucrative (\$14 per CPM for video; \$5 for display), it also lends these sites a veneer of legitimacy that would be hard to replace.

- ▶ **Premium advertisers themselves are exposed to substantial, if hard to quantify, harms by being associated with infringing websites.** Recent press stories have linked advertisers to undesirable content, such as fake news, hate speech and terrorist recruitment videos, with devastating effects on brand reputation; infringing websites distributing content illegally fall into the same bucket. Fortunately, there are readily available tools to decrease the likelihood that premium ads will be placed on infringing sites. Quality-control steps, such as ensuring appropriate language is in insertion orders, using ad verification vendors, making use of lists to block undesirable sites, and other tools, can help ensure that any advertising by premium brands on infringing sites is minimal.





# Appendix: study methodology

## Objective 1

- ▶ We compiled a list of approximately 672 websites with a high degree of infringing content that also serve advertising (the “infringing site list” or “list”). This compilation process was performed by obtaining some current monitoring lists used by several of the major trade associations fighting online piracy as of November 2016 and then using independent means to assess their appropriateness. Based on the information of these associations, it was estimated that these sites represented approximately 90% of the current traffic or activity related to infringed media content. The remaining sites (known as the long tail), representing 10% of the traffic, are also important to consider, as their collective impact can run into the tens of thousands of dollars; however, for purposes of our monitoring methodology described below, the 672 sites were used for this study.
- ▶ This infringing site list was provided to a programmatic demand-side platform, The Trade Desk, which used the list to make bids for this research during a one-month period, from 15 November 2016 to 15 December 2016. The purpose of this step was to estimate the display and video CPMs for the list and the daily ad spend in a programmatic marketplace for serving targeted ads to the list.
- ▶ The infringing site list was also provided to a digital analytic company, Pathmatics, which has an advertising scraping technology (i.e., ability to monitor sites and compile the names of advertisers being served at those sites). Pathmatics then compiled a list of advertisers observed at those sites from 15 November 2016 to 15 December 2016. Pathmatics also provided impression-level estimates; however, their methodology focuses on non-targeted ads (i.e., the same ad would be served on a browser without consideration to previous browsing or captured cookie data). The distribution of the impressions observed by Pathmatics during the monthly monitoring related to non-targeted digital ads was as follows:
  - ▶ 83% of the impressions for non-targeted digital ads represented non-premium advertisers
    - ▶ 99% display and 1% video
  - ▶ 17% of the impressions for non-targeted digital ads represented premium advertisers
    - ▶ 95% display and 5% video
- ▶ The data recorded during the one-month period was annualized for 2016 and US only. For the impressions captured by Pathmatics, each advertiser was classified as premium or non-premium. Premium was defined as a public company or recognizable commercial brand. Non-premium was defined as those used for VPN services, gaming or dating. We classified the advertisements in this manner because the non-premium advertisers likely target these sites and corresponding users on purpose, and are not concerned with brand integrity. For example, a heavily observed non-premium advertiser offered VPN services that are popular with users of infringing content, as these services help users avoid detection by protecting their anonymity.
- ▶ Once the data was summarized and annualized, the following calculations were performed to determine the \$111m of estimated revenue earned by serving digital ads with infringed content:
  - ▶ \$14 video and \$5 display CPMs were combined with premium advertiser estimated impressions to total \$11m for non-targeted ads.
  - ▶ \$25m was estimated for targeted ads through the programmatic marketplace.
  - ▶ Impressions for non-premium advertisers were combined with \$7 video and \$2.50 display CPMs. Lower CPMs were used judgmentally as we believe it is likely these ads are based on fixed, direct deals between the sites and the advertiser.
  - ▶ Impressions for one non-premium advertiser for VPN services were combined with a \$1 CPM judgmentally because of the high impression volume on one site and a similar belief that it is likely these ads are based on fixed, direct deals between the sites and the advertiser.

Summary of annual US piracy ad revenue – 2016	Cost	Percentage of total cost	Estimated CPMs
Premium advertising revenue – targeted ads	\$25m	22.23%	\$14 and \$5
Premium advertising revenue – non-targeted ads	\$11m	10.03%	\$14 and \$5
Non-premium advertising revenue for one VPN advertiser	\$9m	8.19%	\$1
Remaining non-premium advertising revenue	\$66m	59.55%	\$7 and \$2.50
<b>Total</b>	<b>\$ 111m</b>	<b>100.00%</b>	



## Objective 2

- ▶ To estimate the impact of the quality-control steps taken by the industry, all the impressions noted in Objective 1 were combined with the \$14 video and \$5 display CPMs. Currently, 67% of the inventory on these sites relate to non-premium advertisers, and this level is likely impacted by the various quality-control steps (e.g., contract wording from the buy side, use of monitoring lists at multiple levels to avoid ads being served to these sites). If no quality-control steps were used and all of these ad-serving opportunities were used by premium advertisers, then the estimated annual ad revenue would be \$213m.
- ▶ The \$213m potential annual ad revenue estimate was used to build a range (\$102m to \$177m) measuring the impact of the quality-control steps taken by the industry. The \$102m resulted from taking the difference between the \$213m and the \$111m estimated above (i.e., US ad revenue for 2016 linked to infringed media content for both premium and non-premium advertisers). The \$177m is calculated by taking the difference between \$213m and \$36m from Objective 1 (i.e., US ad revenue for 2016 serving ads near infringed content for premium advertisers only). It is likely that non-premium advertisers are less concerned with brand integrity and are targeting these sites on purpose. As a result, quality-control steps may not be applicable to non-premium advertisers.

Summary of the impact of industry quality control steps	Low	High
Estimated revenue if no anti-piracy quality control steps were used	\$213m	\$213m
Less: estimated ad revenue earned by pirated media properties	\$111m	
Less: estimated premium ad revenue earned by pirated media properties		\$36m
<b>Estimated range</b>	<b>\$102m</b>	<b>\$177m</b>



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