THE ECONOMIC COST OF BAD ACTORS ON THE INTERNET

Ad Fraud

2019

CHEQ

BAD ACTORS ON THE INTERNET

The internet has heralded an economic revolution. The internet economy of the G20 countries alone is worth more than $4.2 trillion representing 5.3% of their total GDP. However as Tim Berners Lee, the father of the internet has put it: "While the web has created opportunity, given marginalized groups a voice, and made our daily lives easier, **it has also created opportunity for scammers, given a voice to those who spread hatred, and made all kinds of crime easier to commit.**"

In a series of reports, we reveal the monetary cost caused by bad actors on the internet. CHEQ has commissioned economist, Professor Roberto Cavazos at the University of Baltimore, to undertake the first ever in-depth economic analysis of the full scale of internet harm. For the first time, using economic analysis, statistical & data analysis, we measure the global economic price paid by businesses and society due to problems including ad fraud, online bullying, and fake news.

In this report, we focus on ad fraud—the practice of fraudulently representing online advertising impressions, clicks, conversion or data events in order to generate revenue. Digital ad revenue provides much of the financial underpinning of e-commerce and online-based businesses.

Marketers suffer when their analytics tools report a substantial amount of web traffic, but the amount of revenue doesn't support the number of visitors tracked by their systems.

This problem has grown as digital ad spending surpasses traditional ad spending. In the following pages, we reveal that online ad fraud will cost advertisers up to 23 billion in 2019. Further, indirect economic and social costs may increase the total cost to well above that figure perhaps up to $30 billion.

In addition to the direct costs to advertisers, online fraud imposes indirect costs to society and the global economy in the form of less trust, lost ROI from advertising spend and disinclination to by some business to advertise online. In addition, the complexity at play, size and growth of digital advertising and asymmetric information within the advertising ecosystem has contributed to the rapid rise of the problem. It will require honest and robust methods to tackle the challenge.

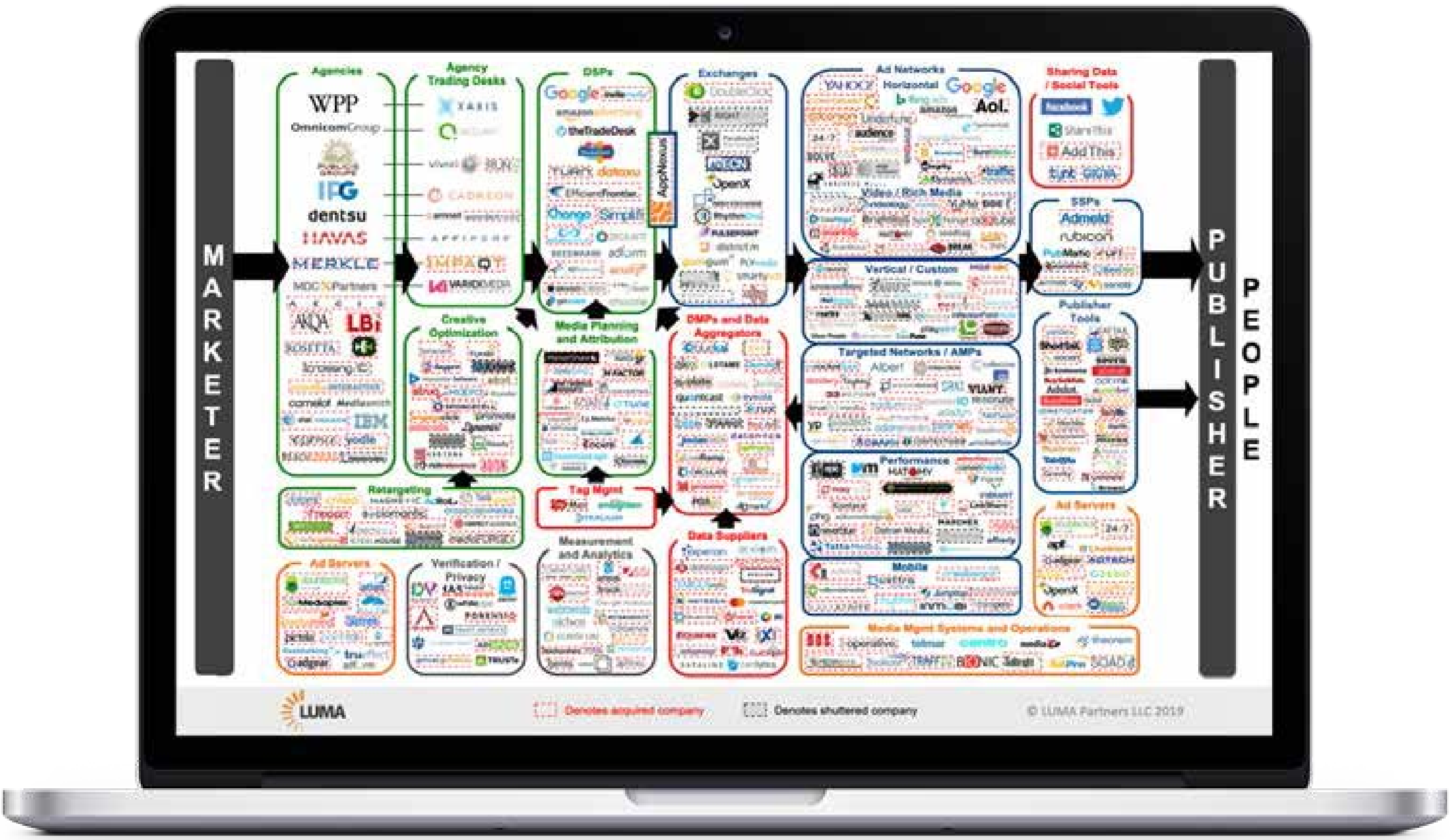
Professor RobertoCavazos,
University of Baltimore

Professor Roberto Cavazos, Executive in Residence at the Merrick School of Business at the University of Baltimore, has over 25 years' experience in economic analysis, statistical & data analysis, project and program management and policy, and technology with extensive experience in financial, data and health care fraud analytics and analysis for government and private sector organizations.

AD FRAUD ENABLED BY COMPLEXITY

Online advertising is a complex ecosystem and as such has become the target of abuse for botnets and other techniques used to defraud advertisers.

With increased complexity in any activity comes an increased probability of fraud. Likelihood of fraud increases with the number of participants in a complex system, and few sectors attract as many players engaged in a complex transaction as online advertising. Even in a simplified narrative of the process of placing an online advert, we see at least 23 categories of different player in this transaction (image below).



COMPARISONS WITH OTHER FRAUD-FUELLED SECTORS

Complexity is a well-known cause of fraud in many domains. The Association of Certified Fraud Examiners cites increasingly complex transactions as a prime source of fraud in financial and investment markets[1]. In the U.S., complexity is one of the principal reasons why in 2014 it is estimated that Medicaid made $17 billion in improper and or fraudulent payments[2].
In the words of PJ O'Rourke, H. L. Mencken Research Fellow at the libertarian **Cato Institute: "There is a simple rule here, a rule of legislation, a rule of business, a rule of life: beyond a certain point, complexity is fraud."**However, fraud in the advertising sector stands out as more complex than other "fraud-fuelled" industries. Compared to other sectors, online advertising is less regulated and less interconnected. Online advertising has created a situation in which the situation and interests of more than 20 parties are not aligned, and there is little to disincentivize fraudsters.

This to the financial and medical insurance sectors. These sectors are heavily regulated (by multiple government agencies) and US health insurers at most deal with 5 or 6 heavily regulated entities and banks even fewer. In these industries there is tight interconnection and accountability—the payer has much control and the interests of all involved are fairly aligned.

Improper payments or missing funds are eventually detected. The requirements for fraud prevention in online advertising add to this complexity. **With credit card fraud, banks have limited amounts of requests say 1 million a day to investigate, however in advertising fraud prevention solutions need to analyze 20,000 requests per second.**

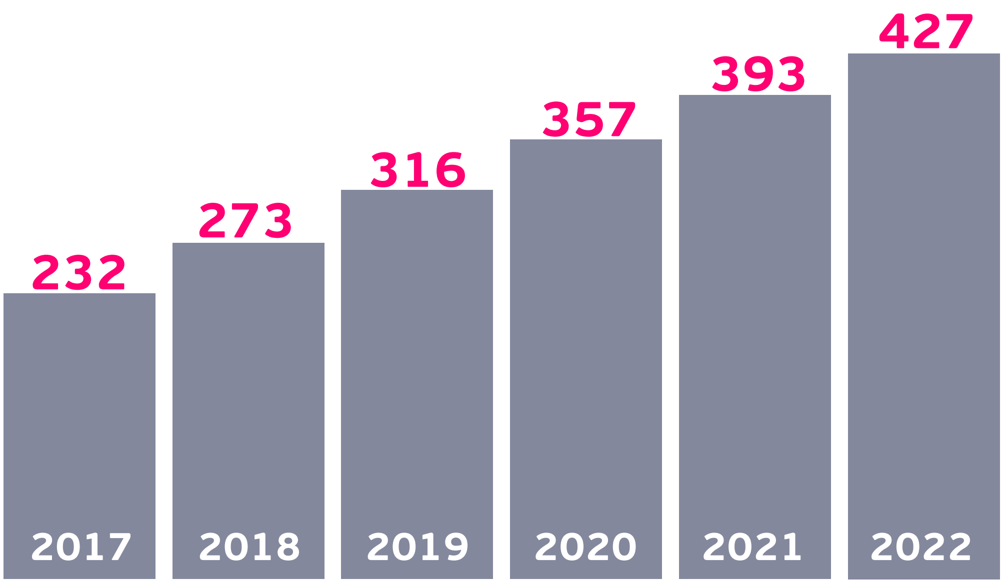
Calls for greater transparency by some industry participants, in order to lessen ad fraud, will be shown to be moot as has been the case for other complex markets. **Complex market structures do not tend to rapidly transform** and at present instances of the several types of ad fraud are technologically enabled. Ultimately, the frauds are due to information asymmetry (when parties do not have access to the same information) generated and reinforced by complexity, lack of transparency and regulatory oversight.

[1]See: https://www.acfe.com/financial-transactions-and-fraud-schemes.aspx
[2]MEDICAID: Key Issues Facing the Program GAO-15-677: Published: Jul 30, 2015. Publicly Released: Jul 30, 2015

CALCULATING THE COSTS
ONLINE AD SPEND WAS $273 BILLION IN 2018

The total market expenditures on online digital ads was estimated in 2018 to be $273 billion, a significant increase from $152 billion in 2015[3]. The recent past and projected value of online ad expenditures are seen in chart 1.

CHART 1
DIGITAL AD EXPENDITURES **IN BILLIONS OF $**



Digital ad expenditures are predicted to hit $316 Billion in 2019. To get a true sense of this magnitude this is larger than the GDP of Malaysia and almost half that of the GDP of Saudi Arabia. It is a huge and, as previously outlined, a complex market thus very tempting to bad actors.

ONLINE AD FRAUD MAGNITUDE RISES WITH FAST-GROWING DIGITAL SPENDING

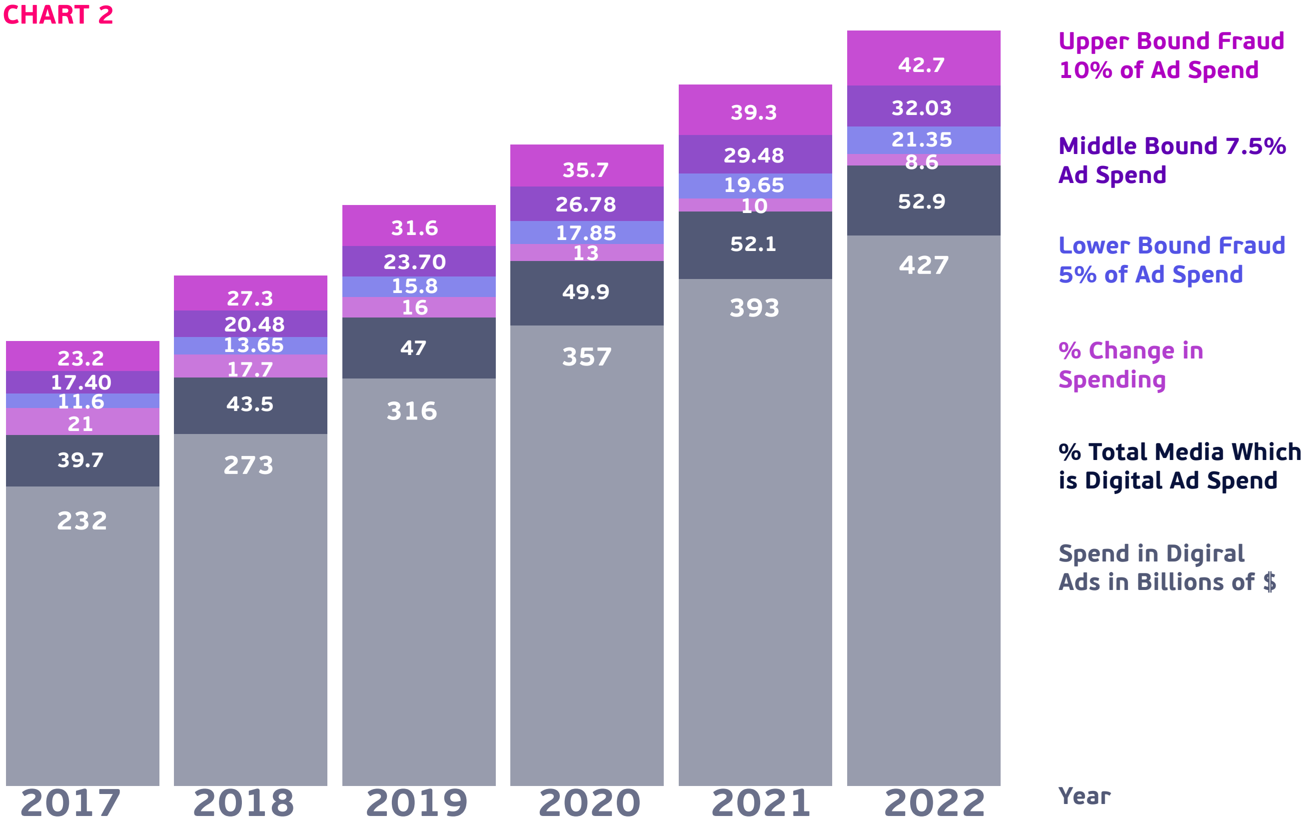
Fraud has increased as the taps have been turned on in online advertising. Previous estimates may have downplayed the problem, with some studies putting the problem of ad fraud at only around 7.2 Billion per year[4]. Juniper networks estimated in early 2019 that advertisers lose $19 billion annually. It should be noted that these studies by well-respected industry leaders do not include indirect costs and their methodologies vary.

The World Federation of Advertisers[5] which represents 100 of the world's biggest brand owners and 60 national advertiser association is well placed to draw industry insights. They estimate, in line with many independent fraud experts, that 10 to 30% of advertising is not seen by consumers and thus spend for unseen ads is a direct cost due to ad fraud.

[3]Source, eMarketer, March 2018.
[4]ANA (Association of National Advertisers) and WhiteOps, 2016
[5]See: https://www.wfanet.org/

If we assume the different rates of fraud noted by industry experts as a percentage of digital advertising spend, we see the magnitude of the problem. Using the World Federation of Advertisers' assessment of ads not seen by intended audiences we note that between 10% and 30% of ads are not seen. However, tempting to assume that 10% to 30% of ads not seen translates to 10% to 30% of ad it should be noted that not all unseen ads cost the same. For example, smaller ad campaigns cost less and as is well known in the industry, lower end cost ads are more seriously beset by fraud than higher end campaigns. Our experience suggests that higher end campaigns through well-known reputable advertisers are subject to a 5% fraud rate, whereas lower-end campaigns experience a much higher rate of ad fraud potentially up to 50% (though they are a much smaller portion of total ad market). Thus businesses using lower cost advertising services or gaining cheap traffic are more likely to suffer from advertising fraud. Still, that established firms are suffering a 5% incidence of ad fraud, highlights the extent of the issue and the pervasiveness of fraud in the sector.

CHART 2



As can be seen in chart 2 above for 2019, the potential range for ad fraud can range from 5% of total digital ad spend or $15.8 billion to 10% of total digital media spend or 31.6 billion. These are topline aggregate figures. It is estimated that up to 20% or 30% of all ad instances are fraudulent, however not all instances cost the same. As noted, lower cost campaigns experience a much higher cost of ad fraud however they comprise a smaller portion of the ad fraud market. Industry insiders insights suggest that a 7.5% composite rate of total ad spend lost to ad fraud reflects the mix of lower end and higher end ad campaigns for a total annual loss of $23.7 billion estimated for 2019.

SAMPLING ALONE UNDERESTIMATES FRAUD

It should be noted that some studies used to calculate the cost of global fraud are based on a limited sample of impressions. This sample in some cases amounts to analyzing a relatively tiny (27 billion impressions) of the 70 trillion ad impressions each year. In addition, such studies only analyze botnets, which is only one source of ad fraud.
As has been pointed out by Dr. Augustine Fou, a leading fraud researcher, "overwhelming evidence published by others, and the daily observations of ad ops practitioners show ad fraud is at its highest point ever — in rate, in dollar amount, and in sophistication." In the United States, 77% of online ad fraud is classified in the industry's own terminology as "sophisticated invalid traffic" (SIVT).

This by definition utilizes far more advanced malicious methodologies to defraud the advertising ecosystem than the more basic forms of ad fraud or "general invalid traffic". Where studies have shown that ad fraud is lower or even declining, we think this particularly unlikely. Digital ad marketing is growing at a high rate and thus an attractor for increased fraudulent activity.
Ad fraud may well be lower for ad frauds using previously deployed techniques but given the money involved, it is wishful thinking to believe that fraudsters will not become more creative and innovative. This year the mix of digital ad types will change and it will change next year thus bringing in new actors in the complex ecosystem and with that, more fraud[6]. Finally, it should be remembered that it is human nature for all of us in an industry to understate the issues of problems for it reflects poorly on us and the people we do business with. Indeed our figure of $23 billion lost to ad fraud could be even higher still if the indirect and opportunity costs of fraud are factored in.

[6]New Digital Ad Fraud Study Awareness Research Study by tribeOS Reveals Alarming Disconnect with Experienced Marketers. Jan 30, 2019, PR Newswire.

INDIRECT
AND OPPORTUNITY COSTS

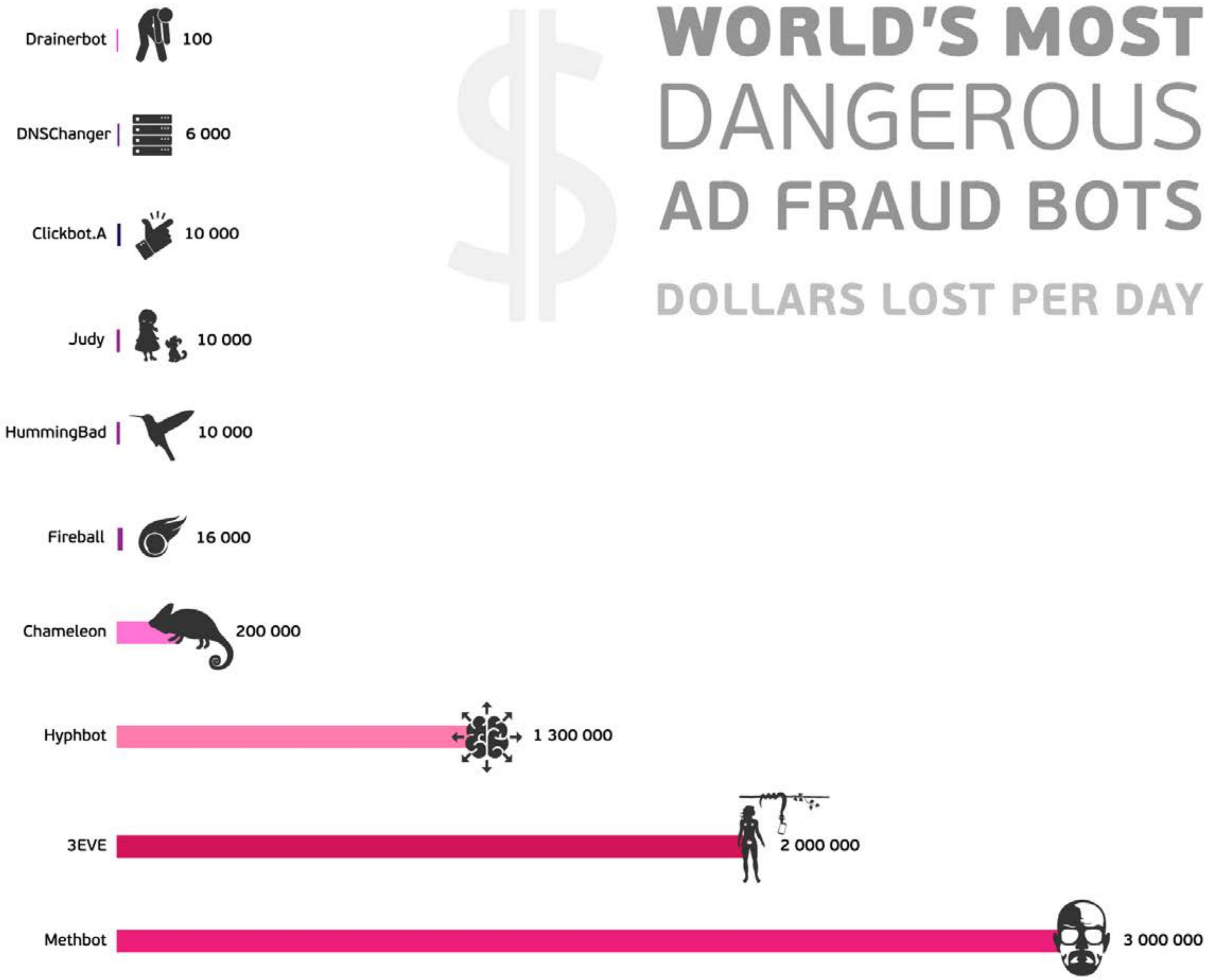
We have found that the direct costs associated with ad fraud will reach up to $23 billion in 2019. Left unchecked the level of fraud is expected to reach $26 billion by 2020, $29 billion by 2021 and $32 billion by 2022. However, there are intangible costs associated with ad fraud as well, which have not been factored into this estimate.

The US government has suggested that to best understand the cost of crime, estimates should consider both the financial and non-monetary effects of harm—such as the impact on quality of life, increasing fear, or indirect effects, such as change in behavior. Some researchers have concluded that crime's most costly factors stem from these less tangible effects. In particular, in any complex market where fraud exists, there are both direct and indirect costs due to fraudulent activity. Direct costs refer to the direct losses and damage as a result of the situation, while indirect costs are the losses and opportunity costs imposed on society by the fact that the fraud is carried out.
Some indirect costs from fraudulent ads may include less trust among actors and thus less innovation. Advertiser clients may over time become less inclined to spend. In the words of Per Bjorke, a senior product manager who leads Google's ad traffic quality team: "It's very simple. The future growth of Google and other companies hinges on the fact that online advertising is trusted, and that there will be a return on investment on ad budgets ... It's very important for us because people could stop investing in advertisements."
This is demonstrated in the much-noted case of Proctor and Gamble which reduced digital ad spend by 200 million and increased its reach by 10%[7]. Though this change was driven by factors in addition to ad fraud, it nevertheless showed the case of a large brand switching to more traditional platforms.
However, this strategy may not work for less established brands, or those trying to break out a product-oriented toward a demographic that spends large amounts of time and disposable income online. For many businesses opting out or reducing their online advertising presence is not an option.
Surveys such as those done by the American Customer Satisfaction Index shows that consumer satisfaction with online ads is low thus placing advertisers in a bind of losing money to fraudsters rather than generating better consumer experience[8].
It has also been suggested fascinatingly that there's a direct link between ad fraud, and sky-high valuations in Silicon Valley. Dr Fou says: "Millions, now billions, of fake accounts, fake users, fake traffic, fake ad impressions, etc. can be manufactured out of thin air to create the appearance of hyper growth. This is necessary to justify the sky-high, irrational valuations of private and public companies, for the benefit of the pocketbooks of investors." While the indirect cost of ad fraud is uncertain it is significant[9].

[7] https://www.adweek.com/brand-marketing/when-procter-gamble-cut-200-million-in-digital-ad-spend-its-marketing-became-10-more-effective/
[8] https://www.theacsi.org
[9] https://www.gao.gov/assets/700/691895.pdf

THE PAINS FOR BUSINESS

AD CASH LOST | FRAUD



Assessing global economic damage can sometimes appear nebulous. However, the harm and costs for companies navigating ad fraud can be very real, painful and costly. To take only a few examples, in May 2019 Google refunded 75 million for ads purchased on its ad marketplaces, which were affected by fraud. Airbnb claims it pays about $1.5 million in fraudulent commissions annually due to attribution fraud. The US Government found that in one sophisticated fraud attack, hundreds of brands and ad agencies around the world, including many in the United States and at least one with offices in the Eastern District of New York, collectively paid more than $7 million in advertising fees for fraudulent ad traffic. The Financial Times was hit by domain spoofing of its trusted brand, with the publisher estimating the value of a fraudulent inventory, across 10 ad exchanges to be 1.3 million a month.

Decrying the incident, Anthony Hitchings, the FT's digital advertising operations director said: "The scale of the **fraud we found is jaw-dropping. The industry continues to waste marketing budgets on what is essentially organized crime.**" Meanwhile, fraud bots, often given exotic names, are uncovered on a weekly basis (see image). Of course, these are only the ones that are reported, and, in many cases, companies prefer not to reveal (or of course are unaware), when they have been hit by attacks.

New opportunities for attacks continue undiminished as the advertising landscape diversifies. The growth of Over the Top (OTT) advertising— delivery of film and TV content via the internet, has grown to 2.7 billion in revenue and has seen 54% growth last year. The mobile app economy is equally expected to grow 136% by 2020 at a time when more than a quarter of mobile app installs worldwide are fraudulent. Developing countries internet growth is fast bringing new potential for bad actors. Africa alone moved from just 2.1% of the population in 2005 with internet connections to over 24% in 2018.

In this context, attention is slowly turning to address the problem. Sen. Mark Warner following repeated BuzzFeed News investigations into ad frauds, berated the "prevalence of digital advertising fraud, and in particular the inaction of major industry stakeholders in curbing these abuses."

Clearly, the 23 billion ad fraud epidemic remains a hidden and little understood crime.

As discussed previously, redress in such complex markets is unlikely to be immediate.

However, action is needed to ensure the economic impact is curbed in order to restore trust in the advertising ecosystem and secure future online prosperity.

DISCOVER AN AWARD-WINNING
AD FRAUD SOLUTION

CHEQ has been named as the Ad Fraud Solution of the Year at the prestigious Drum Digital Advertising Awards 2019. CHEQ's Award-Winning Anti-Fraud Solution is trusted by the biggest brands to ensure you

- Never **serve or pay** for a fraudulent impression again.
- Are **protected** by the latest Cybersecurity technology and Machine Learning algorithms to uncover discrepancies and anomalies in absolute real-time on campaigns,
- Benefit from **700 proprietary parameters** to block fraud including proprietary honeypots (bot traps) advanced OS Fingerprinting and Dynamic Code Patching.
- Have full **transparency** over decisions made to block bad traffic, via a real-time analytics dashboard and reporting

Schedule a demo today to ensure your campaigns are safe

CHEQ