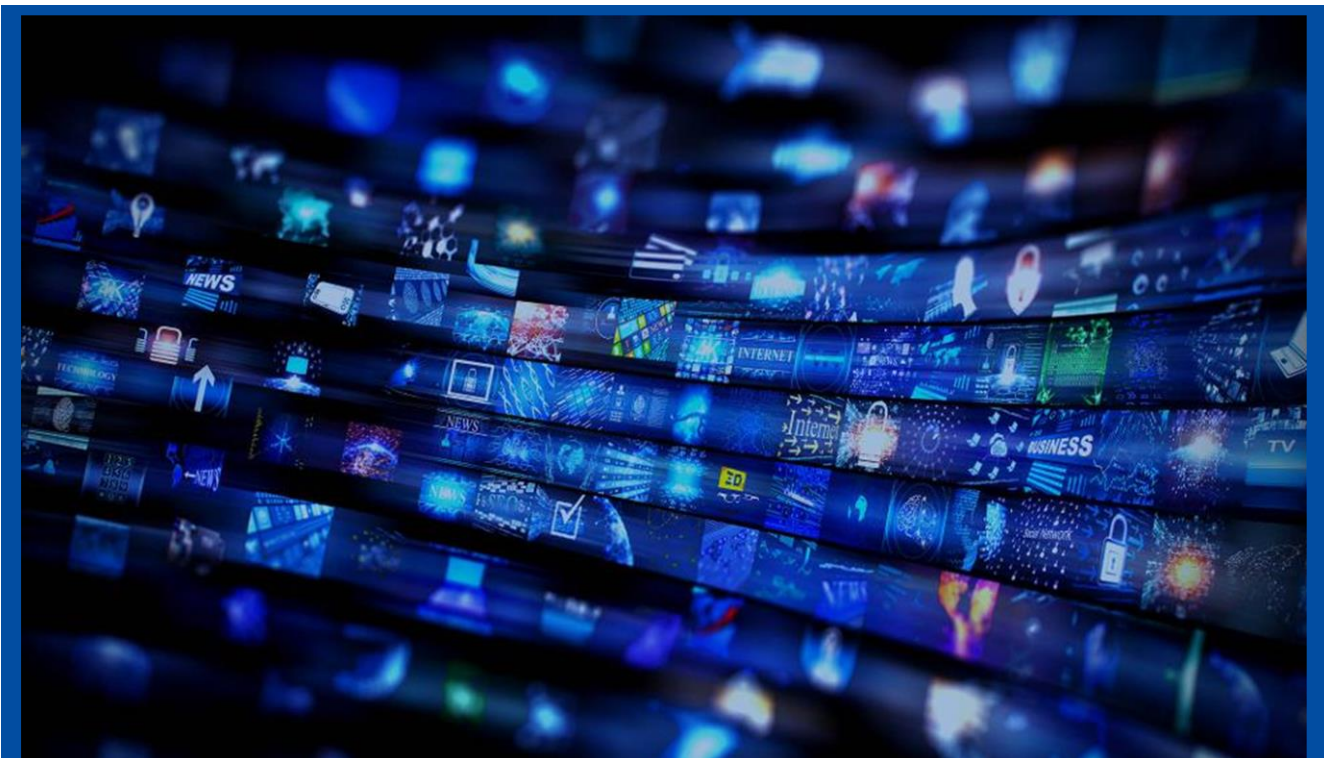


Online advertising on IPR-Infringing Websites and Apps

2021



February 2022

ONLINE ADVERTISING ON IPR-INFRINGING WEBSITES AND APPS 2021

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Executive Summary

Internet websites and mobile applications that provide access to content, goods or services infringing intellectual property rights (IPR) on a commercial scale use the sale of advertising space as one of their revenue sources. In addition to providing a revenue stream to IPR infringers, the presence of advertising for legitimate brands on websites and mobile applications that infringe IPR can confuse consumers. It can lead them to mistakenly believe that the site or application they are accessing provides access to legal content, goods or services.

To strengthen the protection of IPR and reduce the harm caused by its infringement, the European Commission sponsored a Memorandum of Understanding on online advertising and IPR (MoU)⁽¹⁾. The MoU signatories represent parties involved in placing, buying, selling and/or facilitating advertising, including advertisers, advertising agencies, trading desks, advertising platforms, advertising networks, advertising exchanges for publishers, sales houses, publishers and IPR owners. They also include representatives or associations of these groups.

The EU Intellectual Property Office commissioned White Bullet to carry out the 2021 Ad Monitoring Exercise to assess the impact of the MoU on the online advertising found on IPR-infringing websites during 2021, to evaluate the estimated amount and type of online advertising on IPR-infringing websites and apps, and to estimate the associated ad revenues. This commission is an extension of the work undertaken by White Bullet in 2020⁽²⁾ and the first half of 2019⁽³⁾ on behalf of the European Commission.

The 2021 Ad Monitoring Exercise collected data on the ad profiles of the 2021 Monitored Websites (5 758 websites) from 18 EU Member States, and the United Kingdom (UK) and the United States

⁽¹⁾ European Commission, https://ec.europa.eu/growth/industry/policy/intellectual-property/enforcement/memorandum-of-understanding-online-advertising-ipr_en.

⁽²⁾ European Commission, [Study on the impact of the memorandum of understanding on online advertising and intellectual property rights on the online advertising market – 2020 Ad Monitoring Exercise](#), 2021.

⁽³⁾ European Commission, [Study on the impact of the memorandum of understanding on online advertising and intellectual property rights on the online advertising market](#), 2020.

(US) as control countries, between 1 January 2021 and 30 September 2021, divided into four quarters.

The time periods covered by the four quarters of data monitoring were as follows:

Q1: 1 January 2021 to 9 March 2021;

Q2: 10 March 2021 to 16 May 2021;

Q3: 17 May 2021 to 23 July 2021;

Q4: 24 July 2021 to 30 September 2021.

In 2021, the same countries were monitored as in 2020 and 2019, shown in Table 1 below, although in 2021 the United Kingdom was moved from an EU monitored country to a control country.

LIST OF COUNTRIES			
1	Belgium	11	Malta
2	Czech Republic	12	Netherlands
3	Denmark	13	Poland
4	Estonia	14	Portugal
5	France	15	Romania
6	Germany	16	Slovakia
7	Hungary	17	Sweden
8	Ireland	18	Spain
9	Italy	19	United Kingdom (control country)
10	Lithuania	20	United States (control country)

Table 1: List of Countries

In addition to collecting data on ad profiles for websites, from Q3 2021, data was also collected on ad profiles on 538 mobile applications that infringe IPRs (Monitored Apps) from the same countries identified in Table 1. This is an important addition to the monitoring since consumers increasingly access content (both licit and illicit) using mobile devices and applications.

Key Findings

Monitored Website/App analysis

Of the 5 758 Monitored Websites, 43 % were classified as Illegal Websites and 57 % as High-Risk Websites. **Illegal Websites** are those that have been found to be illegal by national judicial, administrative or other enforcement authorities in the EU. **High-Risk Websites** have not (yet) been adjudicated in this way, but they are still verified as infringing and popular amongst EU consumers, including by White Bullet's IPIP™ tool, or by rights holders.

Of the 538 Monitored Apps, 27 % were classified as Illegal Apps – those identified by the Trustworthy Accountability Group as having been confirmed by rights holders as IPR infringing and removed from official app stores – and 73 % as High-Risk Apps.

Ad Impression analysis

- In 2021, the Monitored Websites generated 70.3 billion Ad Impressions⁽⁴⁾ for the 18 EU monitored countries, 37 % of which were on Illegal Websites and 63 % on High-Risk Websites.
- France and Germany had the highest numbers of Ad Impressions on Monitored Websites among the 18 EU Member States.
- The 2021 Monitored Apps generated 8.6 billion Ad Impressions worldwide, 18.5 % on Illegal Apps and 81.5 % on High-Risk Apps.

Brand analysis

For the purpose of this report, Branded Advertising is broken down into two sub-groups:

- **Major Brands:** brands that are on selected top advertiser lists or are otherwise reputable established brands with a strong search engine presence in EU countries;

⁽⁴⁾An ad impression is a metric of online advertising that quantifies how often an ad is loaded from its source and can be counted. It is also known as an ad view, based on it being viewable by a visitor.

- **Other Brands:** brands that are not major but are also not fraudulent, adult, or malicious.
 - Branded Advertising represented 30 % of estimated Ad Impressions across all Monitored Websites and 82 % across all Monitored Apps.
 - The top-level sectors for all Branded Advertising for the Monitored Websites were Arts & Entertainment (43 %) (which includes gaming), followed by Gambling (23 %), Technology & Computing (13 %), Shopping (11 %), and Personal Finance (2 %).
 - The top-level sectors for all Branded Advertising for the Monitored Apps were Arts & Entertainment (54 %), followed by Technology & Computing (23 %), News (7 %), Shopping (5 %), and Business (4 %).
 - The Monitored Websites had advertising from 8 076 unique brands, of which 12 % (941) were Major Brands⁽⁵⁾.
 - On the Monitored Apps, a total of 1 432 brands were identified, of which 20 % (281) were Major Brands.

Estimated ad revenue analysis⁽⁶⁾

In 2021:

- The total worldwide revenue generated by the 5 758 Monitored Websites was estimated to be EUR 912.7 million.

⁽⁵⁾ The brands were classified as Major Brands if the brand, or parent company of the brand, was present on one of the following lists:

- AdAge Global Marketers Index
- Millward Brown Global and National brand ranking lists
- Ranking the Brands Top 100 List
- World Federation of Advertisers (WFA) membership
- Association of National Advertisers (ANA) membership
- Forbes Global 2000.

⁽⁶⁾ The figures shown are estimated annual figures, based on extrapolation of the monitoring period. Further details are provided in section 2.8.

- In the 18 EU monitored countries alone, the total estimated revenue generated by the Monitored Websites was EUR 102.5 million.
- The total worldwide revenue generated by the 543 Monitored Apps was estimated to be EUR 57.1 million.

Evolution during 2021

- Estimated Ad Impressions for the Monitored Websites increased by 39 % between January 2021 (6.1 billion) and September 2021 (8.6 billion), with a peak in August 2021 (8.8 billion).
- The Monitored Apps showed a 6 % increase in estimated Ad Impressions between June 2021 (520 million) and September 2021 (549 million).
- Ad Volume: whilst the count of all Monitored Websites decreased by 29 % from 2020 to 2021, the ad volume collected from the Monitored Websites increased by 292 % from 2020 (6.3 million) to 2021 (24.7 million).
- Branded Advertising sectors: the top four sectors for Branded Advertising – Arts & Entertainment, Gambling, Technology & Computing, and Shopping were ranked the same in both 2020 and 2021.
- Estimated ad revenue: worldwide estimated ad revenue generated by the Monitored Websites increased by 75 % from EUR 520.9 million in 2020 to EUR 912.7 million in 2021. The estimated ad revenue for the 18 monitored EU Member States increased by only 40 % from EUR 73 million in 2020 to EUR 102.5 million in 2021, whilst estimated ad revenue for non-monitored countries increased by 241 % from EUR 75.87 million in 2020 to EUR 258.599 million in 2021.

These figures highlight a serious issue, namely that websites and apps that infringe IPR do not only derive revenue from their infringing activities, but also from advertising by legitimate brands that is placed on such websites unwittingly, partly as a result of the very complex internet advertising ecosystem. However, the 40 % increase in estimated ad revenue for websites for the EU Monitored Countries in 2021 (along with the 48 % increase in the US and 50 % increase in the UK) was significantly lower than the 241 % increase in estimated ad revenue for the rest of the world. In the EU, the UK and the US, the ad industry has introduced measures to address ad funded piracy. These measures do not appear to be as advanced in the rest of the world.



Online advertising on IPR-infringing websites and apps

1 Background

Revenue generated from intellectual property (IP) represents a significant part of the European Union (EU) economy. Recent studies suggest that IP-intensive industries account for approximately 45 % of the EU's GDP, 29.2 % of employment, and generated a trade surplus of EUR 182 billion with the rest of the world between 2014 and 2016⁽⁷⁾. Due to this high value, IP infringement in the EU has a significant impact on the economy of EU countries through lost jobs and tax revenue, impacting innovation and business. The EU Intellectual Property Office (EUIPO) estimates the value in lost sales to IP infringement in 11 sectors in the EU to be higher than EUR 83 billion per year between 2013 and 2017⁽⁸⁾. IP infringement also constitutes serious health, safety and security threats to consumers⁽⁹⁾. Additionally, in the context of online advertising on IP-infringing websites and apps, examples have been found where consumers are targeted with fraudulent advertising, phishing attempts and the dissemination of malware⁽¹⁰⁾.

As commercial-scale IP infringement does the most harm to the EU economy, the European Commission has implemented the 'follow the money' approach to IP rights enforcement, which focuses on depriving commercial-scale infringers of their revenue⁽¹¹⁾. For the operators of IP-infringing websites and apps, online advertising is a significant source of revenue⁽¹²⁾. To advance the 'follow the money' approach, the European Commission facilitated the MoU, which was signed

⁽⁷⁾ European Patent Office (EPO) and EUIPO, [IPR-intensive industries and economic performance in the European Union - Industry-Level Analysis Report](#), 2019.

⁽⁸⁾ EUIPO, [2020 Status Report on IPR Infringement](#), 2020.

⁽⁹⁾ EUIPO, [Qualitative Study on Risks Posed by Counterfeits to Consumers](#), 2019.

⁽¹⁰⁾ OHIM, [Digital Advertising on Suspected Infringing Websites](#), 2016, and EUIPO, [Identification and analysis of malware on selected suspected copyright-infringing websites](#), 2018.

⁽¹¹⁾ European Commission, https://ec.europa.eu/growth/industry/policy/intellectual-property/enforcement_en.

⁽¹²⁾ TAG, [Measuring Digital Advertising Revenue to Infringing Sites](#), 2017.

on 25 June 2018⁽¹³⁾. The MoU is a voluntary agreement between companies and associations from the advertising industry, including advertisers, advertising intermediaries and interested stakeholders, such as IP rights holders. It seeks to minimise the placement of advertising on websites and mobile apps that infringe copyright or disseminate counterfeit goods by engaging cross-party stakeholders to collaborate and share good practices.

White Bullet Solutions Limited (White Bullet) was commissioned by the European Commission to conduct assessments in 2019 and 2020 of the evolution of online advertising on IP-infringing websites pursuant to paragraphs 15 and 18 of the MoU⁽¹⁴⁾. The 2019 Ad Monitoring Exercise sought to understand the evolving landscape of ad-funded digital IP infringement and identify any discernible trends over time across the EU⁽¹⁵⁾. In December 2019, White Bullet was commissioned by the European Commission to conduct a follow-up study for 2020 (the 2020 Ad Monitoring Exercise). The key objectives of the year-long 2020 Ad Monitoring Exercise were: evaluating the estimated amount and type of online advertising on IP-infringing websites, estimating the ad revenues collected by IP-infringing website owners, and analysing the impact and effectiveness of the MoU on the online advertising market⁽¹⁶⁾.

Following coordination with the Commission, the EUIPO commissioned White Bullet to conduct a follow-up study for 2021 (the 2021 Ad Monitoring Exercise). The key objectives of the 2021 initiative were: evaluating the estimated amount and type of online advertising on both IP-infringing websites and apps, estimating the ad revenues collected by IP-infringing website and app owners, and analysing the impact and effectiveness of the MoU on the online advertising market.

This report details the findings of the 2021 Ad Monitoring Exercise, which focuses on IP-infringing websites – including those that have no substantial legitimate uses and that have been found by judicial, administrative or other enforcement authorities to infringe copyright or to disseminate counterfeit goods on a commercial scale – as well as IP-infringing apps. No brands or Ad Intermediaries identified in the 2021 Ad Monitoring Exercise are named in this report.

⁽¹³⁾ See footnote 1.

⁽¹⁴⁾ White Bullet is a signatory to the MoU.

⁽¹⁵⁾ See footnote 3.

⁽¹⁶⁾ See footnote 2.

A glossary of terms used in this report is included as Annex A.

2 Scope and Methodology

2.1 Overview

The 2021 Ad Monitoring Exercise monitored the ad profiles of 5 758 websites from 18 EU Member States, and the UK and the US as control countries, between 1 January 2021 and 30 September 2021, divided into four equal quarters.

The time periods covered by the four quarters of data monitoring were as follows:

- Q1: 1 January 2021 to 9 March 2021,
- Q2: 10 March 2021 to 16 May 2021,
- Q3: 17 May 2021 to 23 July 2021,
- Q4: 24 July 2021 to 30 September 2021.

White Bullet used its Ad Monitoring System to meet the three objectives of the 2021 Ad Monitoring Exercise:

- evaluating the estimated amount and type of online advertising on IP-infringing websites and apps,
- estimating the ad revenues collected by IP-infringing website and app owners, and
- analysing the impact and effectiveness of the MoU on the online advertising market.

The 2021 Ad Monitoring Exercise collected ad data in both the Desktop Web Advertising Ecosystem and the Mobile Web Advertising Ecosystem. For 2021, ad data was also captured on 538 IP-infringing mobile apps for Q3 and Q4.

In addition, comparison datasets were selected from 2020 and 2021 to assess changes in advertising profiles across all the monitored countries.

Advertising campaigns will vary in content, style, format and duration and may be influenced by the timing of specific brand campaigns and seasonal events. However, this report focuses on broader data comparisons, such as ad volume, ad type and ad sectors, rather than specific campaigns.

2.2 Country selection

The same set of EU countries were selected for monitoring in the 2021 Ad Monitoring Exercise as had been used in 2020, with the UK and the US used as controls, as shown in Table 2.

These countries were chosen to provide continuity with the previous MoU ad monitoring exercises and were originally selected to be representative of the EU as a whole. Factors for selection included ensuring a mix of geographic locations across the EU, population size, language dispersion and length of EU membership.

The 2021 Monitored Websites were visited from each country shown in Table 2 on an equal basis, using local IP addresses to harvest locally served ads.

LIST OF COUNTRIES			
1	Belgium	11	Malta
2	Czech Republic	12	Netherlands
3	Denmark	13	Poland
4	Estonia	14	Portugal
5	France	15	Romania
6	Germany	16	Slovakia
7	Hungary	17	Spain
8	Ireland	18	Sweden
9	Italy	19	UK (control country)
10	Lithuania	20	US (control country)

Table 2: List of countries for 2021 Ad Monitoring Exercise

2.3 About White Bullet's Ad Monitoring System

White Bullet has developed its proprietary advertising monitoring system, which captures high volume data about advertising placed on IP-infringing websites and apps (defined as infringing copyright or disseminating counterfeit goods) through which parties may monitor ad profile changes (the Ad Monitoring System).

The Ad Monitoring System:

- visits IP-infringing websites and apps from local internet protocol addresses (IP addresses) to track locally served ads,
- captures images of ads in the context of the infringing web page or from within the mobile application,
- uses White Bullet's proprietary technology to identify brands and advertising sectors (e.g. malware, adult, financial, fashion, travel, technology), and
- identifies intermediaries engaged in the placement of advertising (Ad Intermediaries), by analysing data on all intermediaries involved in the process of targeting, placement and delivery of ads.

2.4 About the 2021 Ad Monitoring Exercise

The 2021 Ad Monitoring Exercise's purpose was to track the advertising found on IP-infringing websites and apps across the EU and the parties involved in the placement of that advertising between 1 January 2021 and 30 September 2021, and to analyse changes in the ad profiles of those websites and apps over time. Furthermore, the Ad Monitoring Exercise was to provide certain measures to evaluate the diversity of online advertising within the EU, with reference to data on online advertising collected from the UK and the US (not included in the scope of the MoU itself) for comparison.

All websites identified by White Bullet for monitoring offered access to infringing IP and were either:

- a) highly popular amongst EU consumers, or
- b) of high interest to national judicial, administrative or other enforcement authorities in the EU (the 2021 Monitored Websites).

The mobile apps identified for monitoring offered access to infringing IP and were either:

- a) highly popular among global consumers, or

- b) identified on a list provided to advertisers by the Trustworthy Accountability Group of IP-infringing apps removed from app stores by rights holders (the 2021 Monitored Apps).

The 2021 Monitored Websites were monitored daily using a dynamic and rotating cycle of URLs from multiple IP addresses in each of the EU countries selected for monitoring under the 2021 Ad Monitoring Exercise. In addition, the 2021 Monitored Websites were visited from UK and US IP addresses to harvest UK and US ad data as control countries⁽¹⁷⁾. Visits were made using multiple user profiles and a neutral (cookieless) profile on an equal schedule. Similarly, the 2021 Monitored Apps were monitored daily from the same EU countries and control countries, with multiple user profiles and a neutral profile.

The ad data harvested by White Bullet's Ad Monitoring System provided the following datapoints for further analysis:

- overall volume of ads identified across the reporting period from the daily visits;
- brands whose goods/services were promoted, including a differentiation made between Major Brands and Other Brands⁽¹⁸⁾;
- Top-level Sectors and Sub-sectors identified, into which brands were categorised;
- top Ad Intermediaries responsible for engaging the advertising on the websites and apps;
- proportion of different Ad Types found;
- proportion of EU versus non-EU brands identified (where such categorisation was possible);
- proportion of EU versus non-EU Ad Intermediaries identified (where such categorisation was possible);
- trends in the different EU countries monitored, including comparison of monitored countries operating Infringing Website Lists (IWLs) compared to the EU as a whole; and
- countries performing best per the MoU based on lowest ad volume and fewest reputable ad campaigns, including a breakdown by country by sector.

⁽¹⁷⁾ IP addresses from various US States were used to maximise diversity and coverage.

⁽¹⁸⁾ An update to the Ad Monitoring System in January 2021 allowed extraction of individual brands from Sponsored Content boxes, allowing for additional Branded Advertising to be identified.

Whilst the data collected by White Bullet identifies named brands and Ad Intermediaries, this report does not name any companies or entities. The focus is on overall trends identified in 2021, compared with 2020 in the final section.

2.5 Publisher selection

2.5.1 Website selection

The 2021 Monitored Websites represent a dynamic set of IP-infringing websites that provided a mix of IP-infringing websites comparable to that used in the 2020 Ad Monitoring Exercise to enhance the ability to best analyse ongoing trends in 2021.

White Bullet continued to monitor websites from the 2020 Ad Monitoring Exercise after the end of that project. These websites were included in the 2021 Monitored Websites for the 2021 Ad Monitoring Exercise if they continued to meet the original criteria set out in the 2021 Ad Monitoring Exercise as follows.

- Has the website been found by judicial and administrative authorities within the EU to infringe copyright or disseminate counterfeit goods on a commercial scale?
- Does the website infringe IP and have no other substantial legitimate uses ⁽¹⁹⁾?
- Is the website popular amongst EU consumers?
- Can the website be accessed by a web browser (i.e. can it be reached online)?
- Did the website have advertising present when first visited by White Bullet's Ad Monitoring System?

In addition, White Bullet assessed new websites and apps for inclusion in the 2021 Monitored Websites for the 2021 Ad Monitoring Exercise. White Bullet identified websites and apps for assessment by using a range of publicly available sources and its own Intellectual Property Infringement Platform (IPIP™), which identifies and risk scores IP-infringing websites and apps.

⁽¹⁹⁾White Bullet investigators researched IP-infringing content on websites to determine the dominance of such content over legitimate uses.

2.5.2 Website identification

As with the 2020 Monitored Websites, the 2021 Monitored Websites were identified as being either illegal websites or high-risk websites.

- **Illegal Websites:** included those on IWLs, those identified through publicly available information as having court-ordered adjudications against them within the EU and those listed on the Counterfeit and Piracy Watch List published by the European Commission in December 2020 ⁽²⁰⁾.
- **High-Risk Websites:** included those not found to be illegal by national judicial, administrative or other enforcement authorities in the EU, but still verified as infringing and popular amongst EU consumers, including by White Bullet's IPIP™ or by rights holders.

The same criteria were used to identify Illegal Websites (a-c) and High-Risk Websites (d-f) as in the 2020 Ad Monitoring Exercise.

- a) IWLs operated by the City of London Police Intellectual Property Crime Unit (PIPCU) or the WIPO ALERT platform ⁽²¹⁾.
- b) Publicly available information to identify websites with court-ordered adjudications against them within the EU.
- c) The Counterfeit and Piracy Watch List published by the European Commission in December 2020 ⁽²²⁾.
- d) Publicly available Alexa data, relating to website traffic including lists of the top 500 websites for countries around the world ⁽²³⁾. White Bullet reviewed the top 500 websites listed by Alexa in each of the EU countries selected for monitoring to identify any highly popular IP-infringing websites and then visited each website to check for actual infringements.

⁽²⁰⁾ European Commission, https://trade.ec.europa.eu/doclib/docs/2020/december/tradoc_159183.pdf, 2020.

⁽²¹⁾ White Bullet subscribed to the WIPO ALERT program in June 2021. WIPO ALERT IWL data was correlated for 2021 Monitored Websites already being tracked in Italy, Lithuania and Spain starting in Q3 2021. <https://www.wipo.int/wipo-alert/en/>.

⁽²²⁾ See footnote 17.

⁽²³⁾ Alexa, <https://www.alexa.com/topsites/countries>.

- e) The publicly available Google Transparency Report (GTR) ⁽²⁴⁾. White Bullet exported a list of websites from the GTR that had 50 or more removals in the 3 months prior to the 2021 Ad Monitoring Exercise and verified each website for actual infringements ⁽²⁵⁾.
- f) White Bullet's IPIP™. White Bullet included IP-infringing websites with a risk score indicating a high risk of IP-infringement from its dynamic real-time IPIP™, which identifies infringements and scores websites based on over 400 data points related to potential infringement risk and verified infringements.

2.5.3 Determining popularity of websites

As Illegal Websites are deemed to be of high interest to national judicial, administrative or other enforcement authorities in the EU, these websites were included in the 2021 Monitored Websites by default and were not subjected to any tests to determine their popularity amongst EU consumers.

High-Risk Websites were assessed for popularity amongst EU consumers and were only included for monitoring if they met at least one of the criteria below:

- the website had an Alexa country rank below 500 000 for at least one of the EU countries selected for monitoring (where an Alexa rank of one is the most popular) or auto-redirected to a website that had an Alexa country rank that was below 500 000 ⁽²⁶⁾ ⁽²⁷⁾, and/or
- the website had an Alexa global rank below 500 000 or auto-redirected to a website that had an Alexa global rank below 500 000 ⁽²⁸⁾.

The target Alexa country rank of 500 000 used for selecting websites remained the same as in 2020, as the volatility rate seen in 2020 continued. There has been greater website turnover since 2020, as many new websites immediately replace those that have either been removed or are struggling

⁽²⁴⁾The [Google Transparency Report](#) (GTR) provides information on websites delisted from Google's search results for copyright infringement.

⁽²⁵⁾This criterion differs slightly from that used in the 2020 Ad Monitoring Exercise, where the criterion was 500 000 or more removal requests from GTR in the 12 months prior to the 2019 Ad Monitoring Exercise, rather than 3 months.

⁽²⁶⁾Alexa country rank indicates the popularity of websites in the country specified.

⁽²⁷⁾Auto-redirecting is a Blocklist Evasion Technique.

⁽²⁸⁾Alexa global rank indicates the global popularity of websites.

due to enforcement actions. With many new websites, there are higher traffic scores even for the more popular websites. For these newer websites, White Bullet also used its proprietary 'high-risk rating' to identify websites that were rapidly growing in audience interest.

For clarity, whilst the cut-off threshold for monitoring for both Alexa global and country rank was 500 000, most websites included in the 2021 Ad Monitoring Exercise had a considerably lower rank. On this popularity assessment of High-Risk Websites, the median Alexa global rank in 2021 was 113 201 (compared to 146 893 in 2020), and the median Alexa country rank for the monitored EU countries was 675 (compared to 1 357 in 2020).

2.5.4 App selection

The 2021 Monitored Apps were newly selected in 2021 to complement the 2021 Monitored Websites, and to enhance the ability to best analyse ongoing trends in 2021. Whilst some of the criteria used for identifying IP-infringing websites were the same as for IP-infringing apps, some were not readily available for IP-infringing apps, and so were adapted in the selection process.

- Has the app been found by a recognised third party to infringe copyright or disseminate counterfeit goods on a commercial scale?
- Does the app infringe IP and have no other substantial legitimate use?
- Is the app popular amongst consumers?
- Is the app accessible (i.e. can it be reached online)?
- Did the app have advertising present when first visited by White Bullet's Ad Monitoring System?

As with the 2021 Monitored Websites, the 2021 Monitored Apps were identified as being either illegal apps or high-risk apps.

- **Illegal Apps:** included those identified by the Trustworthy Accountability Group as having been removed by rights holders from official app stores for verified IP infringement (the Pirate Mobile App List or PMAL) ⁽²⁹⁾.
- **High-Risk Apps:** included those not included on the PMAL but still verified to be infringing and globally popular, including by White Bullet's IPIP™ or by rights holders.

2.5.5 Accessibility and advertising checks

Both Illegal and High-Risk Websites were assessed for accessibility (i.e. whether the website was online and accessible to a web browser for visits and rendering content) and the presence of digital advertising using White Bullet's Ad Monitoring System. Any website that was either inaccessible or contained no advertising was excluded from consideration.

Websites that passed all selection criteria were added to the list of 2021 Monitored Websites. Ads captured on a website that auto-redirected from a 2021 Monitored Website were attributed to the originating monitored website. However, such attribution did not apply to ads collected on mirror websites or outwardly independent websites that could have resulted from a domain-hop that is not auto-redirected from a monitored website, as it was not possible to confirm these relationships between websites.

Both Illegal and High-Risk Apps were also reviewed for accessibility and advertising checks. Any app that was either inaccessible or had no advertising present was excluded from consideration. Apps that passed all selection criteria were added to the list of 2021 Monitored Apps.

⁽²⁹⁾ More information on the Pirate Mobile App List is available on the website of the Trustworthy Accountability Group: <https://www.tagtoday.net/brand-safety#pmal>.

2.6 User profiles

For the 2021 Ad Monitoring Exercise, White Bullet's Ad Monitoring System continued the use of expanded user profiles when visiting the 2021 Monitored Websites and when using the 2021 Monitored Apps. This was to better replicate the ads delivered to a typical website or app visitor and trigger potential behaviourally targeted advertising. The type of user profile used was specific to each ecosystem as described below. The website and app user profiles were refreshed for each new quarter.

2.6.1 Website user profiles

Each URL was visited daily from all countries tracked using one of the nine user profiles below. Each profile was rotated on a scheduled cycle to ensure all 2021 Monitored Websites were visited equally. The user profiles were also refreshed for each new quarter.

- **Neutral (cookieless) profile:** for collection of non-targeted ads. This gave the 2021 Ad Monitoring Exercise a neutral benchmark. It was also an important stand-alone category as many consumers of digital IP-infringing content use anonymisation technology – such as VPNs and proxies – to protect their privacy and, therefore, do not visit IP-infringing websites with any attributable cookie profiles.
- **Female user profiles:** four profiles, each of which included multiple interest-based user profiles within this category.
- **Male user profiles:** four profiles, each of which included multiple interest-based user profiles within this category.

Over 100 specific interest sectors were used to develop profiles (including travel, weather, fashion, personal finance, etc.). Cookies also related to previous visits to IP-infringing content.

2.6.2 App user profiles

Each app was visited daily from all tracked countries using one of the five user profiles below. Each profile was rotated on a scheduled cycle to ensure that all 2021 Monitored Apps were visited equally. The user profiles were refreshed for each new quarter.

- **Neutral (cookieless) profile:** for collection of non-targeted ads. This gave the 2021 Ad Monitoring Exercise a neutral benchmark. It was also an important stand-alone category as many consumers of digital IP-infringing content use anonymisation and privacy technology on mobile phones – such as privacy settings and turning off tracking – to protect their privacy.
- **Female user profiles:** two profiles, each compiled by White Bullet staff using diverse apps in a variety of Google Play categories on a mobile phone to create a profile on the device Advertiser ID that was transferred into the Ad Monitoring System.
- **Male user profiles:** two profiles, each compiled by White Bullet staff using diverse apps in a variety of Google Play categories on a mobile phone to create a profile on the device Advertiser ID that was transferred into the Ad Monitoring System.

2.7 Brand and Ad Intermediary categorisation

White Bullet classified any brands found advertising in the 2021 Ad Monitoring Exercise as Major Brands if the brand, or parent company of the brand, was present on one of the following lists:

- AdAge Global Marketers Index,
- Millward Brown Global and National brand ranking lists,
- Ranking the Brands Top 100 List,
- WFA membership,
- ANA membership, or
- Forbes Global 2000.

White Bullet evaluated any brands that did not appear on the above lists to assess whether they should be included as a Major Brand. Reputable brands were included as Major Brands if they had

a strong presence in multiple search engine results in the EU countries, indicating potential significant marketing reach and consumer recognition⁽³⁰⁾.

No differentiation was made between:

- brands belonging to MoU signatories and brands belonging to non-MoU signatories, and
- brands for which brand safety standards or self-regulatory initiatives were applied and other brands.

White Bullet deemed a brand or an Ad Intermediary as being based in the EU if it had either headquarters in an EU country or an established business operation in at least one EU country. To ascertain this, White Bullet visited the website of each entity to determine whether an EU office was listed. If that information could not be found on the website, they then researched public sources for any indication of an established office in an EU country.

2.8 Potential ad revenue estimation methodology

Estimated annual ad revenue is the potential estimated annual revenue that websites and apps could generate from digital advertising worldwide. The results were derived from actual advertising data collected by White Bullet's Ad Monitoring System, incorporating available daily page view data (for websites) and daily session (usage) data (for apps) and extrapolating to include full annual coverage for all countries.

White Bullet calculated estimates of the potential ad revenue of piracy websites and apps by combining multiple independent and proprietary data sources within a revenue calculation algorithm. This included:

- data about actual ads captured by White Bullet during ad-harvesting visits;

⁽³⁰⁾ Google was used as the search engine because Statcounter indicated that it continued to have more than 90 % market share for Europe, as it did in 2020. See <https://gs.statcounter.com/search-engine-market-share/all/europe/#monthly-202101-202109>.

- for websites, daily page view data for those websites drawn from independent third-party sources indicating traffic volume, and for apps, daily session data calculated using reported app store install numbers and industry estimates for usage (see below for specific detail on daily sessions); and
- advertising valuation data based on a proprietary matrix created from industry advertising payment and bidding values identified in major advertising exchanges where White Bullet is integrated, industry published average ad bidding values by ad sector and format, and ad bidding values identified by White Bullet directly from the code behind captured ads where available.

White Bullet created a calculation to estimate daily sessions for app usage, because no third-party data was available for app usage as an equivalent to daily page views for websites. Daily session data was created by:

- taking the number of installs of each app from app store sources;
- estimating how many of those installs may be retained on users' devices, based on third-party data averaging retention rates for media sector apps;
- applying a factor for how many retained users use the apps each month, based on third-party usage data; and
- applying a factor to determine how many of those retained monthly users might use each app daily, based on a conservative once weekly usage.

To create the advertising valuation matrix for websites and for apps, White Bullet applied multipliers to core base values for the three dominant payment models in digital advertising: Cost Per Mille (CPM), Cost Per Click (CPC), and Cost Per Action (CPA). White Bullet's methodology used a different core base value for CPM, CPC or CPA advertising drawn from industry estimates from third-party sources, which depend on various data components, including digital ecosystem (e.g. desktop web, mobile web, app, search, social), market sector (e.g. health, finance, travel), ad format (e.g. display, pop-up/under) and media type (e.g. image, video, rich media). Multipliers applied were dependent on the advertiser type (e.g. Major Brand, clickbait), ad dominance (e.g. density of ads on the publisher page where relevant) and country where the ad was displayed (a multiplier was applied to each ad for that country, based on average advertising spend by internet user for that country as a percentage of average advertising spend by internet user benchmarked against the US). For CPC and CPA advertising, core base values and related click-through rates (depending on market sector

and multipliers) were applied to both core base values and click-through rates (depending on the ad format, media type, as well as advertiser type, ad dominance and country, again drawn from industry estimates from third-party sources).

Data points collected from ad-harvesting visits by the Ad Monitoring System were cross referenced with the advertising valuation matrix, after which extrapolation calculations were created using estimated third-party page views to those websites or daily sessions in those apps, and ratio of ads to visits by brand and by country. Third-party data included in the above calculations was drawn from numerous sources, including publicly available data from Statista, eMarketer and Google AdSense, as well as data from industry experts and ad exchange bid data available to White Bullet.

Estimated advertising revenue data in this report are estimates of potential revenues based on extrapolated data and, therefore, may vary from sums actually generated by publishers. Advertising values are heavily dependent on a range of factors and are therefore estimates based on extrapolating data using statistical correlations. White Bullet used conservative core base values and multipliers within the ad revenue matrix and conservative daily page view and daily session extrapolations, understanding that websites and apps might command varying advertising rates with different buyers. The values in the ad revenue calculation algorithm were periodically reviewed and updated as needed to reflect the digital marketplace.

2.8.1 Data and revenue analysis

The data in this report is divided into sections for analysis:

- 2021 Monitored Websites analysis;
- 2021 Monitored Apps analysis;
- 2021 Monitored Websites and Apps compared;
- 2021 Monitored Websites trends; and
- 2021 Monitored Website trends compared to 2020 Monitored Website trends.

The analyses in these sections are presented below.

2.8.2 Top-level analyses for websites and apps in the 2021 Ad Monitoring Exercise

The data collected was analysed as follows.

- **2021 Overview** provides a summary overview of the websites or apps tracked in the 2021 Ad Monitoring Exercise and the estimated revenue with breakdown by website or app type.
- **Estimated Ad Impression Analysis** analyses the Ad Impressions estimated for the 2021 Monitored Websites or 2021 Monitored Apps by website or app type and for websites provides a breakdown by country.
- **Ad Type Analysis** defines categories of Ad Types and provides breakdowns of Ad Types by these categories and distribution by country.
- **Branded Advertising Sector Analysis** analyses the Top-level Sectors identifying the industry in which a brand operates for brands identified in the 2021 Ad Monitoring Exercise, with details by country.
- **Brand Analysis** analyses brands collected in the 2021 Ad Monitoring Exercise, including distribution by country. In addition, the report addresses the question of what percentage of brands collected were EU Brands with an analysis of percentages of brand source countries by country.
- **Ad Intermediary Analysis** analyses the variation and diversity of the Ad Intermediaries found across all advertising collected during the 2021 Ad Monitoring Exercise, with breakdowns by website or app type and percentage of EU Ad Intermediaries by country. In 2021, the technology to identify Ad Intermediaries was enhanced to focus on the most relevant categories (Ad Tech, Ad Serving, Adware, and Anonymised Ad Tech Ad Intermediaries). Ad Intermediaries identified as domain hosts or data management platforms were excluded from the totals in 2021, resulting in a decrease in the number of total unique Ad Intermediaries for this period.
- **Estimated Ad Impressions analyses:** for websites, estimated Ad Impressions are calculated by extrapolating advertising data harvested by White Bullet's Ad Monitoring System with page

view data on the 2021 Monitored Websites procured by third-party providers. The page view data used is specific to the countries where the advertisements were captured and allows estimates to be made on the actual Ad Impressions displayed by the 2021 Monitored Websites in the monitored countries in the 2021 Ad Monitoring Exercise. For apps, estimated Ad Impressions are calculated by extrapolating advertising data harvested by the Ad Monitoring System with download data for the 2021 Monitored Apps obtained from app stores providing the Android Package Kits (APKs), along with a proprietary algorithm that incorporates estimates for user sessions based on third-party data. As the app download data obtained from app stores is generally not specific to countries, the estimated Ad Impressions for apps provided in this report are global figures rather than specific to countries.

- **Ad Revenue Analysis** analyses the estimated ad revenue generated by the 2021 Monitored Websites with breakdowns by country, including European and worldwide projections. For the 2021 Monitored Apps, estimated ad revenue analyses include estimates of worldwide ad revenue comparisons by quarter, as well as worldwide annual estimated ad revenue.

2.8.3 Top-level trend analyses for websites and apps across the 2021 Ad Monitoring Exercise

- **Estimated Ad Impressions Trend in 2021** analyses the changes in estimated Ad Impressions through the 2021 Ad Monitoring Exercise by month.
- **Ad Type Trend in 2021** analyses the changes in percentages of Ad Type by month in 2021.
- **Major Brands Trend in 2021** analyses the trends in counts of unique Major Brands by month and website/app type.
- **Major Brands Ad Impressions Served by EU Brands Trend in 2021** analyses the changes by month in percentage of Major Brands estimated Ad Impressions that were identified as EU Brands.
- **Ad Intermediaries Trend in 2021** analyses the trends in counts of unique Ad Intermediaries by month and website/app type.
- **Ad Revenue Trend in 2021** analyses the changes in estimated ad revenue by month and website/app type.

2.8.4 Top-level trends from 2020 to 2021 – websites

These analyses compare datasets collected for the same countries identified in Figure 1 for both 2020 and 2021 and includes desktop web data only for 2021. The 2020 Comparison Dataset includes data captured between 1 January 2020 and 6 October 2020 whilst the 2021 Comparison Dataset covers data captured between 1 January 2021 and 30 September 2021. Although the UK was included as a monitored country in 2020, for purposes of the comparison dataset, the UK data has been moved to a control country to mirror the 2021 data.

- **Ad Volume Trend Analysis** compares the total ad volume collected in 2020 and 2021 with a breakdown by website type. Ad volume refers to the number of ads collected by White Bullet's Ad Monitoring System. These analyses compare ad volume data rather than estimated Ad Impressions.
- **Brands Trend Analysis** compares the total brands and Major Brands in 2020 and 2021 with a breakdown by website type.
- **Branded Advertising by Country Trend Analysis** compares the percentage of Major Brand, Other Brand and Total Branded Advertising by country in 2020 and 2021.
- **Branded Advertising Sector Trend Analysis** compares the changes in the Top-level Sectors for branded advertising and Major Brands in 2020 and 2021.
- **Ad Intermediary Trend Analysis** compares the total Ad Intermediaries in 2020 and 2021 with a breakdown by website type.

3 2021 Ad Monitoring Exercise – Web Monitoring Analyses

3.1 2021 Overview

3.1.1 Ongoing impact of the COVID-19 pandemic and emerging economic recovery in 2021

The 2021 Ad Monitoring Exercise was performed against the backdrop of the second year of the global COVID-19 pandemic and varying levels of recovery for global economies. Unlike 2020 where there was a strong impact across most countries and economies at similar times, the 2021 pandemic response and economic recovery varied by country. These 2021 variations may be reflected in the 2021 Ad Monitoring Exercise results.

In 2021, the COVID-19 pandemic continued to have a global impact with the emergence of new variants, particularly the Delta variant, requiring many countries to maintain or reintroduce restrictions to prevent their spread. With the help of vaccination rollout programmes, which were firmly underway by Q3, some monitored countries were able to avoid an initial spike in Delta cases by implementing precautionary measures. Other countries experienced a delayed peak in Delta cases, due to the variant taking longer to spread to, and across, the country⁽³¹⁾.

The internationally asynchronous course of the COVID-19 pandemic in 2021 has contributed to inconsistent trends for domestic economic growth. Despite the spread of new variants, the implementation by domestic governments of vaccination rollout programmes and support schemes for citizens and businesses has had a positive overall effect on economies internationally⁽³²⁾. Overall, the GDPs of all monitored countries have returned to growth in 2021, with the EU returning from a 5.9 % decrease in 2020 to a 5 % increase in 2021. Ireland, the only monitored country to experience growth in 2020, has also seen the largest growth in 2021, improving on its 5.9 % 2020 growth with 14.6 % growth in 2021. However, the growth of other monitored countries' economies has been

⁽³¹⁾ Our World in Data, <https://ourworldindata.org/coronavirus#coronavirus-country-profiles>.

⁽³²⁾ European Commission, https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/spring-2021-economic-forecast-rolling-sleeves_en, 2021.

slower, with the GDP of Germany experiencing the smallest growth of 2.7 % after a 2020 decline of 4.6 %⁽³³⁾.

The growth of spending in the advertising industry in 2021 is one example of the economic rebound from its decline in 2020. The total ad spend in EU countries has returned to growth, driven by growth in digital ad spend that has, in countries like Germany and the UK, more than doubled from its suppressed growth in 2020⁽³⁴⁾. With travel restrictions easing through 2021, particularly due to successful vaccination programmes, it is unsurprising that in these countries it has been the travel industry that has experienced the most digital ad spend growth in 2021, closely followed by retail⁽³⁵⁾.

A 6 % increase in visits to piracy websites in the first 3 months of 2021 may indicate that the enlarged piracy audiences from 2020 have become comfortable consuming entertainment in this way⁽³⁶⁾. Furthermore, as disruptions to the production and release of film, series and live sports broadcast content have significantly eased in 2021, a large amount of both scheduled and re-scheduled content was released this year, with a particularly high concentration in the summer. This has included film and series releases from Disney's Marvel franchise and international sports events, such as the Tokyo Olympics and the UEFA European Football Championship (the Euros). This influx of new content has provided piracy platforms supported by advertising with a boost of new material with which to maintain and grow their audiences.

3.1.2 Overview of 2021 Ad Monitoring results – websites

An initial 4 380 websites passed the selection criteria (see section 2.5 above) and were included in the initial monitoring pool on 1 January 2021, of which 49 % (2 149) were carried over from the 2020

⁽³³⁾ European Commission, https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/autumn-2021-economic-forecast_en, 2021.

⁽³⁴⁾ Magna, <https://magnaglobal.com/magna-global-advertising-forecasts-june-2021/>, 2021.

⁽³⁵⁾ eMarketer, <https://www.emarketer.com/content/germany-digital-ad-spending-by-industry-2021>, 2021, and eMarketer, <https://www.emarketer.com/content/big-swings-uk-digital-ad-spending-by-industry-retail-pulls-ahead>, 2021.

⁽³⁶⁾ MUSO, <https://www.muso.com/magazine/lights-camera-actionable-insights...how-data-can-drive-up-the-value-of-your-content>, 2021.

Ad Monitoring Exercise. On commencement of the 2021 Ad Monitoring Exercise, Illegal Websites accounted for 37 % of the 2021 Monitored Websites, and High-Risk Websites accounted for 63 %⁽³⁷⁾.

The number of websites monitored during each quarter of the 2021 Ad Monitoring Exercise fluctuated, reflecting changes made to relevant IWLs and any new IP-infringing websites named in publicly available EU court orders during the 2021 Ad Monitoring Exercise. New High-Risk Websites that were identified during the 2021 Ad Monitoring Exercise and passed the selection criteria were also added for monitoring. High-Risk Websites that were verified as no longer infringing were removed.

Table 3 shows that the fluctuations throughout the monitoring period resulted in a total of 5 758 websites being monitored by the end of the 2021 Ad Monitoring Exercise, a net increase of 1 378 websites during the monitoring period. At the end of the monitoring period, Illegal Websites accounted for 43 % and High-Risk Websites for 57 % of the 2021 Monitored Websites.

Website Type	TOTAL WEBSITES	EST. AD IMPRESSIONS FOR 18 EU COUNTRIES	EST. AD REVENUE FOR 18 EU COUNTRIES	EST. WORLDWIDE AD REVENUE
Illegal Websites	2,498 (43%)	26.3B (37%)	€ 44.9M (44%)	€ 288.0M (32%)
High Risk Websites	3,260 (57%)	44.0B (63%)	€ 57.6M (56%)	€ 624.7M (68%)
2021 Monitored Websites	5,758	70.3B	€ 102.5M	€ 912.7M

Table 3: 2021 Ad Monitoring Exercise overview – web monitoring

There were 70.3 billion estimated Ad Impressions collected from the 2021 Monitored Websites during the 2021 Monitoring Exercise, with 37 % collected from Illegal Websites and 63 % from High-Risk Websites. The 2021 Monitored Websites had an estimated ad revenue of EUR 102.5 million from the 18 EU monitored countries alone, and EUR 912.7 million worldwide during 2021. Illegal Websites had an estimated ad revenue of EUR 44.9 million from the 18 EU monitored countries and EUR 288.0 million worldwide, while High-Risk Websites had an estimated ad revenue of EUR 57.6 million from the 18 EU monitored countries and EUR 624.7 million worldwide.

⁽³⁷⁾ In the 2020 Ad Monitoring Exercise, Illegal Websites represented 59 % of the total websites while High-Risk Websites comprised just 41 %. Whilst Illegal Websites were previously included without regard to accessibility status, in 2021 only accessible domains were included, thus reducing the overall percentage.

3.2 Estimated Ad Impression analysis

3.2.1 Total estimated Ad Impressions

Estimated Ad Impressions are calculated by extrapolating advertising data harvested by White Bullet’s Ad Monitoring System with page view data on the 2021 Monitored Websites procured by third-party providers. The page view data used is specific to the countries where the advertisements were captured and allows estimates to be made on the actual Ad Impressions the 2021 Monitored Websites displayed in the monitored countries during the 2021 Ad Monitoring Exercise.

Figure 1 shows that estimated Ad Impressions across all monitored websites increased by 26 % from Q1 (15.3 billion) to Q4 (19.3 billion). High-Risk Websites saw the largest percentage increase in estimated Ad Impressions during the 2021 Ad Monitoring Exercise, with a 36 % increase from Q1 (9.2 billion) to Q4 (12.6 billion). This increase is noteworthy as the overall percentage of High-Risk Websites in the 2021 Monitored Websites decreased by 5 % from 62 % in Q1 (2 751) to 58 % in Q4 (3 037).

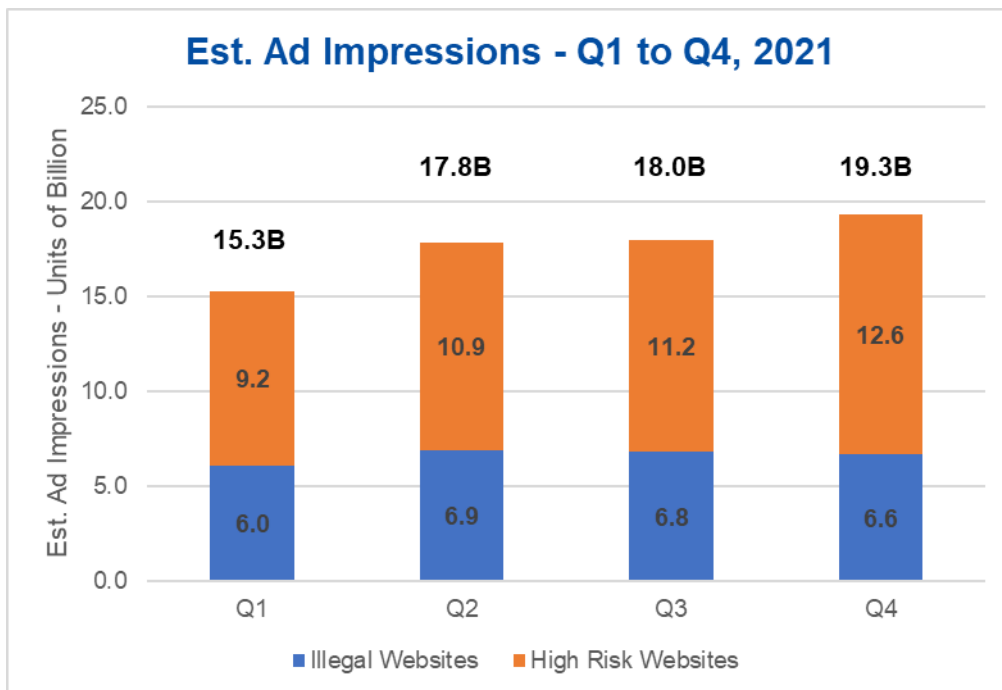


Figure 1: Est. Ad Impressions Q1 to Q4, 2021, Websites

Estimated Ad Impressions extrapolated from ads collected on Illegal Websites initially increased by 14 % from Q1 (6.0 billion) to Q2 (6.9 billion), but then decreased in Q3 (6.8 billion) and Q4 (6.6 billion). As a result, Illegal Websites had the lowest overall percentage increase from Q1 to Q4 (10 %). Whilst the estimated Ad Impressions extrapolated from ads collected on Illegal Websites increased by only 10 % from Q1 to Q4, the percentage that Illegal Websites represented in the 2021 Monitored Websites increased by almost 16 %, rising from 38 % (1 701) to 42 % (2 155).

3.2.2 Estimated Ad Impressions by country

Figure 2 shows the estimated Ad Impressions for the 2021 Monitored Websites by country for the 2021 Ad Monitoring Exercise. This provides a visualisation of the distribution of estimated Ad Impressions by country, which also depended on the relative popularity of the 2021 Monitored Websites in each country.

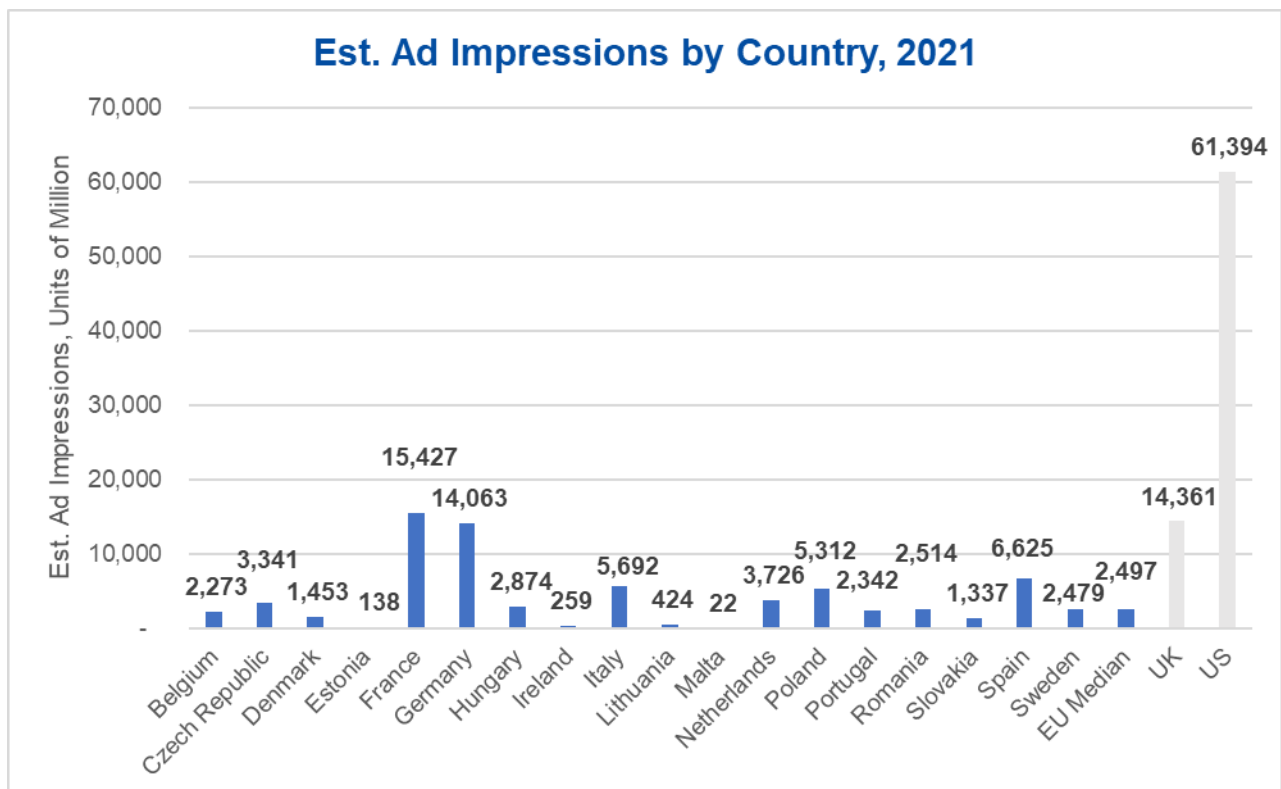


Figure 2: Est. Ad Impressions by country – websites – 2021 Ad Monitoring Exercise

France had the highest level among the 18 EU monitored countries, with 22 % (15.4 billion) of the total 70.3 billion estimated Ad Impressions for the 2021 Monitored Websites for the 18 EU monitored countries, whilst Germany had 20 % (14 billion) and Spain had 9 % (6.6 billion). The control country of the UK – the largest digital ad market in Europe – had 14.3 billion estimated Ad Impressions. The US had 61.39 billion estimated Ad Impressions, equating to 87 % of the EU total estimated Ad Impressions.

Table 4 provides a detailed comparison of the estimated Ad Impressions by country for each quarter of 2021, including the percentage change for each country between quarters.

COUNTRY	Q1	Q2	Q3	Q4	% Change Q1 vs Q2	% Change Q2 vs Q3	% Change Q3 vs Q4	% Change Q1 vs Q4
Belgium	426	626	603	618	47%	-4%	2%	45%
Czech Republic	723	754	868	995	4%	15%	15%	38%
Denmark	329	384	348	392	17%	-9%	12%	19%
Estonia	34	39	27	38	13%	-30%	42%	12%
France	3,299	4,232	3,830	4,065	28%	-9%	6%	23%
Germany	3,131	3,664	3,462	3,807	17%	-6%	10%	22%
Hungary	584	625	778	887	7%	25%	14%	52%
Ireland	62	67	55	74	9%	-18%	35%	20%
IWL Italy	1,131	1,358	1,578	1,626	20%	16%	3%	44%
IWL Lithuania	66	53	139	166	-19%	159%	20%	151%
Malta	5	7	5	5	50%	-26%	-13%	-3%
Netherlands	744	955	1,006	1,022	28%	5%	2%	37%
Poland	1,309	961	1,483	1,560	-27%	54%	5%	19%
Portugal	685	566	462	629	-17%	-18%	36%	-8%
Romania	492	735	710	577	49%	-3%	-19%	17%
Slovakia	271	307	337	423	13%	10%	26%	56%
Spain	1,463	1,732	1,647	1,782	18%	-5%	8%	22%
Sweden	518	722	635	603	39%	-12%	-5%	16%
EU Median	551	674	673	623	17%	-4%	9%	22%
IWL UK	3,092	4,112	3,522	3,635	33%	-14%	3%	18%
US	12,963	16,598	16,184	15,649	28%	-2%	-3%	21%

Table 4: Est. Ad Impressions by country and quarter for the 2021 Monitored Websites

Patterns of estimated Ad Impressions by quarter varied by country in the 2021 Ad Monitoring Exercise, unlike in 2020 where there was an overall pattern for the region. For example, estimated Ad Impressions in Portugal dropped across two quarters from a high in Q1 (685) to a low in Q3 (462)

before increasing by 36 % in Q4 (629). By contrast, estimated Ad Impressions in France were highest in Q2 (4 232), and decreased by 9 % in Q3 (3 830), before increasing by 6 % in Q4 (4 065). Lithuania had the largest percentage increase (151 %) in estimated Ad Impressions from Q1 to Q4, with a 159 % increase from Q2 to Q3.

3.3 Ad Type analysis

3.3.1 Ad Type breakdown

To understand the diversity in the advertising collected, ads were categorised into five different Ad Types.

- **Branded Advertising:** ads that can be attributed to a brand. For the purpose of this report, Branded Advertising is broken down into two sub-groups:
 - **Major Brands:** brands that are on selected top advertiser lists or are otherwise premium reputable established brands with a strong search engine presence in EU countries,
 - **Other Brands:** brands that are not major but are also not fraudulent, adult, or malicious.
- **Adult:** ads that display sexually explicit imagery or wording.
- **Fraud & Malware:** ads that engage in click-generation, known fraudulent or identifiable malicious activity.
- **Sponsored Content:** native ads placed within content boxes and including multiple advertorials in a single inventory slot.
- **Unidentifiable Ads:** ads that cannot be attributed to a specific brand or other Ad Type.

3.3.2 Branded Advertising

The presence of recognisable Branded Advertising on IP-infringing websites can potentially lead consumers to mistakenly believe that they are accessing a reputable website. In addition, misplaced Branded Advertising inadvertently funds illicit activity and damages brand equity, associating brands with high-risk content.

Figure 3 analyses the estimated Ad Impressions extrapolated from the ads collected in 2021 with breakdowns by Ad Type and website type.

Across all 2021 Monitored Websites, Branded Advertising represented 30 % of estimated Ad Impressions. The estimated Ad Impressions for Major Brands was highest on High-Risk Websites at 4 % of estimated Ad Impressions, compared to 3 % on Illegal Websites. However, Branded Advertising was highest overall on Illegal Websites at 32 %, compared to 29 % on High-Risk Websites.

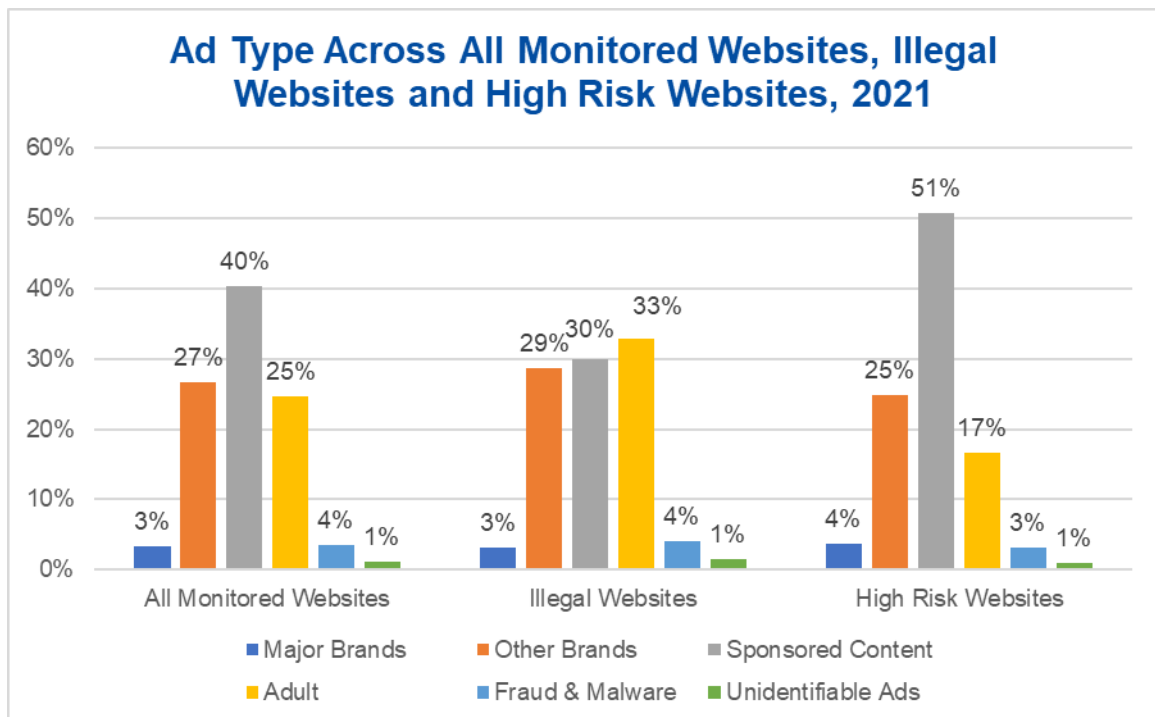


Figure 3: Ad Type across All Monitored Websites, Illegal Websites and High-Risk Websites, 2021

Figure 4 provides a comparison of the Ad Type proportions across all 2021 Monitored Websites by quarter, whilst Figure 5 provides a comparison of the Ad Type proportions by quarter for Illegal Websites and High-Risk Websites.

The estimated Ad Impressions for Branded Advertising across all Monitored Websites was lowest in Q1 at 24 % and increased to 35 % in Q4. The estimated Ad Impressions for Major Brand advertising was highest in Q2 at 4 %, declining only slightly to 3 % in Q3 and Q4.

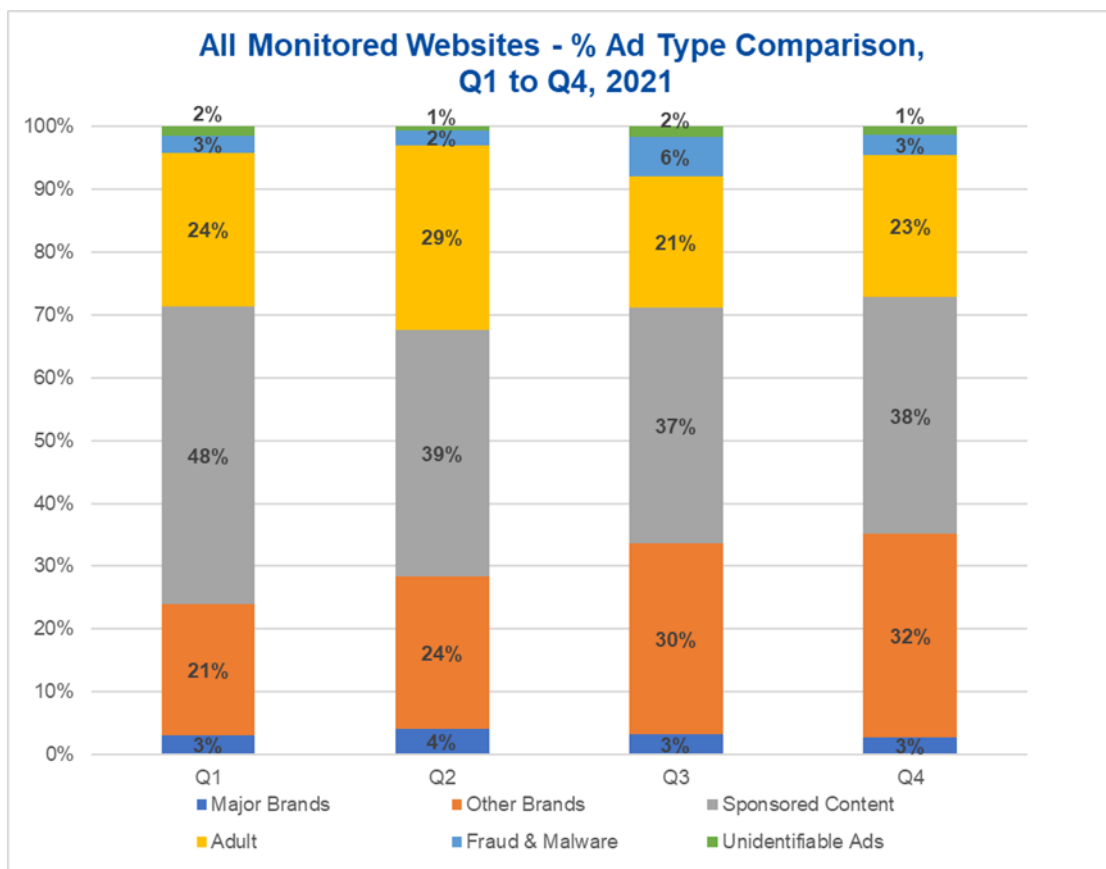


Figure 4: Ad Type comparison – Q1 to Q4, 2021, All Monitored Websites

The total Branded Advertising on Illegal Websites peaked at 39 % in Q4, having increased from 27 % in Q1. However, Branded Advertising remained significantly higher than on High-Risk Websites for all quarters. The estimated Ad Impressions for Branded Advertising on High-Risk Websites were lowest at 21 % in Q1, before increasing sharply in Q2 to 30 % and remaining relatively stable for the last two quarters (32 % in Q3; 31 % in Q4).

The estimated Ad Impressions for Major Brand advertising on Illegal Websites were stable at 3 % for Q2 and Q3 and peaked in Q1 at 4 %. By contrast, the estimated Ad Impressions for Major Brand advertising on High-Risk Websites fluctuated more each quarter, increasing from 2 % in Q1 to 5% in Q2, and decreasing to 3 % in Q3.

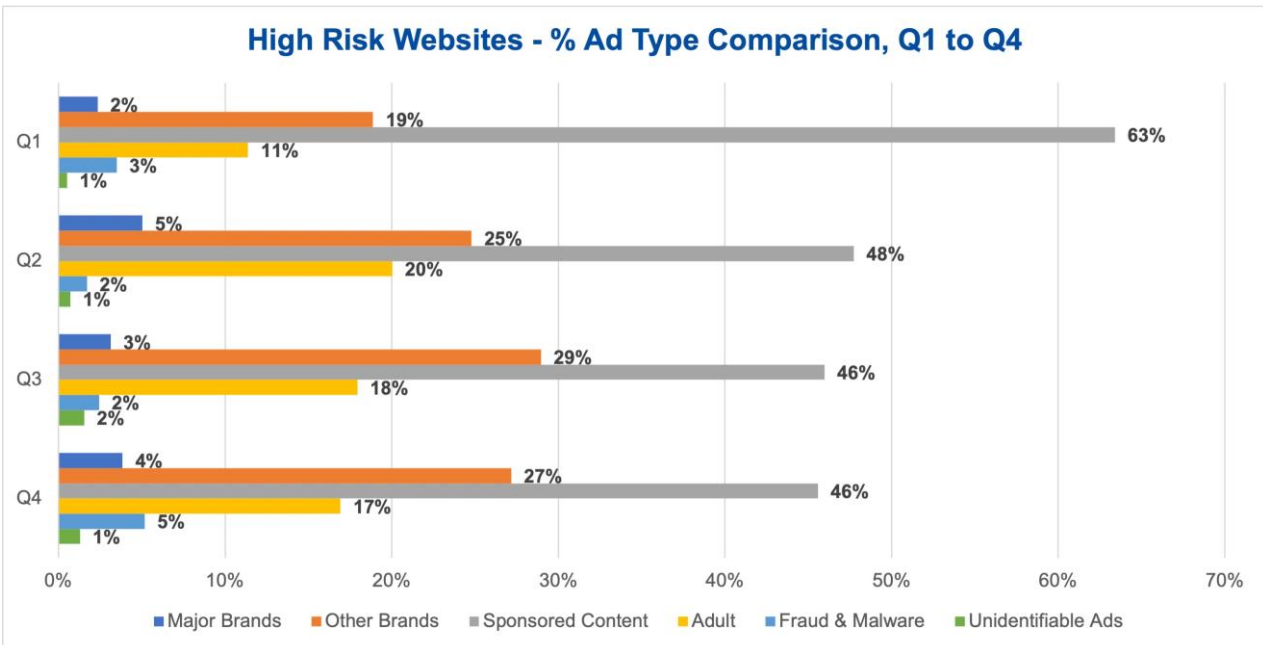
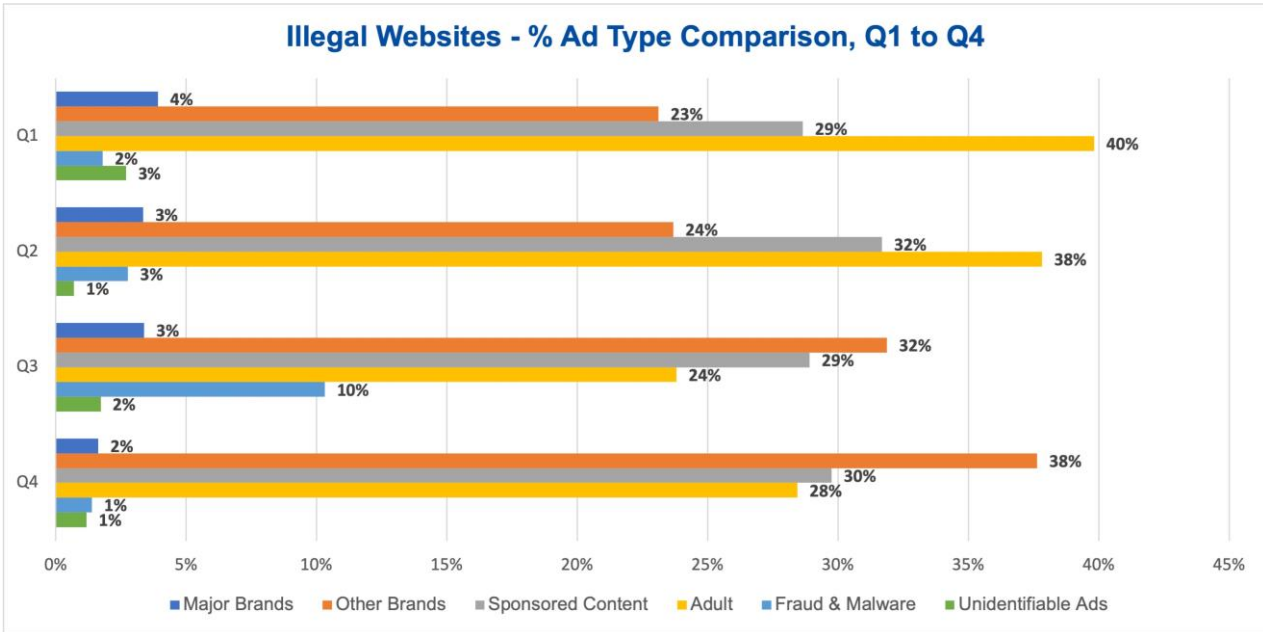


Figure 5: Ad Type comparison: Q1 to Q4, 2021, Illegal and High-Risk Websites

3.3.3 Sponsored Content, Adult and Fraud & Malware advertising

Sponsored Content advertising across all Monitored Websites remained relatively stable throughout the year, ranging between 37 % of estimated Ad Impressions (Q3) and 39 % (Q2). Although the Ad Impressions for Sponsored Content in Q1 were estimated at 48 %, this was prior to a new release of the Ad Monitoring System that extracts individual brands from Sponsored Content boxes and, therefore, may not reflect a general trend.

Estimated Ad Impressions for Adult ads across all 2021 Monitored Websites ranged between 21 % and 24 % each quarter, except for a sharp increase to 29 % in Q2. Illegal Websites had significantly higher percentages of estimated Ad Impressions for Adult ads than High-Risk Websites throughout the 2021 Ad Monitoring period. For example, in Q1, Adult ads represented 40 % of estimated Ad Impressions on Illegal Websites compared to 11 % on High-Risk Websites.

Estimated Ad Impressions for Fraud & Malware across all 2021 Monitored Websites generally ranged between 2 % and 3 % with a sharp increase to 6 % in Q3. This Q3 increase may be correlated to the addition of a number of WIPO IWL domains in this quarter as the estimated Ad Impressions for Fraud & Malware on Illegal Websites increased from 3 % in Q2 to 10 % in Q3. Estimated Ad Impressions for Fraud & Malware on High-Risk Websites remained at only 2 % in Q2 and Q3, and increased to 5 % in Q4.

3.3.4 Ad Type by country

Table 5 shows the proportion of Ad Types by country across all 2021 Monitored Websites in 2021.

The Czech Republic had the highest levels of estimated Ad Impressions for Major Brands at 20 %, followed by Ireland and Denmark at 10 %. Portugal had the highest level of estimated Ad Impressions for total Branded Advertising at 67 %, followed by Sweden at 53 %. The EU Median for Major Brands was 3 %, and the WIPO IWL countries of Italy (2 %) and Lithuania (1 %) were both below this median. The control country of the UK was slightly above the EU median for Major Brands (4 %) but matched the EU Median of 34 % for Branded Advertising. The US had one of the lowest levels of Major Brands (2 %), although the 35 % Branded Advertising was slightly higher than the EU median.

Only 3 of the 18 EU monitored countries had at least 50 % of their estimated Ad Impressions from Sponsored Content, namely Hungary (75 %), Lithuania (71 %) and Romania (73 %). The EU Median for estimated Ad Impressions from Sponsored Content was 38 %, with the control countries of the UK above the EU Median (44 %) and the US slightly below (36 %).

COUNTRY	% MAJOR BRANDS	% OTHER BRANDS	% TOTAL BRANDED ADVERTISING	% SPONSORED CONTENT	% FRAUD & MALWARE	% ADULT	% UNIDENTIFIABLE ADS
Belgium	2%	23%	26%	33%	1%	39%	1%
Czech Republic	20%	31%	51%	40%	1%	6%	1%
Denmark	10%	33%	43%	38%	2%	14%	2%
Estonia	1%	18%	19%	30%	0%	51%	0%
France	3%	21%	24%	43%	1%	31%	1%
Germany	2%	23%	25%	38%	9%	27%	1%
Hungary	3%	6%	9%	75%	1%	16%	0%
Ireland	10%	30%	40%	35%	11%	10%	4%
IWL Italy	2%	26%	28%	32%	6%	33%	1%
IWL Lithuania	1%	14%	15%	71%	0%	11%	2%
Malta	8%	24%	32%	18%	10%	31%	9%
Netherlands	2%	39%	41%	39%	3%	17%	1%
Poland	4%	34%	38%	42%	2%	17%	2%
Portugal	1%	67%	67%	18%	1%	14%	1%
Romania	1%	18%	19%	73%	2%	5%	2%
Slovakia	9%	28%	37%	43%	0%	19%	1%
Spain	3%	35%	38%	35%	4%	21%	2%
Sweden	6%	47%	53%	24%	4%	17%	2%
EU Median	3%	27%	34%	38%	2%	17%	1%
IWL UK	4%	31%	34%	44%	3%	18%	1%
US	2%	33%	35%	36%	4%	25%	1%

Table 5: Ad Types by country for the 2021 Monitored Websites

Figure 6 provides a focused analysis of the impact of the UK IWL in the UK compared to the EU Median and the US by analysing the 788 active websites included in the UK IWL during the 2021 Ad Monitoring Exercise. Figure 6 indicates that the UK had a noticeably lower level of overall Branded Advertising (28.5 %) on the IWL websites compared to 34 % across all 2021 Monitored Websites shown in Table 5. Perhaps more significantly, the UK level of Major Brand advertising was lower on the UK IWL websites (2.7 %) than across all 2021 Monitored Websites (4 %). Interestingly, the UK had a significantly higher percentage of estimated Ad Impressions for Sponsored Content on the UK IWL domains (53.3 %) than from all 2021 Monitored Websites (44 %).

The EU Median of 2.3 % for Major Brand advertising for the UK IWL websites was slightly lower than the 3 % for the 2021 Monitored Websites. Similarly, the EU Median of 22.6 % for Branded Advertising for the UK IWL websites was lower than the 34 % for 2021 Monitored Websites. However, the EU Median of 30 % for Adult ads was almost double the percentage across all 2021 Monitored Websites (17 %).

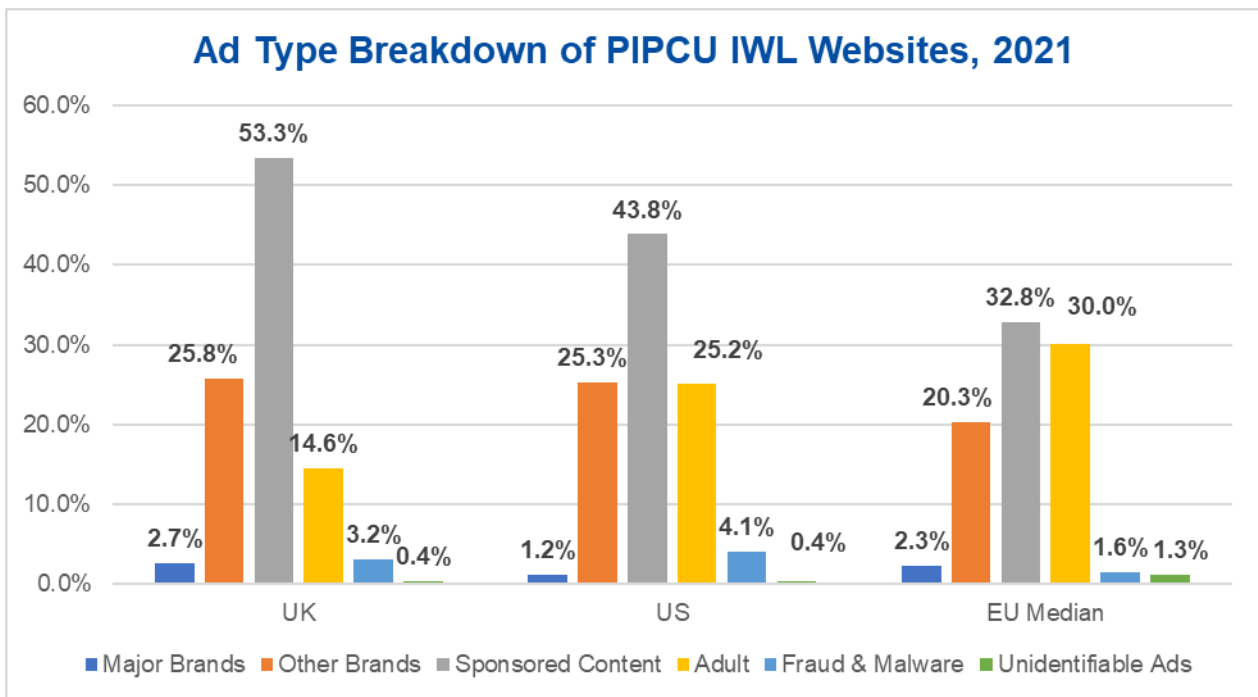


Figure 6: Ad Type breakdown on IWL websites: UK
788 active domains analysed

Figures 7 and 8 provide focused analyses of the impact of the WIPO IWLs for Italy and Lithuania respectively compared to the rest of the countries monitored in the EU as well as the UK and the US, by analysing the active websites included in each IWL during the 2021 Ad Monitoring Exercise⁽³⁸⁾.

⁽³⁸⁾ Whilst the WIPO IWL was not incorporated into the 2021 Ad Monitoring Websites until Q3, a number of these websites were previously tracked as High-Risk Websites with data collected throughout the 2021 Ad Monitoring Exercise. Therefore, the designation of such websites changed from High-Risk to Illegal in Q3.

Figure 7 provides a focused analysis of the impact of the WIPO IWL in Italy compared to the other 17 EU monitored countries, as well as to the UK and the US, by analysing the 415 active websites included in the Italy IWL during the 2021 Ad Monitoring Exercise. Figure 7 indicates that Italy had a noticeably lower level of overall Branded Advertising (3.5 %) on the Italy IWL websites compared to 28 % across all 2021 Monitored Websites shown in Table 5. The Italy level of Major Brand advertising was also lower on the Italy IWL websites (0.4 %) than across all 2021 Monitored Websites (2 %). Similar to the impact shown of the UK IWL, Italy had a significantly higher percentage of estimated Ad Impressions for Sponsored Content on the Italy IWL domains (53.1 %) than from all 2021 Monitored Websites (32 %).

Major Brand advertising was 2.6 % for the other EU monitored countries for the Italy IWL websites, slightly lower than the 3 % EU Median for All Monitored Websites. Similarly, the 29.3 % for Branded Advertising for the other EU monitored countries for the Italy IWL websites was lower than the EU Median (34 %) for All Monitored Websites. However, the US had a higher percentage of Branded Advertising (42.4 %) on the Italy IWL websites than across the 2021 Monitored Websites (35 %).

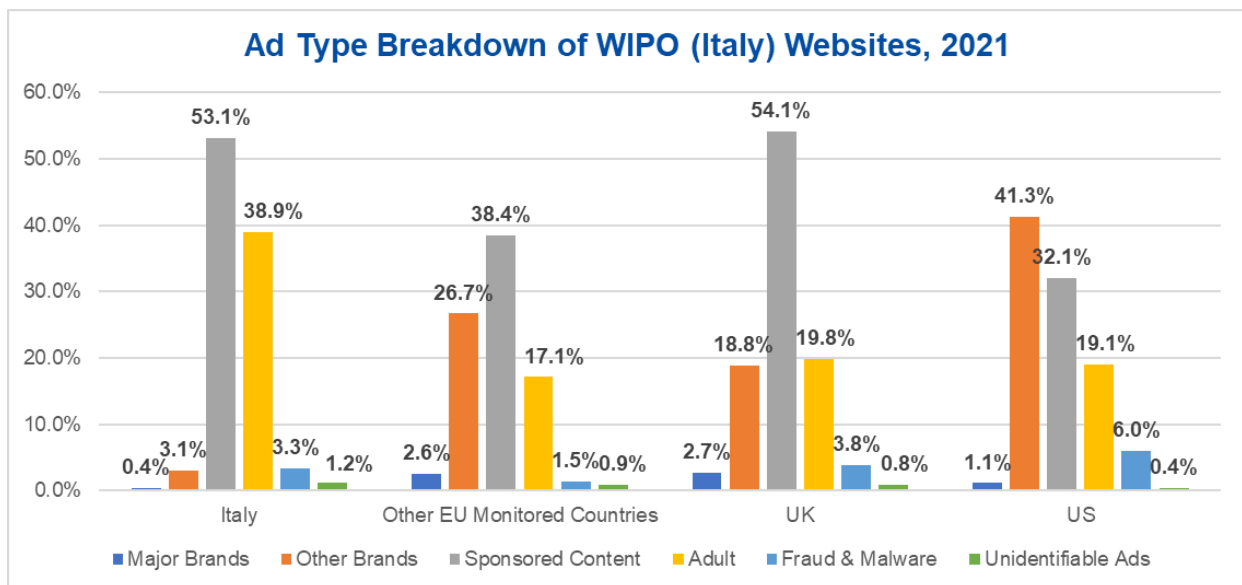


Figure 7: Ad Type breakdown on IWL websites: WIPO (Italy)
415 active domains analysed

Figure 8 provides a focused analysis of the impact of the WIPO IWL in Lithuania compared to the median for the other 17 EU monitored countries, as well as to the UK and the US, by analysing the 44 active websites included in the Lithuania IWL during the 2021 Ad Monitoring Exercise. Figure 8

indicates that Lithuania had a significantly lower level of overall Branded Advertising (9.6 %) on the Lithuania IWL websites compared to 15 % across all 2021 Monitored Websites shown in Table 5. The Lithuanian level of Major Brand advertising was 1 % on both the Lithuania IWL websites and across all 2021 Monitored Websites. Similar to the impact shown of the UK and WIPO (Italy) IWLs, Lithuania had a significantly higher percentage of estimated Ad Impressions for Sponsored Content on the Lithuania IWL websites (81.9 %) than from all 2021 Monitored Websites (71 %). Major Brand advertising was dramatically higher on the Lithuania IWL websites from both the UK (36.9%) and the US (27.6 %) than across all 2021 Monitored Websites (UK 4 %, US 2 %). Branded Advertising was 94.3 % on the Lithuania IWL websites for the other 17 EU monitored countries compared to 34 % for the EU Median across the 2021 Monitored Websites.

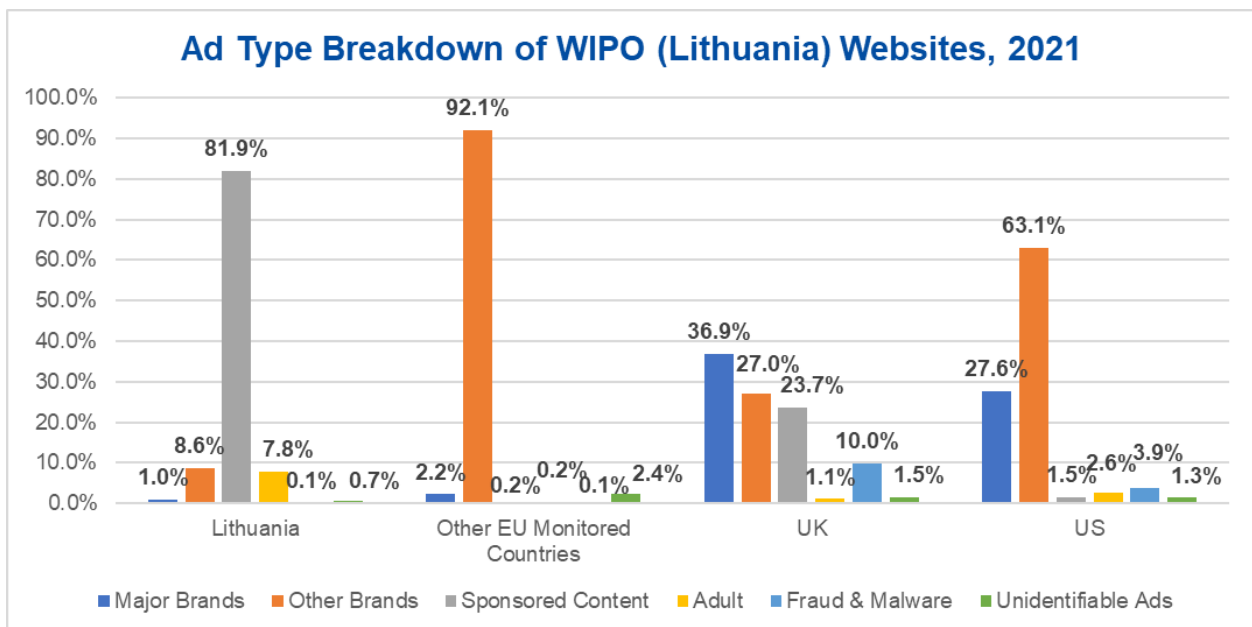


Figure 8: Ad Type breakdown on IWL websites: WIPO (Lithuania)
44 active domains analysed

3.4 Branded Advertising sector analysis

Each ad collected was categorised with a brand name (if identifiable), Top-level Sector and Sub-sector. Top-level Sectors refer to the wider industry in which the relevant brand operates, and the Sub-sector denotes a specific part of that industry. This section focuses solely on the diversity of Top-level Sectors found across Branded Advertising and Major Brands.

3.4.1 Branded Advertising sectors

Figure 9 shows that the Top-level Sectors for all Branded Advertising in 2021 were Arts & Entertainment (43 %), followed by Gambling (25 %), Technology & Computing (13 %) and Shopping (11 %). Figure 10 shows the changes from quarter to quarter in the Top-level Sectors for all Branded Advertising. The estimated Ad Impressions for the Gambling sector declined from 28 % in Q1 to 21 % in Q3, but increased again to 25 % in Q4. Estimated Ad Impressions extrapolated from ads collected in the Shopping sector initially decreased from 11 % in Q1 to 7 % in Q2, but had increased to 13 % by Q3 and finished Q4 ranked in third position with 13 %.

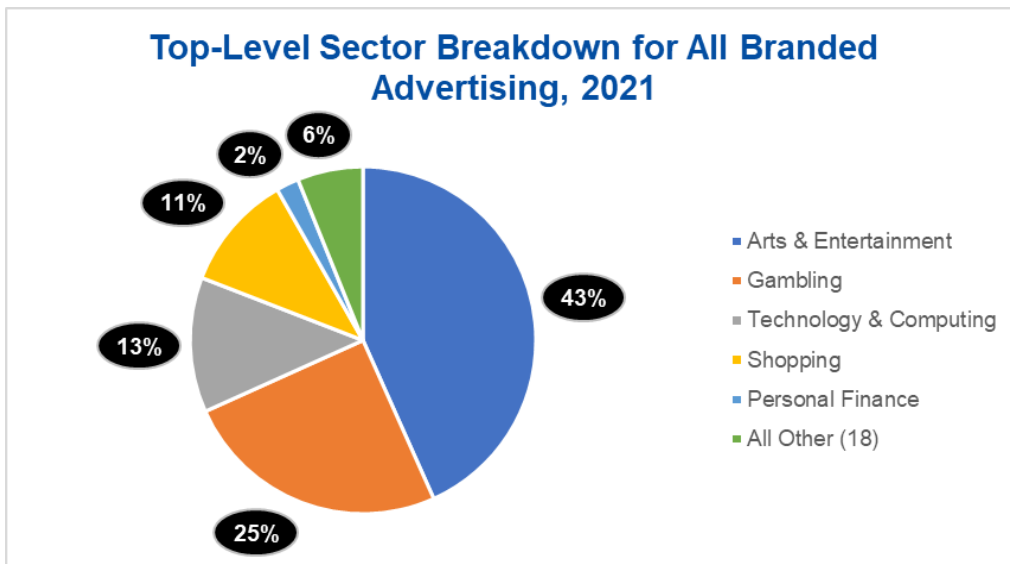


Figure 9: Branded Advertising – Top-level Sector breakdown, 2021 Monitored Websites

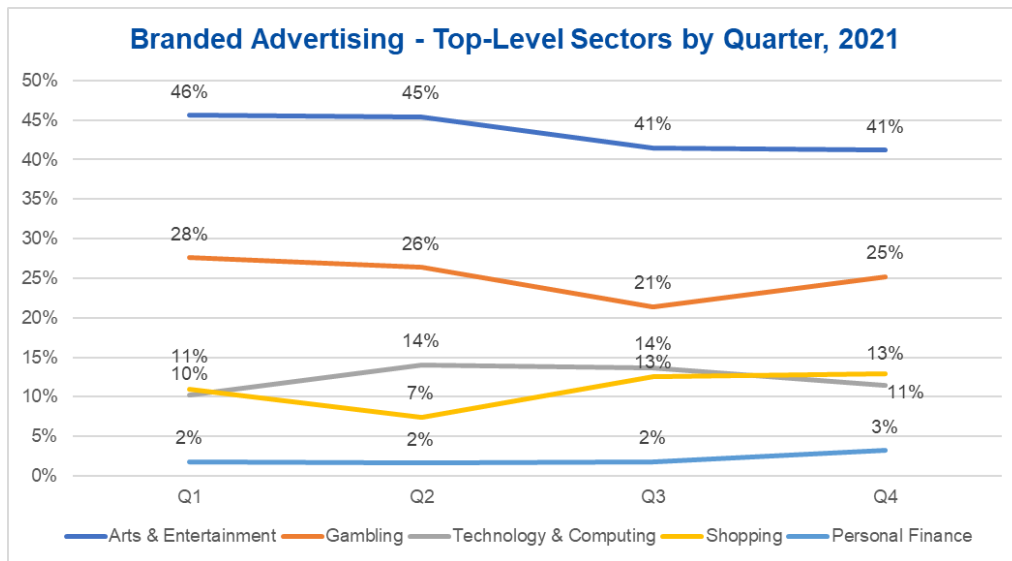


Figure 10: Branded Advertising – Top-level Sector breakdown by quarter in the 2021 Monitoring Exercise

Figure 11 shows the Top-level Sectors for Major Brands in 2021 and Figure 12 shows the changes from quarter to quarter in the Top-level Sectors for Major Brands.

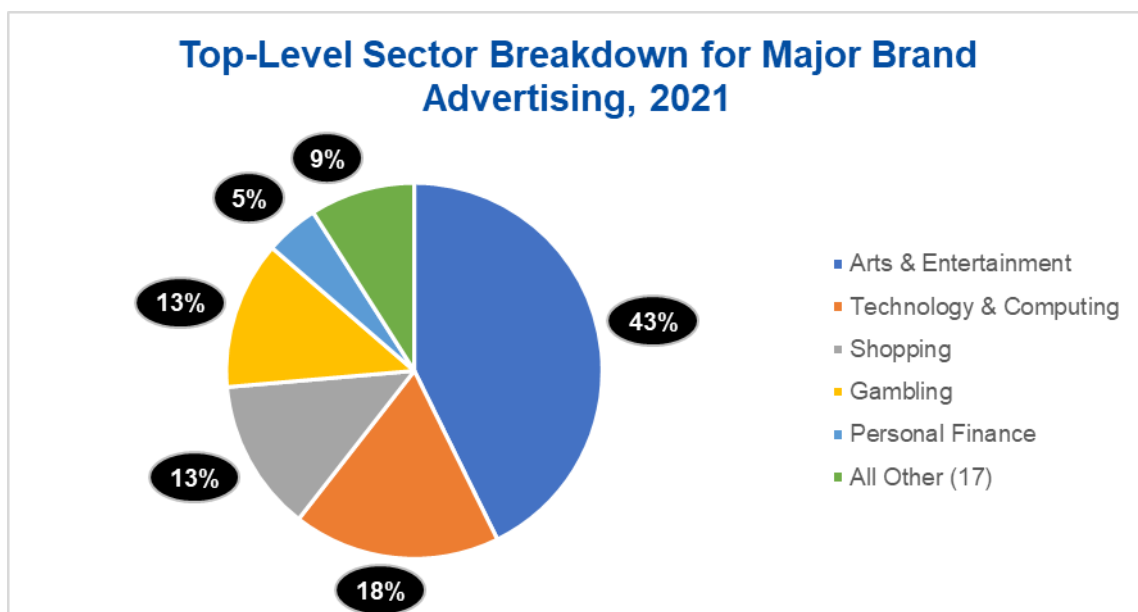


Figure 11: Major Brand advertising – Top-level Sector breakdown, 2021 Monitored Websites

As with Figure 10 (showing all Branded Advertising), Arts & Entertainment was the top-ranked sector overall for Major Brands with 43 % of estimated Ad Impressions. Technology & Computing was in second place overall for the year with 18 %, followed by Shopping and Gambling, each with 13 %.

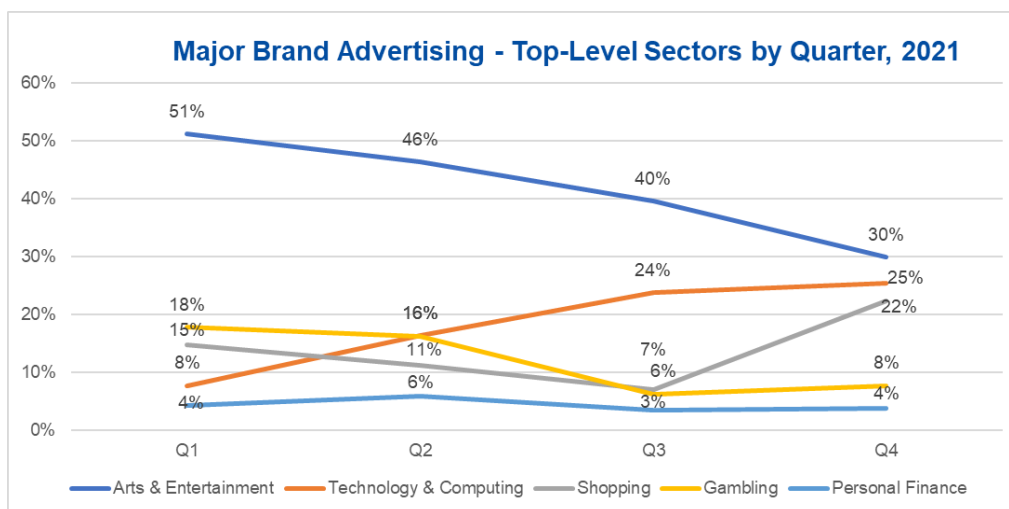


Figure 12: Major Brand advertising – Top-level Sector breakdown by quarter for the 2021 Monitored Websites

Arts & Entertainment was the top-ranked sector for Major Brands each quarter, but the percentage dropped consistently each quarter from 51 % in Q1 to 30 % in Q4. Technology & Computing began at 8 % in Q1 and increased to 24 % in Q3, ending in second position at 25 % in Q4. Major Brand Gambling declined from 18 % in Q1 to a low of 6 % in Q3, ending at 8 % in Q4. Major Brand Shopping began at 15 % and decreased by half to 7 % by Q3, before increasing significantly to end in third position in Q4 at 22 %.

3.4.2 Top sectors by country

Table 6 shows the most identified top sectors for all Branded Advertising by country in 2021.

The predominant sector in 2021 for Branded Advertising was Arts & Entertainment (10 EU countries as well as the UK and the US) followed by Gambling with five countries. For two countries (Romania

and Slovakia) the top-ranked sector for Branded Advertising was Technology & Computing, whilst Hungary alone had Society as the top-ranked sector.

ALL BRANDED ADVERTISING RANK			
COUNTRY	1	2	3
Belgium	Arts & Entertainment - (68%)	Shopping - (14%)	Gambling - (5%)
Czech Republic	Gambling - (32%)	Technology & Computing - (16%)	Business - (11%)
Denmark	Arts & Entertainment - (56%)	Personal Finance - (14%)	Shopping - (13%)
Estonia	Gambling - (66%)	Arts & Entertainment - (18%)	Technology & Computing - (9%)
France	Arts & Entertainment - (58%)	Gambling - (25%)	Shopping - (12%)
Germany	Arts & Entertainment - (35%)	Gambling - (29%)	Shopping - (16%)
Hungary	Society - (16%)	Technology & Computing - (15%)	Arts & Entertainment - (15%)
Ireland	Arts & Entertainment - (34%)	Technology & Computing - (31%)	Gambling - (24%)
IWL Italy	Arts & Entertainment - (67%)	Gambling - (18%)	Shopping - (8%)
IWL Lithuania	Gambling - (52%)	Arts & Entertainment - (23%)	Personal Finance - (8%)
Malta	Arts & Entertainment - (35%)	Gambling - (26%)	Personal Finance - (13%)
Netherlands	Arts & Entertainment - (42%)	Technology & Computing - (25%)	Gambling - (15%)
Poland	Arts & Entertainment - (51%)	Technology & Computing - (26%)	Gambling - (11%)
Portugal	Gambling - (44%)	Arts & Entertainment - (43%)	Technology & Computing - (3%)
Romania	Technology & Computing - (52%)	Arts & Entertainment - (23%)	Gambling - (21%)
Slovakia	Technology & Computing - (47%)	Gambling - (23%)	Business - (9%)
Spain	Gambling - (41%)	Arts & Entertainment - (26%)	Shopping - (19%)
Sweden	Arts & Entertainment - (45%)	Gambling - (26%)	Technology & Computing - (19%)
IWL UK	Arts & Entertainment - (58%)	Shopping - (24%)	Technology & Computing - (10%)
US	Arts & Entertainment - (49%)	Shopping - (28%)	Technology & Computing - (14%)

Table 6: Branded Advertising – Top sectors by country for the 2021 Monitored Websites

Table 7 shows the most identified top sectors for all Major Brand advertising by country in 2021.

Similar to all Branded Advertising, Arts & Entertainment was the predominant sector for Major Brand advertising, with 9 EU countries ranking it as the top sector, as did the control countries of the UK and the US. Major Brand Gambling was the top-ranked sector for three countries (Czech Republic, Lithuania and Slovakia). Major Brand Technology & Computing was also the top-ranked sector for

three countries (Hungary, Ireland, and the Netherlands). Shopping was the top-ranked sector for Estonia, whilst Personal Finance was the top-ranked sector for Denmark and Malta.

MAJOR BRAND ADVERTISING RANK			
COUNTRY	1	2	3
Belgium	Arts & Entertainment - (67%)	Shopping - (20%)	Technology & Computing - (11%)
Czech Republic	Gambling - (28%)	Technology & Computing - (27%)	Shopping - (19%)
Denmark	Personal Finance - (53%)	Arts & Entertainment - (27%)	Shopping - (12%)
Estonia	Shopping - (44%)	Gambling - (33%)	Arts & Entertainment - (21%)
France	Arts & Entertainment - (63%)	Technology & Computing - (20%)	Shopping - (11%)
Germany	Arts & Entertainment - (56%)	Gambling - (12%)	Technology & Computing - (10%)
Hungary	Technology & Computing - (30%)	Gambling - (26%)	Personal Finance - (19%)
Ireland	Technology & Computing - (51%)	Arts & Entertainment - (31%)	Shopping - (7%)
IWL Italy	Arts & Entertainment - (53%)	Technology & Computing - (19%)	Shopping - (15%)
IWL Lithuania	Gambling - (41%)	Arts & Entertainment - (31%)	Personal Finance - (14%)
Malta	Personal Finance - (43%)	Shopping - (32%)	Gambling - (14%)
Netherlands	Technology & Computing - (36%)	Arts & Entertainment - (33%)	Shopping - (18%)
Poland	Arts & Entertainment - (78%)	Gambling - (12%)	Shopping - (4%)
Portugal	Arts & Entertainment - (36%)	Shopping - (26%)	Technology & Computing - (25%)
Romania	Arts & Entertainment - (40%)	Shopping - (36%)	Technology & Computing - (17%)
Slovakia	Gambling - (35%)	Technology & Computing - (31%)	Shopping - (17%)
Spain	Arts & Entertainment - (30%)	Shopping - (29%)	Personal Finance - (17%)
Sweden	Arts & Entertainment - (57%)	Society - (32%)	Shopping - (5%)
IWL UK	Arts & Entertainment - (47%)	Shopping - (20%)	Technology & Computing - (18%)
US	Arts & Entertainment - (32%)	Technology & Computing - (22%)	Shopping - (21%)

Table 7: Major Brand advertising – Top sectors by country for the 2021 Monitored Websites

3.5 Brand analysis

This section focuses on ads that can be attributed to a brand and excludes analysis for ads categorised as Sponsored Content or Unidentifiable Ads.

3.5.1 Brands by website type

A total of 8 076 unique brands were identified from the 2021 Monitored Websites, with 941 (12 %) of these being unique Major Brands, as shown in Table 8.

Website Type	Q1			Q2			Q3			Q4			Total		
	% of Websites	Total Brands	Total Major Brands	% of Websites	Total Brands	Total Major Brands	% of Websites	Total Brands	Total Major Brands	% of Websites	Total Brands	Total Major Brands	% of Websites	Total Brands	Total Major Brands
Illegal Websites	38%	775	167	42%	1,579	293	43%	1,949	369	42%	1,693	287	43%	3,475	578
High Risk Websites	62%	1,632	289	58%	3,433	531	57%	4,391	645	58%	3,802	530	57%	7,369	904
All 2021 Monitored Websites		1,820	305		3,824	559		4,823	673		4,151	545		8,076	941

Table 8: Count of brands by website type, Q1 to Q4, 2021

Between Q1 and Q4 of the 2021 Ad Monitoring Exercise, there was a 128 % increase in the count of unique brands identified across All Monitored Websites, matching the trend for the increase in total estimated Ad Impressions noted in section 3.2 above. This general increasing trend was greatest on the High-Risk Websites where there was a 133 % increase in the count of unique brands between Q1 (1 632) and Q4 (3 802) compared to 118 % on the Illegal Websites (775 in Q1; 1 693 in Q4). Although Illegal Websites had a lower count of unique brands and Major Brands than the High-Risk Websites, the Illegal Websites had a higher proportion of unique Major Brands compared to unique Total Brands (17 %) than the High-Risk Websites (12 %).

3.5.2 Brands by country and EU source

Table 9 provides a comparison of the count of unique brands by country found in 2021 along with a percentage of those brands that were either headquartered or had established business operations in at least one EU country (EU Brands). In addition, the top three additional headquarter source countries are provided⁽³⁹⁾. In 2021, these top non-EU sources were the UK, the US, and Russia.

Portugal had the highest count of unique brands found in 2021 (2 979), followed closely by Poland (2 971), Hungary (2 962) and Lithuania (2 930). Malta had the highest percentage of EU Brands found in 2021 with 42 %, but Spain and Sweden each had 41 %.

⁽³⁹⁾Headquarters could not be identified for 7 % of brands identified.

Both the control countries of the UK (2 777) and the US (2 735) had higher counts of unique brands than the EU Median count of 2 636, but both had a lower percentage of EU brands (31 % each) than the EU Median of 37 %.

The top three source countries outside of the EU for brands found in the 2021 Ad Monitoring Exercise were the UK, the US, and Russia. Portugal had the highest percentage of US brands at 28 %, followed by France at 23 %. Hungary had the highest percentage of UK brands at 20 %, followed by the Czech Republic at 18 %. Estonia had the highest percentage of Russian brands at 7 %, with all other countries ranging between 2 % and 3 %.

Country	Total Brands	EU Brands % of Total	US Brands % of Total	UK Brands % of Total	Russia Brands % of Total
Belgium	2,554	37%	20%	12%	2%
Czech Republic	2,720	33%	20%	18%	2%
Denmark	2,228	40%	20%	8%	3%
Estonia	2,118	32%	21%	8%	7%
France	2,302	35%	23%	8%	3%
Germany	2,808	36%	21%	13%	3%
Hungary	2,962	32%	20%	20%	2%
Ireland	2,662	32%	21%	17%	3%
IWL Italy	2,480	39%	20%	9%	2%
IWL Lithuania	2,930	35%	20%	16%	3%
Malta	2,609	42%	19%	9%	3%
Netherlands	2,304	39%	21%	9%	3%
Poland	2,971	38%	20%	14%	3%
Portugal	2,979	30%	28%	13%	3%
Romania	2,042	37%	21%	8%	3%
Slovakia	2,925	37%	19%	14%	3%
Spain	2,730	41%	20%	9%	3%
Sweden	2,332	41%	19%	9%	3%
EU Median	2,636	37%	20%	11%	3%
IWL UK	2,777	31%	21%	18%	3%
US	2,735	31%	31%	9%	2%

Table 9: Count of brands and percentage source headquarters by country for the 2021 Monitored Websites

3.6 Ad Intermediary analysis

This section analyses the variation and diversity of the Ad Intermediaries found across all advertising collected from the 2021 Monitored Websites during the 2021 Ad Monitoring Exercise.

Examples of Ad Intermediary types include Ad Exchanges, Ad Networks, Supply Side Platforms (SSPs) and Demand Side Platforms (DSPs).

3.6.1 Breakdown of Ad Intermediaries by website type

Table 10 shows that 908 total unique Ad Intermediaries were identified across the 2021 Monitored Websites during the 2021 Ad Monitoring Exercise. The highest total number of unique Ad Intermediaries was found in Q2 (720).

Website Type	Q1			Q2			Q3			Q4			Total		
	% of Websites	Ad Intermediary Type	Total	% of Websites	Ad Intermediary Type	Total	% of Websites	Ad Intermediary Type	Total	% of Websites	Ad Intermediary Type	Total	% of Websites	Ad Intermediary Type	Total
Illegal Websites	38%	Ad Serving	127	42%	Ad Serving	132	43%	Ad Serving	134	42%	Ad Serving	122	43%	Ad Serving	223
		Ad Tech	238		Ad Tech	250		Ad Tech	261		Ad Tech	241		Ad Tech	463
		Adware	72		Adware	68		Adware	69		Adware	64		Adware	104
		Anonymised Ad Tech	48		Anonymised Ad Tech	44		Anonymised Ad Tech	41		Anonymised Ad Tech	34		Anonymised Ad Tech	63
		Total	485		Total	494		Total	505		Total	461		Total	853
High Risk Websites	62%	Ad Serving	153	58%	Ad Serving	179	57%	Ad Serving	170	58%	Ad Serving	160	57%	Ad Serving	176
		Ad Tech	357		Ad Tech	363		Ad Tech	354		Ad Tech	335		Ad Tech	336
		Adware	80		Adware	74		Adware	76		Adware	73		Adware	101
		Anonymised Ad Tech	55		Anonymised Ad Tech	57		Anonymised Ad Tech	52		Anonymised Ad Tech	44		Anonymised Ad Tech	55
		Total	645		Total	673		Total	652		Total	612		Total	668
All Monitored Websites		Ad Serving	172		Ad Serving	192		Ad Serving	190		Ad Serving	172		Ad Serving	237
		Ad Tech	396		Ad Tech	391		Ad Tech	388		Ad Tech	370		Ad Tech	495
		Adware	86		Adware	77		Adware	78		Adware	75		Adware	109
		Anonymised Ad Tech	61		Anonymised Ad Tech	60		Anonymised Ad Tech	57		Anonymised Ad Tech	49		Anonymised Ad Tech	67
		Total	715		Total	720		Total	713		Total	666		Total	908

Table 10: Count of Ad Intermediaries by website type, Q1 to Q4, 2021

Illegal Websites had 28 % more unique Ad Intermediaries (853) in the 2021 Ad Monitoring Exercise than High-Risk Websites (668). Illegal Websites also had a higher percentage of Ad Tech Ad Intermediaries (54 % of the total) than High-Risk Websites with 50 % of the total. High-Risk Websites had a higher percentage of Adware Ad Intermediaries (15 % of the total) compared to Illegal Websites' (12 % of the total).

3.6.2 Ad Intermediaries by country and EU source

Table 11 provides a count of unique Ad Intermediaries by country in 2021, along with a percentage of those Ad Intermediaries that were either headquartered or had established business operations in at least one EU country (EU Ad Intermediaries). Non-EU Ad Intermediaries include identified Ad

Intermediaries with headquarters outside of the EU. Unidentifiable Ad Intermediaries are those for which no specific headquarters could be identified.

Spain had the highest count of Ad Intermediaries with 696, followed closely by Germany with 695. Malta had the lowest count with 601. Both the UK count of Ad Intermediaries (690) and the US count (675) were above the EU Median of 658.

France and Sweden had the highest percentage of EU Ad Intermediaries in 2021, each with 22 %. The EU Median for EU Ad Intermediaries was 21 %.

Country	Total Ad Intermediaries	EU Ad Intermediaries % of Total	Non-EU Ad Intermediaries % of Total	Unidentifiable Ad Intermediaries % of Total
Belgium	664	20%	44%	36%
Czech Republic	643	21%	45%	34%
Denmark	663	19%	44%	36%
Estonia	640	21%	45%	34%
France	643	22%	43%	35%
Germany	695	21%	44%	35%
Hungary	667	21%	44%	35%
Ireland	667	20%	44%	36%
IWL Italy	658	21%	44%	35%
IWL Lithuania	661	20%	45%	35%
Malta	601	21%	45%	34%
Netherlands	632	20%	44%	35%
Poland	685	21%	44%	35%
Portugal	688	20%	45%	35%
Romania	630	20%	44%	35%
Slovakia	671	20%	44%	35%
Spain	696	21%	43%	37%
Sweden	658	22%	43%	35%
EU Median	658	21%	44%	35%
IWL UK	690	20%	44%	35%
US	675	19%	47%	34%

Table 11: Count of Ad Intermediaries and percent EU Ad Intermediaries by country for the 2021 Monitored Websites

3.7 Estimated ad revenue analysis

This section analyses the variation in potential ad revenue generated by the 2021 Monitored Websites in 2021. The estimated ad revenue figures are given in euro.

Table 12 shows the breakdown of the potential ad revenue generated by the 2021 Monitored Websites during 2021. Worldwide, the potential ad revenue generated by the 2021 Monitored Websites was estimated to be EUR 912.7 million for 2021. In the 18 EU monitored countries alone, the potential ad revenue generated was a total of EUR 102.5 million for 2021.

COUNTRY	Est. Ad Revenue
Belgium	€ 3,167,619
Czech Republic	€ 3,781,373
Denmark	€ 3,601,802
Estonia	€ 120,076
France	€ 17,723,618
Germany	€ 27,924,834
Hungary	€ 2,844,903
Ireland	€ 774,007
IWL Italy	€ 6,108,093
IWL Lithuania	€ 282,803
Malta	€ 22,015
Netherlands	€ 10,180,767
Poland	€ 5,482,016
Portugal	€ 1,269,372
Romania	€ 1,743,880
Slovakia	€ 1,123,728
Spain	€ 6,148,402
Sweden	€ 10,204,957
EU Median	€ 3,384,711
<i>Subtotal Monitored Countries</i>	<i>€ 102,504,267</i>
IWL UK	€ 58,118,094
US	€ 493,516,089
Rest of World	€ 258,599,972
Total Worldwide	€ 912,738,421

Table 12: Estimated ad revenue generated by the 2021 Monitored Websites by country for 2021

Germany (EUR 27.9 million) and France (EUR 17.7 million) were the top EU monitored countries for estimated revenue generated by the 2021 Monitored Websites, each considerably above the median of EUR 3.38 million. These two are also among the top-ranked European markets for digital ad spend according to the Interactive Advertising Bureau (IAB) Europe⁽⁴⁰⁾. Five other top-ranked EU countries also showed estimated ad revenues generated by the 2021 Monitored Websites greater than EUR 5 million: the Netherlands (EUR 10.18 million), Sweden (EUR 10.2 million), Spain (EUR 6.15 million), Italy (EUR 6.1 million), and Poland (EUR 5.48 million).

The US market was estimated to have generated the highest potential ad revenue for the 2021 Monitored Websites (around EUR 493.5 million). This is not surprising as the average online advertising spend per internet user in the US is six times higher than the average online advertising spend per internet user across the 18 EU monitored countries in the 2021 Ad Monitoring Exercise⁽⁴¹⁾. The UK was estimated to have generated EUR 58.1 million.

⁽⁴⁰⁾ IAB Europe, <https://iabeurope.eu/knowledge-hub/iab-europe-adex-benchmark-2020-report/>, 2021.

⁽⁴¹⁾ Statista, [Digital Market Outlook – Banner Advertising Worldwide](#), 2020.

4 Analyses of the 2021 Ad Monitoring Exercise – App Monitoring

4.1 2021 Ad Monitoring Overview – app monitoring

4.1.1 Overview of 2021 Ad Monitoring Exercise results – apps

An initial 477 mobile apps passed the selection criteria (see section 2.5 above) and were included in the initial monitoring pool on 17 May 2021. Illegal Apps accounted for 29 % of the 2021 Monitored Apps on commencement of the app monitoring component of the 2021 Ad Monitoring Exercise in Q3, and High-Risk Apps accounted for 71 %.

The number of apps monitored during the 2021 Ad Monitoring Exercise fluctuated, reflecting changes made to incorporate any new IP-infringing apps added to the Pirate Mobile App List as well as removal of apps that stopped delivering ads during the 2021 Ad Monitoring Exercise. New High-Risk Apps that were identified during the 2021 Ad Monitoring Exercise and passed the selection criteria were also added for monitoring. High-Risk Apps that were verified to be no longer infringing were removed.

Table 13 shows that the updates to the 2021 Monitored Apps resulted in a total of 538 apps being monitored by the end of the 2021 Ad Monitoring Exercise, a net increase of 61 apps since the beginning of the app monitoring period. Illegal Apps accounted for 27 % and High-Risk Apps accounted for 73 % of the 2021 Monitored Apps by the end of the monitoring period.

2021	TOTAL APPS	ANNUAL GLOBAL EST. AD IMPRESSIONS	ANNUAL GLOBAL EST. AD REVENUE
Illegal Apps	145 (27%)	1.6B (18.5%)	€ 9.7M (17.0%)
High Risk Apps	393 (73%)	7.0B (81.5%)	€ 47.4M (83.0%)
2021 Monitored Apps	538	8.6B	€ 57.1M

Table 13: 2021 Ad Monitoring Exercise overview – app monitoring

A total of 8.6 billion estimated Ad Impressions were collected from the 2021 Monitored Apps during the 2021 Monitoring Exercise, with 18.5 % collected from Illegal Apps and 81.5 % from High-Risk Apps. The 2021 Monitored Apps had estimated ad revenue of EUR 57.1 million worldwide during 2021. Illegal Apps had estimated ad revenue of EUR 9.7 million worldwide, while High-Risk Apps had estimated ad revenue of EUR 47.4 million worldwide for 2021.

4.2 Estimated Ad Impression analysis

4.2.1 Total estimated Ad Impressions

Estimated Ad Impressions are calculated by extrapolating advertising data harvested by White Bullet's Ad Monitoring System with download data on the 2021 Monitored Apps obtained from app stores providing the APKs, along with a proprietary algorithm incorporating estimates for user sessions based on third-party data. The app download data obtained from app stores is generally not specific to countries and, therefore, the estimated Ad Impressions for apps provided in this report are global figures rather than specific to countries.

Figure 13 shows that estimated Ad Impressions across all 2021 Monitored Apps decreased by 20 % from Q3 (1.4 billion) to Q4 (1.2 billion). High-Risk Apps saw the largest percentage decrease in

estimated Ad Impressions during the 2021 Ad Monitoring Exercise (47 %), although they represented only 27 % of the 2021 Monitored Apps.

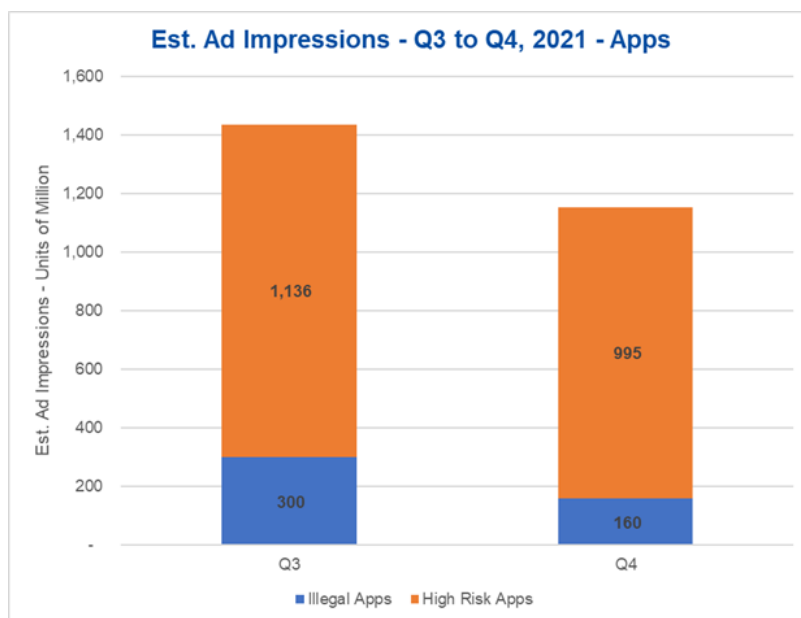


Figure 13: Estimated Ad Impressions – Q3 to Q4, 2021 – Apps

4.3 Ad Type analysis

The Ad Type analysis for the 2021 Monitored Apps uses the five categories of Ad Types described in section 4.3. Notably, Sponsored Content advertising has not been found to date in app advertising, including during the 2021 Monitoring Exercise.

4.3.1 Branded Advertising – app monitoring

As with IP-infringing websites, the presence of recognisable Branded Advertising on IP-infringing apps can potentially lead consumers to mistakenly believe they are accessing a reputable app. In addition, misplaced Branded Advertising inadvertently funds illicit activity and damages brand equity, associating brands with high-risk content.

Figure 14 analyses the estimated Ad Impressions extrapolated from the ads collected from the 2021 Monitored Apps with breakdowns by Ad Type and app type.



Across all 2021 Monitored Apps, Branded Advertising represented 82 % of estimated Ad Impressions. The estimated Ad Impressions for Major Brands was highest on High-Risk Apps at almost 17 % compared to 14 % on Illegal Apps. However, Branded Advertising was slightly higher on Illegal Apps at 83 %, compared to 81 % on High-Risk Apps.

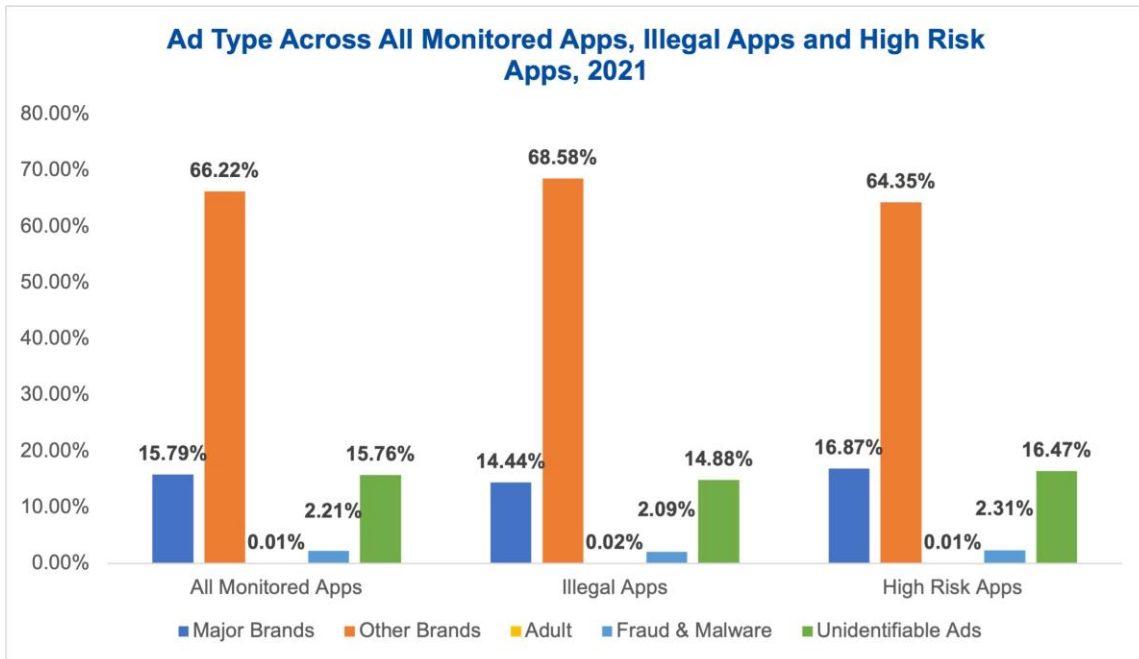


Figure 14: Ad Type across All Monitored Apps, Illegal Apps and High-Risk Apps, 2021

Figure 15 provides a comparison of the Ad Type proportions across all 2021 Monitored Apps by quarter, whilst Figure 16 provides a comparison of the Ad Type proportions by quarter for Illegal Websites and High-Risk Websites.



The estimated Ad Impressions for Branded Advertising across all Monitored Apps was almost identical in Q3 (82.37 %) and Q4 (81.59 %). However, estimated Ad Impressions for Major Brand advertising increased by 61 % from Q3 (12.34 %) to Q4 (19.89 %).

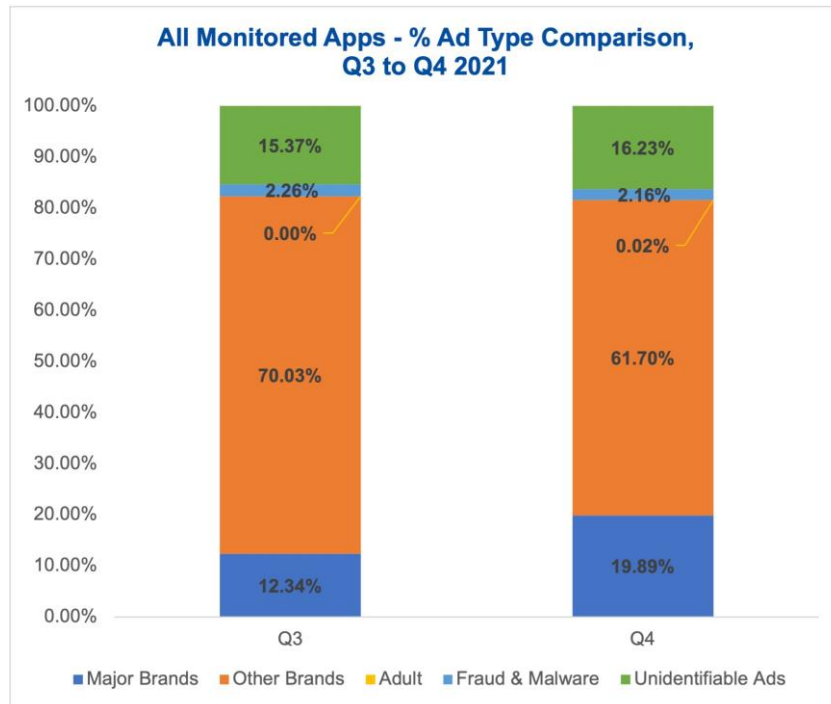


Figure 15: Ad Type comparison – Q3 to Q4, 2021, All Monitored Apps

Figure 16 shows that Branded Advertising on Illegal Apps remained stable in Q3 and Q4 at around 83 %. However, Major Brand advertising increased by 82 % from Q3 (10.44 %) to Q4 (19.01 %).



High-Risk Apps saw a slight increase in Branded Advertising from Q3 (80.55 %) to Q4 (81.76 %), whilst Major Brand advertising decreased by 33 % (20.62 % in Q3; 13.81 % in Q4).

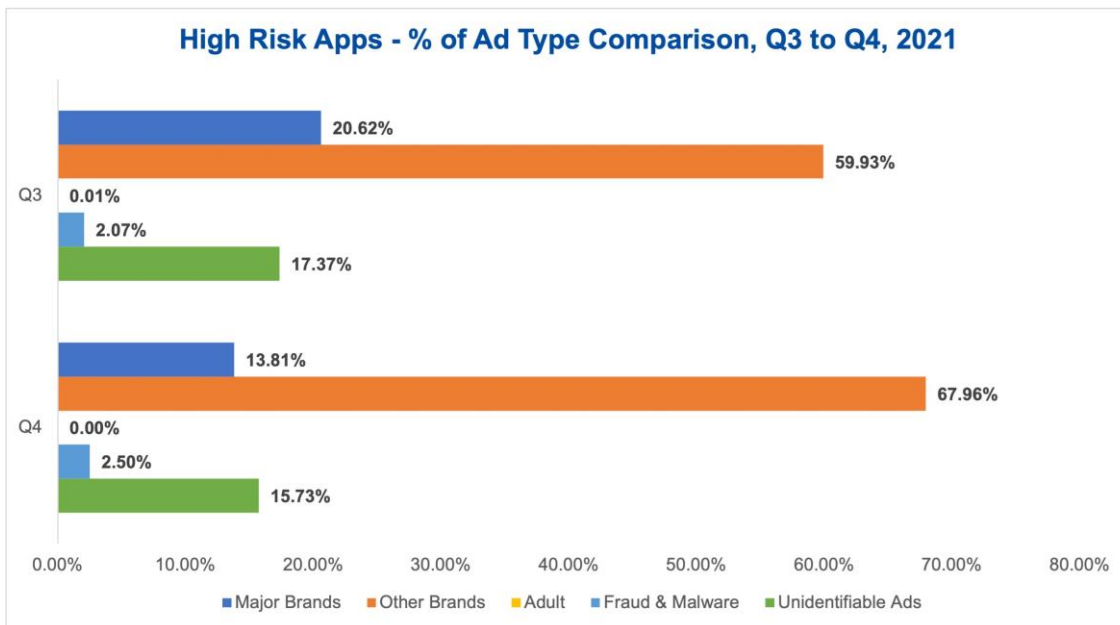
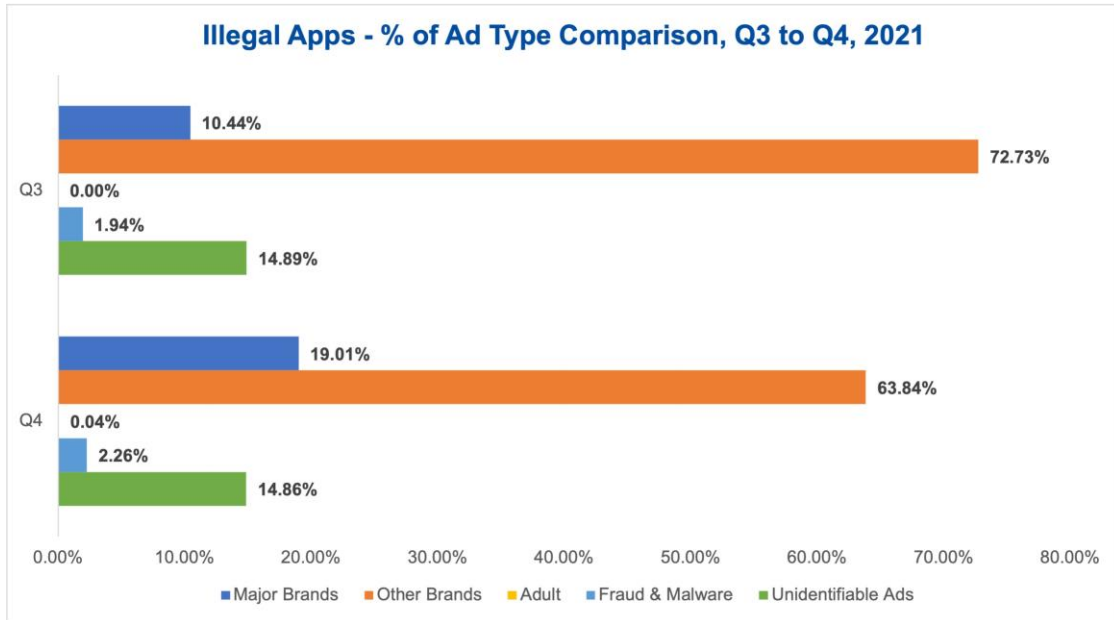


Figure 16: Ad Type comparison - Q3 to Q4, 2021, Illegal and High-Risk Apps

4.3.2 Sponsored Content, Adult and Fraud & Malware advertising

Consistent with other app monitoring projects undertaken by White Bullet, no Sponsored Content advertising was found on the 2021 Monitored Apps during the 2021 Ad Monitoring Exercise.

Adult advertising was almost non-existent, with significantly less than 1 % of estimated Ad Impressions on both Illegal Apps and High-Risk Apps.

The percentage of estimated Ad Impressions for Fraud & Malware was 2.21 % across all 2021 Monitored Apps for the 2021 Ad Monitoring Exercise, with a slight decrease from Q3 (2.26 %) to Q4 (2.16 %). The percentage of estimated Ad Impressions for Fraud & Malware was slightly higher on High-Risk Apps (2.31 %) than on Illegal Apps (2.09 %) for the 2021 Ad Monitoring Exercise.

Both Illegal Apps and High-Risk Apps had a small increase of estimated Ad Impressions for Fraud & Malware from Q3 to Q4.

4.3.3 Ad Type by country

Table 14 shows the proportion of Ad Types by country across all 2021 Monitored Apps in 2021.

COUNTRY	% MAJOR BRANDS	% OTHER BRANDS	% TOTAL BRANDED ADVERTISING	% FRAUD & MALWARE	% ADULT	% UNIDENTIFIABLE ADS
Belgium	12.08%	70.78%	82.86%	0.52%	0.00%	16.62%
Czech Republic	19.52%	66.18%	85.70%	4.83%	0.01%	9.46%
Denmark	11.61%	65.25%	76.86%	0.43%	0.00%	22.70%
Estonia	20.36%	75.12%	95.49%	2.07%	0.03%	2.41%
France	18.33%	63.68%	82.01%	3.09%	0.01%	14.89%
Germany	11.23%	68.20%	79.43%	1.12%	0.01%	19.44%
Hungary	19.61%	78.44%	98.06%	0.50%	0.04%	1.40%
Ireland	14.11%	82.04%	96.15%	1.37%	0.00%	2.48%
Italy	14.99%	43.89%	58.88%	6.28%	0.02%	34.82%
Lithuania	13.30%	79.81%	93.11%	4.24%	0.01%	2.64%
Malta	20.11%	75.62%	95.73%	0.68%	0.04%	3.55%
Netherlands	8.99%	70.67%	79.65%	0.36%	0.00%	19.99%
Poland	40.00%	52.40%	92.40%	5.19%	0.02%	2.39%
Portugal	13.65%	49.49%	63.14%	5.67%	0.00%	31.19%
Romania	7.70%	66.11%	73.81%	0.97%	0.02%	25.20%
Slovakia	16.56%	80.79%	97.35%	0.40%	0.01%	2.24%
Spain	22.36%	51.88%	74.24%	1.27%	0.01%	24.48%
Sweden	11.89%	69.58%	81.47%	0.38%	0.02%	18.12%
EU Median	14.55%	68.89%	82.44%	1.20%	0.01%	15.76%
UK	9.93%	68.15%	78.08%	9.53%	0.00%	12.38%
US	7.18%	78.11%	85.29%	8.80%	0.00%	5.90%

Table 14: Ad Types by country, 2021 Ad Monitoring Exercise – Apps

Seven countries had estimated Ad Impressions for Brand Advertising greater than 90 %, well above the EU Median of 82.44 %. These countries included Estonia (95.49 %), Hungary (98.06 %), Ireland (96.15 %), Lithuania (93.11 %), Malta (95.73 %), Poland (92.40 %) and Slovakia (97.35 %). The control country of the UK was below the EU Median with 78.08 % of estimated Ad Impressions for Branded Advertising whilst the US with 85.29 % was above the EU Median.

Poland had the highest levels of estimated Ad Impressions for Major Brands at 40 %, followed by Spain at 22.36 %. Six other countries had estimated Ad Impressions for Major Brands greater than 15 %: Czech Republic (19.52 %), Estonia (20.36 %), France (18.33 %), Hungary (19.61 %), Malta (20.11 %) and Slovakia (16.56 %).

4.4 Branded Advertising sector analysis

Each ad collected was categorised with a brand name (if identifiable), Top-level Sector, and Sub-sector. Top-level Sectors refer to the wider industry in which the relevant brand operates, and the Sub-sector denotes a specific part of that industry. This section focuses solely on the diversity of Top-level Sectors found across Branded Advertising and Major Brands collected from the 2021 Monitored Apps.

4.4.1 Branded Advertising sectors

Figure 17 shows that the Top-level Sector for all Branded Advertising for Apps in 2021 was Arts & Entertainment (54 %), followed by Technology & Computing (23 %), News (7 %), Shopping (5 %) and Business (4 %). The Gambling sector, which was ranked second in the 2021 Monitored Websites at 25 % of estimated Ad Impressions as shown in section 3.4.1, was less than 1 % of estimated Ad Impressions for the 2021 Monitored Apps.

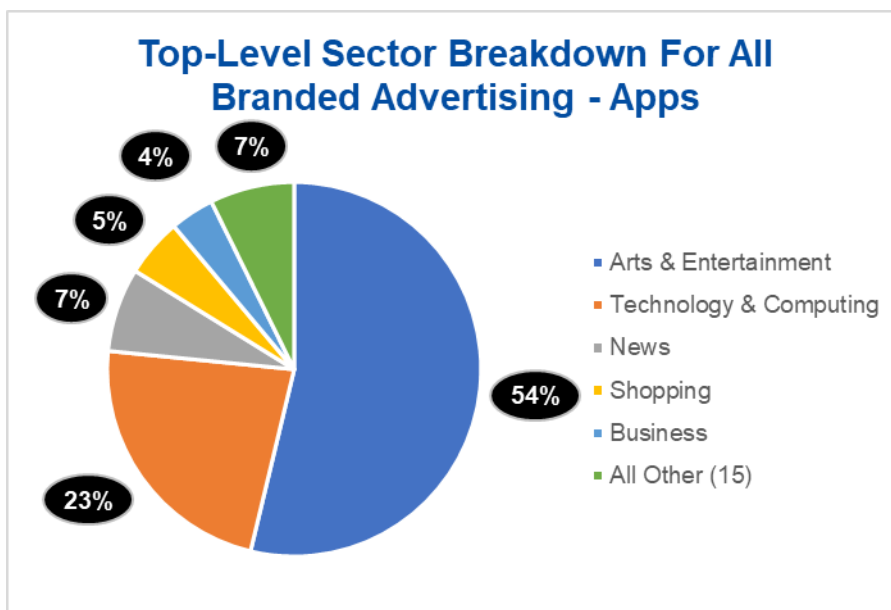


Figure 17: Branded Advertising – Top-level Sector breakdown, 2021 – Monitored Apps



Figure 18 shows the changes between quarters in the Top-level Sectors for all Branded Advertising. Arts & Entertainment decreased from 29 % of estimated Ad Impressions in Q3 to 24 % in Q4. Estimated Ad Impressions for Technology & Computing dropped by half from Q3 (16 %) to Q4 (7 %). Shopping more than doubled from Q3 (1.53 %) to Q4 (3.52 %), and News (Q3, 3.59 %; Q4, 3.66 %) and Business (Q3, 1.44 %; Q4, 2.38 %) also increased.

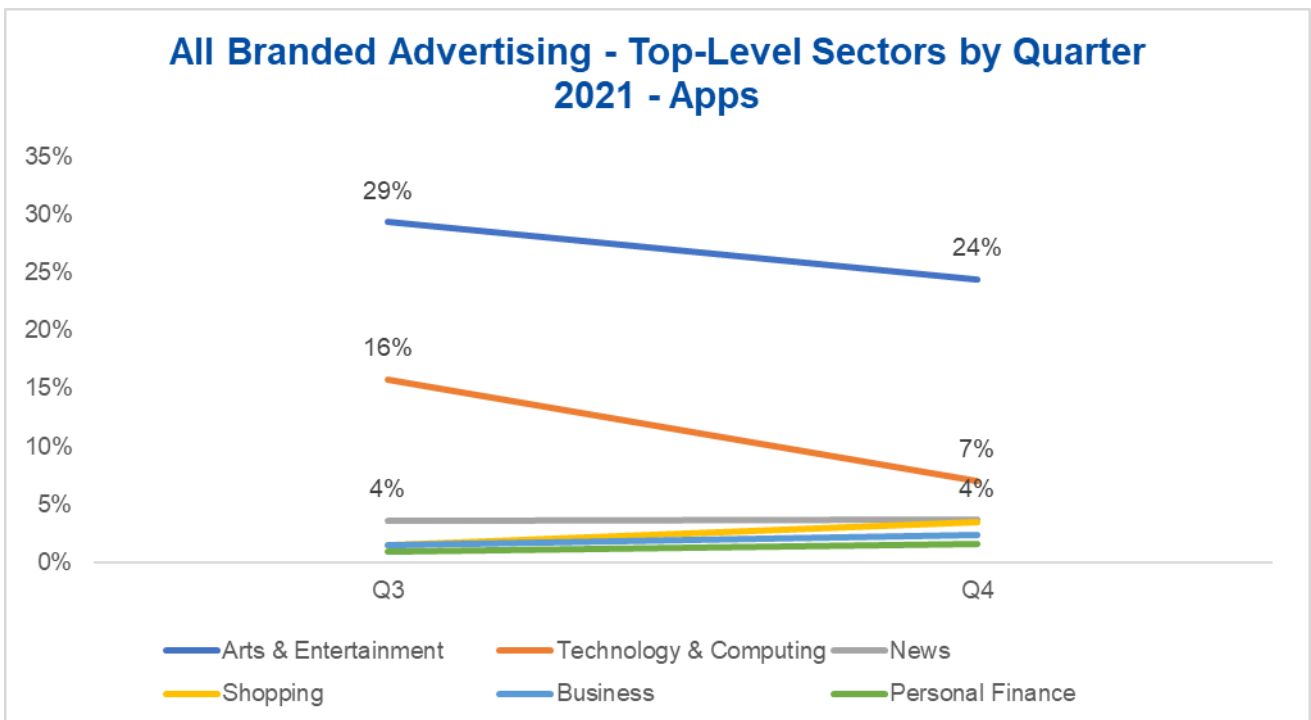


Figure 18: Branded Advertising – Top-level Sector breakdown by quarter, 2021 Ad Monitoring Exercise – Apps

Figure 19 shows the Top-level Sectors for Major Brands in 2021 for Apps and Figure 20 shows the changes between quarters in the Top-level Sectors for Major Brands.

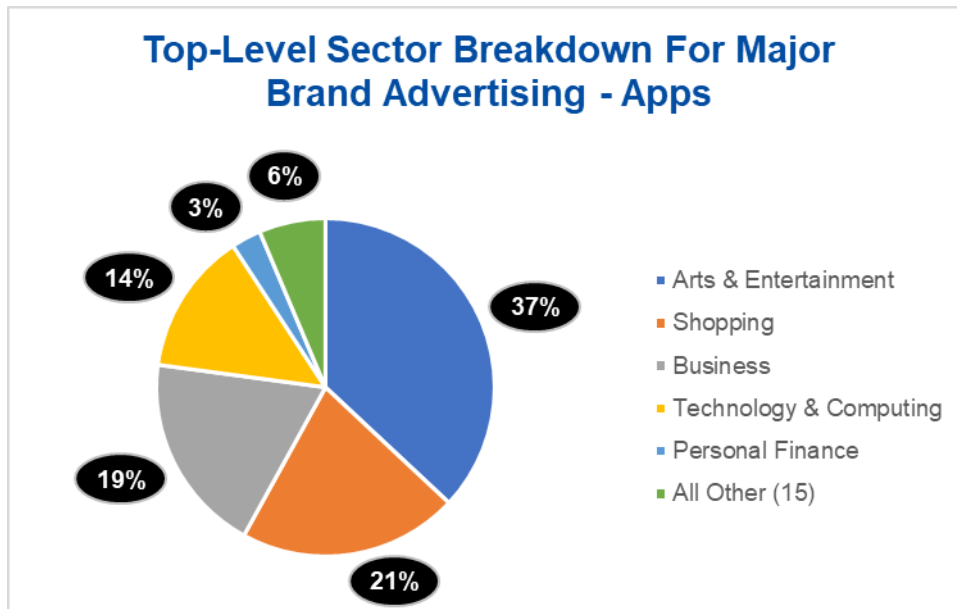


Figure 19: Major Brand advertising – Top-level sector breakdown, 2021 Ad Monitoring Exercise – Apps

As with Figure 17 (showing all Branded Advertising for Apps), Arts & Entertainment was the overall top-ranked sector, with 37 % of estimated Ad Impressions. Shopping was in second place overall for the year with 21 %, followed by Business (19 %), Technology & Computing (14 %) and Personal Finance (3 %). The Major Brand Gambling sector, which was ranked fourth in the 2021 Monitored Websites at 13 % of estimated Ad Impressions as shown in section 3.4.1, was less than 1 % of estimated Ad Impressions for the 2021 Monitored Apps.

Arts & Entertainment was 20 % in Q3 before dropping to 17 % in Q4. Shopping, which was ranked fourth at 5 % in Q3, ended in second place in Q4 with 16 % of estimated Ad Impressions. The Major Brand Business sector also increased sharply from Q3 (7 %) to Q4 (12 %).

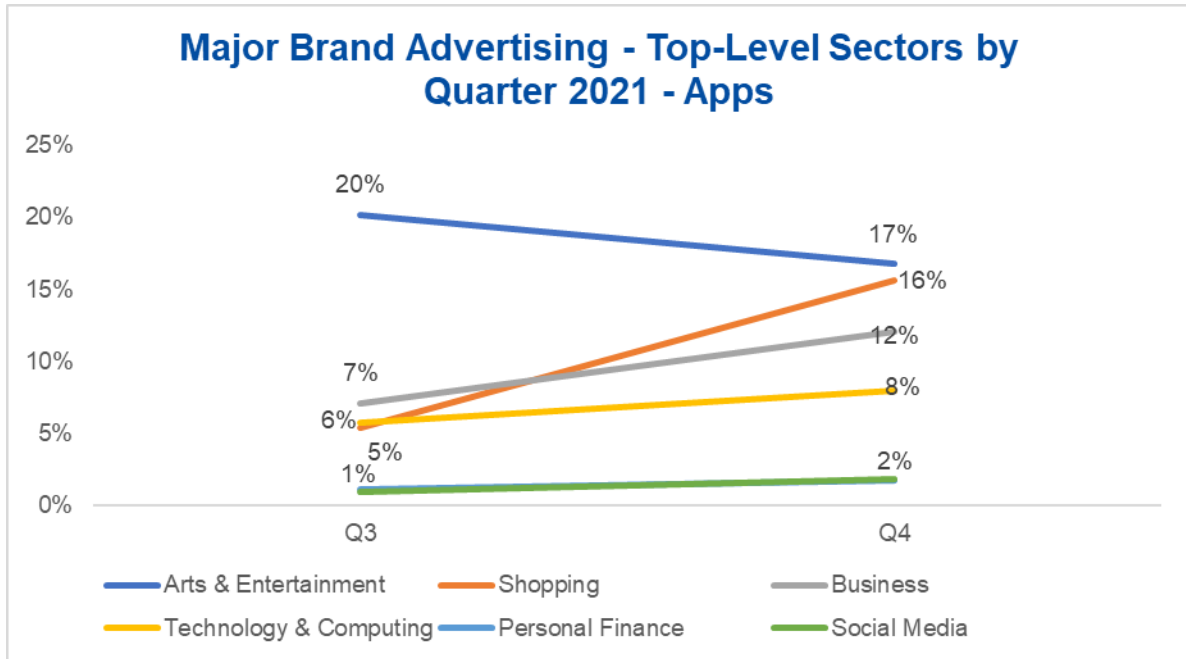


Figure 20: Major Brand advertising – Top-level Sectors by quarter, 2021 Ad Monitoring Exercise – Apps

4.4.2 Top sectors by country

Table 15 shows the most identified top sectors for Branded Advertising for Apps by country in 2021.



The top sector in 2021 for Branded Advertising in the 2021 Monitored Apps was Arts & Entertainment with 13 countries, followed by Technology & Computing for five countries. The control countries of the UK and the US also had Arts & Entertainment as the top sector.

ALL BRANDED ADVERTISING RANK - APPS			
COUNTRY	1	2	3
Belgium	Arts & Entertainment - (55%)	News - (24%)	Technology & Computing - (9%)
Czech Republic	Arts & Entertainment - (54%)	Technology & Computing - (33%)	Business - (5%)
Denmark	Arts & Entertainment - (47%)	News - (25%)	Technology & Computing - (11%)
Estonia	Technology & Computing - (42%)	Arts & Entertainment - (38%)	Personal Finance - (5%)
France	Arts & Entertainment - (74%)	Shopping - (10%)	Technology & Computing - (6%)
Germany	Arts & Entertainment - (64%)	News - (11%)	Technology & Computing - (8%)
Hungary	Technology & Computing - (58%)	Arts & Entertainment - (31%)	Business - (4%)
Ireland	Arts & Entertainment - (77%)	Technology & Computing - (12%)	Business - (4%)
Italy	Arts & Entertainment - (62%)	Technology & Computing - (11%)	News - (6%)
Lithuania	Arts & Entertainment - (57%)	Technology & Computing - (34%)	Business - (3%)
Malta	Technology & Computing - (52%)	Arts & Entertainment - (36%)	Business - (4%)
Netherlands	Arts & Entertainment - (66%)	News - (12%)	Technology & Computing - (10%)
Poland	Technology & Computing - (34%)	Shopping - (28%)	Arts & Entertainment - (28%)
Portugal	Arts & Entertainment - (55%)	Technology & Computing - (24%)	Business - (6%)
Romania	Arts & Entertainment - (47%)	Technology & Computing - (45%)	Shopping - (2%)
Slovakia	Technology & Computing - (58%)	Arts & Entertainment - (29%)	Business - (4%)
Spain	Arts & Entertainment - (57%)	Shopping - (12%)	Technology & Computing - (12%)
Sweden	Arts & Entertainment - (50%)	News - (24%)	Technology & Computing - (12%)
UK	Arts & Entertainment - (73%)	News - (7%)	Technology & Computing - (7%)
US	Arts & Entertainment - (78%)	News - (6%)	Technology & Computing - (5%)

Table 15: Branded Advertising – Top sectors by country, 2021 Ad Monitoring Exercise – Apps

Table 16 shows that Arts & Entertainment was ranked highest for Major Brands for Apps in 2021 in 13 countries, as it was for Branded Advertising. However, the remaining five monitored countries were split between Shopping (France, Germany, Poland and Spain) and Business (the Netherlands).

The control country of the UK had Arts & Entertainment as their highest-ranked sector whilst the US had Business.

MAJOR BRAND ADVERTISING RANK - APPS			
COUNTRY	1	2	3
Belgium	Arts & Entertainment - (38%)	Business - (29%)	Technology & Computing - (15%)
Czech Republic	Arts & Entertainment - (47%)	Technology & Computing - (21%)	Business - (19%)
Denmark	Arts & Entertainment - (45%)	Business - (25%)	Technology & Computing - (16%)
Estonia	Arts & Entertainment - (53%)	Business - (23%)	Technology & Computing - (12%)
France	Shopping - (41%)	Arts & Entertainment - (28%)	Business - (14%)
Germany	Shopping - (28%)	Arts & Entertainment - (27%)	Business - (21%)
Hungary	Arts & Entertainment - (51%)	Technology & Computing - (17%)	Business - (17%)
Ireland	Arts & Entertainment - (45%)	Business - (24%)	Technology & Computing - (21%)
Italy	Arts & Entertainment - (38%)	Shopping - (19%)	Shopping - (19%)
Lithuania	Arts & Entertainment - (48%)	Business - (23%)	Technology & Computing - (18%)
Malta	Arts & Entertainment - (57%)	Business - (20%)	Technology & Computing - (12%)
Netherlands	Business - (26%)	Shopping - (26%)	Arts & Entertainment - (21%)
Poland	Shopping - (63%)	Arts & Entertainment - (19%)	Business - (9%)
Portugal	Arts & Entertainment - (37%)	Business - (27%)	Technology & Computing - (14%)
Romania	Arts & Entertainment - (52%)	Technology & Computing - (24%)	Business - (8%)
Slovakia	Arts & Entertainment - (48%)	Business - (21%)	Technology & Computing - (14%)
Spain	Shopping - (40%)	Arts & Entertainment - (23%)	Business - (13%)
Sweden	Arts & Entertainment - (45%)	Business - (22%)	Technology & Computing - (16%)
UK	Arts & Entertainment - (33%)	Business - (19%)	Shopping - (14%)
US	Business - (36%)	Arts & Entertainment - (29%)	Technology & Computing - (16%)

Table 16: Major Brand advertising – Top sectors by country, 2021 Ad Monitoring Exercise – Apps

4.5 Brand analysis

This section focuses on ads that can be attributed to a brand and excludes analysis for ads categorised as Unidentifiable Ads. No Sponsored Content ads were found.

4.5.1 Brands by website type

A total of 1 432 unique brands were identified from the 2021 Monitored Apps during the 2021 Ad Monitoring Exercise, with 281 (20 %) of these being unique Major Brands, as shown in Table 17.

App Type	Q3			Q4			Total		
	% of Apps	Total Brands	Total Major Brands	% of Apps	Total Brands	Total Major Brands	% of Apps	Total Brands	Total Major Brands
Illegal Apps	29%	520	109	27%	504	102	27%	695	141
High Risk Apps	71%	803	174	73%	924	197	73%	1,291	259
All 2021 Monitored Apps		892	190		1,035	214		1,432	281

Table 17: Count of brands and Major Brands by app type, 2021 Ad Monitoring Exercise

There was a 16 % increase in the count of total unique brands from Q3 (892) to Q4 (1 035) across all 2021 Monitored Apps. This was primarily due to a 15 % increase in the count of brands on High-Risk Apps (Q3, 803; Q4, 924). In contrast, Illegal Apps had a 3 % decrease from Q3 (520) to Q4 (504).

The count of unique Major Brands across all 2021 Monitored Apps increased by 13 % from Q3 (190) to Q4 (214). This was due to a 13 % increase in Major Brands on High-Risk Apps (Q3, 174; Q4, 197). The count of Major Brands decreased on Illegal Apps by 6 % from Q3 (109) to Q4 (102).

4.5.2 Brands by country and EU source

Table 18 provides a comparison of the count of unique brands by country collected from the 2021 Monitored Apps along with a percentage of those brands that were either headquartered or had established business operations in at least one EU country (EU Brands). In addition, the top three additional headquarter source countries are provided⁽⁴²⁾. For the 2021 Monitored Apps, the top three non-EU source countries were the US, the UK and China.

Poland had the highest count of unique brands collected from the 2021 Monitored Apps with 462, followed by Portugal (459), Hungary (441) and Belgium (432). The Netherlands had the highest

⁽⁴²⁾No headquarter location could be identified for 10 % of the brands found on the 2021 Monitored Apps.

percentage of EU Brands collected from the 2021 Monitored Apps with 43 %, followed by Sweden with 41 %, and Denmark and Italy each with 40 %.

Both the UK (529) and the US (497) counts of unique brands were significantly higher than the EU Median count of 378.5. However, both the UK and the US had lower EU Brands Percentages (UK 32 %, US 30 %) than the EU Median of 37 %.

Country	Total Brands	EU Brands % of Total	US Brands % of Total	UK Brands % of Total	China Brands % of Total
Belgium	432	39%	28%	11%	3%
Czech Republic	386	37%	25%	11%	4%
Denmark	362	40%	26%	10%	3%
Estonia	371	32%	24%	10%	5%
France	368	39%	22%	10%	4%
Germany	420	38%	25%	10%	4%
Hungary	441	33%	25%	18%	3%
Ireland	408	33%	27%	14%	3%
Italy	366	40%	26%	10%	4%
Lithuania	425	35%	26%	13%	3%
Malta	360	36%	29%	10%	3%
Netherlands	346	43%	20%	10%	3%
Poland	462	38%	24%	10%	4%
Portugal	459	27%	36%	11%	3%
Romania	279	32%	23%	9%	4%
Slovakia	428	37%	26%	10%	3%
Spain	369	39%	22%	12%	4%
Sweden	370	41%	24%	9%	4%
EU Median	378.5	37%	25%	10%	4%
UK	529	32%	24%	19%	3%
US	497	30%	39%	9%	2%

Table 18: Count of brands and percentage source headquarters by country in the 2021 Ad Monitoring Exercise – Apps

The top three source countries outside the EU for brands collected from the 2021 Monitored Apps were the US, the UK and China. Portugal had the highest percentage of US brands at 36 %, whilst Hungary had the highest percentage of UK brands (18 %). Estonia had the highest level of brands sourced from China with 5 % of ads, just above the EU Median of 4 %. Both the UK and the US had lower levels of brands sourced from China than the EU Median (UK 3 %, US 2 %).

4.6 Ad Intermediary analysis

This section analyses the variation and diversity of the Ad Intermediaries found across all advertising collected from the 2021 Monitored Apps during the 2021 Ad Monitoring Exercise.

Examples of Ad Intermediary types include Ad Exchanges, Ad Networks, Supply Side Platforms (SSPs) and Demand Side Platforms (DSPs).

4.6.1 Breakdown of Ad Intermediaries by website type

Table 19 shows that 207 total unique Ad Intermediaries were identified across the 2021 Monitored Apps during the 2021 Ad Monitoring Exercise.

App Type	Q3			Q4			Total		
	% of Apps	Ad Intermediary Type	Total	% of Apps	Ad Intermediary Type	Total	% of Apps	Ad Intermediary Type	Total
Illegal Apps	29%	Ad Serving	26	27%	Ad Serving	23	27%	Ad Serving	28
		Ad Tech	93		Ad Tech	121		Ad Tech	135
		Adware	1		Adware	3		Adware	3
		Anonymised Ad Tech	4		Anonymised Ad Tech	3		Anonymised Ad Tech	4
		Total	124		Total	150		Total	170
High Risk Apps	71%	Ad Serving	37	73%	Ad Serving	26	73%	Ad Serving	40
		Ad Tech	110		Ad Tech	114		Ad Tech	145
		Adware	0		Adware	2		Adware	2
		Anonymised Ad Tech	4		Anonymised Ad Tech	3		Anonymised Ad Tech	4
		Total	151		Total	145		Total	191
All Monitored Apps		Ad Serving	40		Ad Serving	32		Ad Serving	44
		Ad Tech	118		Ad Tech	131		Ad Tech	155
		Adware	1		Adware	3		Adware	3
		Anonymised Ad Tech	5		Anonymised Ad Tech	3		Anonymised Ad Tech	5
		Total	164		Total	169		Total	207

Table 19: Count of Ad Intermediaries by app type, Q3 to Q4, 2021

Illegal Apps accounted for just 27 % of the 2021 Monitored Apps but had 82 % (170) of the total 207 Ad Intermediaries compared to High-Risk Apps, which comprised 73 % of the 2021 Monitored Apps, with 92 % of unique Ad Intermediaries. The percentage of Ad Tech Ad Intermediaries was slightly higher on Illegal Apps (79 %) compared to High-Risk Apps (76 %).

4.6.2 Ad Intermediaries by country and EU source

Table 20 provides a count of unique Ad Intermediaries by country collected from the 2021 Monitored Apps, along with a percentage of those Ad Intermediaries that were either headquartered or had established business operations in at least one EU country (EU Ad Intermediaries)⁽⁴³⁾. Non-EU Ad Intermediaries include identified Ad Intermediaries with headquarters outside of the EU. Unidentifiable Ad Intermediaries are those for which no specific headquarters could be identified.

Country	Total Ad Intermediaries	EU Ad Intermediaries % of Total	Non-EU Ad Intermediaries % of Total	Unidentifiable Ad Intermediaries % of Total
Belgium	110	19%	68%	13%
Czech Republic	108	20%	67%	13%
Denmark	123	20%	70%	10%
Estonia	115	17%	70%	13%
France	109	18%	67%	15%
Germany	129	24%	63%	13%
Hungary	115	19%	69%	12%
Ireland	108	19%	67%	15%
Italy	112	18%	68%	14%
Lithuania	110	18%	67%	15%
Malta	99	19%	70%	11%
Netherlands	95	17%	67%	16%
Poland	114	19%	69%	11%
Portugal	143	24%	64%	12%
Romania	80	14%	71%	15%
Slovakia	105	15%	70%	14%
Spain	95	18%	71%	12%
Sweden	98	20%	67%	12%
EU Median	109.5	19%	68%	13%
UK	119	18%	67%	14%
US	125	19%	70%	11%

Table 20: Count of Ad Intermediaries, % EU Ad Intermediaries, % Non-EU Ad Intermediaries and % unidentifiable Ad Intermediaries by country – Apps

Portugal had the highest count of Ad Intermediaries with 143, followed by Denmark with 123. Romania had the lowest count with 80. The UK (119) and the US (125) counts of unique Ad

⁽⁴³⁾ 34 Ad Intermediaries that accounted for <.05 % of estimated Ad Impressions were not reviewed for headquarters.

Intermediaries were both higher than the EU Median of 109.5. Germany and Portugal had the highest levels of EU Ad Intermediaries with 24 % each.

4.7 Estimated ad revenue analysis

This section analyses the variation in potential ad revenue generated by the 2021 Monitored Apps in 2021. The potential ad revenue figures are shown in euro.

Table 21 shows the estimated ad revenue generated by the 2021 Monitored Apps, broken down by app type and quarter. All estimated revenue figures provided are worldwide.

App Type	Q3 Global		Q4 Global		Annual Global	
	% of Apps	Est. Ad Revenue	% of Apps	Est. Ad Revenue	% of Apps	Est. Ad Revenue
Illegal Apps	29%	€ 2.1M (22.2%)	27%	€ 1.3M (14.9%)	27%	€ 9.7M (17.0%)
High Risk Apps	71%	€ 7.4M (77.8%)	73%	€ 7.4M (85.1%)	73%	€ 47.4M (83.0%)
All 2021 Monitored Apps		€ 9.5M		€ 8.7M		€ 57.1M

Table 21: Estimated ad revenue generated by the 2021 Monitored Apps by app type

Worldwide, the potential ad revenue generated by the 2021 Monitored Apps was estimated to be EUR 57.1 million for 2021. In Q3, the 2021 Monitored Apps was estimated to have generated EUR 9.5 million, but the estimated ad revenue decreased in Q4 to EUR 8.7 million.

Illegal Apps were estimated to have generated a smaller percentage of the estimated ad revenue than they represented in all of the 2021 Monitored Apps. For example, in Q3 Illegal Apps comprised 29 % of the 2021 Monitored Apps but generated 22.2 % of the estimated ad revenue. In Q4, Illegal Apps comprised 27 % of the 2021 Monitored Apps but were estimated to have generated only 14.9 % of the estimated ad revenue. Overall, during the 2021 Ad Monitoring Exercise, Illegal Apps comprised 27 % of the 2021 Monitored Apps but were estimated to have generated only 17 % of the estimated ad revenue. This seems to indicate that targeting these apps by the advertising industry is beginning to have an impact on demonetising infringing apps. Further monitoring will be needed to follow this trend.

5 Comparison of Analyses from 2021 Monitored Websites and 2021 Monitored Apps

This section compares the data analyses for the 2021 Monitored Websites and the 2021 Monitored Apps.

5.1 Website v App Overview

Table 22 provides an overview comparing two key factors relating to estimated ad revenue generated by the datasets for the 2021 Monitored Apps and 2021 Monitored Websites.

2021 Monitored Data	2021 Total	Average Global Annual Est. Ad Revenue per Publisher	Average ECPM
2021 Monitored Apps	538	€ 106,146	€ 6.65
2021 Monitored Websites	5,758	€ 158,517	€ 1.39

Table 22: Comparison of estimated ad revenue factors for 2021 Monitored Apps and Websites

The average Effective Cost Per Mille (eCPM) paid to mobile publishers for an ad (EUR 6.65) is almost five times greater than the average eCPM paid to web publishers (EUR 1.39). This value per ad makes mobile apps a desirable environment for publishers in general, including those dedicated to IP infringement.

During the 2021 Ad Monitoring Exercise, the average global annual estimated ad revenue generated per publisher (app or website) was 33 % lower for the 2021 Monitored Apps (EUR 106 146) than for the 2021 Monitored Websites (EUR 158 517). However, the dataset for the apps was 10 times smaller than that of the websites and apps were only monitored in Q3 and Q4. Further monitoring would be needed to determine the ratio over a longer period of time.

5.2 Ad Type percentage comparison – 2021 Monitored Apps and Websites

Figure 21 compares the percentage of estimated Ad Impressions by Ad Type for the 2021 Monitored Apps and 2021 Monitored Websites.

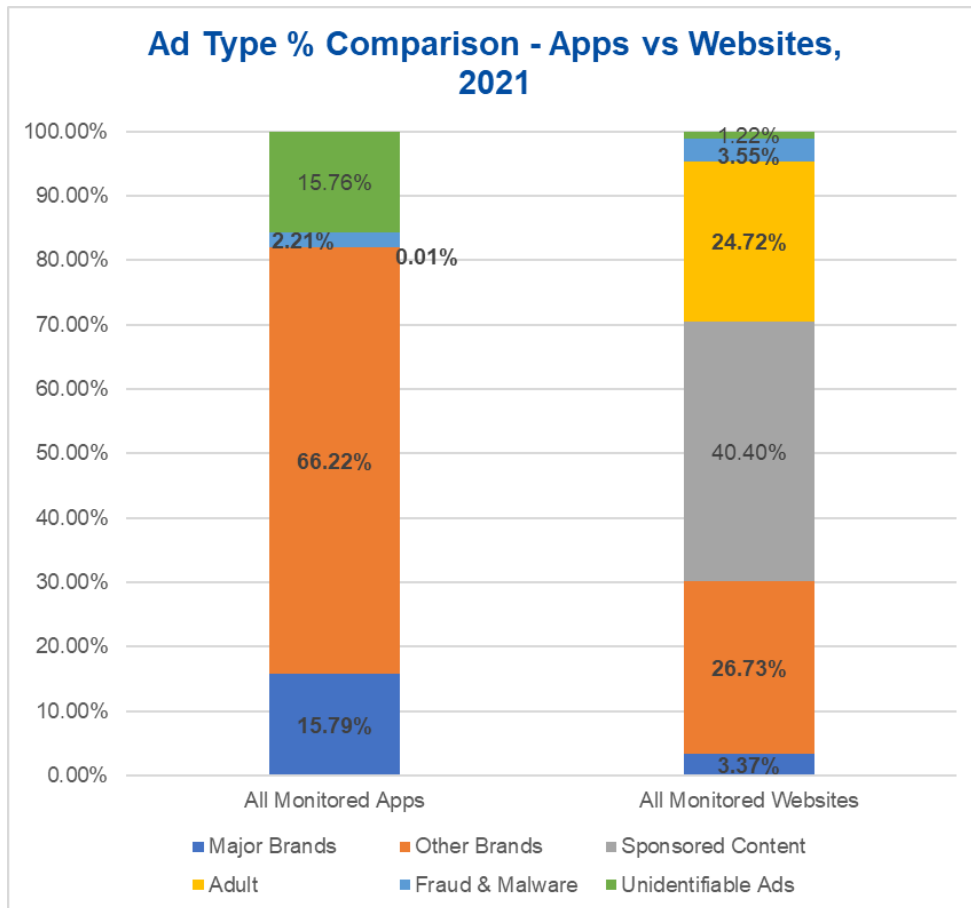


Figure 21: Comparison of Ad Type percentages for the 2021 Monitored Apps and Websites

As clearly indicated in Figure 21, the Ad Type profiles for the 2021 Monitored Apps are quite distinct from those for the 2021 Monitored Websites. The 2021 Monitored Apps had 82 % of estimated Ad Impressions for Branded Advertising compared to 30 % for the 2021 Monitored Websites. The 2021 Monitored Apps also had 16 % Major Brands compared to 3 % on the 2021 Monitored Websites.

There was no Sponsored Content found on the 2021 Monitored Apps, while 40 % of the estimated Ad Impressions for the 2021 Monitored Websites was for Sponsored Content. Websites also had significant Adult ads (25 %) compared to <1 % on the Apps.

Estimated Ad Impressions for Fraud & Malware were at comparable levels on the 2021 Monitored Apps (2.21 %) and the 2021 Monitored Websites (3.55 %).

5.3 Branded Advertising comparison for the 2021 Monitored Apps and 2021 Monitored Websites

Table 23 compares the Top-level Sectors for Branded Advertising on the 2021 Monitored Apps and 2021 Monitored Websites.

Sector	2021 Monitored Apps	2021 Monitored Websites
Arts & Entertainment	53.76%	43.29%
Technology & Computing	22.81%	12.58%
News	7.25%	0.05%
Shopping	5.05%	10.87%
Business	3.82%	2.08%
Gambling	0.63%	24.99%
Personal Finance	2.56%	2.11%

Table 23: Branded Advertising sector comparison between 2021 Monitored Apps and 2021 Monitored Websites

Arts & Entertainment was the top sector for Branded Advertising for both the 2021 Monitored Apps (53.76 %) and the 2021 Monitored Websites (43.29 %), but the remaining sectors varied in their rankings. Technology & Computing was second for apps (22.81 %) but third for websites (12.58 %). News was third for apps (7.25 %) but was nineteenth for websites at 0.05 % of estimated Ad Impressions. Shopping was fourth for both apps (5.05 %) and websites (10.87 %). Business was fifth for apps (3.82 %), but sixth for websites (2.08 %). Gambling was second for websites (24.99 %) but only tenth for apps (0.63 %). Personal Finance was fifth for websites (2.11 %) and sixth for apps (2.56 %).

5.4 Major Brand advertising comparison for the 2021 Monitored Apps and 2021 Monitored Websites

Table 24 compares the Top-level Sectors for Major Brand advertising collected from the 2021 Monitored Apps and 2021 Monitored Websites.

Major Brand Sector	2021 Monitored Apps	2021 Monitored Websites
Arts & Entertainment	36.97%	42.71%
Shopping	21.05%	13.07%
Business	19.12%	0.59%
Technology & Computing	13.65%	17.84%
Personal Finance	2.85%	4.61%
Gambling	1.55%	12.73%

Table 24: Major Brand advertising sector comparison between 2021 Monitored Apps and 2021 Monitored Websites

As with Branded Advertising, Arts & Entertainment was the top sector for both the 2021 Monitored Apps (36.97 %) and the 2021 Monitored Websites (42.71 %). Shopping was second for apps (21.05 %) but third for websites (13.07 %). Business was third for apps (19.12 %) but ninth for websites (0.59 %). Gambling was fourth for websites (12.73 %) but only seventh for apps (1.55 %). Personal Finance was fifth for both websites (4.61 %) and apps (2.85 %).

5.5 EU Brand by country comparison – 2021 Monitored Apps and Websites

Table 25 provides a comparison of the percentages of EU Brands by country for 2021 Monitored Apps and 2021 Monitored Websites.

Country	2021 Monitored Apps EU Brands % of Total	2021 Monitored Websites EU Brands % of Total
Belgium	39%	37%
Czech Republic	37%	33%
Denmark	40%	40%
Estonia	32%	32%
France	39%	35%
Germany	38%	36%
Hungary	33%	32%
Ireland	33%	32%
Italy	40%	39%
Lithuania	35%	35%
Malta	36%	42%
Netherlands	43%	39%
Poland	38%	38%
Portugal	27%	30%
Romania	32%	37%
Slovakia	37%	37%
Spain	39%	41%
Sweden	41%	41%
EU Median	37%	37%
UK	32%	31%
US	30%	31%

Table 25: Comparison of EU Brands percentage by country for 2021 Monitored Apps and 2021 Monitored Websites

The EU Brands percentages were slightly higher on 2021 Monitored Apps, for most countries, than on 2021 Monitored Websites, but the difference between the percentages was usually within 2 %. However, six countries had wider variations between the EU Brands percentages: Czech Republic (apps 37 %, websites 33 %), France (apps 39 %, websites 35 %), Malta (apps 36 %, websites 42 %), the Netherlands (apps 43 %, websites 39 %), Portugal (apps 27 %, websites 30 %) and Romania (apps 32 %, websites 37 %).

The EU Median for percentage of EU Brands was 37 % for both 2021 Monitored Apps and 2021 Monitored Websites. The UK was below the EU Median for both apps (32 %) and websites (31 %), as was the US (30 % for apps, 31 % for websites).

5.6 EU Ad Intermediaries by country comparison – 2021 Monitored Apps and Websites

Table 26 provides a comparison of the percentages of EU Ad Intermediaries by country for the 2021 Monitored Apps and 2021 Monitored Websites.

Country	2021 Monitored Apps EU Ad Intermediaries % of Total	2021 Monitored Websites EU Ad Intermediaries % of Total
Belgium	19%	20%
Czech Republic	20%	21%
Denmark	20%	19%
Estonia	17%	21%
France	18%	22%
Germany	24%	21%
Hungary	19%	21%
Ireland	19%	20%
Italy	18%	21%
Lithuania	18%	20%
Malta	19%	21%
Netherlands	17%	20%
Poland	19%	21%
Portugal	24%	20%
Romania	14%	20%
Slovakia	15%	20%
Spain	18%	21%
Sweden	20%	22%
EU Median	19%	21%
UK	18%	20%
US	19%	19%

Table 26: Comparison of EU Ad Intermediaries by country for the 2021 Monitored Apps and 2021 Monitored Websites

The EU Ad Intermediaries percentages were generally higher on 2021 Monitored Websites for the majority of countries than on 2021 Monitored Apps, but the difference between the percentages was usually within 3 %. However, six countries had wider variations between the EU Ad Intermediaries percentages: Estonia (apps 17 %, websites 21 %), France (apps 18 %, websites 22 %), Portugal (apps 24 %, websites 20 %), Romania (apps 14 %, websites 20 %) and Slovakia (apps 15 %, websites 20 %).

The EU Median was 19 % for the 2021 Monitored Apps and 21 % for the 2021 Monitored Websites. The UK was below the EU Median for both apps (18 %) and websites (20 %). The US was the same as the EU Median for apps and below the EU Median for websites (19 %).

6 Trend Analyses

This section assesses the impact and effectiveness of the MoU on the online advertising market by reviewing three categories of trends.

- Section 6.1 details the top-level trends for websites from 2021, drilling further into analyses touched on in section 3 of the report.
- Section 6.2 provides details of the top-level trends for apps from 2021, drilling further into analyses touched on in section 4 of the report.
- Section 6.3 provides a longer-term assessment by focusing on an analysis of key results from the 2020 Comparison Dataset and the 2021 Comparison Dataset. This portion of the trend analysis is based on Ad Volume analysis. See section 2.8.4 for further explanation of the comparison datasets.

6.1 2021 Monitored Website trends

6.1.1 Estimated Ad Impressions trend in 2021

Figure 22 charts the estimated Ad Impressions for the 2021 Monitored Websites by month.

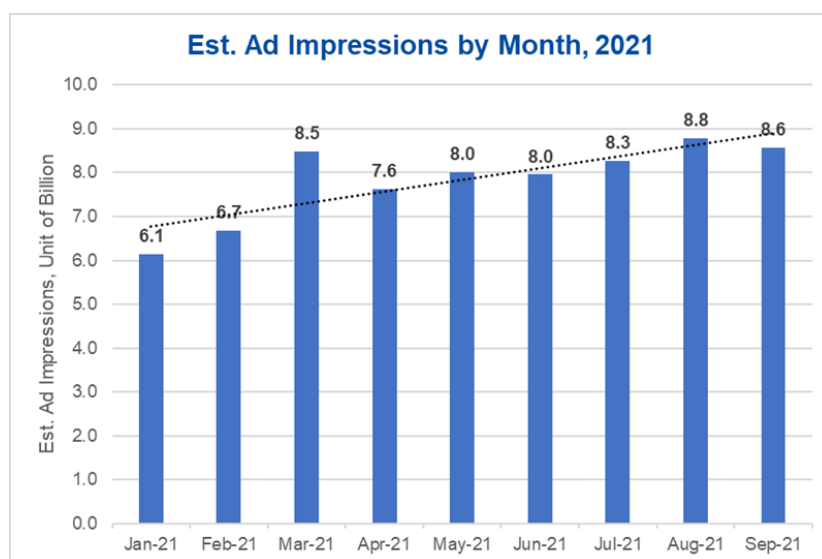


Figure 22: Estimated Ad Impressions by month, 2021 Monitored Websites

As described in section 2.5.3 above, the key factors influencing estimated Ad Impressions are the popularity of the changing websites included in the 2021 Monitored Websites and the volume of ads collected during each period. The general trendline shows a 39 % increase in estimated Ad Impressions from January 2021 (6.1 billion) to September 2021 (8.6 billion), with a high of 8.8 billion in August 2021 when the 2021 Olympic Summer Games in Tokyo were reaching their conclusion. This overall increase reflects the general recovery of the ad industry in 2021 despite continuing surges of COVID-19 infections.

6.1.2 Ad Type trend in 2021

Figure 23 shows the trend by month for the Ad Type proportions across all 2021 Monitored Websites.

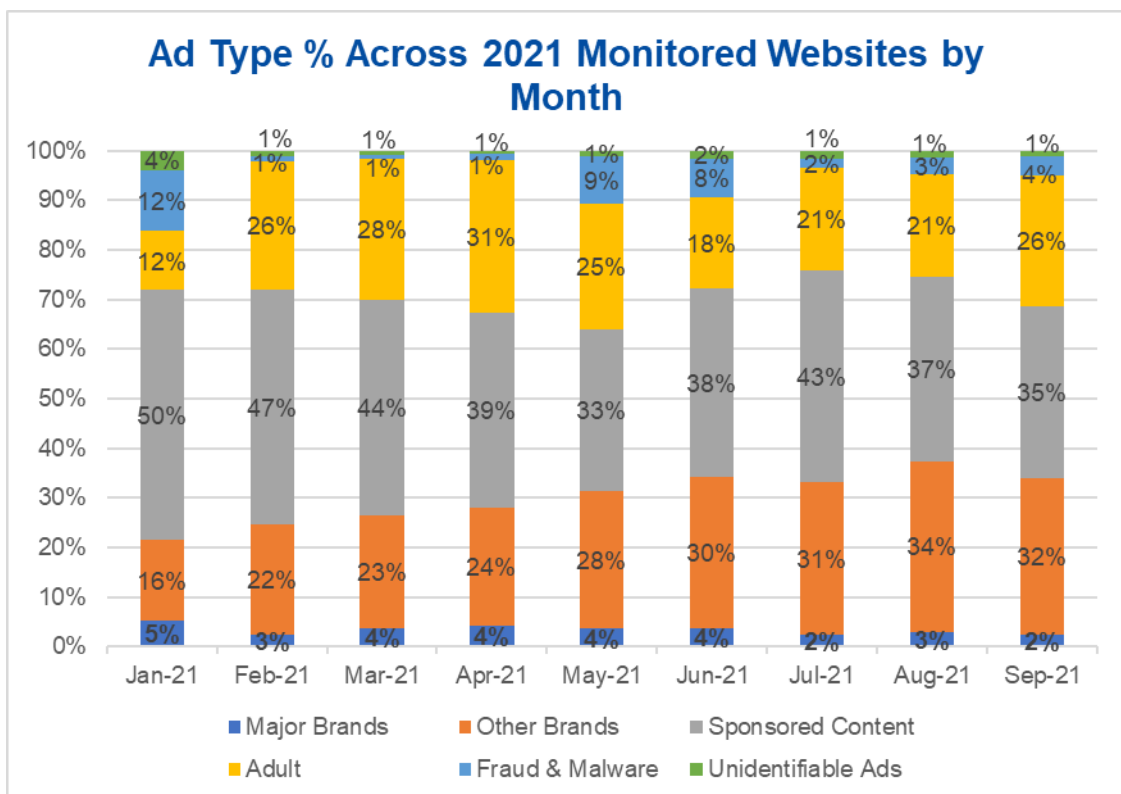


Figure 23: Ad Type Percentage Across 2021 Monitored Websites by month

Branded Advertising was lowest in January 2021 at 21 % of estimated Ad Impressions, increasing to a high of 37 % in August 2021. There was a small decrease to 34 % in September 2021. Major Brands were highest in January 2021 at 5 % of estimated Ad Impressions. They dropped to 3 % in February 2021 before increasing to 4 % for March to June 2021. From July to September 2021, estimated Ad Impressions fluctuated between 2 % and 3 %.

Sponsored Content was highest in January 2021 at 50 % of estimated Ad Impressions. As individual brands were broken out from Sponsored Content boxes in late January, the percentage of estimated Ad Impressions for Sponsored Content decreased thereafter, whilst those for Adult content and some Other Brands increased. As a result, the general trendline for Sponsored Content was decreasing across the months except for an increase from June 2021 (38 %) to July 2021 (43 %).

After the technology update breaking out content from Sponsored Content boxes, Adult ads increased from 26 % in February 2021 to a high of 31 % in April 2021 before decreasing to a low of 18 % in June 2021. Adult ads increased to 21 % again in July 2021 and August 2021 before ending at 26 % in September 2021.

Fraud & Malware had three spikes in 2021, with a high point of 12 % in January 2021 and slightly lower levels in May 2021 (9 %) and April 2021 (8 %). For the remaining months, the levels were between 1 % and 4 %.

6.1.3 Major Brands trend in 2021

Figure 24 charts the trend of Major Brands by month and website type for the 2021 Monitored Websites.

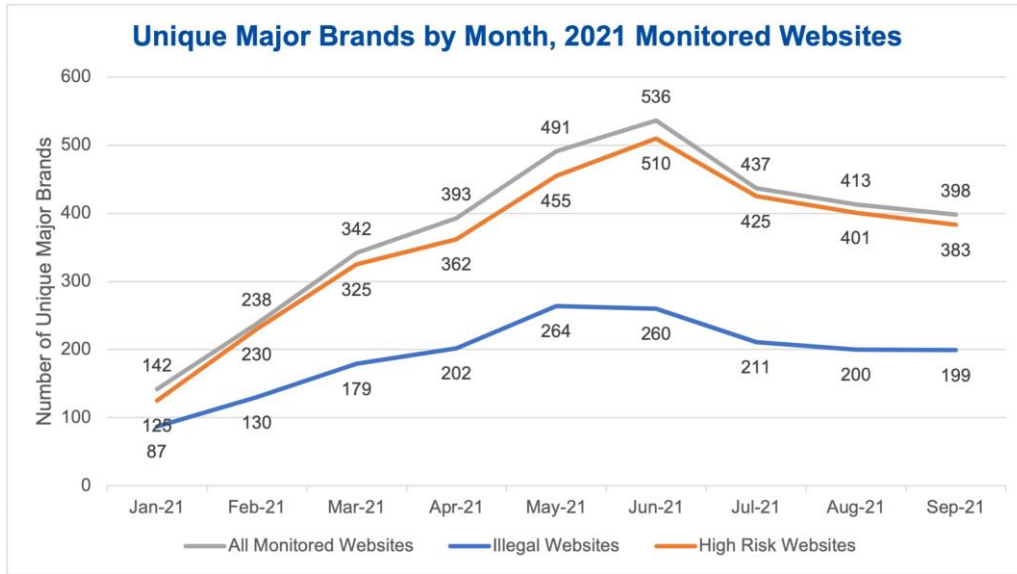


Figure 24: Unique Major Brands by month, 2021 Monitored Websites

The trend lines for All Monitored Websites and High-Risk Websites showing the count of unique Major Brands indicate increases month on month peaking in June 2021. Thereafter, there is a decline in the number of unique Major Brands. The slope of the trend line for Illegal Websites is similar but significantly less steep than that for High-Risk Websites, peaking in May 2021 with 264 Major Brands compared to the 536 Major Brands for High-Risk Websites in June 2021.



6.1.4 EU Major Brands trend in 2021

Figure 25 shows the trend by month of the proportion of Major Brand estimated Ad Impressions for the 2021 Monitored Websites served by EU Major Brands.

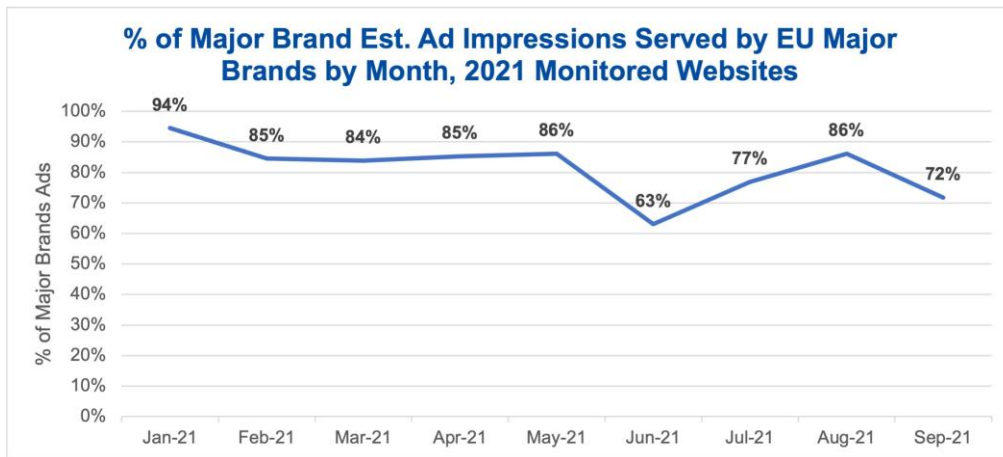


Figure 25: Percentage of Major Brand estimated Ad Impressions served by EU Major Brands by month, 2021 Monitored Websites

Figure 25 shows there was a general decrease in the proportion of estimated Ad Impressions served by EU Major Brands from January 2021 to June 2021, falling from 94 % to 63 %. However, there was a sharp increase from June 2021 to August 2021 (86%) before decreasing again in September 2021 (72 %). At the lowest point in June 2021, the count of unique Major Brands reached the highest point on High-Risk Websites as shown on Figure 24. It appears that these additional Major Brands were disproportionately non-EU Brands. The median percentage of Major Brand ads served by EU Major Brands on the 2021 Monitored Websites each month was 85 %.



6.1.5 Ad Intermediaries trend in 2021

Figure 26 shows the trend by month for counts of unique Ad Intermediaries collected on the 2021 Monitored Websites.

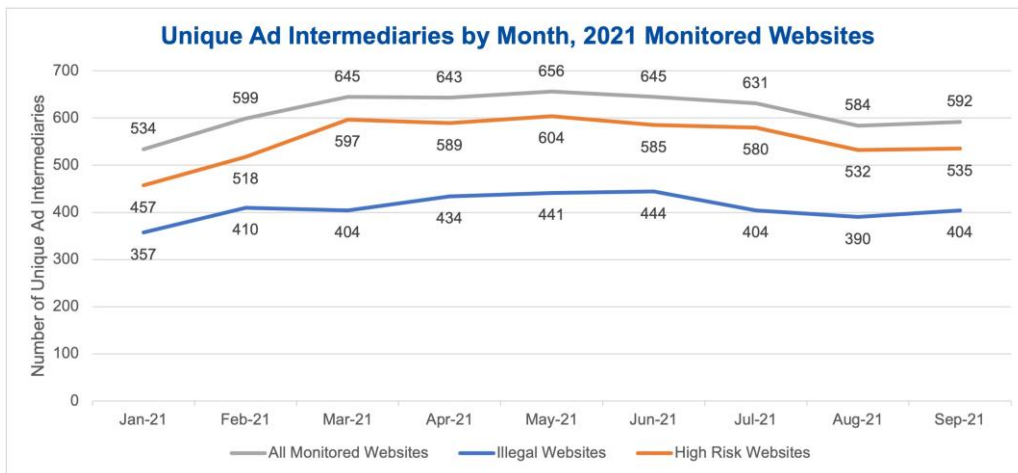


Figure 26: Unique Ad Intermediaries by month, 2021 Monitored Websites

Whilst the overall trend lines were the same for all website types throughout the 2021 Ad Monitoring Exercise, the counts of unique Ad Intermediaries found on High-Risk Websites were on average 35 % higher than on Illegal Websites. Although there are variations by month, overall it appears that the counts of unique Ad Intermediaries were generally in proportion to the percentages of Illegal Websites (43 %) and High-Risk Websites (57 %). High-Risk Websites saw a 17 % increase from January 2021 (534) to September 2021 (592) compared to a 13 % increase for Illegal Websites (404).



6.1.6 Estimated ad revenue trend in 2021

Figure 27 shows the trend for estimated ad revenue generated by the 2021 Monitored Websites by month and website type during the 2021 Ad Monitoring Exercise.

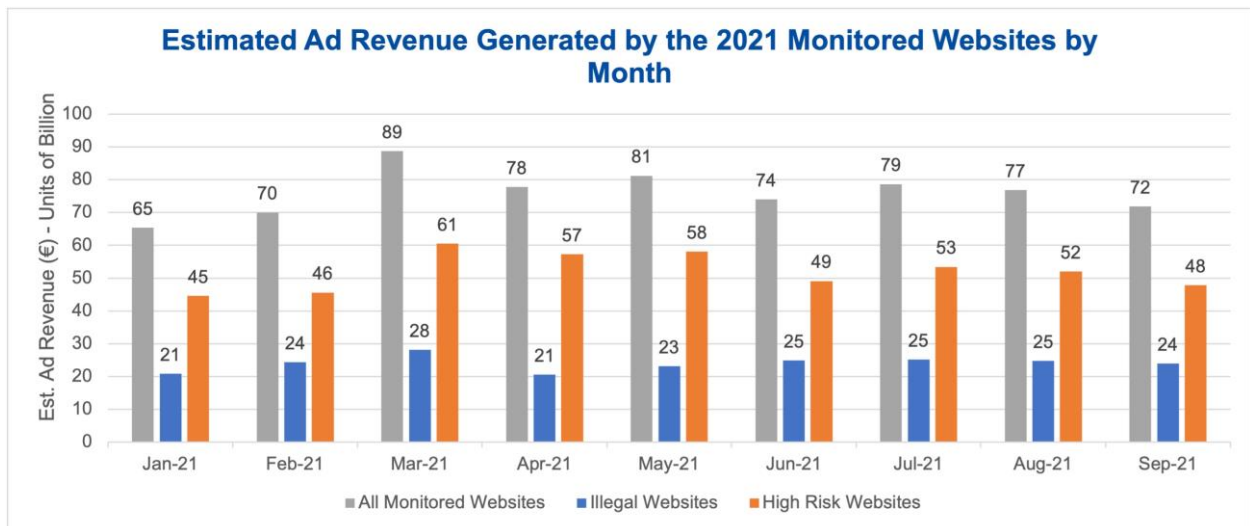


Figure 27: Estimated ad revenue generated by the 2021 Monitored Websites by month and website type

Revenue generated by the 2021 Monitored Websites was lowest in January 2021 (EUR 65 billion), fluctuating through the year to end with an overall 10 % increase in revenue from January 2021 to September 2021 (EUR 72 billion). Illegal Websites had a 15 % increase from January 2021 (EUR 21 billion) to September 2021 (EUR 24 billion) whilst High-Risk Websites had an 8 % increase in this period (January EUR 45 billion; September EUR 48 billion).

However, between these two end points, revenue generated from the 2021 Monitored Websites (EUR 89 billion), Illegal Websites (EUR 28 billion) and High-Risk Websites (EUR 61 billion) was at its highest point in March 2021. March 2021 was also when estimated Ad Impressions peaked as shown in Figure 22.

6.2 2021 Monitored App trends

This section provides trend analyses by month of data collected from the 2021 Monitored Apps, which were monitored in Q3 and Q4 of 2021. As Q3 began on 17 May 2021, these analyses cover the period from June 2021 to September 2021.

6.2.1 Estimated Ad Impressions trend for the 2021 Monitored Apps

Figure 28 shows the estimated Ad Impressions by month for the 2021 Monitored Apps.

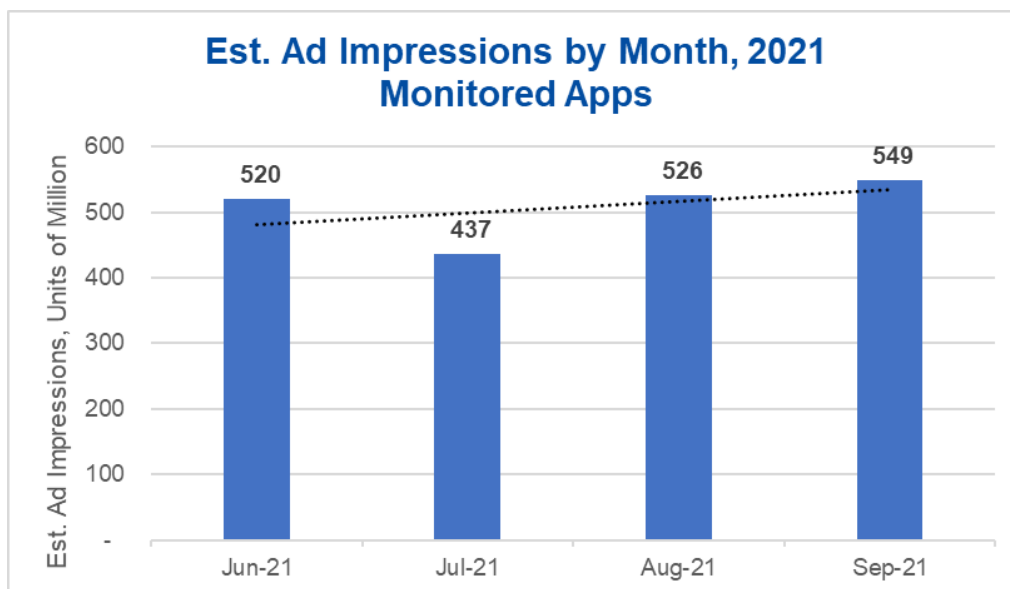


Figure 28: Estimated Ad Impressions by month, 2021 Monitored Apps

As described in section 2.5.3 above, the key factors influencing estimated Ad Impressions for Apps are the popularity of the changing apps included in the 2021 Monitored Apps and the volume of ads collected during each period. Estimated Ad Impressions increased overall by 6 % from June 2021 to September 2021. However, there was a 16 % decrease from June 2021 to July 2021, followed by a 20 % increase in estimated Ad Impressions from July 2021 to August 2021.

6.2.2 Ad Type trend for the 2021 Monitored Apps

Figure 29 shows the trend by month for the Ad Type proportions across the 2021 Monitored Apps.

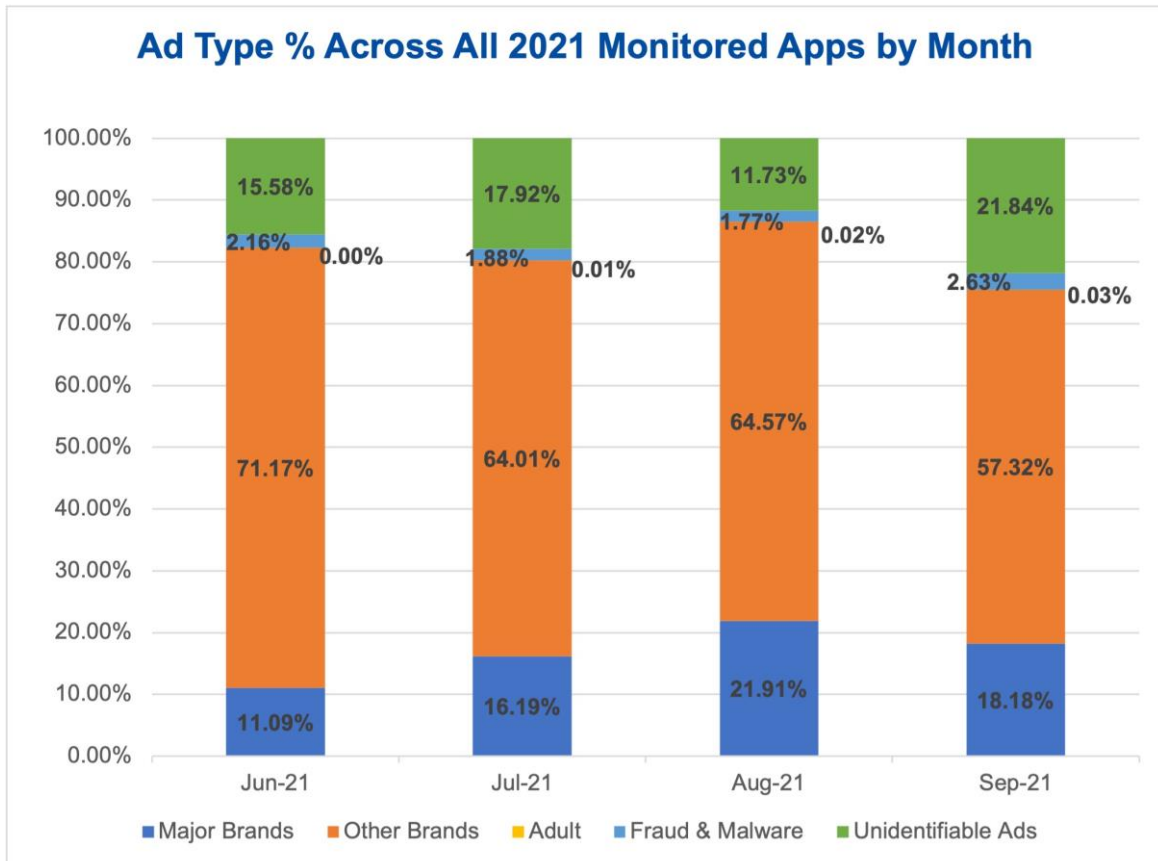


Figure 29: Ad Type across all 2021 Monitored Apps by month

Whilst Branded Advertising decreased by 8 % between June 2021 (82 %) and September 2021 (75 %), Major Brand advertising increased by 64 % (11 % in June, 18 % in September). August 2021 was the peak of Branded Advertising for the 2021 Monitored Apps with all Branded Advertising at 86 % of estimated Ad Impressions and Major Brands at 22 %.



6.2.3 Major Brands trend for the 2021 Monitored Apps

Figure 30 charts the trend of Major Brands by month and app type for the 2021 Monitored Apps.

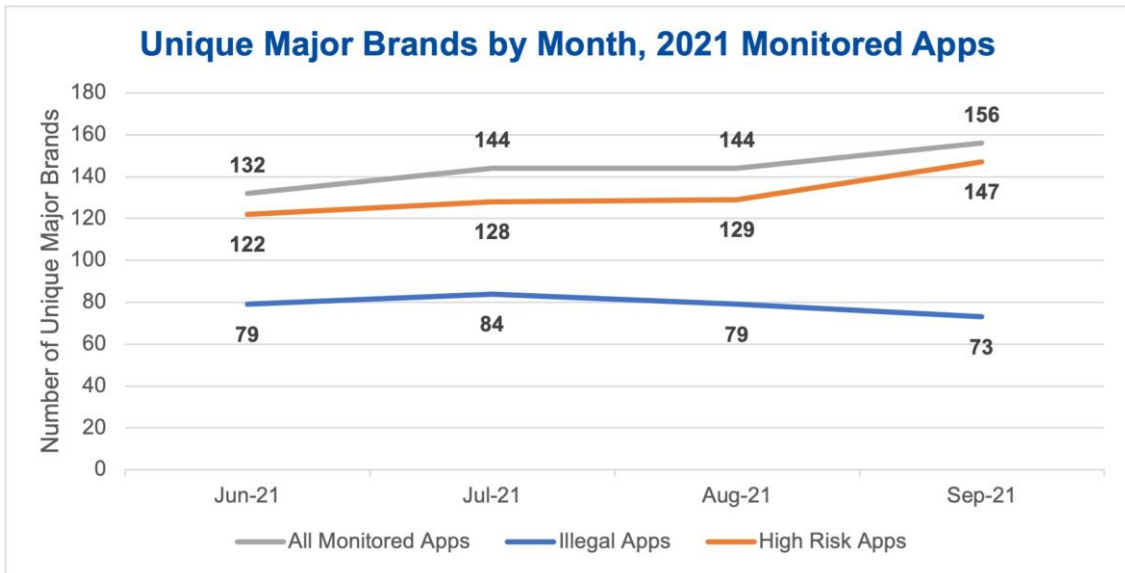


Figure 30: Unique Major Brands by month, 2021 Monitored Apps

The count of unique Major Brands increased by 18 % across all 2021 Monitored Apps from June 2021 (132) to September 2021 (156). This increase is primarily due to High-Risk Apps, which saw a 20 % increase in the count of Major Brands from June 2021 (122) to September 2021 (147). Illegal Apps had an overall 8 % decrease in the count of unique Major Brands from June 2021 (79) to September 2021 (73). Whilst further monitoring will be needed to see if this trend for decrease in unique Major Brands on Illegal Apps continues, it may be an indication that advertising industry education about pirate apps has begun to have an impact⁽⁴⁴⁾.

⁽⁴⁴⁾ See Trustworthy Accountability Group information about the Pirate Mobile App List as one example.

<https://www.tagtoday.net/brand-safety#pmaal>

6.2.4 EU Major Brands trend across 2021 Monitored Apps

Figure 31 shows the trend by month for the 2021 Monitored Apps for the proportion of Major Brand estimated Ad Impressions served by EU Major Brands.

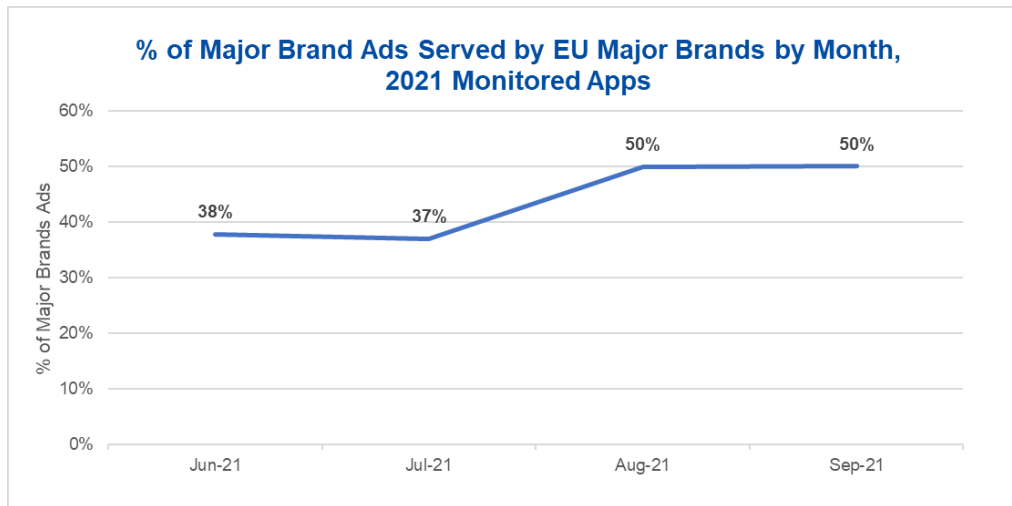


Figure 31: Percentage of Major Brands ads served by EU Major Brands by month, 2021 Monitored Apps

Figure 31 shows there was a sharp increase in the proportion of estimated Ad Impressions served by EU Major Brands from July 2021 (37 %) to August 2021 (50 %). Overall, there was a 32 % increase from June 2021 (38 %) to September 2021 (50 %). The median percentage of Major Brand ads served by EU Major Brands for apps (44 %) is 48 % lower than the median for websites (85 %) (see section 6.1.4 above).



6.2.5 Ad Intermediaries trend across the 2021 Monitored Apps

Figure 32 shows the trend by month of the count of unique Ad Intermediaries collected from the 2021 Monitored Apps.

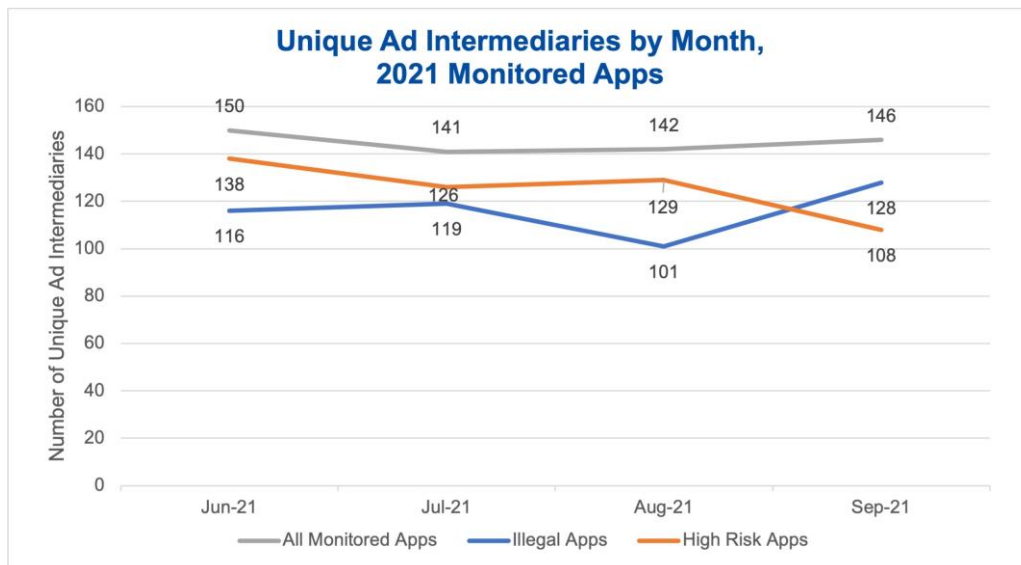


Figure 32: Unique Ad Intermediaries by month, 2021 Monitored Apps

The trend lines for all 2021 Monitored Apps, High-Risk Apps and Illegal Apps each have distinct profiles in Figure 32. All 2021 Monitored Apps had a slight 3 % decrease in the count of unique Ad Intermediaries between June 2021 (150) and September 2021 (146). High-Risk Apps declined by 22 % between June 2021 (138) and September 2021 (108), with a sharp 16 % drop from August 2021 (129) to September 2021. Illegal Apps had an overall increase of 10 % in the count of unique Ad Intermediaries from June 2021 (116) to September 2021 (128), although there was a sharp 15 % drop from July 2021 (119) to August 2021 (101).

6.2.6 Estimated ad revenue trend for the 2021 Monitored Apps

Figure 33 shows the trend for estimated ad revenue generated by the 2021 Monitored Apps by month and app type.

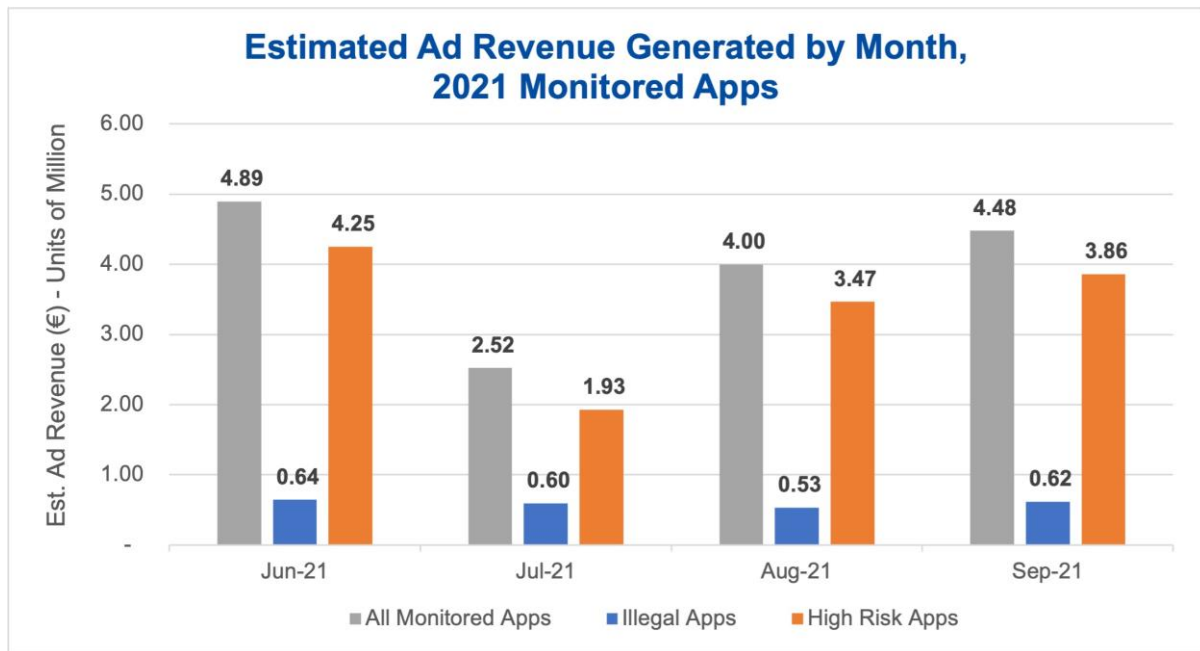


Figure 33: Estimated ad revenue generated by apps trend by month and app type, 2021 Monitored Apps

Estimated ad revenue generated by the 2021 Monitored Apps decreased from June 2021 to September 2021 across all app types. There was a 9 % decrease on both all monitored apps (which declined from EUR 4.89 million in June 2021 to EUR 4.48 million in September 2021) and High-Risk Apps (for which estimated ad revenue dropped from EUR 4.25 million in June 2021 to EUR 3.86 million in September 2021). Estimated ad revenue decreased by 4 % on Illegal Apps, which generated an estimated EUR 0.64 million in June 2021 and an estimated EUR 0.62 million in September 2021.

6.3 Comparison of 2020 v 2021 trends and results

As described in section 2.8.4, the calendar periods and countries selected for the 2020 and 2021 Comparison Datasets used for the following analyses were the same:

- 1 January to 30 September for 2021 and 1 January to 6 October for 2020;
- 18 monitored countries plus the UK and the US as provided in Figure 1; and
- desktop web advertising data only.

6.3.1 Ad volume trend analysis

Table 27 shows the total ad volume collected for the 2020 and 2021 Comparison Datasets.

Website Type	2020		2021	
	Total Websites	Ad Volume	Total Websites	Ad Volume
Illegal Websites	4,809 (59%)	1.9M (30%)	2,498 (43%)	7.3M (30%)
High Risk Websites	3,334 (41%)	4.4M (70%)	3,260 (57%)	17.4M (70%)
All Monitored Websites	8,143	6.3M	5,758	24.7M

Table 27: Ad volume trend analysis, 2020 and 2021 – websites

Whilst the count of all Monitored Websites decreased by 29 % from 2020 to 2021, the ad volume collected from the Monitored Websites increased by 292 % from 2020 (6.3 million) to 2021 (24.7 million) ⁽⁴⁵⁾. In parallel with the new process of brand advertising extraction from Sponsored Content boxes in 2021, there was still a general increase in ad spend as economies recovered from the COVID-19 lockdowns of 2020.

High-Risk Websites had a slightly higher percentage increase in ad volume (295 %) than Illegal Websites (284 %) from 2020 to 2021. However, the percentage of total websites classified as Illegal Websites dropped from 59 % in 2020 to 43 % in 2021.

⁽⁴⁵⁾The count of total websites monitored was higher in 2020 due partly to the inclusion of inactive Illegal Websites excluded in 2021.

6.3.2 Brands trend analysis

Table 28 shows the trend in the count of unique brands and Major Brands in the 2020 and 2021 Comparison Datasets.

The total count of unique brands increased by 120 % from 2020 (2 997 brands) to 2021 (6 592 brands) across All Monitored Websites, indicating a strong return to diversity of brands on the IP-infringing websites after the decline seen in 2020⁽⁴⁶⁾. Major Brands increased by 46 % from 2020 (547) to 2021 (798). Illegal Websites had an 82 % increase in Major Brands from 2020 (254) to 2021 (462), whilst High-Risk Websites had a 51 % increase (500 in 2020; 753 in 2021).

Website Type	2020		2021	
	Total Brands	Major Brands	Total Brands	Major Brands
Illegal Websites	1,214	254	2,819	462
High Risk Websites	2,666	500	5,995	753
All Monitored Websites	2,997	547	6,592	798

Table 28: Brands trend analysis by website type – 2020 and 2021

6.3.3 Branded Advertising by country trend analysis

Table 29 compares the percentage of Major Brand, Other Brand and Total Branded Advertising by country for the 2020 and 2021 Comparison Datasets.

The percentage of total Branded Advertising generally increased between the 2020 and 2021 Comparison Datasets, with the EU Median increasing from 33 % in 2020 to 38 % in 2021. However, for seven countries (Belgium, Denmark, Estonia, Malta, Portugal, Spain, and Sweden) the percentage of Branded Advertising decreased. In contrast, Major Brand advertising generally

⁽⁴⁶⁾ European Commission, [Study on the impact of the memorandum of understanding on online advertising and intellectual property rights on the online advertising market – 2020 Ad Monitoring Exercise](#), 2021.

decreased from 2020 to 2021, except for six countries that saw an increase (Czech Republic, Denmark, Ireland, Malta, Slovakia, and Sweden).

COUNTRY	2020			2021		
	% Major Brands	% Other Brands	% Total Branded Advertising	% Major Brands	% Other Brands	% Total Branded Advertising
Belgium	5%	35%	40%	2%	24%	35%
Czech Republic	8%	26%	35%	19%	32%	40%
Denmark	3%	42%	45%	11%	33%	38%
Estonia	7%	24%	31%	1%	14%	31%
France	8%	25%	33%	3%	18%	49%
Germany	5%	21%	26%	2%	24%	34%
Hungary	11%	19%	30%	2%	6%	77%
Ireland	5%	12%	17%	11%	30%	33%
Italy	7%	22%	29%	2%	23%	38%
Lithuania	11%	39%	50%	2%	19%	57%
Malta	9%	27%	36%	9%	22%	16%
Netherlands	12%	22%	34%	2%	41%	37%
Poland	5%	21%	26%	4%	34%	41%
Portugal	3%	25%	28%	1%	65%	19%
Romania	2%	6%	8%	1%	18%	73%
Slovakia	8%	11%	18%	8%	29%	42%
Spain	16%	23%	39%	3%	38%	32%
Sweden	4%	31%	35%	6%	48%	22%
EU Median	7%	24%	33%	3%	26%	38%
UK*	9%	26%	35%	4%	31%	44%
US	3%	23%	26%	3%	34%	35%

Table 29: Branded Advertising by country trend analysis – 2020 and 2021

The UK was above the EU Median of 7 % for Major Brand Advertising in 2020 with 9 %, and again in 2021 with 4 % when the EU Median was 3 %. The US had 3 % for Major Brand advertising in both 2020 and 2021.

6.3.4 Branded Advertising sector trend analysis

Table 30 compares the Top-level Sectors for Branded Advertising for the 2020 and 2021 Comparison Datasets.

2020		2021	
Sector	% of Branded Advertising	Sector	% of Branded Advertising
Arts & Entertainment	31%	Arts & Entertainment	39%
Gambling	30%	Gambling	28%
Technology & Computing	18%	Technology & Computing	14%
Shopping	9%	Shopping	10%
Society	4%	Personal Finance	2%
All Other (18)	8%	All Other (18)	6%

Table 30: Branded Advertising sector trend analysis – 2020 and 2021

The top four sectors for Branded Advertising – Arts & Entertainment, Gambling, Technology & Computing, and Shopping were ranked the same in both 2020 and 2021. The fifth ranked sector was Society in 2020 but Personal Finance in 2021, perhaps indicating a change in consumer interest since the initial waves of the COVID-19 lockdowns in 2020.

Table 31 compares the Top-level Sectors for Major Brand advertising for the 2020 and 2021 Comparison Datasets.

2020		2021	
Sector	% of Major Brand Advertising	Sector	% of Major Brand Advertising
Arts & Entertainment	48%	Arts & Entertainment	47%
Gambling	28%	Technology & Computing	16%
Shopping	16%	Gambling	12%
Technology & Computing	5%	Shopping	11%
Personal Finance	<1%	Personal Finance	5%
All Other (14)	2%	All Other (17)	9%

Table 31: Major Brand advertising sector trend analysis – 2020 and 2021

Overall diversity of Top-level advertising sectors for Major Brand advertising increased slightly from 19 in the 2020 Comparison Dataset to 22 in the 2021 Comparison Dataset. Arts & Entertainment was the top-ranked sector in both 2020 (48 %) and 2021 (47 %). Three of the sectors are the same in both years but with different rankings. Gambling was second in 2020 (28 %) but third in 2021 (12 %). Technology & Computing was second in 2021 (16 %) but fourth in 2020 (5 %). Shopping was third in 2020 (16 %) but fourth in 2021 (11 %). Personal Finance was fifth in both the 2020 (<1 %) and 2021 (5 %) Comparison Datasets.

6.3.5 Ad Intermediary trend analysis

Table 32 shows the trend in the count of unique Ad Intermediaries in the 2020 and 2021 Comparison Datasets.

	2020	2021
Website Type	Total Ad Intermediaries	Total Ad Intermediaries
Illegal Websites	4,627	646
High Risk Websites	6,898	832
All Monitored Websites	8,107	893

Table 32: Ad intermediary trend analysis, 2020 and 2021

As noted in section 2.8.2 above, the technology to identify Ad Intermediaries was enhanced in 2021 to focus on the most relevant categories (Ad Tech, Ad Serving, Adware, and Anonymised Ad Tech Ad Intermediaries) whilst Ad Intermediaries identified as domain hosts or data management platforms were excluded from the reported totals. As the largest volume of Ad Intermediaries are domain hosts or data management platforms, the total unique Ad Intermediaries for 2021 for All Monitored Websites was 89 % lower in 2021 (893) than in 2020 (8 107). The decrease was slightly higher at 88 % on High-Risk Websites (6 898 in 2020, 832 in 2021) than the 86 % decrease on Illegal Websites (4 627 in 2020, 646 in 2021).

6.3.6 Estimated ad revenue trend analysis

Table 33 shows the trend in ad revenue by country in the 2020 and 2021 Comparison Datasets.

COUNTRY	Est. Ad Revenue (2020)	Est. Ad Revenue (2021)
Belgium	€ 1,876,160	€ 3,167,619
Czech Republic	€ 3,210,922	€ 3,781,373
Denmark	€ 1,478,376	€ 3,601,802
Estonia	€ 54,817	€ 120,076
France	€ 13,393,547	€ 17,723,618
Germany	€ 19,831,639	€ 27,924,834
Hungary	€ 1,358,902	€ 2,844,903
Ireland	€ 2,148,603	€ 774,007
IWL Italy	€ 4,126,009	€ 6,108,093
IWL Lithuania	€ 189,744	€ 282,803
Malta	€ 5,737	€ 22,015
Netherlands	€ 7,424,580	€ 10,180,767
Poland	€ 4,356,728	€ 5,482,016
Portugal	€ 1,040,179	€ 1,269,372
Romania	€ 1,768,186	€ 1,743,880
Slovakia	€ 847,587	€ 1,123,728
Spain	€ 4,160,708	€ 6,148,402
Sweden	€ 5,781,085	€ 10,204,957
EU Median	€ 2,012,382	€ 3,384,711
<i>Subtotal Monitored Countries</i>	€ 73,053,509	€ 102,504,267
IWL UK	€ 38,791,198	€ 58,118,094
US	€ 333,272,520	€ 493,516,089
Rest of World	€ 75,871,306	€ 258,599,972
Total Worldwide	€ 520,988,533	€ 912,738,421

Table 33: Estimated ad revenue trend analysis, 2020 and 2021

The total estimated ad revenue for the 18 EU monitored countries increased by 40 % from 2020 (EUR 73 million) to 2021 (EUR 102.5 million), and the EU Median increased by 68 % from 2020 (EUR 2 million) to 2021 (EUR 3.38 million). Total estimated worldwide ad revenue increased by 75 % in the same period, with EUR 520.988 million in 2020 and EUR 912.7 million in 2021. Four countries had estimated ad revenue increases greater than 100 % from 2020 to 2021: Denmark (144 %), Estonia (119 %), Hungary (109 %), and Malta (284 %). The only EU country that had a decrease in estimated ad revenue was Ireland (64 %). The two control countries had increases of

estimated ad revenue lower than the EU Median, with 48 % for the US and 50 % for the UK. Overall, the percentage increases in estimated ad revenue for the monitored countries in total, EU Median, and the two control countries were significantly less than the 241 % increase in ad revenue for the rest of the world.

6.3.7 Summary of 2020 to 2021 trend analyses

The increase in Branded Advertising, Ad Impressions and estimated advertising revenue in 2021 reflect the general increase in digital ad spend after the extreme economic situation in 2020 with the first wave of COVID-19. The digital advertising industry contracted in 2020, with many advertisers choosing to reduce marketing and advertising across all formats to reduce costs. This naturally led to fewer unique brands being visible online, which reverted in 2021. This 2021 increase in advertising, reflected in Branded Advertising data in this report, was also seen across Major Brands as they too reverted to more normal digital ad spend patterns post 2020. Advertisers' decisions in 2020 also impacted on the supply of ad space, which ultimately became cheaper in 2020 due to a surplus of space to sell to fewer advertisers. In turn this resulted in lower advertising revenues to website and app publishers generally in 2020. Again, this was reversed in 2021 as worldwide estimated ad revenues increased by 75 % from EUR 520.9 million in 2020 to EUR 912.7 million in 2021. This 2020 to 2021 trend for advertising revenue on Monitored Websites matches the trend for total worldwide digital advertising spending, which reportedly experienced record growth from 2020 to 2021 ⁽⁴⁷⁾. In parallel to advertisers reacting to new economic and social conditions, generally more people were viewing online content during the COVID-19 pandemic; many consumers continued to work from home through much of 2021, and, with fewer other alternatives, greater numbers of people were browsing online content. In addition, with many people continuing to be unemployed, opportunities for piracy from the home environment continue to feed the demand in the IP-infringing digital ecosystems ⁽⁴⁸⁾.

⁽⁴⁷⁾ eMarketer, <https://www.emarketer.com/content/worldwide-ad-spending-2021-year-record-books>, 2021.

⁽⁴⁸⁾ The unemployment rates in the EU remained the same in 2021 as in 2020. See, European Commission, https://ec.europa.eu/info/sites/default/files/economy-finance/ecfin_forecast_autumn_2021_statistical-annex_en.pdf, 2021.

Despite the overall increase in ad spend on the IP-infringing websites in 2021, reflecting both the growth in the economy after 2020 and continuing piracy challenges, there are positive indicators.

- Countries that use country-specific IWLs have lower levels of branded advertising within their country on their IWL domains than across the 2021 Monitored Websites. This indicates that targeted lists are important, although perhaps too narrow in scope. Dynamic lists are critical.
- The 40 % increase in estimated ad revenue for websites for the EU Monitored Countries in 2021, along with the 48 % in the US and 50% in the UK, were significantly lower than the 241 % increase in estimated ad revenue for the rest of the world. In the EU, the UK and the US, the ad industry has introduced measures to address ad funded piracy. These measures do not appear to be as advanced in the rest of the world.

7 Conclusions and key findings

This section summarises the main findings of the report. The main conclusion of the report is that the volume of advertising on IPR-infringing websites and apps increased significantly in 2021. However, it increased much less in the EU than elsewhere, indicating that efforts to limit such advertising in the EU are having an effect.

Highlights

2021 Profile

% Branded Advertising

Websites: 30%

Apps: 82%

Top Sector - Branded Advertising

Websites: Arts & Entertainment (43%)

Apps: Arts & Entertainment (54%)

% Major Brands

Websites 12%

Apps: 20%

Total worldwide ad revenue generated

Websites: EUR 912.7 million

Apps: EUR 57.1 million

2021 Trends – Websites v Apps

Ad Impressions up 39% on websites vs 6% on apps

Branded Advertising up 58% on websites vs. 8% decrease on apps

Count of Major Brands up 180% on websites vs 18% on apps

Average ECPM paid to apps 5x greater than paid to websites.

2020 v 2021 (Websites only)

Ad Volume up 29% in 2021

Unique brands up 120% in 2021

Unique Major Brands up 46% in 2021

Worldwide estimated ad revenue up 75% in 2021

However, ad revenue for monitored EU countries up only 40%

Key Findings

Monitored Website/App analysis

- Of the 5 758 Monitored Websites, 43 % were classified as Illegal Websites and 57 % as High-Risk Websites – those which are not yet found to be illegal by national judicial, administrative or other enforcement authorities in the EU, but still verified as infringing and popular amongst EU consumers, including by White Bullet's IPIP™ or by rights holders.
- Of the 538 Monitored Apps, 27 % were classified as Illegal Apps – those identified by the Trustworthy Accountability Group as having been confirmed by rights holders as IP-infringing and removed from official app stores – and 73 % as High-Risk Apps.

Ad Impression analysis

- The Monitored Websites generated 70.3 billion Ad Impressions for the 18 EU monitored countries, 37 % from Illegal Websites and 63 % from High-Risk Websites.
- Estimated Ad Impressions generated by websites increased by 26 % from Q1 (15.3 billion) to Q4 (19.3 billion).
- France had the highest level of estimated Ad Impressions (15.4 billion) generated by websites.
- The Monitored Apps generated 8.6 billion Ad Impressions worldwide, 18.5 % from Illegal Apps and 81.5 % from High-Risk Apps.

Ad Type analysis

- Branded Advertising represented 30 % of estimated Ad Impressions across all 2021 Monitored Websites compared to 82 % across all 2021 Monitored Apps.
- Branded Advertising was higher on Illegal Websites (32 %) and Illegal Apps (83 %) than on High-Risk Websites (29 %) and High-Risk Apps (81 %).
- Major Brand advertising was higher on High-Risk Websites (4 %) and High-Risk Apps (17 %) than on Illegal Websites (3 %) and Illegal Apps (14 %).

- The Czech Republic had the highest level of estimated Ad Impressions generated by the Monitored Websites for Major Brands (20 %), whilst Portugal had the highest level for Branded Advertising overall (67 %).

Branded Advertising sector analysis

- The top sectors for all Branded Advertising for the Monitored Websites were Arts & Entertainment (43 %) (which includes gaming), followed by Gambling (23 %), Technology & Computing (13 %), Shopping (11 %), and Personal Finance (2 %).
- The top sectors for Major Brand Advertising for the Monitored Websites were Arts & Entertainment (43 %), Technology & Computing (18 %), Shopping (13 %), Gambling (13 %), and Personal Finance (5 %).
- Major Brand Advertising in the Gambling sector decreased from 18 % in Q1 to 8 % in Q4 on the Monitored Websites.
- The top sectors for all Branded Advertising for the Monitored Apps were Arts & Entertainment (54 %), followed by Technology & Computing (23 %), News (7 %), Shopping (5 %), and Business (4 %).
- The top sectors for Major Brand Advertising for the Monitored Apps were Arts & Entertainment (37 %), Shopping (21 %), Business (19 %), Technology & Computing (14 %), and Personal Finance (3 %).

Brand analysis

- The 2021 Monitored Websites had 12 % Major Brands (941) out of the total of 8 076 unique brands that were identified, compared to 20 % Major Brands (281) identified out of the total 1 432 unique brands on the 2021 Monitored Apps.
- Portugal had the highest count of unique brands (2 979), whilst Malta had the highest percentage of EU Brands (42 %) identified on the 2021 Monitored Websites.
- The shares of estimated Ad Impressions on the Monitored Websites in the EU were 37 % for EU Brands, 20 % for US Brands, 11 % for UK Brands and 3 % for Russian Brands.
- Poland had the highest count of unique brands (462) identified on the 2021 Monitored Apps, whilst the Netherlands had the highest percentage of EU Brands (43 %).

- The shares of estimated Ad Impressions on the Monitored Apps were 25 % for EU Brands, 25 % for US Brands, 10 % for UK Brands and 4 % for Chinese Brands.

Ad Intermediaries analysis

- A total of 908 unique Ad Intermediaries were identified across all Monitored Websites, whilst 207 were identified across all Monitored Apps.
- 853 unique Ad Intermediaries were identified on Illegal Websites (43 % of the 2021 Monitored Websites), whilst 668 unique Ad Intermediaries were identified on High-Risk Websites (47 % of the 2021 Monitored Websites).
- Spain had the highest count of Ad Intermediaries for websites with 696, whilst Portugal had the highest count for apps with 143.
- France and Sweden had the highest percentage of EU Ad Intermediaries on websites in 2021, each with 22 %. Germany and Portugal had the highest percentage of EU Ad Intermediaries on apps, each with 24 %.

Estimated ad revenue analysis

- The total estimated annual revenue generated worldwide by the 5 758 Monitored Websites was estimated to be EUR 912.7 million for 2021.
- In the 18 EU monitored countries alone, the total estimated annual revenue generated by the Monitored Websites was EUR 102.5 million for 2021.
- The total estimated annual revenue generated worldwide by the 543 Monitored Apps was estimated to be EUR 57.1 million for 2021.

2021 Trends

- Estimated Ad Impressions for the 2021 Monitored Websites increased by 39% from January 2021 (6.1 billion) to September 2021 (8.6 billion), with a peak in August 2021 (8.8 billion).
- The 2021 Monitored Apps also showed a 6 % increase in estimated Ad Impressions from June 2021 (520 million) to September 2021 (549 million).

- Branded Advertising for the 2021 Monitored Websites was lowest in January 2021 (21 % of estimated Ad Impressions) but increased to 34 % by September 2021, after a peak of 37 % in August 2021. There was a 58 % increase in percentage of Branded Advertising from January 2021 to September 2021.
- Branded Advertising for the Monitored Apps fluctuated by month but, like websites, peaked in August 2021 at 86 %. From June 2021 to September 2021 there was an 8 % decrease in the percentage of Branded Advertising.
- The count of Major Brands for all website types increased from January 2021 to September 2021. High-Risk Websites increased by 206 %, Illegal Websites increased by 129 %, and all Monitored Websites increased by 180 %.
- For the Monitored Apps, the count of Major Brands increased from June 2021 to September 2021 on High-Risk Apps (20 %) and All Monitored Apps (18 %), but decreased by 8 % on Illegal Apps.
- *The EU Brand percentage of Major Brand Ad Impressions* on the 2021 Monitored Websites generally declined from January 2021 (94 %) to September 2021 (72 %), with a low point in June 2021 (63 %).
- The median percentage of Major Brand ads served by EU Major Brands for apps (44 %) is much lower than the median for websites (85 %).
- High-Risk Websites saw a 17 % increase in count of Ad Intermediaries from January 2021 (534) to September 2021 (592) compared to a 13 % increase for Illegal Websites (January 354, September 404).
- High-Risk Apps saw a 22 % decrease in count of Ad Intermediaries from June 2021 (138) to September 2021 (108) compared to a 10 % increase for Illegal Apps (June 116, September 128).
- Estimated ad revenue increased by 15 % on Illegal Websites from January 2021 (EUR 21 billion) to September 2021 (EUR 24 billion) compared to an 8 % increase on High-Risk Websites in this period (January EUR 45 billion, September EUR 48 billion).
- The average eCPM⁽⁴⁹⁾ paid to mobile app publishers for an ad (EUR 6.65) is nearly five times greater than the average eCPM paid to web publishers (EUR 1.39).

⁽⁴⁹⁾eCPM, Effective Cost per Mille, is an estimate of the advertising revenue received for every 1 000 ad impressions.

Analysis of Changes between 2020 and 2021 Comparison Datasets (Websites only)

- Ad Volume: whilst the count of all Monitored Websites decreased by 29 % from 2020 to 2021, the ad volume collected from the Monitored Websites increased by 292 % from 2020 (6.3 million) to 2021 (24.7 million).
- Brand Trend: the total count of unique brands increased by 120 % from 2020 (2 997 brands) to 2021 (6 592 brands) across all Monitored Websites, indicating a strong return to diversity of brands on the IP-infringing websites after the decline seen in 2020. Major Brands increased by 46 % from 2020 (547) to 2021 (798).
- The EU Median for Branded Advertising increased from 33 % to 38 % in 2021.
- Branded Advertising sectors: the top four sectors for Branded Advertising – Arts & Entertainment, Gambling, Technology & Computing, and Shopping were ranked the same in both 2020 and 2021.
- Major Brand advertising sectors: whilst Arts & Entertainment was ranked first in both 2020 and 2021, three other sectors varied in rank for the two years – Gambling, Technology & Computing, and Shopping.
- Estimated ad revenue: worldwide estimated ad revenue generated by the Monitored Websites increased by 75 % from EUR 520.9 million in 2020 to EUR 912.7 million in 2021. The estimated ad revenue for the 18 EU monitored Member States increased by only 40 %, from EUR 73 million in 2020 to EUR 102.5 million, whilst estimated ad revenue for non-monitored countries increased by 241 % from EUR 75.9 million in 2020 to EUR 258.6 million in 2021.

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Annexes

Annex A – Glossary

2020 Ad Monitoring Exercise: the programme commissioned by the European Commission and undertaken by White Bullet to track ad profiles of IP-infringing websites in the EU and assess the evolution of online advertising on IP-infringing websites during 2020 pursuant to paragraphs 15 and 18 of the MoU.

2021 Ad Monitoring Exercise: the programme commissioned by the European Union Intellectual Property Office and undertaken by White Bullet to track ad profiles of IP-infringing websites and apps in the EU and assess the evolution of online advertising and revenues on IP-infringing websites during 2021 pursuant to paragraphs 15 and 18 of the MoU.

2020 Comparison Dataset: a dataset selected from the data collected from the 2020 Monitored Websites, covering the time period from 1 January 2020 to 6 October 2020 for which the UK was treated as a control country rather than as a monitored country for purposes of comparison to 2021.

2021 Comparison Dataset: a dataset selected from the data collected from the 2021 Monitored Websites, covering the time period from 1 January 2021 to 30 September 2021, including desktop web data only.

2020 Monitored Websites: the 8 143 websites selected for monitoring from 19 EU countries, and the US as a control country in the 2020 Ad Monitoring Exercise from 1 January 2020 to 6 October 2020.

2021 Monitored Apps: the 538 apps selected for monitoring from 18 EU countries, and the UK and the US as control countries in the 2021 Ad Monitoring Exercise from 17 May 2021 to 30 September 2021.

2021 Monitored Websites: the 5 758 websites selected for monitoring from 18 EU countries, and the UK and the US as control countries in the 2021 Ad Monitoring Exercise from 1 January 2021 to 30 September 2021.

Ad Exchange: a platform that facilitates real-time bidding transactions between buyers and sellers in the digital advertising ecosystem.

Ad Impression: a metric of online advertising that quantifies when an ad is loaded from its source and can be counted. This is also known as an ad view, based on it being viewable by a visitor.

Ad Intermediaries: entities in the digital advertising ecosystem that are directly involved in buying, selling or brokering the sale or purchase of advertising space or that are engaged with the facilitation of ad delivery or targeting advertising to these spaces. These are categorised into the following types for analysis.

- **Ad Tech:** entities involved in buying and selling ads, including Ad Networks, Ad Exchanges, Demand Side Platforms, Supply Side Platforms, and Affiliate Programmes.
- **Ad Serving:** entities involved in serving and delivering ads, including Ad Servers and Content Delivery Networks (CDNs).
- **Anonymised Ad Tech:** Ad Tech that is obfuscated, undisclosed, covert or anonymised.
- **Adware:** unwanted software that delivers ads to a consumer's device, often through a web browser.

Ad Monitoring System: White Bullet's proprietary technology and system used to identify and classify advertising on websites.

Ad Network: a platform that facilitates advertising transactions between buyers and sellers in the digital advertising ecosystem without operating an Ad Exchange.

Ad Path Detections: identifying signals of an Ad Intermediary found in the ad supply chain of a specific ad. Multiple Ad Path Detections may be identified per ad, including repeat signals for individual Ad Intermediaries.

Ad Type: categorisation of ads into different types.

- **Branded Advertising:** ads that can be attributed to a brand. For the purpose of this report, Branded Advertising is broken down into two sub-groups:
 - **Major Brands:** brands that are on selected top advertiser lists or are otherwise premium reputable established brands with a strong search engine presence in EU countries;
 - **Other Brands:** brands that are not major but are also not fraudulent, adult, or malicious.
- **Adult:** ads that display sexually explicit imagery or wording.
- **Fraud & Malware:** ads that engage in click-generation, known fraudulent or identifiable malicious activity.
- **Sponsored Content:** native ads placed within content boxes and including multiple advertorials in a single inventory slot.
- **Unidentifiable Ads:** ads that cannot be attributed to a specific brand or other Ad Type.

BitTorrent Portals: websites using Peer to Peer (P2P) file distribution technology to permit users to share content. These websites act as aggregators of P2P links, which users can search for and access via the website.

Blocklist Evasion Techniques: processes deployed by the operators of infringing websites to evade detection from law enforcement authorities and other parties. Such techniques may include the following.

- **Auto-redirecting:** automatically redirecting visitors to a second website from the originating website and may occur when websites change domain (domain-hopping) or change the top-level domain (TLD) or country code top-level domain (ccTLD).
- **Domain-hopping:** moving IP-infringing services to a new domain name but may not auto-redirect users to it when visiting the originating domain.
- **Mirroring:** the use of multiple domains to distribute IP-infringing content, where domains appear identical in both aesthetics and content offered.

Branded Advertising: ads that can be attributed to a brand. This includes both Major Brands and Other Brands (see definition of 'Ad Type' for more details).

Cookies: small pieces of web code placed by websites and stored on a user's web browser. They send information about a user's web habits on that website back to the website to remind the website of the user's previous activities and can be used to target advertising specifically to that user.

Counterfeit Websites: websites offering counterfeit goods as defined for the purposes of the MoU.

Demand Side Platform (DSP): a technology platform that enables buyers of digital ad space to manage multiple ad exchange accounts through a single technology interface.

Desktop Web Advertising Ecosystem: advertising served to users accessing websites via desktop browsers.

Digital Ad Pricing Models: pricing models for payment of digital advertising to websites, which are incorporated into the ad revenue model used in this report. These include the following.

- **Cost Per Action (CPA):** payment based on an action completed after clicking on an ad, such as signing up for a service or purchasing goods or services based on an ad.
- **Cost Per Click (CPC):** payment based on clicking on the ad.
- **Cost Per Mille (CPM):** payment based on agreed value for every thousand views of an ad, regardless of interaction.
- **Effective Cost Per Mille (eCPM):** estimate of the advertising revenue received for every thousand ad impressions. It is used on many platforms that monetise through digital advertising such as desktop, mobile, in-app and video. The eCPM is calculated as (Total Earnings / Impressions) x 1 000. It differs from CPM in that it takes into account other advertising monetisation models such as cost per click (CPC) and cost per action (CPA) and is not only an impression based model (CPM), so creating an effective single metric.

EU Ad Intermediaries: Ad Intermediaries identified in the 2021 Ad Monitoring Exercise that are either headquartered in an EU country or have established business operations in at least one EU country.

EU Brands: brands identified in the 2021 Ad Monitoring Exercise that are either headquartered in an EU country or have established business operations in at least one EU country.

EU Major Brands: Major Brands identified in the 2021 Ad Monitoring Exercise that are either headquartered in an EU country or have established business operations in at least one EU country.

High-Risk Apps: apps in the 2021 Monitored Apps not included in the Pirate Mobile App List (PMAL) distributed by the Trustworthy Accountability Group, but still verified to be infringing, including by White Bullet's IPiP™ or by rights holders.

High-Risk Websites: websites in the 2021 Monitored Websites not found to be illegal by national judicial, administrative or other enforcement authorities in the EU, but still verified to be infringing and popular amongst EU consumers, including by White Bullet's IPiP™ or by rights holders.

Identifiable Ad Intermediaries: Ad Intermediaries that could be attributed to an identifiable company, excluding unidentifiable ad servers.

Illegal Apps: apps in the 2021 Monitored Apps included in the Pirate Mobile Apps List (PMAL) distributed by the Trustworthy Accountability Group.

Illegal Websites: websites in the 2021 Monitored Websites that are included on IWLs, those identified through publicly available information as having court-ordered adjudications against them within the EU, and those listed on the Counterfeit and Piracy Watch List published by the European Commission in December 2020 ⁽⁵⁰⁾.

Infringing Website Lists (IWLs): lists of IP-infringing websites that aim to share intelligence on such websites with advertising industry stakeholders amongst others, and compiled by administrative authorities or law enforcement authorities (e.g. those used in the United Kingdom compiled by the City of London Police's Intellectual Property Crime Unit (PIPCU) and in Spain compiled by the Ministry of Culture and Sport, by agencies such as the World Intellectual Property Organization (WIPO), or interest organisations such as Rettighedsalliancen in Denmark).

⁽⁵⁰⁾ See [Counterfeit and Piracy Watch List](#), SWD(2020) 492.

IPIP™: White Bullet's proprietary Intellectual Property Infringement Platform of dynamic IP risk scores for websites and apps developed through a unique standard for online IP risk assessment. It is a standardised means of rating websites and apps by reference to IP infringement, based on a broad range of over 400 data points and consistent core criteria.

Major Brands: brands that are on selected top advertiser lists or are otherwise premium reputable established brands with a strong search engine presence in EU countries.

Mobile Web Advertising Ecosystem: advertising served to users accessing websites via mobile browsers.

Non-EU Ad Intermediaries: Ad Intermediaries identified in the 2021 Ad Monitoring Exercise that are neither headquartered in an EU country nor have established business operations in at least one EU country.

Non-EU Brands: brands identified in the 2021 Ad Monitoring Exercise that are neither headquartered in an EU country nor have established business operations in at least one EU country.

Other Brands: brands that are not major but are also not fraudulent, adult, or malicious.

Page view(s): total number of pages on a website that were loaded or reloaded in a given time period by a unique user. They are used to measure visits and traffic to websites.

Sub-sector: a specific part of the wider industry in which the related brand operates.

Supply Side Platform (SSP): a technology platform that enables websites to manage ad space on multiple ad exchange accounts.

Top-level Sector: the wider industry grouping in which the related brand operates.

Web Proxy Websites: websites that allow users to access websites that have site-blocking restrictions.

ONLINE ADVERTISING ON IPR-INFRINGING WEBSITES AND APPS 2021

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