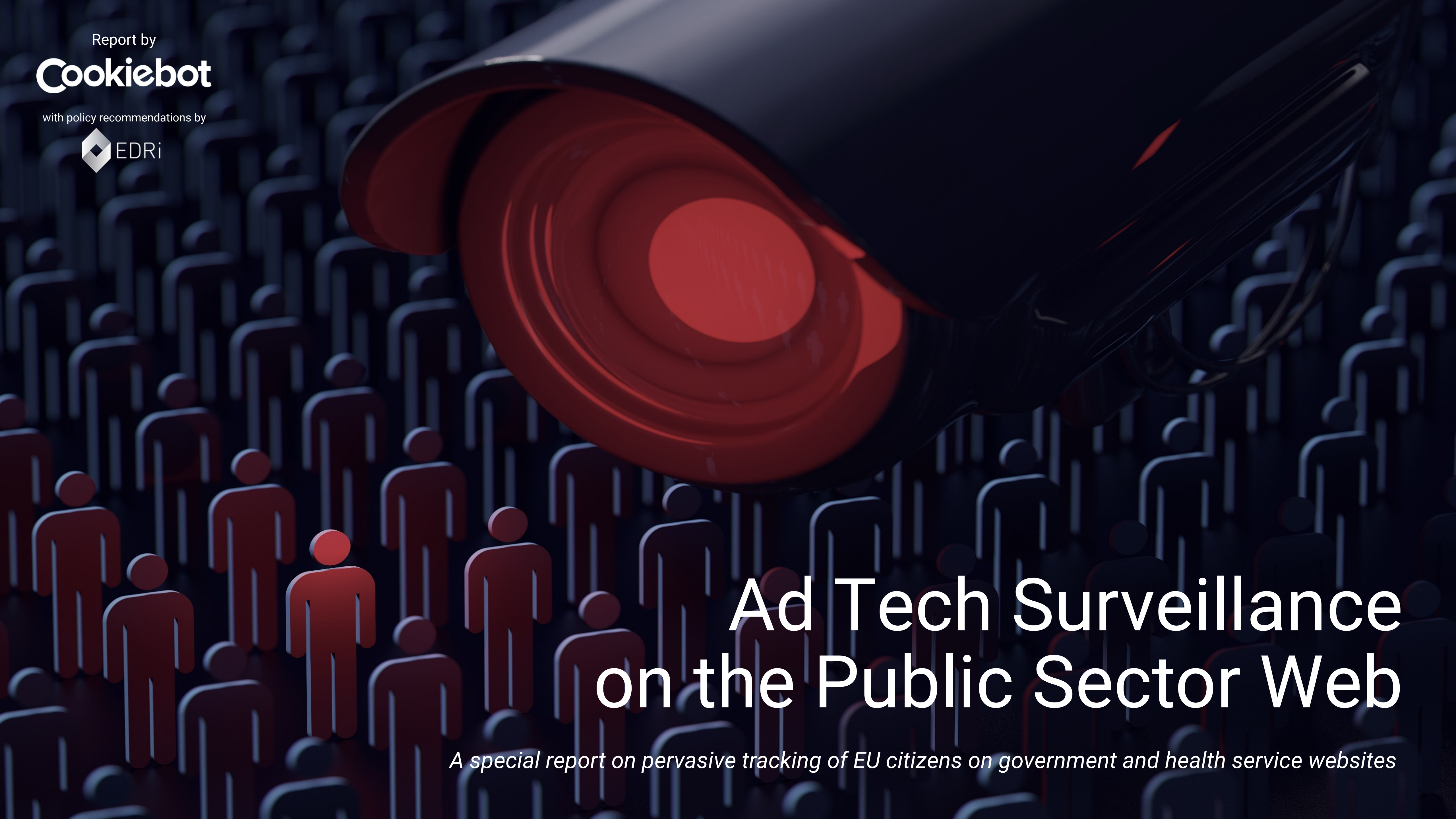


Report by
Cookiebot

with policy recommendations by

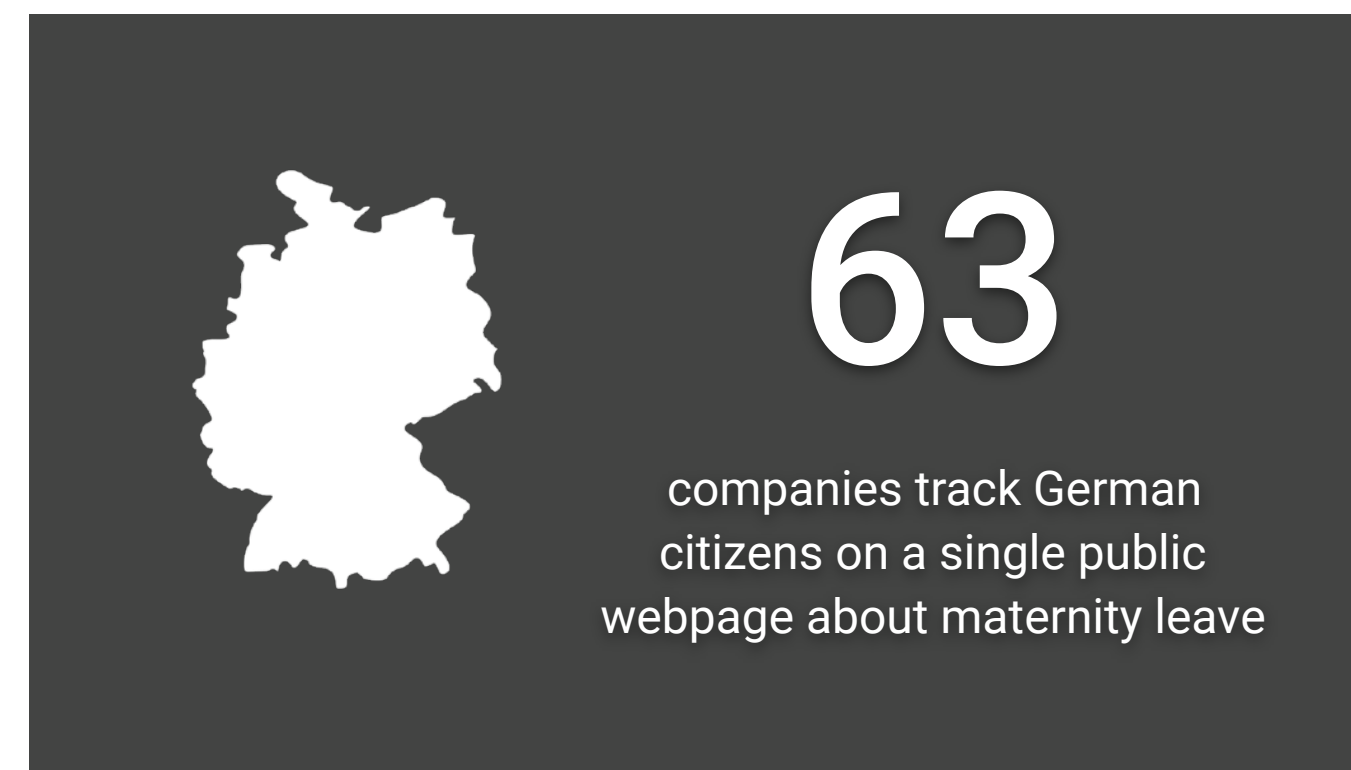
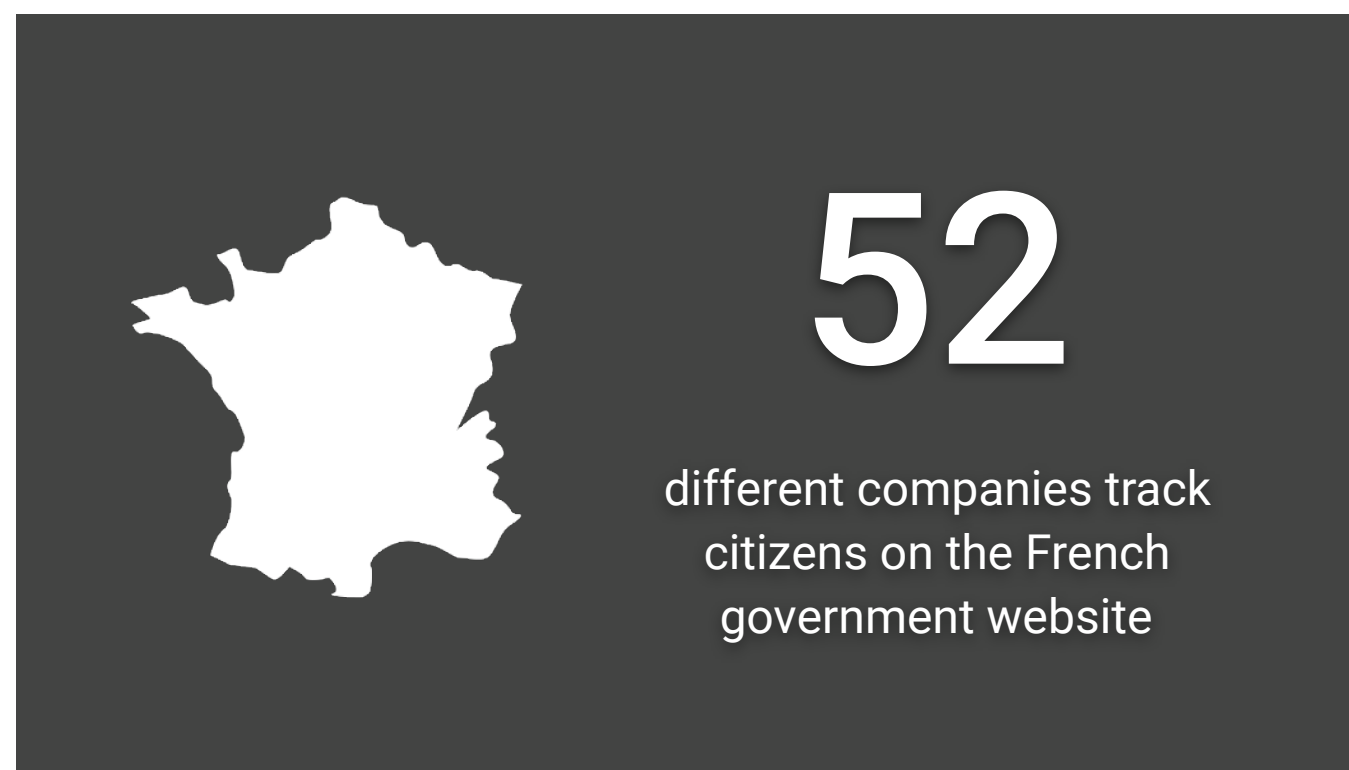
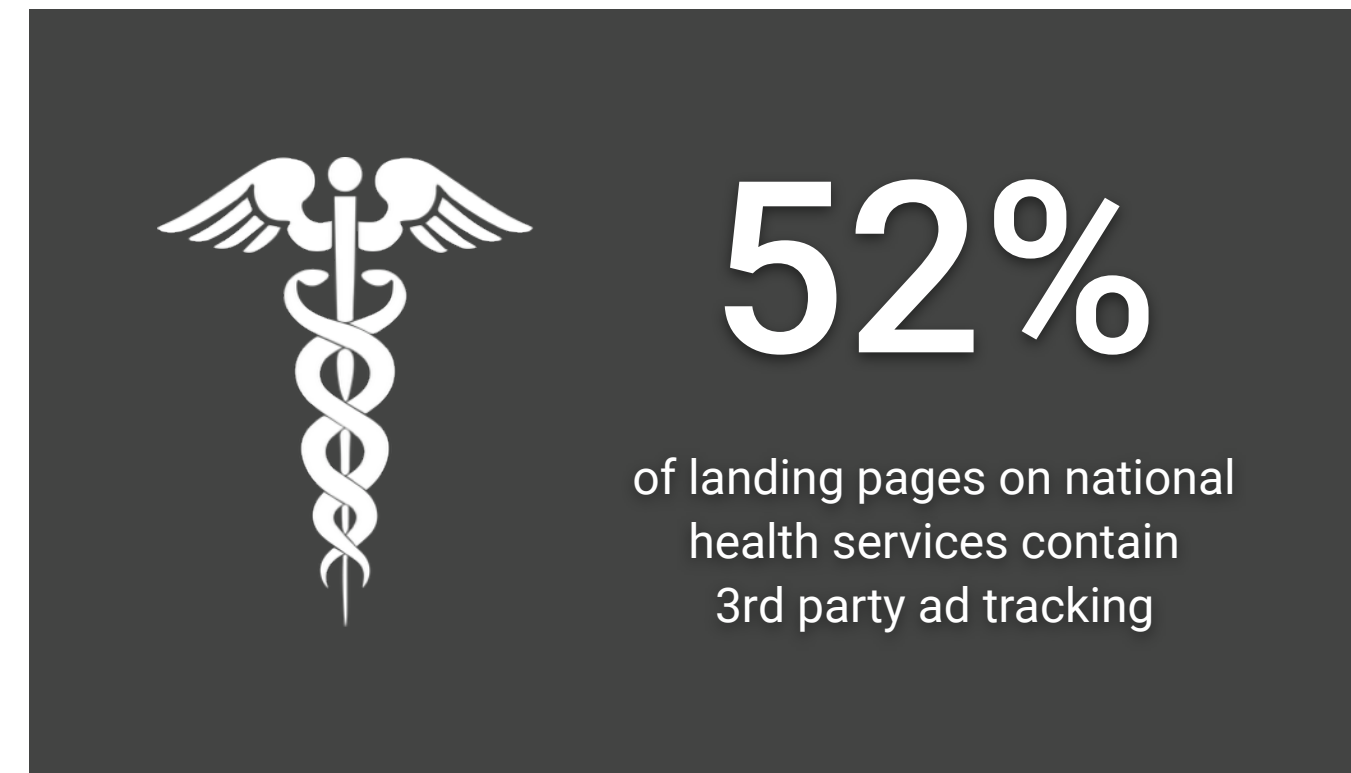
A large, dark, futuristic surveillance camera lens is positioned in the upper right quadrant, pointing downwards. The background is a dense field of small, stylized human figures in various shades of blue and purple, creating a sense of a large crowd or population. The overall color palette is dark and moody, with a focus on blues, purples, and reds.

Ad Tech Surveillance on the Public Sector Web

A special report on pervasive tracking of EU citizens on government and health service websites

Key Insights

Ad tech companies are extensively tracking EU citizens who visit non-ad funded government and public sector websites.
Even on sites featuring sensitive health information, vulnerable citizens are unknowingly being tracked.
EU governments and public sectors are thereby – unintentionally – serving as platforms for online commercial surveillance.



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Expert Responses



“ This Cookiebot report shows the need for the EU to adopt a strong ePrivacy Regulation. Online tracking is ubiquitous and it can expose very intimate information about individuals without them even being aware that information is being collected and shared with others.

European Digital Rights (EDRi)
Diego Naranjo, Senior Policy Advisor



“ Cookiebot has exposed the firms that surreptitiously listen in when a vulnerable person goes to their government for advice about mental illness, HIV, alcoholism, etc. The list of offenders includes some of the biggest technology companies in the world. This is a call to action for governments. These companies must be stopped from inserting themselves between the citizen and state.

Brave
Johnny Ryan, Chief Policy & Industry Relations Officer



“ Our research has shown that many websites in the European Union are not compliant with the current data protection legislation. Cookiebot can help website owners to figure out who is collecting data on their sites, as it offers valid in depth analysis.

Ruhr-Universität Bochum
Martin Degeling, Privacy Researcher, Post-doc



“ The AdTech industry is at the very core of today's data exploitation. The industry collects, processes and shares vast amounts of data, yet operates out of the public eye. That's why PI has filed complaints against 7 AdTech companies with three different Data Protection Agencies arguing that they are in breach of GDPR. This new research done by Cookiebot highlights both the industry's pernicious practices to track users and collect personal data as well as the lack of awareness of websites owners and developers in regard to these trackers. It also highlights the potential sensitivity of information that can be collected when these trackers are embedded on health-related websites.

Whether this is intentional or not, the fact that such a great number of member states' websites include trackers should be a wake-up call for governments and regulators to investigate and take action against the AdTech industry.

Privacy International
Eliot Bendinelli, Lead Technologist, Data Exploitation Programme

Introduction

EU governments are unknowingly allowing the ad tech industry to monitor citizens across public sector websites.

This report shines a new light on the pervasiveness of online tracking, by studying the online spaces where users should feel most safe: public sector websites in the European Union. Cookiebot scanning technology was used to analyse tracking that occurred during simulated visits to thousands of pages across official government websites and public health service websites in all 28 EU member states.

Although this sample is not exhaustive, we believe it is highly representative of the general state of the public sector web. Over 100 advertising technology companies are systemically and invisibly tracking EU citizens when they visit their governments online, or when they access public health

service resources about sensitive issues, such as pregnancy, sexual health, cancer or mental illness. Once collected, this data can be resold via data brokers to companies both in- and outside the advertising industry.

The extent of tracking on public sector websites is especially alarming given that these websites do not rely on revenue from advertising. This report reveals how trackers use inventive techniques to gain access to non-commercial websites by working through free 3rd party services, such as video plugins and social sharing buttons.

Although the governments presumably do not control or benefit from the documented data collection, they still allow the safety and privacy of their citizens to be compromised within the confines of their digital domains – in violation of the laws that they have themselves put in place.

The fact that so many public sector websites have failed to protect themselves and their visitors against the inventive methods of the tracking industry clearly demonstrates the educational challenge that the wider web faces: How can any organisation live up to its GDPR and ePrivacy obligations if it does not control unauthorised tracking actors accessing their website?

More than nine months into the GDPR, a trillion-dollar industry is continuing to systematically monitor the online activity of EU citizens, often with the unintentional assistance of the very governments that should be regulating it. Public sector bodies now have the opportunity to lead by example – at a minimum by shutting down any digital rights infringements that they are facilitating on their own websites.

Daniel Johannsen
Founder, Cookiebot
March, 2019



Tracking on EU Government Websites

Ad tech trackers¹ were found on **89%** of official government websites of EU member states. Deep domain scans were performed on 184,683 pages on all EU main government websites, using the Cookiebot scanning technology.²

Key Findings

- **25 out of the 28** official government websites in the EU contained ad tech trackers.
- The highest number of tracking companies were present on the websites of the French (52), Latvian (27), Belgian (19) and Greek (18) governments.
- Only the Spanish, German and the Dutch websites had no commercial trackers.

Analysis

The European governments do not rely on ad revenue, and they have an obligation to enforce the GDPR. Despite this, their websites have been successfully **infiltrated by ad tech trackers**. These findings are particularly illustrative of the reach and methods of the tracking industry.

¹ Throughout the report, the term 'advertising technology (ad tech)' is used to jointly describe the commercial tracking of website users and the companies behind this, notwithstanding that some of this tracking may be carried out for commercial purposes other than to directly display advertising.

² See Appendix for details of [the scanning technology](#) and for a [full list of identified trackers](#).

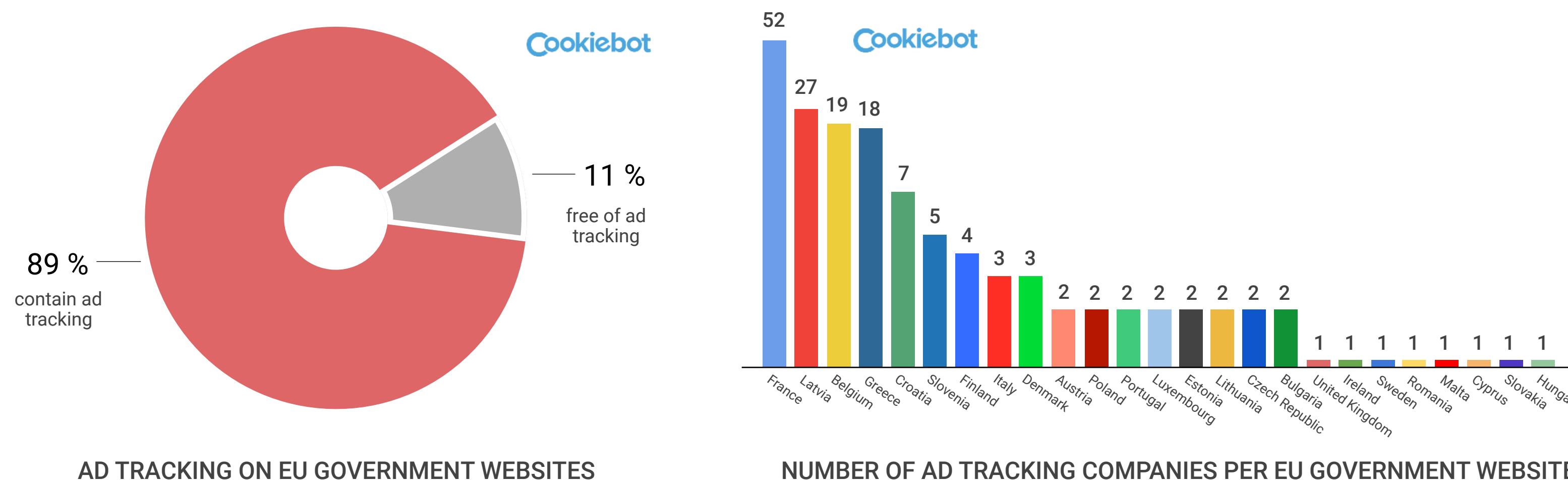
How Tracking Works

The [World Economic Forum](#) values the global data economy at \$3 trillion. The growth of this sector has been fuelled by the increasingly pervasive collection, cross-referencing, and resale of personal data – including information about people’s interests, locations, income, relationship status, gender, age, education, etc.

Ad tech companies will typically attempt to place trackers on as many websites as possible to optimise data inflow. Once in-page, they store a unique identifier (a code string) in the user’s browser so they can record user behaviours, such as:

- Which sites the user visits and for how long
- The speed and pattern of the user’s scrolling
- What the user clicks on or hovers over

These behavioural data are combined with other information in order to build detailed profiles of each individual user. Typically, tracking companies will also perform “cookie syncing”, which allows them to swap their unique identifier with other ad tech actors, so that the data they hold on users can be cross-referenced and combined, potentially with valuable identifiers like email addresses, social media logins or real names.



Tracking on Public Health Service Sites

While sensitive information about a person's health condition belongs to so-called special category data that is carefully protected under Article 9 of the GDPR, **52%** of EU public health service web pages were found to contain commercial trackers.

Methodology

The sensitive health questions shown opposite were translated and used in a search engine from 6 different countries to identify the specific health service landing pages that vulnerable EU citizens would realistically visit to get official government advice.¹ This yielded 15 web pages for each country, which were each scanned with the Cookiebot scanning technology.

Key Findings

- **52%** of landing pages with health information were found to harbour ad trackers.
- The **Irish health service ranked worst**, with 73% of landing pages containing trackers.
- UK, Spain, France and Italy had trackers on **60%, 53%, 47%** and **47%** of landing pages, respectively.
- Germany ranked lowest, yet **one third** of their pages held trackers.
- **21 different companies** were monitoring a single French webpage about abortion.
- **63 companies** were monitoring a single German webpage about maternity leave.

Analysis

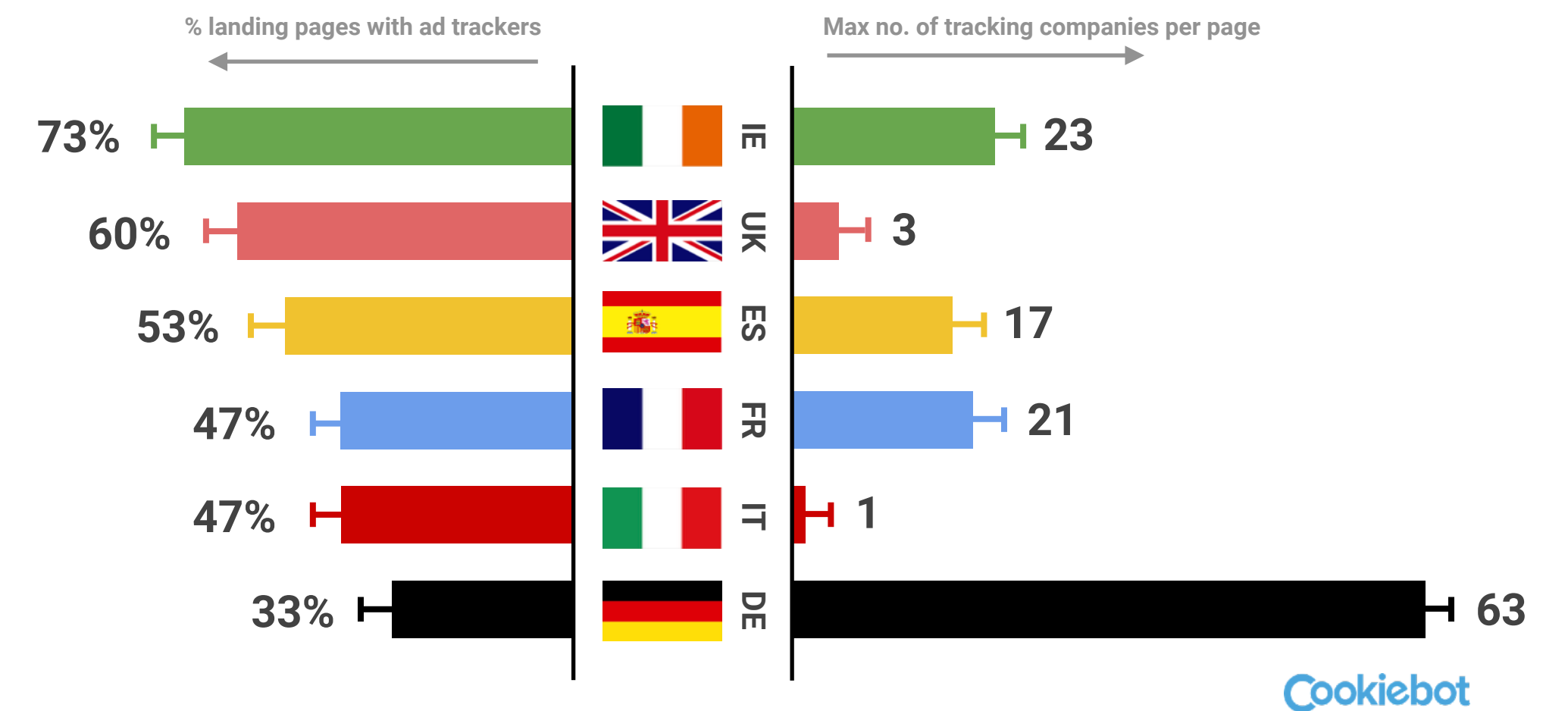
Vulnerable citizens who seek official health advice are shown to be suffering **sensitive personal data leakage**. Their behaviour on these sites can be used to infer sensitive facts about their health condition and life situation. This data will be processed and often resold by the ad tech industry, and is likely to be used to target ads, and potentially affect economic outcomes, such as insurance risk scores. These citizens have no clear way to prevent this leakage, understand where their data is sent, or to correct or delete the data.

¹ See Appendix for a [full list of translated search queries](#) and [country-specific scan results](#).

HIV	PREGNANCY	MENTAL ILLNESS	ALCOHOLISM	CANCER
I have HIV, now what?	I am pregnant, what do I do?	What are the signs of mental illness?	Help for families of alcoholics	I have cancer - now what?
What are the symptoms of HIV?	What are my rights to maternity leave?	How do I know if I have anxiety?	Treatment for alcohol addiction	Survival rates for cancer
How do I know if I have HIV?	I want to terminate my pregnancy	Symptoms of post-partum depression	Signs of being an alcoholic	Insurance for cancer patients

Cookiebot

SENSITIVE SEARCH TERMS USED TO FIND HEALTH SERVICE WEBPAGES



Cookiebot

AD TRACKING ON PUBLIC HEALTH SERVICE WEBPAGES PER COUNTRY

How Do the Trackers Get in?

Many free 3rd party website plugins earn revenue by smuggling in trackers.

This report presents evidence of widespread systematic tracking by the ad tech industry on government websites that are **not funded by ads**. These results indicate that many other non-ad funded websites may also be unintentionally serving as platforms for online surveillance.

How does this occur?

Analysis

Modern websites typically include multiple 3rd party javascript technologies to power various functions, such as video players, social sharing widgets, web analytics, galleries and comments sections. These scripts can act as **Trojan horses, opening backdoors** to the website code through which ad tech companies can **silently insert their trackers**.

Although many of these 3rd party technologies are supposedly free, they do have a price: users' privacy.

Advice for website owners

Website operators should exercise care when including any 3rd party components on their website. The following actions are necessary to protect and respect the privacy of visitors:

- Gain a detailed overview of the current tracking status on the website.
- Remove any unwanted trackers from the website's source code.
- Offer visitors full transparency and control over trackers on the site – i.e. allow them to turn trackers on/off according to their own wishes.

Case Study: ShareThis as a Trojan Horse

Ireland's public health service, the **Health Service Executive (HSE)** have installed the popular social sharing tool **ShareThis** on their web pages. ShareThis automatically adds buttons to each page to make it easy for visitors to share information across social media platforms.

As a free service, ShareThis may seem like a gift to many website operators, but it is more like a **Trojan horse** that releases trackers from **more than 20 ad tech companies** into every webpage it is installed on.

By analysing web pages on HSE.ie, we found that ShareThis loads 25 other trackers, which track users without permission. This result was confirmed on pages linked from search queries for **"mortality rates of cancer patients"** and **"symptoms of postpartum depression"**. Although website operators like the HSE do control which 3rd parties (like ShareThis) they add to their websites, they have no direct control over what additional "4th parties" those 3rd parties might smuggle in.

ShareThis appears to be installed on **every single webpage** of www.HSE.ie. This indicates that a broad spectrum of Irish citizens' health data is being continuously and invisibly leaked to commercial actors. Although the HSE.ie [cookie policy](#) references ShareThis' own cookie, it makes no reference to the 25 other trackers loaded by ShareThis, indicating that the HSE is not aware of their activities.



AD TECH TRACKERS LOADED BY SHARETHIS ON HSE.IE



Who Is Tracking EU Citizens?

Across both government and health service websites, a total of 112 companies were identified using trackers that send data to a total of 131 third party tracking domains.

Key Findings

- **112 companies** track EU citizens across all scanned sites (see table to the right).
- **10** of these companies actively mask their identity (see table below), because no website is hosted at their tracking domains, and their domain ownership (WHOIS) records are **hidden by domain privacy services**.

254a.com	domain ownership could not be identified
bidr.io	domain ownership could not be identified
cpx.to	domain ownership could not be identified
dmxleo.com	domain ownership could not be identified
exelator.com	domain ownership could not be identified
jsrdn.com	domain ownership could not be identified
m6r.eu	domain ownership could not be identified
rlcdn.com	domain ownership could not be identified
vpadrn.com	domain ownership could not be identified
zorosrv.com	domain ownership could not be identified

MASKED TRACKING COMPANIES



Analysis

The presence of **masked tracking domains** is especially worrying. The companies who control these domains are taking active steps to hide their identities, and it is not possible for a concerned user or website operator to discover who they are.

Tracking domain	Tracking company	Tracking domain	Tracking company	Tracking domain	Tracking company	Tracking domain	Tracking company
acuityplatform.com	Acuity	dailymotion.com	Dailymotion	netmng.com	Ignitionone	rundsp.com	RUN
stroeer.dsp.adboost.sk	Adboost	w55c.net	Dataxu	360yield.com	Improve Digital	scorecardresearch.com	Scorecardresearch
addthis.com	Addthis	de17a.com	Delta Projects	impdesk.com	Infectious Media	semasio.net	Semasio
ipredictive.com	Adelphic	digitalaudience.io	Digital Audience	innovid.com	Innovid	uipglob.semasio.net	Semasio
theadex.com	Adex	dyntrk.com	Dynadmic	instagram.com	Instagram	sharethis.com	Sharethis
adform.net	Adform	eqads.com	EQ Works	issuu.com	Issuu	simpli.fi	Simpli.fi
adgrx.com	Adgear	econda-monitor.de	Econda	creative-serving.com	KPN	um.simpli.fi	Simpli.fi
adition.com	Adition	ups.xplosion.de	Emetriq	ligadx.com	Ligatus	smartadserver.com	Smart Adserver
everesttech.net	Adobe INC.	uss.xplosion.de	Emetriq	ligatus.com	Ligatus	mobileadtrading.com	Somo Audience
demdex.net	Adobe INC.	xplosion.de	Emetriq	linkedin.com	LinkedIn	soundcloud.com	Soundcloud
omtrdc.net	Adobe INC.	etracker.de	Etracker	loopme.me	Loopme	spotxchange.com	Spotx
adotmob.com	Adot	tribalfusion.com	Exponential	crwdcntrl.net	Lotame	adscale.de	Ströer
adswizz.com	Adswizz	eyeota.net	Eyeota	mathtag.com	Mediamath	taboola.com	Taboola
go.affec.tv	Affectv	eyeviewads.com	Eyeview	meetrics.net	Meetrics	tapad.com	Tapad
vh.akamaihd.net	Akamai Technologies	facebook.com	Facebook Inc.	bing.com	Microsoft	teads.tv	Teads
turn.com	Amobee	fiftyt.com	Fifty	agkn.com	Neustar	tealiumiq.com	Tealium INC
advertising.com	AOL	flickr.com	Flickr	nuggad.net	Nugg.Ad	adsvr.org	The Trade Desk
c.appier.net	Appier	fwmrm.net	Freewheel	onaudience.com	Onaudience.com	23video.com	Twentythree
adnxs.com	AppNexus	stickyadstv.com	Freewheel	openx.net	Openx	audience.systems	Twentythree
247realmedia.com	AppNexus	adhigh.net	Getintent	bluekai.com	Oracle	twiago.com	Twiago
metadsp.co.uk	Avid Media	doubleclick.net	Google Inc	powerlinks.com	Powerlinks	t.co	Twitter INC.
avocet.io	Avocet	accounts.google.com	Google Inc	prezi.com	Prezi	twitter.com	Twitter INC.
bidswitch.net	Bidswitch	google.com	Google Inc	programattik.com	Programattik	videoamp.com	Videoamp
bidtheatre.com	Bidtheatre	googlesyndication.com	Google Inc	pubmatic.com	Pubmatic	weborama.com	Weborama
casalemedia.com	Casalemedia	youtube.com	Google Inc	contextweb.com	Pulsepoint	weborama.fr	Weborama
colpirio.com	Colpirio	youtube-nocookie.com	Google Inc	servebom.com	Purch	widespace.com	Widespace
proxy-tracker.colpirio.com	Colpirio	gumgum.com	Gumgum	quantserve.com	Quantcast	mookie1.com	Xaxis
ctnsnet.com	Crimtan	c5x8i7c7.ssl.hwcdn.net	Highwinds	1rx.io	Rhythmone	yahoo.com	Yahoo
criteo.com	Criteo	ibillboard.com	Ibillboard	rfihub.com	Rocketfuel	pr-bh.ybp.yahoo.com	Yahoo
crm4d.com	CRM4D	id5-sync.com	ID5	rubiconproject.com	Rubicon Project	yieldlab.net	Yieldlab
						zemanta.com	Zemanta



ALL VERIFIABLE COMPANIES THAT TRACK USERS ACROSS BOTH GOVERNMENT AND HEALTH SERVICE WEBSITES

Google Is the Kingpin of Tracking

Google performs more than twice as much tracking as any other company.

Google owns several of the most dominant ad tracking domains, accounting for **three out of the top five** trackers on government websites. **Both of the top two** trackers found on health service landing pages also belong to Google. These results do not include trackers associated with the Google Analytics platform.

Key Findings

- Google controls the **top three** tracking domains found in this study: YouTube.com, DoubleClick.net and Google.com.
- Through the combination of these domains, Google tracks website visits to **82%** of the EU's main government websites.
- On **each of the 22** main government websites on which YouTube videos have been installed, **YouTube** has automatically loaded a tracker from **DoubleClick.net** (Google's primary ad serving domain).
- Using DoubleClick.net and Google.com, Google tracks visits to **43%** of the scanned health service landing pages.

Analysis

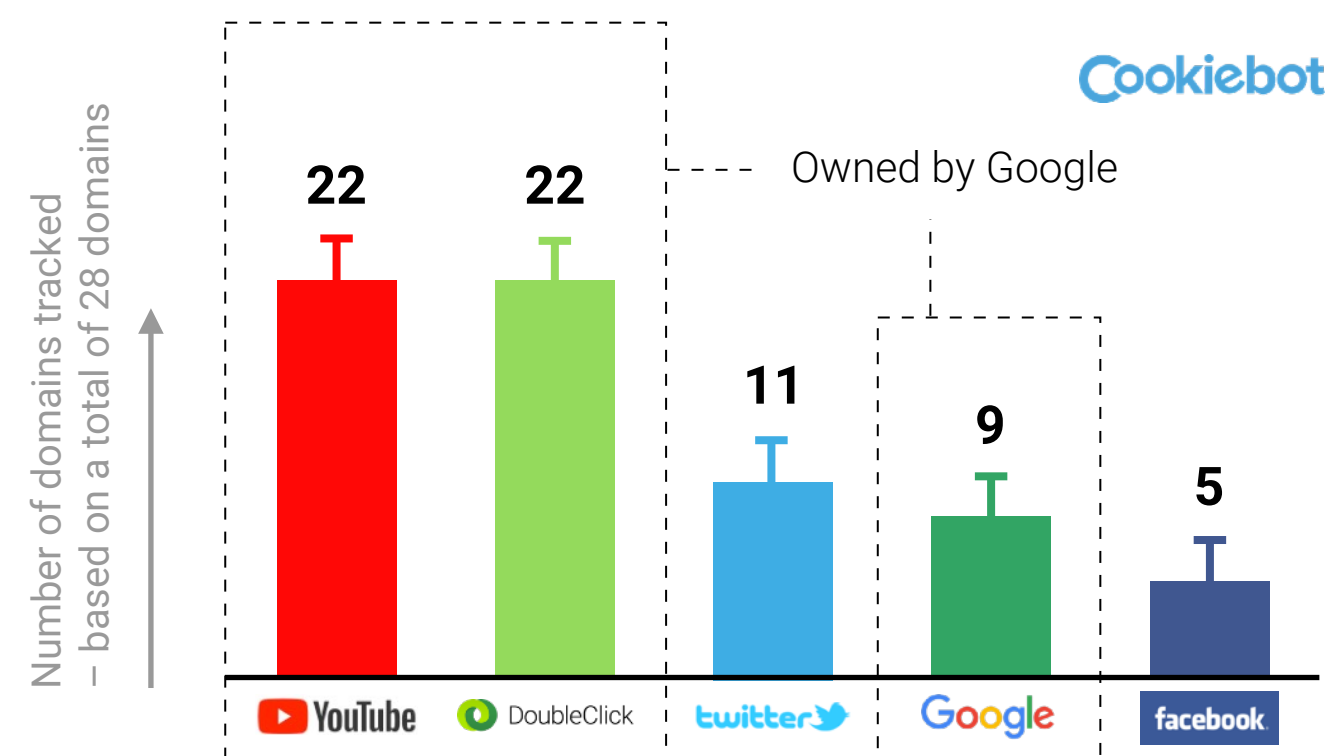
Given its control of many of the Internet's top platforms (Google Analytics, Maps, YouTube, etc.), it is no surprise that Google has greater success at gaining tracking access to more webpages than anyone else. It is of special concern that Google is capable of **cross-referencing** its trackers with its 1st party account details from popular consumer-oriented services such as Google Mail, Search, and Android apps (to name a few) to easily **associate web activity with the identities of real people**.

Case Study: YouTube's Tracking Cover-Up

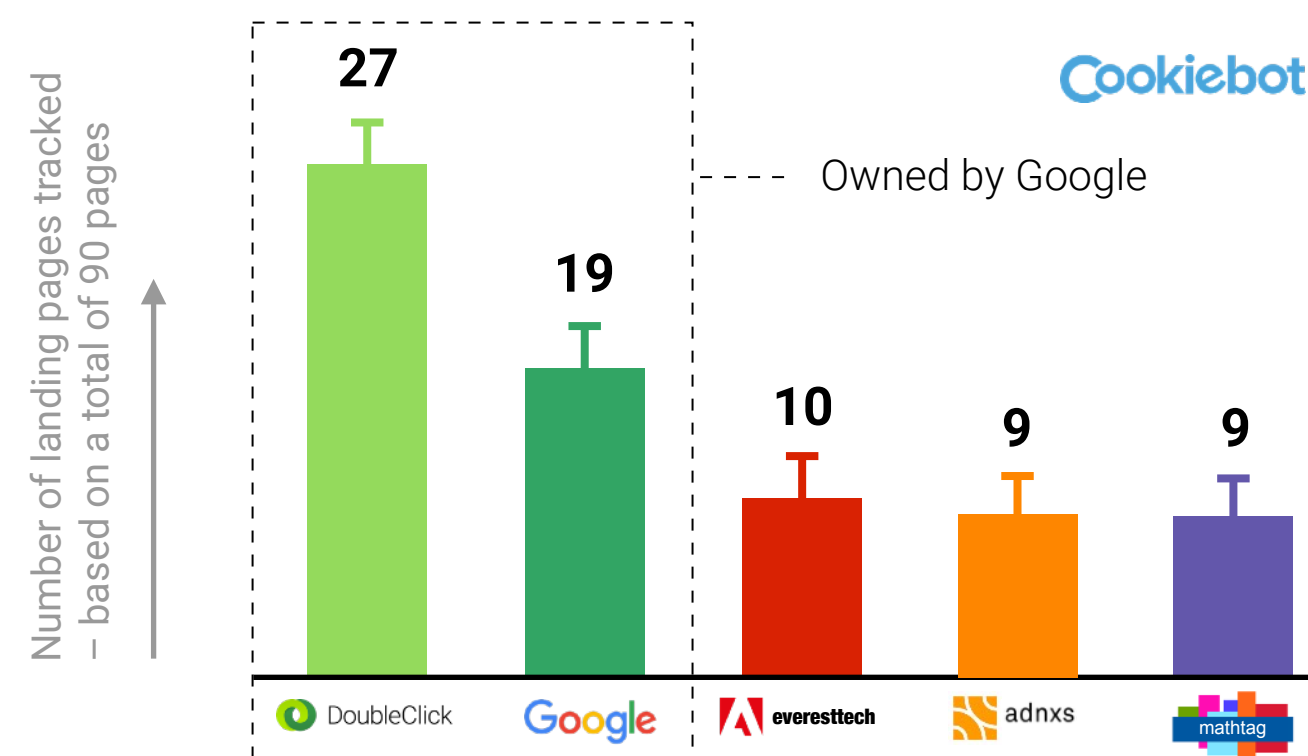
Tracking scripts from youtube-nocookie.com were identified on the Italian, Slovenian, Austrian and Greek government websites, which means these websites are using YouTube's artfully-named "**Privacy-Enhanced Mode**" to limit tracking of their citizens. It turns out that this does not "enhance privacy" as much as they might expect.

Google released this feature in 2009 in response to the Obama administration's removing of YouTube from the White House web domain. Privacy advocates had argued that YouTube tracked visitors even when videos had not been played. Google then announced that, "we created an embeddable video player that does not send a cookie until the visitor plays the video."

However, privacy expert and FTC advisor Chris Soghoian soon discovered that they had merely switched from serving classic cookies to more obscure Flash cookies. **We can now update this finding.** "Privacy-Enhanced Mode" currently stores an identifier named "yt-remote-device-id" in the web browser's "Local Storage". This allows tracking to continue regardless of whether users click, watch, or in any other way interact with a video – contrary to Google's claims. Rather than disabling tracking, "privacy-enhanced mode" seems to cover it up.



TOP 5 TRACKERS ON EU GOVERNMENT DOMAINS



TOP 5 TRACKERS ON PUBLIC HEALTH SERVICE LANDING PAGES

Anti-Tracking Circumvention

While browsers fight for privacy, tracking companies are fighting back.

It is a common misconception that users can adequately protect themselves from tracking via browser settings. Several browsers and browser plugins have developed consumer technologies aimed at blocking 3rd party tracking of user data, yet users are still waging an unequal war against well-resourced and ingenious tracking companies.

Key Finding

- On Irish and UK health landing pages featuring information about HIV and mental illness, **Facebook is employing anti-tracking countermeasures** to track citizens who use **Safari 11**'s intelligent tracking prevention (see opposite panel).

Analysis

Tracking companies are working to circumvent the anti-tracking technologies used by consumers. Some of these initiatives are publicly known, but many can be **assumed to exist in the shadows**.

Recommendation

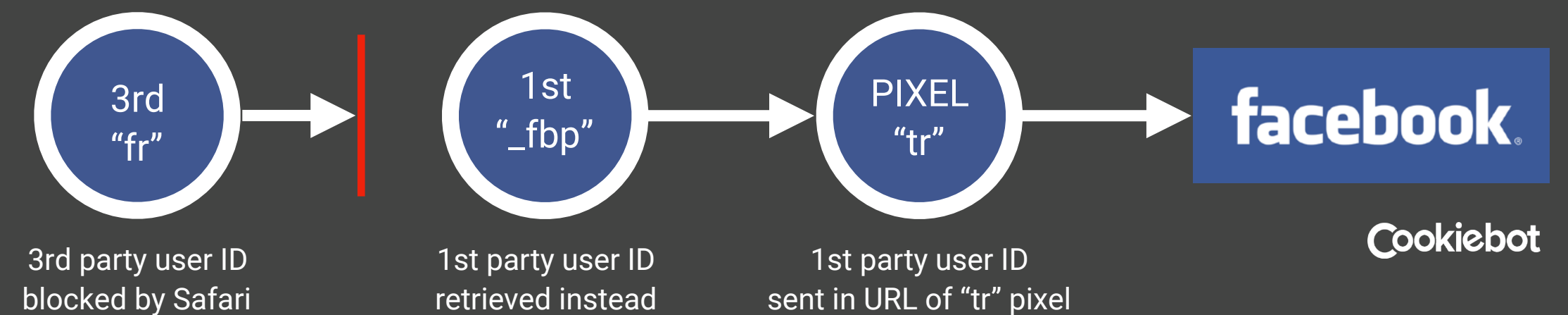
While it is desirable for many users to be technologically equipped to defend themselves against online tracking, web tracking protection measures should fundamentally not be the responsibility of users. Instead, website owners should clean out their digital environments and live up to their legal obligations under the EU GDPR and similar legislations worldwide, ensuring that users are not forced to arm themselves in the first place.

Case Study: Facebook vs. Apple

In September 2017, **Apple** released Safari 11, delivering so-called **"Intelligent Tracking Prevention"** to all Mac and iPhone users. This upgraded Safari's existing 3rd party cookie blocking in response to the ad tech industry's common workarounds. While privacy organisations and activists celebrated Apple's new initiative, the ad tech lobby responded with a strongly-worded [open letter](#) decrying it as a "unilateral and heavy-handed" approach that they would **"actively oppose."**

Facebook regrouped. For years, the social media giant had been tracking web users across millions of websites using the persistent 3rd party cookie **"fr"**, which was now wiped after 24 hours by default in Safari. Faced with a future in which Facebook would lose track of millions of Safari users, it developed an elegant countermeasure. In October 2018, Facebook **introduced a new 1st party cookie** named **"_fbp"**.

Being a 1st party cookie, **"_fbp"** is immune to Safari's new tracking prevention. However, not being a 3rd party cookie, **"_fbp"** is unable to communicate directly with Facebook.com. Instead, **"_fbp"** stores a unique user ID, which is then forwarded as a URL parameter in the pixel tracker **"tr"** to Facebook.com, thus allowing Facebook to track users after all.



FACEBOOK'S CIRCUMVENTION TO SAFARI 11'S TRACKER BLOCKING

In our study, this combined tracking practice was documented on 2 Irish and UK landing pages featuring health information about HIV and mental illness. These types of workarounds of browser tracking prevention are highly intrusive as they undermine users' attempts to protect their personal data – even when using browsers and extensions with the most advanced protection settings.

EDRi Recommendations

- Appeal to Lawmakers -

For the last 20 years, Europe has fought to regulate the sprawling chaos of data tracking. The GDPR is a historical attempt to bring the information economy in line with our core civil liberties, securing the same level of democratic control and trust online as we take for granted in our offline world. Yet, as this study has provided evidence of, nine months into the new regulation, online tracking remains as hidden, uncontrollable, and plentiful as ever.

We stress that it is the **duty of regulators** to ensure their citizens' privacy. One of the great added values of the **ePrivacy Regulation** is that it is meant to raise the bar for companies and other actors who want to track citizens' behaviour on the Internet. Regrettably, now we are seeing signs of the ePrivacy Regulation becoming watered out, specifically in areas concerning "legitimate interest" and "consent".

A **watering down** of the ePrivacy Regulation will open a Pandora's box of more and more sharing, merging and reselling of personal data in huge online commercial surveillance networks, in which citizens are being unwittingly tracked and micro-targeted with commercial and political manipulation. Instead, the ePrivacy Regulation must set the bar high in line with the wishes of the European Parliament, securing that the privacy of our fellow citizens does not succumb to the dominion of the ad tech industry.

Diego Naranjo
Senior Policy Advisor, EDRi



Legitimate Interest

Under the GDPR, companies are allowed, in certain circumstances, to use non-sensitive personal data, without consent. Such circumstances could be e.g. incidental re-use of data for the provision of services. This is called the "legitimate interest" exception of the GDPR. Now, lawmakers are opening up to incorporating this exception in the ePrivacy Regulation as well. However, a "legitimate interest" exception has no place here. A [ruling](#) by the Court of Justice, in 2016, stated that communications data must be considered to be sensitive data, and therefore, companies should under no circumstances be allowed, without specific permission, to monetise or otherwise exploit sensitive communications. It would only broaden to an unpredictable extent the way that companies would be allowed to use communications data. Any "legitimate interest" exception would undermine users' control over their own personal data.

[READ MORE](#)

Consent

Communications data are highly sensitive. This is why every update of the ePrivacy Directive insisted on users' consent for processing of this data. Despite the claims to the contrary, the new Regulation is doing little more than maintaining this principle. Yet, the need for meaningful consent is crucial. According to the [Eurobarometer 359 survey](#), 74% of Europeans want to be asked to give specific consent before their information is collected and processed. That means that users must know why their data is needed and how it will be used – and their consent must be given freely, specific, informed and explicit. If we want to drive trust for new services, we need consent, and we need consent on the terms of the users, not on the terms of the technologies.

[READ MORE](#)

More Information for Lawmakers

- ◆ [Ensure Privacy by default and by design \(pdf\)](#)
- ◆ [Bust the myths around ePrivacy \(pdf\)](#)
- ◆ [e-Privacy Directive: Frequently Asked Questions](#)
- ◆ [Ban cookie walls](#)
- ◆ [Read EDRi member Access Now's Guide for Lawmakers and learn how to implement Data Protection worldwide](#)

EDRi Recommendations

- Appeal to Users -



Until the introduction of the **ePrivacy Regulation** hopefully makes the web a less intrusive experience for everyone, we recommend some interim steps of digital self-defence for users.

Concrete Actions to Take for Users

- ◆ Use the Bits of Freedom [Data Request Tool](#) to exercise your rights.
- ◆ Go to EFF's [tool section](#) where the EFF tech team offers advice on how to enhance your privacy and security online.
- ◆ Learn about the GDPR and your digital rights through Digirights.info's [Free Online Courses](#).
- ◆ Visit [GDPR Today](#) to stay updated on the latest developments in data protection in the EU and on the implementation of the GDPR.
- ◆ Contact your local data protection authority if you have any questions or concerns – full list of all national Data Protection Authorities in Europe can be found [here](#).

APPENDIX

Appendix A:

How the Cookiebot scanning technology works 11

Appendix B:

Government website source data 12

Appendix C:

Health service source data 14

Appendix A: How the Cookiebot Scanning Technology Works

The Cookiebot scanner provides website owners and users with full transparency of trackers that are active on any given web domain.

The scanner was developed by Cybot A/S and forms part of the Cookiebot consent and compliance solution, which is driven by the purpose of making the Internet a safer place by helping website owners regain control of their websites and give their users a genuine and transparent choice as to how they want their personal data to be used.

Cookiebot is currently installed on more than 140,000 websites worldwide. You can perform a free demo scan of any web domain on www.cookiebot.com.

How Does the Scanner Work?

The Cookiebot scanner performs fully-rendered user simulations to discover, locate and identify all tracking scripts that are active on all sub-pages of any given domain.

The scanner simulates multiple users (7-8 on average) visiting a website simultaneously, and performs all of the actions that real users potentially would. The simulated users will scroll through up to 10,000 sub-pages, clicking all links, menu points and buttons. They will move their cursors around, play and pause embedded video or audio content.

During these simulated sessions, the scanner monitors all network traffic between the website and the “browsers” of the simulated users – as well as any traffic sent to other websites. The scanner uses this data to identify all the trackers that are active.

It will find all of the following types of technologies:

- Http/Javascript cookies
- Dynamic cookies set during the user's interaction with the website
- HTML5 Local storage trackers
- Flash Local Shared Object trackers
- Silverlight Isolated Storage cookies/trackers
- IndexedDB trackers
- Pixel tags
- Ultrasound beacons

How Are 3rd Party Trackers Classified?

Website trackers can serve many different purposes. In this study, we have only included data about trackers, which, prior to the scans, had been reliably classified as commercial tracking trackers controlled by 3rd party companies.

Whenever the Cookiebot scanner identifies a tracker, it catalogues all of its technical properties, such as its name, type and expiry period, as well as its exact location within the source code of the website. In the case of 3rd party trackers, the scanner also monitors domain data to determine which 3rd party controls it. This information is automatically logged in Cookiebot's global repository, which consists of millions of trackers that the scanner has encountered across the web.

However, pure technical information is not always enough to determine the exact purpose of trackers. The Cookiebot research team is constantly working on classifying trackers according to information provided by the 3rd parties – either on their websites or in response to direct inquiries.













If no such information is forthcoming, the tracker will be categorised on the basis of its technical properties (e.g., does the tracker ascribe a unique user ID?) as well as on available knowledge about the business model of the 3rd party company in question (e.g., is its revenue mainly generated through online advertising or data brokerage?).

Currently, the Cookiebot repository contains more than 22 million trackers, which have been classified and ascribed more than 3,500 unique purpose descriptions.

Appendix B: Government Website Source Data

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Method: The Cookiebot scanner was used to perform deep domain scans of all subpages of each official government web domain. Up to 10,000 pages were analysed for each domain – corresponding to a total scan of 184,683 pages. The scans were performed between March 11 and March 12, 2019. Raw source data corresponding to the Cookiebot scans of each domain can be downloaded [here](#).

Country	Govt. domain	# tracking domains	Tracking domains identified
Austria 	bundeskanzleramt.gv.at	5	doubleclick.net, google.com, twitter.com, youtube.com, youtube-nocookie.com
Belgium 	www.belgium.be	22	adnxs.com, adsvr.org, adswizz.com, agkn.com, avocet.io, cpx.to, crwdcntrl.net, doubleclick.net, eyeota.net, fiftyt.com, go.affec.tv, google.com, id5-sync.com, mathtag.com, ml314.com, rfihub.com, rlcdn.com, semasio.net, sharethis.com, tapad.com, uipglob.semasio.net, youtube.com
Bulgaria 	www.gov.bg	3	doubleclick.net, facebook.com, youtube.com
Croatia 	www.vlada.gov.hr	9	accounts.google.com, bing.com, doubleclick.net, facebook.com, google.com, instagram.com, prezi.com, twitter.com, youtube.com
Cyprus 	www.cyprus.gov.cy	1	twitter.com
Czech Republic 	www.vlada.cz	3	doubleclick.net, twitter.com, youtube.com
Denmark 	www.regeringen.dk	5	23video.com, audience.systems, doubleclick.net, twitter.com, youtube.com
Estonia 	www.valitsus.ee	3	addthis.com, doubleclick.net, youtube.com
Finland 	www.valtioneuvosto.fi	6	doubleclick.net, flickr.com, google.com, twitter.com, vh.akamaihd.net, youtube.com
France 	www.gouvernement.fr	56	1rx.io, 360yield.com, addthis.com, adform.net, adgrx.com, addition.com, adnxs.com, adotmob.com, adsvr.org, avocet.io, bidr.io, bidswitch.net, c.appier.net, creative-serving.com, crm4d.com, dailymotion.com, de17a.com, digitalaudience.io, dmxleo.com, doubleclick.net, dyntrk.com, everesttech.net, exelator.com, eyeota.net, eyeviewads.com, flickr.com, fwmrm.net, id5-sync.com, ipredictive.com, linkedin.com, loopme.me, mathtag.com, ml314.com, mobileadtrading.com, onaudience.com, openx.net, pubmatic.com, rfihub.com, scorecardresearch.com, semasio.net, sharethis.com, smartadserver.com, spotxchange.com, stickyadstv.com, t.co, tapad.com, tribalfusion.com, turn.com, twitter.com, videoamp.com, vpadn.com, w55c.net, weborama.com, weborama.fr, yahoo.com, youtube.com
Germany 	www.bundesregierung.de	0	
Greece 	www.mfa.gr	20	addthis.com, adform.net, advertising.com, c5x8i7c7.ssl.hwcdn.net, ctnsnet.com, de17a.com, doubleclick.net, everesttech.net, flickr.com, issuu.com, jsrdn.com, netmng.com, openx.net, pubmatic.com, quantserve.com, scorecardresearch.com, twitter.com, w55c.net, youtube.com, youtube-nocookie.com

Appendix B: Government Website Source Data

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Method: The Cookiebot scanner was used to perform deep domain scans of all subpages of each official government web domain. Up to 10,000 pages were analysed for each domain – corresponding to a total scan of 184,683 pages. The scans were performed between March 11 and March 12, 2019. Raw source data corresponding to the Cookiebot scans of each domain can be downloaded [here](#).

Country	Govt. domain	# tracking domains	Tracking domains identified
Hungary 	www.kormany.hu	2	doubleclick.net, youtube.com
Ireland 	www.gov.ie	2	doubleclick.net, youtube.com
Italy 	www.governo.it	5	doubleclick.net, facebook.com, twitter.com, youtube-nocookie.com, youtube.com
Latvia 	www.mk.gov.lv	31	adnxs.com, adsvr.org, agkn.com, avocet.io, bluekai.com, creative-serving.com, crwdcntrl.net, doubleclick.net, everesttech.net, exelator.com, eyeota.net, fiftyt.com, go.affec.tv, google.com, id5-sync.com, live.tiesraides.lv, mathtag.com, ml314.com, onaudience.com, rfihub.com, rlcdn.com, semasio.net, servebom.com, sharethis.com, smartadserver.com, tapad.com, turn.com, uipglob.semasio.net, weborama.com, weborama.fr, youtube.com
Lithuania 	www.lrv.lt	3	doubleclick.net, facebook.com, youtube.com
Luxembourg 	www.gouvernement.lu	3	doubleclick.net, omtrdc.net, youtube.com
Malta 	www.gov.mt	1	google.com
Netherlands 	www.rijksoverheid.nl	0	
Poland 	www.premier.gov.pl	4	doubleclick.net, google.com, twitter.com, youtube.com
Portugal 	www.portugal.gov.pt	4	doubleclick.net, google.com, sharethis.com, youtube.com
Romania 	www.gov.ro	2	doubleclick.net, youtube.com
Slovakia 	www.vlada.gov.sk	3	doubleclick.net, google.com, youtube.com
Slovenia 	www.vlada.si	7	doubleclick.net, facebook.com, scorecardresearch.com, soundcloud.com, twitter.com, youtube-nocookie.com, youtube.com
Spain 	www.lamoncloa.gob.es	0	
Sweden 	www.regeringen.se	1	demdex.net
United Kingdom 	www.gov.uk	2	doubleclick.net, youtube.com

Appendix C: Health Service Source Data

Search terms used

Method: 6 EU countries were selected, and 15 health-related search queries were translated for use in each country. These translated queries were then used in a search engine from an IP address in each respective country to identify relevant landing pages hosted on the websites of the corresponding national health service. The first such landing page was selected in each case. Each of the query terms below is hyperlinked to the associated landing page.

	 UK	 Ireland	 Spain	 France	 Italy	 Germany
HIV	I have HIV, now what? What are the symptoms of HIV? How do I know if I have HIV?	I have HIV, now what? What are the symptoms of HIV? How do I know if I have HIV?	Tengo SIDA ¿que hago? ¿Cuáles son los síntomas del SIDA? ¿Cómo sé si tengo SIDA?	J'ai le vih que faire? Quels sont les symptômes du VIH? Comment savoir si j'ai le VIH?	Ho l'hiv che fare? Quali sono i sintomi di HIV? Come sapere se ho l'HIV?	Ich habe HIV, was mache ich? Was sind die Symptome von HIV? Woher weiß ich, ob ich HIV habe?
Pregnancy	I am pregnant, what do I do? What are my rights to maternity leave? I want to terminate my pregnancy	I am pregnant, what do I do? What are my rights to maternity leave? I want to terminate my pregnancy	Estoy embarazada ¿qué hago? ¿Cuáles son mis derechos del subsidio de maternidad? ¿Terminación del embarazo?	J'attends un enfant que est ce que je vais à faire? Quels sont mes droits au congé de maternité? Je veux faire un avortement	Sono incinta cosa fare? Quali sono i miei diritti al congedo di maternità? Aborto in Italia	Ich bin schwanger, was soll ich tun? Was sind meine Rechte auf Mutterschaftsurlaub? Ich möchte meine schwangerschaft abbrechen
Mental Illness	What are the signs of mental illness? How do I know if I have anxiety? Symptoms of postpartum depression	What are the signs of mental illness? How do I know if I have anxiety? Symptoms of postpartum depression	¿Cuáles son los signos de la enfermedad mental? ¿Cómo sé si tengo ansiedad? ¿Síntomas de la depresión posparto?	Maladie mentale aide financière Comment savoir si je souffre d'anxiété et que faire? Symptômes du dépression postpartum	Quali sono i segni della malattia mentale? Aiuto ansia I sintomi della depressione postpartum	Was sind die Anzeichen einer psychischen Erkrankung? Wie weiß ich, ob ich Angst habe? Anzeichen für eine postpartale Depression
Alcoholism	Help for families of alcoholics Treatment for alcohol addiction Signs of being an alcoholic	Help for families of alcoholics Treatment for alcohol addiction Signs of being an alcoholic	Ayuda por familias con problemas de alcoholismo Tratamiento de la adicción al alcohol? Señales del alcoholismo?	Aide aux familles des alcooliques Traitement de la dépendance à l'alcool Signes d'être alcoolique	Aiuto per famiglie di alcolisti Trattamento per la dipendenza da alcol Segni di essere un alcolizzato	Hilfe für Familien von Alkoholikern Behandlung für Alkoholsucht Anzeichen des Alkoholismus - Bin ich Alkoholiker?
Cancer	I have cancer - now what Survival rates for cancer Insurance for cancer patients	I have cancer - now what Survival rates for cancer Insurance for cancer patients	Tengo Cáncer, ¿ahora qué? ¿Cuáles son las tasas de supervivencia para el cáncer? ¿Seguro de cáncer?	J'ai un cancer Survie cancer Assurance prêt cancer	Ho il cancro, che fare? Tasso di sopravvivenza per il cancro Assicurazioni per i malati di cancro	Ich habe Krebs, was soll ich tun? Wie sind die Überlebensraten bei Krebs? Versicherung Krebs

Appendix C: Health Service Source Data

All landing pages were scanned on March 11 and March 12, 2019. Raw source data corresponding to the Cookiebot scans of each landing page can be downloaded [here](#).

Tracking identified in Ireland

		# tracking domains	Tracking domains identified
IE1	I have HIV, now what?	19	adnxs.com, adsrvr.org, agkn.com, avocet.io, cpx.to, crwdcntrl.net, doubleclick.net, eyeota.net, fiftyt.com, go.affec.tv, google.com, id5-sync.com, mathtag.com, ml314.com, rfihub.com, semasio.net, sharethis.com, tapad.com, uipglob.semasio.net
IE2	What are the symptoms of HIV?	1	addthis.com
IE3	How do I know if I have HIV?	2	facebook.com, google.com
IE4	I am pregnant, what do I do?	18	adnxs.com, adsrvr.org, agkn.com, avocet.io, cpx.to, crwdcntrl.net, doubleclick.net, eyeota.net, go.affec.tv, google.com, id5-sync.com, mathtag.com, ml314.com, rfihub.com, semasio.net, sharethis.com, tapad.com, uipglob.semasio.net
IE5	What are my rights to maternity leave?	1	doubleclick.net
IE6	I want to terminate my pregnancy	0	
IE7	What are the signs of mental illness	0	
IE8	How do I know if I have anxiety?	1	google.com
IE9	Symptoms of post partum depression	18	adnxs.com, adsrvr.org, agkn.com, avocet.io, cpx.to, crwdcntrl.net, doubleclick.net, eyeota.net, go.affec.tv, google.com, id5-sync.com, mathtag.com, ml314.com, rfihub.com, semasio.net, sharethis.com, tapad.com, uipglob.semasio.net
IE10	Help for families of alcoholics	0	
IE11	Treatment for alcohol addiction	22	adnxs.com, adsrvr.org, agkn.com, avocet.io, bluekai.com, creative-serving.com, doubleclick.net, exelator.com, eyeota.net, go.affec.tv, google.com, id5-sync.com, mathtag.com, ml314.com, onaudience.com, rfihub.com, semasio.net, sharethis.com, tapad.com, uipglob.semasio.net, weborama.com, weborama.fr
IE12	Signs of being an alcoholic	2	doubleclick.net, twitter.com
IE13	I have cancer now what	1	addthis.com
IE14	Survival rates for cancer	25	adnxs.com, adsrvr.org, agkn.com, avocet.io, bluekai.com, creative-serving.com, crwdcntrl.net, doubleclick.net, everesttech.net, exelator.com, eyeota.net, fiftyt.com, go.affec.tv, google.com, id5-sync.com, mathtag.com, ml314.com, onaudience.com, rfihub.com, sharethis.com, tapad.com, turn.com, uipglob.semasio.net, weborama.com, weborama.fr
IE15	Insurance for cancer patients	0	

Appendix C: Health Service Source Data

All landing pages were scanned on March 11 and March 12, 2019. Raw source data corresponding to the Cookiebot scans of each landing page can be downloaded [here](#).



Tracking identified in France

		# tracking domains	Tracking domains identified
FR1	J'ai le vih que faire?	1	twitter.com
FR2	Quels sont les symptômes du VIH?	0	
FR3	Comment savoir si j'ai le VIH?	2	google.com, twitter.com
FR4	J'attends un enfant que est ce que je vais à faire?	0	
FR5	Quels sont mes droits au congé de maternité?	0	
FR6	Je veux faire un avortement	23	247realmedia.com, adition.com, adnxs.com, adotmob.com, bidr.io, creative-serving.com, dailymotion.com, dmxleo.com, dyntrk.com, everesttech.net, google.com, id5-sync.com, mathtag.com, scorecardresearch.com, smartadserver.com, spotxchange.com, stickyadstv.com, tapad.com, tribalfusion.com, twitter.com, weborama.com, weborama.fr, yahoo.com
FR7	Maladie mentale aide financière	0	
FR8	Comment savoir si je souffre d'anxiété et que faire?	1	google.com
FR9	Symptômes du dépression postpartum	0	
FR10	Aide aux familles des alcooliques	2	addthis.com, twitter.com
FR11	Traitement de la dépendance à l'alcool	1	google.com
FR12	Signes d'être alcoolique	0	
FR13	J'ai un cancer	1	addthis.com
FR14	Survie cancer	0	
FR15	Assurance prêt cancer	0	



Tracking identified in Germany

		# tracking domains	Tracking domains identified
DE1	Ich habe HIV, was mache ich?	2	etracker.de, google.com
DE2	Was sind die Symptome von HIV?	0	
DE3	Woher weiß ich, ob ich HIV habe?	0	
DE4	Ich bin schwanger, was soll ich tun?	1	google.com
DE5	Was sind meine Rechte auf Mutterschaftsurlaub?	70	254a.com, acuityplatform.com, addthis.com, adform.net, adhigh.net, adition.com, adnxs.com, adscale.de, adsrvr.org, agkn.com, bidswitch.net, bidtheatre.com, bluekai.com, casalemedia.com, colpirio.com, contextweb.com, creative-serving.com, critico.com, ctnsnet.com, de17a.com, doubleclick.net, eqads.com, everesttech.net, googlesyndication.com, gumgum.com, ibillboard.com, impdesk.com, innovid.com, ipredictive.com, ligadx.com, ligatus.com, m6r.eu, mathtag.com, meetrics.net, mookie1.com, netmng.com, nuggad.net, openx.net, powerlinks.com, pr-bh.ybp.yahoo.com, programattik.com, proxy-tracker.colpirio.com, pubmatic.com, quantserve.com, rfihub.com, rlcdn.com, rubiconproject.com, rundsp.com, scorecardresearch.com, simplifi, smartadserver.com, stroeer.dsp.adboost.sk, taboola.com, tapad.com, teads.tv, tealiumiq.com, theadex.com, tribalfusion.com, turn.com, twiago.com, um.simplifi, ups.xplosion.de, uss.xplosion.de, w55c.net, widespace.com, xplosion.de, yahoo.com, yieldlab.net, zemanta.com, zorosrv.com
DE6	Ich möchte meine schwangerschaft abbrechen	0	
DE7	Anzeichen einer psychischen Erkrankung?	0	
DE8	Wie weiß ich, ob ich Angst habe?	0	
DE9	Anzeichen für eine postpartale Depression	0	
DE10	Hilfe für Familien von Alkoholikern	0	
DE11	Behandlung für Alkoholsucht	20	adform.net, adition.com, adnxs.com, adscale.de, adsrvr.org, casalemedia.com, doubleclick.net, everesttech.net, google.com, googlesyndication.com, ibillboard.com, innovid.com, m6r.eu, mathtag.com, mookie1.com, nuggad.net, openx.net, theadex.com, ups.xplosion.de, xplosion.de
DE12	Anzeichen des Alkoholismus Bin ich Alkoholiker?	0	
DE13	Ich habe Krebs, was soll ich tun?	0	
DE14	Wie sind die Überlebensraten bei Krebs?	0	
DE15	Versicherung Krebs	1	econda-monitor.de

Appendix C: Health Service Source Data

All landing pages were scanned on March 11 and March 12, 2019. Raw source data corresponding to the Cookiebot scans of each landing page can be downloaded [here](#).



Tracking identified in UK

tracking domains Tracking domains identified

Country	Search Query	# tracking domains	Tracking domains identified
UK1	I have HIV, now what?	3	demdex.net, doubleclick.net, everesttech.net
UK2	What are the symptoms of HIV?	1	doubleclick.net
UK3	How do I know if I have HIV?	0	
UK4	I am pregnant, what do I do?	3	addthis.com, doubleclick.net, twitter.com
UK5	What are my rights to maternity leave?	0	
UK6	I want to terminate my pregnancy	3	demdex.net, doubleclick.net, everesttech.net
UK7	What are the signs of mental illness?	3	doubleclick.net, facebook.com, metadsp.co.uk
UK8	How do I know if I have anxiety?	3	demdex.net, doubleclick.net, everesttech.net
UK9	Symptoms of post partum depression	0	
UK10	Help for families of alcoholics	0	
UK11	Treatment for alcohol addiction	0	
UK12	Signs of being an alcoholic	3	demdex.net, doubleclick.net, everesttech.net
UK13	I have cancer now what	3	demdex.net, doubleclick.net, everesttech.net
UK14	Survival rates for cancer	1	google.com
UK15	Insurance for cancer patients	0	



Tracking identified in Spain

tracking domains Tracking domains identified

Country	Search Query	# tracking domains	Tracking domains identified
ES1	Tengo SIDA ¿que hago?	18	adnxs.com, adsrvr.org, agkn.com, avocet.io, cpx.to, crwdcntrl.net, doubleclick.net, eyeota.net, fiftyt.com, go.affec.tv, id5-sync.com, mathtag.com, ml314.com, rfihub.com, semasio.net, sharethis.com, tapad.com, uipglob.semasio.net
ES2	¿Cuáles son los síntomas del SIDA?	1	addthis.com
ES3	¿Cómo sé si tengo SIDA?	0	
ES4	Estoy embarazada ¿qué hago?	0	
ES5	¿Cuáles son mis derechos del subsidio de maternidad?	0	
ES6	¿Terminación del embarazo?	0	
ES7	¿Cuáles son los signos de la enfermedad mental?	1	doubleclick.net
ES8	¿Cómo sé si tengo ansiedad?	3	doubleclick.net, google.com, youtube.com
ES9	¿Síntomas de la depresión posparto?	0	
ES10	Ayuda por familias con problemas de alcoholismo	1	doubleclick.net
ES11	Tratamiento de la adicción al alcohol?	0	
ES12	Señales del alcoholismo?	0	
ES13	Tengo Cáncer, ¿ahora qué?	2	google.com, twitter.com
ES14	¿Cuáles son las tasas de supervivencia para el cáncer?	1	doubleclick.net
ES15	¿Seguro de cáncer?	1	addthis.com



Tracking identified in Italy

tracking domains Tracking domains identified

Country	Search Query	# tracking domains	Tracking domains identified
IT1	Ho l'hiv che fare	0	
IT2	Quali sono i sintomi di HIV?	1	google.com
IT3	Come sapere se ho l'HIV?	0	
IT4	Sono incinta cosa fare?	1	doubleclick.net
IT5	Quali sono i miei diritti al congedo di maternità?	0	
IT6	Aborto in Italia	1	doubleclick.net
IT7	Quali sono i segni della malattia mentale?	0	
IT8	Aiuto ansia	1	doubleclick.net
IT9	I sintomi della depressione postpartum	0	
IT10	Aiuto per famiglie di alcolisti	0	
IT11	Trattamento per la dipendenza da alcol	1	doubleclick.net
IT12	Segni di essere un alcolizzato	2	doubleclick.net, youtube.com
IT13	Ho il cancro, che fare?	0	
IT14	Tasso di sopravvivenza per il cancro	0	
IT15	Assicurazioni per i malati di cancro	1	google.com