



blackhat®

EUROPE 2019

DECEMBER 2-5, 2019

EXCEL LONDON, UK

YOUR MENTAL HEALTH IS FOR SALE

Eliot Bendinelli & Frederike Kaltheuner

Founded in 1990. Fight against government and corporate surveillance. Network of international partners.

UK intelligence agencies face surveillance claims in European court

Civil rights groups bring first major legal challenge since Edward Snowden's whistleblowing revelations



FINANCIAL TIMES myFT

HOME FASTFT MARKETS DATA

Internet privacy

Apps share data with Facebook without user consent

Developers say social network's default option puts them in breach of EU regulations

AN HOUR AGO

BBC Sign in

NEWS

Home | Video | World | UK | Business | Tech | Science | Stories | Entertainment & Arts |

UK | England | N. Ireland | Scotland | Wales | Politics

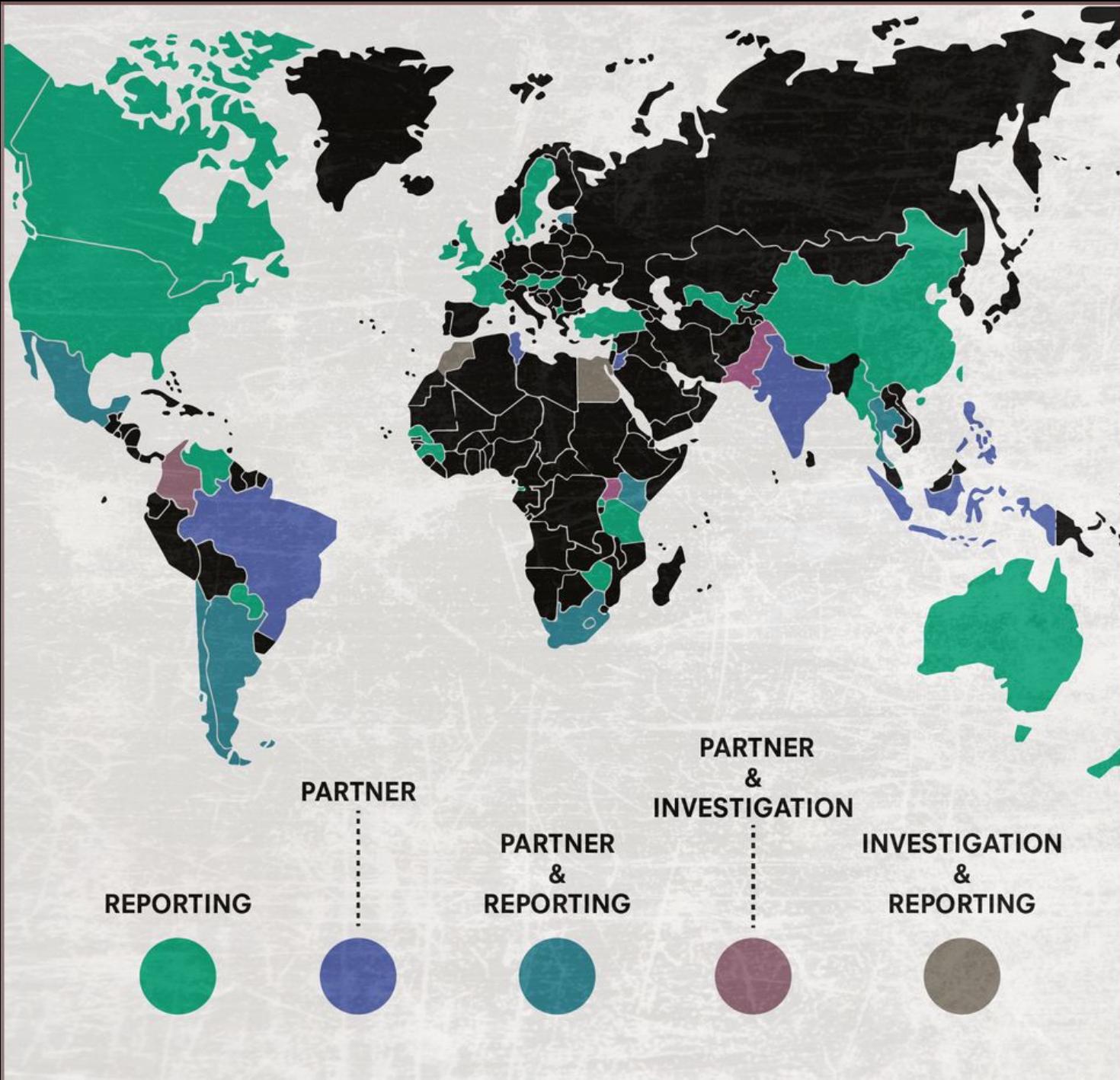
UK firm's surveillance kit 'used to crush Uganda opposition'

By Nick Hopkins and Jake Morris
BBC Newsnight

15 October 2015

f Share





We fight government and corporate surveillance and advocate for a world where technology empower and enable us, not exploit our data for profit and power.



BACKGROUND

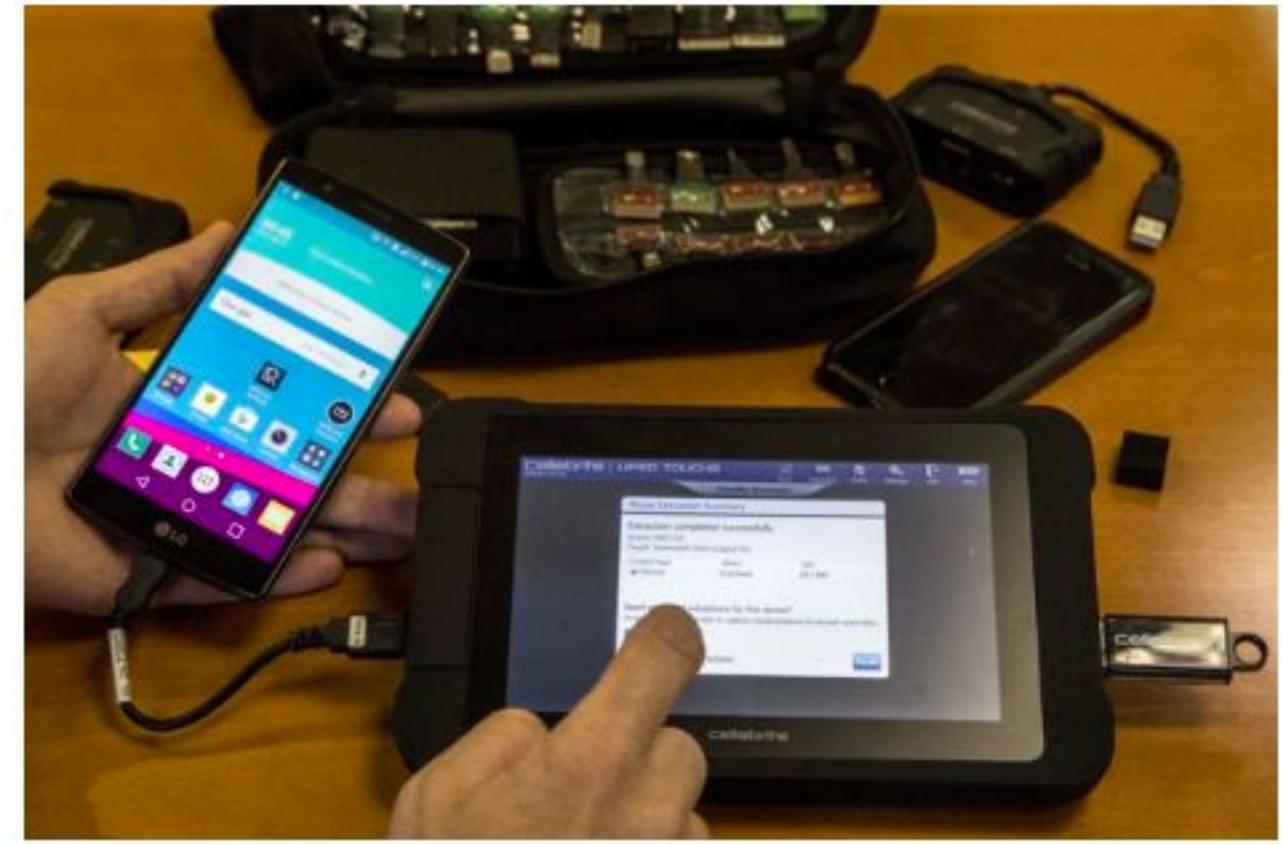
Making the systemic outrageous
Render invisible data practices visible

-
- Digital stop and search:
how the UK police can
secretly download
everything from your
mobile phone
 -
-



March 2018

UK Police Can Download The Contents Of Our Phones Without A Warrant - What Can Be Done?



Investigating Apps interactions with Facebook on Android

Privacy International has been investigating the proliferation of data tracking, brokerage and exchange between many tech companies, both as their primary business as well as value added services.

Facebook routinely tracks users, non-users and logged-out users outside its platform through Facebook Business Tools. App developers share data with Facebook through the Facebook Software Development Kit (SDK), a set of software development tools that help developers build apps for a specific operating system. Using the free and open source software tool called "mitmproxy", an interactive HTTPS proxy, Privacy International has analyzed the data that a number of Android apps transmit to Facebook through the Facebook SDK.

On this page, you will find the full report that PI have released covering this topic and all the relevant documentation of our analysis.

Search by App Name

The name can either be partial or full

App Analysis

Calorie Counter -
MyFitnessPal

App Analysis

Duolingo: Learn Languages
Free

App Analysis

Family Locator - GPS Tracker

App Analysis

Indeed Job Search

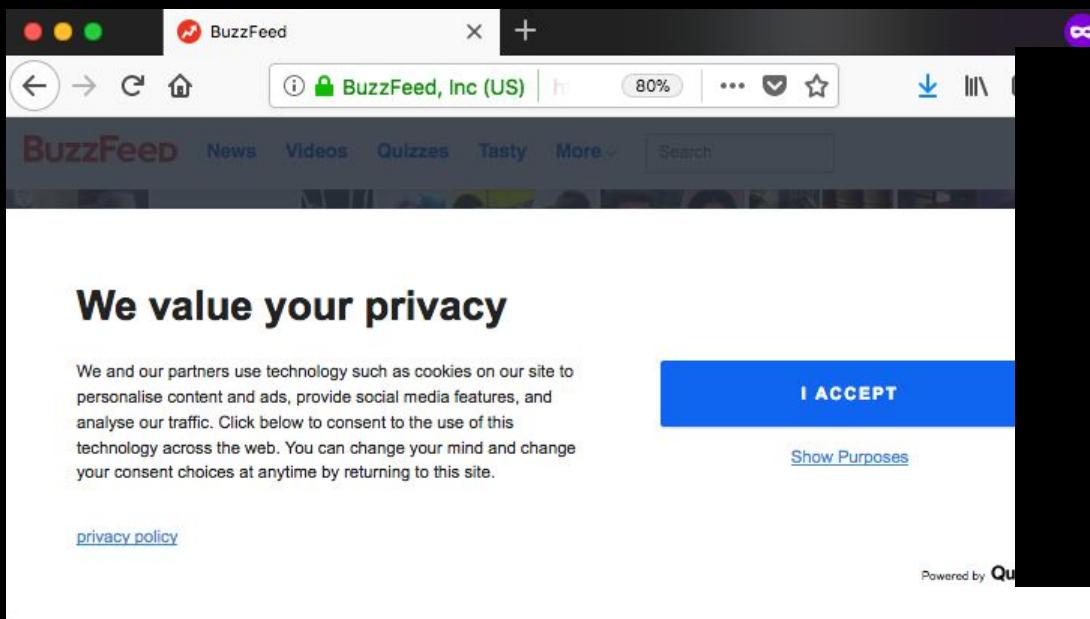
App Analysis

Instant Heart Rate: HR
Monitor & Pulse Checker

App Analysis

KAYAK Flights, Hotels & Cars

Why tracking, why mental health, why now?

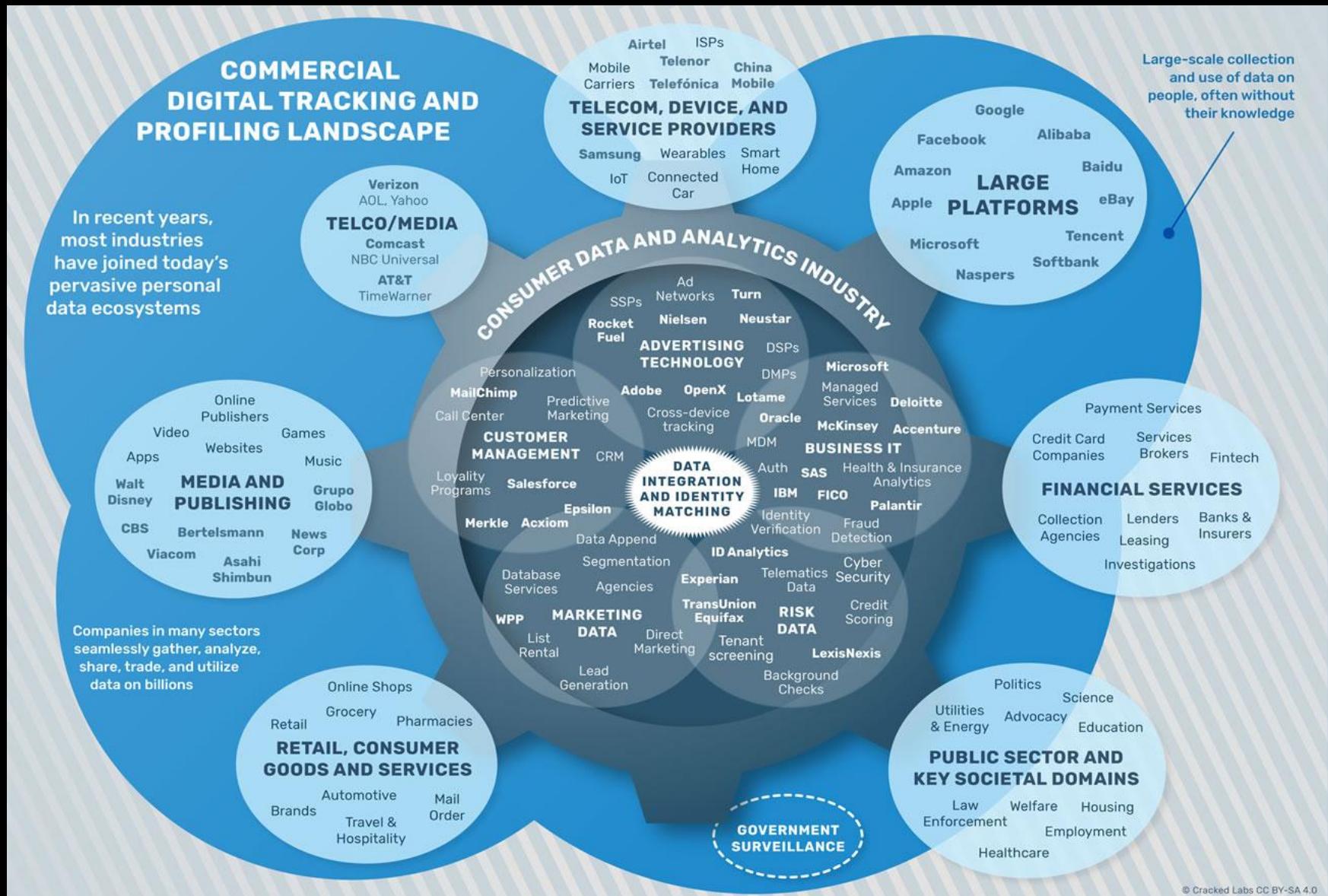


Done Supplement_Response_6b....



a_unit	value
GenderVisits;GB	[0.9995629009618636 4.370990381364389E-4]
InetHHAgeAndGenderVisits;GB	[0.16963163563535782 0.1851367583181307 0.1257233779170356 0.35388629681054534 0.06
InetHHAgeVisits;GB	[0.1697058138833724 0.18521771680399154 0.1257783555152497 0.35404104781200474 0.06
InetHHChildrenV2Visits;GB	[0.5145015966768377 1.0530208287461875E-4 0.004911148431263959 0.08756180934764402
InetHHEducationVisits;GB	[0.03904572745494902 0.6540257453949422 0.3069285271501087]
InetHHIncomeVisits;GB	[0.2664956273083136 0.0629016098818328 0.0722023682149928 0.5984003945948608]
GenderVisits;GB	[0.999830749461473 1.6925053852702787E-4]
InetHHAgeAndGenderVisits;GB	[0.21469208759269612 0.19940725420905558 0.1418112512367487 0.29205254687839644 0.0
InetHHAgeVisits;GB	[0.2147284304951945 0.19944100970735293 0.14183525693036628 0.2921019852967127 0.04
InetHHChildrenV2Visits;GB	[0.5506935498169285 1.1219017142199964E-4 0.0030622065531428627 0.02470596131497169
InetHHEducationVisits;GB	[0.03298286903380676 0.6663213365517425 0.30069579441445077]
InetHHIncomeVisits;GB	[0.34208517996066146 0.03563795182697384 0.08535273568653788 0.5369241325258268]
GenderVisits;GB	[0.9999056163347138 9.438366528628081E-5]
InetHHAgeAndGenderVisits;GB	[0.19660969859225438 0.1674718789630741 0.17443505858125827 0.25474274210826126 0.0
InetHHAgeVisits;GB	[0.1966282570878572 0.1674876870648696 0.17445152395550395 0.2547667879314994 0.039
InetHHChildrenV2Visits;GB	[0.5044999754302371 5.67989066852668E-4 0.0021387712218162414 0.1950899754500293 8.3
InetHHEducationVisits;GB	[0.04567057386281842 0.35777441612624633 0.5965550100109352]
InetHHIncomeVisits;GB	[0.04942502217206625 0.046326794051427825 0.1917718337152752 0.7124763500612308]
GenderVisits;GB	[0.9924293455638021 0.007570654436197832]
InetHHAgeAndGenderVisits;GB	[0.17050787620113514 0.09132153854501711 0.4109447747520373 0.11614409194451146 0.0

DATA_SEGMENT:Oracle Data Cloud - MasterCard UK:Shopping Interests:Retail:In Market:Toy Stores
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Hobbies & Interests:Beauty & Style:Jewellery
DATA_SEGMENT:Oracle Data Cloud - MasterCard UK:Shopping Interests:Travel & Leisure:Destinations:Asia
DATA_SEGMENT:Axiom UK:Shopping Interests:Psychographics & Lifestyles:Lifestyle:Interest in Cultural Pursuits
DATA_SEGMENT:Oracle Data Cloud - MasterCard UK:Shopping Interests:Travel & Leisure:Destinations:Africa
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Media Interests:TV:Genres:News
DATA_SEGMENT:Axiom UK:Shopping Interests:Finance:Investment Services:High Investment Activity
DATA_SEGMENT:Oracle Data Cloud - Affinity Answers (UK):Shopping Interests:Social Affinity:Food & Beverage:Cow & Gate
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Consumer Electronics:Brand Affinity:Toshiba
DATA_SEGMENT:Oracle Data Cloud - Experian UK:Shopping Interests:Psychographics & Lifestyles:Mosaic UK:Rural Reality
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Finance:Financial Services:Investing Seekers:College Savings
DATA_SEGMENT:Oracle Data Cloud - MasterCard UK:Shopping Interests:Travel & Leisure:Destinations:Northern Europe
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Hobbies & Interests:Internet & Online Activities:Social Influencers
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Automotive:In Market Make:BMW
DATA_SEGMENT:Axiom UK:Shopping Interests:Psychographics & Lifestyles:Lifestyle:Interest in Gym/Classes
DATA_SEGMENT:Axiom UK:Shopping Interests:Travel & Leisure:Travel Activities:World Travel as a regular hobby
DATA_SEGMENT:Oracle Data Cloud - MasterCard UK:Shopping Interests:Services:In Market:Hair Care & Beauty Salons
DATA_SEGMENT:Oracle Data Cloud - MasterCard UK:Shopping Interests:Retail:In Market:Jewellery & Giftware
DATA_SEGMENT:Oracle Data Cloud - Datalogix UK:Shopping Interests:Psychographics & Lifestyles:Personas:Avid Readers
DATA_SEGMENT:Oracle Data Cloud - Affinity Answers (UK):Shopping Interests:Social Affinity:Consumer Products:Aveeno
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Business & Occupation:Occupation:Occupation:IT/Technology
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Automotive:In Market Make:Acura
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Automotive:In Market Make:Cadillac
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Hobbies & Interests:Home & Garden:Housewares & Furnishings
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Fast Moving Consumer Goods:Categories:Beverages:Juice
DATA_SEGMENT:Oracle Data Cloud - Datalogix UK:Shopping Interests:Fast Moving Consumer Goods:Beverage Buyers:Tea
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Fast Moving Consumer Goods:Spend Profile:Top Grocery Spenders
DATA_SEGMENT:Oracle Data Cloud - MasterCard UK:Shopping Interests:Retail:In Market:Luggage & Leather Stores
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Hobbies & Interests:Shopping:Coupons
DATA_SEGMENT:Oracle Data Cloud - Oracle UK:Shopping Interests:Automotive:In Market Make:Mini



Graph by Wolfie Christi of Cracked Labs

**Have you heard of these companies? Because they've
likely heard of you..**

Acxiom

Criteo

Equifax

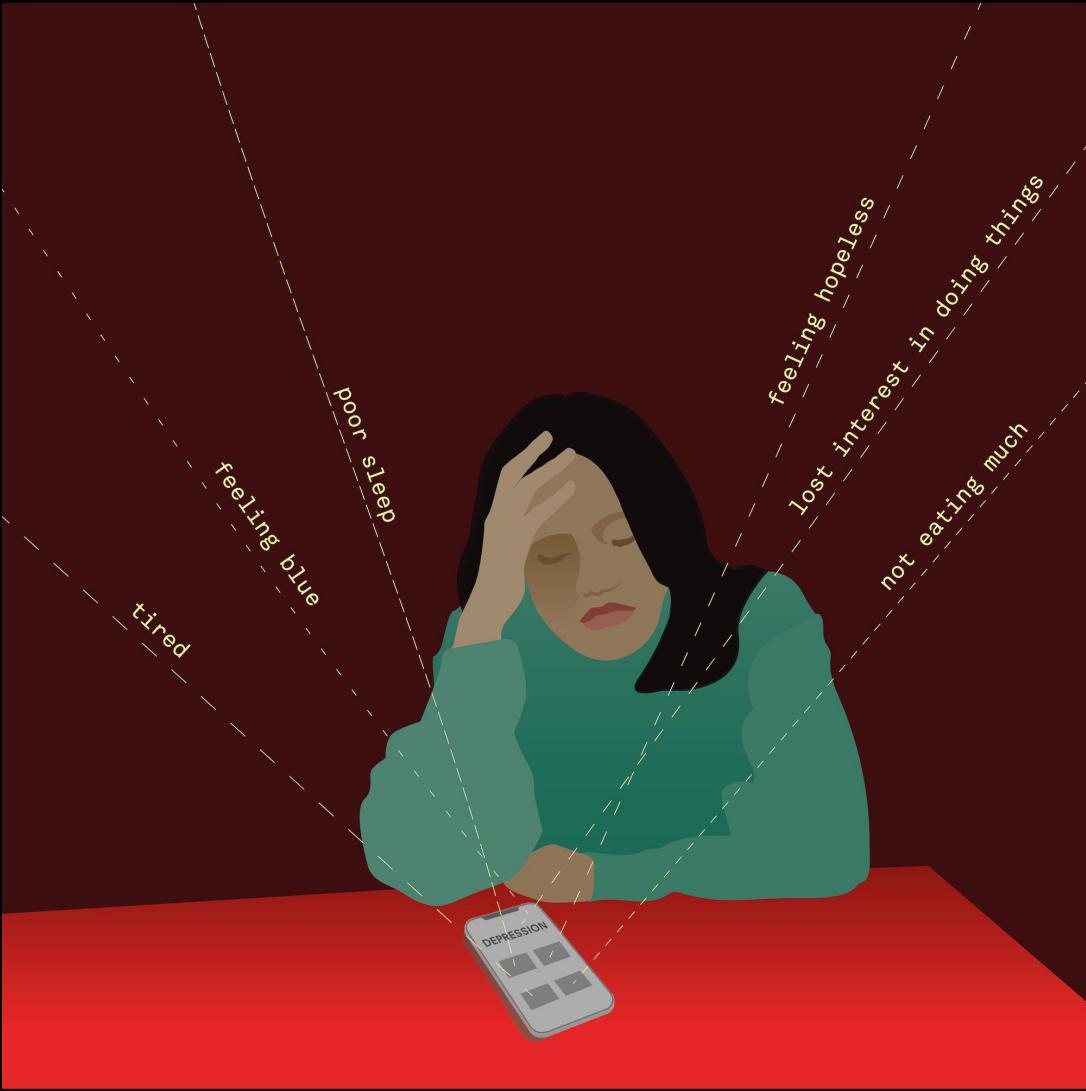
Experian

Oracle

Quantcast

Tapad

**No? Well they've
definitely heard of you!**

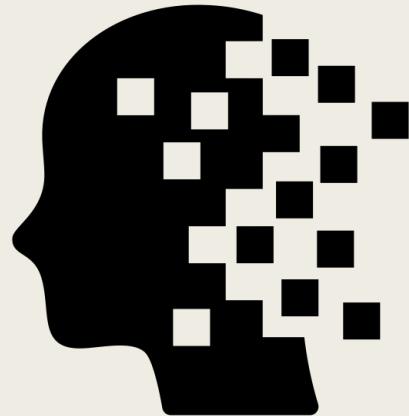


**25% of the
European
population
experience
depression**

THE RESEARCH

Time to get serious

Mental health websites & tracking

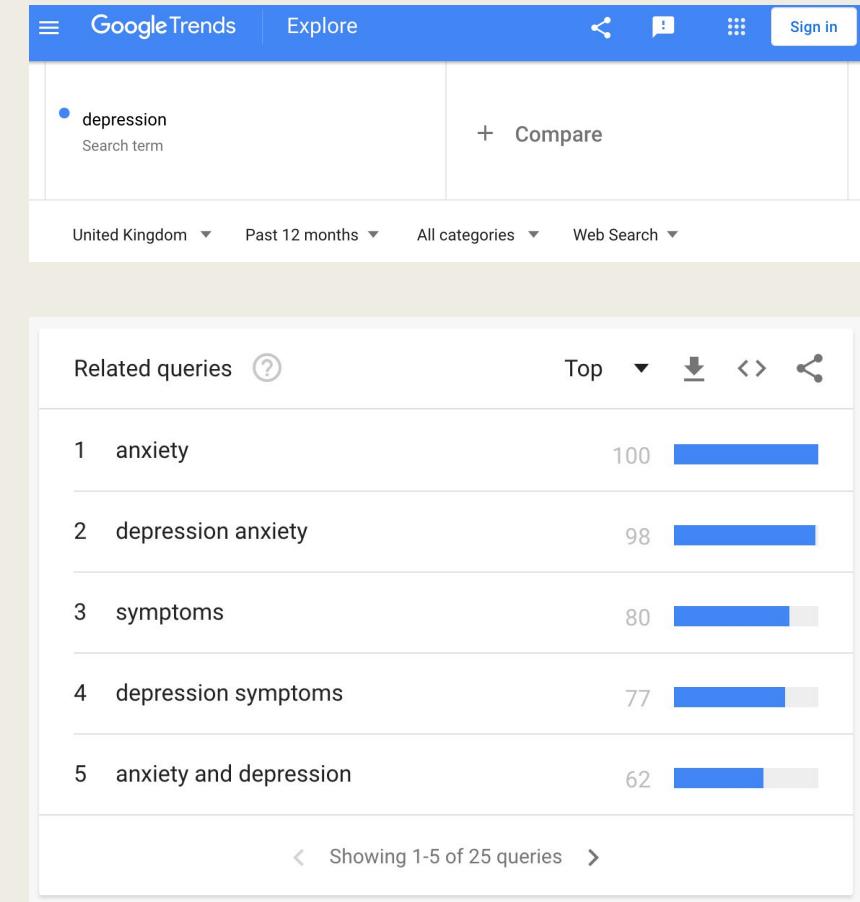


Created by Victoruler
from Noun Project

- The idea: show how much tracking exists on mental health websites.
- Focus on **3 countries** (France, Germany, UK)
- **Goal:** Understand how much tracking takes place on these sites, what data is being share and for what reasons.

Sampling method

- Using **Google trend** with the term “depression” in all 3 languages
 - *Finding the most type search related to this term*
- Pick top 5 queries and run Google search
 - *through a **VPN** to geolocate us in the country of research*
 - *Using the **geolocated** version of Google (e.g. google.fr)*
- Note if the link was a **promoted** or **featured**
- Add **top 5 websites** related to mental health for the country to the mix (source: similarweb.com)



Sampling method

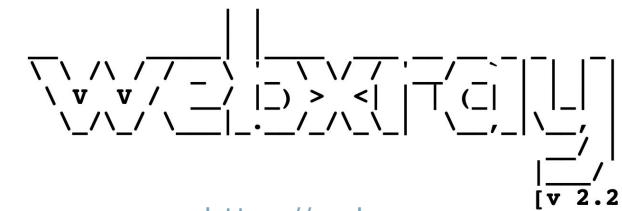
Site	Search Term	Ad	Featured	Top 5 mental health
https://www.psychologytoday.com/				YES
https://www.mind.org.uk				YES
https://www.verywellmind.com				YES
https://www.lifehack.org				YES
https://www.headspace.com				YES
https://www.nhs.uk/conditions/stress-anxiety-depression/mood-self-assessment/	Anxiety depression			
https://adaa.org/understanding-anxiety/depression	Anxiety depression	YES		
https://www.psychom.net/anxiety-depression-difference	Anxiety depression			
https://www.bupa.co.uk/newsroom/ourviews/2017/10/anxiety-depression	Anxiety depression			
https://www.webmd.com/depression/features/anxiety-depression-mix#1	Anxiety depression			
https://www.mayoclinic.org/diseases-conditions/depression/expert-answers/depression-and-anxiety/faq-20057989	Anxiety depression			
https://www.mind.org.uk/information-support/our-stories/how-treatment-helped-me-to-live-with-depression-and-anxiety/#.XQDOd5-ZPUl	Anxiety depression			
https://www.healthline.com/health/mental-health/depression-and-anxiety	Anxiety depression			
https://depression.org.nz/is-it-depression-anxiety/anxiety/	Anxiety depression			
https://www.everydayhealth.com/anxiety/anxiety-and-depression.aspx	Anxiety depression			
https://www.nhs.uk/conditions/clinical-depression/symptoms/	Symptoms depression	YES		
https://www.nhs.uk/conditions/clinical-depression/	Symptoms depression			
https://www.helpguide.org/articles/depression/depression-symptoms-and-warning-signs.htm	Symptoms depression			
https://www.mind.org.uk/information-support/types-of-mental-health-problems/depression/symptoms/#.XQDSjy-ZPUl	Symptoms depression			
https://www.nhsinform.scot/illnesses-and-conditions/mental-health/depression	Symptoms depression			
https://www.webmd.com/depression/guide/depression-symptoms-and-types	Symptoms depression			
https://www.webmd.com/depression/guide/detecting-depression#1	Symptoms depression			
https://www.priorygroup.com/mental-health/depression-treatment/depression-symptoms	Symptoms depression			
https://www.blf.org.uk/support-for-you/dealing-with-your-mental-health/depression/symptoms	Symptoms depression			
https://www.psychom.net/depression-seven-surprising-symptoms	Symptoms depression			
www.benenden.co.uk	Depression test	YES		
www.e-counseling.com/depression/test	Depression test	YES		
https://ssmed.lijmp.com/8/kpwee?kw=depression%20test&device=c&lp=https://www.e-counseling.com/certified-depression-quiz/&gclid=EAiaIqobChM	Depression test		YES	
https://www.nhs.uk/conditions/stress-anxiety-depression/mood-self-assessment/	Depression test			
https://depression.org.nz/is-it-depression-anxiety/self-test/depression-test/	Depression test			
https://www.psychom.net/depression-test/	Depression test			
https://www.familyaware.org/help-someone/take-the-depression-and-bipolar-test/	Depression test			
https://thiswayup.org.au/take-a-test/	Depression test			
https://www.depression-anxiety-stress-test.org/take-the-test.html	Depression test			
https://screening.mentalhealthamerica.net/screening-tools/depression	Depression test			
https://www.psychologytoday.com/gb/tests/health/depression-test	Depression test			
https://www.blackdoginstitute.org.au/clinical-resources/depression/depression-self-test	Depression test			
https://psychcentral.com/quizzes/depression-quiz/	Depression test			
www.betterhelp.com	Depression help	YES		
www.psychiatrycentre.co.uk	Depression help	YES		
www.priorygroup.com/Depression/London	Depression help	YES		
www.benenden.co.uk	Depression help	YES		
https://www.nhs.uk/conditions/clinical-depression/	Depression help			
https://www.nhs.uk/conditions/stress-anxiety-depression/dealing-with-depression/	Depression help			
https://www.mind.org.uk/information-support/types-of-mental-health-problems/depression/self-care/#.XQDXPS-ZPUl	Depression help			
https://www.moodjuice.scot.nhs.uk/Depression.asp	Depression help			
https://www.helpguide.org/articles/depression/coping-with-depression.htm	Depression help			
https://www.helpguide.org/articles/depression/helping-someone-with-depression.htm	Depression help			
https://www.priorygroup.com/mental-health/depression-treatment	Depression help			
https://www.nhsinform.scot/illnesses-and-conditions/mental-health/depression	Depression help			
https://www.nhsinform.scot/self-help-guides/mental-health-self-help-guides/depression-self-help-guide	Depression help			
https://youngminds.org.uk/find-help/conditions/depression/	Depression help			
www.samaritans.org	Depression help	YES		
www.lifefects.teva	Depression help	YES		
www.geraldwoolfson.co.uk	Depression help	YES		
www.thewellnessshop.co.uk	Depression help	YES		

Total: 136
websites

(because everybody loves a tiny screenshot of a large spreadsheet)

Methodology - scraping

- Open source software
- Runs a headless version of Chrome or Chromium
- Scrap websites and stores all HTTP interaction + cookies dropped + JS loaded
- Provide an analysis tool to observe trends
- Used to scanned **136 websites**



<https://webxray.org>

Developed by Tim
Libert

Methodology - scraping

Building List of Pages		
1	http://www.psychomedia.qc.ca	Adding.
2	https://www.psychologue.net	Adding.
3	https://www.psychologytoday.com	Adding.
4	https://www.mes15minutes.com	Adding.
5	http://www.psycrom.org	Adding.
6	https://www.passeportsante.net/fr/Maux/Problemes/F	Adding.
7	http://www.info-depression.fr/	Adding.
8	http://www.doctissimo.fr/html/dossiers/depression/	Adding.
9	http://www.doctissimo.fr/html/sante/mag_2000/mag09	Adding.
10	https://www.ameli.fr/assure/sante/themes/depressio	Adding.
11	https://www.frneurodon.org/la-depression/	Adding.
12	https://www.santemagazine.fr/sante/maladies/maladi	Adding.
13	https://www.etat-depressif.com/depression/symptome	Adding.
14	https://www.pourquoi.docteur.fr/MaladiesPoids/56-	Adding.
15	https://www.quebec.ca/sante/problemes-de-sante/san	Adding.
16	http://www.doctissimo.fr/html/dossiers/depression/	Adding.
17	http://ladepressionfaitsmal.ca/fr/about/symptoms.as	Adding.
18	http://www.info-depression.fr/spip.php?rubrique13	Adding.
19	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC30388	Adding.
20	https://www.sciencesetavenir.fr/sante/cerveau-et-p	Adding.
21	https://www.la-depression.org/comprendre-la-depres	Adding.
22	https://www.passeportsante.net/fr/Maux/Problemes/F	Adding.
23	http://www.doctissimo.fr/html/dossiers/depression/	Adding.
24	https://eurekasante.vidal.fr/maladies/psychisme/de	Adding.
25	http://sante.lefigaro.fr/sante/maladie/depression/	Adding.
26	https://www.etat-depressif.com/depression-meilleur	Adding.
27	https://www.sciencesetavenir.fr/sante/depression-1	Adding.
28	http://www.depression.ch/fr/traiter-et-faire-face-	Adding.
29	https://www.mes15minutes.com/depression/traitemen	Adding.
30	https://www.santemagazine.fr/medecines-alternative	Adding.
31	https://www.pourquoi.docteur.fr/Articles/Question-d	Adding.
32	http://www.doctissimo.fr/psychologie/tests-psycho/	Adding.
33	https://www.mes15minutes.com/online-test-en-ligne-	Adding.
34	https://www.passeportsante.net/fr/VivreEnSante/Tes	Adding.
35	http://www.psychomedia.qc.ca/depression/test-de-de	Adding.
36	http://sante.lefigaro.fr/article/test-souffrez-vou	Adding.
37	https://eurekasante.vidal.fr/maladies/psychisme/de	Adding.
38	https://www.notretemps.com/sante/actualites-sante/	Adding.
39	http://www.centredeledepression.org/ou-en-etes-vou	Adding.
40	http://psychologie-ge.ch/Test_Depression_Goldberg.	Adding.
41	http://www.apsytude.com/fr/est-ce-que-je-fais-une-	Adding.

41 addresses will now be webXray'd
Browser(s) are ['chrome']
Browser wait time is 20 seconds
...you can go take a walk. ;-)

http://www.doctissimo.fr/psychologie/tests-psycho/ Success with chrome
https://www.psychologytoday.com/ Success with chrome
https://www.pourquiodocteur.fr/MaladiesPkdioic/56- Success with chrome
https://eurekasante.vidal.fr/maladies/psychisme/de Success with chrome
https://www.mes15minutes.com/depression/traitement Success with chrome
http://www.doctissimo.fr/html/sante/mag_2000/mag09 Success with chrome
https://www.santemagazine.fr/medecines-alternative Success with chrome
https://eurekasante.vidal.fr/maladies/psychisme/de Success with chrome
http://www.centredeledapression.org/ou-en-etes-vous Success with chrome
http://www.psychomedia.qc.ca/depression/test-de-de Success with chrome
https://www.notretemps.com/sante/actualites-sante/ Success with chrome
http://sante.lefigaro.fr/article/test-souffrez-vous Success with chrome
http://www.psychomedia.qc.ca Success with chrome
https://www.mes15minutes.com Success with chrome
https://www.etat-depressif.com/depression-meilleur Success with chrome
http://www.opsytude.com/fr/est-ce-que-je-fais-une- Success with chrome
http://www.psyc.com.org Success with chrome
https://www.passeportsante.net/fr/Maux/Problemes/F Success with chrome
https://www.santemagazine.fr/sante/maladi Success with chrome
http://psychologie-ge.ch/Test_Depression_Goldberg Success with chrome
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC30388 Success with chrome
http://ladepressionfaitmal.ca/fr/about/symptoms.as Success with chrome
https://www.passeportsante.net/fr/Maux/Problemes/F Success with chrome
https://www.pourquiodocteur.fr/Articles/Question-d Success with chrome
https://www.etat-depressif.com/depression/symptome Success with chrome
https://www.quebec.ca/sante/problems-de-sante/san Success with chrome
https://www.sciencesetavvenir.fr/sante/cerveau-et-p Success with chrome
https://www.sciencesetavvenir.fr/sante/depression-1 Success with chrome
http://www.depression.ch/fr/traiter-et-faire-face- Success with chrome
https://www.froneurodon.org/la-depression/ Success with chrome
https://www.omeili.fr/assure/sante/themes/dépression Success with chrome
http://www.doctissimo.fr/html/dossiers/depression/ Success with chrome
http://www.doctissimo.fr/html/dossiers/depression/ Success with chrome
http://sante.lefigaro.fr/sante/maladie/depression/ Success with chrome
http://www.info-depression.fr/spip.php?rubrique13 Success with chrome
https://www.psychologue.net Success with chrome
https://www.passeportsante.net/fr/VivreEnSante/Tes Success with chrome
https://www.la-depression.org/comprendre-la-depres Success with chrome
http://www.info-depression.fr/ Success with chrome
https://www.mes15minutes.com/online-test-en-ligne- Success with chrome

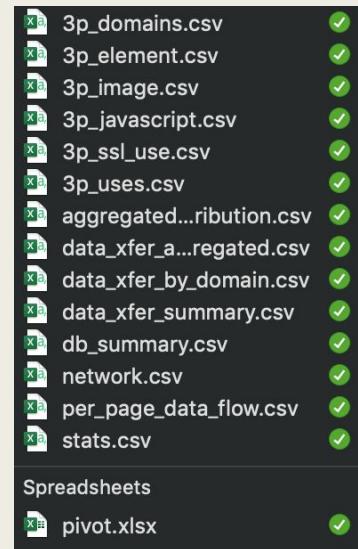
Methodology - scraping

```

Would you like to:
  [C] Collect Data
  [A] Analyze Data
  [Q] Quit
Selection: a
=====
Analyzing Data
=====

The following webXray databases are available for analysis:
-----
[0] nov_rescan_depression_de
[1] nov_rescan_depression_fr
[2] nov_rescan_depression_uk
[3] opiates

Please select database by number: 0
Using database: nov_rescan_depression_de
=====
Checking Output Directories
-----
  Making subdirectory for reports at ./reports/nov_rescan_depression_de
  Storing output in ./reports/nov_rescan_depression_de
=====
Patching Domain Owner Data
-----
  Flushing extant domain owner data...done!
  Patching with new domain owner data...done!
=====
General Summary
-----
  Total Pages OK:          44
  Total Pages FAIL:        0
  Total Pages Attempted:   44
  % Pages OK:              100.00%
  ...
  Total Errors:            1
  ...
  Total 3P Cookies:       7
  ...
  Total Elements Requested: 3033
  Total Elements Received: 3030
  Total % Elements Received: 99.90%
  ...
  3P Elements Requested:   1528
  3P Elements Received:    1525
  3P % Elements Received: 99.80%
  ...
  Output written to ./reports/nov_rescan_depression_de/db_summary.csv
=====
Processing High-Level Stats
=====
  Output written to ./reports/nov_rescan_depression_de/stats.csv
=====
```



Percent Total	Domain	Owner	Owner Count	Owner Lineage
68.18	google-analytics.com	Google Analytics	US	Google Analytics > Google > Alphabet
59.09	doubleclick.net	DoubleClick	US	DoubleClick > Google > Alphabet
47.73	googleapis.com	Google APIs	US	Google APIs > Google > Alphabet
45.45	google.com	Google	US	Google > Alphabet
38.64	google.co.uk	Google	US	Google > Alphabet
36.36	googletagmanager.com	Google Tag Manager	US	Google Tag Manager > Google > Alphabet
36.36	gstatic.com	Google	US	Google > Alphabet
22.73	facebook.com	Facebook	US	Facebook
18.18	cloudflare.com	Cloudflare	US	Cloudflare
18.18	facebook.net	Facebook	US	Facebook
15.91	googletagservices.com	Google Tag Manager	US	Google Tag Manager > Google > Alphabet
13.64	amazon-adsystem.com	Amazon Marketing Services	US	Amazon Marketing Services > Amazon
13.64	cloudfront.net	Amazon Web Services	US	Amazon Web Services > Amazon
13.64	googlesyndication.com	AdSense	US	AdSense > Google > Alphabet
11.36	adition.com	Adition Technologies	DE	Adition Technologies
11.36	googleadservices.com	AdSense	US	AdSense > Google > Alphabet
11.36	yieldlab.net	Yieldlab	DE	Yieldlab
9.09	adrtx.net	Adality	DE	Adality > Bertelsmann
9.09	criteo.com	Criteo	FR	Criteo
9.09	criteo.net	Criteo	FR	Criteo
9.09	df-srv.de	Contact Impact	DE	Contact Impact > Media Impact > Axel Springer
9.09	emetricq.de	emetricq	DE	emetricq > Deutsche Telekom
9.09	hconcode.ch	Health On the Net Foundation	CH	Health On the Net Foundation
9.09	ioam.de	INF Online	DE	INF Online
9.09	theadex.com	The ADEX	DE	The ADEX
9.09	xplosion.de	xplosion Interactive	DE	xplosion Interactive > emetricq > Deutsche Telekom
6.82	adnxs.com	AppNexus	US	AppNexus
6.82	adobedtm.com	Adobe Marketing Cloud	US	Adobe Marketing Cloud > Adobe Systems
6.82	bing.com	Bing	US	Bing > Microsoft
6.82	demdex.net	Adobe Audience Manager	US	Adobe Audience Manager > Adobe Systems
6.82	everesttech.net	Adobe Systems	US	Adobe Systems
6.82	gscontxt.net	Unknown		
6.82	moatads.com	Moat	US	Moat > Oracle
6.82	monks-aerzte-im-netz.de	Unknown		
6.82	omtrdc.net	Adobe Marketing Cloud	US	Adobe Marketing Cloud > Adobe Systems
6.82	scorecardresearch.com	ScorecardResearch	US	ScorecardResearch > comScore
4.55	addthis.com	AddThis	US	AddThis > Oracle
4.55	addthisedge.com	AddThis	US	AddThis > Oracle
4.55	adsvr.org	The Trade Desk	US	The Trade Desk
4.55	amazonaws.com	Amazon Web Services	US	Amazon Web Services > Amazon
4.55	consensu.org	Unknown		
4.55	freengeip.io	Unknown		
4.55	hotjar.com	Hotjar	MT	Hotjar

Lots of queries. Ok. But what about content?

Selecting a subset of websites

- Depression tests, the ideal target
 - *Potential personal data shared*
 - ***Super*** personal
 - *People like taking tests*
- Limitation:
 - *Top 3 result per country*

The screenshot shows the NHS website interface for mood self-assessment. At the top, there's a blue header with the NHS logo, a search bar, and navigation links for Health A-Z, Live Well, Care and support, Health news, and Services near you. Below the header, a breadcrumb trail shows Home > Health A to Z > Mental health and wellbeing. The main content area has a light gray background and features a large title 'Mood self-assessment'. To the right, a sidebar titled 'Mental health and wellbeing' lists categories like Help with stress, anxiety or depression, Anxiety, fear and panic, and Low mood, sadness and depression. Another sidebar titled 'I'm not sure how I feel' lists Your mental wellbeing, 5 steps to mental wellbeing, Mindfulness, and Mental wellbeing audio guides. A third sidebar titled 'Improve low mood' lists How to be happier and Raising low self-esteem. The central content area contains text about the purpose of the assessment, instructions for users 16+, and a list of benefits. It also includes a note for users under 16 to visit the Young Minds website and a prominent green 'Start' button.

Methodology – request inspection

- Open source tool
- Developed to allow developers to inspect their request
- Operates a MITM type attack so we can intercept POST requests (needs to add CA to the browser)
- Used with Firefox (but now includes Chrome)

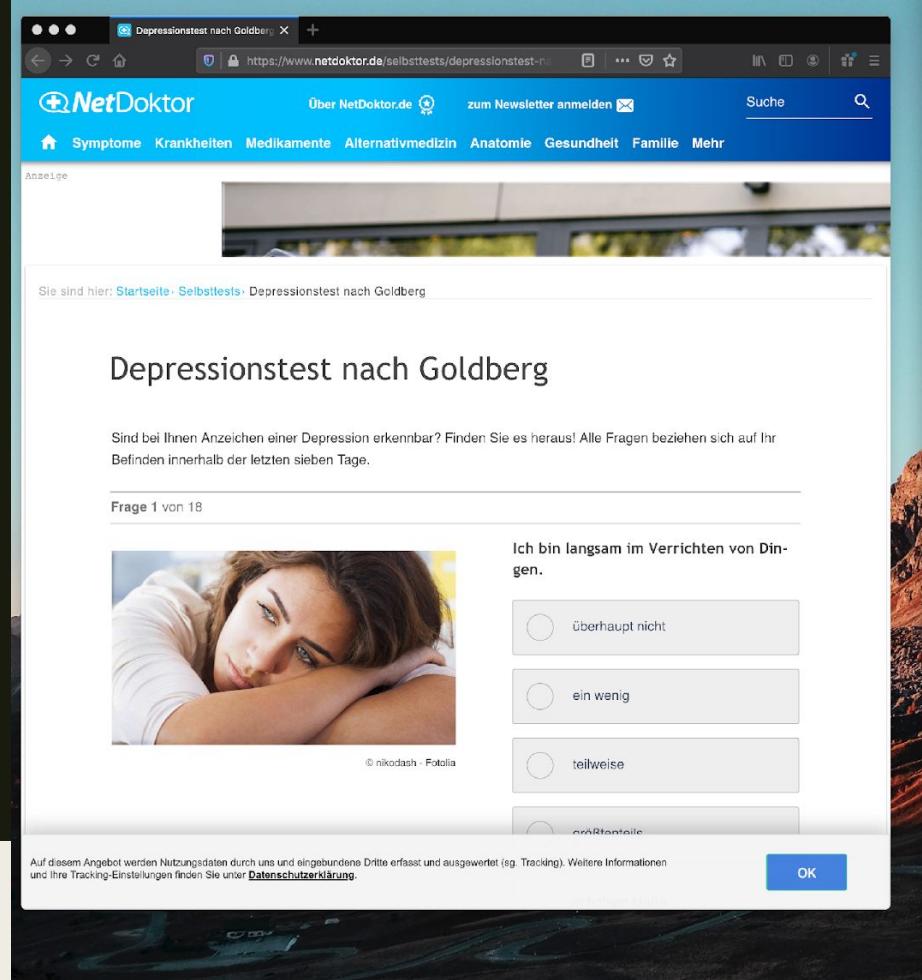
**HTTP
TOOLKIT**

<https://http toolkit.tech/>

Developed by Tim Perry

Methodology – request inspection

- Isolate **POST** requests and inspect the data sent
- Use the HTTP toolkit search to search for **relevant keywords** in the GET requests (within the URL). Keyworks include:
- Use <https://www.urldecoder.org/> to make the URLs more readable
- **Analyse the cookies** stored in the Firefox browser used by the HTTP Toolkit OR open website in a clean instance of Chrome and inspect cookies through the browser's **developer tools**



Sind bei Ihnen Anzeichen einer Depression erkennbar? Finden Sie es heraus! Alle Fragen beziehen sich auf Ihr Befinden innerhalb der letzten sieben Tage.

Frage 1 von 18

Ich bin langsam im Verrichten von Dingen.

Überhaupt nicht

ein wenig

teilweise

völlig

Auf diesem Angebot werden Nutzungsdaten durch uns und eingebundene Dritte erfasst und ausgewertet (sg. Tracking). Weitere Informationen und Ihre Tracking-Einstellungen finden Sie unter [Datenschutzerklärung](#).

OK

HTTP Toolkit

Method	Status	Source	Host	Path and query
GET	302	stats.g.doubleclick...		/r/collect?v=1&aipl=1&t=dc&r=3&tid=U...
GET	302	www.google.com		/ads/ga-audiences?v=1&aipl=1&t=sr&r=...
GET	200	www.google.co.uk		/ads/ga-audiences?v=1&aipl=1&t=sr&r=...
GET	200	cdn.netdoktor.de		/2e/582af04caf240-depressionstest-gol...
GET	404	cdn.netdoktor.de		/favicon.ico
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	302	www.google-analyt...		/r/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	302	stats.g.doubleclick...		/r/collect?v=1&aipl=1&t=dc&r=3&tid=U...
GET	302	www.google.com		/ads/ga-audiences?v=1&aipl=1&t=sr&r=...
GET	200	www.google.co.uk		/ads/ga-audiences?v=1&aipl=1&t=sr&r=...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	302	www.google-analyt...		/r/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	302	stats.g.doubleclick...		/r/collect?v=1&aipl=1&t=dc&r=3&tid=U...
GET	302	www.google.com		/ads/ga-audiences?v=1&aipl=1&t=sr&r=...
GET	200	www.google.co.uk		/ads/ga-audiences?v=1&aipl=1&t=sr&r=...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	302	stats.g.doubleclick...		/r/collect?v=1&aipl=1&t=dc&r=3&tid=U...
GET	302	www.google.com		/ads/ga-audiences?v=1&aipl=1&t=sr&r=...
GET	200	www.google.co.uk		/ads/ga-audiences?v=1&aipl=1&t=sr&r=...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	200	www.google-analyt...		/collect?v=1&_v=j79&aipl=1&a=1133272...
GET	302	stats.g.doubleclick...		/r/collect?v=1&aipl=1&t=dc&r=3&tid=U...

HTTP Toolkit

METHOD: GET +
URL
+ https://stats.g.doubleclick.net/r/collect?v=1&aipl=1&t=dc&r=3&tid=UA-2937591-1&cid=896258487.15744324568jid=11449524586_gid=191518616.15744324568gid=9893051206_v=j79bz=1072023856
HEADERS
+ accept: image/webp,*/*
+ accept-encoding: gzip, deflate, br
+ accept-language: en-GB,en;q=0.5
+ connection: keep-alive
+ host: stats.g.doubleclick.net
+ referer: https://www.netdoktor.de/selbsttests/depressions-test-nach-goldberg/
+ user-agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.14; rv:70.0) Gecko/20100101 Firefox/70.0

302 RESPONSE ^

STATUS: 302 Found +
HEADERS
+ access-control-allow-origin:
+ alt-svc:
+ cache-control:
+ content-length:
+ content-type:
+ date:
+ expires:
+ last-modified:
+ location:
+ pragma:
+ server:
+ strict-transport-security:
*
quic=":443"; ma=2592000; v="46,43",h3-Q050=":443"; ma=2592000,h3-Q049=":443"; ma=2592000,h3-Q048=":443"; ma=2592000,h3-Q043=":443"; ma=2592000
no-cache, no-store, must-revalidate
365
text/html; charset=UTF-8
Fri, 22 Nov 2019 14:27:13 GMT
Fri, 01 Jan 1990 00:00:00 GMT
Sun, 17 May 1998 03:00:00 GMT
https://www.google.com/acs/ga-audiences?v=1&aipl=1&t=sr&r=4&tid=UA-2937591-1&cid=896258487.15744324568jid=11449524586_v=j79bz=1072023856
no-cache
Gofle2
max-age=10886400; includeSubDomains;
preload

365 bytes Html RESPONSE BODY ^

1 [HTML]>
2
3 [HEAD]>
4 | <meta http-equiv="content-type" content="text/html";

WHAT WE FOUND

The non-surprises and the real pain

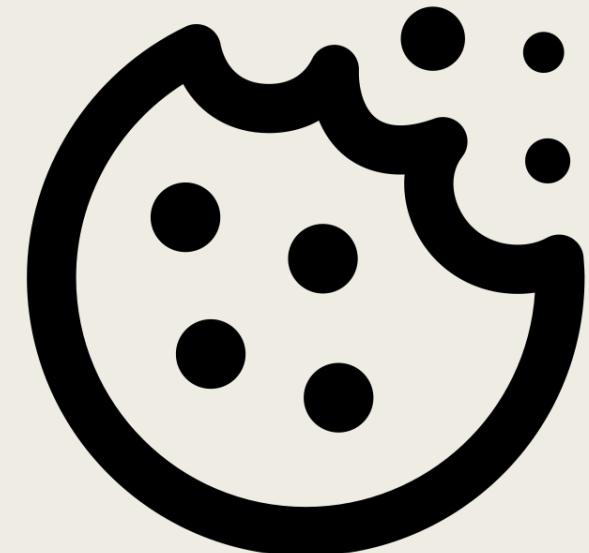


Popular websites on mental health share user data with third parties

Some depression tests share answers and results

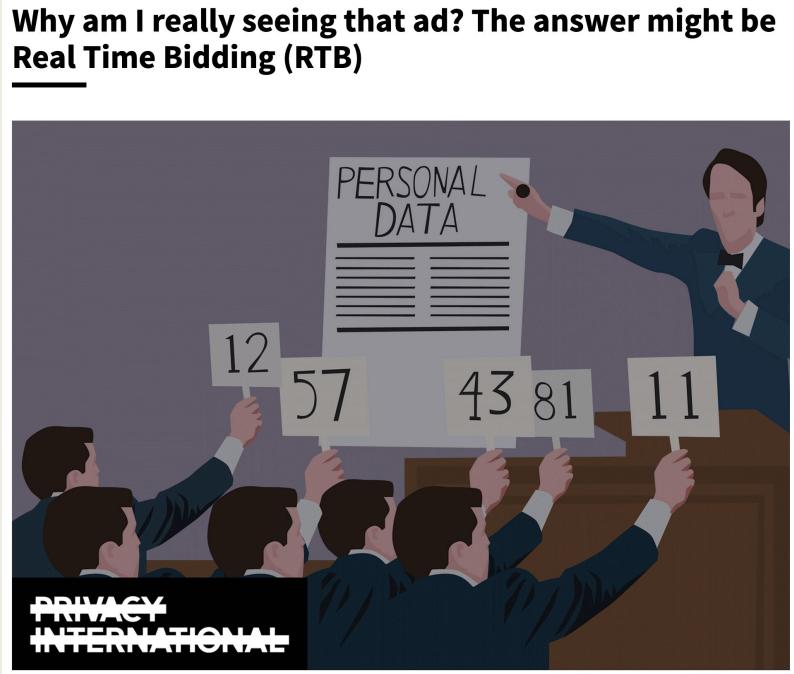
Trackers, cookies and friends

- **97.78%** of all web pages we analysed contained a third-party element
- **Google, Facebook and Amazon** trackers present on huge portion of these pages
- High number of cookies (from 44.49 in average in France to 7.82 for Germany and 12.24 for the UK)



Created by iconoci
from Noun Project

It's all about the money money money



- **76.04%** of web pages contained third-party trackers for **marketing purposes**
- Numerous mental health websites include trackers from known **data brokers**, and AdTech companies, some of which engage in **programmatic advertising**
- **Unique IDs everywhere**

Depression tests : the fun begins



Passeportsante.net :

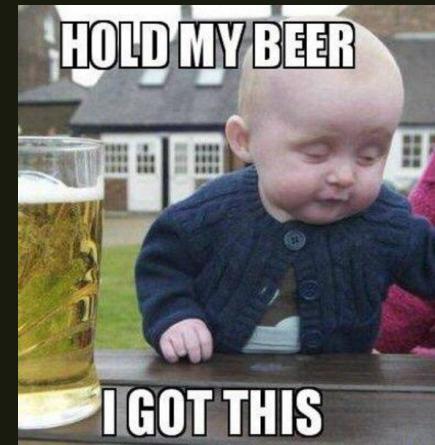
https://www.passeportsante.net/fr/VivreEnSante/Test/faites-vous-une-depression-48?**Q=12&R1=0&R2=0&R3=1&R4=0&R5=1&R6=1&R7=0&R8=1&R9=0&R10=1&R11=1&Resultat=1

Third-parties :

	79
AdSense	2
ADYOULIKE	1
Amazon Marketing Services	1
Amazon Web Services	1
AppNexus	2
Criteo	2
DoubleClick	3
Facebook	4
Google	7
Google Analytics	1
Google APIs	1
Google Tag Manager	2
Improve Digital	1
Integral Ad Science	3
Krux Digital	3
Mediametrie	1
Neustar Marketing	2
nugg.ad	1
Outbrain	5
Pinterest	3
Rubicon Project	5
ScorecardResearch	1
Smart AdServer	2
Teads	3
Twitter	2
Unknown	20



depression.org.nz :



🛡️ | 🔒 [https://depression.org.nz/is-it-depression-anxiety/self-test/depression-test/result?q\[1\]=2&q\[2\]=3&q\[3\]=3&q\[4\]=2&q\[5\]=1&q\[6\]=3&q\[7\]=3&q\[8\]=3&q\[9\]=3&priority=16&score=23](https://depression.org.nz/is-it-depression-anxiety/self-test/depression-test/result?q[1]=2&q[2]=3&q[3]=3&q[4]=2&q[5]=1&q[6]=3&q[7]=3&q[8]=3&q[9]=3&priority=16&score=23)

Third-parties :

https://depression.org.nz/is-it-depression-anxiety/self-test/depression-test/	19
4378968.fl.doubleclick.net	1
connect.facebook.net	1
d2bnxibecyz4h5.cloudfront.net	1
data.hpa.org.nz	1
freeproxy.hpa.org.nz	1
in.hotjar.com	1
s.ytimg.com	1
script.crazyegg.com	1
script.hotjar.com	1
static.hotjar.com	1
stats.g.doubleclick.net	1
surveygizmobeacon.s3.amazonaws.com	1
vars.hotjar.com	1
www.facebook.com	1
www.google-analytics.com	1
www.google.co.uk	1
www.google.com	1
www.googletagmanager.com	1
www.youtube.com	1



Doctissimo.fr : How about not caring at all?

URL
<http://player.qualifio.com/20/FF2B7A17-9DF9-F54A-DE82-6F287735F9B4/s12/v1.cfm?page=6&uk=QNFS2EYX94T&cfid=b1c7461b-43a6-410c-9032-1ffb2c3eaaa&cftoken=0>

HEADERS

```
+ accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
+ accept-encoding: gzip, deflate
+ accept-language: en-GB,en;q=0.5
+ connection: keep-alive
+ content-length: 96
+ content-type: application/x-www-form-urlencoded
+ cookie: cfid=1c1d243d-acd9-4582-9b93-989f00d8bf9e; cftoken=0; CFID=1c1d243d-acd9-4582-9b93-989f00d8bf9e; CFTOKEN=0
+ host: player.qualifio.com
+ referer: http://player.qualifio.com/20/FF2B7A17-9DF9-F54A-DE82-6F287735F9B4/s12/v1.cfm?page=5&uk=QNFS2EYX94T&cfid=b1c7461b-43a6-410c-9032-1ffb2c3eaaa&cftoken=0
+ upgrade-insecure-requests: 1
+ user-agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.14; rv:68.0) Gecko/20100101 Firefox/68.0
```

C'est le blues, vous êtes triste et pas très en forme. Essayez de sortir de vous même, faites des rencontres, ouvrez vous sur le monde qui vous entoure, cela vous aidera à surmonter cette phase de tristesse. Soyez cependant vigilant(e) si ce "passage à vide" perdure ou s'aggrave et, dans tous les cas, si vous ne supportez pas votre état, consultez un médecin qui saura vous écouter et vous conseiller.

Vous avez moins d'intérêt pour les choses que vous appréciez d'habitude.

Faux ➔ Vrai

Vous vous sentez triste, sombre.

Faux ➔ Vrai

Votre activité est ralenti, vous avez du mal à faire les choses que vous avez l'habitude de faire.

Vrai

Vous êtes agité(e) et incapable de rester tranquillement assis(e).

Vrai

Vous vous sentez sans valeur ou vous avez un sentiment permanent de culpabilité.

Faux ➔ Vrai

Votre appétit a changé ; vous avez perdu ou pris du poids.

Faux ➔ Vrai

Vous avez des difficultés à vous concentrer, à réfléchir.

Faux ➔ Vrai

Vos pensées et vos préoccupations sont toutes tournées vers le passé.

Vrai

Vous avez du mal à dormir ou vous dormez trop.

Vrai

Vous avez moins d'énergie et vous avez envie de dormir tout le temps.

Faux ➔ vrai

Vous vous sentez moins heureux(se) que la plupart des gens.

Faux ➔ Vrai

En ce moment, votre vie vous semble vide.

Faux ➔ Vrai

Votre avenir vous semble sans espoir.

Faux ➔ Vrai

Rejouer

So you said you didn't lose interest in the things you usually enjoyed.

Sorry mate, wrong answer.
You did.

Take the test again, you can do better!

The not-so-bad : NHS

URL

https://nhsdigital.d3.sc.omtrdc.net/b/ss/nhsuk-prod/1/JS-2.14.0-L9TT/s58700794212630?AQB=1&ndh=1&pf=1&t=12%2F6%2F2019%2011%3A21%3A15%205%20-60&mid=16006379896077998761286175413892535123&aamlh=6&ce=UTF-8&ns=nhsdigital&cdp=2&fpCookieDomainPeriods=3&pageName=nhs%3Aweb%3Aconditions%3Astress-anxiety-depression%3Amood-self-assessment&g=https%3A%2F%2Fwww.nhs.uk%2Fconditions%2Fstress-anxiety-depression%2Fmood-self-assessment%2F&cc=GBP&events=event15&v16=Mood_self-assessment&v17=Self%20assessments&v46=score%20points%3A%2014%7Cscore%20GAD%3A%2013&pe=lnk_o&prev2=Mood_self-assessment&c.&a.&activitymap.&page=nhs%3Aweb%3Aconditions%3Astress-anxiety-depression%3Amood-self-assessment&link=Next®ion=antbits-SA-nav_q&pageIDType=1&.activitymap.&a.c&pid=nhs%3Aweb%3Aconditions%3Astress-anxiety-depression%3Amood-self-assessment&pidt=1&oid=javascript%3A%3B&ot=A&s=2560x1440&c=24&j=1.6&v=N&k=Y&bw=1401&bh=1143&mcorgid=148B51E15AE825F50A495DCC%40AdobeOrg&lrt=44&AQE=1

Tracking Server for third-party cookies

Since the migration of the San Jose and Dallas data centers, sc.omtrdc.net is a valid trackingServer value for all implementations. Each organization has a pre-defined subdomain so cookie values are kept unique, which is typically your login company name with spaces removed.

For example, a valid third-party tracking server would be:

```
1 | s.trackingServer="example.sc.omtrdc.net";
```

If your organization uses DTM or Launch, the trackingServer variable (including subdomain) is automatically populated for you. If you are using a legacy Analytics implementation and are unsure about what subdomain to use, have a Support delegate contact Customer Care.

Adobe recommends using Launch for existing and new implementations.

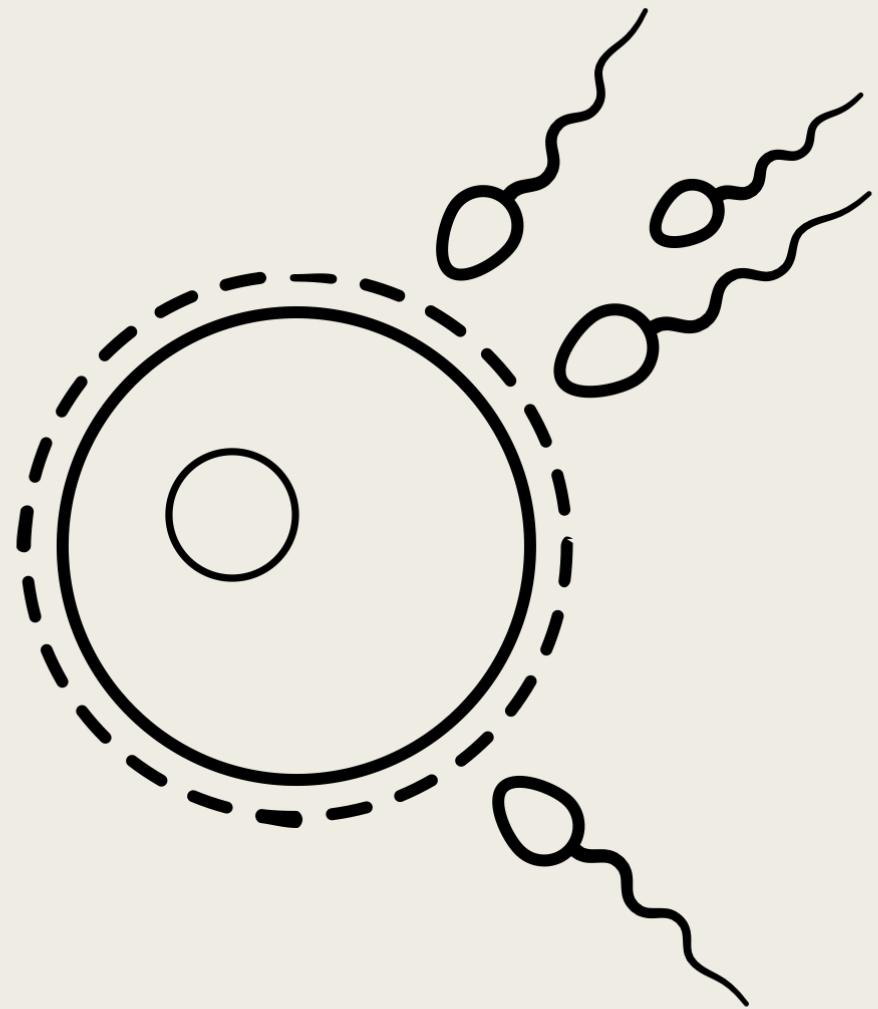
Adobe was mentioned in their privacy policy (Analytics)

They removed it!

WHY SHOULD I CARE?

(it's actually not just about you)

1) People can be targeted when they're most vulnerable



Knowing who is likely depressed, when exactly, for how long, and where exactly they are can be exploited.

The DEEPLY uncanny valley of targeted ads

Sponsored

Create Ad

Do You Hate Your Job?

Imagine you were fired. Felt good, right? If so, you'll want to read this. Click now.

Brain Study on Anxiety

Feeling anxious or down most of the time? If so, we invite you to participate in our study

Like · 117 people like Brain study on anxiety and depression.

INTERESTING FOR YOU by mgid

Brilliant Trick Melts Belly Fat Overnight (Do This Tonight)

Do you have a vocation?

Discover the exciting life you could be leading as a Catholic priest. Visit our MSC blog.

275 people like MSC Vocations.

PrideRoommates.com
prideroommates.com

Pride Roommates

Meet men, save money and choose from thousands of gay flatmates on Pride Roommates. Create your free profile today!

Date a Soldier

uniformdating.com

Uniform Dating® the site to meet and date professional men in uniform

Adoption

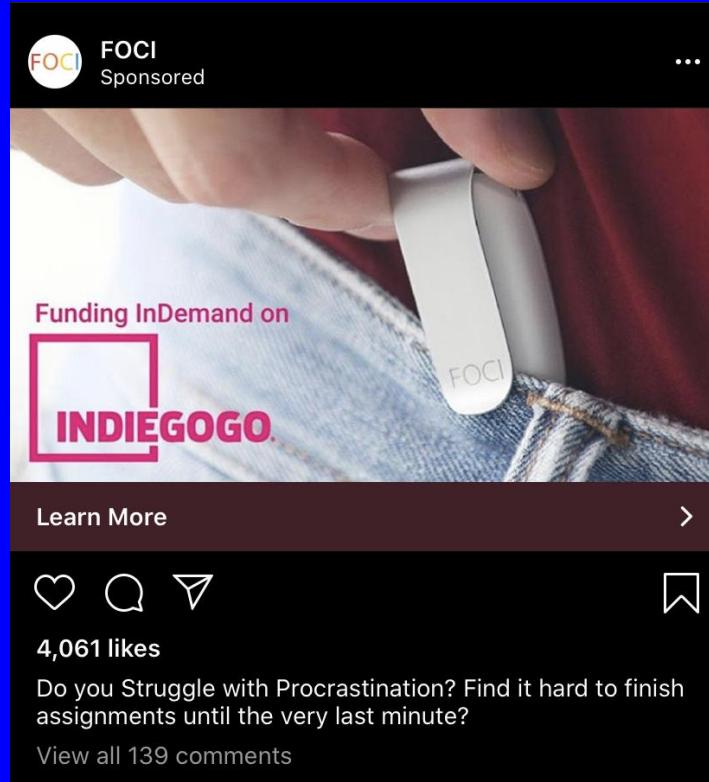
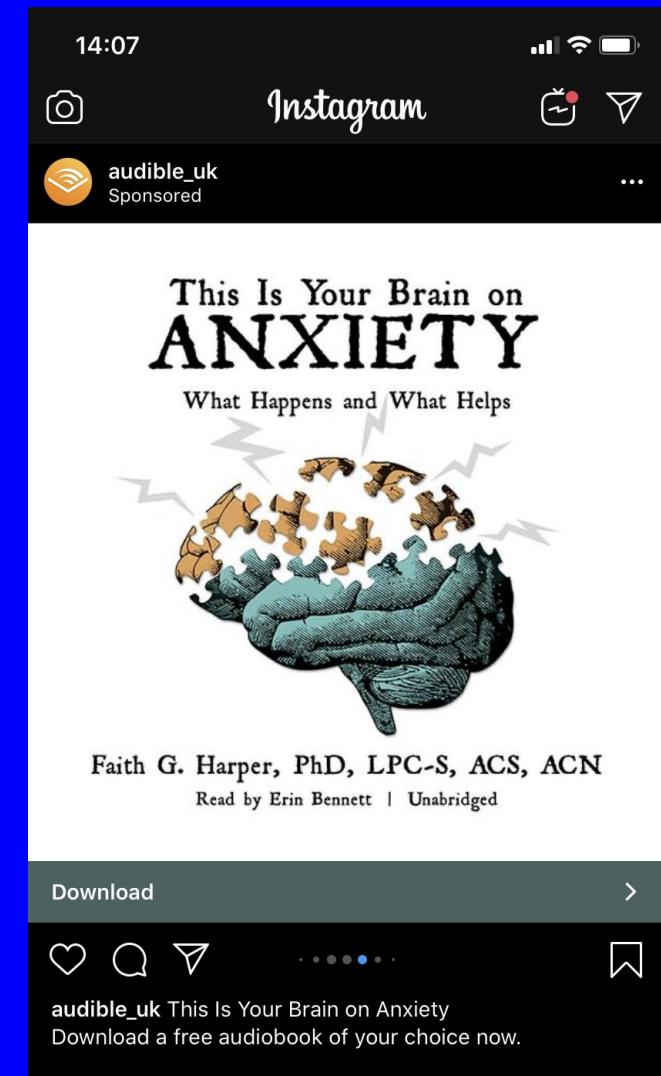
Ever considered adopting a child? More people than you might think are eligible. More info

Like · 9,977 people like Department for Education.

Embarassed by your toes?

cosmeticfootsurgery.co.uk

Toe shortening surgery, by leading podiatric surgeon Jason Hargrave. Click here for info.

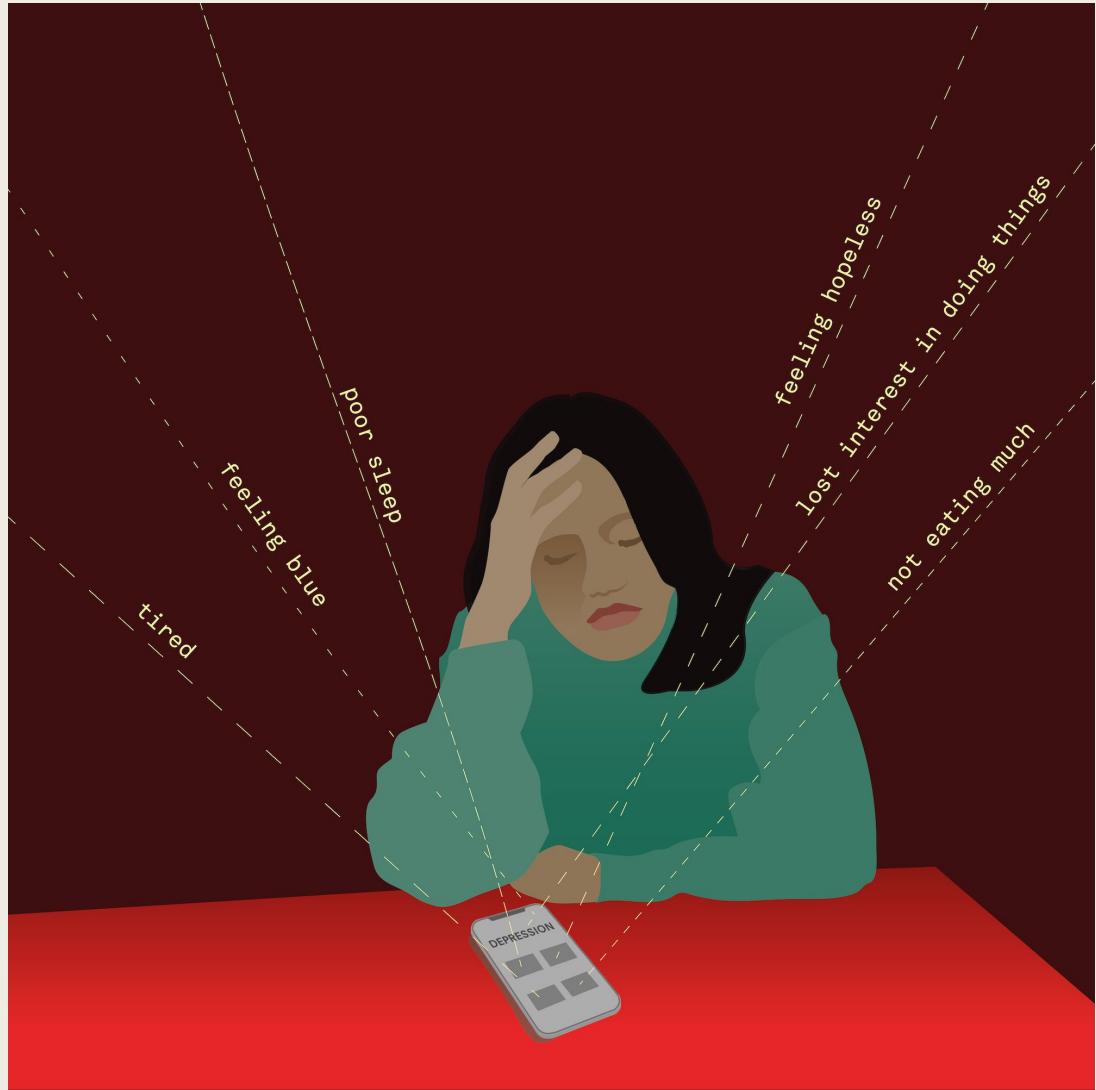


Some actual ads from my actual Instagram after we did this research

2) An underregulated data ecosystem can be tapped into

It merely takes five clicks on ExactData.com to download data on 1,845,071 Muslims in the United States, according to [an investigation](#) by Amnesty International. For 7.5 cents per person (or \$138,380 in total) the data broker offers a file containing individual names, addresses and ZIP codes.

3) Undermines trust in technology that could be incredibly useful



4) Misuses disproportionately affect those who are already marginalised



THE FUTURE

(and how to fix it)



Internet of Shit @internetofshit · Jan 5

thank god someone finally put the internet in a hairbrush

cnbc.com/2017/01/04/lor...



◀ 40

▲▼ 630

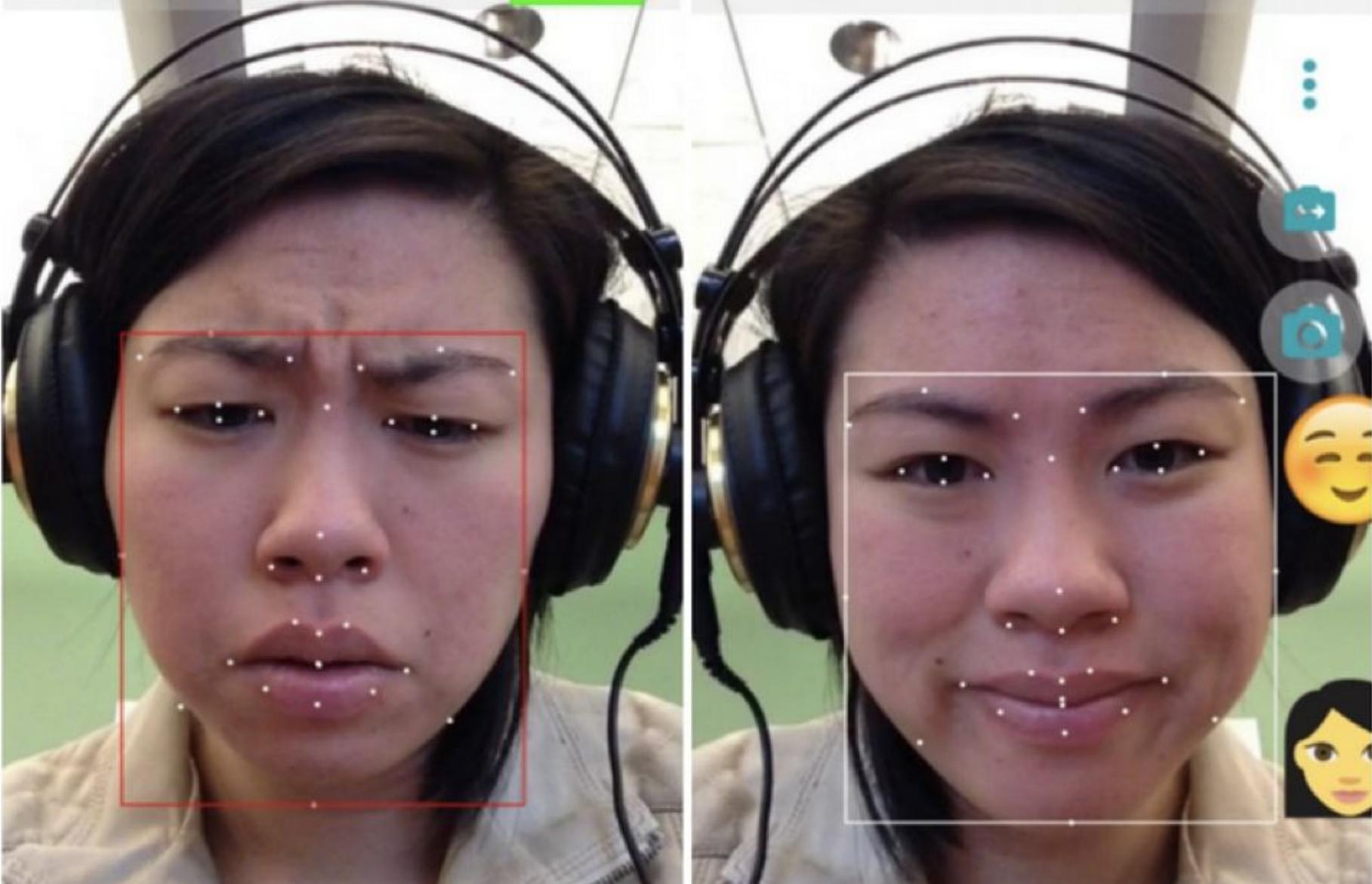
♥ 786

BROW RAISE
0%
BROW FURROW
100%
FROWN
0%

affectiva

DISGUST
0%
VALENCE
0%
ENGAGEMENT
100%

CONTEMPT
0%
DISGUST
0%
JOY
83%
SADNESS
0%



EU: create legal precedents / demand & shape guidance

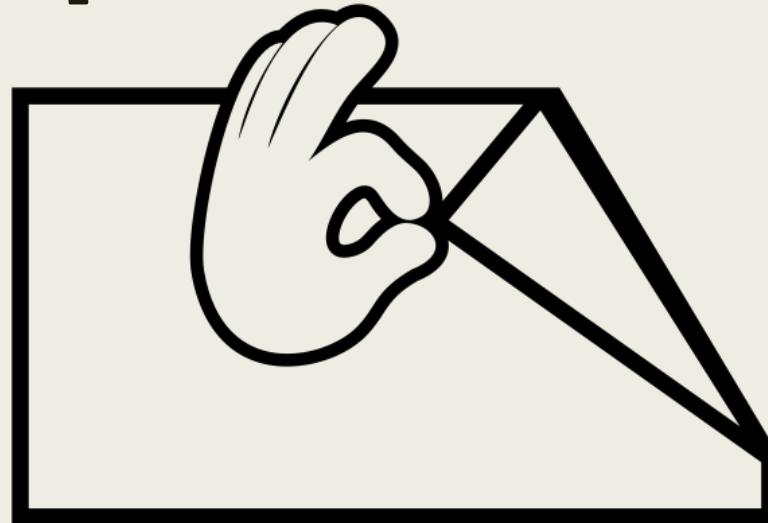


<https://privacyinternational.org/press-release/2859/breaking-following-pi-investigation-exploitation-data-quantcast-under>

Rethink third-party tracking

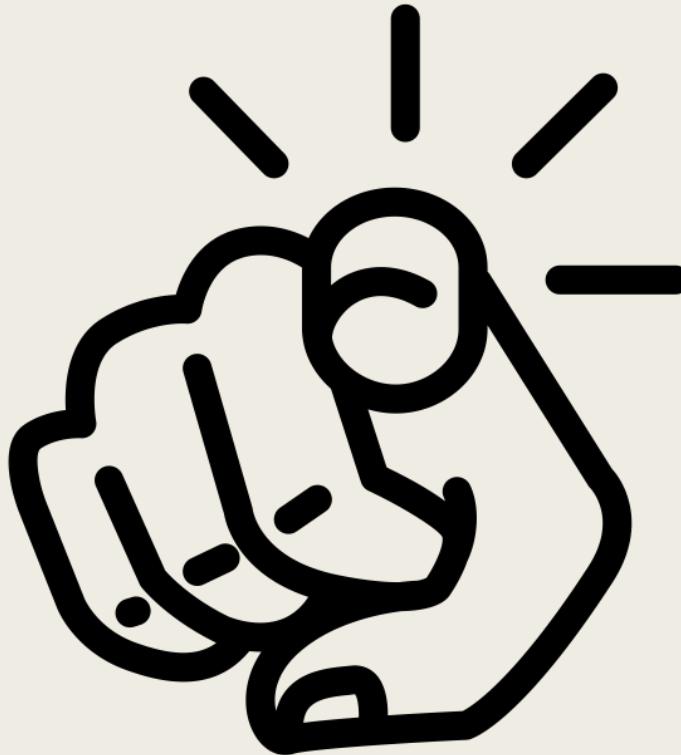


Expose the invisible (and explain the obvious)



by Arturo Alejandro Romo Escartin
from Noun Project

Replicate our research!!



Created by BomSymbols
from Noun Project

Questions?

@Bendineliot

eliotb@privacyinternational.org

@F_Kaltheuner

mail@frederike-kaltheuner.com