

**WE VALUE YOUR PRIVACY ...  
NOW TAKE SOME** 🍪🍪🍪

Measuring the GDPR's Impact on Web Privacy

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# MAY 25TH 2018

**Inbox** Please stay with us. - Regulation (GDPR) coming into effect tomorrow, we want to make sure that we are handling your data correct

**Inbox** Mind reading technology, mind blowing physics, and mind controlling governments. - \*\* GDPR I am sure that, like me, you hav

**Inbox** [Response Required] GDPR Compliance: Please consent to continue receiving Connectiv com... - Required] GDPR Complianc

**Inbox** Keep in touch! Please check your Unbound email preferences - email about GDPR, but we take your personal data seriously. So

**Inbox** Yet another GDPR email 📧 - another-gdpr-email?e=2a0fa7471e) http://www.katherinegreen.co.uk I'm sure you've received a tonne

**Inbox** Stay Connected: 1 Day to go... 📧 📧 📧 📧 📧 - rules (GDPR) tomorrow, the Club is urging all fans to click the button below and n

**Inbox** 📧 DFA x GDPR 📧 - ("GDPR"), that comes into effect May 25, 2018. To help comply with GDPR consent requirements, we need to

**Inbox** Do you want Sparks in your life? - comply with GDPR consent requirements, we need to confirm that you would like to receive cont

**Inbox** GDPR and Privacy Policy Update - known as GDPR – applicable from 25 May 2018. The full text of the updated [Privacy Policy can

**Inbox** We're updating our Terms of Use and Privacy Policy - ("GDPR"), a new data protection law that takes effect across the European I

**Inbox** join our new mailing list - if you are reading this it's because you subscribed, came to a show, bought a shirt from the

**Inbox** Do you want Scala to stay in touch with you? - ("GDPR"). To help comply we need you to confirm that you want us to stay in touch

# GDPR

The General Data Protection Regulation introduced new privacy rules including:

- new transparency obligations
  - ➔ **privacy policy required**
- tougher requirements for consent
  - ➔ **inform about cookies**

Rules apply to everyone collecting data from EU citizens ... including heavy fines.

# RESEARCH IDEA

We know the Internet did not break, but...

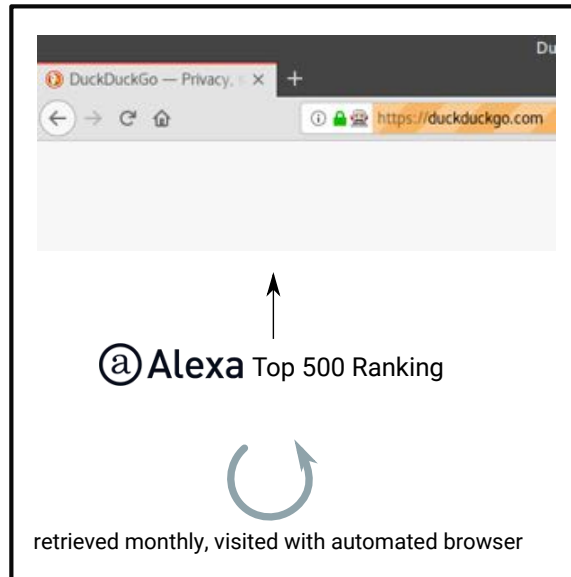
- How did websites react to GDPR?
- Is there more privacy protection or transparency?
- How is consent to tracking implemented?

# MEASUREMENT

How to measure the impact of GDPR on the Web?

- started data collection in December 2017
- manual and automated analysis

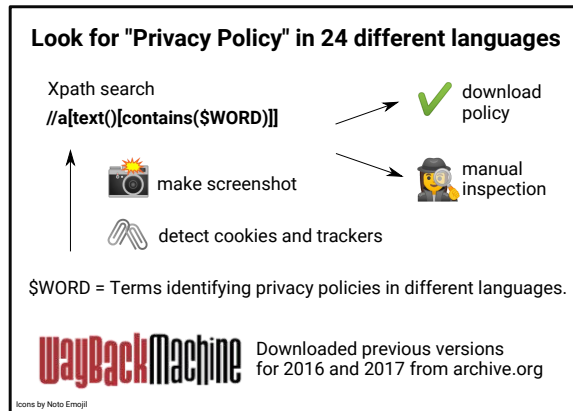
# DATA COLLECTION



## Data Collection

Checked about 6,750+ websites once a month

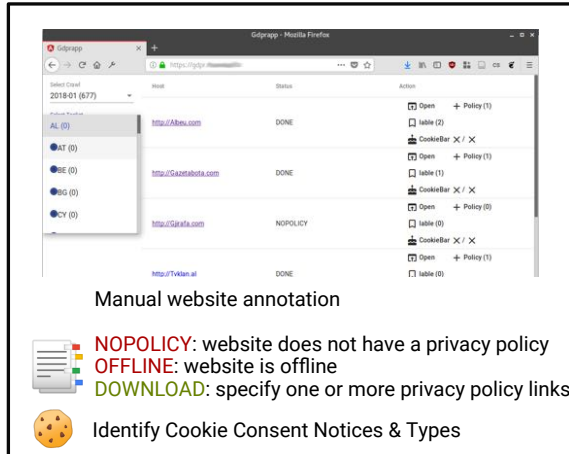
# POLICY EXTRACTION



## Policy Extraction & Download

Collected 112,041 privacy policies in 23 languages (including previous versions 2016-2018)





# MANUAL ANNOTATION



The screenshot shows the Grappi Firefox extension interface. It displays a table of website annotations with columns for 'Host', 'Status', and 'Action'. The table lists several domains: http://Abou.com, http://Caenaboda.com, http://Grappa.com, and http://Twlan.at. The status for these domains is 'DONE' or 'NOPOLICY'. The action column shows icons for 'Open', 'Policy', 'CookieBar', and 'Table'. A legend below the table explains the icons: a red 'X' for 'NOPOLICY', a blue 'X' for 'OFFLINE', a green 'X' for 'DOWNLOAD', and a cookie icon for 'Identify Cookie Consent Notices & Types'.

Host	Status	Action
http://Abou.com	DONE	Open + Policy (1) Table (2) CookieBar X / X
http://Caenaboda.com	DONE	Open + Policy (1) Table (1) CookieBar X / X
http://Grappa.com	NOPOLICY	Open + Policy (0) Table (0) CookieBar X / X
http://Twlan.at	DONE	Open + Policy (1) Table (0)

Manual website annotation

-  **NOPOLICY**: website does not have a privacy policy
-  **OFFLINE**: website is offline
-  **DOWNLOAD**: specify one or more privacy policy links
-  Identify Cookie Consent Notices & Types

## Manual Inspection & Annotation

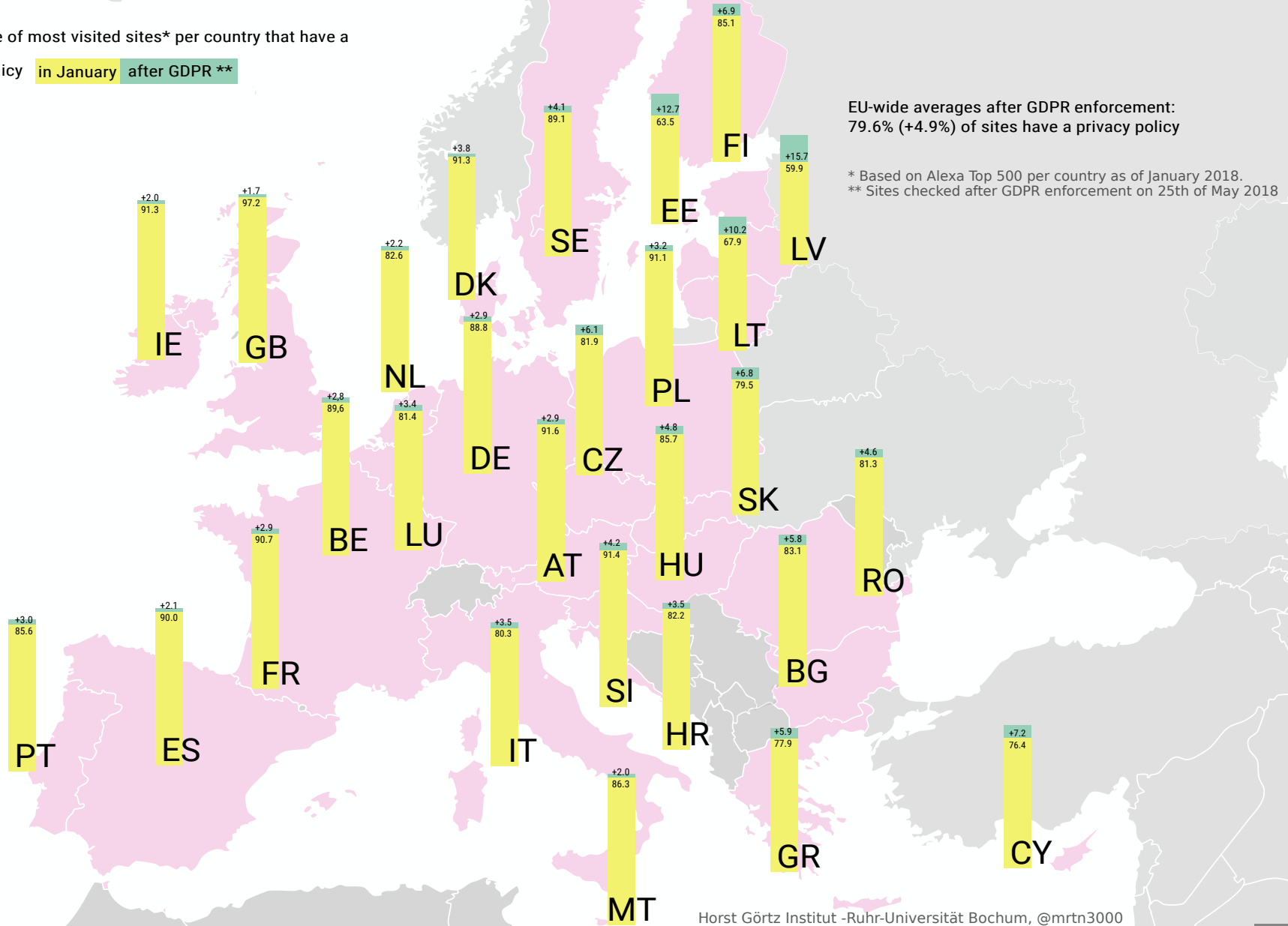
49% manually annotated 3 times for privacy policies.  
All sites annotated 3 times for cookie consent notices.



# PRE/POST RESULTS

Percentage of most visited sites\* per country that have a

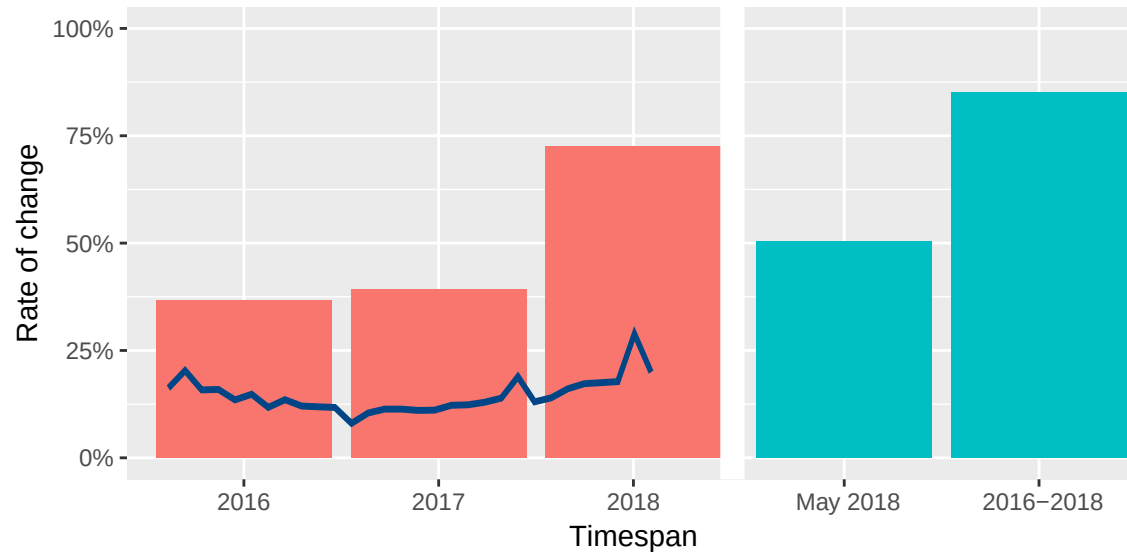
Privacy Policy **in January** **after GDPR \*\***



EU-wide averages after GDPR enforcement:  
79.6% (+4.9%) of sites have a privacy policy

\* Based on Alexa Top 500 per country as of January 2018.  
\*\* Sites checked after GDPR enforcement on 25th of May 2018

Despite 2-year grace period, most sites acted late.



# ADDITIONAL ANALYSES

- **Avg. length increased** from 2145 to 3044 words per policy
- Content analysis showed increase in use of GDPR related terms
- **No significant effect on trackers and cookies**, but some sites made notable changes
- Increase in **HTTPS** use (privacy-by-default)

more in the !

The BBC has updated its cookie policy. We use cookies to enhance your navigation of our website. This website stores files that help us improve our services. You can set a page which controls whether cookies from other sites. Some third party cookies may track your use of the BBC website. We also use cookies to help us understand how you use our website. If you continue without changing your settings, we'll assume that you are happy to receive all cookies on the BBC website. However, you can change your cookie settings at any time.

- Continue
- Change settings
- Find out more

## FUNCTIONELE COOKIES.

Die zijn nodig.

Producten in je winkelmandje plaatsen. Inloggen met je eigen inloggegevens bekijken. Allemaal functionele cookies die zonder deze cookies niet zouden kunnen.

Cookies help us improve our web content and deliver a personalized experience. By using this website, you agree to our use of cookies.

Type 'man cookies' to learn more or 'exit' to close.

← roots

Cookies. Wenn du die

## Interest Based Ads / Cookie Choice Tool

This tool will help you understand when we use cookies to collect information, and how you can control it.

This website uses cookies to ensure you get the best experience on our website. [Learn more](#)

Got it!

Allow cookies

Behavioral Advertising  
 Advertising Alliance of Canada  
 Advertising Alliance (EDAA).

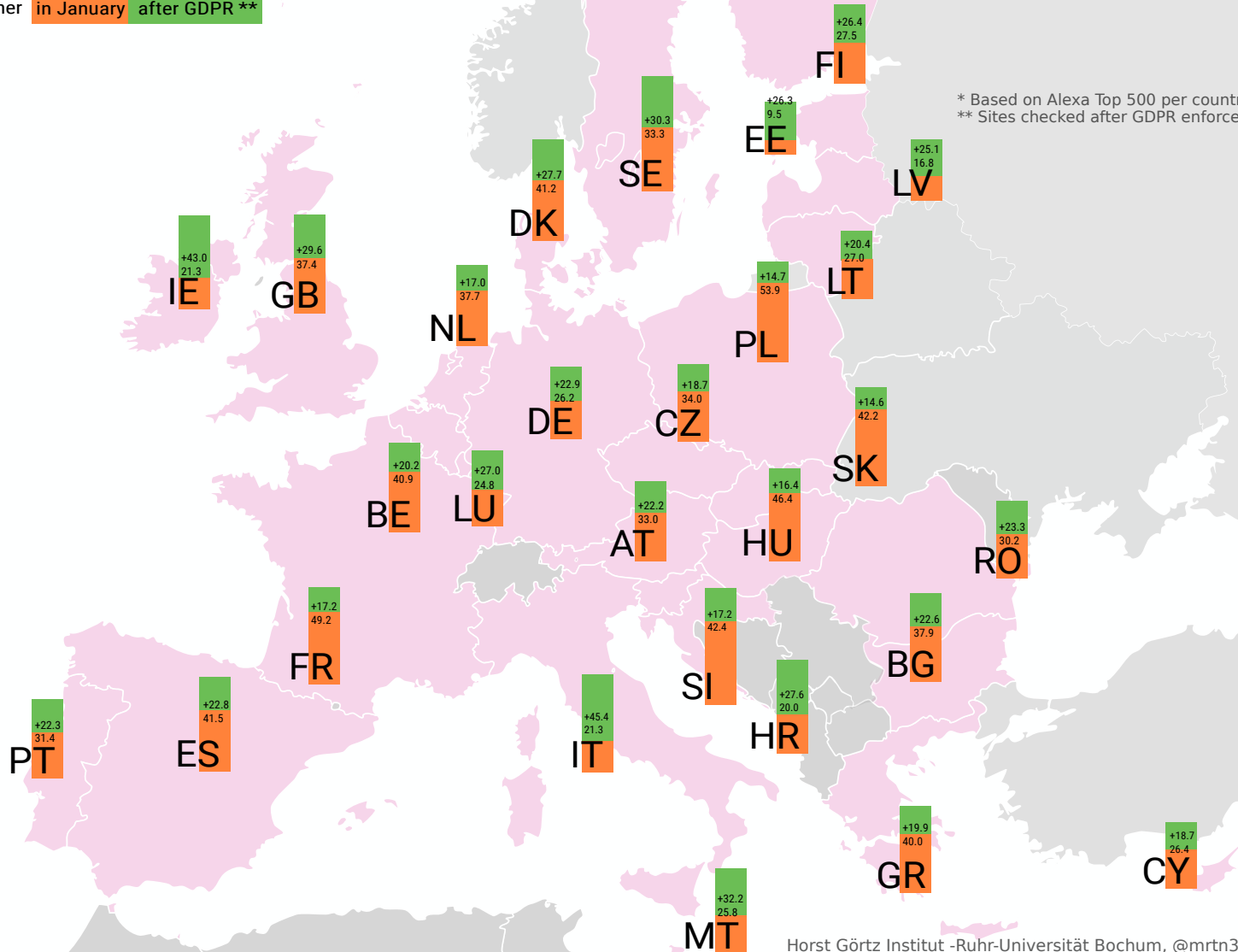
Companies storing or accessing information via this site include:

Name	Purpose Of Cookie	Consent Status
essential		
Advertising		ALL OFF
And Customisation		ALL OFF
Ad Targeting, Analytics/Measurement, Optimization		go to site

Akzeptieren

Ablehnen

Cookie Banner in January after GDPR \*\*



\* Based on Alexa Top 500 per country as of January 2018.  
\*\* Sites checked after GDPR enforcement on 25th of May 2018

# NO OPTION/CONFIRMATION

This site uses first and third party cookies to provide you with a great user experience, measure audiences and show you personalised ads. By using Airbnb you accept our use of cookies. For more details about cookies and how to manage them, see our [Cookie Policy](#).



## Cookies and other technologies

By clicking "Accept" or continuing to use the site, you agree to the use of Adobe and third-party cookies and other similar technologies to enhance your browsing experience, analyze and measure your engagement with our content, and provide more relevant ads on Adobe websites and others. Learn more about your [choices](#) and [cookies](#). You can withdraw your consent at any time.

Accept

Problems: Implied consent & forced opt-in

# BINARY

This website uses **cookies**

Some of the cookies used are essential for parts of the site to operate. Please see our [privacy policy](#) for more details.

Accept

Refuse

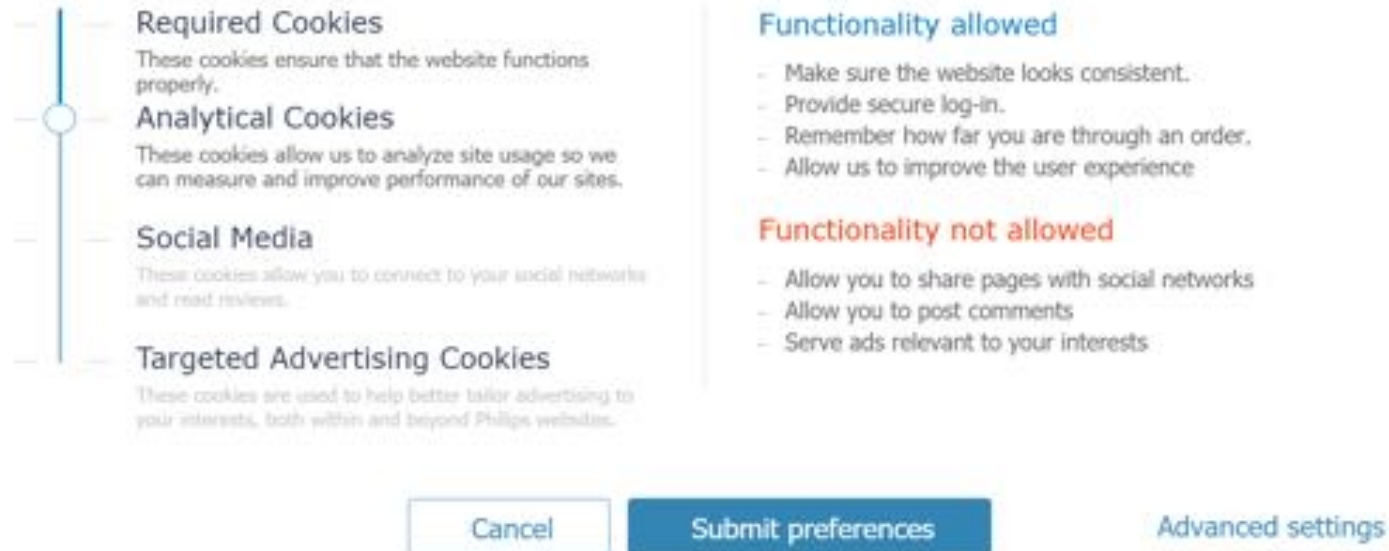
Basic consent. Caveat: often tracking starts before "Accept" is clicked.



# SLIDER

## Your choices regarding cookies on this site

Please choose whether this site may use Functional and/or Advertising cookies, as described below:



The image shows a cookie consent interface with a vertical slider on the left. The slider has four tick marks corresponding to the categories: Required Cookies, Analytical Cookies, Social Media, and Targeted Advertising Cookies. The slider is currently positioned at the top, indicating that all categories are selected. To the right of the slider, there are two columns of text. The first column, titled 'Functionality allowed', lists three items: 'Make sure the website looks consistent.', 'Provide secure log-in.', and 'Remember how far you are through an order. Allow us to improve the user experience'. The second column, titled 'Functionality not allowed', lists three items: 'Allow you to share pages with social networks', 'Allow you to post comments', and 'Serve ads relevant to your interests'. At the bottom of the interface, there are three buttons: 'Cancel', 'Submit preferences', and 'Advanced settings'.

**Required Cookies**  
These cookies ensure that the website functions properly.

**Analytical Cookies**  
These cookies allow us to analyze site usage so we can measure and improve performance of our sites.

**Social Media**  
These cookies allow you to connect to your social networks and read reviews.

**Targeted Advertising Cookies**  
These cookies are used to help better tailor advertising to your interests, both within and beyond Philips websites.

**Functionality allowed**

- Make sure the website looks consistent.
- Provide secure log-in.
- Remember how far you are through an order.
- Allow us to improve the user experience

**Functionality not allowed**

- Allow you to share pages with social networks
- Allow you to post comments
- Serve ads relevant to your interests

Cancel Submit preferences Advanced settings

Cookie Notice

Problem: hierarchy created by website owner / library provider

# VENDOR-BASED

Depending on the type of data they collect, use, and process and other factors including privacy by design, certain partners rely on your consent while others require you to opt-out. For information on each vendor and to exercise your choices, see below. Or to opt-out, visit the [NAI](#), [DAA](#), or [EDAA](#) sites.

Allow All

1000mercis <a href="#">↗</a>	Allow <input checked="" type="checkbox"/>
1020, Inc. dba Placecast and Ericsson Emodo <a href="#">↗</a>	Allow <input checked="" type="checkbox"/>
1plusX AG <a href="#">↗</a>	requires opt-out
2KDirect, Inc. (dba iPromote) <a href="#">↗</a>	requires opt-out
33Across <a href="#">↗</a>	Allow <input checked="" type="checkbox"/>
7Hops.com Inc. (ZergNet) <a href="#">↗</a>	requires opt-out

Problems: Up to 300 (unknown) vendors,  
website may use non-participating partners

# MULTI-OPTION

**This website uses cookies**

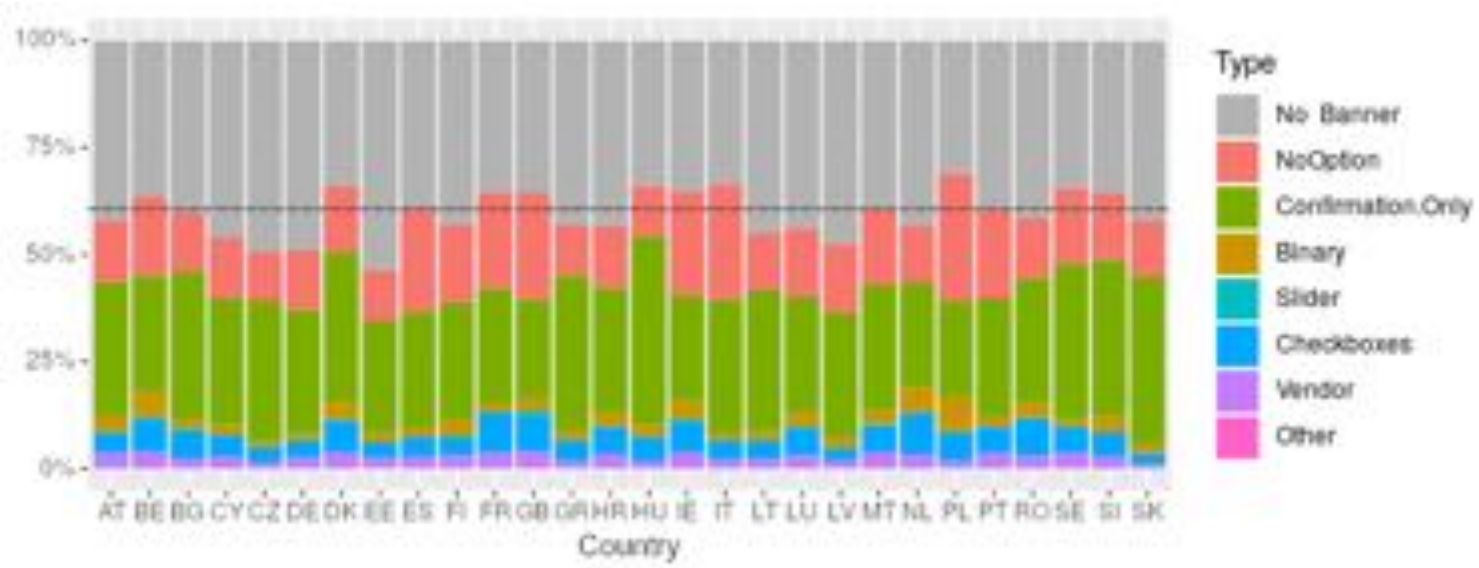
We use cookies to help improve this website. We also share information about your use of our site with our social media, advertising and analytics partners. You consent to our cookies if you continue to use our website, in accordance with [our cookie policy](#).

Necessary  Preferences  Statistics  Marketing

OK

5 🏆 Purpose based consent.  
Caveat: often nudge users to accept everything.

# BANNER DISTRIBUTION



Most websites have no banners or those with no value for the user.

# LIBRARIES



# SUMMARY

- **GDPR led to changes on a lot of websites** with respect to privacy policies and cookie consent
- results **varied by country**
- 16% of websites still do not have a policy and 15% did not update it since 2016
- 🍪 **consent notices are a mess** - clear guidelines required

## **PUBLIC DATA**

Raw data will be available at:

<https://github.com/RUB-SysSec/we-value-your-privacy>

## **CONTACT**

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Twitter: @mrtn3000



# HTTPS

Small spike, but within the general trend towards HTTPS

