

Does Facebook use sensitive data for advertising purposes?


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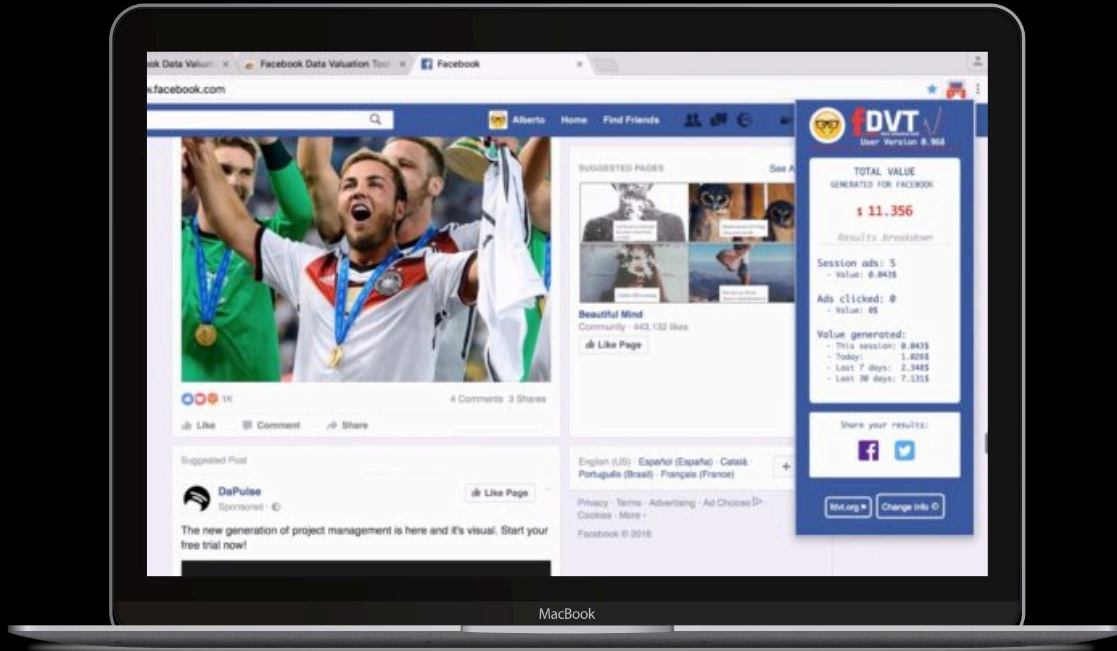
 [@joseegc_](#)

Online Advertising

Privacy

Internet Measurements

Social Networks



WEBSITE

<https://fdvt.org>



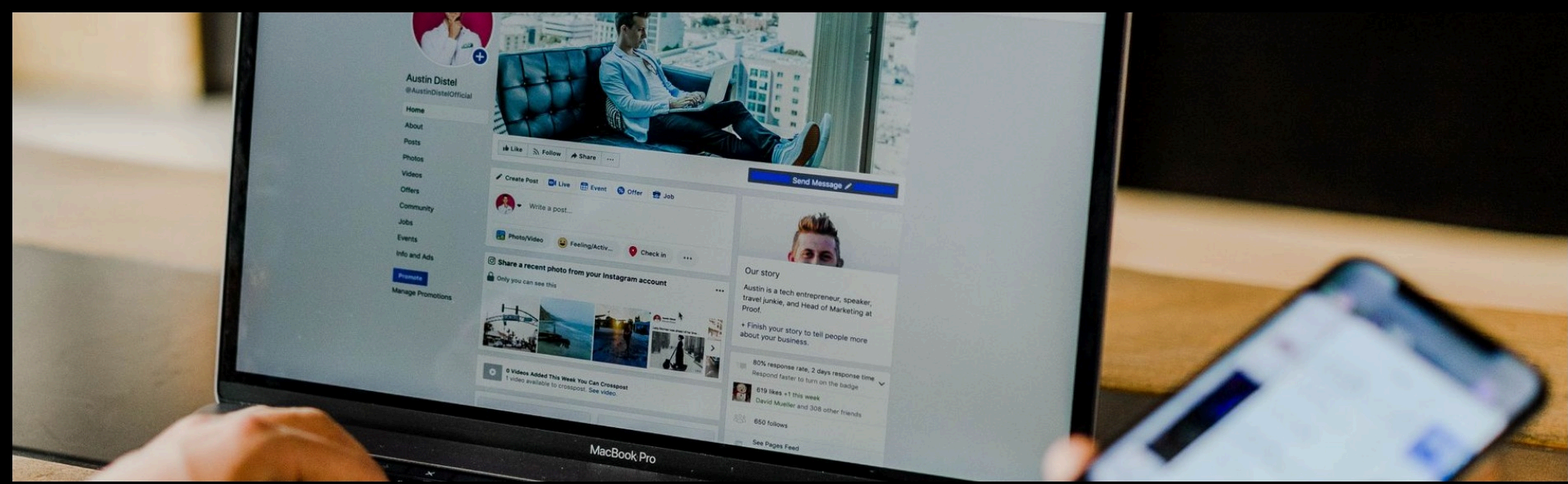
CHROME PLUGIN

<https://chrome.google.com/webstore/detail/fdvt-social-network-data/blednbbpnnambjaefhlocghajeohlhmh>



FIREFOX ADDON

<https://addons.mozilla.org/es/firefox/addon/fdvt/>



Introduction

HOW DOES ONLINE ADVERTISING WORK?

The use of online services



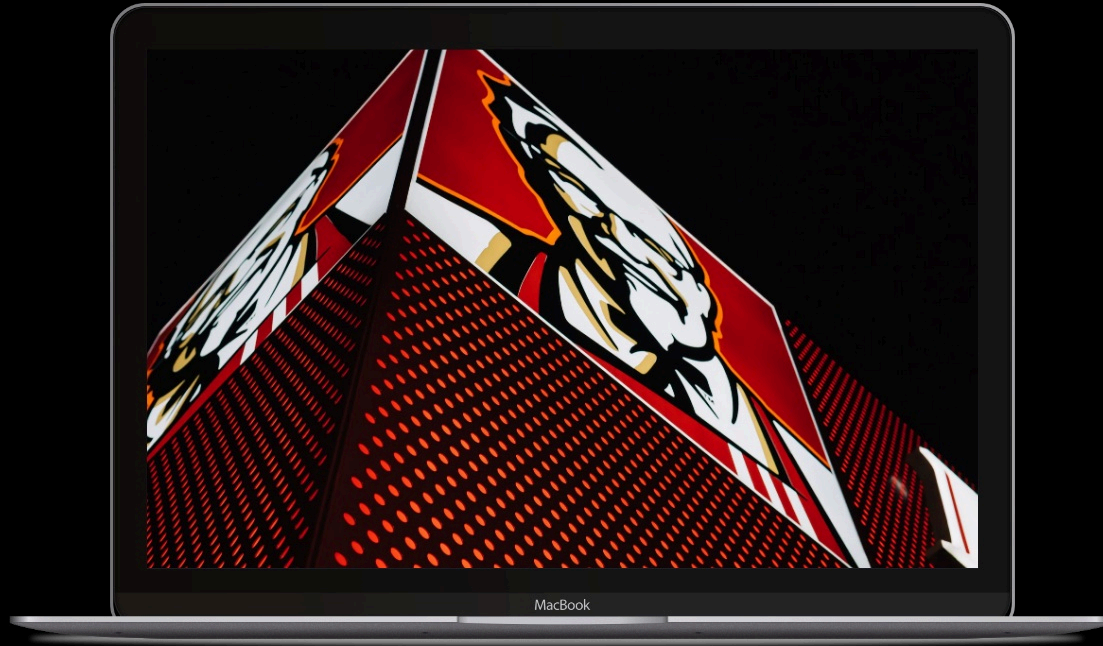
FREE

The use of online services



ADS

The use of online services



ADS

The use of online services



ADS

Introduction

The use of online services



If you are not paying
for something

YOU
ARE THE
PRODUCT

Introduction

Audiences



Advertisers define the audiences they want to reach

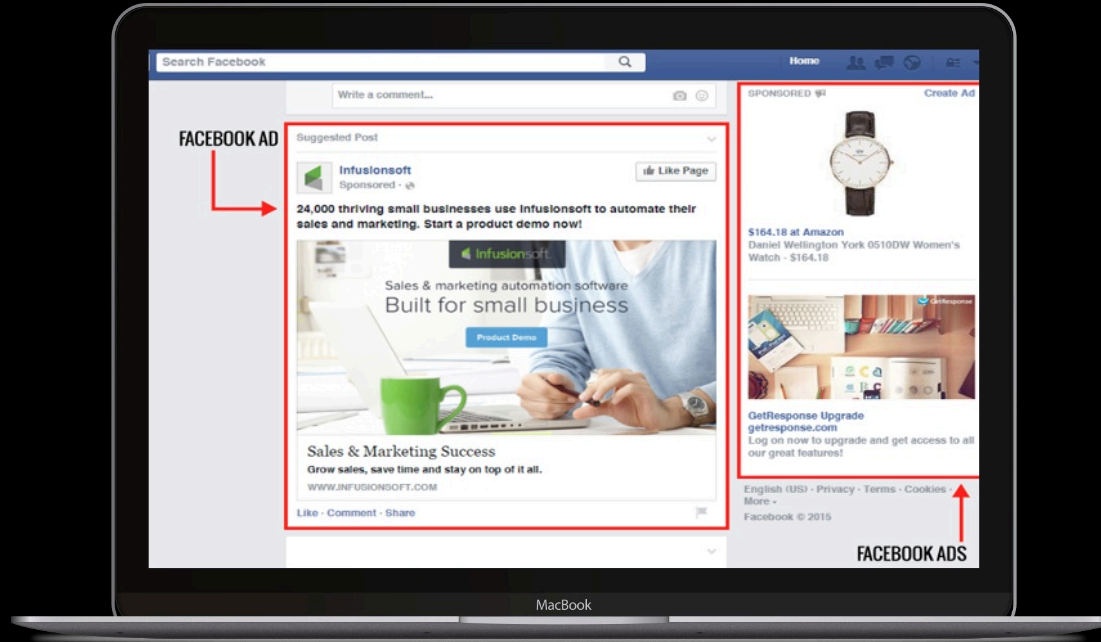
Introduction

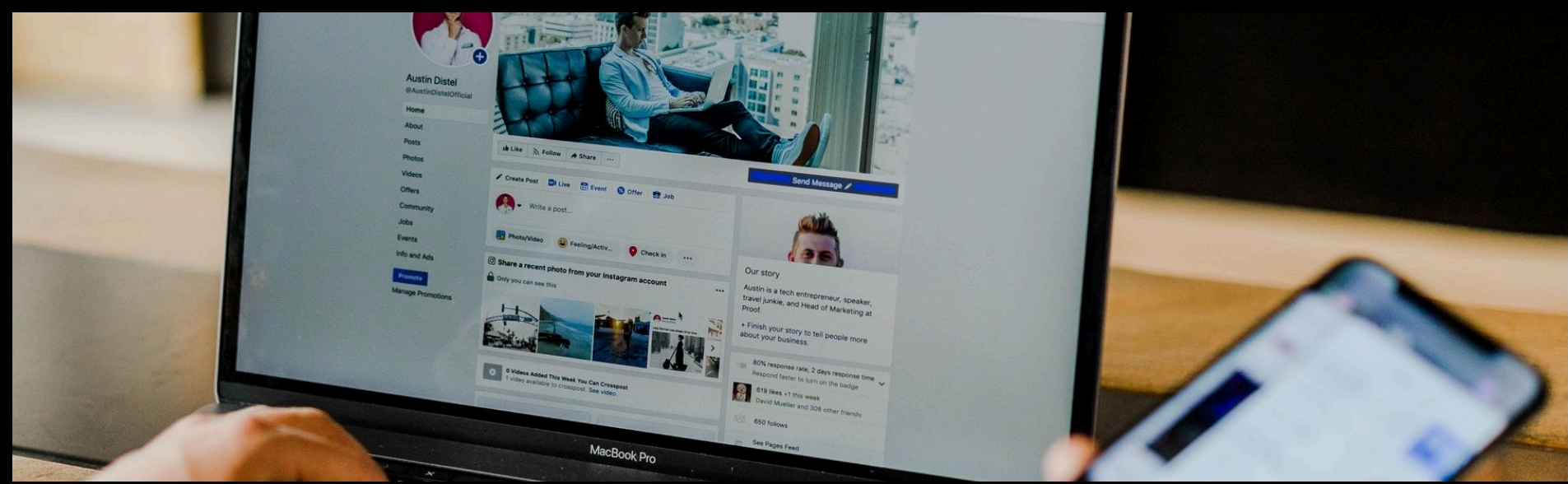
Auction



And then they bid for you and get to show you their ad

Facebook ads

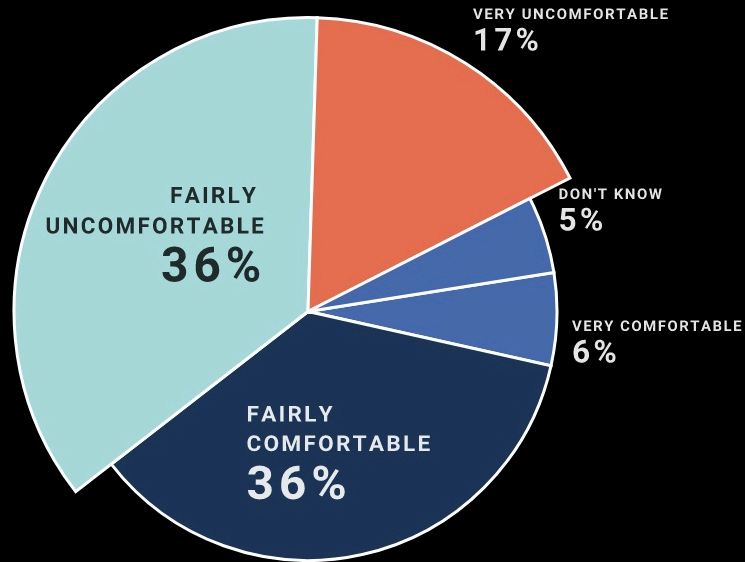




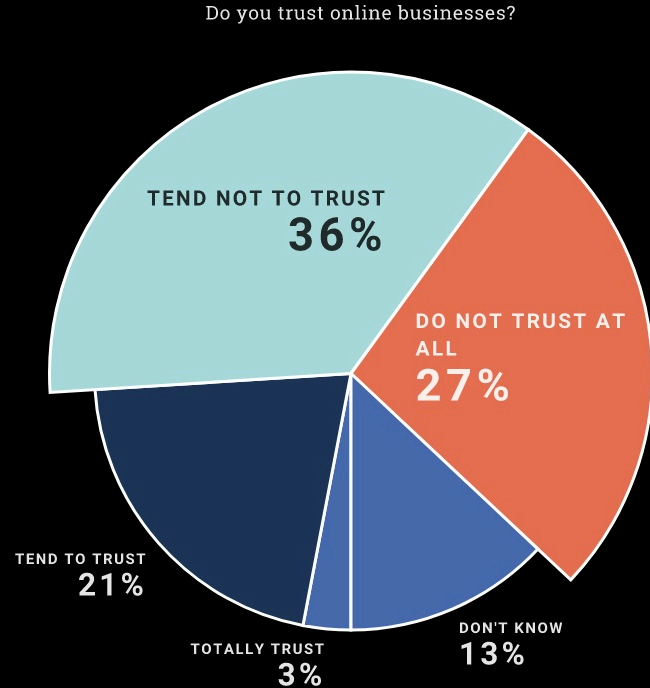
Motivation

DID YOU KNOW SENSITIVE DATA IS USED IN THIS PROCESS?

Concerns among citizens



How comfortable are you with online businesses using your personal information to show you ads and relevant content?



GDPR





- **ETHNIC ORIGIN**
- **POLITICAL OPINIONS**
- **RELIGIOUS OR PHILOSOPHICAL BELIEFS**
- **DATA CONCERNING HEALTH**
- **DATA CONCERNING SEXUAL ORIENTATION**

Article 9 GDPR regulates Sensitive Data use

“Processing of personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and the processing of genetic data, biometric data for the purpose of uniquely identifying a natural person, data concerning health or data concerning a natural person’s sex life or sexual orientation shall be prohibited”


Motivation

Sensitive ads

 **misterbnb**
Sponsored · 

Like Page

Connect with the gay community & rent affordable places from people like you. Book now!



Stay Like a Gay Local
Live like a gay local - feel welcome anywhere you go in over 130 countries. Check out our top cities New York, Paris, Barcelona, and Rome.

WWW.MISTERBNB.COM

Book Now

 **Replens**
Sponsored · 

Like Page

Estrogen free vaginal moisturizer to relieve dryness and painful sex.



Reignite your intimacy.

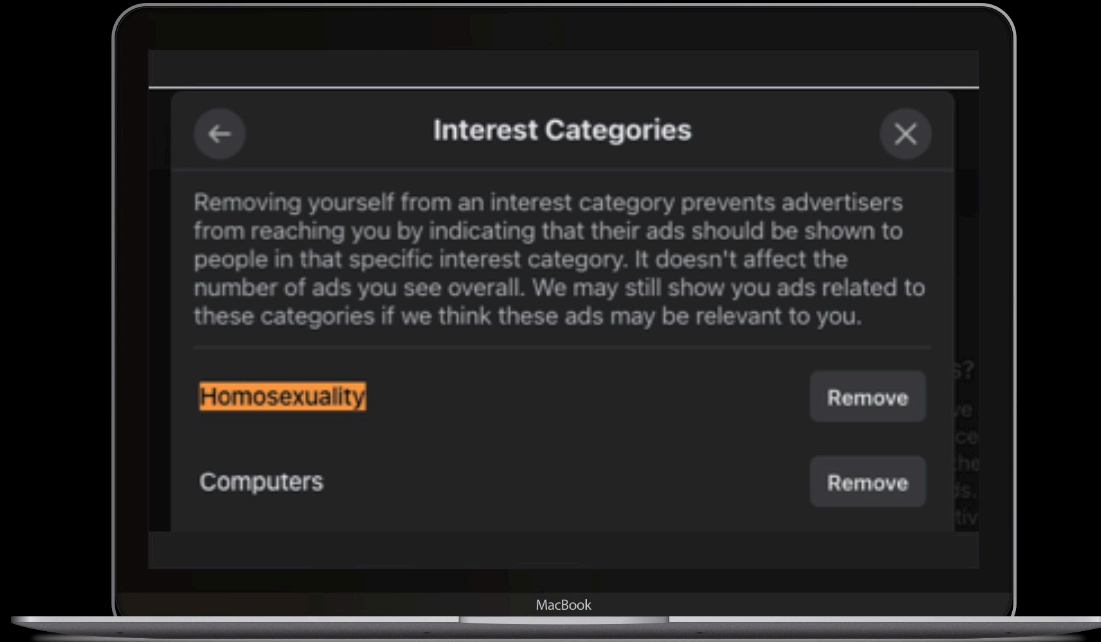
WWW.REPLENS.COM

Learn More

Like · Comment · Share · Hootlet ·  3

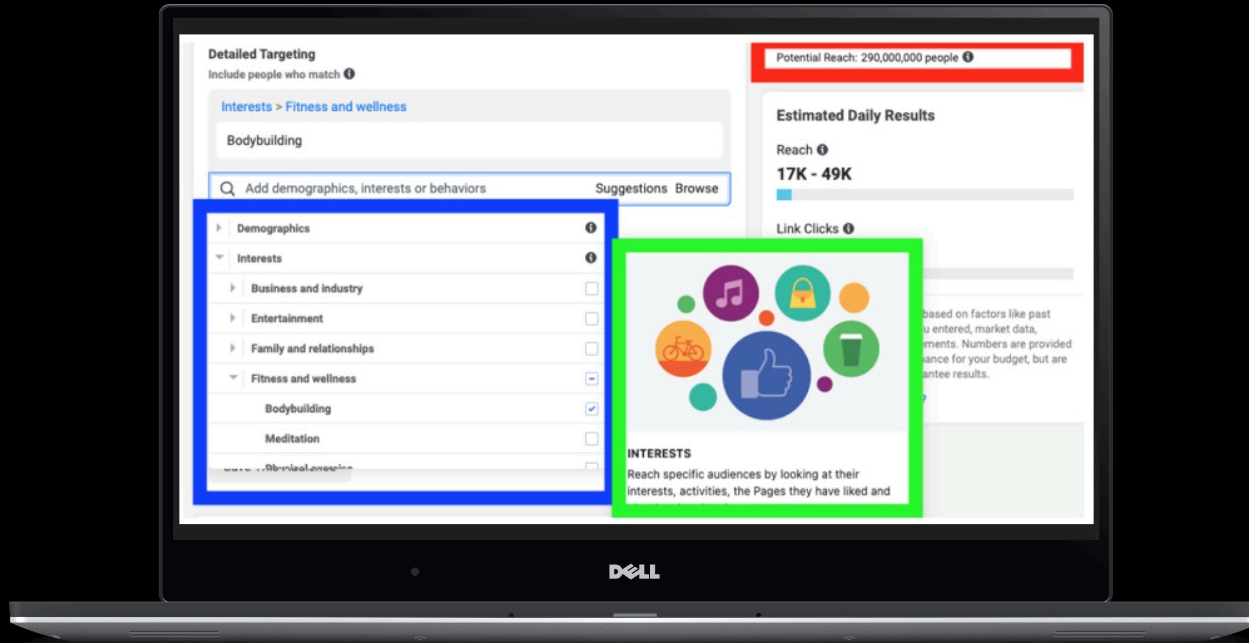
HOW MANY PEOPLE ARE ASSIGNED WITH SENSITIVE PERSONAL INFORMATION IN THE CONTEXT OF THE GDPR DEFINITION OF SENSITIVE DATA ON FACEBOOK?

Facebook ad preferences



<https://facebook.com/ads/preferences>

Facebook ads manager



Use of sensitive data



FACEBOOK MISUSE OF PERSONAL INFORMATION

Use of sensitive data for advertising

Facebook fined



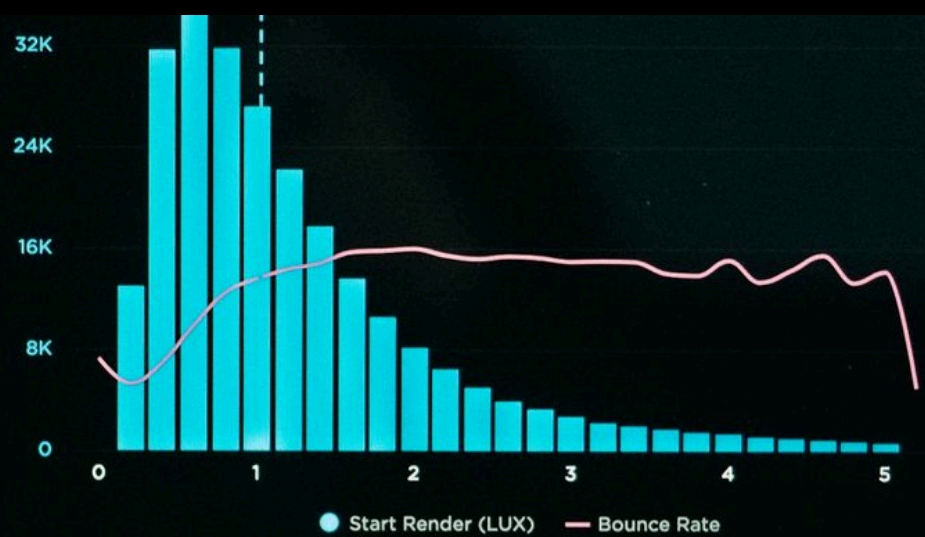
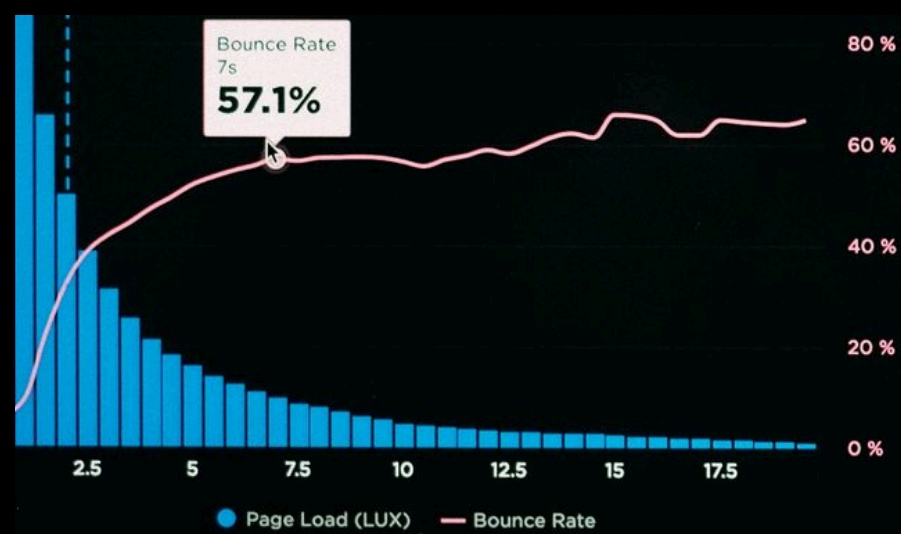
FRENCH DPA FINED FB €150K IN MAY. 2017 (BEFORE GDPR)

“Collect sensitive data of the users without obtaining their explicit consent. Indeed, no specific information on the sensitive nature of the data is provided to users when they complete their profiles with such data”



SPANISH DPA FINED FB €1.2M IN SEP. 2017 (BEFORE GDPR)

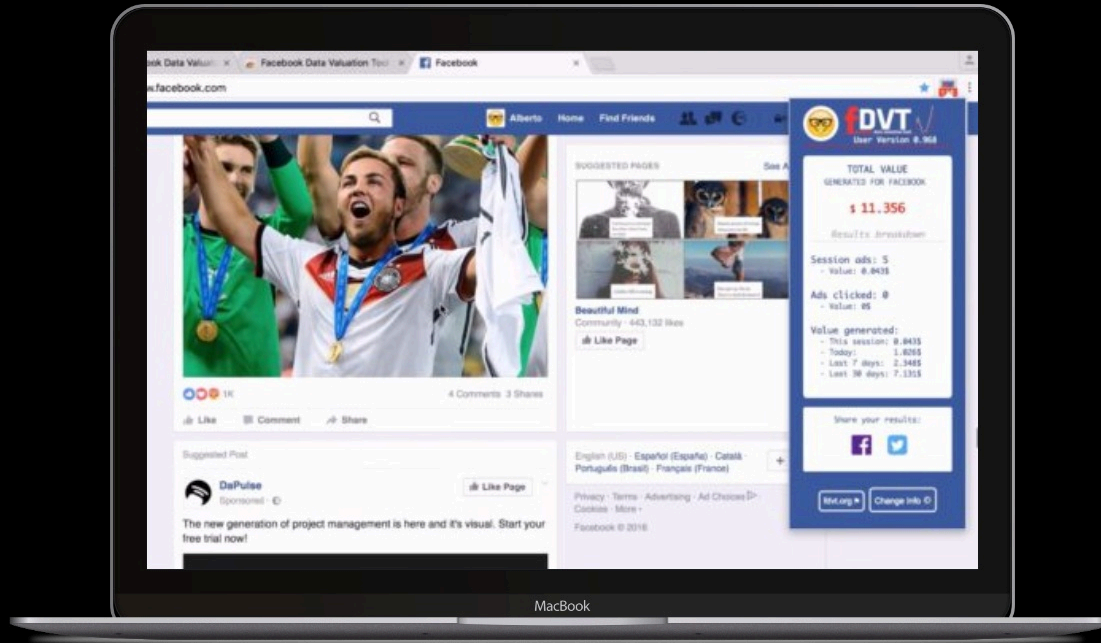
“The data on ideology, sex, religious beliefs, personal preferences or browsing activity are collected directly, through interaction with their services or from third party pages without clearly informing the user about how and for what purpose will use those data. Facebook does not obtain unambiguous, specific and informed consent from users to process their data since the information it offers is not adequate”



Data methodology

DID YOU KNOW SENSITIVE DATA IS USED IN THIS PROCESS?

Dataset



4577 USERS

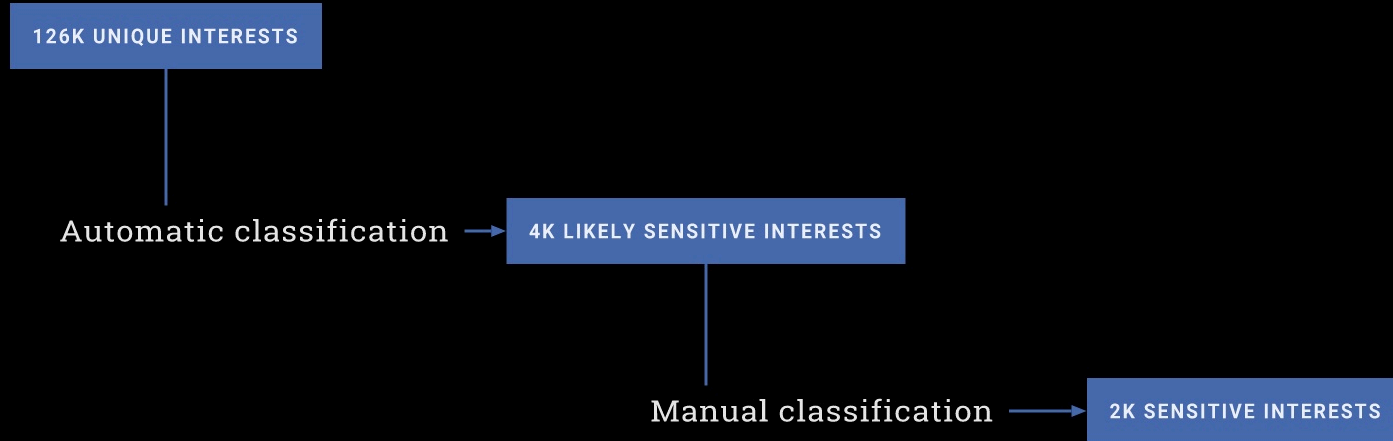


5.5M INTERESTS



126K INTERESTS UNIQUE

Identification of sensitive interests



Requests to Facebook



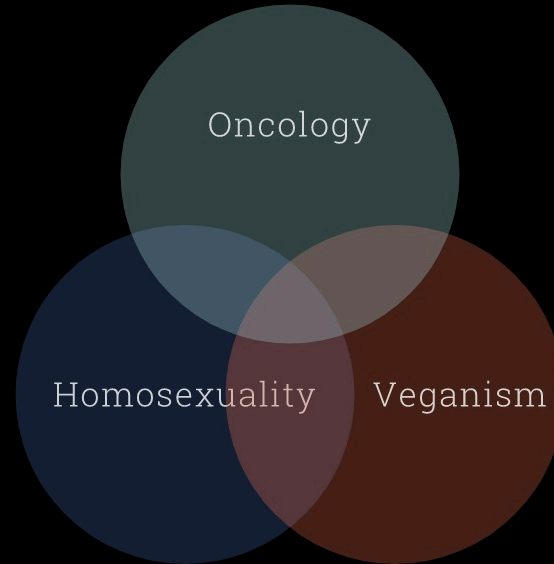
How many users in a given country are interested in ad preference 1 OR ad preference 2 OR ad preference 3... OR ad preference N

How many people in
France

are interested in

**Homosexuality OR Oncology OR
Veganism OR ...**

Requests to Facebook



FB API Maximum N = 1000 interests

Requests to Facebook



FFB(Country, Number of interests in the query)

FFB(France, 1000 most popular sensitive interests)

197 country codes



Results

Q1: HOW MANY PEOPLE ARE LABELED WITH SENSITIVE INTERESTS WORLDWIDE?

Q1: How many people are assigned with sensitive interests?

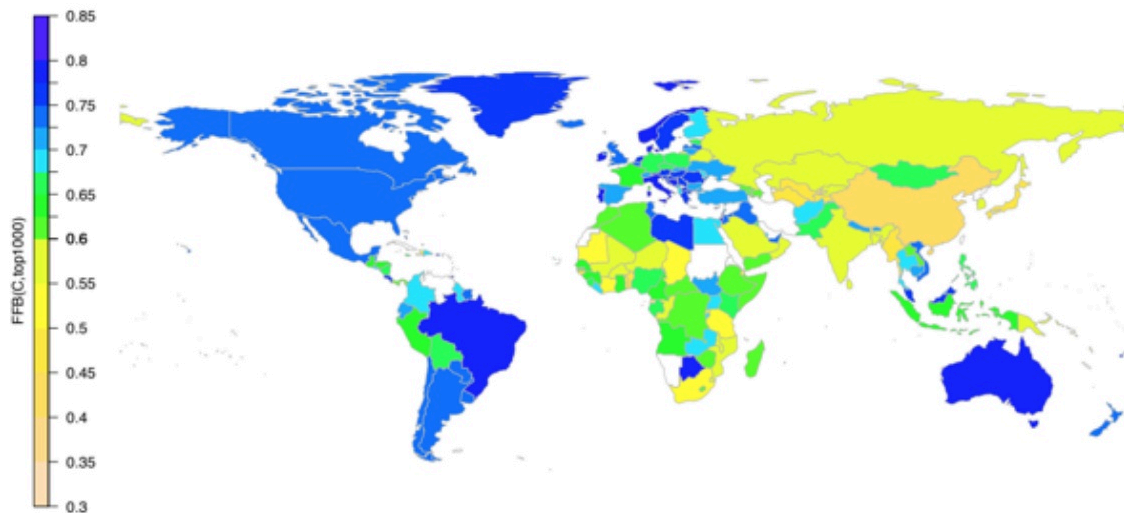


Figure 2: Choropleth map of the number of FB users assigned potentially sensitive ad preferences ($FFB(C,1000)$) for the 197 countries analyzed in the paper.

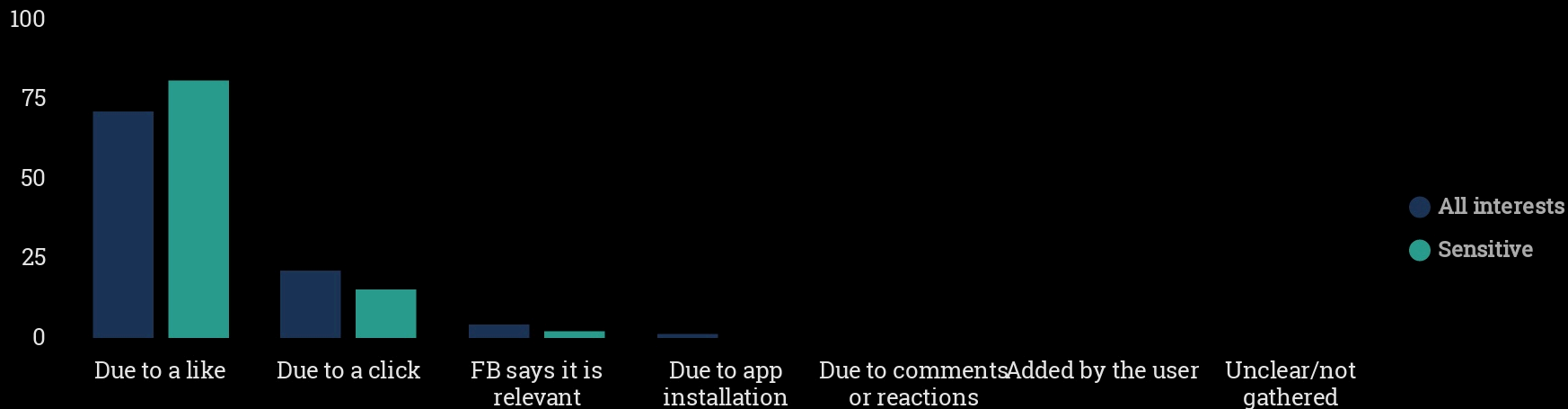
67% OF FB USERS ARE ASSIGNED WITH SOME POTENTIALLY SENSITIVE INTEREST
22% OF CITIZENS ARE ASSIGNED WITH SOME POTENTIALLY SENSITIVE INTEREST

Q1: How many people are assigned with sensitive interests?

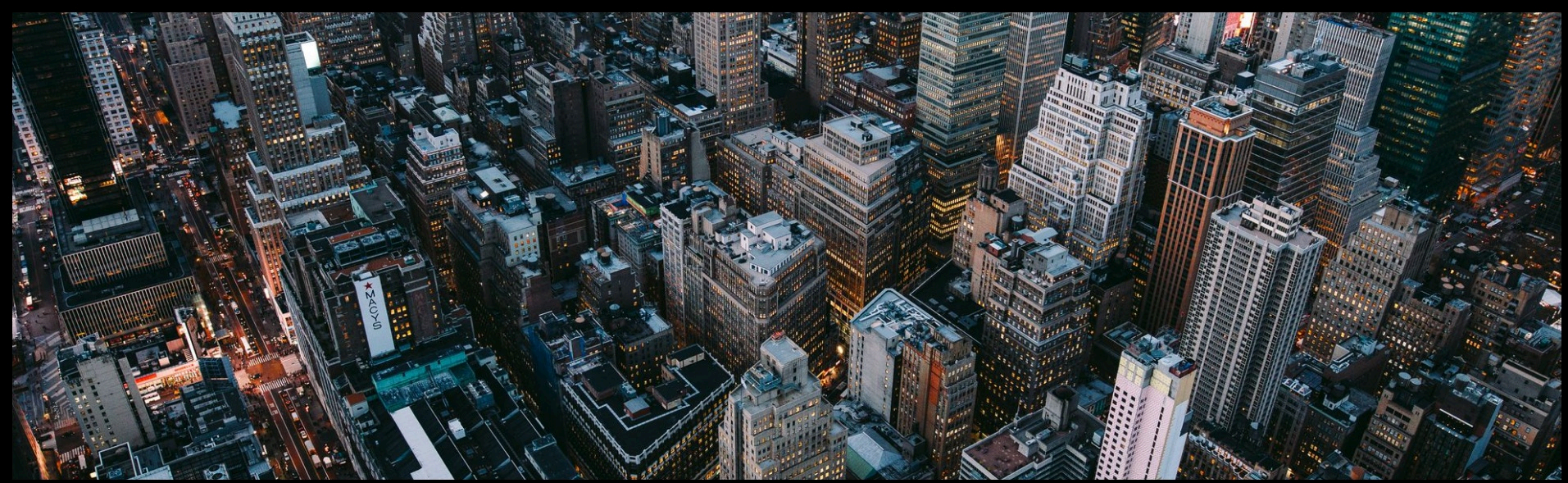
- **MOST IMPACTED: MALTA (82% OF FB USERS)**
- **LEAST IMPACTED: EQUATORIAL GUINEA (37% FB USERS)**

Q1: How many people are assigned with sensitive interests?

Reasons of assignment (%)



VERY FEW CASES (0.03%) IN WHICH USERS PROACTIVELY INCLUDE POTENTIALLY SENSITIVE INTERESTS IN THEIR LIST OF AD PREFERENCES



Results

Q2: ARE DEVELOPED COUNTRIES MORE EXPOSED TO SENSITIVE INTERESTS?

Q2: Are developed countries more exposed to sensitive interests?

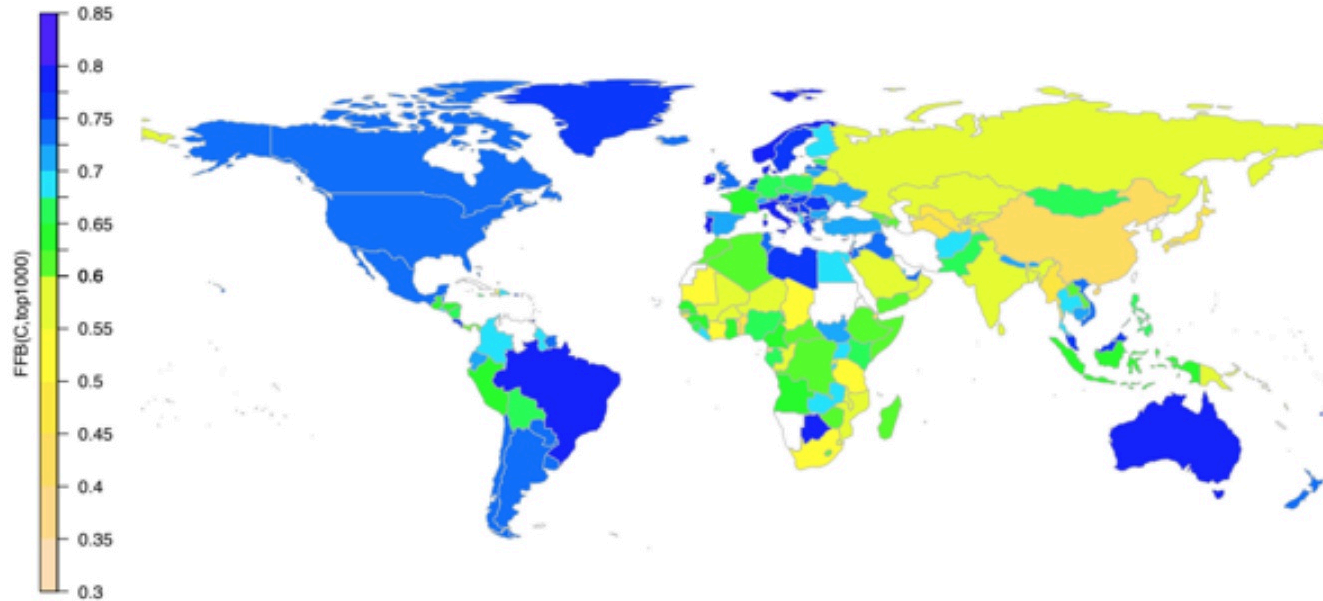


Figure 2: Choropleth map of the number of FB users assigned potentially sensitive ad preferences (FFB(C,1000)) for the 197 countries analyzed in the paper.

Q2: Are developed countries more exposed to sensitive interests?

Indicators



FB PENETRATION



VOICE AND ACCOUNTABILITY



GDP PER CAPITA



**ACCESS TO A MOBILE PHONE OR
INTERNET AT HOME**








EXPECTED YEARS OF SCHOOL



BIRTH RATE

Q2: Are developed countries more exposed to sensitive interests?

	Correlation FFB country	p value	
FB penetration	0.544	2.2e-16	F
Expected years of school	0.444	7.249e-09	
Access to a mobile phone or Internet at home	0.395	1.478e-06	
GDP per capita	0.381	5.733e-08	
Voice and accountability	0.372	1.142e-07	
Birth rate	-0.455	4.922e-11	



Results

Q3: EXPOSURE TO EXPERT VERIFIED SENSITIVE INTERESTS?

Q3: Exposure to expert verified sensitive interests?

Different perception of sensitive data?

Let's see 15 expert-verified sensitive interests



Q3: Exposure to expert verified sensitive interests?

ad preference	Africa	America	Asia	Europe	Oceania	World
ALTERNATIVE MEDICINE	3.40	11.35	3.27	7.17	10.82	6.26
BIBLE	13.28	14.65	6.31	8.13	14.61	9.68
BUDDHISM	2.87	5.38	10.36	4.13	7.19	7.23
FEMINISM	3.22	9.27	2.08	6.52	10.84	5.01
GENDER IDENTITY	0.08	0.46	0.07	0.20	0.60	0.21
HOMOSEXUALITY	2.66	7.93	2.27	6.07	8.48	4.57
ILLEGAL IMMIGRATION	0.26	0.15	0.02	0.03	0.07	0.08
JUDAISM	11.06	3.72	1.91	2.24	2.44	3.33
LGBT COMMUNITY	3.93	13.89	5.39	11.94	14.82	8.79
NATIONALISM	1.82	1.11	1.28	1.32	0.95	1.28
ONCOLOGY	1.30	1.33	0.38	0.84	0.97	0.81
PREGNANCY	11.75	19.17	11.58	17.09	21.41	14.71
REPRODUCTIVE HEALTH	0.36	0.24	0.17	0.07	0.09	0.19
SUICIDE PREVENTION	0.05	0.30	0.03	0.08	1.02	0.13
VEGANISM	5.97	14.18	6.83	16.98	22.78	10.61
UNION	30.43	40.66	27.62	38.25	46.92	33.45

Table 2: Percentage of FB users (FFB) within Africa, America, Asia, Europe and Oceania assigned some sensitive ad preferences from a list of 15 expert-verified sensitive ad preferences as non-GDPR compliant. Last column "World" shows FFB for the aggregation of all 197 considered countries. Last row shows the result for the 15 ad preferences aggregated.

33% OF FB USERS ARE LABELED WITH SOME OF THE 15 VERIFIED SENSITIVE AD PREF



Results

Q4: HAS THE GDPR HAD ANY IMPACT ON THE USE OF SENSITIVE DATA?

Q4: Has the GDPR had any impact on the use of sensitive data?

- **AD PREFERENCES APPEAR AND DISAPPEAR**

However, we do not know if it has to do with the GDPR or not

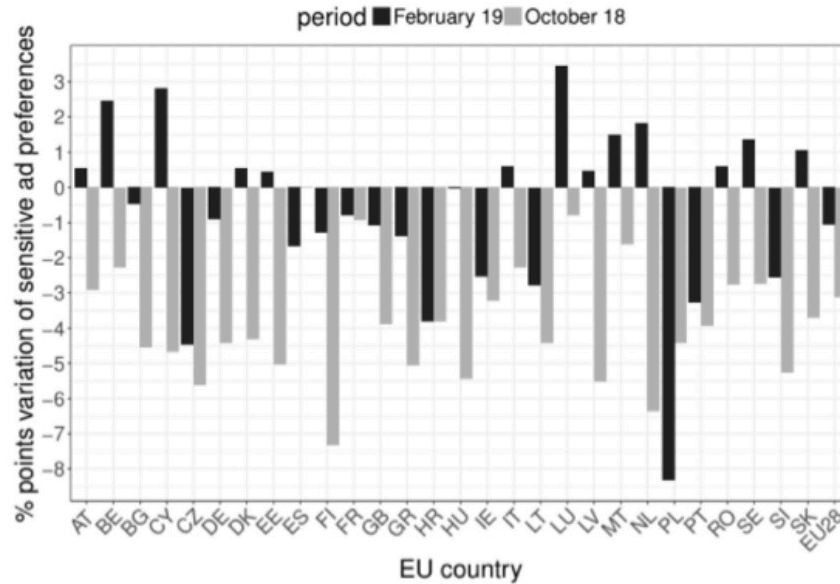
- **19 SENSITIVE WERE REMOVED IN OCTOBER 2018**

- **25 WERE REMOVED IN FEBRUARY 2019**

- **5 FROM THE EXPERT-VERIFIED SENSITIVE AD PREFERENCES**

Communism, Islam, Quran, Socialism, and Christianity

Q4: Has the GDPR had any impact on the use of sensitive data?



THE GDPR HAD NEGLIGIBLE IMPACT ON THE ASSIGNATION OF SENSITIVE AD PREFERENCES



Risks

Facebook campaigns

Ad Set Name	Reach	Impressions	Amount Spent	Location (Ad Set Settings)
Religion	7,630	7,985	€5.00 of €5.00	IT, ES, FR and DE
Political	11,025	16,537	€10.00 of €10.00	IT, ES, FR and DE
Sexuality	7,314	7,367	€20.00 of €20.00	IT, ES, FR and DE
▶ Results from 3 ad sets	26,458 People	31,889 Total	€35.00 Total Spent	

CAMPAIGNS

Religion: Islam, Judaism, Christianity, Buddhism

Politics: Communism, Anarchism, Radical feminism, Socialism

Sexuality: Transsexualism, Homosexuality

Risks

Lure users to phishing attacks

WIN
iPhone 11
GiveAway
100%






Check information of the ad



Why You're Seeing This Ad

🔒 Only you can see this

You're seeing this ad because your information matches **Método Charly's Way's** advertising requests. There could also be more factors not listed here. [Learn More](#)

-  Método Charly's Way is trying to reach people Facebook thinks are interested in Language school. >
-  Método Charly's Way is trying to reach people, ages 25 to 62. >
-  Método Charly's Way is trying to reach people whose primary location is Spain. >

What You Can Do

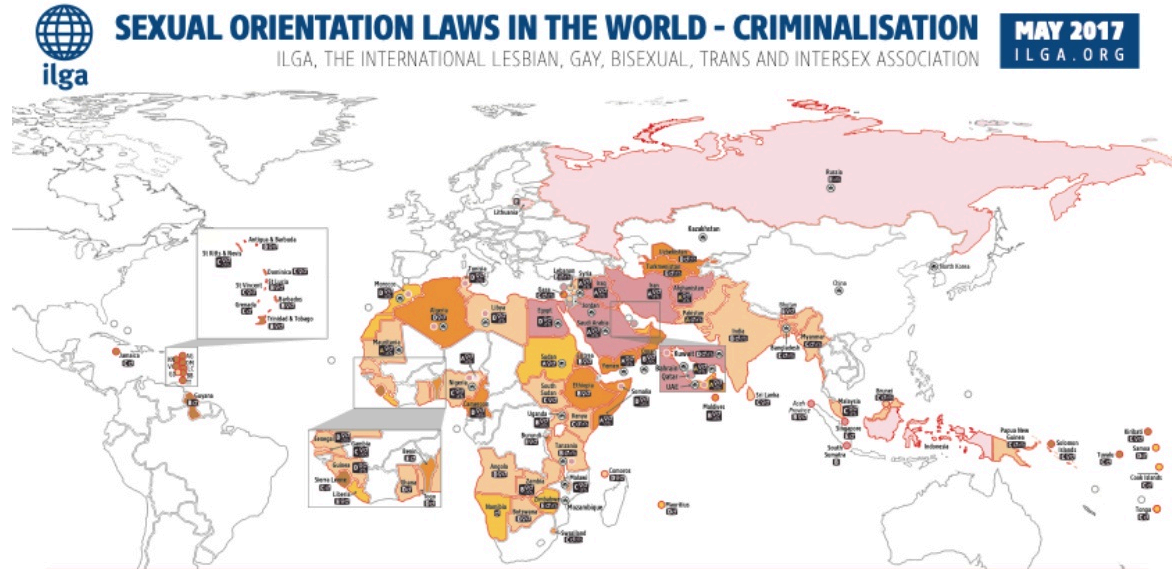
-  **Hide all ads from this advertiser**
You won't see Método Charly's Way's ads [Hide](#)
-  **Make changes to your ad preferences**
Adjust settings to personalize your ads >

Was this explanation useful?

Yes

No

World map where certain sexual orientation is penalized



ACTUAL OFFENSE THAT GENERATES MAXIMUM SENTENCES

Promotion ("propaganda") laws 30 States	Against nature 30 States
Sexual act 15 States	Ruggeri 13 States
Sodomy 11 States	Morality law, LSB expression 19 States (and some provinces)

CATEGORIES OF MAXIMUM SENTENCES

- A** Death 8 States (implemented)
- A** Death 5 States (not implemented)
- B** 15 years to life (12 States)
- C** 8 to 14 years (23 States)
- D** 3 to 7 years (20 States)
- E** 1 month - 2 years (or a fine) (10 States)

- Relationship between females is illegal
45 States (including Egypt)
- Relationship between males is illegal
72 States (including Egypt)
- Arrests (documented) in the past 3 years (45 States)
- Barriers to NGO formation, establishment, or registration (25 States)

Note: The country entries on these criminalising States in State-Sponsored Homophobia outline the full range of penal provisions and sanctions under which same-sex sexual relations are targeted. In this map we chart only the category in which maximum sentences fall.

The data represented in these maps are based on State-Sponsored Homophobia: a World Survey of Sexual Orientation Laws. Civil Liberties, Protection and Recognition, an ILGA report by Arango Carrillo and Lucas Pariona Mendoza. The report and these maps are available in the six official UN languages: English, Chinese, Arabic, French, Russian and Spanish on ilga.org. The edition of the world map (May 2017) was coordinated by Arango Carrillo and Lucas Pariona Mendoza (ILGA), and designed by Eduardo Enxali (enxali@enxali.com).

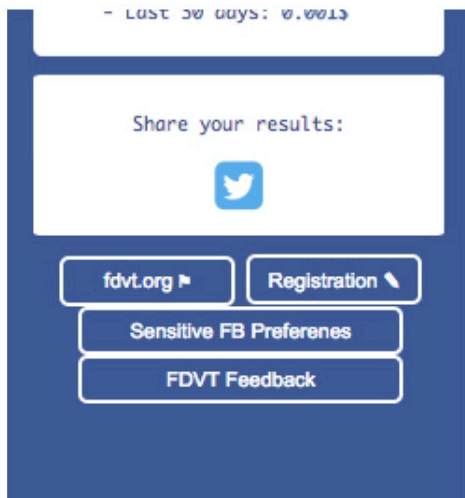
Homosexuality death penalty countries

Country	% of FB users tagged with the interests "homosexuality"
Afghanistan	12.31
Mauritania	0.99
Qatar	2.35
Somalia	1.44
Pakistan	1.54
United Arab Emirates	3.00
Brunei	5.24
Nigeria	2.35
Saudi Arabia	2.08
Yemen	1.08
Iraq	3.20



Solution

FDVT website



Checking & Deleting Sensitive Ad Preferences

Look for any ad preference...

Total #Ad Preferences: Active: 4 - Removed: 2 - Inactive: 2

Preference Name	Topic	Sensitive	Remove	More Info	Status
Homosexuality	Lifestyle and culture	Sensitive	<input type="button" value="Delete Ad Preference"/>	<input type="button" value="More Info"/>	ACTIVE
Democracy	Lifestyle and culture	Sensitive	<input type="button" value="Delete Ad Preference"/>	<input type="button" value="Less Info"/>	ACTIVE

HISTORICAL INFORMATION

This ad preference appeared in your profile in the following periods:

From 2016-09-16 to 2016-09-20. Reason: You have this preference because you clicked on an ad related to Democracy.

From 2019-01-14 to NOWADAYS. Reason: You have this preference because you liked a Page related to Democracy.

Coupons	Shopping and fashion	Non-Sensitive	<input type="button" value="Delete Ad Preference"/>	<input type="button" value="More Info"/>	ACTIVE
Shopping	Shopping and fashion	Non-Sensitive	<input type="button" value="Delete Ad Preference"/>	<input type="button" value="More Info"/>	ACTIVE
Universidad de Chile	Removed interests	Non-Sensitive		<input type="button" value="More Info"/>	REMOVED
Televisions	Removed interests	Non-Sensitive		<input type="button" value="More Info"/>	REMOVED
Real Madrid C.F.	Sports and outdoors	Non-Sensitive		<input type="button" value="More Info"/>	INACTIVE
TripAdvisor	Business and industry	Non-Sensitive		<input type="button" value="Less Info"/>	INACTIVE

HISTORICAL INFORMATION

This ad preference appeared in your profile in the following periods:

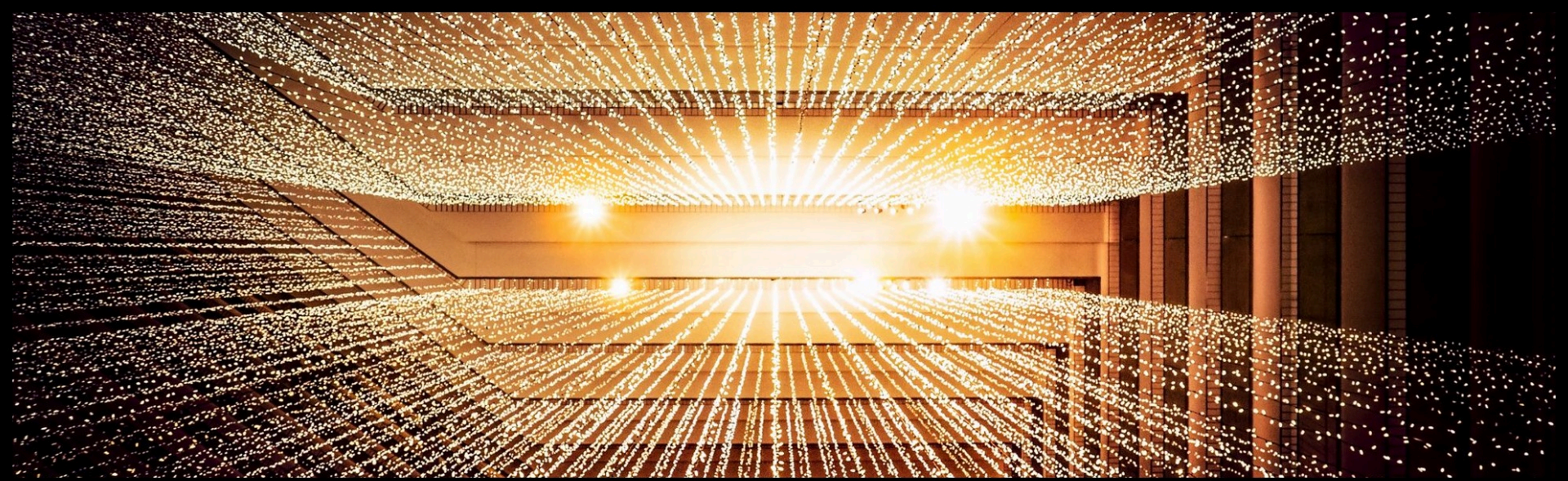
From 2016-09-16 to 2016-09-20. Reason: You have this preference because we think it may be relevant to you based on what you do on Facebook, such as pages you've liked or ads you've clicked.



Conclusion

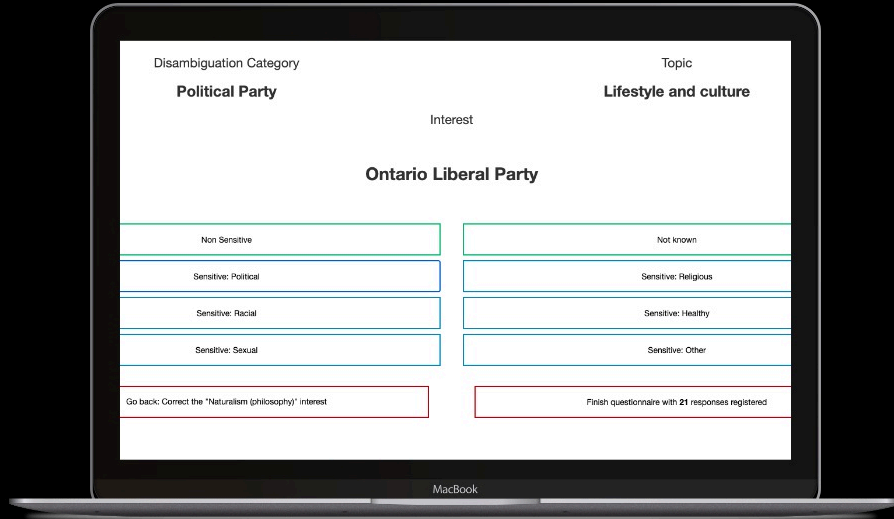
Takeaways

- **FACEBOOK OFFERS ADVERTISERS THE POSSIBILITY TO REACH USERS BASED ON SENSITIVE DATA**
- **67% OF FB USERS WORLDWIDE ARE LABELED WITH SOME POTENTIALLY SENSITIVE AD PREFERENCE**
(22% of citizens)
- **RICH DEVELOPED COUNTRIES ARE MORE EXPOSED TO BEING TAGGED WITH SENSITIVE INTERESTS**
- **GDPR HAS HAD A NEGLIGIBLE IMPACT**



Future work

Understanding the perspective of sensitive information



REGULAR USERS QUESTIONNAIRE

https://fdvt.org/form_sensitive/user_questionnaire/

TECHNOLOGY EXPERTS QUESTIONNAIRE

https://fdvt.org/form_sensitive/techs_questionnaire/

LEGAL EXPERTS QUESTIONNAIRE

https://fdvt.org/form_sensitive/lawyers_questionnaire/

**PLEASE HELP US IN OUR RESEARCH - KINDLY CLASSIFY
100 INTERESTS - 5 MINUTES OF YOUR TIME**

whereas it say
 all that passed by.
 35 And they shall say, This land that
 was desolate is become like the garden
 of Eden; and the waste and desolate
 and ruined cities are become fenced,
 and are inhabited.
 36 Then the heathen that are left round
 about you shall know that I the LORD
 build the ruined places, and plant that
 that was desolate: I the LORD have
 spoken it, and I will do it.
 37 Thus saith the Lord GOD; I will yet
 for this be inquired of by the house of
 Israel, to do it for them; I will increase
 them with men like a flock.

28 ^ach. 28:25; 37:25 ^bJer. 30:22; ch. 11:20; 37:27
 29 ¹Matt. 1:21; Rom. 11:26 ¹Ps. 105:16 ⁴ch. 34:29
 30 ¹ch. 34:27
 32 ^aDeut. 9:5; ver. 22
 33 ^pver. 10
 35 ^qIsa. 51:3; ch. 28:13; Joel 2:3
 36 ^rch. 17:24; 22:14; 37:14
 37 ^sch. 14:3; 20:3, 31 ^tver. 10

that I am the LORD.
 7 So I prophesied as I was commanded,
 and as I prophesied, there was a shaking,
 and behold a shaking, and the bones
 came together, bone to his bone,
 8 And when I beheld, lo, the bone
 and the flesh came up upon them,
 the skin covered them above: but there
 was no breath in them.
 9 Then said he unto me, Prophesy unto
 the wind, prophesy, son of man, and
 say to the wind, Thus saith the Lord
 GOD; ^fCome from the four winds,
 and breathe upon these bones, and
 they shall live.
 10 So I prophesied as he commanded me,
 and breath came upon them, and they
 lived, and stood upon their feet, as a
 great army.
 11 Then said he unto me, Stand upon
 thy feet, and I will shew thee what I
 will do to the house of Israel: for they
 shall be as a flock, and thou shalt be
 their shepherd.
 12 And thou shalt say unto them, Thus
 saith the Lord GOD; I will be to you
 as a Father, and I will be to the
 fatherless as a Father.
 13 And ye shall say, My Father, and
 my God shall be his name.
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CHAPTER 37
 1 ^ach. 1:3 ^bch. 3:14; 8:3; 11:24; Luke 4:1
 3 ^cDeut. 32:39; 1 Sam. 2:6; John 5:21; Rom. 4:17; 2 Cor. 1:9
 5 ^dPs. 104:30; ver. 9
 6 ^ech. 6:7; 35:12; Joel 2:27; 3:17
 9 ^fPs. 104:30; ver. 5

References

Submitted work

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