

MyTrackingChoices:

Reconciling Privacy and Economy
(part of the MyRealOnlineChoices.inrialpes.fr
project)

Claude Castelluccia

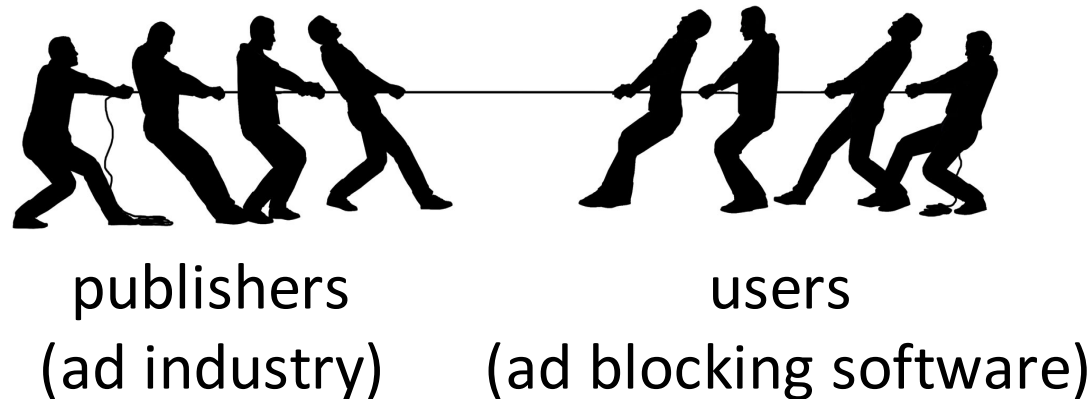
**Joint work with
Javier Parra-Arnau and Jagdish Achara**



INRIA Privatics Group

- **Objective1: *Understanding & Formalizing Privacy***
 - *Multidisciplinary approach*: technical, legal, economics, policy
 - *Experimental approach*:
 - monitor trackers, design or demonstrate practical privacy attacks (offensive privacy as in offensive security?).
- **Objective2: *Building Privacy-Preserving Systems***
 - Privacy-by-Design
 - Privacy and Transparency Enhancing Technologies (TETs and PETs)
 - Data Anonymization
 - Privacy Impact Assessment
 - Surveillance (tracking, profiling....)
- Strong collaboration with the CNIL (bridge between lawyers and techies): mobilitics, data anonymization, PIA,....

Ad-supported economic model of the Web is under threat today!



AdBlock War

Why ad-supported economy in danger

1

intrusive and annoying ads
privacy-invasive ads
ads are a source of malware
ads slow down the page loading
network bandwidth consumption
etc.

basically, all the reasons
why people started to
block ads in the first place

2

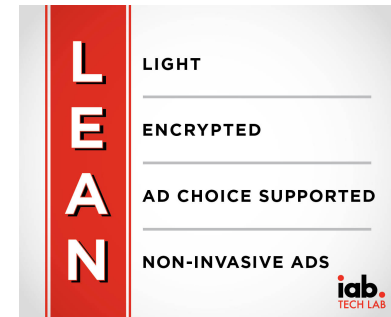
users were provided with radical tools
– i.e., tools that block ALL ads



Efforts for economic revival

1. various self-regulatory initiatives

- Acceptable Ads
- L.E.A.N. program
- YourOnlineChoices
- YourAdChoices
- DNT



2. Ad blocker tools for users

- users can white-list or black-list trackers (advertisers)
- users can white-list or black-list a domain

Self-regulatory initiatives do not work



David Carroll
@profcarroll



 Follow

1 out of 122 Opt Outs were honored when I attempted a batch request with AdChoices. Self-regulation, folks.

Google, Microsoft, and Amazon are paying Adblock Plus huge fees to get their ads unblocked



Lara O'Reilly  

Feb. 3, 2015, 11:57 AM  9,150  1

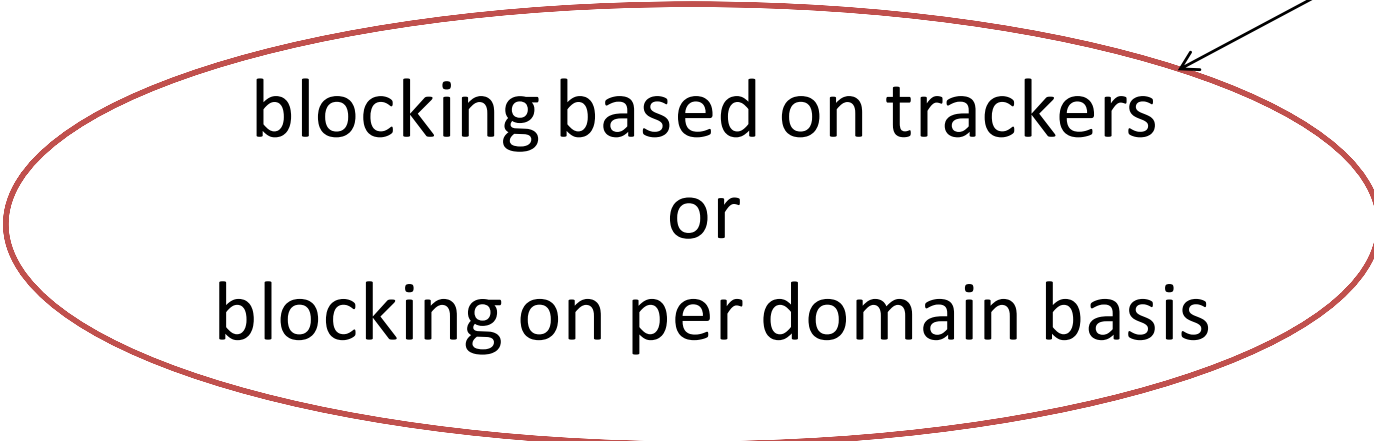
FEB 27, 2013 @ 07:58 PM 12,949 VIEWS

Google And Facebook Ignore "Do Not Track" Requests, Claim They Confuse Consumers

Lack of technical enforcement is the root problem!

Current Blocking solutions are too coarse-grain!

not usable



blocking based on trackers
or
blocking on per domain basis

do not make sense from user + economical perspective
(users only care about their browsing profile)

Our Objective

- Can we propose a solution that respects users' privacy preferences and still allows some kind of tracking?

What do people want [pets16]?

- People are not against targeted ads and even tracking
 - They even see some benefits
 - They are willing to even share more data:
 - If they can **control** the information that is being tracked.
 - If the shared information is not “sensitive”
- Whereas current tools focus on the properties of trackers, users are more concerned about **the properties of the sites they visited, such as the topics of these pages!**
- Users have **different preferences**
- Users are concerned about the lack of **transparency** and **control** over tracking!


[pet16] *(Do Not) Track Me Sometimes: Users' Contextual Preferences for Web Tracking*

MyTrackingChoices

- let users decide where they're ok or not to get tracked

Profile	Allowed?
Adult	✘
Sports	✓
Health	✘
Economy	✓
...	...

users would be able to **control** the profile trackers have



(Do not) Track Me Sometimes: Users' Contextual Preferences for Web Tracking, PETS, 2016

Fine-grained options (2)

- w.r.t. intrusiveness
 - maximum number of ads per page (on pages where users are ok to be tracked)
 - type, size, placement of ads



Category	BlockTrackers
adult	<input checked="" type="checkbox"/>
agriculture	<input type="checkbox"/>
animals	<input type="checkbox"/>
architecture	<input type="checkbox"/>
arts & entertainment	<input type="checkbox"/>
automotive	<input type="checkbox"/>
business	<input type="checkbox"/>
careers	<input type="checkbox"/>
economics	<input type="checkbox"/>
education	<input type="checkbox"/>
family & parenting	<input type="checkbox"/>
fashion	<input type="checkbox"/>
folklore	<input type="checkbox"/>
food & drink	<input type="checkbox"/>
health & fitness	<input checked="" type="checkbox"/>

categories

decision

The image shows a web browser window displaying the BBC News Technology page. The browser's address bar shows the URL www.bbc.com/news/technology. The page features a red navigation bar with the BBC logo and various news categories. Below this is a large red banner with the word "NEWS" and a sub-menu with options like Home, Video, World, UK, Business, Tech, Science, Magazine, and Entertainment. A red oval highlights a FedEx advertisement banner. The main content area has a sub-header "Technology" and a large headline "Nokia no longer the butt of tech jokes".

Overlaid on the right side of the browser window is a "MyTrackingChoices" popup. The popup has a title "MyTrackingChoices" and a subtitle "Browse the Web in Peace". It contains the following text:

Page categorized as: "technology & computing", "arts & entertainment" and "news". If you disagree, please, [click here](#) to change.

Decision: 15 trackers were Not blocked on this page! (N)

Current page trackers: [view the list](#)

In future, for this page, you want to:

- block trackers
- allow trackers

[Configure your tracking choices \(Options page\).](#)

About [MyTrackingChoices](#). Read our [Privacy Policy](#).

[You think current page broke due to MyTrackingChoices?](#)

Study says a major blood cancer i

www.bbc.com/news/health-36479291

News Sport Weather Shop Earth Travel Capital

NEWS

Home Video World UK Business Tech Science Magazine Enter

Health

Study says a major blood cancer i diseases

By Adam Brimelow
Health correspondent, BBC News

8 June 2016 | Health

category

decision

MyTrackingChoices

Browse the Web in Peace

Page categorized as: "arts & entertainment", "health & fitness" and "news". If you disagree, please, [click here](#) to change.

Decision: 7 trackers were Blocked on this page! (B)

Current page trackers: [view the list](#)

In future, for this page, you want to:

- block trackers
- allow trackers

[Configure your tracking choices \(Options page\).](#)

About [MyTrackingChoices.](#) Read our [Privacy Policy.](#)

[You think current page broke due to MyTrackingChoices?](#)

Categorization

- per web page basis (\neq per domain)

Benefits

website: ads would be blocked only on sensitive-category web pages (most revenue preserved)

user: can technically control his profile yet continue receiving free content

- A page is categorized **locally** based on
 - domains/subdomains/hostname
 - unigrams and bigrams

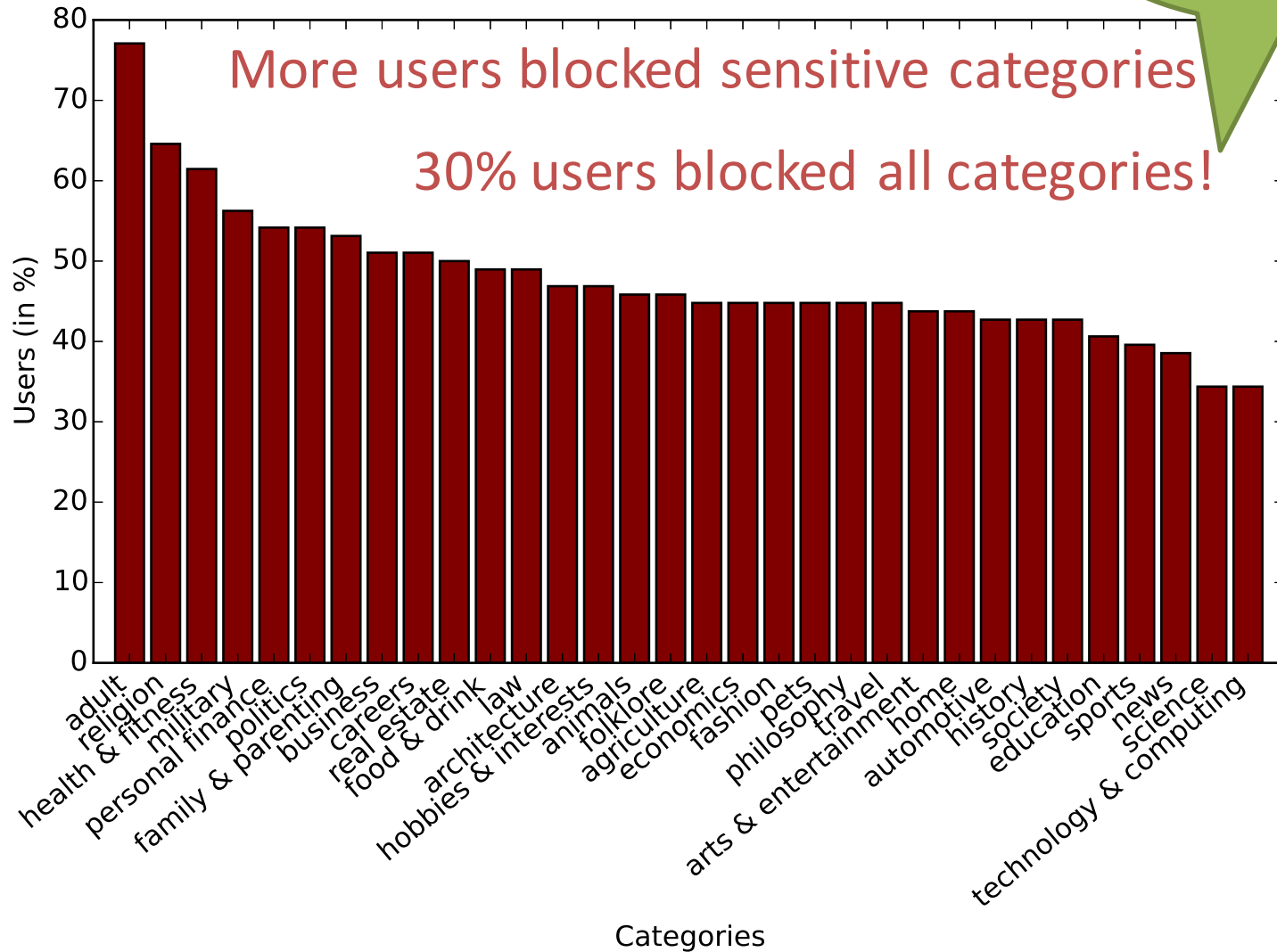
Evaluation of data from MTC users

Dataset

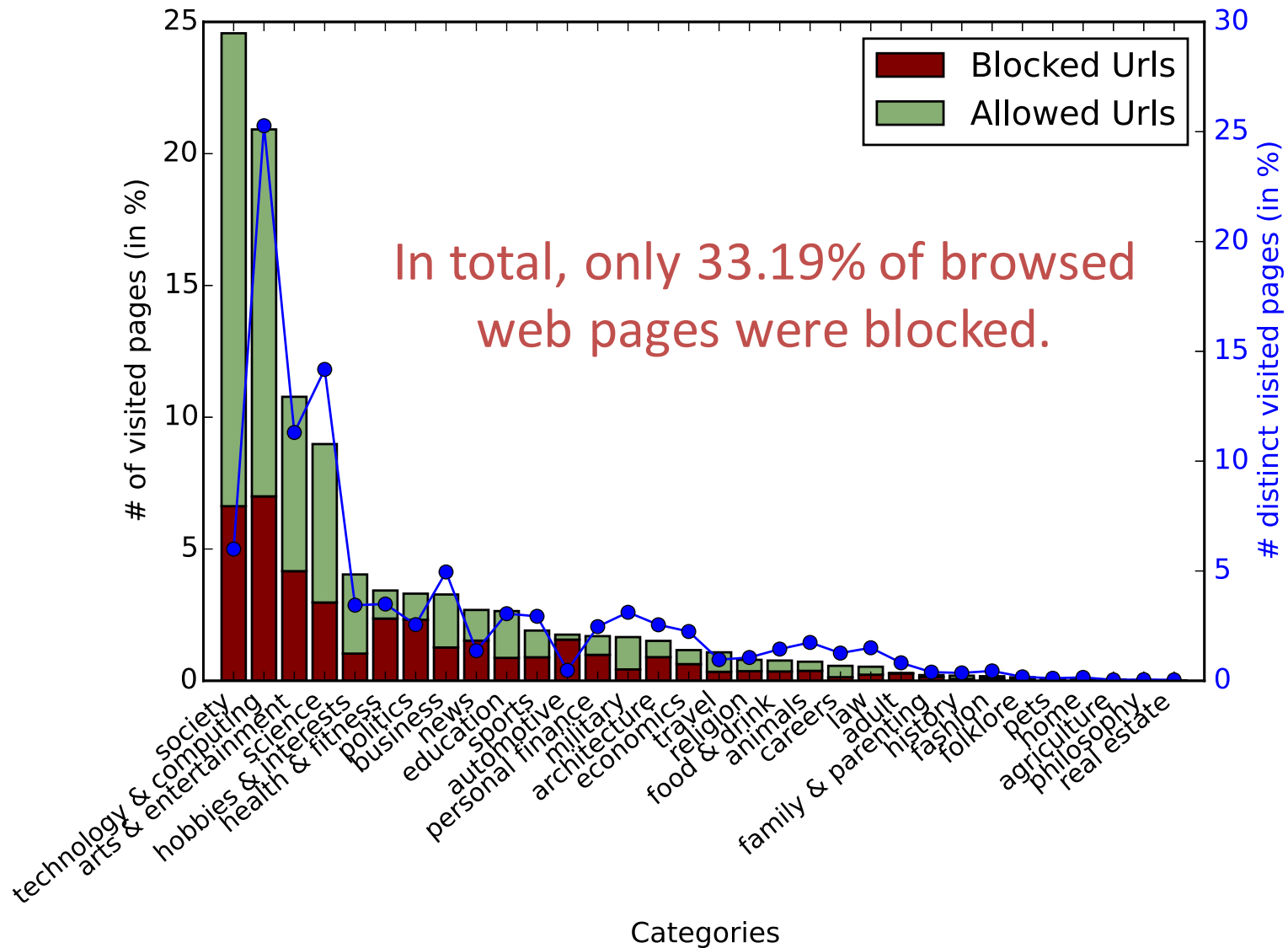
- 96 users
 - who browsed 20 or more web pages and configured, at least, once their tracking options
 - found the extension on Chrome Web Store independently or through various publicity channels
- From January 11 to February 20, 2016

Blocked categories

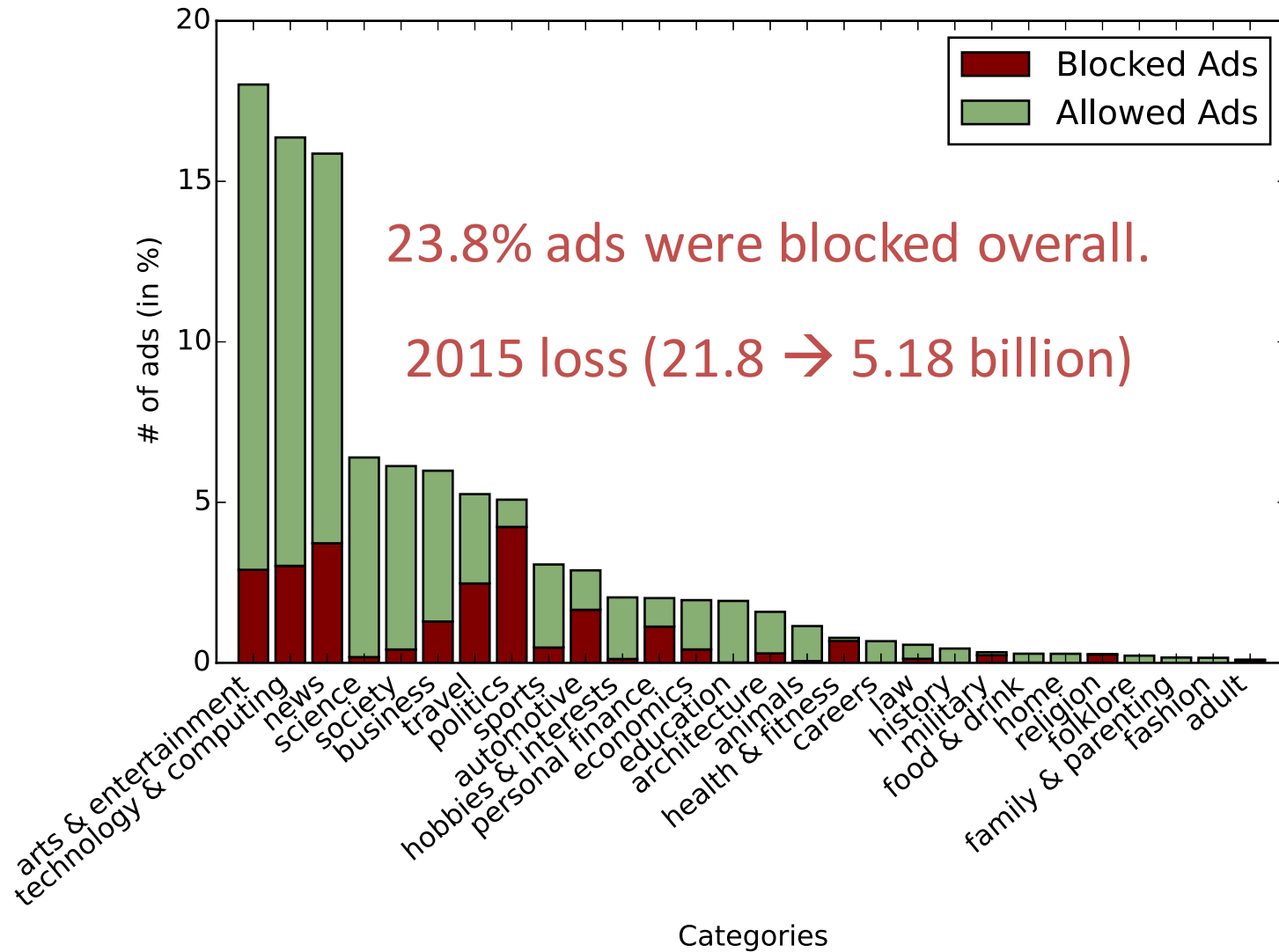
Other economic models needed!



Distribution Blocked/Allowed URLs



Distribution Blocked/Allowed Ads



Conclusions

- Give users **fine-grained control** over **their profile and privacy preferences**
- Win-win situation for all stake-holders:
 - Users are more happy and will value more the ads
 - Retailers images/trust will improve since they won't upset users
 - The quality (and therefore the price) of the targeted ads might increase... so ad network might actually benefit!
- This is another example of Privacy by Design...

TODOs

- provide users with fine-grained control w.r.t. intrusiveness
 - i.e. Add limitation on # of ads per page

Thanks for your attention!
Questions?
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Project web page: <https://myrealonlinechoices.inrialpes.fr>

Watch on YouTube: <https://youtu.be/mzB1hXhqYBE>