

Measuring the Facebook Advertising Ecosystem

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Advertising in Facebook

- Facebook is the second biggest advertising platform:

Facebook made \$39.9 billion in ad revenue in 2017

We're talking about [ads on Facebook](#), because Facebook is an advertising juggernaut. Facebook made \$39.9 billion in ad revenue in 2017, which is more than just about every other tech company that's not Google.

APR 10 2018, 3:21 PM ET



More than the GDP of Iceland or Bahrain!

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More than the GDP of Iceland or Bahrain!

- Millions advertisers and billions of users:

facebook IQ

6M+ There are more than **6 million** active advertisers on Facebook.

Source: Facebook Data, Nov 2017

Statistics

- 1.52 billion daily active users on Facebook on average for December 2018
- 2.32 billion monthly active users on Facebook as of December 31, 2018

Facebook ad platform issues constantly in the spotlight

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MACHINE BIAS

Facebook Lets Advertisers Exclude Users by Race

Facebook's system allows advertisers to exclude black, Hispanic, and other "ethnic affinities" from seeing ads.

by Julia Angwin and Terry Parris Jr., Oct. 28, 2016, 1 p.m. EDT

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MACHINE BIAS

Facebook (Still) Letting Housing Advertisers Exclude Users by Race

After ProPublica revealed last year that Facebook advertisers could target housing ads to whites only, the company announced it had built a system to spot and reject discriminatory ads. We retested and found major omissions.

by Julia Angwin, Ariana Tobin and Madeleine Varner, Nov. 21, 2017, 1:23 p.m. EST

This talk

- Who are the advertisers in Facebook?
- How are they targeting users?

Methodology



AdAnalyst – A tool to help you make sense of your ads

Methodology



AdAnalyst — A tool to help you make sense of your ads

- **Chrome** and **Firefox** extension
- Collects **Facebook ads** and related data from **real users**

Methodology



AdAnalyst – A tool to help you make sense of your ads

- Increase **transparency for users:**

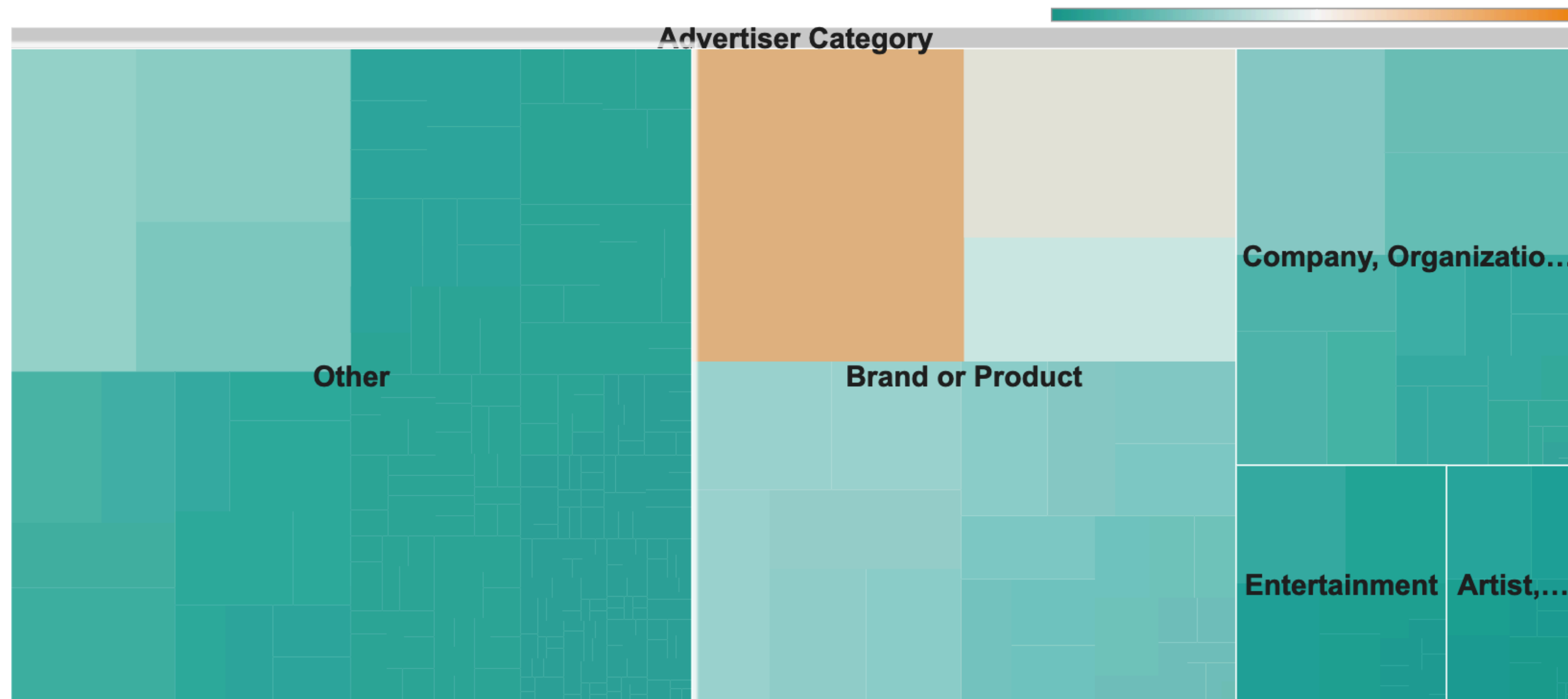
Methodology



AdAnalyst – A tool to help you make sense of your ads

- Increase **transparency for users:**

The type of advertisers that are targeting you



Left click to zoom-in/ Right click to zoom-out (two finger click in Mac)

Methodology



AdAnalyst – A tool to help you make sense of your ads

- Increase **transparency for users**:



Time: [REDACTED]

Advertiser: [Noom](#)

Advertiser category: App Page

Explanation: One reason you're seeing this ad is that Noom wants to reach people who may be similar to their customers. Learn more. There may be other reasons you're seeing this ad, including that Noom wants to reach men ages 25 and older who live in France. This is information based on your Facebook profile and where you've connected to the internet.

Compact explanation: Lookalike Audience

All users have received this ad for: Lookalike Audience

The advertiser targeted you with: Lookalike Audience, PII-based targeting

The advertiser targeted other users with: Lookalike Audience, PII-based targeting, English (US) (Biographical Data), Physical exercise (Interests)

When you “woke up like this”. When you buy those skinny jeans. When you show yourself off, not hide yourself away. When you fit into the skirt you wore in college. When you feel like you can conquer the world. ... That’s Noom.

Our Dataset



AdAnalyst – A tool to help you make sense of your ads

- **DATA-Worldwide:**

- Disseminated across friends, colleagues, conferences etc
- 114 users / 89K ads / **22K advertisers**
- 50 users from **France**, 16 from **Germany**, 16 from **US**

- **DATA-Brazil:**

- Disseminated as part of a project to monitor the 2018 **Brazilian** presidential elections
- 508 users / 146K ads / **28K advertisers**
- 495 users from **Brazil**

Our users

- Dissemination strategy introduces some **biases**

Our users

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- **Younger educated men:**
 - 47.4% ages 22-30 vs 32.5% on Facebook
 - 71.1% with tertiary education vs 35.9%
 - 68.4% men vs 57%

Our users

- Dissemination strategy introduces some **biases**
- **Younger educated men:**
 - 47.4% ages 22-30 vs 32.5% on Facebook
 - 71.1% with tertiary education vs 35.9%
 - 68.4% men vs 57%
- Our users are overall **similar** to the global Facebook population
 - More likely to travel frequently and know people that are expats

This talk

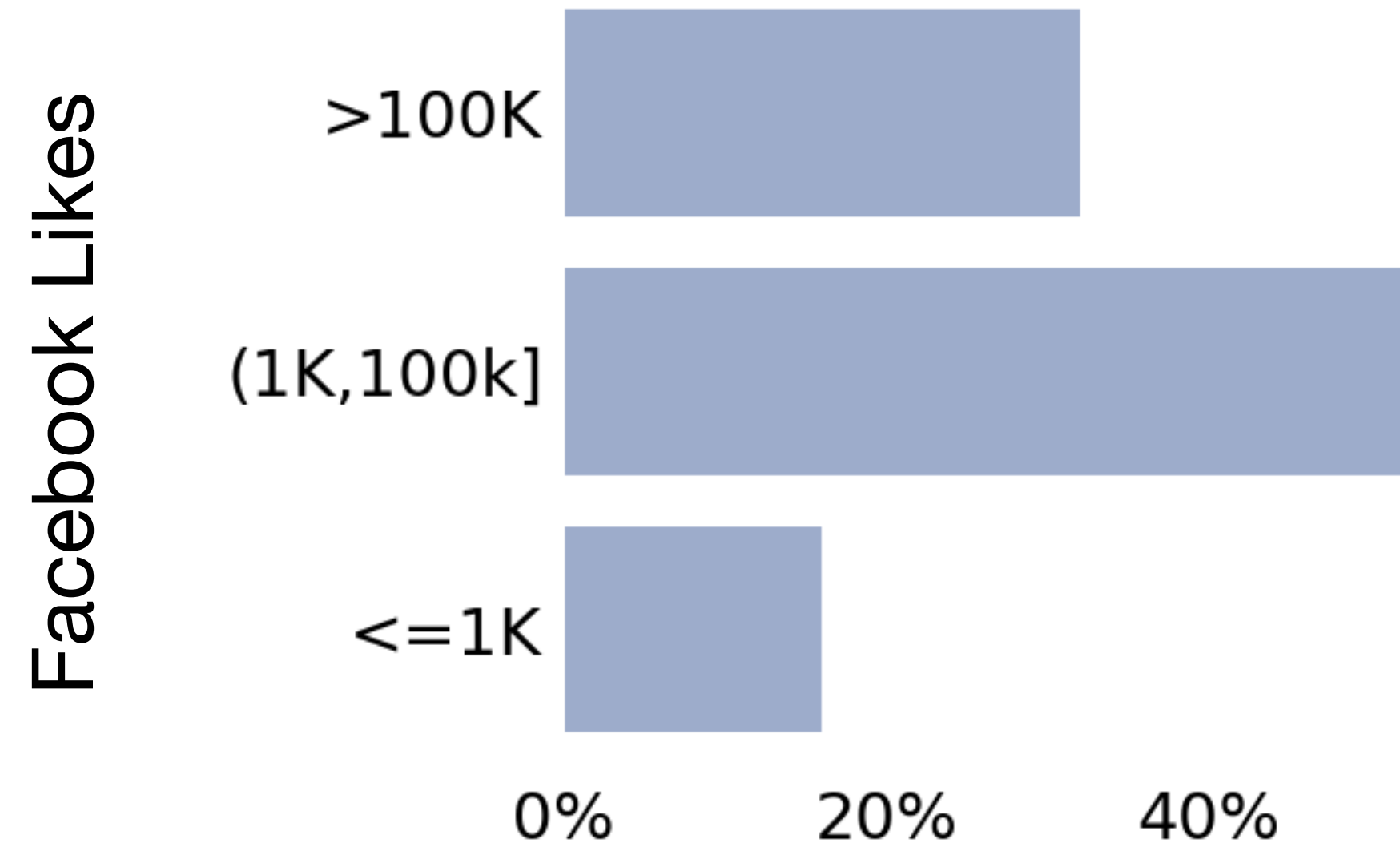
- **Who are the advertisers in Facebook?**
- How are they targeting users?

Advertisers' identity

- How popular are advertisers?

Advertisers' identity

- How popular are advertisers?



Popular:



Ordinary:

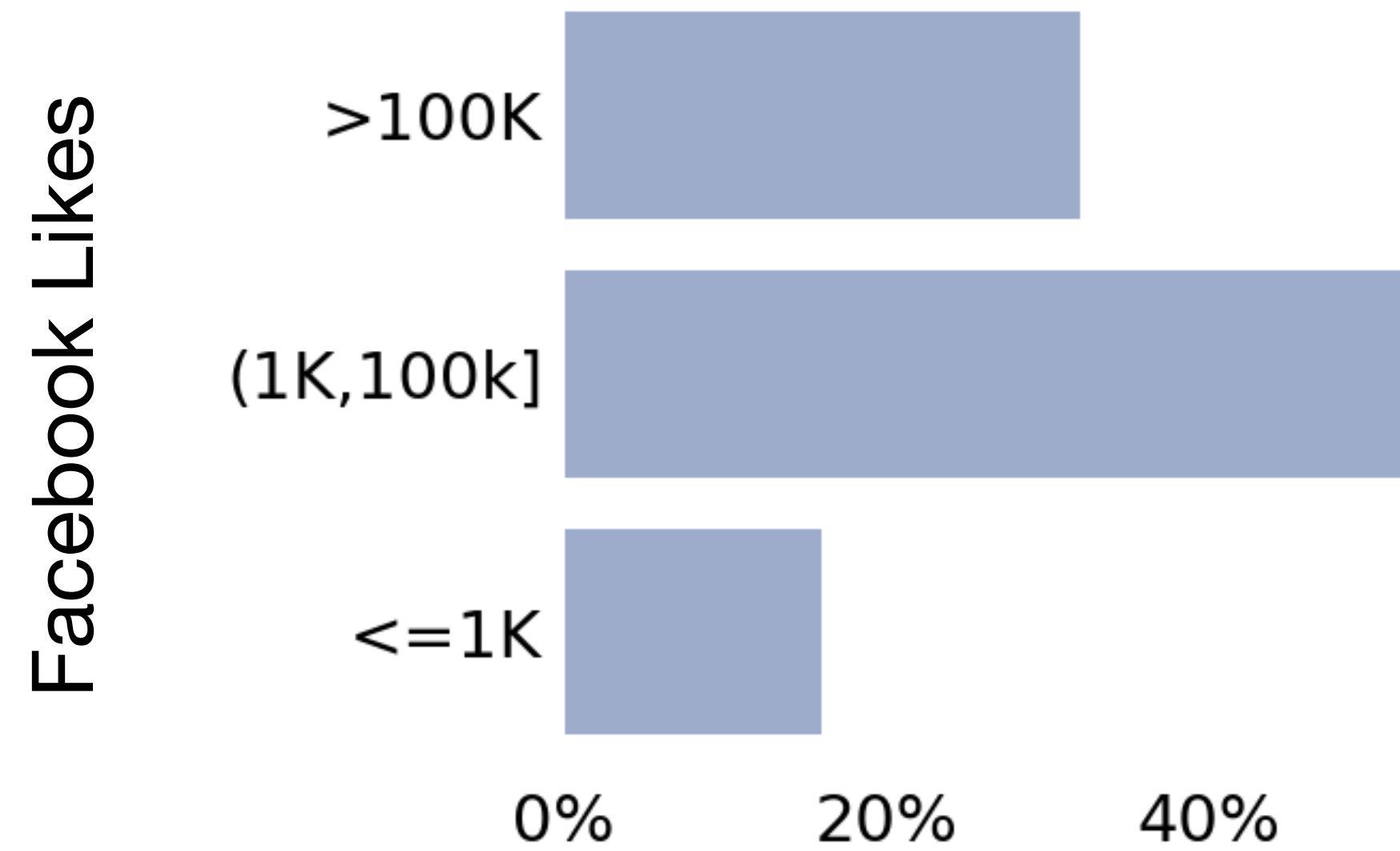


Niche:



Advertisers' identity

- How popular are advertisers?



Popular:



Ordinary:



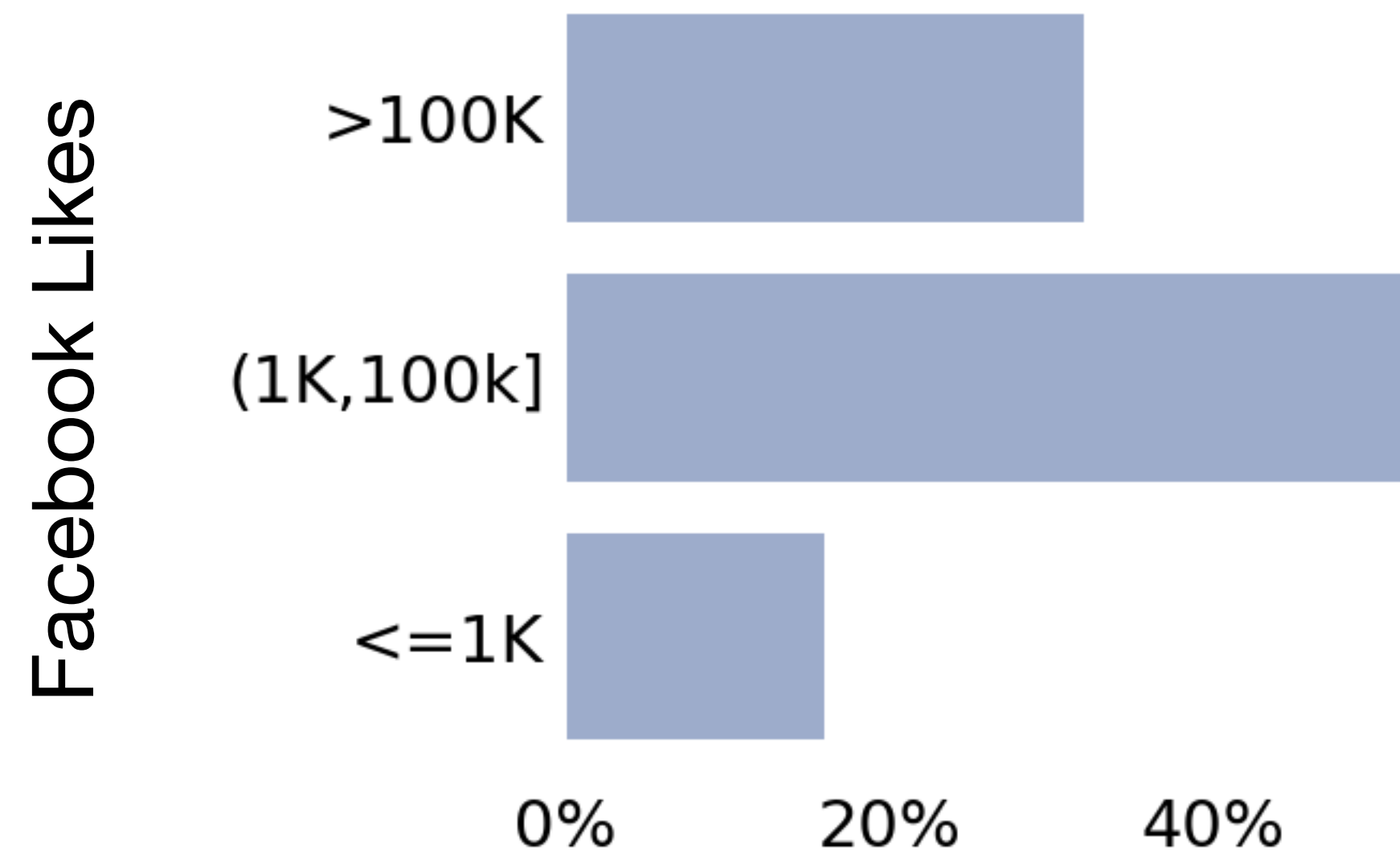
Niche:



- How trustworthy are advertisers?

Advertisers' identity

- How popular are advertisers?



Popular:



Ordinary:



Niche:



- How trustworthy are advertisers?

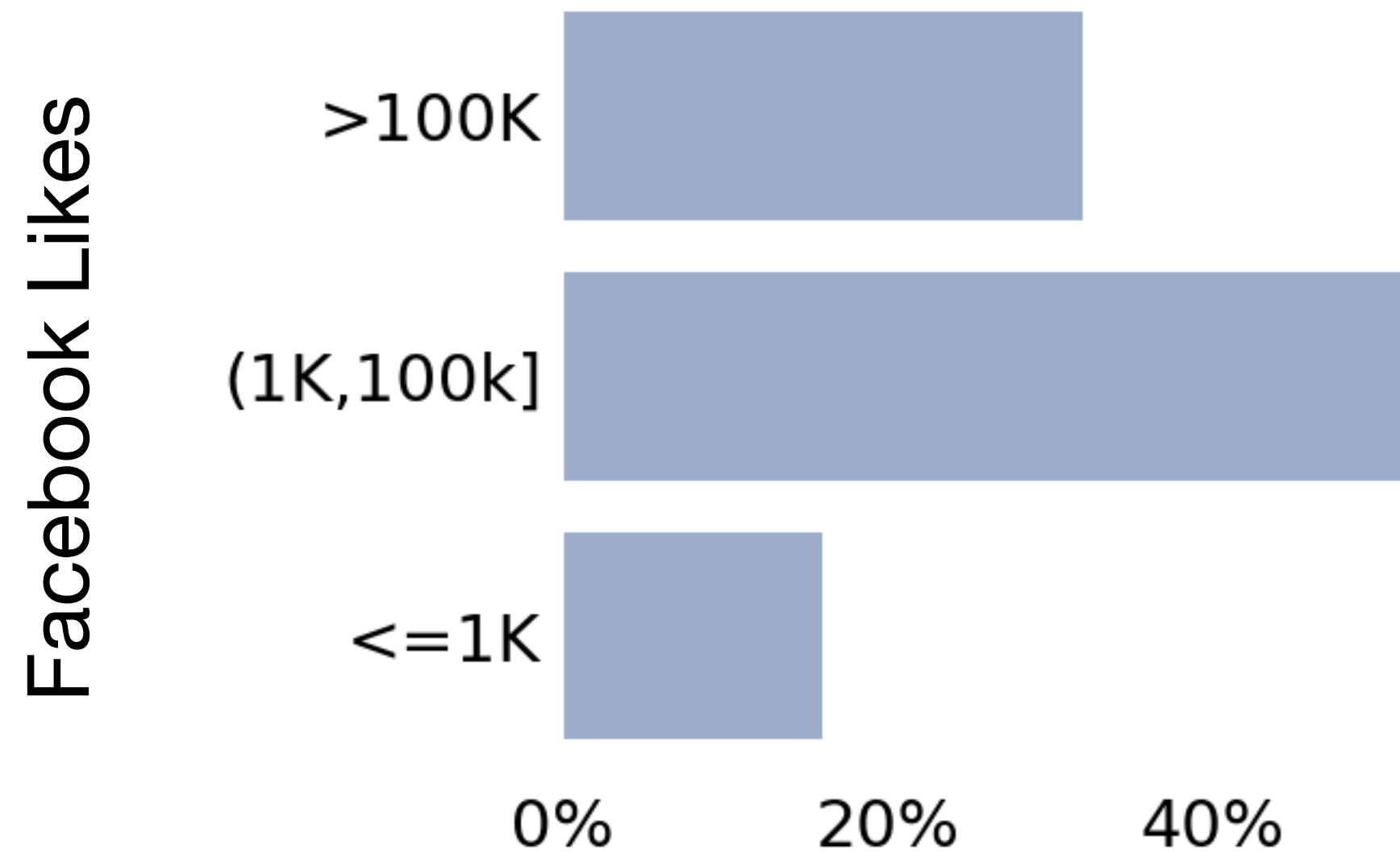
- advertisers can **verify** their account

- ☑ phone number or official document

- 👉 government issued photo id

Advertisers' identity

- How popular are advertisers?



Popular:



Ordinary:



Niche:



- How trustworthy are advertisers?

- advertisers can **verify** their account

☑ phone number or official document

✔ government issued photo id

- 64% of advertisers are not verified

	✔	☑
Popular	66,9 %	6,1 %
Ordinary	10,3 %	12,6 %
Niche	0,2 %	6,4 %

Advertisers' categories

- Advertisers can **self-report** their categories
- **943** categories:
 - Nonprofit Organization, Shopping & Retail
 - Evangelical Church, Aquarium, Opera
- We group them to **35** broader categories (IAB)
- Sensitive Categories

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1. Food and Drink: 9.3%
2. Style & Fashion: 8.5%
3. Technology and Computing: 8.4%
4. Community Organization: 8.2%
5. Shopping: 6.7%
6. **News and Politics**: 5.5%
7. Travel: 4.6%
8. **Education**: 4.4%
9. Healthy Living: 4.2%
10. Home & Garden: 3.6%

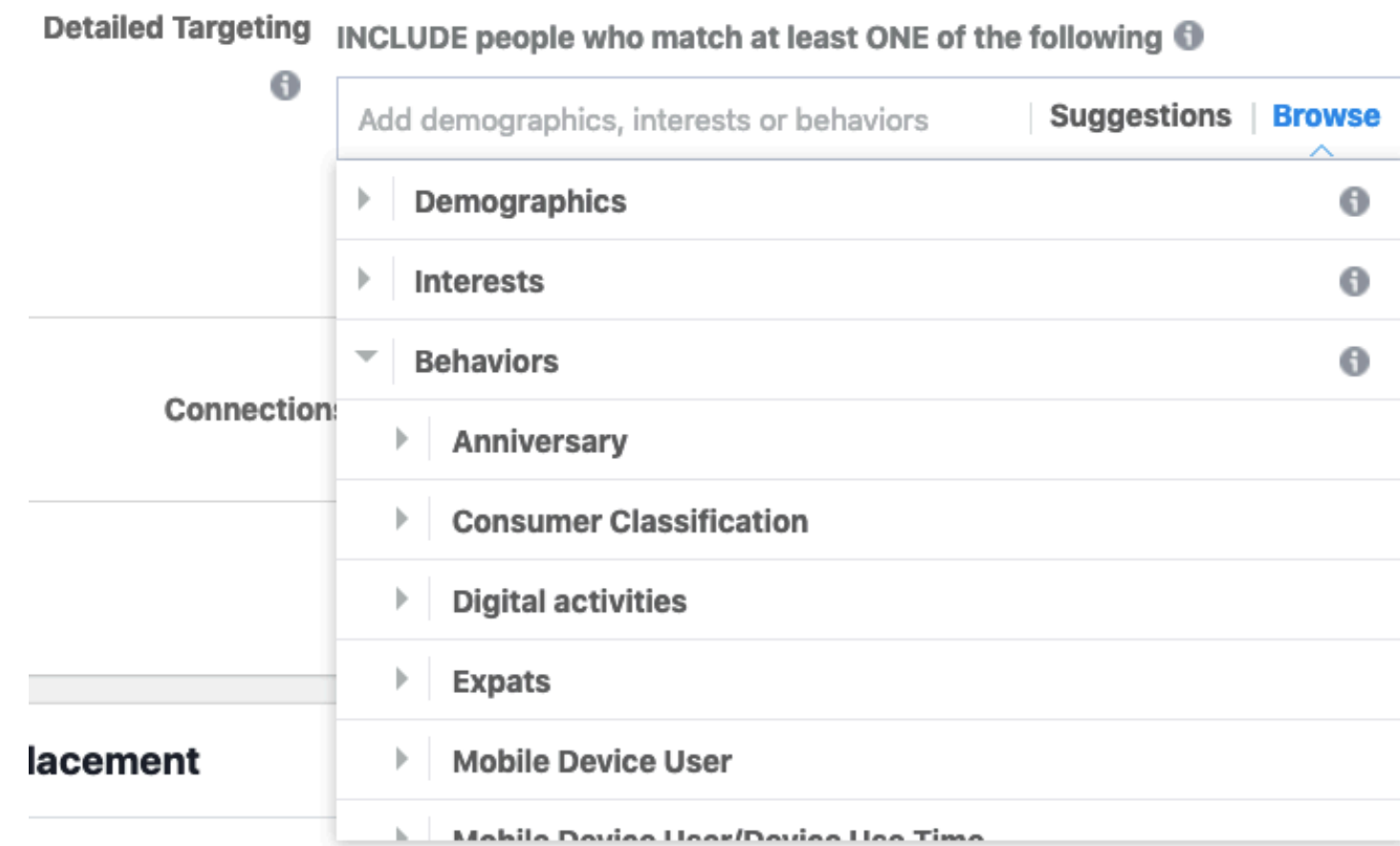
- **Business and finance**: 2%
- **Medical Health**: 1.2%
- **Legal**: 0.2%
- **Religion and Spirituality**: 0.1%

This talk

- Who are the advertisers in Facebook?
- **How are they targeting users?**

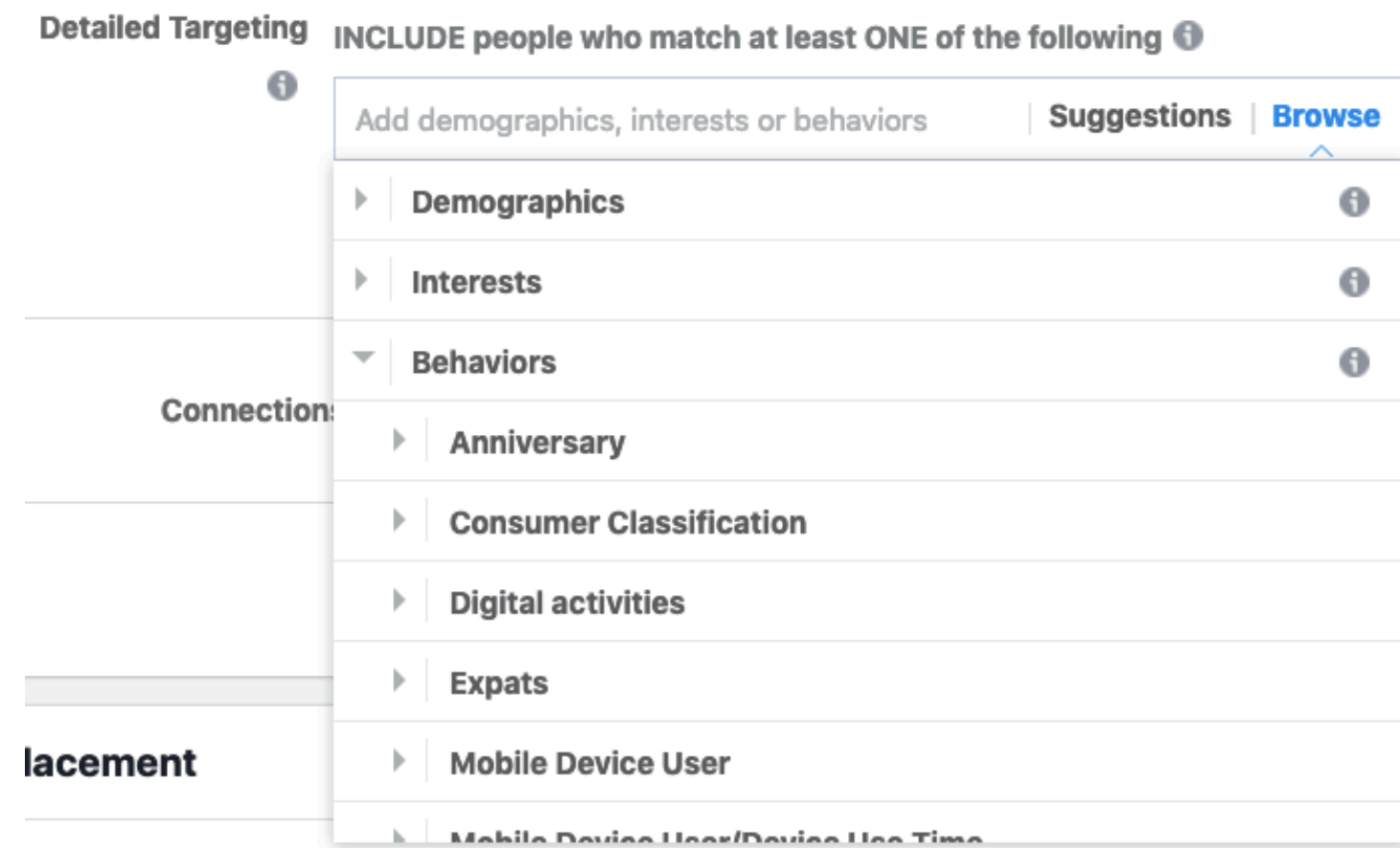
Many strategies available for targeting

- Attribute-based

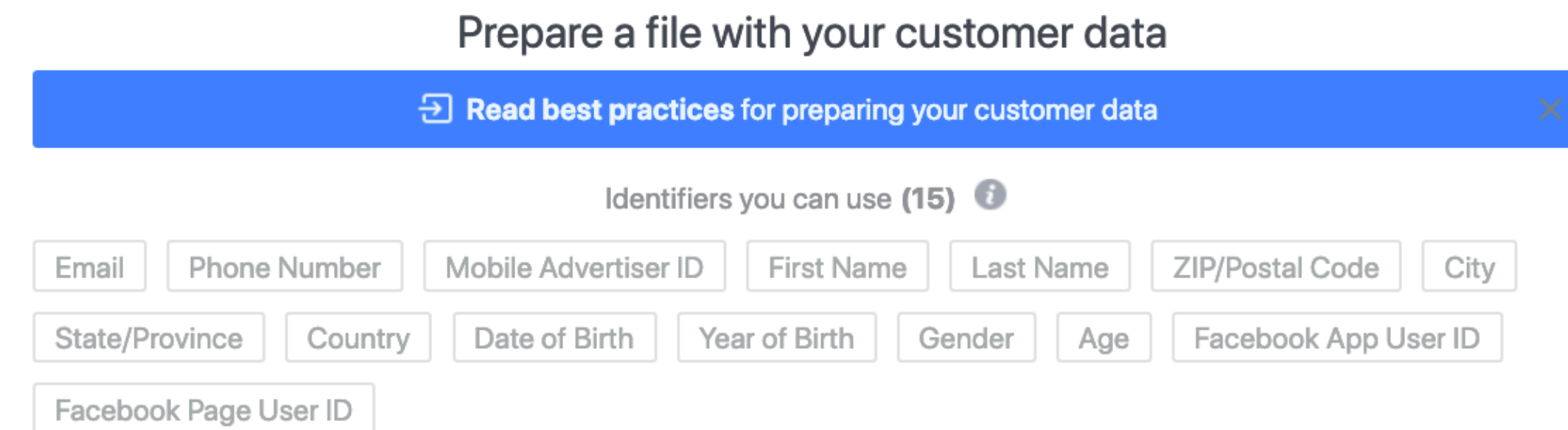


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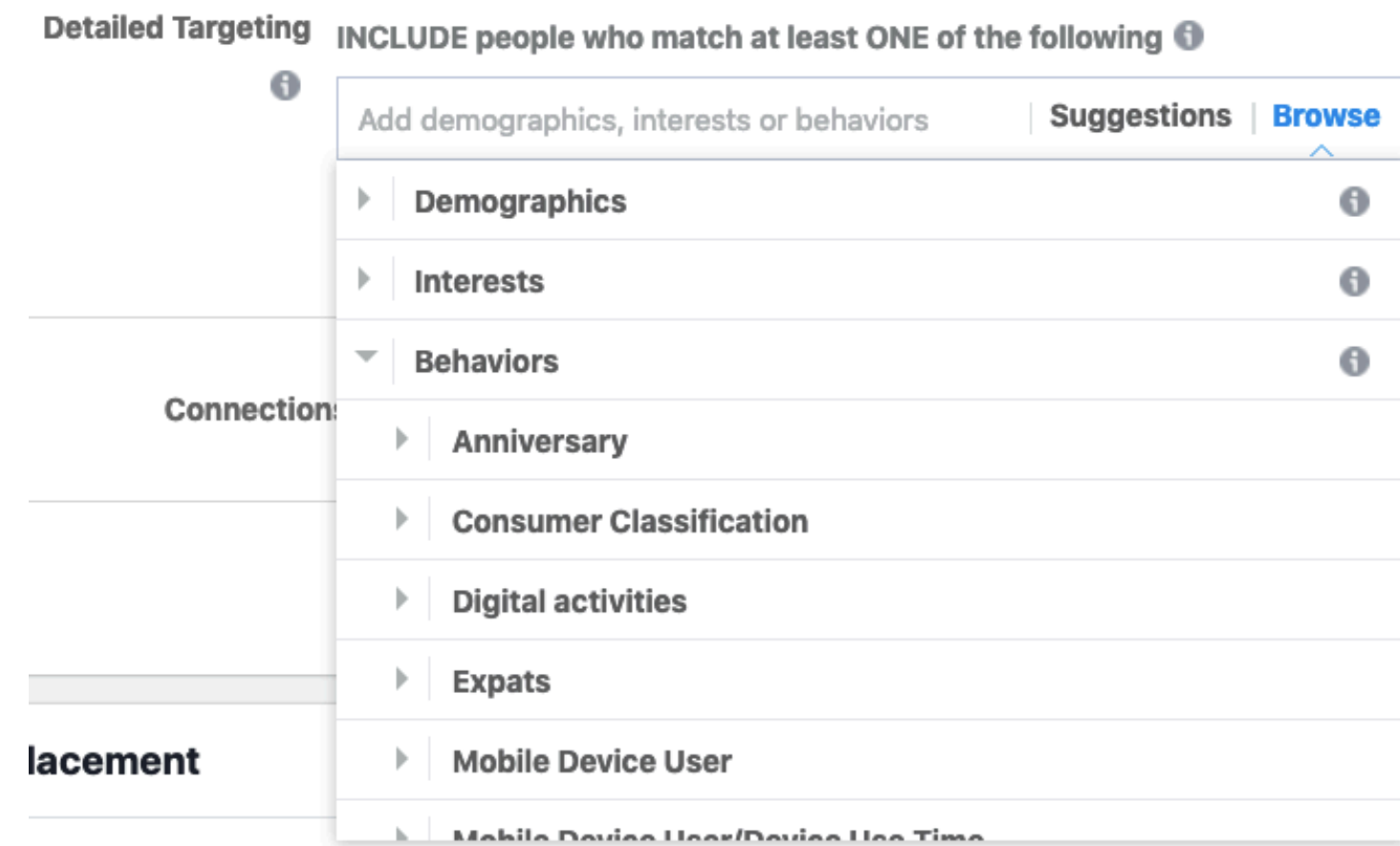


● PII-based

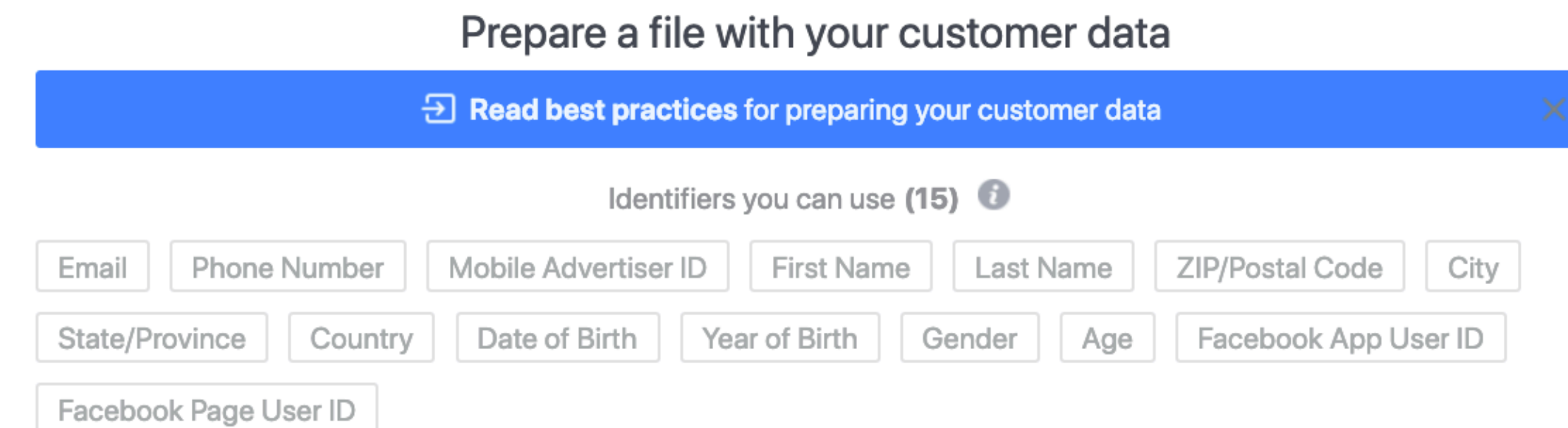


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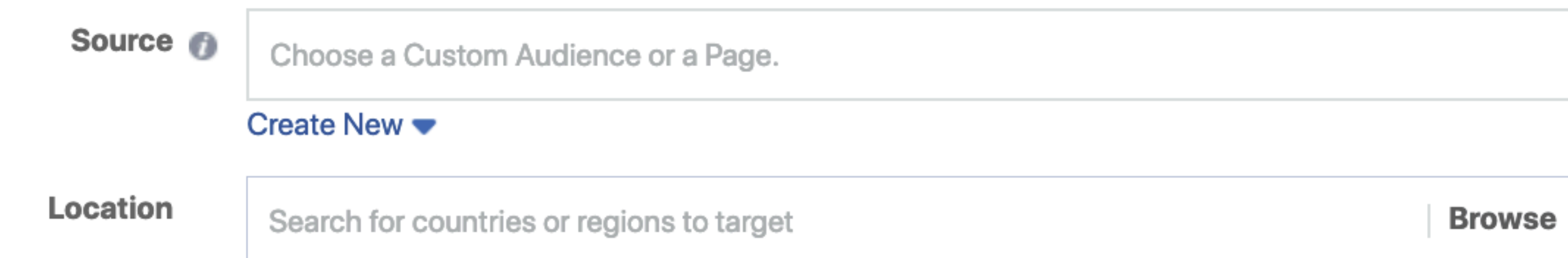
- Attribute-based



- PII-based



- Lookalike audiences



Many strategies available for targeting

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- Retargeting

Include people who meet **ANY** of the following criteria:

- [Redacted] 's Pixel
 - All website visitors in the past 30 days

Many strategies available for targeting

- Retargeting

Include people who meet **ANY** of the following criteria:

● [Redacted] 's Pixel

All website visitors in the past 30 days

- Location-based

Locations ⓘ

People recently in this location

Germany

📍 5 Campus C, Saarbrücken, Saarland, Germany

+ 1mi

Many strategies available for targeting

- Retargeting

Include people who meet **ANY** of the following criteria:

[Redacted] 's Pixel

All website visitors in the past **30** days

- Location-based

Locations

People recently in this location

Germany

5 Campus C, Saarbrücken, Saarland, Germany

+ 1mi

- Social Neighborhood

Connections

Facebook Pages

Friends of people who like your Page

Add a Page

How do we know how advertisers target users?

The image shows a Facebook advertisement for Manta Sleep. At the top left is the Manta Sleep logo, a red circle with a white eye shape, followed by the text "Manta Sleep" and "Sponsored". Below this is promotional text: "This Sleep Mask Is a Game Changer" (with a smiley face emoji), "(Rated #1 Sleep Mask by Mashable)", "Take 10% off Using Code MANTA10", and "100% 60-Day Money Back Guarantee!". A link is provided: "https://mantasleep.com/products/". The main image is a black sleep mask with "manta sleep" written in red on the side, set against a yellow background. A white menu is open over the image, listing options: "Hide ad" (with a subtext "Mark ad as irrelevant or repetitive"), "Report ad" (with a subtext "Tell us about a problem with this ad"), "Save product" (with a subtext "Add this to your saved items"), "Why am I seeing this?", "Turn on notifications for post", "Embed", and "More options". Below the image, the text "MANTASLEEP.COM" is visible, followed by the headline "Manta Sleep Mask's Weird 'Eye Bras' Give You 100% Blackout." At the bottom, there are icons for Like, Comment, and Share, with a "4K" view count next to the Like icon.

How do we know how advertisers target users?

The image shows a Facebook advertisement for Manta Sleep. The ad header includes the Manta Sleep logo, the text "Sponsored", and promotional text: "This Sleep Mask Is a Game Changer (Rated #1 Sleep Mask by Mashable)", "Take 10% off Using Code MANTA10", and "60-Day Money Back Guarantee!". A URL is provided: <https://mantasleep.com/products/>. The main image is a black sleep mask with "manta sleep" written on it. A menu is open over the ad, listing options: "Hide ad", "Report ad", "Save product", "Why am I seeing this?" (circled in red), "Turn on notifications for post", "Embed", and "More options". Below the image, the text reads "MANTASLEEP.COM" and "Manta Sleep Mask's Weird 'Eye Bras' Give You 100% Blackout.". At the bottom, there are icons for Like, Comment, and Share, along with a "4K" engagement count.

How do we know how advertisers target users?

The image shows a screenshot of a Facebook interface. At the top, there is a browser tab for 'Manta Sleep'. Below it is a dialog box titled 'About This Facebook Ad' with a close button (X) in the top right corner. The dialog box contains the following text:

Why Am I Seeing This Ad? Options ▾

One reason you're seeing this ad is that **Manta Sleep** wants to reach people interested in **Sleep**, based on activity such as liking Pages or clicking on ads.

There may be other reasons you're seeing this ad, including that Manta Sleep wants to reach **people ages 25 to 55 who live or were recently in France**. This is information based on your Facebook profile and where you've connected to the internet.

Let us know if this topic interests you

Sleep

[Manage Your Ad Preferences](#)

Tell Us What You Think

Was this explanation useful? [Yes](#) [No](#)

[Learn more about Facebook Ads](#)

Below the dialog box, a portion of a Facebook post is visible, showing 4K reactions (Like, Love, Care) and interaction buttons for Like, Comment, and Share.

How do we know how advertisers target users?

The screenshot shows a browser window with a tab for 'Manta Sleep'. Below it is a grey box titled 'About This Facebook Ad' with a close button. The main content is titled 'Why Am I Seeing This Ad?' with an 'Options' dropdown. The text explains that the ad is shown because 'Manta Sleep wants to reach people interested in Sleep, based on activity such as liking Pages or clicking on ads.' A red underline highlights this sentence. Below, it says 'There may be other reasons you're seeing this ad, including that Manta Sleep wants to reach people ages 25 to 55 who live or were recently in France.' Another red underline highlights this sentence. There is a section 'Let us know if this topic interests you' with 'Sleep' and two reaction icons (happy and sad). A 'Manage Your Ad Preferences' link is also present. At the bottom, there is a 'Tell Us What You Think' section with a poll 'Was this explanation useful?' and 'Yes' and 'No' options. Below this is a footer with an information icon and the text 'Learn more about Facebook Ads'. At the very bottom, there is a partial view of a post with 4K reactions and 'Like', 'Comment', and 'Share' buttons.

Manta Sleep

About This Facebook Ad

Why Am I Seeing This Ad?

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4K

Like Comment Share








Limitations of Facebook Explanations

- Facebook ad explanations reveal information about the targeting








Limitations of Facebook Explanations

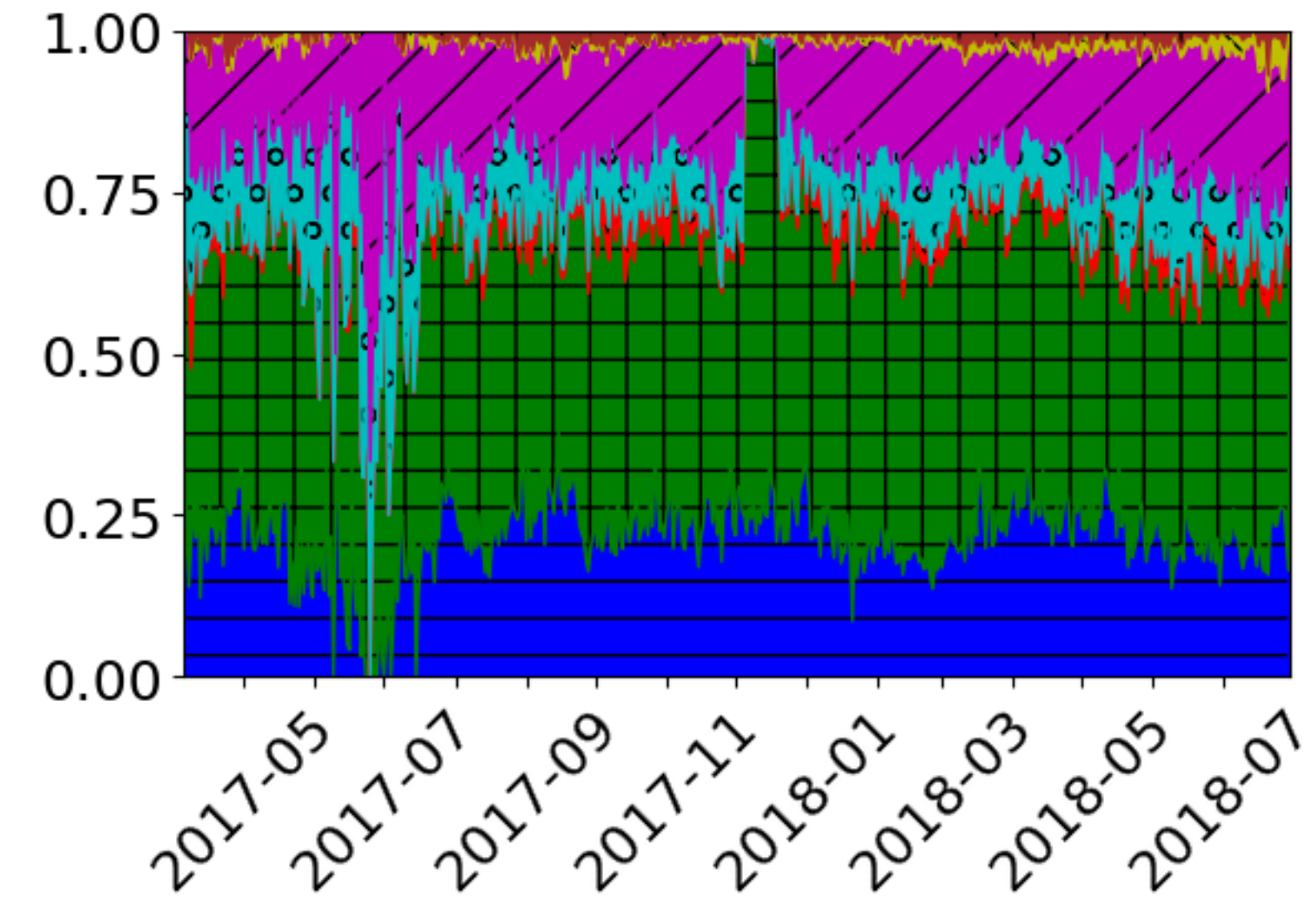
- Facebook ad explanations reveal information about the targeting
- They have limitations:
 - They show one attribute
 - Demographics > Interests > PII-based > Behaviors
 - Show the most prevalent attribute

What targeting strategies do advertisers use?

-  **Attribute-based:** 47% of ads
-  Age/Gender/Location: 23%
-  **Lookalike Audiences:** 18%
-  Retargeting: 8%
-  Social Neighborhood: 3%
-  **PII-based:** 2%
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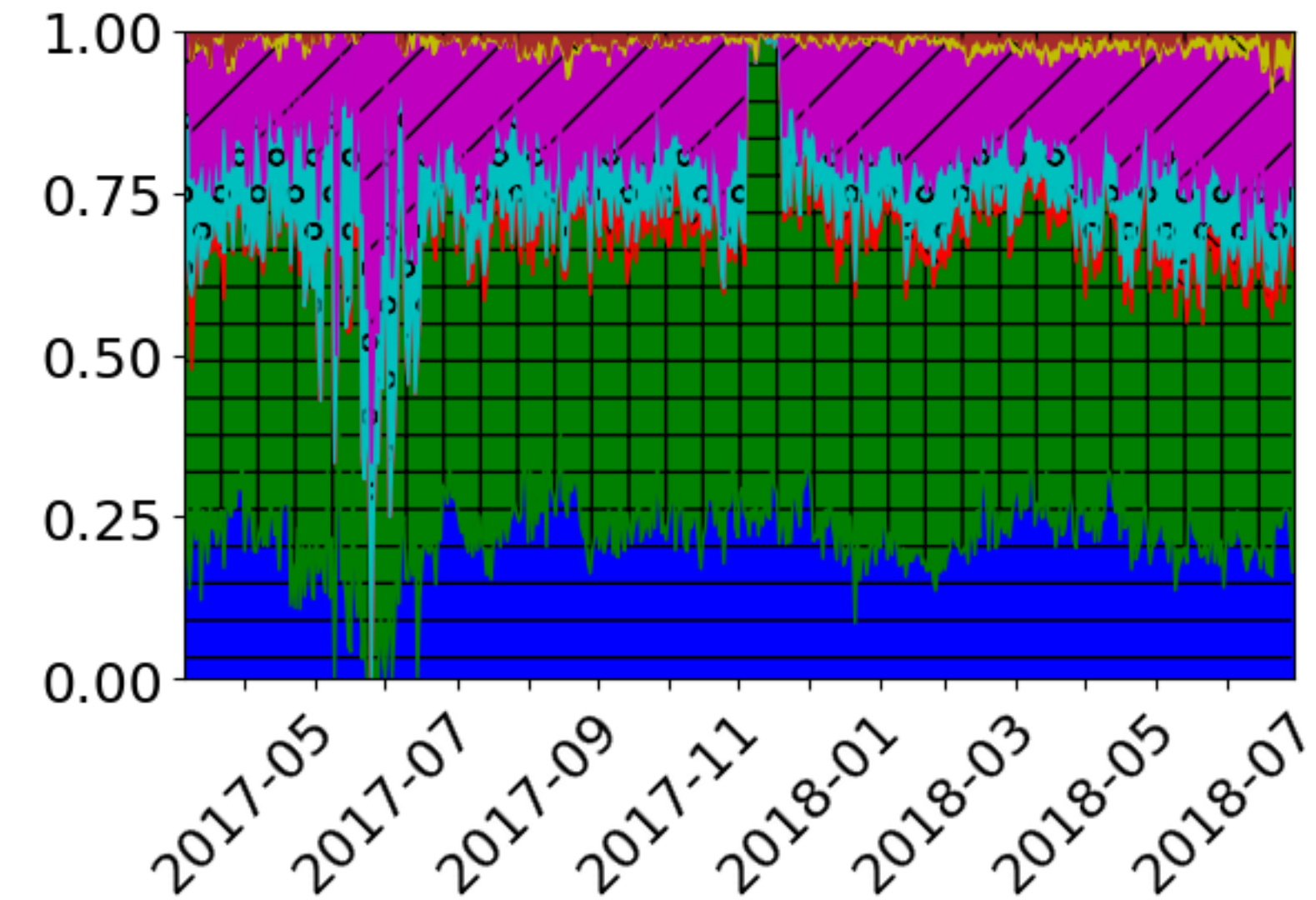
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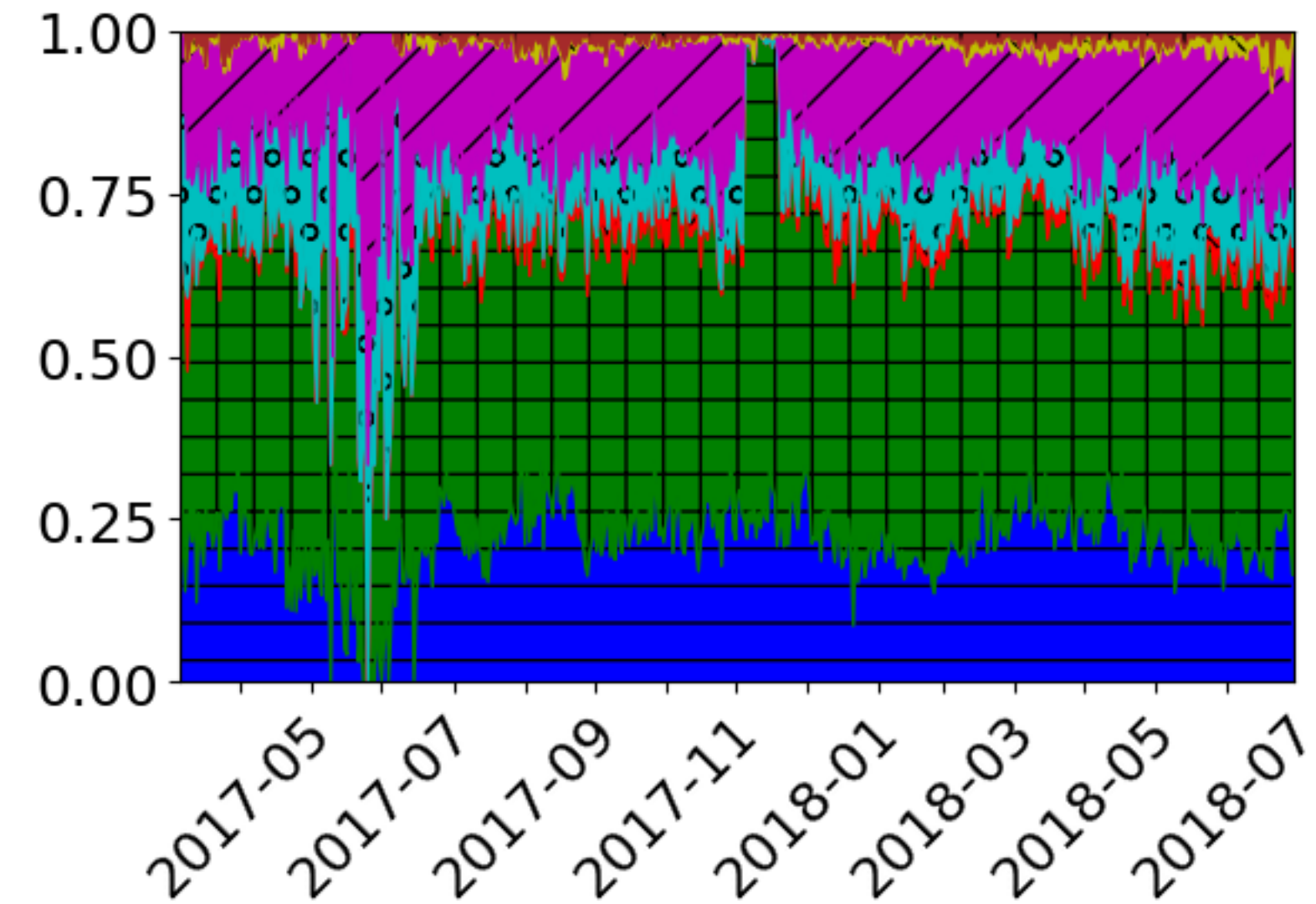
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- 74% of **users** PII-based, 92% Lookalike audiences

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- 74% of **users** PII-based, 92% Lookalike audiences
- Differences between **North America** and **Europe:**
 - PII-based **6%** vs **2%**
 - Lookalike audiences **30%** vs **17%**

What attributes do advertisers use?

- 2.5K attributes:

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 - ▶ *Pokemon Yellow, Adobe After Effects, Modernism*

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- **Also Google:** *Women's rights, US politics (very liberal), Politics and social issues*

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- 591 attributes used by **News and politics** advertisers:

- *Anti-fascism, LGBT community*

Do advertisers change ads over attributes?

- 2.5K advertisers that have used more than one attributes
- 65% of them never used the same text with two different attributes
- VICE news:
 - *PC Magazine*: “A self-driving, flying taxi could soon be a reality”
 - *Democratic Party*: “Mr. Trump and Mr. Cohen have a lot of explaining to do”
 - *US Politics (Very Liberal)*: “One of the reasons it’s hard for Trump to navigate the guns issue after Parkland is that the gun rights community itself is still trying to figure out what change is acceptable”

Conclusion

- **Popular** and **verified** advertisers mixed with **niche** and **unverified**
- Advertisers that can be sensitive
- They use strategies that can be considered **invasive** or **opaque**
- They use a **plethora** of attributes that are difficult to monitor
- They change the content of the ads w.r.t. attributes they use

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Need for better mechanisms to **audit** ads and advertisers

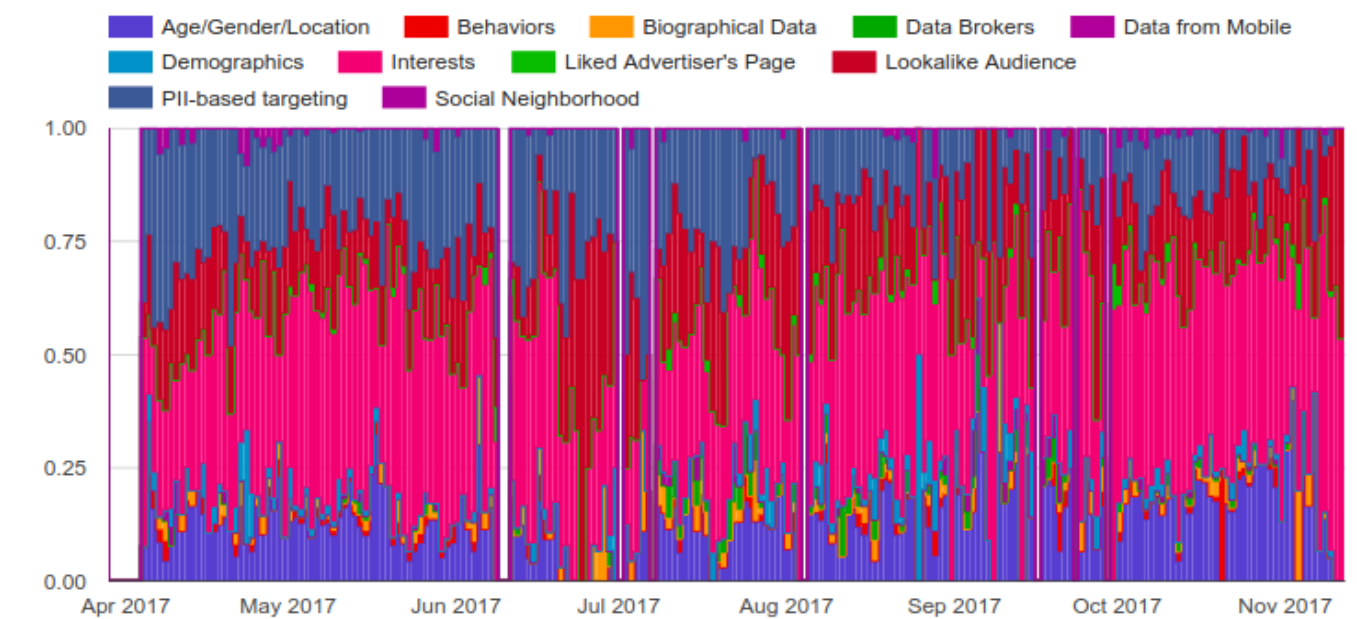
Need for **global** approach towards **transparency**

AdAnalyst

- A tool to help you make sense of your Facebook ads
- <https://adanalyst.mpi-sws.org>

How are advertisers targeting you overall

Advertisers use different types of info to target users (see more...). Here is a summary of how you have been targeted:



Disable adblockers for Facebook and anti-tracking

Set your Facebook in English or French

● **QUESTIONS**

Capturing Facebook Ads



Airbnb

Sponsored · 

