Google's Advertising and Data Dominance
Key takeaways:

- The Internet is now mobile – the mobile Internet is proprietary, not open
- Google’s business is to collect personal, sensitive data at massive scale to sell advertising
- It’s not about the algorithms, it’s about the data
- Android is a data collection “service,” not a mobile OS
- Google controls the advertising ecosystem through its dominant “ad tech” stack
- Consumers are not only the “product” on the Internet, consumers subsidize Google’s data collection
- Privacy and competition converge with comingled privacy policies and terms of service, which benefit Google
Google wants regulators to see the small picture

"The Internet is open"
"Competition is one click away"
"Consumers have choice"
"New features and innovations"

Allegations of abuses in market segment X (e.g., comparison shopping, app bundling)
The Big Picture is more relevant

- Google is an advertising company
- Data drives advertising
- Google has unmatched depth and breadth of data
- Google uses its size and dominance across various apps and services to increase its data advantage
- Google is already dominant in the “ad tech” stack
- Publishers, content owners can never match the data and are increasingly dependent upon Google’s “ad tech”
The mobile Internet is technically constrained

- LESS BANDWIDTH
- SMALLER USER INTERFACE
- THUMB TYPING
The mobile Internet is "app-based"

Top 10 Android Apps

- Apps replace browser
- Manage bandwidth
- Manage user interface
- Manage memory and compute

GET IT ON Google Play
The mobile Internet is proprietary, not open

- Community-led
- Open standards-based
- Permissionless innovation

- Google controlled ecosystem
- Proprietary APIs
- Access via the Play Store
- Governed by terms of service and privacy policies

Released under FOI
In mobile, Google is in control

- Google’s Privacy Policy
- Google’s Developer Agreements
- Google’s Proprietary APIs
- Google’s “Store” Policies
- Google’s Terms of Service
- Google’s Design Guidelines
Ads follow shift to mobile

Mobile Share Of Global Internet Usage
October 2016

Money Follows Eyeballs – Mobile Ad Boom Continues
Estimated change in annual worldwide advertising spending between 2016 and 2019

Mobile Internet $80.5b

Television $6.2b
Outdoor $2.9b
Radio $0.9b
Cinema $0.8b

-$3.7b Magazines
-$7.7b Newspapers
-$11.9b Desktop internet

Source: Statista
Advertising continues to shift to mobile

% of Time Spent in Media vs. % of Advertising Spending, USA, 2016

- Time Spent
- Ad Spend

Total Internet Ad

- $73B
- $37B

Opportunity in USA

-$16B
Web 4.0: The mobile Internet is proprietary

GLOBAL OPERATING SYSTEMS MARKET SHARE

- Android: 80%
- iOS: 16%
- Windows: 3%
- Others: 1%
Ad tech: The Google monopoly nobody saw coming

- Advertising is critical to the delivery of content
- "Matching" buyers and sellers in a scale electronic marketplace
- How they look: text ads / display ads (including video)
- Where they appear: search results / display on websites / social media feeds / video
- How they are selected to be served to users: varying degrees of targeting (from categories of recipients to specific individuals) based on data
  - Generally, the better targeted the ad, the greater the chance of conversions (sales)
  - Data underlies ad targeting – but not all data is the same: search and location data allow for specific contextual advertising
### About online advertising: players (simplified)

<table>
<thead>
<tr>
<th>Buy Side: Advertisers / Agencies wanting to place online ads</th>
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<td>Ford</td>
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<th>Sell Side: Publishers, app developers selling ad space</th>
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<td>CNN</td>
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<tr>
<th>In between Sell &amp; Buy: Intermediaries offering cloud software and services to buyers and sellers (ad-tech)</th>
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<th>Consumers: from whom data is extracted, and to whom the ads are shown</th>
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Released under FOI
Online advertising intermediation (simplified)

THE AD TECH STACK

Buy Side:
Advertisers/Ad agencies

KRAFT
Zara
WPP

Sell Side:
Publishers, app developers

CNN
Travel Leisure
TIME
Glu
The Sydney Morning Herald
Google
cnet
Reddit
Google is omnipresent throughout the ad-tech value chain
Google Ad Tech: Where Mad Men meets Flash Boys

"Since AdWords and DBM run on servers in the same data centers as Ad Exchange, they can respond faster to Ad Exchange bid requests compared to other exchange requests. There are no network latency or timeout issues between either AdWords or DBM and Ad Exchange, which means publishers on Ad Exchange always receive bids from AdWords and DBM advertisers."

- Programmatic
- Real Time Bidding
- Low-latency
- Millisecond auctions

The Google Tech Stack
Google dominates online advertising

Google's advertising revenue compared to total ad spend in the largest ad markets 2016

- United States $190.3b
- Google $79.4b
- China $75.0b
- Japan $41.9b
- United Kingdom $24.2b
- Germany $22.0b
- Brazil $13.1b
- France $11.4b
- South Korea $11.3b
- Australia $10.8b

Google commands triple the advertising revenue of the company in the second spot.
Google is an advertising company, not a technology company

Google total revenue grew to **USD 95.38 billion** in 2017

**88 percent** of those revenues were advertising revenues

Google is the **largest global advertising company**, by far

**Google Revenue Sources**

- **Ads**: 88%
- **Other Bets**: 11%
- **Other**: 1%

**Top 30 companies by global ad revenue across media**

- Google
- Facebook
- Disney
- Amazon
- Twitter
- eBay
- The Wall Street Journal
- The New York Times
- The BBC
- NBC Sports
- CBS Sports
- CBS
- 検索エンジン利用
It's all about the data

Google generates advertising revenue through collecting and combining

- Google searches
- Whispers
- Cookies
- Emails
- Videos
- Social network
- Maps
- Searches
- Waze
- Navigation
- Location
- APP use
- Google
- Work
- Searches
- Navigation
- Location
- APP use
- Google searches
- Web browsing
- Cookies
- Emails
- Videos
- Social network
- Maps
- Search
- More data, more advertising revenue – this motive underlies its anticompetitive behaviour
Google Search, Maps, Gmail, YouTube, Play, Chrome, Android each have over a billion users.
Google has so much data ...

Google will no longer read your emails to tailor ads

by Selena Larson @selenalarson

June 26, 2017 1:31 PM ET

Google now has all the data it needs, will stop scanning Gmail inboxes for ad personalization
Consumer data is Google's product

Google is a data refinery

- 4.5 billion searches each day.
- More than 1 billion monthly active Gmail users.
- 2 billion monthly active Android phones.
- YouTube's one billion users watch one billion hours a day.
- Google Maps' users navigate more than one billion kilometers a day.
- Google Drive's 800 million-plus users upload three billion objects a day.

Data is monetized through digital advertising.
It's not about algorithms ... it's about the scale of the data

The algorithms at the heart of key Internet ad technologies are a form of machine learning.

Learning happens through the processing of large volumes of data.

The best algorithms cannot achieve good results if they have insufficient data to learn and improve on their results.

The best ad targeting is reliant on mass quantities of data, not algorithms.
"We don't have better algorithms than everyone else, we just have more data."

Google Director of Research Peter Norvig
"We don’t need you to type at all. We know where you are. We know where you have been. We can more or less know what you are thinking."

Former Google Executive Chairman, Eric Schmidt
Data matters ... a lot

"I think big data is so powerful that nation states will fight over how much data matters" ... "He who has the data can do the analytics and the algorithms"

Google CEO, Eric Schmidt, March 8, 2017
Google's advertising business is driven by three monopolies
Google dominates search

Over 4 billion search queries per day
2 trillion searches annually
Data on all of your search queries on Google Search, and your clicked search results
Search data is specific, contextual. What you are looking to buy, and where you are considering buying it.
DoubleClick cookies generate data on the web sites you visited....more than 2 million web sites

DoubleClick by Google
As world shifts to mobile, Google Android dominates the mobile platform

Android is by far the largest OS platform for smartphones

Android is even by far the largest platform for all computing
Google "closes the loop"

- Google can now "reach the same user across devices, apps, and sites."

- Can report within 99% accuracy whether a customer visited a physical store.

"With the power of Google Maps technology, we have access to the exact dimensions of over 200 million stores globally to deliver 99% accuracy in reported visits. Only Google can deliver this level of precision and scale."

Is Android open?

“We even have mobile Android in refrigerators now. By open-source we mean, take it and have fun. And people have.”
Android is a data collection platform
Android data: user data, sensor data, app data and location data

- Google Mobile Services/GMS data (use of Play Store, Youtube, Search, Maps...)
- App metadata (tracking of usage of third party Android apps and efficiency of ads)
- Sensor data (barometric pressure, accelerometer, gyroscope)
- Location
Location data is particularly valuable for advertising

Like search, location data can allow customization of advertising at an individual level.

Google constantly collects vast swaths of data on all of its users' locations and their activities, 24/7 – through tracking via enabled location services and also via more surreptitious means, through WiFi mapping, Bluetooth beacons, and cell tower communications.

Location is the next search, except it is not Google's to take.
By the way, Google also dominates web browsers.

chrome
Putting it all together: Google's services collect data at scale for advertising

Male born in 1978 who visits football websites
... who has searched for and purchased football jerseys online
... and watches online videos of FC Barcelona
... and has been at football stadiums during League games
... and likes travel

User profile

... And is currently "in vehicle" on his way to a football game

Targeted ad for Champion’s League travel packages
Android data that Google collects: demo
Data collection: vastly more than needed – user is the product, benefit accrues to Google

- No relationship between data collection and what user is actually doing on the phone
- Benefit of the data collection virtually only accrues to Google
  - Much more data collected (and kept) than needed to provide the relevant service
  - User gathers the data for Google through activity with no compensation
  - Data collection by Google comes at a cost to users in the form of telecoms provider data usage for which users pay
- Metadata collection is asynchronous
- Consumers pay for data collection only to have ads sold back to them based on the same data
Don’t want your WiFi tracked? No problem.

Follow general steps for many access points
1. Make a physical connection between your access point and your computer with an Ethernet cable.
2. Find the default gateway of:
   - On Windows, type "ipconfig".
   - On Mac OS, type "ifconfig".
   - On Linux, type "ifconfig".
3. After you have the default gateway, open your browser, like Chrome or Firefox.
4. If asked to sign to your access point, type that came with your access point.

After you've changed your SSID, step from any devices using Wi-Fi, use the same password.

Control access point inclusion in Google's Location Services
To improve Google's security, the Google Location Services use your Wi-Fi access point.

How do I opt out of Google Location services?
To opt out, change the SSID (name) of your Wi-Fi access point (your wireless network name) so that it ends with "nomap". For example, if your SSID is "12345", you would change it to "12345_nomap."
June 2016: Google “updates” Terms of Service

Google Changed a Major Privacy Policy Four Months Ago, and No One Really Noticed

By Suzanne Mewak

For almost 16 years, Google promised to protect users’ privacy from advertisers by keeping personally identifiable information about its users, gleaned from Gmail accounts and other Google services, separate from its subsidiary. But the company quietly updated its privacy policy in June to say that users activities on other sites “may be associated with your personal information.”

ProPublica reported Friday, Google’s previous privacy policy, which is literally crossed through in its new one in Google’s new privacy policy, had pledged to “not combine DoubleClick cookie information with personally identifiable information without users’ consent.

All data can now be combined
The sentence that **changed the Internet economy**

We may combine personal information from one service with information, including personal information, from other Google services — for example to make it easier to share things with people you know. We will not combine DoubleClick cookie information with personally identifiable information unless we have your opt-in consent. Depending on your account settings, your activity on other sites and apps may be associated with your personal information in order to improve Google’s services and the ads delivered by Google.
So what are Google’s terms and conditions on collection of location data?

Welcome to the Google Privacy Policy

- Location information

When you use Google services, we may collect and process information about your actual location. We use various technologies to determine location, including IP address, GPS, and other sensors that may, for example, provide Google with information on nearby devices, Wi-Fi access points and cell towers.
Location disclosures are inadequate

Privacy and Terms

Data we process when you use Google

- When you search for a restaurant on Google Maps or watch a video on YouTube, for example, we process information about that activity— including information like the video you watched, device IDs, IP addresses, cookie data, and location.

- Location Information

  When you use Google services, we may collect and process information about your actual location. We use various technologies to determine location, including IP address, GPS, and other sensors that may, for example, provide Google with information on nearby devices, Wi-Fi access points and cell towers.

- Google Privacy Policy, Dec 18, 2017, p. 2

No mention of Android or mobile devices, just “Google services”
The Android OS itself (all of it) is a Google "service"

- Location information

When you use Google services, we may collect and process information about your actual location. We use various technologies to determine location, including IP address, GPS, and other sensors that may, for example, provide Google with information on nearby devices, Wi-Fi access points and cell towers.

- Google Privacy Policy, Dec 18, 2017, p. 2

provide services directly to users. The Android operating system on devices with Google apps is a Google service covered by Google's Privacy Policy.
Privacy "policy" has no practical import for consumers

• 24 Changes since 1999

• 10 Changes in the last three years.

• 3 Changes last year alone!
Combination of Google’s vast data sources enables it to create unrivaled superprofiles for ad targeting.

New “features”
New “innovations”

Copyright, Google
FOX’s prime-time line-up is intended to appeal primarily to target audiences of 18 to 49-year-old adults, the demographic group that advertisers seek to reach most often, with an emphasis on the 18 to 34-year-old adult demographic coveted by advertisers.
For new users, Google’s “terms” policy applied by default

Google's Terms of Service are an all or nothing proposition for new users. Users “choices” are to agree or to cancel the new account – no granularity in the terms of use.
Declining the terms of service is not an option: it's an all or nothing choice

1. Introduction

Applicable Terms. Thanks for using Google Play. Google Play is a service provided by Google Inc. ("Google", "we" or "us"), located at 1600 Amphitheatre Parkway, Mountain View California 94043, USA, and is subject to the Google Terms of Service ("Google ToS"). Google Play is a "Service" as defined in the Google ToS, and these Google Play Terms of Service are additional terms which apply to the use of Google Play. Your use of Google Play and the apps (including Android Instant Apps), games, music, movies, books, magazines, or other digital content or services (referred to as "Content") available through it is subject to these Google Play Terms of Service and the Google ToS (which together we refer to as the "Terms").

If there is any conflict between the Google Play Terms of Service and the Google ToS, the Google Play Terms of Service shall prevail.

Your use of the Google Play store requires that you agree to the following terms. Please read them carefully. If you do not understand the Terms, or do not accept any part of them, then you should not use the Google Play store. Some products and features may be not available in all countries. Please see the Google Play Help Center for more information.

Information about You. In order to access certain services or Content on Google Play, you may be required to provide information about yourself such as your name, address, and billing details.

The information we collect, including information obtained from third parties, is shared between Google and its group companies to operate the Service. Google's privacy policy explains how we treat your personal data and protect your privacy when using Google Play. Any such information you provide to Google must always be accurate, correct and up to date. Google may need to provide your personal information, such as your name and email address, to Providers for the purposes of processing your transactions and/or provisioning Content to you. Google has agreed with Providers that they will use this information in accordance with their privacy policies.

Device information • Log information • IP Address server logs • Unique device identifiers • Search queries • Location • Cookies • Personal information stored locally • Information about visits to multiple sites • Nearby devices • Telephone logs ...
Google has a monopoly on this ...
And this ...
The "third screen" is next

androidtv

PHILIPS

SONY
Television is **Google’s last growth ad market**

Internet vs. TV Ad Spend (SB), Global, 1995-2017E

Advertising $ = Internet > TV Within 6 Months, Global

Internet vs. TV Ad Spend ($B), Global, 1995-2017E

Source: Zenith Advertising Expenditure Forecasts (3/17)
TVs are becoming "app-based"
THE WALL STREET JOURNAL

YouTube Tops 1 Billion Hours of Video a Day, on Pace to Eclipse TV

Google unit posts 10-fold increase in viewership since 2012, boosted by algorithms personalizing user lineups

Cost of YouTube content to Google: $0
Advertising Revenue 2020: $27.4 Billion (+21%)

Last year, YouTube ad revenues represented a relatively small portion of Google's total ad revenues, according to a report by stock analysis company Amigo Bulls, compared with revenue derived from Google web search. While YouTube grossed $8.5 billion in 2015, according to Sheridan's report, Google websites reportedly grossed $52.4 billion.

However, Sheridan believes YouTube could very well be central to Google's next phase of growth. He anticipates YouTube will continue to grow at 21% for the next four years, and that by 2020, the site will have generated $27.4 billion in revenues. This is comparable to Facebook's revenue estimates for 2016, which are currently pegged at $25.6 billion.
Declining the terms of service is not an option: it’s an all or nothing choice

Can I use my Sony Android TV without agreeing to Google’s Terms of Service and Privacy Policy?

Answer

No, to use your Sony Android TV, you must consent to Google’s Terms of Service and Privacy Policy.

You must click CONTINUE on the Google’s Terms of Service and Privacy Policy screen when setting up the Sony Android TV for the first time.
The greater Google's data scale and diversity advantage, the more it can target ads, the more valuable its ads are, and the more it can generate ad revenue, selling ads and associated services.

Augmenting its data scale and diversity advantage insulates Google from competition in advertising and other services, increases its market shares and profitability.

Google's control of both the data and the ad tech market puts publishers at a persistent and structural disadvantage.