



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**

Google

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

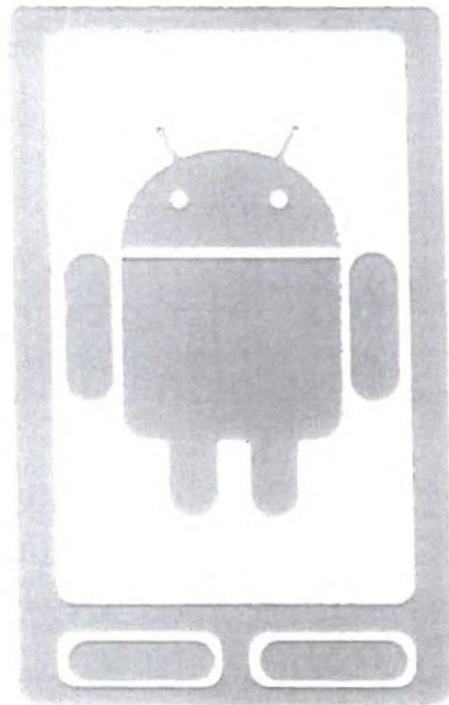
Allegations of abuses in market segment X (e.g., comparison shopping, app bundling)

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”

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The mobile Internet is technically constrained



- LESS BANDWIDTH
- SMALLER USER INTERFACE
- THUMB TYPING

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The mobile Internet is "app-based"



- APPS REPLACE BROWSER
- MANAGE BANDWIDTH
- MANAGE USER INTERFACE
- MANAGE MEMORY AND COMPUTE



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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

In mobile, **Google is in control**



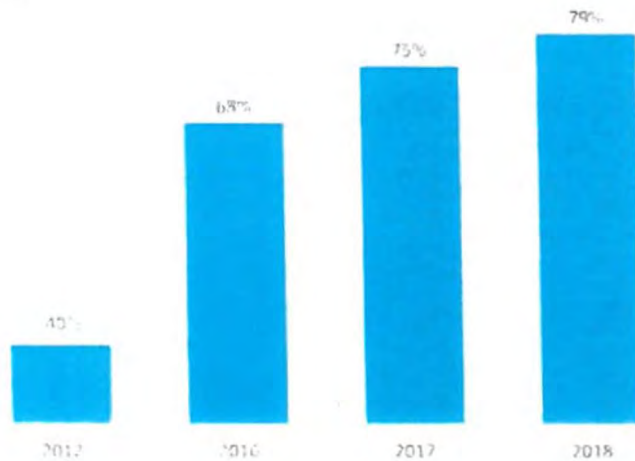
- Google's Privacy Policy
- Google's Developer Agreements
- Google's Proprietary APIs
- Google's "Store" Policies
- Google's Terms of Service
- Google's Design Guidelines



Ads follow shift to mobile

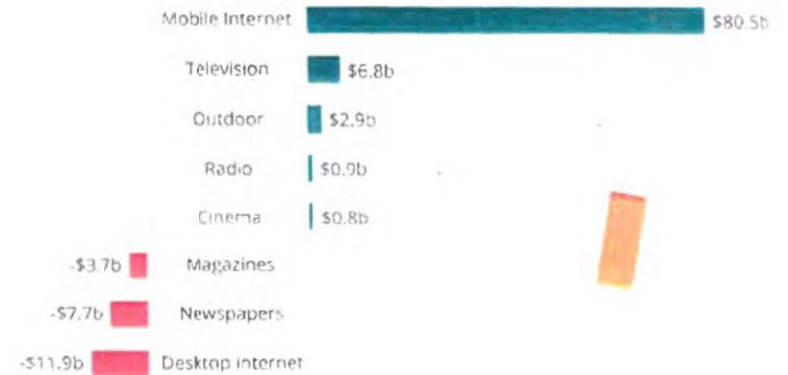
Mobile Share Of Global Internet Usage

October 2016



Money Follows Eyeballs – Mobile Ad Boom Continues

Estimated change in annual worldwide advertising spending between 2016 and 2019

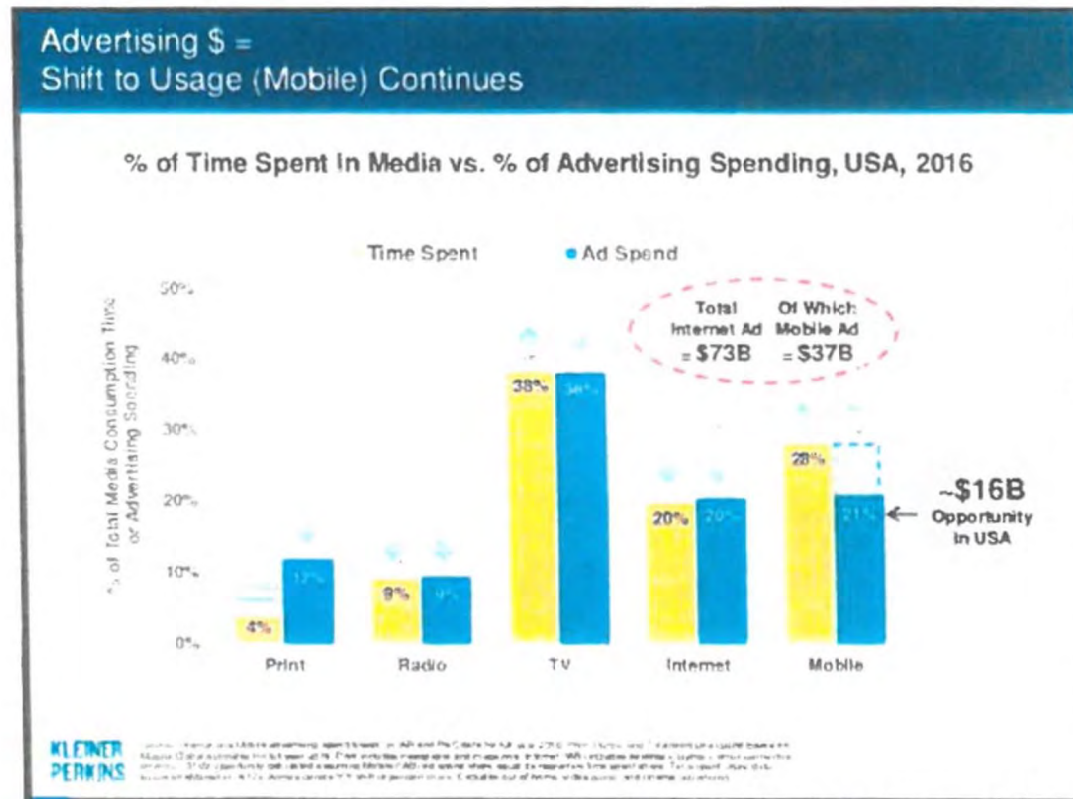


© StatistaCharts Source: Zenith Optimedia

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Advertising continues to shift to mobile



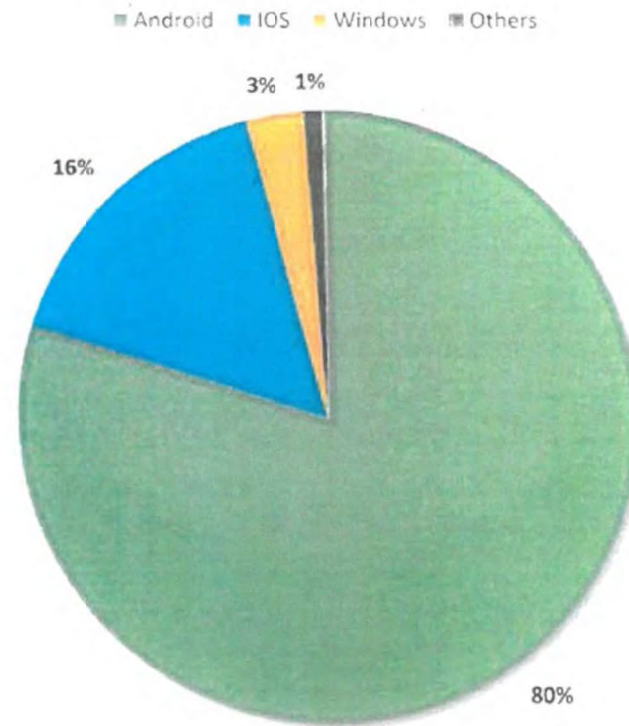
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Web 4.0: The mobile Internet is proprietary



GLOBAL OPERATING SYSTEMS MARKET SHARE



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)

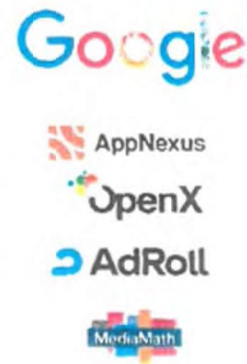
Buy Side:
Advertisers / Agencies
wanting to place online ads



Sell Side:
Publishers, app developers
selling ad space



In between Sell & Buy
Intermediaries offering cloud
software and services
to buyers and sellers (ad-tech)

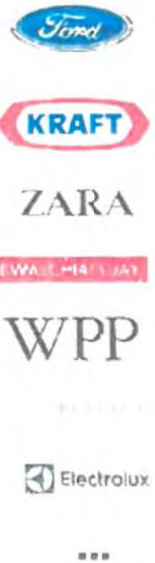


Consumers
from whom data is
extracted, and to whom
the ads are shown

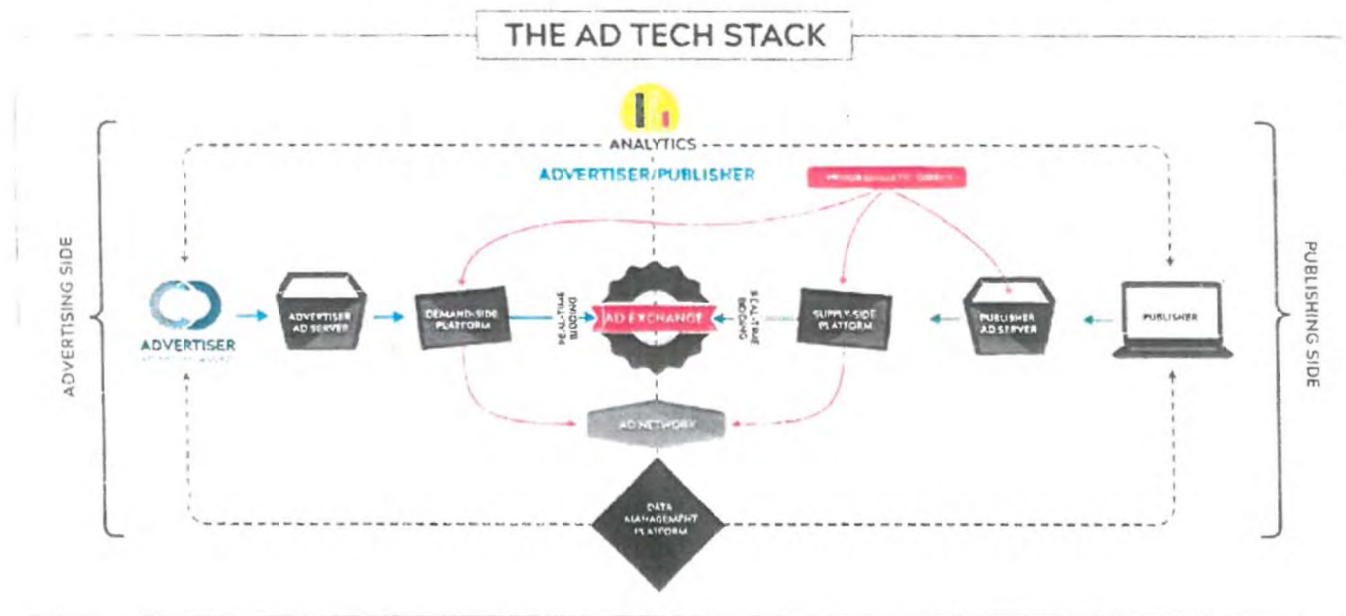


Online advertising intermediation (simplified)

Buy Side:
Advertisers/
Ad agencies



Sell Side:
Publishers,
app developers



Google is omnipresent throughout the ad-tech value chain

Buy Side:
Advertisers/
Ad agencies



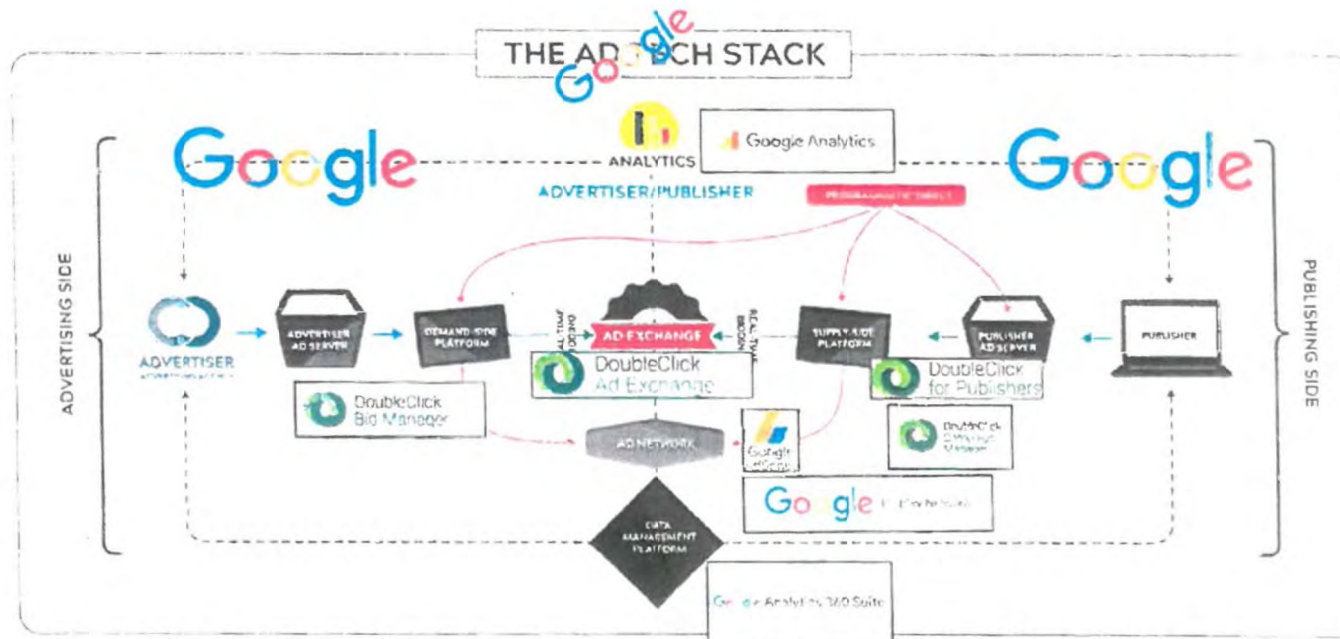
ZARA



WPP



...



Sell Side:
Publishers,
app developers



TRAVEL+
LEISURE

TIME



The Sydney Morning Herald

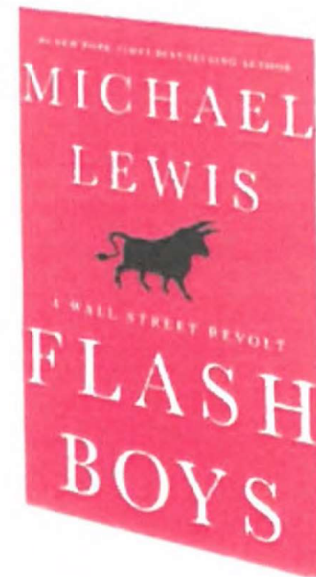
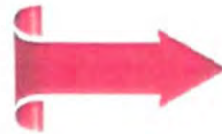
Google



...

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Google Ad Tech: Where Mad Men meets Flash Boys



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

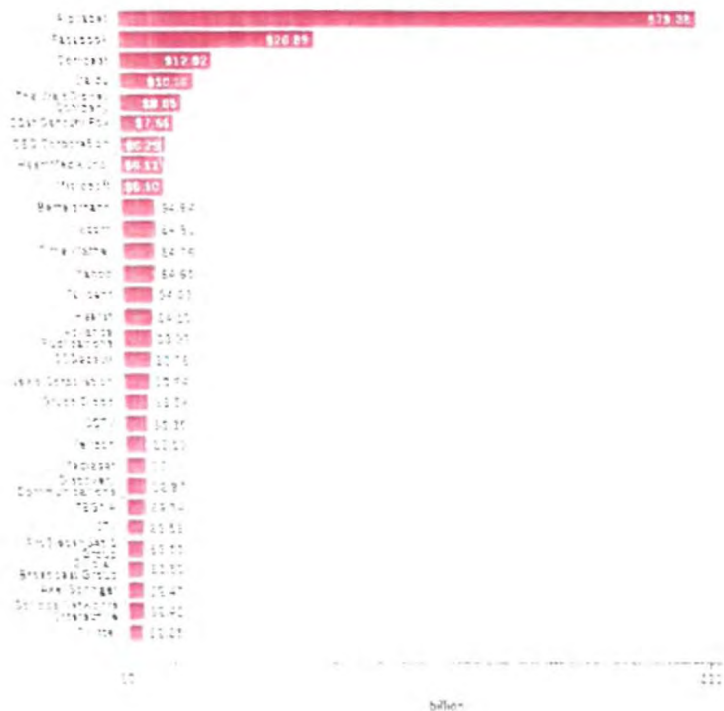
“Since AdWords and DBM run on servers in the same data centers as Ad Exchange, they can respond faster to Ad Exchange bid requests compared to other exchange requests. There are no network latency or timeout issues between either AdWords or DBM and Ad Exchange, which means publishers on Ad Exchange always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

The **Google** Tech Stack

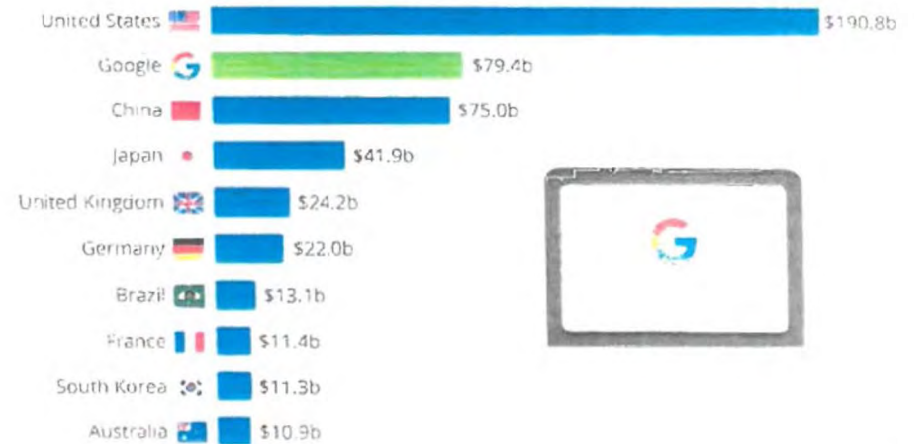
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Google dominates online advertising

Top 30 companies by global ad revenue across media



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



Statista basis. Sources: Alphabet, Zenith

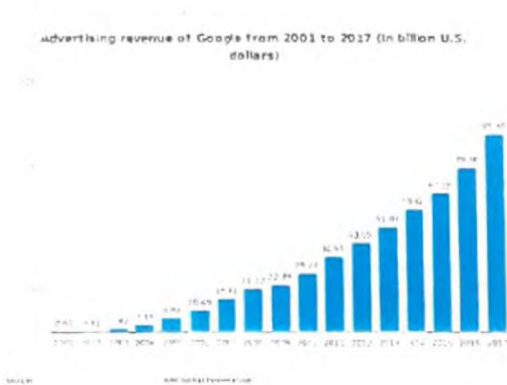
statista

Google commands triple the advertising revenue of the company in the second spot

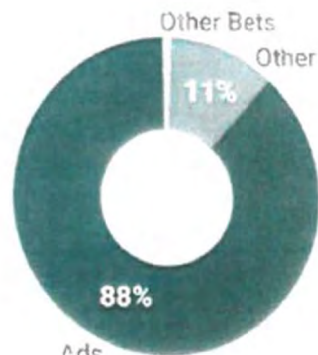
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Google is an advertising company, not a technology company

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



88 percent of those revenues were advertising revenues



Ads
Google Revenue Sources

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

Top 30 companies by global ad revenue across media



It's all about the data

Google generates advertising revenue through collecting and combining

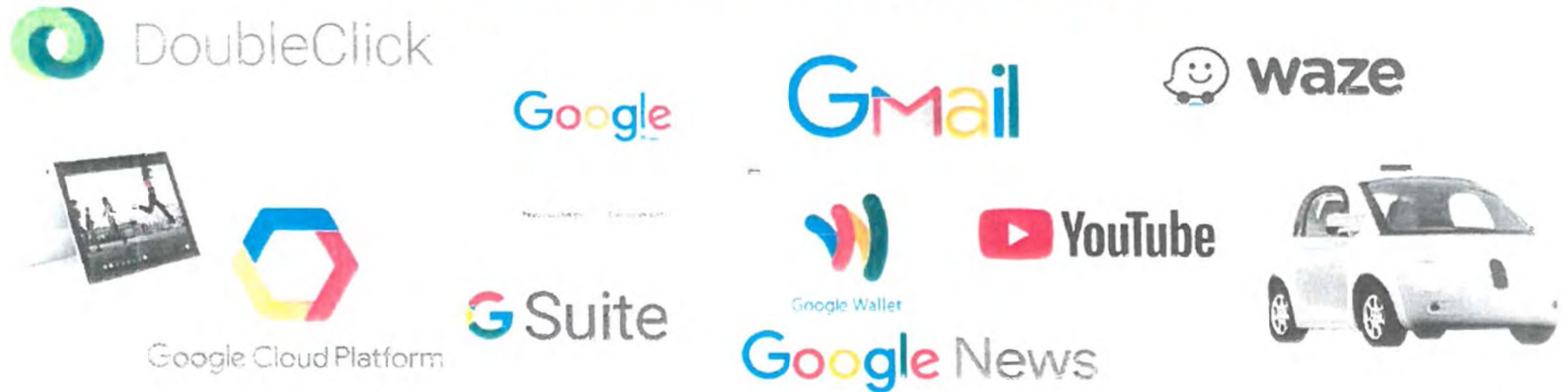
GOOGLE SEARCHES	SEARCHING COOKIES	EMAILS VIDEOS SOCIAL	WORK MAPS
WEB BROWSING COO	EMAILS VIDEOS S	ALL NETWORK MAPS SE	SEARCHES WAZE NA
ADVERTISING COOKIES	EMAILS VIDEOS S	SEARCHES WAZE NA	LOCATION
VIDEOS SOCIAL	SEARCHING COOKIES	LOCATION	APP USE GOOGLE
WORK MAPS	SEARCHES	APP USE	SEARCH/ WEB BR
SEARCHES	NAVIGATION	SEARCH	BROWSING COOKIES
NAVIGATION	LOCATION	BROWSING	ADVERTISING COOKIES
LOCATION APP	GOOGLE SEARCHES	WEB BROWSING	VIDEOS SOCIAL NETWORK
GOOGLE SEARCHES	WEB BROWSING COO	EMAILS SOCIAL	NETWORK MAPS SEAR
WEB BROWSING COO	SEARCHES	MAPS SEARCHES	SEARCHES NAVIGATION
ADVERTISING COOKIES	EMAILS SOCIAL	MAPS SEARCHES	NAVIGATION APP U

More data, more advertising revenue – this motive underlies its anticompetitive behaviour

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Google Search, Maps, Gmail, YouTube, Play, Chrome, Android each have over a billion users



Google has so much data ...



BUSINESS CULTURE GADGETS FUTURE STARTUPS



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 * + 65¢ per position commission
 * Margin rates as low as 4.75%

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Google will no longer read your emails to tailor ads

by Selena Larson @selenalarson
 June 23, 2017 5:21 PM ET



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News - Video - Events - Crunchbase

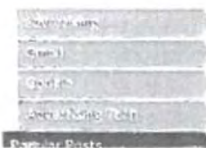
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TC SUMMER PARTY Last few tickets available for TC Summer Party at August Qip! (Thurs July 28). [Get Your Tickets Now](#)



Google now has all the data it needs, will stop scanning Gmail inboxes for ad personalization

by Frederic Lardinois @frednic



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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

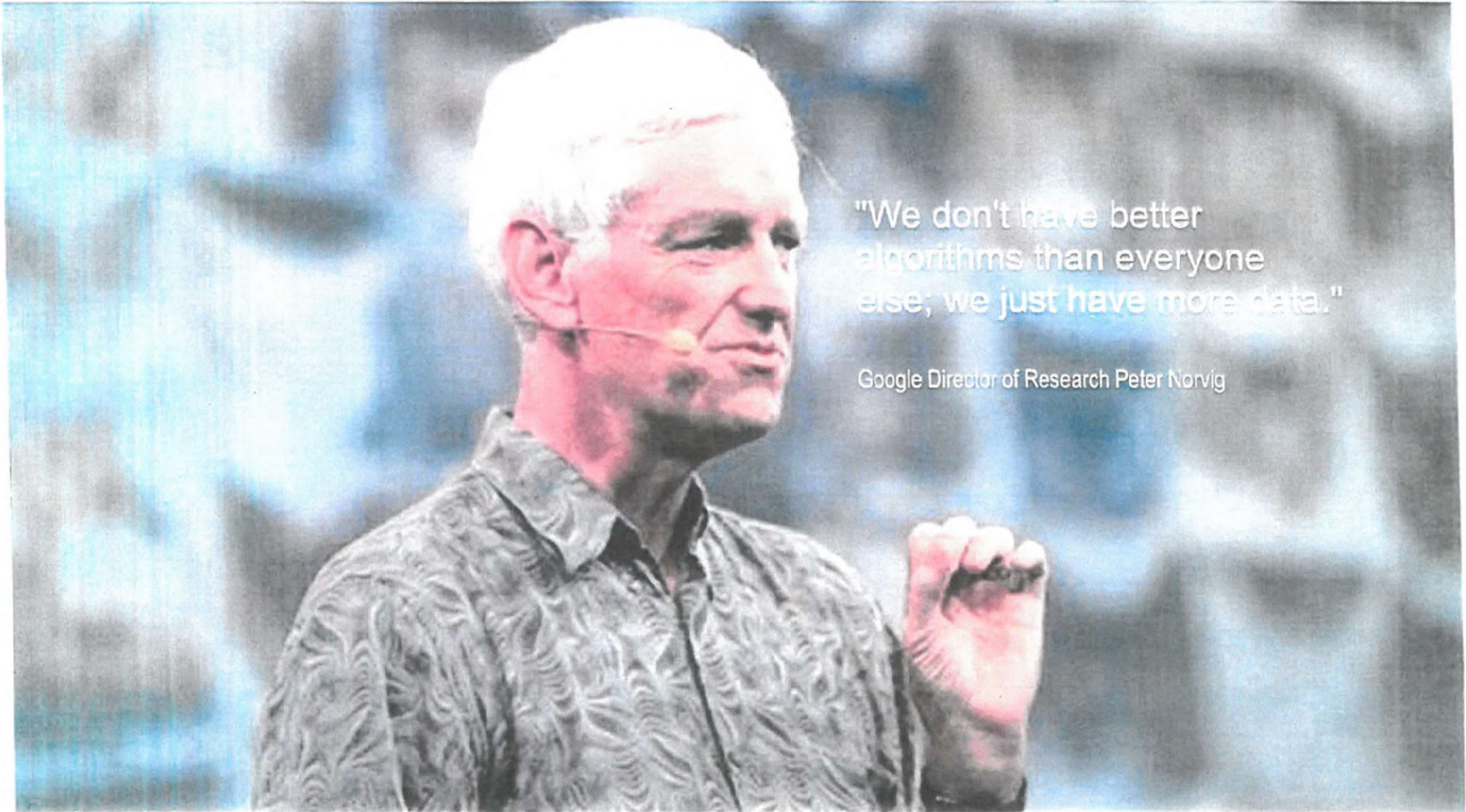
Learning happens through the processing of large volumes of data

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

$$\begin{aligned} P_{0,1}(81) &= \frac{(x_1 - x)P_{0,0}(x) + (x - x_0)P_{1,1}(x)}{x_1 - x_0} \\ &= \frac{(64 - 81)(.25) + (81 - 16)(.125)}{64 - 16} \\ &= \frac{-4.25 + .8.125}{48} \\ &\approx .080729 \end{aligned}$$

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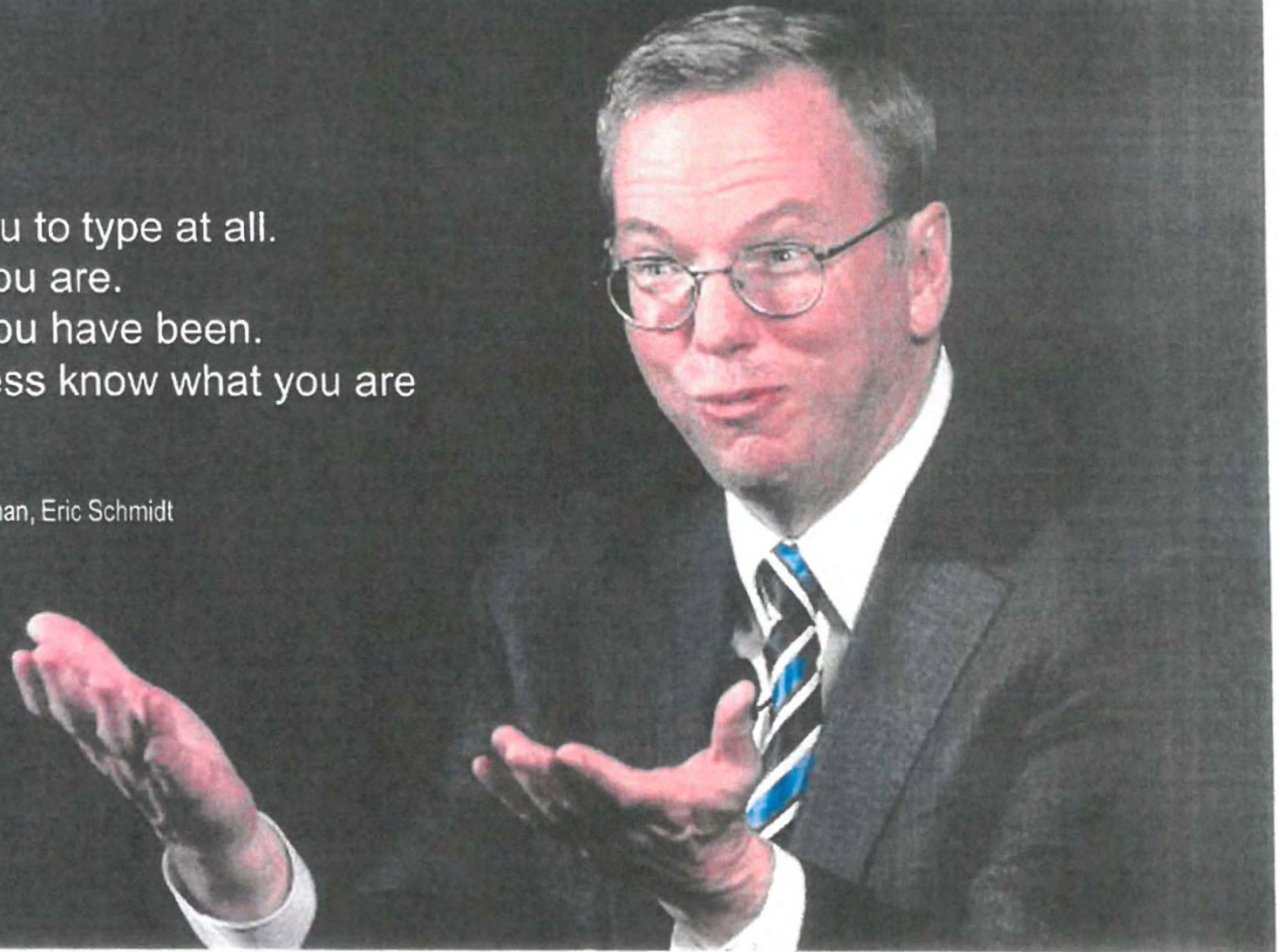
"We don't have better algorithms than everyone else; we just have more data."

Google Director of Research Peter Norvig

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"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



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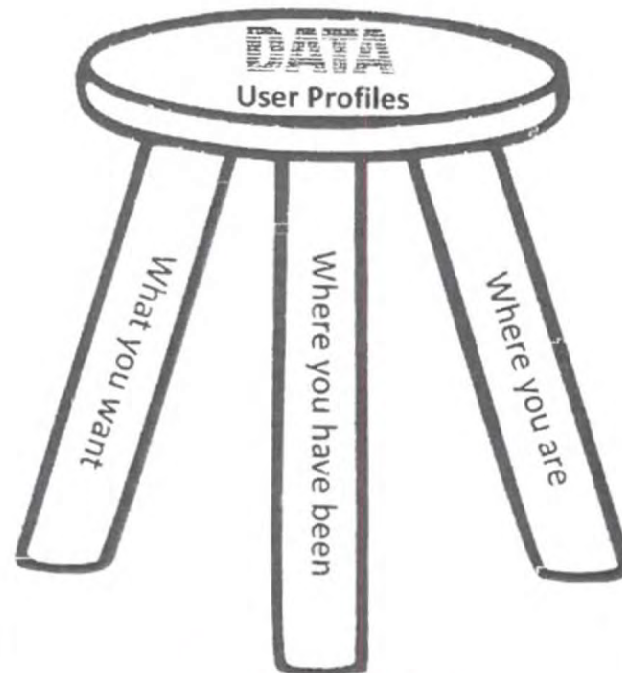
Data matters ... a lot

"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

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Google's advertising business is driven by three monopolies

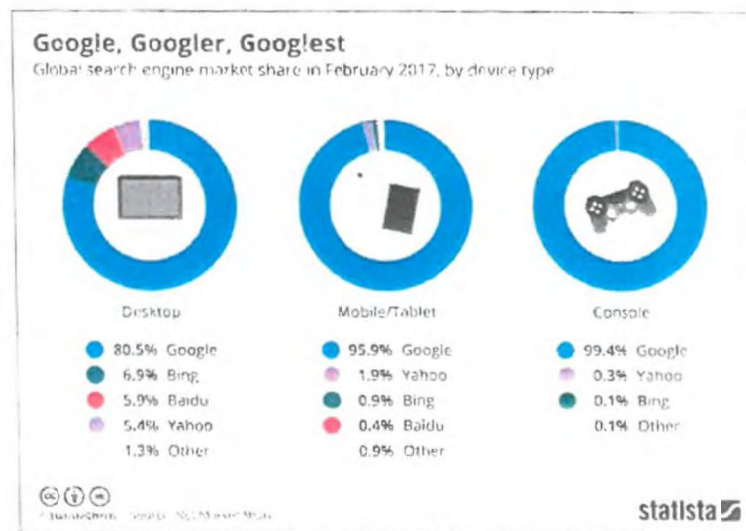
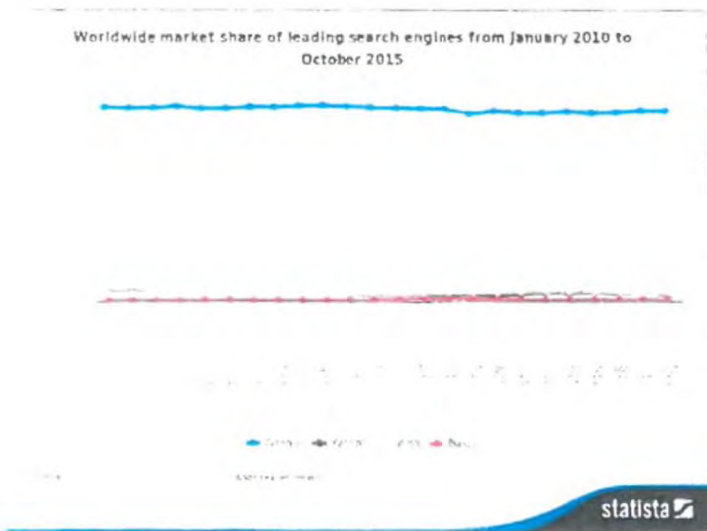


Google

doubleclick
by Google



Google dominates search



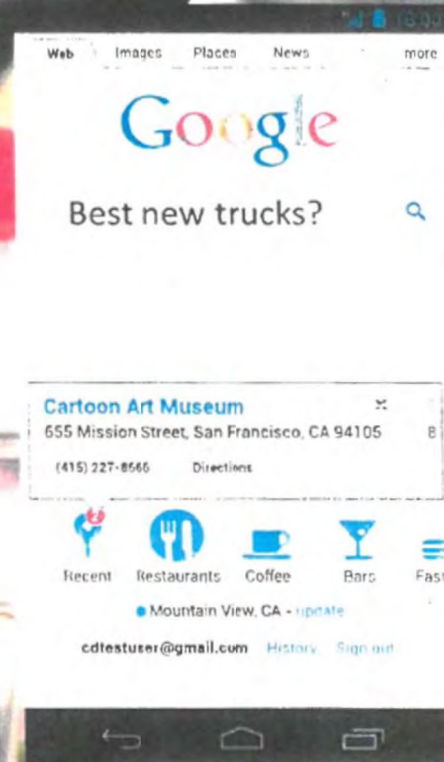
Over 4 billion search queries per day
2 trillion searches annually

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**Data on all of your search queries
on Google Search, and your clicked
search results**

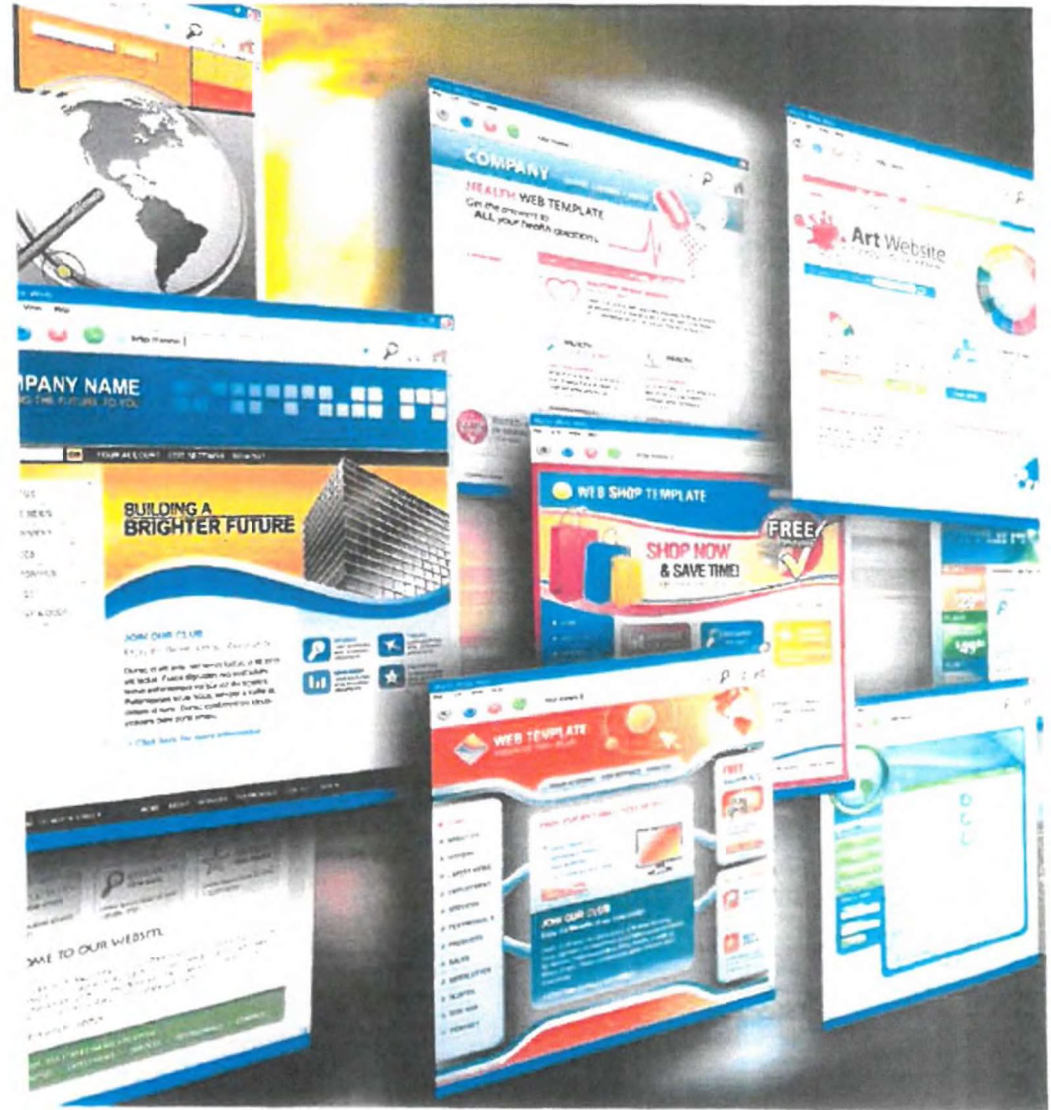
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Search data is specific, contextual. What you are looking to buy, and where you are considering buying it



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**DoubleClick cookies
generate data on the
web sites you
visited....more than 2
million web sites**



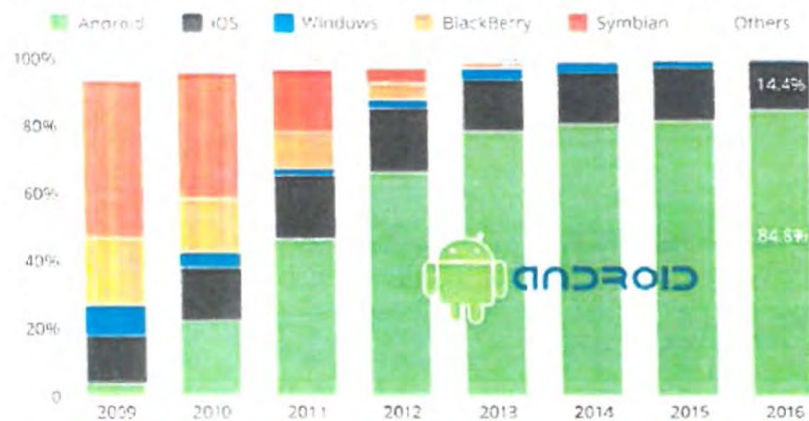
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As world shifts to mobile, Google Android dominates the mobile platform

Android is by far the largest OS platform for smartphones

The Smartphone Platform War Is Over

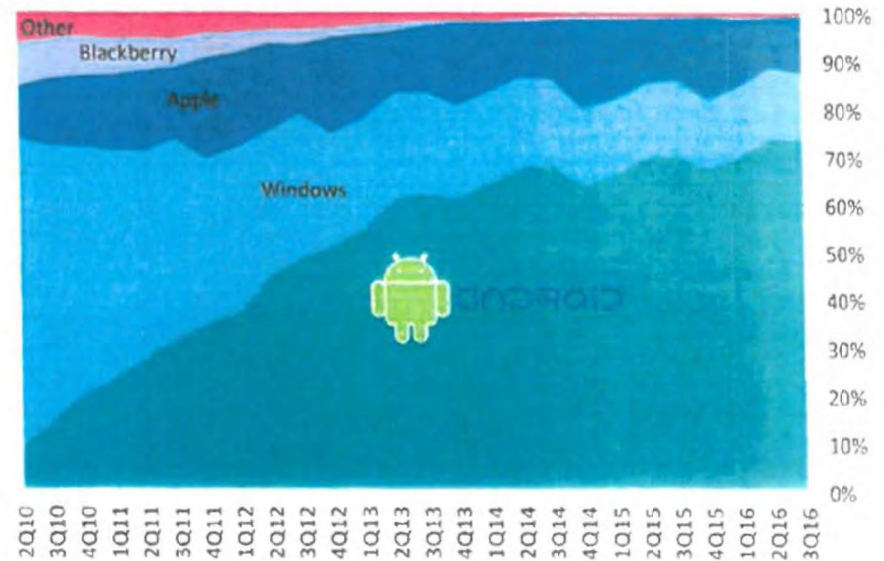
Worldwide smartphone operating system market share (based on unit sales)



© StatistaCharts - Source: Statista

statista

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.

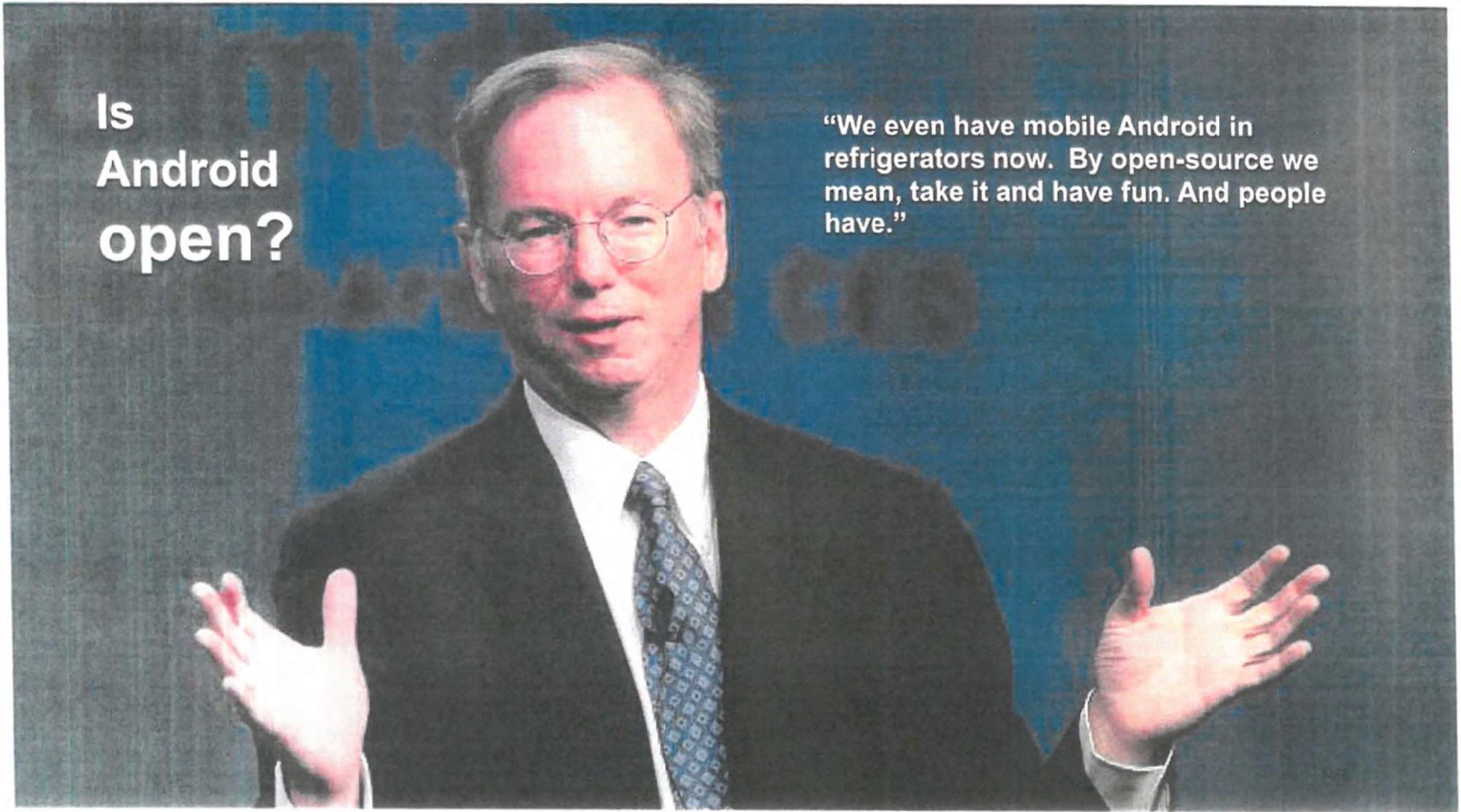


“With the power of Google Maps technology, we have access to the exact dimensions of over 200 million stores globally to deliver 99% accuracy in reported visits. Only Google can deliver this level of precision and scale.”

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Is
Android
open?

“We even have mobile Android in refrigerators now. By open-source we mean, take it and have fun. And people have.”

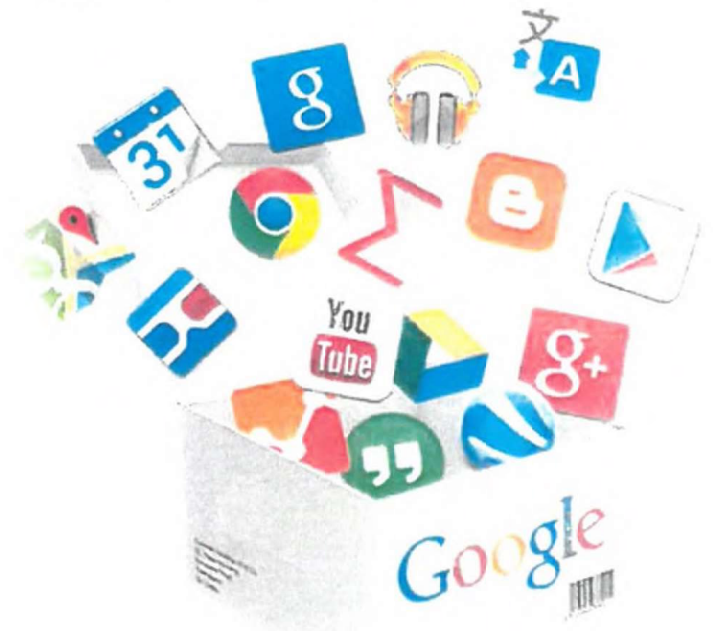
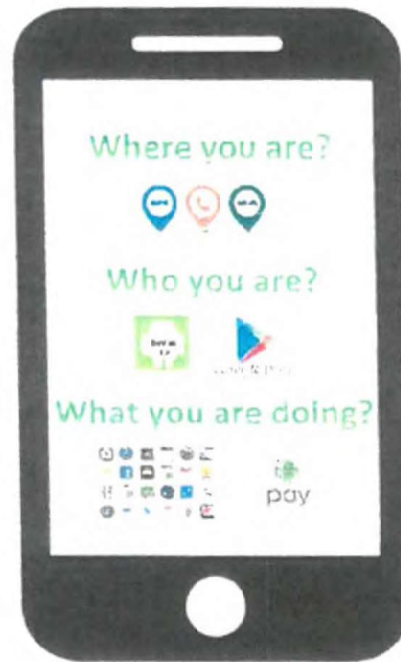


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Android is a data collection platform

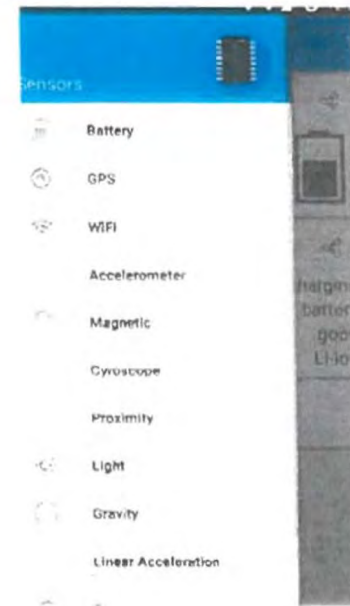


Location / Device ID / Google Play ID

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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

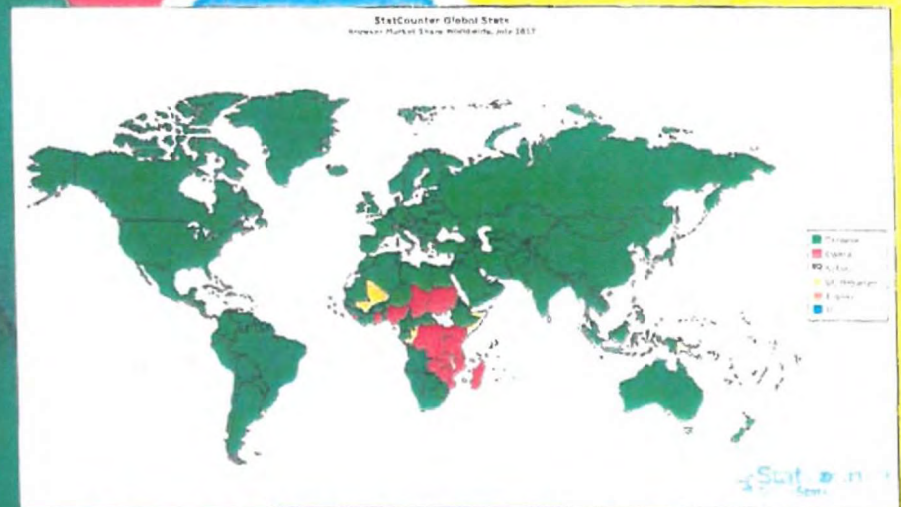
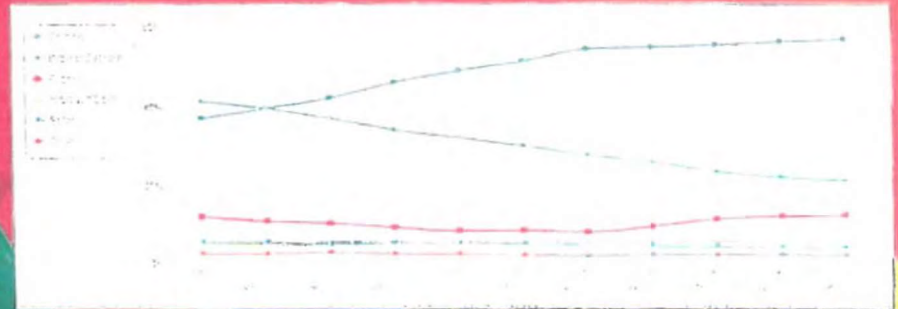


Location is the next search, except it is not Google's to take

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By the way, Google also dominates **web browsers**

chrome

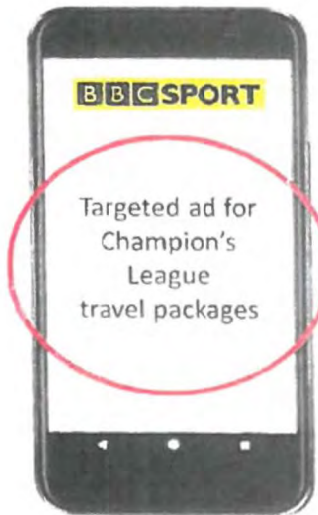


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Putting it all together: Google's services collect data at scale for advertising



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



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Android data that Google collects: demo



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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

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Don't want your WiFi tracked? No

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" in the command prompt.
 - On Mac OS, type "ifconfig" in the terminal.
 - On Linux, type "ifconfig" in the terminal.
3. After you have the default gateway IP address, open a web browser, like Chrome or Firefox, and enter the IP address in the address bar.
4. If asked to sign to your access point, enter the password that came with your access point.

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

Control access point inclusion in Google's Location History

Was this article helpful?

YES

NO

To improve our products and services, we use location and sensor data from your device.

To help app developers, we use location data from your device to estimate the location of a device.

Wi-Fi data from wireless access points and GPS, cell tower, and sensor data to estimate the location of a device.

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."

Triangulate WiFi for targeting to the meter

June 2016: Google “updates” Terms of Service

future  THE CITIZEN'S GUIDE TO THE FUTURE | LISTEN TO THE FUTURE

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

By Suzanne Moriyak



For almost 10 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 front of its new one in Google's new **privacy policy**, had pledged to "not combine DoubleClick cookie information with personally identifiable information" without users' consent.

This automated system may use your personal information and other information to identify you and to send you targeted advertising and other communications. We will not combine DoubleClick cookie information with personally identifiable information unless we have your opt-in consent. **Learn more about your account settings.** **Learn more about our privacy policy.**

We may combine personally identifiable information from one service with information from another service to improve our services. For example, we may use information from your Google account to help us understand how you use our products. **We will not combine DoubleClick cookie information with personally identifiable information unless we have your opt-in consent.** **Learn more about your account settings.** **Learn more about our privacy policy.**

We may use this information to help us improve our products and services. For example, we may use this information to help us understand how you use our products and services.

Google

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.

Smartphone Setup Screenshot

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”

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The Android OS itself (all of it) is a Google “service”

e 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.

Google, January 2018

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Privacy "policy" has no practical import for consumers

- 24 Changes since 1999
- 10 Changes in the last three years.
- 3 Changes last year alone!

Google Privacy & Terms

Changes

Our Privacy Policy may change from time to time

June 9, 1999
September 20, 1999
January 4, 2001
July 1, 2004
October 14, 2005
August 7, 2008
January 27, 2009
March 11, 2009
October 3, 2010
October 20, 2011
March 1, 2012
July 27, 2012
June 24, 2013
December 20, 2013
March 31, 2014
December 19, 2014
February 20, 2015
May 3, 2015
April 5, 2015
June 30, 2015
August 19, 2015
March 25, 2016
June 28, 2016
September 29, 2016

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Combination of Google's vast data sources enables it to create unrivaled superprofiles for ad targeting

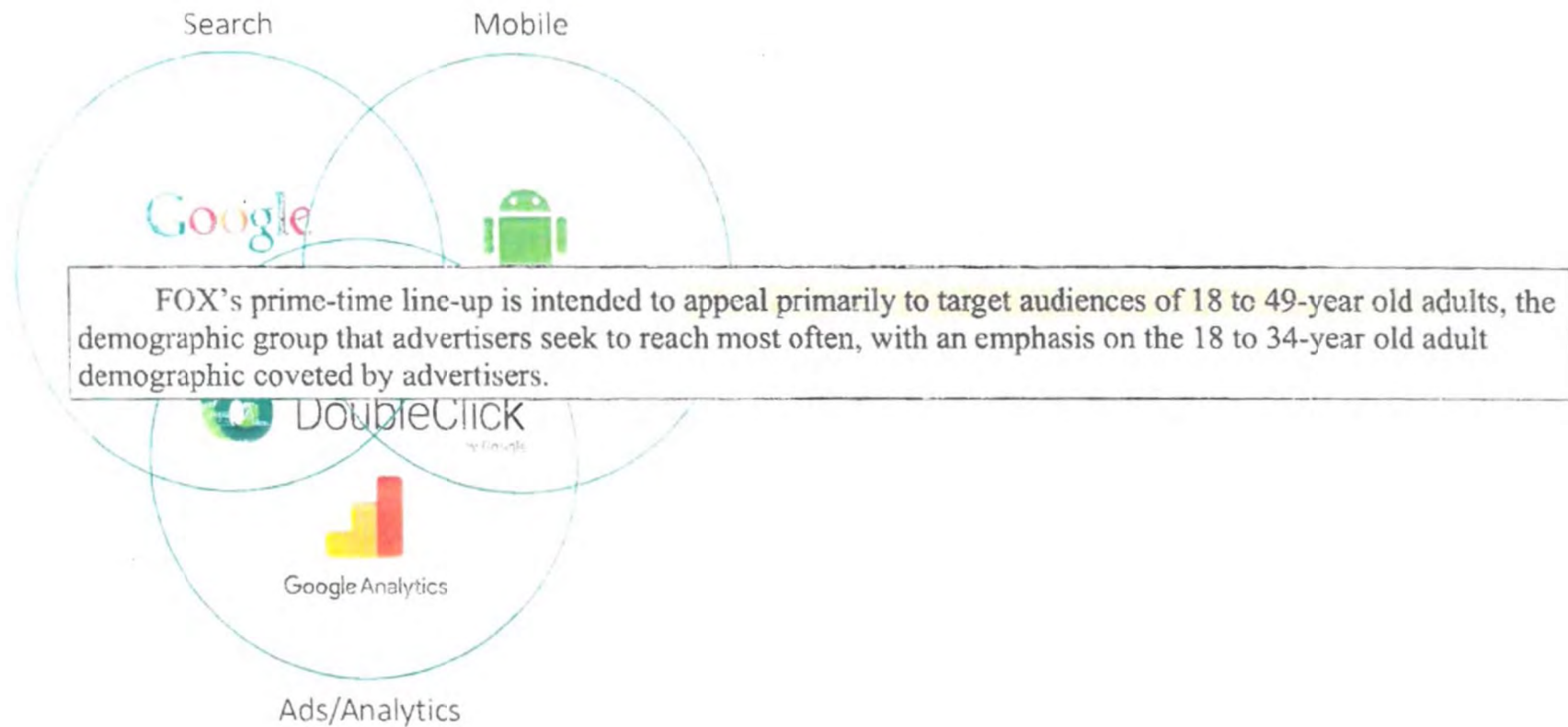


COMBINED IN 2012

COMBINED IN 2015

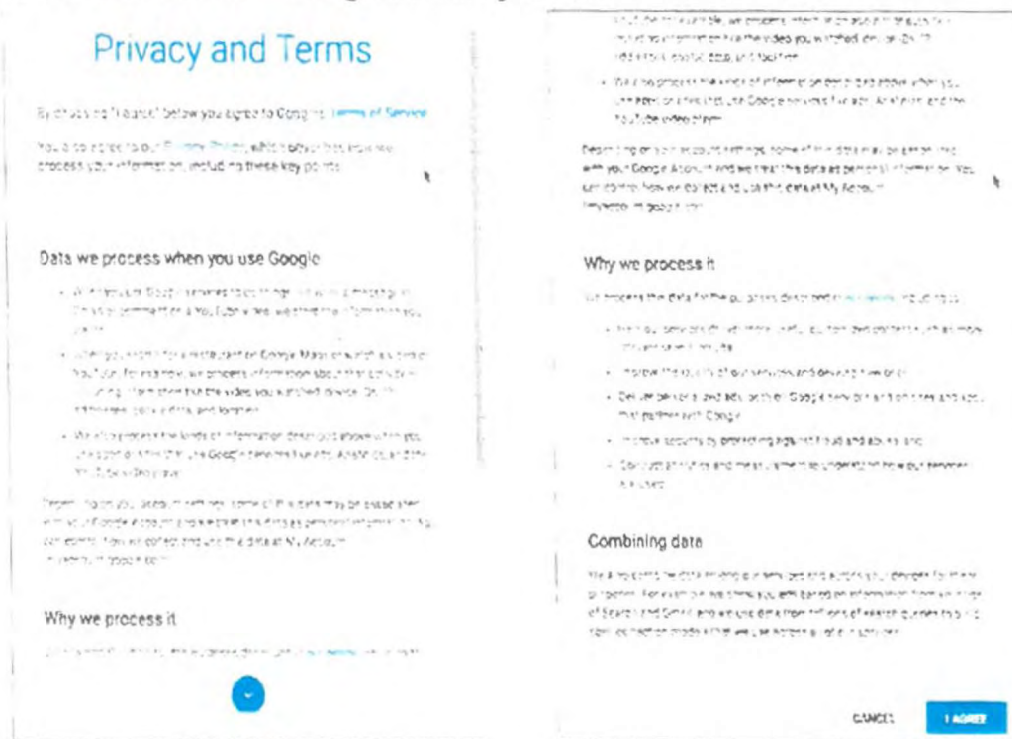
COMBINED IN 2016

Superprofiles vs. ...



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 policies](#) explain 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 ...

Released under FOI

Google has a monopoly on **this ...**



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And this ...



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The "third screen" is next

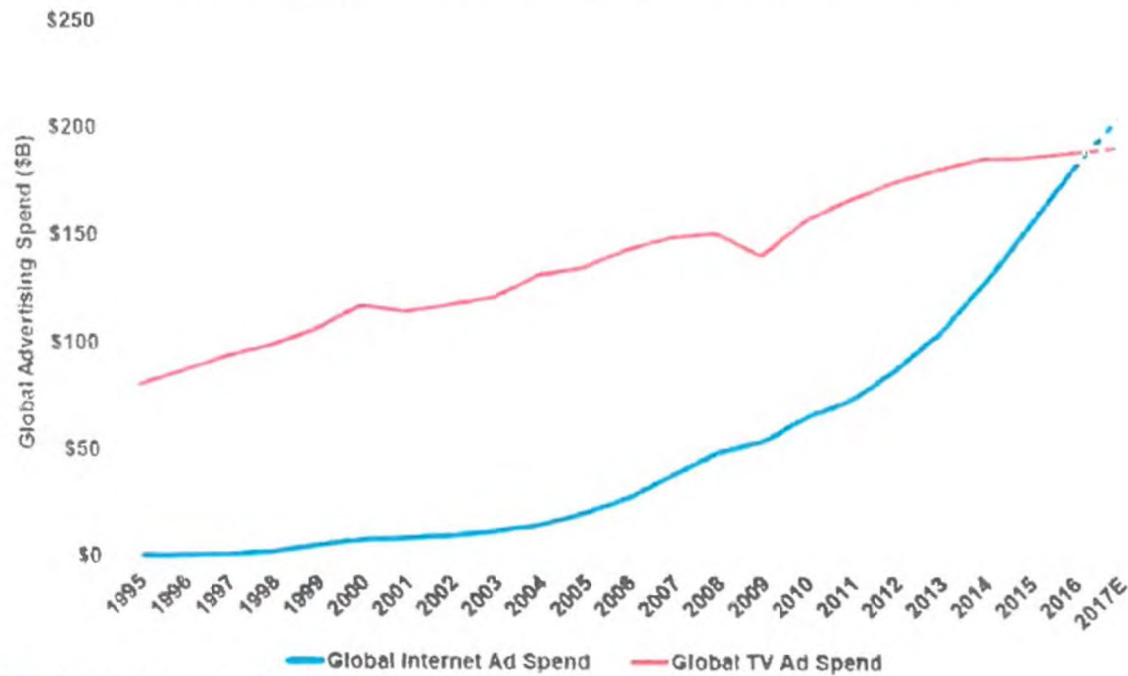


PHILIPS SONY

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Television is Google's last growth ad market

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



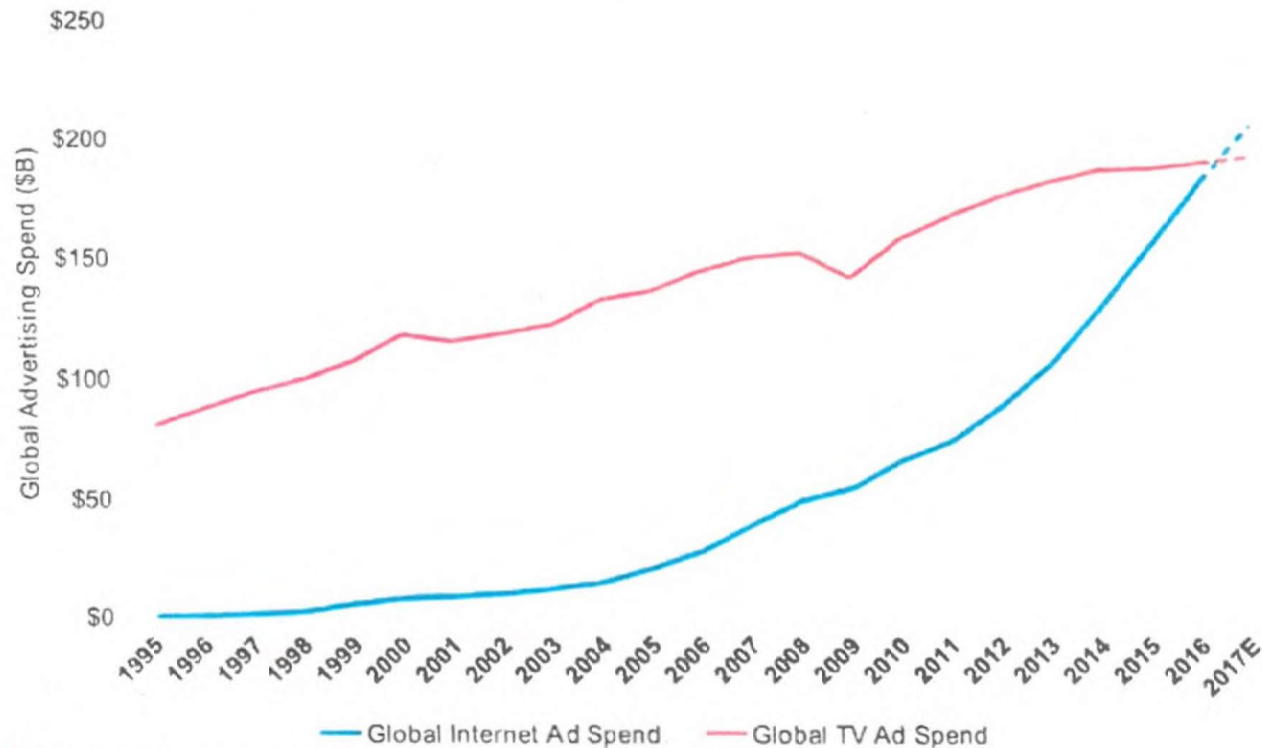
KLEINER PERKINS

Source: Zenith Advertising Expenditure Forecasts (2017)

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Advertising \$ =
Internet > TV Within 6 Months, Global

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



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TVs are becoming “app-based”



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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?

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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](#).

Released under FOI

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.