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Data Justice Policy Brief

**How Mobile Supports Google's
Online Advertising Dominance:
Why the European Union Competition Authority Should Take Action**

By Nathan Newman

When the European Commission announced antitrust proceedings against Google in mid-April, the most interesting part was not the complaint about the company's sidelining of competitors in search results – an issue that the Commission had been discussing for years. The real news was the formal investigation into whether, in the words of the Commission, Google's "conduct in relation to its Android mobile operating system as well as applications and services for smartphones and tablets has breached EU antitrust rules."¹

Most of the discussions of Google in terms of antitrust largely treat the company as merely a search engine; whole articles have been written defending Google against antitrust criticism without even mentioning the words Android or discussing the role of Chrome, Gmail and other software services in promoting Google's dominance.² What the European Commission is acknowledging is that in a world where mobile is becoming the primary mode of access to the Internet for large numbers of people, controlling the dominant mobile operating system is crucial to Google's business model and has an anticompetitive role in the Internet ecosystem as its search engine.

As this policy brief will outline, Android should not be analyzed for its dominance of the mobile operating system sector, since no company is really seeking to make money in that sector alone. Rather, each is using control of the operating system to strengthen its revenue in its core profit centers, whether Apple strengthening hardware sales, Amazon strengthening its ecommerce position, Microsoft its Office and other applications sales. Google for its part makes essentially no

revenue from users of either its Android operating system or its search engine, but each plays a role in giving Google dominance in Internet advertising, especially its Adwords keyword-based advertising -- often called search advertising, but which in fact delivers up ads to search engines, Gmail and a range of partner sites.

Control of Android not only places Google apps in prime real estate on user phones but also delivers the critical engine of Google's strength in advertising, namely detailed information on users. Such personal data is prized by advertisers and, as discussed below, gives Google a premium price per click on those ads compared to any actual or potential competitor in the keyword-based advertising sector. Control of Android for Google is therefore more akin to Microsoft's promotion of its free Internet Explorer browser and other middleware, which were designed not so much to dominate those particular software sectors but rather to reinforce its core operating system dominance at the time.

In examining how Android generates critical data about consumers for Google, regulators should recognize the consumer harm from allowing a company like Google to extract and create such comprehensive profiles of each user. That harm, as discussed below, includes not only any qualitative lost privacy, but the real economic harm of such a dominant player extracting such data at too little a price paid to users for that data and the economic harm that its advertisers can inflict on consumers through various forms of price discrimination that raise the costs of goods across the economy for consumers.

History of Google Seeking to Dominate Mobile Space

Even before the company launched Android, Google had committed to controlling the geolocation technology that allows mobile users (and companies like Google) to know exactly where they are at all times. In 2007, Google launched the Street View project, ostensibly sending cars up and down streets around the world to photograph buildings to enrich its Maps service. In reality, however, the other and more important purpose was to create an invisible map of wi-fi hotspots that combined with GPS technology would precisely pinpoint user locations.

This underlying purpose of the Street View project was only revealed when scandal erupted that Google not only was identifying the location of wi-fi hotspots but covertly downloading personal data by users of those hotspots in peoples homes, including personal emails that detailed people's medical histories, marital infidelities, and even sexual preferences.³ Countries around the world, including France,⁴ the United Kingdom,⁵ Spain, Canada, New Zealand and other countries⁶ sanctioned the company for its actions. Why Google was downloading personal data on top of mapping the hotspots is unclear to this day, but the whole enterprise reflected Google's insatiable appetite for data.

When it introduced the Android operating system, Google promoted it as an alternative to Apple's dominance of the smartphone market,⁷ but internal documents have revealed that Google saw deploying Android as key to control of geolocation services and collecting user location data. In internal emails detailed by the *San Jose Mercury News*, Android chief Andy Rubin along with other Google executives "emphasized that collecting location data from consumers' smartphones was 'extremely valuable to Google,' and detailed the trouble the company was having with data collection in the wake of a privacy blowup involving Google's Street View cars."⁸

The emails were unearthed in litigation by Google's chief geolocation services competitor Skyhook, which had pioneered the use of wi-fi router mapping with cars and whose services were used then

by competing mapping and mobile products such as MapQuest.⁹ In that litigation, Skyhook accused Google of “tortious interference” in its relations with smartphone manufacturers for using its control of Android to force manufacturers in 2010 to drop Skyhook’s service and replace it with Google’s geolocation service. In those emails released through discovery, company executives argued that smartphones allowed them to be “constantly re-mapping through our users, which keeps the data re-refreshed”¹⁰ and in another email how “the large volume of device distribution... helps the data collection.”¹¹ Company executives worried in those emails that if manufacturers like Motorola and Samsung went with Skyhook:

"It will cut off our ability to continue collecting data to maintain and improve our location database. If that happens, we can easily wind up in a situation we were in before creating our own location database and that is (a) having no access at all or (b) paying exorbitant costs for access."

Using its control of Android standards, Google forced those manufacturers to drop Skyhook in the name of maintaining “compatibility” with operating system standards. But in an email, Dan Morrill of Google noted that pretending the issue was one of “compatibility” with the Android system was a clear fig leaf: “it’s not like it isn’t obvious to the OEMs [manufacturers of the smartphones] that we are using compatibility as a club to make them do things we want.”¹²

Those emails also laid out the strategy Google would use for maintaining dominance of geolocation services (and more broadly the overall mobile ecosystem) through minimizing notice to users, maximizing data collection and using Android as a “club” to keep manufacturers in line. Since the manufacturers has agreed to Google’s Android terms, the judge in the private Skyhook litigation found no grounds for a tortious interference claim¹³, but competition authorities rightfully should view such use of its control of Android as an anticompetitive maneuver. Since Google has itself declared control of that mobile data is critical to the company’s advertising business model, to the extent that its business model overall is monopolistic, Android and its overall mobile efforts are prime contributors to its dominance of the online advertising sector.

Mobile Reinforces Google’s Control of Unique Data

Notably, Google executives themselves have argued that it is control of data, not better engineering, that has been key to the company’s success in their less guarded moments. Google Research Director Peter Norvig has observed, “We don’t have better algorithms than everyone else; we just have more data.”¹⁴ Jonathan Rosenberg, Google’s former Vice President of Product Management and Marketing argued similarly in 2008.¹⁵

There are clear indications from the analysis of Google’s advertising operations and its overall business operations that indicate that Google see expansion of control of mobile data by the company as critical to the company’s success. The expansion of Google into Android, Chrome, Gmail, YouTube and the host of other ventures are not “side projects” but parts of an integrated business plan that reinforce its dominance in search advertising.

Analyst Bill Burley referred to these ventures as the creation of “moats” around Google’s “economic castle” of search advertising where the company is “scorching the earth for 250 miles around the outside of the castle to ensure no one can approach it.”¹⁶ Google’s expansion into markets where it can collect the user data that reinforces its core search advertising monopoly is similar to what Microsoft did in launching the Explorer browser and other “middleware sector” applications like Java, where the goal was not necessarily control of those subsidiary sectors but, in the words of the

U.S. Court of Appeals, were “efforts to gain market share in one market (browsers) [which] served to meet the threat to Microsoft's monopoly in another market (operating systems).”¹⁷

Each of these individual services may not create Google’s dominance in search advertising but taken as a whole they build such a comprehensive storehouse of user data in Google’s hands that no rival has a chance to build a competitive rival core of data to challenge the company. In particular, Android has and continues to play a key role in consolidating Google’s hold as mobile becomes a key access point to the Internet for so many people—and helps the company keep generating the user data that maintains its overall dominance.

What is critical to recognize is that data is the coin of the realm in driving profits in the online industry and Google has cornered a large share of the market in location data for the relatively inexpensive cost of its “free” Android service, a free service consumers pay for with extremely valuable personal data. As EU Competition Commissioner Margrethe Vestager has argued, “Many people still don’t realize that sites that appear to be free are actually paid for by the information you provide through your searches and behavior online.”¹⁸ Nothing may embody that principle more than Google’s “free” Android operating system and the EU Commission is correct to make it a key focus for its antitrust investigations of Google.

Location Data is Critical

Analysts may argue that all companies collect location data through their apps but this underestimates the advantage that Google has in controlling the underlying location services infrastructure in Android and through its multiplicity of core apps across the smartphone market. A company like Yelp might track user locations when they “check in” to the app, but this provides a far less rich profile of mobile users than the nearly step-by-step tracking throughout the day that Google maintains on most Android phones.

And Google combines this location data with use of its apps, particularly Search and Maps, which compounds the data advantage it already has by adding the element of location to every use of those services. This is reflected in Google’s even greater dominance in mobile search advertising than its advantage in desktop search advertising.¹⁹

Some analysts argue that there is lots of data out there; Google-funded researcher Andres Lerner has argued, “No single firm controls all, most, or even a significant amount of user data. Many online providers have access to significant amounts of user data from various sources...incumbent online providers do not have explicit or de facto exclusivity over user data.”²⁰ He and others often cite to companies that are successful in their sector because they have massive amounts of data most relevant to that sector: Kayak in travel data, Zillow in real estate listings, Amazon in online retail and so on.²¹

But such data is specific to a particular economic sector, while the kind of personal information collected by Google gives the company key data not about a particular sector but the attitudes of each individual towards multiple sectors of the economy. For this reason, search advertising is considered a separate economic sector with its own data needs and dynamics, as competition authorities around the world have repeatedly found in merger proceedings.²² Data about users themselves, their preferences and interests, is the critical data input and Google both controls and continually generates new user data on a scale unmatched by rivals. It is hardly a coincidence that in online advertising as a whole, including all sectors from display to search, that Google with the most user data is the unquestioned leader, while Facebook has been able to use its trove of social

media data to vault itself into a strong if distant second place with its strength in display advertising.²³

In fact, the kind of supposedly readily available data available for purchase is relatively minor in economic value compared to the data that Google exclusively controls and generates on a continual basis. Data brokers often cited in the media are minnows in the big data ecosystem and are likely to become even more marginal over time. Experian is one of the largest at \$4.8 billion in sales per year²⁴ while Acxiom, a data broker often cited as having one of the largest datasets on consumers, has only about \$1 billion per year in revenue.²⁵ Even collectively, these data brokers are dwarfed by a company like Google with over \$60 billion in annual revenue.

This is largely due to the fact that most data brokers do not control unique information about individual consumers but instead are merely middlemen largely selling older data or data that is relatively easy to obtain from public sources. The data available to Google's potential competitors is exactly the kind of data that is least useful because it is often available precisely because it was generated in the past or from publicly available sources and is therefore of less economic value. Only a handful of companies such as Google, Facebook or Amazon generate significant amounts of new user data on a continual basis—and neither Facebook nor Amazon is in direct competition with Google in the search-advertising sector.

While smart entrepreneurs running such data broker firms were able to position themselves to benefit as corporate advertisers began engaging in targeted advertising, power in the data-driven economy is going to inevitably move to data platforms like Google, Facebook and other companies that continually generate new unique data on consumers. As Kenneth Cukier and Viktor Mayer-Schönberger argued in their recent book, *The Rise of Big Data: A Revolution That Will Transform How We Live, Work, and Think*, the initial skills of data brokers is inevitably losing out to companies “holding large pools of data and being able to capture ever more of it with ease...large data holders will flourish as they gather and store more of the raw material of their business, which they can reuse to create additional value.”²⁶

And to the extent purchases of third party data might bolster the revenue of a competitor to Google, that competitor will have to pay a significant portion of those profits to that third party provider of data, undermining its competitiveness vis a vis Google, which generates that data through internal collection processes. To argue that competitors might take on Google by purchasing the data needed to do so is a bit like saying that a company controlling oil wells has no competitive advantage in the oil industry because competitors can buy oil from third parties.

In fact, collecting such location data in real time is highly prized and Google has fought viciously to maintain control of that data versus potential rivals.²⁷ Google now maintains a critical advantage in controlling the underlying location services infrastructure, in particular in android phones and due to the ubiquity of its core Android operating system tracking and various location-tracking apps such as Maps.

This actually emphasizes the advantages Google has since it not only collects data on what people search for on a scale far higher than any rival, it collects data on where they were when they made that search, compounding its data advantage by an order of magnitude. This advantage accruing to Google from its mobile services is reflected in the company's even greater dominance in search advertising described above compared to desktop search.²⁸

How Google's Control of User Data Harms Consumers

Multiple studies show consumer objections to use of personal data for third party targeting of advertisements and mobile is just opening up more of their lives to surveillance.²⁹ Beyond the discomfort consumers may have with the invasion of their privacy, consumers should have concerns about how use of their personal data allow companies to engage in price discrimination and other predatory targeting of consumers in ways that indeed harm them financially.

What do advertisers get for their money? First, targeting ads around personal data does help advertisers effectively identify the customers most interested in their products. However, the deeper gain for advertisers it is that such user profiling let's companies tailor prices for different customers, engaging in what economists call "price discrimination" to extract the maximum profit from each transaction, since consumers won't know a better deal is being offered to other consumers.³⁰ Being able to sort consumers by various characteristics online allows companies to offer coupons and price offers that encourage those consumers to pay the maximum price each one individually is likely to pay. The result overall is that average prices of goods sold through targeted advertising end up being higher than the average price with mass advertising were lower than with targeted online advertising.³¹

Location data is critical to those kinds of price discrimination, as a 2012 Wall Street Journal investigation identified when they found that major companies including Staples, Home Depot, Discover and Rosetta Stone displayed different online prices based on the location of a potential customer.³² Individuals in lower income locations actually were offered higher prices in general because retailers knew they had fewer competing local retail outlets available. Another key example of this kind of price discrimination was the way subprime mortgage lenders – the largest group of online advertisers at the height of the financial bubble – offered different terms and conditions to different customers and helped destroy the financial wealth of a large segment of the working population in numerous countries.³³

Economists like Nobel Prize Winner Joseph Stiglitz, who pioneered what has been called "information economics", detail the economic harm to consumers from such differential pricing. When consumers don't know all their price options, it creates "market power in product markets" which firms exploit through "differentiating among individuals who have different search costs" in identifying different price options.³⁴ The problem of price discrimination, the harms to consumers, and the problems of monopoly in online sectors like search advertising therefore end up being interlinked.

Google's dominance may allow it to provide marginally better search results for users than its rivals, but its core advantage from control of user data is that it can provide better service to *its advertising clients*. What is notable is that advertisers clearly see that data controlled by Google as financially valuable as signaled by the premium paid by those advertisers to Google. Google's 85% share of global search advertising revenues³⁵ and 90% of mobile advertising revenues specifically³⁶ is due in part to the sheer numbers of its users compared to its far smaller competitors but, more significantly from a competition viewpoint, Google makes more per user on each click they make on an advertisement. Overall data on the "cost per click" for specific keywords is a closely held business secret by Google – making this a fruitful area for investigation by competition authorities – but analysts who have studied the issue have found that competitors like Microsoft's Bing are paid far less per click on advertisements tied to the exact same keyword.³⁷

For consumers, one result of this dominance is that Google not only extracts their data with little direct compensation but also has no need to even invest much of that surplus in the services they use. Given Google's astronomically higher revenues and profits than its rivals, it's quite possible for it to create high enough fixed costs in running its search engine and associated services such that no competitor can match that spending given far lower revenues for the effort, even as Google diverts most of its search advertising revenues to non-search ventures. While the technology press is understandably impressed by the endless parade of new Google ventures and investments, but notably these are all paid for by services *not* provided to the core users of its original search engine, which has become a cash cow throwing off excess funds for those additional ventures. Google's own financial statements show that it collects tens of billions of dollars more each year in revenue based on its search users than it spends on services for them. In this sense, Google has been very different from advertising-supported media of the past, from newspapers to television, where the vast bulk of advertising dollars generated have been plowed back into content serving those customers.

For consumers, the result of monopoly control is that, with little viable competition, Google feels little pressure to either strengthen user control of their data or to better compensate those users for its full economic value. And with Google continuing to collect user data at a price far below its economic value to advertisers, this just further feeds the company's accumulation of user data and advantage versus its existing or potential rivals.

Conclusion: Antitrust Action on Google's Mobile Ventures Will Help Restrain Its Overall Monopoly Problem

As a greater and greater percentage of online access comes through mobile portals, it becomes doubly important that Google's control of the mobile environment be constrained in order to preserve competition in the mobile space itself but also to avoid further entrenching Google's monopoly dominance in its core search-advertising sector.

Given that reality, the most appropriate remedy in the mobile space may be a structural one, with regulators requiring that Google divest itself of mobile-related ventures such as Android and its geolocation services. Part of Google's dominance comes from the sheer breadth of its user data where no other company knows so much about so many different aspects of users' online life. Restricting Google more narrowly to search-related data would reduce that overwhelming power, while successor companies controlling only location-based data would have a similarly more limited dossier on users' overall online activity.

Reducing Google's breadth and dominance of personal data collection online would, first, reduce privacy concerns of users overall by having less integrated profiles of users in any one set of corporate hands and would increase those users' bargaining position in the marketplace to demand compensation for the data they do share online. With a critical mass of firms competing for users, this ideally would give rise to payments to users for access to their data and more competition to preserve data privacy for users who value their privacy more than any potential payments

Google's investment in mobile has been a tool to reinforce its search advertising monopoly. Requiring the company to divest from the mobile sector would be a significant step in helping to curb that dominance and help open up the possibility of rivals challenging it in that sector, while opening up the overall mobile space to more competition and innovation.

End Notes

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