

## Written Statement for the Record

by Megan Gray, General Counsel and Policy Advocate  
for DuckDuckGo

for a hearing entitled "Online Platforms and Market Power, Part 2: Innovation and Entrepreneurship"

before The House Judiciary Subcommittee on Antitrust, Commercial and Administrative Law  
Rep. David Cicilline, Chair  
Rep. James Sensenbrenner, Ranking Member

Tuesday, July 16, 2019

DuckDuckGo is a privacy technology company that helps consumers stay more private online. DuckDuckGo has been competing in the U.S. search market for over a decade, and it is currently the 4<sup>th</sup> largest search engine in this market (see market share section below). From the vantage point of a company vigorously trying to compete, DuckDuckGo can hopefully provide useful background on the U.S. search market.

### **Features of Competitive General Search Engines**

A competitive U.S. general search engine in 2019 must have a set of high-quality search features, and ensure none are substandard or shown at the wrong times. This set of mandatory high-quality search features includes:

- An up-to-date index of most all of the English web pages on the Internet (referred to as “organic links”)
- Maps
- Local business answers (e.g., restaurant addresses and phone numbers)
- News
- Images
- Videos
- Products/shopping
- Definitions
- Wikipedia reference
- Quick answers (calculator, conversions, etc.)

Additional niche features may also be necessary to be competitive with particular consumer segments, such as:

- Up-to-date indexes of web pages in other languages
- Sports scores



- Airplane flight information
- Question/Answer reference (e.g., for computer programming)
- Lyrics

When DuckDuckGo launched in 2008, this list was much smaller, and arguably just one item was a required feature: organic links (sometimes referred to as “the ten blue links”). Over time, online search innovated, and consumers came to expect the other features (often referred to collectively as “instant answers,” “one boxes,” or “info boxes”). The trend toward instant answers is likely to continue because they more quickly get answers to consumers.<sup>1</sup>

Another reason for the increasing use of instant answers is the rise of smartphones, which now generate the majority of online searches.<sup>2</sup> On non-desktop/laptop devices, consumer website navigation is more difficult, making instant answers intrinsically more useful.

Nonetheless, organic links continue to be a required feature. Perhaps counterintuitively, the financial outlay necessary to create and maintain those organic links has increased many-fold since 2008. The additional expense is because the web itself has grown substantially.

One barrier for a start-up search engine trying to generate useful organic links (in addition to cost), is that many sites outright block a fundamental tool used to find organic links: the link “crawler.” When search engine Findx shut down its crawler, it explained: “Many large websites like...Facebook and others only allow certain specific crawlers like Google and Bing to include their webpages in a search engine index...That meant that the Findx search index was incomplete and was not able to return results that were likely both relevant and good quality. When you compare any independent search engine’s results to Google for example, they have no chance to be as relevant or complete because many large websites refuse to allow any other search engine to include their pages.”<sup>3</sup>

Small as well as large websites regularly include this blocking code.<sup>4</sup> Some sites incorporate it because they have legitimate reasons to reduce the bandwidth costs that would result from too many automated bots crawling their websites.

---

<sup>1</sup> SparkToro adds perspective on these trends: <https://sparktoro.com/blog/how-much-of-googles-search-traffic-is-left-for-anyone-but-themselves/> and <https://sparktoro.com/blog/google-ctr-in-2018-paid-organic-no-click-searches/>

<sup>2</sup> <https://searchengineland.com/its-official-google-says-more-searches-now-on-mobile-than-on-desktop-220369>

<sup>3</sup> <https://privacore.github.io/>

<sup>4</sup> <https://facebook.com/robots.txt>



Another barrier facing a start-up search engine is that it needs data, such as the most commonly clicked links for a particular query, in order to produce a useful ranking of organic links, i.e., what organic link is first, second, etc. For any given search query (e.g., “how to make cold brew coffee”), data specific to that query helps inform ranking decisions,<sup>5</sup> although once a search engine has enough users consistently searching that specific query, having even more users do so provides little benefit. That is, network effects exist for search result ranking, but that network effect quickly dissipates once a critical mass of searches regularly occurs for that query. However, many of the queries that a search engine receives each day will be ones that the search engine has never previously seen, and those queries by definition will not have reached needed critical mass.<sup>6</sup> As a search engine’s market share grows, the percentage of new searches on that search engine will diminish.

Ten years ago, many search engines crawled the web, producing organic links, including many search engine startups<sup>7</sup> and the by-then well-established search engines. Now all of those web-crawling search engine startups are defunct. Today, only Google and Microsoft still produce competitive organic links for the U.S. search market. Outside the U.S., some companies produce regionally competitive organic links (e.g., Baidu in China and Yandex in Russia). As a result, other competitive general search engines including #3 Yahoo and #4 DuckDuckGo must license the Google or Microsoft organic links.

Yahoo and DuckDuckGo (and any other search engines hoping to be competitive in the general U.S. search market) sign search syndication contracts with Google and/or Microsoft to purchase their organic links. In exchange, the purchasing company agrees to show search ads next to the organic links. The parties split the revenue generated by the search ads (according to percentages stated in the contract). In these syndication arrangements, the company providing the organic links/search ads is called the “upstream provider” and the company receiving them is called the “downstream provider.”

While only Google and Microsoft produce the organic links, their syndication contracts can authorize sub-syndication, which entails a second revenue-sharing contract. Yahoo (now owned by Verizon) historically had its own organic links. But since 2009, Yahoo has purchased its organic links from Microsoft.<sup>8</sup> Yahoo (Verizon) has thousands of its own search syndication partners, including

---

<sup>5</sup> <https://searchengineland.com/8-major-google-ranking-signals-2017-278450>

<sup>6</sup> Even at Google’s scale, approximately 15% of Google searches each day are ones that Google has never before encountered. <https://searchengineland.com/google-reaffirms-15-searches-new-never-searched-273786>

<sup>7</sup> [https://money.cnn.com/2009/07/29/technology/microsoft\\_yahoo/](https://money.cnn.com/2009/07/29/technology/microsoft_yahoo/)

<sup>8</sup> [https://money.cnn.com/2009/07/29/technology/microsoft\\_yahoo/](https://money.cnn.com/2009/07/29/technology/microsoft_yahoo/)



DuckDuckGo.<sup>9</sup> Excluding Google, Microsoft is currently the primary source of organic links (and search ads) for most search engines trying to compete in the general search engine market in the U.S. (e.g., Bing, Yahoo, DuckDuckGo, AOL, Ecosia, Qwant, etc.).

Although Google, Bing, Yahoo, and DuckDuckGo are currently considered to be the only notable competitors in the U.S. search engine market, many other syndication and sub-syndication “search engines” exist. Most are not generally considered part of the U.S. search market, however, because they lack the required set of features described above. Examples include Internet Service Providers (which display search results on a customer start page and when the customer misspells domain names; see for example search.xfinity.com), arbitrage players (which buy clicks or app installs and then send traffic to search results pages with ads; see for example ask.com), and vertical sites (which only provide niche search responses, e.g., reference.com).

Without a syndication contract with either Google or Microsoft or a sub-syndication contract with Verizon or another sub-syndicator, a company can only obtain organic links suitable for U.S. consumers by purchasing them from Microsoft, which sells them in a self-serve model via its Azure platform.<sup>10</sup> However, without associated access to the search ads, this arrangement is not financially sustainable (see next section). Therefore, to stay in business, a company must have a syndication or sub-syndication contract and abide by the implementation terms and restrictions dictated in those contracts.<sup>11</sup>

### **Monetization of Competitive Search Engines**

To compete in the U.S. search market, a general search engine, when it displays search results, also tries to show ads that are relevant to that search query. (If the ads are not relevant, consumers will not click on them, and those clicks generate the advertising revenue on which the company relies.) Only two companies (again, Google and Microsoft) have an online advertising business that currently provides search ads of any significant scale (over half a million advertisers).<sup>12</sup> Similar to the organic links, operating a search ads service at this scale is extremely costly, requiring massive resources for the sales network, support staff, and technology platform.

Also similar to organic links, search ads benefit from network effects because ad pricing is based on an auction model. That is, search ads sell for a higher price when more advertisers are bidding for a given keyword, e.g., multiple bidders for the keyword “coffee.” To maximize bidders and therefore revenue,

---

<sup>9</sup> <https://www.oath.com/partners/search/>. Until recently, Yahoo’s corporate name was Oath.

<sup>10</sup> <https://azure.microsoft.com/en-us/pricing/details/cognitive-services/search-api/>

<sup>11</sup> <https://help.yahoo.com/kb/SLN27299.html>

<sup>12</sup> <https://about.ads.microsoft.com/en-us/blog/post/april-2019/bing-ads-is-now-microsoft-advertising>



search ad suppliers are driven to merge, which happened gradually over time with #3 Yahoo/Verizon and #2 Bing/Microsoft, culminating in the 2019 announcement that Bing would thereafter operate all of Yahoo's search ads.<sup>13</sup> Of the two remaining competitive search ad services (Google and Microsoft), Google's has a larger advertiser base, and so is able to generate greater advertising revenue per search.

An aspiring search engine start-up could attempt to earn money without the Google or Microsoft search ads, such as only showing product ads from companies like Amazon, travel ads from companies like Booking.com, etc. However, these alternatives are not sufficiently lucrative to cover the costs of purchasing organic links. In short, an aspiring search engine start-up today (and in the foreseeable future) cannot avoid the need to sign a search syndication contract.

### **Getting Consumers to Use a Particular Search Engine**

To get consumers to use a particular search engine, three options exist.

*Option One:* The first option is to be the default search engine on web browsers. In this situation, when a consumer starts using a web browser (either when setting up a new device or after installing the browser), that browser is already configured for the particular search engine.

Unfortunately for startup search engines, default search placement is not a practical option because the primary browsers are either already owned by a major search engine parent company (Chrome/Google, Edge/Microsoft, InternetExplorer/Microsoft) or charge hundreds of millions to billions of dollars for such placement (Safari,<sup>14</sup> Firefox,<sup>15</sup> Samsung<sup>16</sup>). Browser market share in the U.S. is 51% Chrome (owned by Google), 31% Safari (owned by Apple), 5% InternetExplorer (owned by Microsoft), 5% Firefox (owned by Mozilla), 4% Edge (owned by Microsoft), 2% Samsung, and approximately 2% by many smaller players.<sup>17</sup>

*Option Two:* The second option is for the search engine company to develop its own browser and gain market share via that browser's adoption. For example, DuckDuckGo developed its own browser for Android and iOS. However, the same default placement challenges exist in the browser market, just one

---

<sup>13</sup> <https://about.ads.microsoft.com/en-us/blog/post/january-2019/microsoft-and-verizon-media-strengthen-search-partnership>

<sup>14</sup> <http://fortune.com/2018/09/29/google-apple-safari-search-engine/>

<sup>15</sup> <https://www.cnet.com/news/google-firefox-search-deal-gives-mozilla-more-money-to-push-privacy/>

<sup>16</sup> <http://www.theinvestor.co.kr/view.php?ud=20170816000718>

<sup>17</sup> <http://gs.statcounter.com/browser-market-share/all/united-states-of-america#monthly-201805-201905>



level up – with the device makers requiring millions or billions of dollars to become a default browser on a device.

Related, a device or browser maker could present the user with a choice for selecting a search engine when setting up the device or browser. The Russian government required Android devices to give users this choice 2017.<sup>18</sup> Subsequently, Russian search engine Yandex reported a 10% increase in market share on Android devices.<sup>19</sup> This implementation significantly moved market share because it automatically and easily changed the user’s default search setting, as opposed to an implementation in which the user merely downloaded a search engine app that the user would then need to locate on the device and manually configure (assuming the device’s default search engine could even be replaced).

*Option Three:* The third option is to convince consumers to change their default settings, either manually or by downloading software that helps them to do that. Consumers must be highly motivated to take these steps, which vary in complexity from device to device and browser to browser. Even with a competitive differentiator like privacy, consumers are extremely reluctant to take such action because it can be technically challenging and time-consuming. Moreover, even when the consumer is convinced to take that action, it can be only a temporary change – the consumer’s device and browser are often configured to roll back the search engine selection (e.g., with software updates).<sup>20</sup>

## **U.S. Search Market Share**

Confusion exists around U.S. search market share because quoted data sources vary significantly in their market share numbers. As explained in detail below, the oft-cited sources of NetMarketShare, comScore, and Jumpshot all have significant methodological deficiencies, as compared to StatCounter, which is a more accurate reference source.

NetMarketShare’s data comes from a web analytic platform for publishers with “approximately 100 million valid sessions per month, widely distributed over thousands of websites” globally.<sup>21</sup> That is a tiny sample size relative to the scale of the Internet. By contrast, StatCounter, which uses a similar methodology, has data from a sample over 100 times as large. StatCounter is “installed on more than 2

---

<sup>18</sup> <https://www.reuters.com/article/us-tmt-conference-yandex/yandex-aims-for-50-percent-mobile-search-share-in-russia-cfo-idUSKBN1DG379> and <https://russiansearchmarketing.com/yandex-catches-google-on-android-in-russia>

<sup>19</sup> <https://russiansearchmarketing.com/yandex-search-market-share-increase-during-q3> and <https://www.fool.com/investing/2018/09/07/yandex-overtakes-google-as-russias-top-search-engi.aspx>

<sup>20</sup> <https://betanews.com/2019/05/04/mozilla-fixes-firefox-add-ons-problem/>

<sup>21</sup> <https://www.netmarketshare.com/methodology>



million sites,” collecting data on over “10 billion page views per month.”<sup>22</sup> StatCounter’s data set includes more than 400 million U.S. search engine referrals.<sup>23</sup>

comScore has even deeper problems. comScore does not include mobile searches, ignoring the largest increase in search traffic since the 2007 introduction of the iPhone.<sup>24</sup> comScore also hasn’t added any new search engines to its list in over a decade, failing to capture market entrants like #4 DuckDuckGo.<sup>25</sup> Additionally, the comScore data panel is approximately 2 million devices vs. 100 million devices in the Jumpshot panel, which uses a similar methodology.<sup>26</sup> Indeed, the Jumpshot panel has over 10 million devices in the U.S. and includes mobile devices.<sup>27</sup>

While Jumpshot is more accurate than comScore, both of their data sets suffer from a fundamental methodological issue: selection bias. The people who enroll in the panel are not representative of the whole population. For example, DuckDuckGo users, who almost by definition value their privacy, are not likely to participate in a panel that surveils their online activity.<sup>28</sup> Additionally, the proportion of devices in the panel does not match the proportion used by the general population. comScore’s mobile devices’ vacuum is an egregious example. Similarly, Jumpshot is oversampled on mobile vs. desktop, and also has a sample skew on mobile because Jumpshot does not include iOS, which is the majority of mobile operating systems in the U.S.<sup>29</sup>

For these reasons, publisher data, like that compiled by StatCounter, produces a far more accurate picture of the U.S. search market. Publisher data measures who visits publisher sites across all devices. No one needs to opt in except for the publisher. With enough publishers, the research will accurately determine search market share.

---

<sup>22</sup> <http://gs.statcounter.com/faq>

<sup>23</sup> <http://gs.statcounter.com/faq>

<sup>24</sup> <https://www.conductor.com/blog/2014/05/shouldnt-trust-comscores-numbers-search-engine-market-share-data/>

<sup>25</sup> <https://www.comscore.com/Insights/Rankings>

<sup>26</sup> [https://www.comscore.com/Media/Files/Misc/comScore-Unified-Digital-Measurement-Methodology-PDF?cs\\_edgescape\\_cc=US](https://www.comscore.com/Media/Files/Misc/comScore-Unified-Digital-Measurement-Methodology-PDF?cs_edgescape_cc=US) and <https://www.jumpshot.com/about/>

<sup>27</sup> <https://sparktoro.com/blog/as-the-antitrust-case-against-google-kicks-off-heres-where-the-doj-should-start/>

<sup>28</sup> The Jumpshot panel is derived largely from users who download AVAST software, <https://press.avast.com/avast-software-acquires-jumpshot-to-work-magic-against-slow-pc-performance>

<sup>29</sup> <http://gs.statcounter.com/os-market-share/mobile-tablet/united-states-of-america/#monthly-201806-201906>





StatCounter reports U.S. June 2019 search market share as follows: 88% Google, 6% Bing, 4% Yahoo, and 1% DuckDuckGo.<sup>30</sup>

The largest sample by far, and therefore likely the most accurate sample, of publisher data flows through Google via its Google Analytics service, which is embedded on approximately 65% of the top million sites.<sup>31</sup> While Google does not provide public reports of the Google Analytics data, its actions are instructive. For example, Google recently updated its list of default search engine options in Chrome in the U.S. based on “on new usage statistics” from “recently collected data,” adding DuckDuckGo in the number-four slot.<sup>32</sup>

While not general search engines, consumers do conduct searches on sites like Wikipedia, Amazon, Twitter, and Pinterest. As alternatives to general search engines in certain circumstances, knowledge of their market share can be revealing. Jumpshot has examined this issue, and while Jumpshot’s absolute market share numbers may be significantly less accurate than StatCounter’s for the reasons stated above, they nevertheless provide helpful big-picture relative insights.<sup>33</sup> Jumpshot data from Jan-Mar 2019 shows searches, including these other listed sites, at 94% Google (adding Google Maps and YouTube to the mix), 2% Yahoo, 1% Bing, 0.85% Amazon, 0.46% DuckDuckGo, 0.23% Pinterest, 0.2% Twitter, 0.09% AOL, 0.03% Ask, and 0.03% Wikipedia. Thus, even when one considers a larger search universe (i.e., beyond general search engines), the dominant market players are largely the same.<sup>34</sup>

---

<sup>30</sup> <http://gs.statcounter.com/search-engine-market-share/all/united-states-of-america/#monthly-201906-201906-bar>

<sup>31</sup> [http://randomwalker.info/publications/OpenWPM\\_1\\_million\\_site\\_tracking\\_measurement.pdf](http://randomwalker.info/publications/OpenWPM_1_million_site_tracking_measurement.pdf)

<sup>32</sup> <https://techcrunch.com/2019/03/13/google-has-quietly-added-duckduckgo-as-a-search-engine-option-for-chrome-users-in-60-markets/>

<sup>33</sup> <https://sparktoro.com/blog/as-the-antitrust-case-against-google-kicks-off-heres-where-the-doj-should-start/>

<sup>34</sup> <https://sparktoro.com/blog/new-jumpshot-2018-data-where-searches-happen-on-the-web-google-amazon-facebook-beyond/>