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PRESERVING COMPETITION IN MULTI-SIDED INNOVATIVE MARKETS: HOW DO YOU SOLVE A PROBLEM LIKE GOOGLE?

Kristine Laudadio Devine

The unique characteristics of the search advertising industry encourage the development of anticompetitive monopoly power, facilitating the rise and dominance of companies like Google. First, the search advertising industry is subject to multi-sided network effects that create a positive feedback loop. An increase in the number of customers on one side of the market attracts increased numbers of customers on the other side, enabling dominant firms to entrench their market power. Second, and relatedly, the search advertising industry operates in an innovative market where firms compete not to outdo competitors on price but rather to displace one another’s products entirely. In such a market, a dominant firm can acquire potentially displacing (but not substitutive) technology and thereby control future innovation, freeing itself from the burden of innovating further to maintain competitive advantage. Current regulatory enforcement, informed by traditional antitrust analysis, does not adequately account for the impact of multi-sided network effects or innovation-to-displace on competition. Retooling the regulatory regime governing merger enforcement, allowing the agencies tasked with enforcement to broaden their inquiries when investigating anticompetitive behavior of these firms, is therefore necessary to preserve competition in multi-sided innovative markets.

I. INTRODUCTION

On April 13, 2007, Google, the leading provider of online text-based advertising services, announced its intention to acquire DoubleClick, the leading provider of online display advertising

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1 Latham & Watkins, LLP. Juris Doctor, Northwestern University School of Law, 2008. Many thanks to Jim Speta for his thoughtful comments and suggestions through the drafting of this article.
services. After a comprehensive eight-month investigation, the Federal Trade Commission (FTC) allowed the acquisition to go forward and the deal closed in March 2008. By focusing its investigation on whether the two companies’ products served as substitutes for one another, however, the FTC failed to recognize the limitations of traditional merger enforcement analysis when applied to a firm subject to multi-sided network effects and operating in an innovative market.

Google’s rise and dominance, and its continued dominance through acquisitions, has always raised eyebrows. Google is the “big fish” in a very small pond, and an obvious target for antitrust concerns. At the time of its Initial Public Offering (IPO), Google was valued at about $24 billion dollars; its shares traded at around $387 in early October 2008. It has captured a 64% share of web searches in the United States and 73% of the online advertising

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3 Google/DoubleClick, F.T.C. File No. 071-0170, Statement of the Federal Trade Commission (Dec. 20, 2007), 2007 WL 4624893, available at http://www.ftc.gov/os/caselist/0710170/071220statement.pdf [hereinafter Google/DoubleClick]. Though many protested the acquisition, most protests were based on privacy concerns. Privacy concerns, as the Federal Trade Commission correctly noted, cannot be considered in an investigation under its merger enforcement authority. Id. at 2 (“Although such issues may present important policy questions for the Nation, the sole purpose of federal antitrust review of mergers and acquisitions is to identify and remedy transactions that harm competition. Not only does the Commission lack legal authority to require conditions to this merger that do not relate to antitrust, regulating the privacy requirements of just one company could itself pose a serious detriment to competition in this vast and rapidly evolving industry.”).

4 See infra note 13.


8 Inside the Googleplex, ECONOMIST, Sept. 1, 2007, at 56, 57.
preserving competition

budgets of companies that advertise online, and it dominates the
search advertising industry. Its competitors mimic its business
model in order to stay in the game. Some competitors have
attempted to merge in the hope of eating away at the market share
gap between them and Google. Smaller competitors are, if not
folding, getting out of the bigger market and focusing on directing
their services at niche users, if they are not being acquired by
Google. Consumers and commentators intuitively sense that
Google's domination presents competition problems, despite the
absence of consumer pricing problems that would traditionally
indicate a reduction in consumer welfare.

Id. (noting that Yahoo! had only captured 21% of advertising budgets, and
Microsoft only 6%); see also Press Release, comScore, February 2008 U.S.
=2119 (indicating Google's share of searches in February of 2008 was 59.2%).

Yahoo Gives Google Some Competition, posting of Margaret Kane to CNET
2005).

In early 2008, Microsoft announced its intentions to acquire Yahoo! in a
/2183415 (noting that Microsoft's announcement came after disappointing
earnings reports for its online division and that "Google has been eating its
lunch competitively").

Ask.com announced in early 2008 that it "is abandoning its effort to
outshine Internet search leader Google Inc. and will instead focus on a narrower
market consisting of married women looking for help managing their lives."
Ask.com Gets a Makeover, Lays Off 40, CNN.com, Mar. 5, 2008,

Wikipedia lists 54 firms acquired by Google since 2001, including major
acquisitions such as that of Pyra, the creator of Blogger; Picasa, a photo-sharing
service; Keyhole, a map-analysis company, whose software formed the core of
Google Maps and Google Earth; Android, maker of a mobile phone platform;
YouTube, the leading online video service; and DoubleClick, the leading
company in serving banner ads. Wikipedia—The Free Encyclopedia, List of


Of course, Google's capture of market share alone is not dispositive of
competition problems. "[F]or most antitrust purposes the fact that a firm has
market power is irrelevant because the focal point of most antitrust questions is
Beyond sheer size, however, the unique characteristics of the search advertising industry may encourage the development of anticompetitive monopoly power. First, the search advertising industry often changes in market power resulting from a specific practice or conduct. Ariel Katz, *Making Sense of Nonsense: Intellectual Property, Antitrust, and Market Power*, 49 ARIZ. L. REV. 837, 907–08 (2007). So, for instance, “a single [search engine] can achieve a dominant or monopoly position and once the monopoly position is obtained, it may be quite durable.” Steven C. Salop & R. Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards, and Microsoft*, 7 GEO. MASON L. REV. 617, 621 (1999). Competitors may be unable to dislodge the dominant player—the monopolist—because of durable network effects. For instance, in the search advertising industry, a competitor must provide relevant and reliable results to gain users, and it must attract many users to attract advertisers. But path dependencies tend to keep users with the search engine they are most comfortable with, inhibiting a competitor’s attempts to build her own search advertising network. “Overcoming this chicken-and-egg entry barrier can be difficult time-consuming and expensive.” *Id.* at 623. However, “[t]his analysis does not imply that the resulting monopoly power is necessarily illegitimate. Monopoly power can be and often is achieved through a natural economic process of one firm exhibiting superior skill or luck to innovate faster or achieve lower costs than its competitors.” *Id.* at 622. Indeed, many commentators believe Google’s market share was gained legitimately, through superior technology. *See, e.g.*, comment of Annie Trust on *Microsoft-Yahoo Deal Faces Antitrust Scrutiny*, posting of Peter Lattman to WSJ Law Blog, http://blogs.wsj.com/law/2008/02/04/microsoft-yahoo-deal-faces-antitrust-scrutiny/#comment-141112 (Feb. 4, 2008).

The Supreme Court has acknowledged that market power can be nothing more than the natural result of effective competition. *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko*, 540 U.S. 398, 407 (2004) (“The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system. The opportunity to charge monopoly prices—at least for a short period—is what attracts “business acumen” in the first place; it induces risk taking that produces innovation and economic growth. To safeguard the incentive to innovate, the possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive conduct.”), cited in Katz, supra, at 881.

Again, market power alone—even to the point of monopoly—is not unlawful. But when market power is combined with exclusionary conduct of some kind, dominance may indicate an antitrust problem, regardless of whether that exclusionary conduct was designed to achieve market dominance or to preserve legitimately obtained dominance. Salop & Romaine, *supra* note 14, at 622. Google may have engaged in such behavior. For instance, Google has increased its market share not only by means of its constant improvements to its
industry is subject to multi-sided network effects that create a positive feedback loop with each added user on either side of the network.\(^{17}\) This network effect causes each additional user on either side to increase a search advertising firm’s market share by more than just the addition of that user: each added user on one side of the market increases the value of the firm to users on the other side of the market, and vice versa. So with the addition of each user Google attracts to its search engine, it can attract more advertisers. More advertisers fund Google’s development and production of products and services designed to attract more users, driving Google’s growing market share upwards.

Second, and relatedly, the search advertising industry operates in an innovative market where firms compete not on price but rather to displace one another’s products entirely. In such a market, when a dominant firm like Google is allowed to acquire firms which produce related but potentially competitive products, it can control the direction of innovation for both product markets. Consequently, Google is able to maintain its competitive advantage without having to innovate further.\(^{18}\)

Current regulatory enforcement is not equipped to address the problems presented by these structural considerations. That inability is illustrated by the DoubleClick acquisition. By allowing Google to buy DoubleClick, the FTC facilitated Google’s continuing dominance by permitting it to acquire a firm which also operates in a multi-sided network, the display advertising industry—to, essentially, buy a new network of advertisers and users, each of which will contribute to that positive feedback loop. Google’s acquisition of DoubleClick creates enormous new network effects that will entrench Google as the dominant firm in online advertising. Moreover, the acquisition means that Google will not have to innovate to take control of the display advertising network DoubleClick developed. Google avoided the need to

\(^{17}\) For a more detailed description of one-sided and multi-sided network effects, see infra notes 101–20 and accompanying text.

\(^{18}\) See infra Part IV.A.
invest in research and development, instead buying DoubleClick's technologies. Google can now control the direction of innovation for all online advertising, merging its technologies in search advertising with those of DoubleClick for display advertising, creating just the market the FTC said did not exist. These two consequences of the acquisition allow Google to continue to dominate, unchecked by regulatory enforcement.

Part II begins the analysis of what I call “the Google problem” by describing the creation and evolution of the market for online advertising linked to reliable and relevant search data. It describes how Google displaced the early model of paid advertising, and consequently the first successful search engines, by tying its organic search algorithm to a popularity-based auction for advertising keywords. Part III then describes the special features of multi-sided markets that make anticompetitive analysis of Google and search advertising firms difficult. Part IV describes innovative markets and explores regulatory and academic models that might counsel against enforcement action against Google, including the possibility of Schumpeterian rivalry. From these three parts, a comprehensive picture of the Google problem emerges.

Finally, Part V outlines the various options for preserving consumer welfare in the search advertising industry, including both market discipline and regulatory modification. I conclude that the best solution lies in retooling the regulatory regime governing merger enforcement. The agencies tasked with enforcement must recognize the limitations of traditional antitrust analyses when applied to innovative markets and consequently broaden their inquiries when investigating anticompetitive behavior.

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19 Serial competition is also sometimes called Schumpeterian rivalry, after Joseph Schumpeter, who wrote extensively on the idea of “creative destruction.” See JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY (3d ed., 1947). The idea is that, in innovative markets, dominant players are continually ousted from their positions of power by new, more innovative competitors. The dominant player recedes into oblivion, while the innovator becomes the new dominant firm, only to later be dethroned by a new innovator. See infra Part IV.C.
II. THE RISE OF GOOGLE

Search engines are critical to the way we access, categorize, and use the vast amount of information published online. But search engines themselves are not commercialized or monetized. Rather, a search engine is simply a piece of technology that organizes and provides information to users. Search engine results are improved by more user inputs (i.e., searches), so the more users an engine has, the more relevant its results will be for users. But the best search engine in the world is still not a commercial venture without some means of monetizing that superior technology.

Search engines collect vast amounts of data from users, and that data has a very high value for advertisers or for retailers. Although we are inundated with advertising on television and on radio, that advertising cannot be targeted in any but the most general way because those media are directed at general audiences. Search, however, has the promise of delivering relevant advertising to users who want to see it, allowing advertisers to target their messages to the users most likely to respond. Combining search with advertising monetizes what is otherwise a purely technological endeavor. Search engines, therefore, are valuable tools because of their ability to attract many users to a website or to a portal, and to convert those users’ visits into moneymaking activities. Most search engines do this by selling space for advertising that runs next to or interspersed with search results.

20 Many scholars have written and are writing about the importance of search engines to the Internet. See, e.g., Grimmelmann, supra note 4; Frank A. Pasquale III & Oren Bracha, Federal Search Commission?: Access, Fairness, and Accountability in the Law of Search, 93 CORNELL L. REV. 1149 (2008).

21 Google’s founders were themselves interested in web search as an academic exercise, not as a commercial venture. See Sergey Brin & Lawrence Page, The Anatomy of a Large-Scale Hypertextual Search Engine, Computer Science Dep’t, Stanford Univ. (1998), http://infolab.stanford.edu/pub/papers/google.pdf (describing a scalable web search engine, which the authors called Google); see also id. at § 3.1 (briefly describing the history of research in information retrieval and citing IAN H. WITTEN, ALISTAIR MOFFAT & TIMOTHY C. BELL, MANAGING GIGABYTES: COMpressing AND INDEXING DOCUMENTS AND IMAGES (1994)).
In the earliest days of online search engines, organic results were unreliable. Basic keyword matching technologies meant that a search for “cars” would likely return links to web pages having nothing to do with cars. Paid results lost credence. Google changed the landscape by developing a better search algorithm, one that relied on reputation as well as text matching to produce the most relevant results. It then used its search expertise to deliver more relevant advertising, lending even paid results greater credibility. Search, therefore, makes advertising sticky by imbuing paid search results with credence.

A. How Advertising Monetized Search

The advent of the Internet made a vast amount of information available to those willing to look for it. When the Internet was young, the information available was mostly useful to academics, and search did not need to be terribly well developed to satisfy their needs. But as the Internet grew, the problem of managing information so that the average user could find what she was looking for also grew.

All search engines consist of three standard elements: a crawler program of some kind, an index of sites that have been crawled, and a user interface that employs an algorithm to produce results to search queries. Crawlers are programs that “traverse

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22 See JOHN BATTELLE, THE SEARCH: HOW GOOGLE AND ITS RIVALS Rewrote the Rules of Business and Transformed Our Culture 104 (paperback 2006) (describing how spammers hid keywords unrelated to their businesses in their websites to achieve higher placement in search engine indexes, and that these spammers were usually affiliated with the adult-entertainment industry).
23 See id. at 103–04 (describing the devaluation of search traffic).
24 See Brin & Page, supra note 21.
25 See BATTELLE, supra note 22, at 124, 142 (discussing Google’s abandonment of the old-model where advertisers “paid by the number of Google delivered” and its adoption of the current model, AdWords, where keywords are auctioned off to advertisers and the winning price considers the bid as well as the clickthrough rates—the relevance—of each advertiser’s product to the keyword).
26 Id. at 39.
the Web," look for new websites, and add those sites to an index. The index, like that in the back of a book, lists those sites that have been found. The first Internet search engine was a program called Archie. The Archie server contained a list of known websites, mostly created by academics, and the contents of those sites. Since Archie’s primary audience was academics, and the index at the time was limited, the user interface and the search capabilities were very minimal. Users connected to Archie via the command line and searched the titles of indexed documents for specific keywords. Archie operated under the File Transfer Protocol (FTP) standard; a second Internet search engine, Veronica, used the same methods but used Gopher, a different file-sharing standard.

As the Internet continued to grow, simple indexes like Archie and Veronica began to lose their usefulness. After an MIT researcher noticed that the Internet “was growing faster than any human could track,” he developed the first Web-based search engine—the WWW Wanderer. The Wanderer was a “robot” that wandered the Web, automatically collecting and indexing information found on websites. It was quickly followed by WebCrawler, the first search engine to index not only names and locations of websites but also their full text, making it possible to

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27 Id. at 39.
28 Id. at 39-40.
29 Id. at 40.
30 Id. at 40.
31 FTP is one way to share files over the Internet by directly connecting to the machine on which a file is stored. Sharing files this way requires knowing the exact machine address and often a username and password. FTP is often used for transferring and sharing large files that cannot be manageably emailed because of bandwidth limitations on email servers. For more detailed technical information on FTP, see Wikipedia—The Free Encyclopedia, File Transfer Protocol, http://en.wikipedia.org/wiki/File_Transfer_Protocol (last visited Oct. 11, 2008).
33 BATTELLE, supra note 22, at 40 (describing Matthew Gray’s work).
34 Id. at 40-41.
search within the text of web pages for desired information. Full-text indexing made keyword-based search as we know it today possible. Recall that Archie only searched titles of documents on the Internet, reducing the utility of the search engine—searches for particular keywords were unlikely to produce the desired results when faced with documents with non-descriptive titles. WebCrawler solved this problem by indexing every word appearing in a document on the Internet.

John Battelle, a former editor and writer at Wired, describes what happens next as nothing short of evolutionary. The first “[t]ruly [g]ood [s]earch [e]ngine,” AltaVista, was launched in the mid-to-late 1990s, the result of developments in processing power at Digital Equipment Corporation (DEC). AltaVista did not rely on a single crawler program; instead, thousands of them were sent out to index the Internet, and the information they returned was “the closest thing to a complete index the young Web had ever seen—10 million documents comprising billions of words.” AltaVista.com launched for the public in December of 1995.

After AltaVista came competitors—Lycos, developed at Carnegie Mellon University, and Yahoo!, created by two Stanford graduate students. Lycos, like AltaVista, sent a crawler to index the Web, but “it used more sophisticated mathematical algorithms to determine the meaning of a page and answer user

35 Id. at 41–42.
36 See supra notes 27–28 and accompanying text.
37 WebCrawler also made keyword spam possible. Authors of documents posted on the Internet—mostly authors of HTML documents—could include any keyword they wished in the hidden parts of their documents (usually in the “header” section). When crawlers began to discount the keyword information in headers, authors began to hide keywords in the body of the pages themselves, but hid them by making those keywords the same color as background text, for instance. See Shari Thurow, The Search Engine Spam Police, SEARCH ENGINE WATCH, Jan. 15, 2002, http://searchenginewatch.com/showPage.html?page=2159061 (discussing search spam techniques including hidden text).
38 BATTELLE, supra note 22, at 42–43.
39 Id. at 42–46.
40 Id. at 46–47.
41 Id. at 53.
queries.” Lycos was the first search engine to use hyperlinks between web pages as a means of calculating relevance. Yahoo!, on the other hand, began as a list of categorized websites, collected with the help of a crawler “hacked up” by David Filo.

Even in the early days, these companies tried to monetize their search engines in various ways. For DEC, AltaVista was just a big commercial for its very powerful processors—“a means to sell more hardware.” Yahoo!, on the other hand, needed cash to pay for private hosting and bandwidth once it moved its directory off of Stanford University’s servers. Banner ads were the most common types of ads on these early search engines. But in the

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43 BATTELLE, supra note 22, at 53.
44 Id. at 53.
45 Such a list is usually referred to as a web directory. A web directory lists web pages by category and subcategory, rather than by keyword. Though a directory is searchable, the search is usually not by keyword but by topic or subject matter of the entire web page or website. See Wikipedia—The Free Encyclopedia, Web Directory, http://en.wikipedia.org/wiki/Web_directory (last visited Oct. 11, 2008).
46 BATTELLE, supra note 22, at 57–58. David Filo, along with Jerry Yang, was one of Yahoo!’s founders. Id.
47 Id. at 50.
48 See id. at 59–60.
49 Banner ads—clickable graphic advertisements embedded into a web page, usually at the top—need not be static, though they were in the early days of web advertising. Today, banner ads can be targeted at particular users through the use of cookies or can dynamically change with each page refresh. Cookies are small pieces of code that are downloaded to a user’s computer from a website she visits. The cookie can reflect when she originally visited, what she searched for, and where she went when she left the website. The next time she returns, the cookie is uploaded to the website and the information in it is used for a variety of purposes, including determining what banner ads will be displayed. See Wikipedia—The Free Encyclopedia, HTTP Cookie, http://en.wikipedia.org/wiki/HTTP_cookie (last visited Apr. 12, 2008). Some cookies operate over multiple websites, allowing advertisers to serve relevant banner ads to a user on many pages, even if the user is visiting one of those pages for the first time. DoubleClick serves banner ads in this way—it uses cookies to track users across all websites for which it serves banner ads. See Wikipedia—The Free Encyclopedia, DoubleClick, http://en.wikipedia.org/wiki/Doubleclick (last visited Apr. 12, 2008).
late 1990s, the nascent search advertising industry was revolutionized by a purely commercial endeavor called GoTo.50

By today's standards, search engines in the mid-1990s were relatively crude. These early search engines simply cataloged the words found on a page, and perhaps the links between pages, without accounting for the quality of those keywords or links.51 Early web designers learned that the best way to drive traffic from a search engine was to adopt a "kitchen sink" approach to keywords—include all of them, even if not remotely related to the actual content of the page.52 Search engines, then, would often produce results that were completely unrelated to the user's query—spam.53

In response to this problem, GoTo developed a different approach to keyword search.54 First, GoTo did not index the Internet, nor did it purport to do so. Instead, GoTo solicited commercial listings—ads—and indexed those ads by keyword.55 Users searched for information about relevant products or services by keyword and the results they received were ranked based on how much an advertiser of a relevant product was willing to pay for the keyword.56 Advertisers bid on keywords—with auction prices beginning at 1¢ per click57—and paid only when a user clicked on the result.58 GoTo displayed its own results and also

50 See BATTELLE, supra note 22, at 101–14 (describing the growth of GoTo).
51 See id. at 104.
52 See id. at 104.
53 See id. at 104. See also supra notes 22–23 and accompanying text. It was this same environment that allowed Google's superior search algorithm to become dominant. See infra notes 62–64 and accompanying text.
54 Id. at 104. See also supra notes 22–23 and accompanying text (describing keyword spam in Internet documents). GoTo later changed its name to Overture and was purchased by Yahoo!. It now forms the core of Yahoo!'s Search Marketing division. See Wikipedia—The Free Encyclopedia, Yahoo! Search Marketing, http://en.wikipedia.org/wiki/Goto.com (last visited Mar. 25, 2008).
55 See BATTELLE, supra note 22, at 108–09.
56 See id. at 109. For instance, a user might search for "used Honda Civic coupes" on GoTo. GoTo would return a list of ads linking to websites whose owners had paid for the right to be included in the list of results for those keywords or that keyword phrase.
57 Id.
58 Id.
licensed them to the other major search engines, to be displayed among organic results.⁵⁹

This system introduced two new features to web advertising. First, the auction-based system allowed advertisers themselves to set a price on the keywords they valued, rather than paying for a banner ad that might be displayed to all users of a search engine no matter what the user was looking for. Second, advertisers only paid GoTo when a user clicked on the link associated with their ad. Before GoTo introduced the pay-per-click model, advertisers paid on a cost-per-thousand-impressions model, called CPM⁶₀—paying a set price for every 1000 users who saw the ad. GoTo’s auctioned, pay-per-click method changed the way advertising paid for searches. Instead of advertisers paying for every 1000 views of an ad that may or may not have been associated with a relevant search, advertisers paid only for actual clicks after a user searched for a specific keyword.

B. How Google Came to Dominate

Google began in the student office of Larry Page, a Stanford graduate student.⁶¹ Along with Sergey Brin, Page developed an algorithm that relied upon the reputation of websites—measured by, essentially, citation counts, in the form of links—to rank results to keyword queries.⁶² This algorithm, now called PageRank, is the core of Google’s search engine.⁶³ PageRank allowed Google to

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⁶¹ BATTELLE, supra note 22, at 67–73.
⁶² Brin & Page, supra note 21; see also BATTELLE, supra note 22, at 73–77; VISE & MALSEED, supra note 59, at 32–44.
avoid the pitfalls other search engines faced—even though a page might list a dictionary’s worth of keywords in its header information or on the page itself, if the only "good" links it received were for the product or topic it focused on, it would only show up in results for searches for that topic or product. Google developed a way to index and search the Internet that relied on a page’s “reputation” with other pages rather than just on a page’s self-promotion. Google’s better organic search results drove users to it. By the end of 1999, less than two years after it launched, Google was processing seven million searches per day.64

Google’s founders saw this achievement—providing unbiased, relevant, quality search results to more and more users—as their primary business model and therefore resisted selling their advertising from the beginning.65 They refused to “mix[] paid advertising with organic results.”66 Instead, Google hoped its main source of revenue would come from licensing its search engine to other firms.67 In Google’s early days, however, no one wanted to

64 VISE & MALSEED, supra note 59, at 85. See also id. at 90–91 (noting Google’s growing use by computer users as well as its accretion of “awards for the quality of its search results”).
65 Google’s founders noted the inherent problem of bias in advertising-funded search engines in a paper describing PageRank:
Currently, the predominant business model for commercial search engines is advertising. The goals of the advertising business model do not always correspond to providing quality search to users. For example, in our prototype search engine one of the top results for cellular phone is “The Effect of Cellular Phone Use Upon Driver Attention,” a study that explains in great detail the distractions and risk associated with conversing on a cell phone while driving. This search result came up first because of its high importance as judged by the PageRank algorithm, an approximation of citation importance on the web. It is clear that a search engine which was taking money for showing cellular phone ads would have difficulty justifying the page that our system returned to its paying advertisers. For this type of reason and historical experience with other media, we expect that advertising funded search engines will be inherently biased towards the advertisers and away from the needs of the consumers.

Brin & Page, supra note 21, § 8, app. A.
66 BATTELLE, supra note 22, at 115.
67 VISE & MALSEED, supra note 59, at 84 (quoting one of Google’s early investors stating that “[t]he original business idea was aimed at licensing the
pay for a license. So in late 1999, Google compromised. Though its founders still refused to mix paid and organic results, they did begin to place text ads, labeled as “Sponsored Links,” alongside organic search results. Advertisers then paid according to the CPM model. In October 2000, Google launched AdWords, its text-ad placement product, which began bringing Google solid revenue. AdWords was “a self-service ad program” enabling advertisers to register and activate an account online with a credit card, and allowing them to select the keywords they wanted their ads to be associated with.

Within two years, Google tweaked AdWords to operate on the same auction-based pay-per-click model GoTo had introduced—but with an additional consideration. Google began including a “quality score” in determining which advertiser would win the auction. Quality score today is based on historical clickthrough rates on ads, “[t]he relevance of the keyword to the ads in its ad group,” and “[o]ther relevance factors” of both the ad and its landing page. Though a landing page’s PageRank does not

underlying search engine technology to a variety of other Internet companies and enterprises”).

68 See id. at 84 (“With the notable exception of two companies, Red Hat and Netscape, nobody was willing to pay for the rights to license the Google search engine.”).

69 VISE & MALSEED, supra note 59, at 88–89.

70 Id. at 89 (“At the start, Google priced its ads the way traditional media companies did, based on the size of the audience.”).


75 See BATTELLE, supra note 22, at 142–43 (“[A]fter all, if the $1.00 merchant is generating five times the clickthrough of the $1.50 merchant, it only makes economic sense to give the $1.00 merchant the top spot—he’s making Google, which gets a percentage of every click, more money.”).

76 The “landing page” is the destination for the ad. Google: What is “Quality Score” and How Is It Calculated?, supra note 73.
contribute to quality score. Google determines relevancy for the purpose of calculating quality score by the same methods used in its organic search algorithm. This allows Google to provide sponsored search results that are as sensitive to user interests as are its organic search results. When sponsored results are relevant—which Google strives to ensure—users are more likely to click on them, thus bringing Google additional revenue.

For advertisers, the greatest value comes from buying advertising on the search engine with the most users and the best results, because that ensures it will get higher clickthrough rates. Google leads in both of these categories. Thus, advertisers’ goals converge with Google’s: “[C]onsumer pull, rather than business push . . . determine[s] where ads appear[]” on Google. This model allows Google to make more money and enables

78 See AccuraCast, Google AdWords Quality Score for Landing Pages, Dec. 21, 2005, http://www.accuracast.com/seo-weekly/landing-pages.php (“With the new system for calculating Quality Score, Google will now also include the quality and relevance of the landing page and the site to the keyword. This means Google will . . . evaluate [your site] in a manner similar to how it evaluates sites on its organic listings [among other things] . . . and then decide how relevant the site and the landing page are to the keyword.”); Ads in a Quality Score World, posting to Search Engine Roundtable, http://www.seroundtable.com/archives/006846.html (Dec. 4, 2006) (roundtable description of remarks by Andrew Goodman from Page Zero Media) (cautioning advertisers to realize that even though organic search and paid search are operated separately at Google, “do not think they are siloed” or kept separate); Andrew Goodman, The Mysteries of Ad Quality Revealed (Yet Again), Search Engine Land, Nov. 6, 2008, http://searchengineland.com/071106-192138.php (“The fact that Google acknowledges similarities in their thinking on paid and organic search is just the beginning.”).
79 See comScore Data Center, http://www.comscore.com/press/data.asp (click on “Search Engine Market Share”) (last visited Sept. 23, 2008) (showing Google’s share of searches to be 61.9% in July of 2008); Inside the Googleplex, supra note 7, at 57 (“Google’s ads ‘convert[]’ more often into actual sales, which tend[] to be larger than those originating from Yahoo! or Microsoft.”).
80 VISE & MALSEED, supra note 59, at 90.
81 See supra note 75 and accompanying text.
advertisers to reach consumers who are more likely to react to an ad by making a purchase.\textsuperscript{82}

Google’s success with organic search and dominance of the search market contributed to its success in using relevancy factors to determine which paid ads got higher placement. Google dominates the search engine market because its search algorithm provides the most relevant organic results to user queries. Likewise, Google dominates search advertising because its Quality Score measures—which are very similar to its organic search algorithm—provide users with the most relevant sponsored results. Google’s expertise with the former feeds its implementation of the latter, causing Google’s search to render its advertising “sticky.”\textsuperscript{83} The numbers support Google’s linked dominance of both the search engine market and search advertising. Compared to its competitors, more users conduct searches on Google;\textsuperscript{84} more companies advertise on Google;\textsuperscript{85} and Google converts more clickthroughs to actual purchases by users.\textsuperscript{86} Consequently, Google makes more money than all of its competitors.\textsuperscript{87}

Google is undeniably the dominant search advertising firm. Its combination of relevancy factors with an auction-based keyword

\textsuperscript{82} This is called the “conversion rate.” Google has a higher conversion rate than Yahoo!, Microsoft, or AOL. \textit{Inside the Googleplex, supra} note 8, at 57 (noting that Google not only has higher clickthrough rates because of better relevance in ad placement, but also that Google “converts” more clickthroughs to actual sales).

\textsuperscript{83} \textit{See supra} notes 22–25 and accompanying text (describing how highly relevant organic search results lend sponsored results credibility); \textit{see also infra} notes 100–106 and accompanying text (describing the positive feedback loop that increases the value of Google as an advertising platform as Google attracts more search users).

\textsuperscript{84} \textit{Inside the Googleplex, supra} note 8, at 57 (noting that Google has captured 64\% of web searches).

\textsuperscript{85} \textit{Id.} (noting that Google has captured 73\% of advertising budgets for companies advertising online).

\textsuperscript{86} \textit{Id.} (noting that Google’s conversion rate is higher than Yahoo!’s).

\textsuperscript{87} Andrew Ross Sorkin \& Miguel Helft, \textit{Yahoo, Weighing Options, Keeps Them Open}, \textit{N.Y. TIMES}, Apr. 12, 2008 (“By Yahoo’s own projections, Google earns on average 60 percent to 70 percent more for every search than Yahoo.’). Yahoo!, in fact, is testing an arrangement with Google where Google manages ad placement on Yahoo!’s search engine and content pages. \textit{Id.}
sale to advertisers was the innovation that launched it to the top of
the heap. As discussed above, Google’s search technology,
combined with the pay-per-click auction first developed by
Overture, made Google the dominant player in the search
advertising industry because it can provide this sort of targeting
better than its competitors.

C. Google’s Continued Dominance Through Acquisitions

Google’s other technological innovations are also impressive.
It is widely known for its “twenty percent” policy wherein all
employees, from engineers to administrative staff, are free to spend
up to twenty percent of their time working on “any new idea.”
But Google also has amassed an impressive list of acquisitions.
“Innovation by merger” is responsible for many of Google’s most
well known services, including Google Docs (acquisition of
Writely), Google Maps (acquisition of Keyhole), and Google’s
foray into mobile communications (acquisition of Android). Most
famously, perhaps, Google has acquired DoubleClick, the leading
server of banner advertising.

Each of Google’s acquisitions can be seen to deepen its market
share either by attracting more advertisers to AdWords, or other
advertising products, or by attracting more users to the search
engine. Google’s acquisition of DoubleClick is an example of an
acquisition designed to increase its advertiser network—adding
DoubleClick’s banner-serving capabilities allowed Google to

88 Inside the Googleplex, supra note 8, at 58.
89 Press Release, Google, Google to Acquire DoubleClick, (Apr. 13, 2007),
also Jim Puzzanghera & Jessica Guynn, Google Gets Grip on Ad Firm, L.A.
TIMES, Mar. 12, 2008, at C1 (reporting on the close of Google’s acquisition of
DoubleClick, after clearance by the Federal Trade Commission and European
regulators).
90 See Chris Wilson, Why Microsoft’s Play for Yahoo! Isn’t About Search,
a wide net, the company’s primary business (and pretty much only moneymaker)
is still search. What began as a humble tool to search the Web has expanded to
include books, scholarly articles, and blogs. Every time you use one of these
tools—or read a message in your Gmail account—Google makes money by
serving you ads based on the content you’re looking at.”).
provide a broader array of advertising products to its clients. By adding these capabilities to its stable of advertising products, Google increased the number of advertisers with which it can directly.

Google's acquisition of Writely, however, is an example of a user-oriented acquisition. Google does not serve ads to users in Google Docs, so acquiring Writely did not increase its advertising capabilities. Instead, this acquisition allowed Google to provide another free service to users, attracting them to Google and away from competitors.

More critically, such acquisitions can allow Google to develop an entrenched base of registered users. To use Google Docs, for instance, users must create a Google account. Registered users have more value for Google vis-à-vis advertisers because registered users' searches are tracked not only by cookie and Internet Protocol (IP) address but also by username. This allows Google to track users' searches and preferences more effectively and to serve even more relevant ads to them, based on previous searches and clickthroughs.

Google has displaced competitors and dominated the search advertising industry through both technological superiority and acquisition of innovations. This domination is helped by the

91 For Google's own discussion of how the DoubleClick acquisition will grow its advertising business, see Why We're Buying DoubleClick, posting of Alex Kinnier, Group Product Manager, to The Official Google Blog, http://googleblog.blogspot.com/2007/06/why-were-buying-doubleclick.html (June 26, 2007).


93 See supra note 49 (regarding more information on cookies). IP addresses are unique numerical indicators assigned to a machine connected to the Internet. IP addresses can indicate where, physically, a computer is located, as well as what Internet service provider the computer is connected to. Wikipedia—The Free Encyclopedia, IP Address, http://en.wikipedia.org/wiki/IP_address (last visited Apr. 13, 2008).

94 This, in fact, is exactly what Google did when it adopted a per-click auction system for advertising tied to PageRank.
economic realities of the multi-sided search advertising industry—interrelated network effects and path dependencies.

III. MULTI-SIDED MARKETS

Google’s domination is, at least in part, the result of its place in the middle of a multi-sided market. Network effects between firms and consumers are commonly considered in analyses of markets with competition problems, but less commonly considered are network effects between firms, consumers, and other consumers—multi-sided network effects. Because of the two-sided nature of the search advertising market, analyzing it as a single-sided market for antitrust purposes is fraught with pitfalls. For instance, some believe the failure to recognize the importance of the multi-sided network effects in the analogous software platform market was one factor that undermined the government’s case against Microsoft.

A multi-sided market has been defined as requiring three conditions: “(1) two distinct groups of customers; (2) the value obtained by one group increases with the size of the other; and (3) an intermediary connects the two.” Evans and Noel describe advertising networks as one of the four kinds of multi-sided markets, and search advertising fits squarely within that category. Like newspapers, television networks, and radio stations,

95 See David S. Evans & Michael D. Noel, The Analysis of Mergers that Involve Multisided Platform Businesses, 4 J. COMPETITION L. & ECON. 663, 664 (2008) (“Antitrust analysis that focuses on one side of the business in isolation from the other side is incorrect as a matter of economics, and can lead to the wrong answer when indirect network effects are significant and are relevant for assessing the practice at issue.”).

96 See WILLIAM H. PAGE & JOHN E. LOPATKA, THE MICROSOFT CASE: ANTITRUST, HIGH TECHNOLOGY, AND CONSUMER WELFARE 25, 86–96, 106 (2007); cf. Salop & Romaine, supra note 15, at 631 (discussing the “chicken-and-egg” problem of two-sided markets like Microsoft’s in antitrust enforcement). Microsoft was subjected to a consent decree in the end, of course, but many criticize the government’s case against it for its potentially harmful effects on the market. See generally PAGE & LOPATKA, supra.


advertising-funded web portals are multi-sided markets.\(^9\) Companies like Google create a platform for content or services and market that platform to users, while at the same time selling space on the platform to advertisers.\(^10\)

Multi-sided markets cannot be analyzed in the same way as single-sided markets.\(^10\) For instance, companies in single-sided markets maximize profits by controlling output at the level where marginal revenue equals marginal cost.\(^10\) Increasing prices generally is assumed to reduce the number of customers willing to pay that price, and in single-sided markets, companies will increase prices to the level necessary to offset the loss of customers (if possible). But companies in multi-sided markets are vulnerable to additional forces when setting pricing. Price increases on one side of a multi-sided market may result in a loss of customers on both sides because of interrelated network effects. For instance, if advertising space on a cable television network is valuable to advertisers because the cable network has many users, but users are driven away because the network increases subscription costs, then advertisers may also be driven away. The loss of advertising revenue can cause the network to increase subscription costs even further, thus driving more users away, followed by the loss of even more advertisers.\(^10\)

More importantly for this analysis, though, is that the reverse is also true. An increase in the number of customers on one side of the market can cause a positive feedback loop, attracting increased

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\(^9\) See id. at 675–76.

\(^10\) See id. at 676; see also Inside the Googleplex, supra note 8, at 57 ("Google's success still comes from one main source: the small text ads placed next to its search results and on other web pages.").

\(^10\) Evans & Noel, supra note 98, at 664. Professors Evans and Noel undertook a study of the differing results obtained by employing traditional one-sided market analysis versus two-sided market analysis, and applied it to the Google-DoubleClick merger. They found significant differences in results. Traditional one-sided analysis of the merger indicated that a price increase on banner ads after the acquisition could possibly result in loss of profits; a multi-sided market analysis indicated Google could raise prices for banner ads easily without losing profits. Id. at 688.

\(^10\) Evans & Noel, supra note 98, at 681.

\(^10\) Id.
numbers on the other side. Consider the search advertising industry: Google has “two distinct groups of customers,” advertisers and users, and “the value obtained by one group increases with the size of the other.” So when Google attracts more users, it becomes more attractive as a platform for advertisers, and more of them will pay to display their ads on Google. The additional revenue from the advertisers allows Google to provide more services to users—by funding in-house innovations or acquisitions of complementary technology—thus attracting more users.

Moreover, advertisers become reliant upon increased revenue, users become reliant upon the profusion of more and better free products, and as a result both groups tend to become locked in to using Google. This path dependence decreases the likelihood that the positive feedback loop will reverse course and drive users on both sides away. It also increases barriers to entry for competitors, who are unlikely to be able to match Google’s success in converting clickthroughs. In this way, a company like Google becomes dominant and entrenched simply by the operation of market forces.

A. Network Effects

Network effects are generally demonstrated when consumers of a product experience increased value as other people also use that product. The classic example of a product with a direct network effect is the telephone. A telephone has little value to a

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104 Muris, supra note 97, at 517.
105 Id.
106 See infra note 111 and accompanying text for more information on how advertisers increase value for users.
108 See, e.g., Jeffrey Rohlfs, A Theory of Interdependent Demand for a Communications Service, 5 BELL J. OF ECON. & MGMT. SCI. 16, 16 (1974) ("The
user if that user is the only person with a telephone. But as other people begin using telephones, the original user’s valuation of the telephone increases because she can call the other telephone users. Indirect network effects are experienced when the value of the product increases as complementary services and goods become available. Using the telephone example again, the value of a given telephone to a given user may also increase indirectly as products like fax machines and modems become available.

Indirect network effects inform our understanding of multi-sided networks; indeed, “[i]n many cases, one may think of indirect network effects as a one-directional version of two-sided network effects.”109 For instance, in search advertising, the value of Google’s advertising platform increases for advertisers with the development and use of the search engine, a complementary product; likewise, the value of the search engine for users increases as more advertisers use AdWords because that use fuels development of additional complementary products, such as web-based email and photo sharing.110

utility that a subscriber derives from a communications service increases as others join the system. This is a classic case of external economies in consumption and has fundamental importance for the economic analyst of the communications industry.”).


110 Search engines themselves demonstrate very limited one-directional network effects. See Pasquale & Bracha, supra note 19, at 1181; What is the Best “Barrier to Entry”? posting of Michael Shrivathsan to Michael on Product Management & Marketing, Mar. 17, 2006, http://michael.hightechproductmanagement.com/2006/03/the_best_barriertoentry.html (“A search engine doesn’t have network effect either again[,] I don’t get any more value from using Yahoo Search just because many others also use it. I believe this is one of the major reasons Google was able to so easily take away Yahoo’s leadership in online search. Likewise, I don’t believe Google Search itself possesses any network effect today. If a new entrant provides a significantly better search experience than Google—I believe that they can, over time, take the market leadership away from Google.”).
When search combines with advertising, multi-sided network effects start to be realized. The search engine is not only a user tool but also a platform between advertisers and users. Google provides a platform to users for free, which they value, and in turn provides advertisers with access to those users. Consequently, users value Google more as they receive greater access to free online products and applications, while advertisers value Google more as they gain access to more consumers.111

In the search advertising industry, network effects are much greater on advertisers112—advertising space on Google is worth much more to the advertiser as Google adds users. Conversely, Google retains much of its value to users whether more advertisers buy space on Google or not.113 This is similar to the advertisers’ network effects in the newspaper industry:

[T]he network effects of increased readers on the value of the product to advertisers are generally much greater than the network effects of increased advertising on the value of the product to readers. The much

111 See Evans & Noel, supra note 98, at 675–76 (“The platform . . . creates content . . . or buys content from others . . . . The content is used to attract viewers. The viewers are then used to attract advertisers. There is a clear, indirect network effect between advertisers and viewers. Advertisers value platforms that have more viewers. The extent to which viewers value advertisers remains a subject of debate, but we suspect that viewers value advertisers more than they might admit.”). Although users may not consciously value an increase in advertisers as they do in the context of newspapers, see Robert D. Blair & Richard E. Romano, Pricing Decisions of the Newspaper Monopolist, 59 S. Econ. J. 721, 731 (1993) (noting that demand for newspapers increases with more advertising), they do value the free products available to them on the platform which are paid for by advertising—free email with many gigabytes of web storage, free online document services, and free photo sharing and hosting services.

112 See Muris, supra note 97, at 519 (noting that “[w]ith newspapers, the network effects of increased readership on the value of advertising are generally much greater than the effects of increased advertising on the value of the paper to readers.”).

113 This is true to an extent. As discussed above, advertising pays for the search engine as well as the associated “portal” products (Gmail, Blogger, etc.). Without substantial advertising dollars, Google could not afford to provide the search engine for free. But it is unquestionable that the network effect on users generated by the gain or loss of advertisers is much less than that on advertisers generated by the gain or loss of users.
larger network effects generated by increased readers on advertising value compared to increased advertisers on reader value might even justify in some cases a zero subscription price, that is, giving the newspaper away for free.114

Users do experience increased value from more advertisers, though, because each additional advertiser supplies additional funding for Google to provide additional free services to users, such as web-based email and photo sharing. In the newspaper industry, one commentator has explained that “increased advertising raises the value of the newspaper to each reader by reducing his search costs for information, and by increasing the likelihood that he will find information he desires.”115

Increased advertising pays not only for the continuing development and refinement of the organic search algorithm, but also for additional free products that enable Google users to send and receive email, store and share pictures online, and find relevant information via organic search.

Google can be assumed to actively work to preserve and maintain this network effect. Google seeks advertisers because its main source of revenue is advertising dollars.116 But to continue to attract advertisers, however, Google must also attract users.117

115 Muris, supra note 97, at 518–19. See also STAN LIEBOWITZ, RETHINKING THE NETWORK ECONOMY 20 (2002) (“Buyers will tend to flock to auction markets, such as eBay, which have the largest number of items for sale since a consumer is more likely to find what he is looking for, especially used and obscure items, if many items are being sold. Similarly, sellers will prefer to have the broadest possible exposure to buyers.”).
116 Inside the Googleplex, supra note 8, at 57 (“Google’s success still comes from one main source: the small text ads placed next to its search results and on other web pages.”).
117 Though Salop and Romaine note a “chicken-and-egg” problem in multisided innovation markets, where a company must actively seek users on both sides to make innovation profitable, see Salop & Romaine, supra note 14, at 621–22, the network effect in the search advertising market is weighted enough on the advertiser side that Google will achieve much more value by seeking more users in order to attract advertisers than it will in seeking more advertisers in order to attract users. See supra notes 112–13.
Google does so by continually providing new and desirable services to users—for free—which advertisers happily underwrite. This is analogous to the network effects seen in the software platform industry. For instance, software developers pay for Windows APIs because, as Windows entices users with more applications written for Windows, more users are available who might want the developer’s product, thus giving the developer the opportunity to sell more units. In essence, both the Windows software developer and the Google advertiser are benefiting from the indirect network value of associating with a popular platform.

Because the network effects in multi-sided markets are interrelated—changing price on one side of the market affects demand on the other side of the market—“the economic analysis [is] unique and the antitrust implications [are] somewhat unfamiliar.”118 For instance, in the transaction system industry of payment cards, traditional analysis suggests that the setting of default interchange fees by MasterCard and Visa is anticompetitive.119 Viewing payment card network effects through a two-sided market lens, however, indicates that changes in interchange fees result more from companies balancing the needs of both sides of the market rather than from any attempt to restrict output or exercise market power.120

B. Path Dependence, Lock-In, and Inertia

When path dependence and lock-in are the result of network effects, consumers may incur greater costs and a loss of the network benefit when they switch to a competitor.121 Lock-in therefore cripples competitors’ attempts to gain market share because they cannot attract enough users to gain a foothold in the market. Lock-in and path dependencies create another barrier to entry for competitors “in the costs . . . of overcoming the network

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118 Klein, et al., supra note 114, at 571.
119 See id.
120 Id. at 625.
121 Howard A. Shelanski & J. Gregory Sidak, Antitrust Divestiture in Network Industries, 68 U. Chi. L. Rev. 1, 9 (2001). These effects apply to both advertisers and users, although the network effect is stronger on advertisers.
benefits associated with the incumbent’s product.”122 Therefore, firms which have achieved an early lead in a market “have the incentive to... continue innovating to stay ahead of potential rivals who might ‘leapfrog’ its incumbent lead position. The race to gain and to maintain dominance in a network market might also, of course, provide motives to engage in anticompetitive conduct...”123

The interrelated network effects in the search advertising industry increase the likelihood of path dependencies by both advertisers and users.124 For instance, advertisers who may also end up at the top of Google’s organic results are unlikely to stop paying for AdWords because the algorithm results are not dependable.125 Once an advertiser buys AdWords, he is likely to stay with that service even if the organic results are free, because Google can change its algorithm in ways that send those

122 Id.
123 Id.; see Dibadj, supra note 107, at 780 (“[W]hen a technology company achieves a thirty to forty percent level of market share, network effects will cause that company to rise, virtually automatically, to the eighty to ninety percent market share level. Therefore, antitrust remedies need to be applied earlier, while the negative economic effects of monopolies can be most efficiently dealt with by the appropriate enforcement authorities.” (quoting John T. Soma & Kevin B. Davis, Network Effects in Technology Markets: Applying the Lessons of Intel and Microsoft to Future Clashes Between Antitrust and Intellectual Property, 8 J. INTELL. PROP. L. 1, 3-4 (2000))).
124 See Dibadj, supra note 107, at 779 (“[I]f one is willing to look beyond the strictures of neoclassical price theory [in innovative markets], one danger should stand out: network effects can often combine with overexpansive intellectual property rights to lock in customers thereby exacerbating path dependencies.”).
125 Google regularly adjusts its algorithm to defeat the efforts of search engine optimization firms (SEOs). See Battelle, supra note 21, at 157–58. SEOs work with companies to optimize their organic placement in search engines—and in Google specifically—by tweaking keywords and web design to achieve greater PageRank. Id. at 159–60. Google views this behavior as equivalent to spam, and regularly updates its indexes to prevent SEOs from controlling organic search results. Id. at 158. This “Google dance” can also harm businesses that are not engaging in SEO-type marketing. John Battelle describes just such a small business, an online shoe retailer, that went from being in the top two or three results for its core keywords (“big feet”) to falling out of the first 100 results. Id. at 153–66.
Advertisers may even know that the organic results are unlikely to change—from historical data, perhaps, or from a very high PageRank that has always remained high—but buy AdWords anyway. This inefficient choice, what Leibowitz and Margolis term “third-order path dependence,” along with lock-in, is a negative result of the market effects at play in the search advertising industry.

Path dependence and lock-in affect users as well. For instance, Google has ventured into complementary markets both by innovation and by acquisition. While search does not generally have a lock-in mechanism for users—one search engine is much like another, in terms of users’ requirements—ancillary services may increase user path dependencies. Email, calendaring, document sharing, picture hosting, blog hosting, and other user services tend to lock users in. Although users pay nothing for these services from Google, there are switching costs associated with moving away from one’s email service, blog host, or picture-

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126 See id. Although Google has the power to engage intentionally in this sort of normatively unfair activity, there is no evidence it does so. Google does control the search algorithm, though, and it can easily manipulate it to reduce costs for advertisers for non-economic reasons—perhaps for political reasons or to “curry favor” with a potential business partner.

127 “Third-degree path dependence requires not only that the intertemporal effects propagate error but also that the error was avoidable.” Stephen E. Margolis & S. J. Liebowitz, Path Dependence, entry in THE NEW PALGRAVE’S DICTIONARY OF ECONOMICS AND THE LAW (1998), available at http://www.utdallas.edu/~liebowit/palgrave/palpdl.html. Leibowitz and Margolis do not believe that third-order path dependence actually exists. Id. (“Our reading of the evidence is that there are as yet no proven examples of third degree path dependence in markets.”); S.J. Liebowitz & Stephen E. Margolis, Should Technology Choice Be a Concern of Antitrust Policy?, 9 HARV. J.L. & TECH. 283, 289–90 (1996) (“Third-degree path dependence involves error. It occurs where there exists, or existed, some feasible arrangement for recognizing and achieving an outcome that is preferred to the one chosen, but that preferred outcome is not obtained. In this case, a bad outcome is remediable, but not remediated. The occurrence of such an error has significant normative policy implications, as it would constitute economic inefficiency . . . . [W]e have shown that this model, or story, relies on extraordinary restrictions that are not likely to be satisfied for real-world choices.”). Nevertheless, their definition of third-order path dependence is accurate. Id. Uses of the term “path dependence” in this Article refer to this form of path dependence.
sharing service. Technologically savvy users may have little difficulty migrating their information from Google to an alternate service, but many users would likely find such migration daunting and, at least in the case of email, feel constrained by other services’ space limitations and bandwidth restrictions.\textsuperscript{128}

Lock-in can also be experienced as a benefit: users may perceive efficiencies when deciding to use new Google products. Each product has a similar look and feel, making them easy to learn or adopt for users already familiar with other Google products. Once a user has created a Google account, using new Google products is as simple as navigating to them from the Google toolbar, making them more convenient. In this way, lock-in also encourages inertia. Consumer habits will tend to drive users back to the search engine they are most comfortable and familiar with.\textsuperscript{129} Additionally, the search costs involved in seeking out alternative providers may encourage users to stay with the provider that is most familiar, even if a superior service is available.\textsuperscript{130}

\textsuperscript{128} Gmail currently allows each user over 6GB of storage space. Hotmail and Yahoo! only offer up to 2GB. Users can certainly migrate their email to a desktop machine, but such a migration likely has its own issues with bandwidth and with conversion.

\textsuperscript{129} Pasquale & Bracha, \textit{supra} note 20, at 34.

\textsuperscript{130} \textsc{Carl Shapiro \& Hal R. Varian}, \textit{Information Rules: A Strategic Guide to the Network Economy} 126–27 (1999) (describing search costs and noting that, though such costs may drop in the “information economy,” “inertia and loyalty are due in part to our human limitations . . . [and] it will remain costly for consumers . . . to review and evaluate . . . [competing] proposals”\textsuperscript{130}).
C. Barriers to Entry

Barriers to entry in the search advertising industry are high because of the multi-sided network effects. This barrier is not unique to the search advertising industry; it also has been noted in software platform market:

Without enough compatible application software available for it, consumers will not adopt the new operating system. But without a large (actual or expected) installed base of users of the operating system, application developers will not have an economic incentive to supply applications. . . . The costs of overcoming this problem constitute barriers facing a new operating system entrant or fringe competitor.131

Though the price of technology continues to drop, the key element for success in multi-sided markets is the network itself. This is particularly true in the search advertising industry. Developing an effective search algorithm may be expensive, but attracting users to the search engine built on it is much more costly. The network effects of multi-sided markets that make a platform more valuable as each side of the market grows, and that encourage path dependencies and lock-in, also reduce the likelihood that new competitors can gain any real market share. Google’s overwhelming dominance of the search advertising industry makes it very difficult for any new competitor to gain ground.

Google is the clear market leader in the search advertising industry. Its superiority in both user and advertising products has created a network effect—each additional user of Google provides direct value to advertisers, in the form of increased volume, while additional advertisers allow Google to add and improve free products for users, such as web-based email, photo and video sharing, and online document creation and management. This network effect also creates path dependencies for advertisers and users. Once a business buys advertising, it is likely to continue doing so; users, moreover, are unlikely to take the time to migrate their personal information away from the Google application suite without some overwhelming financial incentive. Finally, the network effect itself creates barriers to entry for competitors, who

131 Salop & Romaine, supra note 15, at 631.
face the “chicken-and-egg” problem of requiring a large user base to provide fungible results to advertisers, and funding from many advertisers to provide fungible free services to users.

The multi-sided nature of the search advertising market renders it resistant to traditional antitrust analysis. The firms in the market—principally Google, Yahoo!, and Microsoft—compete for users not to increase revenue directly flowing from these users but to demand a premium from their advertisers based on a larger user base. Multi-sided markets exhibit interrelated network effects that are not accounted for in traditional market analysis, and those network effects exacerbate path dependencies, lock-in, and barriers to entry. Consequently, alternatives to traditional antitrust analysis are needed.

IV. ALTERNATIVE MODELS COUNSELING AGAINST CHANGE TO MERGER ENFORCEMENT

Understanding the development of Google’s rise, as well as the economic forces supporting its continued dominance, is only one part of the analysis of the search advertising industry. We must also consider that the search advertising industry is in an innovative market. Innovative markets are those in which firms

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132 Evans & Noel, supra note 95, at 664 (“The standard tools of antitrust and merger analysis, which were developed based on the economics of single-sided businesses, do not necessarily apply in ways that are material to the analysis of competition that involves multi-sided businesses.”).

133 Although a traditional cost-increase analysis could find that anticompetitive behavior towards advertisers might result in higher costs for the advertised products, that analysis would not address how anticompetitive behavior towards advertisers might result in any cost for the advertising-funded innovative product. The cost of those products—free web-based email, for instance—could just as likely remain zero for consumers, even if costs for advertised products—cars, clothing, household goods—go up.

134 Throughout this paper, I use “innovative markets” to describe a market wherein firms compete to displace one another. This term is distinct from “innovation markets,” a term used in the antitrust literature to describe a market where reduction in competition is measured by the reduction in:

resources devoted to research and development in definable lines of research, or in the elimination of one or more parallel research tracks, when such a reduction of resources, or elimination of a line of research,
compete not to sell more of a product at a higher profit margin but rather to grab market share by providing a new and better product.¹³⁵

This part discusses alternative models which, though appearing to account for competition problems in markets with high levels of innovation, fail to adequately address the Google problem. First, it describes the unique features of the market at issue—the search advertising market—as one in which firms compete to displace one another rather than compete on price or quality. It then describes two different analyses, innovation market analysis and Schumpeterian rivalry, that would counsel against the need for any change to current regulatory enforcement, but neither of which accounts for the unique features of the search advertising market.¹³⁶


¹³⁵ See Jonathan B. Baker, Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation, 74 ANTITRUST L.J. 575, 575–77 (2007); John McGaraghan, Comment, A Modern Analytical Framework for Monopolization in Innovative Markets for Products with Network Effects, 30 HASTINGS COMM. & ENT. L.J. 179, 185 (2007) (“By creating an entirely new product that renders a current product obsolete, an innovator has the opportunity to capture nearly all of the old product’s users, and achieve a significant market share of the new product, while the usership of the old product plummets.”).

¹³⁶ Another consideration is worth mentioning: the possibility that natural monopoly forces act to keep Google dominant. Natural monopolies exist when “a single firm can meet market demand more efficiently than several firms.” David S. Evans & James J. Heckman, Natural Monopoly, in BREAKING UP BELL: ESSAYS ON INDUSTRIAL ORGANIZATION AND REGULATION 127, 128 (1983). If one firm can more cheaply meet demand for an entire market than several firms, then a natural monopoly is likely. See id. Utility companies are often considered to be natural monopolies; the monopoly is necessary for the entity to realize economies of scale. 9–66 FEDERAL ANTITRUST LAW § 66.1. Such markets can also be “natural oligopolies”—i.e., the market will support more than one competitor, but not more than a few. Id

Scale economies often are used to determine if a natural monopoly exists in a market, but other considerations also must be factored in. First, scale economies are only a good measure of natural monopoly if all firms in the market “have the same technology and . . . the same costs for all levels of production” including management costs. Id. at 130. Second, scale economies are only relevant if common ownership of the means of production is necessary to realize those
scale economies. *Id.* at 131 (noting that, for instance, several firms could own different portions of a telephone network and scale economies could still be realized). If, as happened with the Bell System, several firms can own different portions of the original firm without diseconomies of scale, a natural monopoly does not exist. *Id.* at 146–47.

Professors Pasquale and Bracha have argued that search engines resemble a natural monopoly. *See* Pasquale & Bracha, *supra* note 20, at 33. Their arguments apply equally solidly to the search advertising market. “[Search engines] exhibit very similar characteristics [as natural monopolies]. Search engines have very high fixed costs and a relatively low marginal cost. This, in turn, results in substantial economies of scale, entailing a declining average cost per unit, and in high barriers to entry.” *Id.* at 33 (considering several factors in concluding that search engines resemble natural monopolies, including the algorithm, which is proprietary and hard to replicate/appropriate is analogous to high-cost infrastructure; the network effects causing algorithms and search engines to improve with each additional user, rendering a huge advantage to incumbents; the licensing costs for content which could disadvantage newcomers who lack the resources to pay for such licensing and therefore the resources to develop a searchable database of material; and consumer habits that drive users back to the search engine they are most comfortable and familiar with.).

But, as noted, scale economies alone do not create a natural monopoly. *See* Evans & Heckman, *supra*, at 130–31. In the search advertising industry, while most competitors will use similar technology, they may not invest as much in the maintenance of that technology. For instance, Google is assumed to spend a great deal of time tweaking PageRank both to ensure that users get the widest variety of the most relevant results, *see* Batelle, *supra* note 22, at 237–40 (describing the wide variety of results on Google for search for “usher” compared to the same search conducted at Yahoo!), and to defeat the efforts of search engine optimization firms to game Google’s organic results. But Google’s competitors are less concerned with providing “unbiased” results, and presumably do not equally invest in the same extent of algorithm adjustment. *See id.*

Likewise, Google’s scale economies do not require that Google control, for instance, both its organic search engine and its advertising platform. It is easy to imagine how splitting Google into two firms would work. Google, as a search engine, would continue to develop and maintain the search algorithm with the same concern for unbiased results. It could then license the search engine to AdWords, which would continue to price ads according to the same formula, accounting for the auction bids and relevance. The licensing agreement would account for increased revenue as more ads are sold or as ads get more relevant placement, thus funding more innovation by the search engine, and increasing the value to users, driving them to Google in even greater numbers. Scale economies would still be realized; after all, the two services do not need to be controlled by the same entity. It is even possible that management diseconomies
A. Innovating to Displace

Innovation can be a byproduct of competition in any market. But innovation can also be the subject of competition—firms can compete to be the first to develop a new product or process that displaces products and processes already available. Firms engaged in competition over innovation are not trying to sell more cheese, beer, or shoes; they are trying to develop products that will displace cheese, beer, or shoes. The resulting new products are not substitutes but replacements for existing products. Therefore the critical concern is not price, quality, or output, as in traditional markets; it is how much a company can innovate, and how quickly. Competitors in innovative markets seek to displace one another not by providing cheaper, better or more effective substitute products, but instead by providing entirely new products that obviate demand for old products.

Companies in the search advertising industry may compete over price to some extent—the search engine that provides the best conversion rates at the lowest cost per click will certainly see some advantage. But search advertising firms also seek to provide

\[\text{might be lessened were Google to spin off either the search engine or AdWords. Management diseconomies at Google are not hypothetical. "One former executive [at Google] . . . says that the firm’s personnel department is ‘collapsing’ and that ‘absolute chaos’ reigns. When she was hired, nobody knew when or where she was supposed to work . . . .” Inside the Googleplex, supra note 8, at 58.}\]

\[\text{137 See Baker, supra note 135, at 577–79 (describing the competing views of Joseph Schumpeter and Kenneth Arrow, who disagreed on whether innovation would result from more or less competition).}\]

\[\text{138 See id. at 579; McGaraghan, supra note 135, at 185 (‘By creating an entirely new product that renders a current product obsolete, an innovator has the opportunity to capture nearly all of the old product’s users, and achieve a significant market share of the new product, while the usership of the old product plummets.’).}\]

\[\text{139 Obviously, cheese, beer, and shoes are here to stay.}\]

\[\text{140 McGaraghan, supra note 135, at 185.}\]

completely new ways of delivering relevant ads to users who are likely to respond to those ads, as well as to allow advertisers to manage their ad campaigns in the most efficient way possible. Google’s dominance of the search advertising industry is a result of its technological and business innovations. Google pioneered the idea of incorporating clickthrough rates and an ad’s relevance into its pricing model. Google differentiated itself from its competitors not by fighting to keep users on Google. Instead it provided excellent search results that would return a high profit when users clicked away to those results. Other search engines, in contrast, branded themselves as portals, online destinations, in the race to grab and keep users. Google’s model, though, does not rely on keeping users at google.com; instead, Google tries to attract an initial visit that hopefully results in a user navigating away to a paid link. So Google’s innovations have been designed less as mechanisms to keep users on Google and looking at Google-generated content, as they have been to compel an initial visit, looking for information available elsewhere, and encouraging return visits.

rates into the price an advertiser pays, its competitors have begun to follow suit. Id. Yahoo!’s advertising products also now incorporate a “quality score” which takes historical clickthrough rates and expected clickthrough rates into account when pricing is set. Overview: Quality Index—Yahoo! Search Marketing Help, http://help.yahoo.com/help/IAS/yahoo/ysm/sps/start/overview_qualityindex.html (last visited Oct. 11, 2008). Of course, Google sets minimum bids for keywords, and these minimums—and the eventual prices paid by advertisers—may be higher because of Google’s market dominance. See Benjamin G. Edelman, Google-Yahoo Ad Deal Is Bad for Online Advertising, HBS WORKING KNOWLEDGE, Aug. 12, 2008, http://hbswk.hbs.edu/item/5995.html.

142 Innovative companies are not trying to do away with certain needs; they are simply trying to create a new product that fills an old need. See McGaraghan, supra note 135, at 185. A good analogy is the innovation that caused the transition from rail travel to air travel. Each “product” provides the same service—transportation from point A to point B. But one does it much more quickly than the other; the need for transportation, however, is still being met.

143 See BATTELLE, supra note 22, at 142; infra Part IV.B.

144 See BATTELLE, supra note 22, at 102; infra Part IV.B.

145 See BATTELLE, supra note 22, at 166 (describing the difference between “Web 1.0” search advertising companies as concerned about pegging advertising to content, like television, where the Overture—and Google—model pegged
Google’s innovations include the search algorithm itself, as well as the many free applications and services Google provides to users. The market share it gains from those developments is to be expected in innovative markets. But when Google acquires or merges with another entity that may be a future competitor or that, when combined with Google, will ensure that other competitors are left behind as the market evolves, competition concerns arise. Once acquired by Google, a new technology can either be developed further or it can be squashed, lest further development renders Google vulnerable to being overtaken by a competitor.\footnote{See infra Part IV.B.}

As numerous scholars have noted, Google’s acquisition of DoubleClick is particularly problematic.\footnote{See, e.g., Robert W. Hahn & Hal J. Singer, An Antitrust Analysis of Google’s Proposed Acquisition of DoubleClick 1–2 (AEI-Brookings Joint Center for Reg. Stud., Related Pub. 07-24, Feb. 2008), available at http://www.ssm.com/abstract=1016189; Christina Trotta, The Google-DoubleClick Merger, the FTC, and the Future of Transactional Privacy Inquiries in the United States (unpublished manuscript, Dec. 13, 2007), available at http://papers.ssm.com/sol3/papers.cfm?abstract_id=1071823.} Google, prior to this acquisition, had achieved success only in search advertising.\footnote{See infra Part IV.C.} By acquiring DoubleClick, Google not only absorbed whatever technologies DoubleClick had developed to make its display advertising service feasible, but also the entire network of advertisers using that service. The FTC’s Statement approving the merger stated that it believed Google and DoubleClick do not operate in a single market; in other words, DoubleClick’s display advertising to intent, more like the phonebook or classified ads. Innovative companies, of course, do want users to choose their product—newer, better—over an established product that may offer less. See infra Part IV.B.\footnote{See Catherine Holahan, Google: The Ad Dominator?, BUSINESS WEEK, Apr. 17, 2007, http://www.businessweek.com/technology/content/apr2007/ tc20070417_803323.htm?chan=top+news_top+news+index_businessweek+exclusives. (“To date, Google has had one gargantuan advertising success. It developed an online auction platform enabling businesses, even those with little marketing experience, to easily bid for space to serve tiny text ads related to information Web surfers wanted at a particular moment . . . . Google’s search ads are often located on the side of the page, out of the way from the prime real estate given to display and video ads that publishers often sell themselves or through ad networks.”).}
ads, or banner ads, could not be shown to be substitutes for Google's search ads. But the FTC's investigation did not consider the likelihood that a Google-DoubleClick combination could dissolve whatever boundaries exist between search advertising and display advertising; nor did it consider that the merger of these two companies might depress innovation into new and better processes and products for delivering relevant advertising to users likely to convert to sales.

B. Non-Competing Innovation Centers

Innovation market analysis may address the problem of reduced innovation that can result from a merger by defining "innovation markets" as those in which the relevant measure of competition is the presence or absence of investment in research and development. However, innovation market theory is little more than traditional antitrust analysis dressed up with intellectual property, and fails to adequately account for competition to displace.

Innovation market analysis fills a gap in antitrust enforcement by providing a means of regulating mergers and acquisitions between companies investing in research and development for products that do not currently exist. These markets "encompass the actual and potential competitors in the research and development for a future product." Once these markets are defined this way, antitrust law can be applied to them in much the same way as it is "conventionally applied to markets for beer, bicycles, computer chips, or any tangible good or service."

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149 Statement of the Fed. Trade Comm'n concerning Google/DoubleClick at 4, FTC File No. 071-0170.
150 See supra note 134 for a discussion of the use of this term in this paper.
151 Davis, supra note 134, at 679.
152 See Michael A. Carrier, Two Puzzles Resolved: Of the Schumpeter-Arrow Stalemate and Pharmaceutical Innovation Markets, 93 IOWA L. REV. 393, 396 (2008) ("Innovation markets are unique in that they consist not of actual products, but of the research and development directed toward new products."). Davis, supra note 134, at 677-78.
154 Katz & Shelanski, supra note 153.
Innovation market analysis has its critics, as some believe that antitrust enforcement and merger enforcement, in particular, cannot be rationally applied to a market wherein the relevant concerns are so speculative and might “require agencies and judges to try to predict the inherently unpredictable course of future technology.” Commentators question whether the measure of innovation typically used, investment in research and development (R&D), is even the proper measure or what the ideally competitive market structure is in innovation markets. The lack of a standard by which to analyze loss of innovation has even been noted in the courts, which have hesitated to rely on evidence of reduced innovation in finding violations of antitrust law:

In highly concentrated markets, net loss to innovation and attendant loss of choice may . . . be consumer welfare harms. These, however, are not generally accepted harms. Some courts and authorities prefer a principle of non-intervention in the absence of price rise and output limitation, believing that net loss of innovation is too difficult to detect or predict and that loss of significant choice is too rudderless a test.

155 See Davis, supra note 134, at 678; see also Katz & Shelanski, supra note 153, at 4, 15 (“[I]s the concentration-competition-welfare presumption valid when one is talking about innovation?”); McGaraghan, supra note 135, at 194 (“[P]ractically speaking, courts applying traditional tests will not be able to accurately assess and remedy genuinely anti-competitive behavior in contemporary markets. This is because in innovative product markets, exclusionary behavior is only effective until the next innovation supplants the importance of the relevant product.”).

156 See Davis, supra note 134, at 681.

157 The Sedona Conference Commentary on the Role of Economics in Antitrust Law, 7 SEDONA CONE. J. 69, 131–32. In a case involving one pharmaceutical company’s acquisition of another, when the two firms “were the only two firms innovating a treatment for a rare infant disease,” the FTC closed the investigation noting that innovation-loss analysis was not sufficient to indicate anticompetitive harm because “economic theory and empirical investigations have not established a general causal relationship between innovation and competition.” Id. (citing In the Matter of Genzyme Corp. and Novazyme Pharms., Inc., FTC File No. 021-0026 (Muris, Chairman), available at http://www.ftc.gov/os/2004/01/murisgenzymestmt.pdf). But one Commissioner disagreed, noting that “competition drives innovation, and . . . that a rebuttable presumption of anticompetitive effects may be appropriate where a firm has acquired, over time, all the research and development tracks of its immediate rivals and is unencumbered by the threat of timely and sufficient entry by any challenger.” Id.
These problems with innovation market analysis must be addressed before such analysis can be used successfully in evaluating anticompetitive behavior. But in the case of the search advertising industry, innovation market analysis falls short before the analysis even begins. Innovation market analysis has only been successfully applied in industries with a reliance on intellectual property, such as pharmaceuticals. Even proponents of innovation market analysis recognize that “an expansive notion of the innovation-market concept is not appropriate,” and that any effective implementation of innovation market analysis must be narrow.159

Although the idea of innovation market analysis seems promising as a mechanism for addressing competition problems in innovative markets, markets competing for the field rather than for specific product markets,160 it fails as applied to the search advertising market in two ways.

First, the core analysis is identical to the traditional analysis: When two companies’ R&D is in direct competition, as when two pharmaceutical companies are each researching a potential cure for a specific disease,161 a merger between them will not be allowed.

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159 Some scholars would argue innovation market analysis has never been “successfully” applied. See Richard J. Gilbert & Willard K. Tom, Is Innovation King at the Antitrust Agencies? The Intellectual Property Guidelines Five Years Later, 69 ANTITRUST L.J. 43, 44 (2001) (“Although a large number of merger and non-merger enforcement actions brought by the agencies identified innovation effects, it is another question whether these actions actually turned on innovation issues . . . . [W]e make the more limited point that the decisions to oppose these mergers likely would not have been different if innovation had been excluded from the analysis.”).

158 See Carrier, supra note 152, at 401 (“[A] narrow version [of innovation market analysis], applied to the pharmaceutical industry, withstands the critiques.”).

159 McGaraghan, supra note 135, at 200 (“In innovative markets, courts should recognize that the goal of the antitrust laws will be achieved when competition for the field, rather than competition in a particular, specific product market is protected. In applying old economy antitrust principles to these markets, the law becomes a mechanism for protecting competitors, rather than protecting consumers through regulating the healthy function of the market itself.”).

161 Carrier, supra note 152, at 429-46 (undertaking case studies of pharmaceutical mergers where innovation market analysis would indicate
But this traditional analysis has failed to indicate competition problems in any of Google's acquisitions before now;\[^{162}\] it seems unlikely that changing the measure of the analysis to consider available R&D investment before and after a merger would change that. Using the DoubleClick acquisition as an example, the FTC noted the difference between what Google does with advertising and what DoubleClick does with advertising and found it significant enough to consider the two to operate in different markets. Innovation market analysis would not change this basic inquiry. If Google and its target do not operate within the same current product market, they are unlikely to be found to be innovating toward the same future product, particularly without some hard evidence of each company's product development.

This highlights the second problem with innovation market analysis in the context of the search advertising industry: The relevant measure, R&D, would be nearly impossible to evaluate. Unlike pharmaceuticals, where the FDA regulates what research is being conducted, Google's R&D can be hidden from government and public eyes. It is possible that patentable developments could indicate the direction of innovation at either Google or its target, but in the case of business or process innovations,\[^{163}\] even that indicator would be unavailable. Indeed, this inability to peer inside the walls of an innovative firm to see what it is doing is one of the reasons innovation market analysis is so heavily critiqued, and why even its proponents advocate narrow application of such analysis.\[^{164}\]

\[^{162}\] See supra note 13; see also supra note 149 and accompanying text.

\[^{163}\] See Carrier, supra note 152, at 405.

\[^{164}\] See id. at 401 ("[A]n expansive notion of the innovation-market concept is not appropriate. But a narrow version, applied to the pharmaceutical industry, withstands the critiques.").
C. Schumpeterian Rivalry

Serial competition legitimizes monopolization or quasi-monopolization in innovation markets. Joseph Schumpeter, who believed a cycle of “creative destruction” permeated all capital markets, first described the concept in the middle of the twentieth century.165

In such markets periodic dominance by one firm or a few firms may be symptomatic of healthy, innovation-based competition and may be subject to displacement, even when goods with network externalities are at issue. Creative destruction thus implies that antitrust policy based on static analysis of today's market conditions can be misleading and, over time, injurious to consumers.166

Serially competitive markets are ones in which “[w]inners enjoy a period of dominance, during which they receive above-cost prices that include the returns necessary to induce risky investment in product innovation, but are subject to being supplanted by rivals in a later innovation cycle.”167 This cycle of creative destruction is familiar in the history of antitrust action against technologically innovative companies.168 Many commentators have analyzed a variety of markets under the serial competition, or Schumpeterian rivalry, model.169

This idea of Schumpeterian rivalry, or serial competition, posits that dominant firms in monopolistic or quasi-monopolistic markets will perceive less risk in innovating170 and will therefore create greater technological advancement, and social good, until

165 SCHUMPETER, supra note 19; Shelanski & Sidak, supra note 121, at 11.
166 Shelanski & Sidak, supra note 121, at 12 (describing Schumpeter’s concept).
167 Id. at 5.
168 Id. at 14 (“Though IBM was the undisputed market leader in mainframe computers in the 1960s, by the time the government dropped its antitrust case in 1982, the mainframe had already been harpooned by the personal computer. And in that market, despite its brand name and experience, IBM emerged as just one of several strong competitors.”).
169 See, e.g., id.; Katz & Shelanski, Mergers and Innovation, supra note 153; McGaraghan, supra note 135.
170 See Baker, supra note 135, at 578 (arguing that fewer competitors mean fewer opportunities for rivals to copy innovations, piggybacking on their investment in R&D).
displaced by a competitor which will, itself, become dominant.\textsuperscript{171} But even if Schumpeterian rivalry exists and is a sound model, the serial competition it posits can still be defeated by anticompetitive behaviors designed to maintain dominance and squash potential successors.

If the Schumpeterian cycle is operating perfectly, the dominant player will eventually be displaced without the need for government intervention or even regulation. However, the same types of behaviors that upset non-innovative markets, which would otherwise operate perfectly, can defeat serial competition. A dominant firm can solidify its leading position and defeat Schumpeterian rivalry by acting to decrease internal innovation by offsetting the risk that such innovation might contribute to its displacement and by acquiring potential successors. In other words, even if Schumpeterian rivalry is a legitimate model that might “excuse” Google’s dominance, it does not “excuse” Google’s appetite for acquisition if that appetite is fueled by a desire to suppress potential successors.

The theory of serial competition holds that dominance is not harmful to the market because market leaders will eventually be displaced. While they dominate, however, they will feel freer to bring innovations to the market more quickly. Having fewer firms in a market decreases the risks of innovating. One risk of investing in innovation while facing many competitors is that some other firm will take advantage of that investment to innovate further, piggybacking on the first firm’s investment.\textsuperscript{172} It is easier for a

\textsuperscript{171} See id. at 577-78 (“Schumpeter also is well known for suggesting that large firms and monopolists may be more innovative than firms in competitive markets.”); Katz & Shelanski, supra note 153, at 2 (“At the heart of merger policy is antitrust law’s presumption that greater competition in the form of reduced product-market concentration brings improved market performance and increased consumer benefits in the form of lower prices, higher quality, and higher output. Although this presumption is reasonably well accepted for consumer welfare effects due to changes in short-term price and output levels, it is much less accepted for consumer welfare effects due to changes in innovation, the flow of new products, and other longer-term benefits. In some instances, innovation may be greater when concentration is greater.”).

\textsuperscript{172} Katz & Shelanski, supra note 153, at 19 (“Suppliers with many product-market rivals may have less ability to appropriate the returns from innovation
firm to anticipate and react to one or two rivals than to several. This model does not seem inapt when applied to Google. Hardly a month goes by without announcement of a new product or process by Google, even as Google’s market share grows.  

But a closer look uncovers problems in applying this model to Google. Even though Google has publicly stated that it is constantly fighting the newcomers, its biggest competitors in terms of market share, Yahoo! and Microsoft, have not proven to be a threat in terms of innovation. Indeed, each has recently acted to mimic some of Google’s most successful innovations. As the dominant firm, Google may continue to innovate but will not feel pressure to bring those innovations to market as quickly as it otherwise might. When a firm like Google “[f]aces less innovation competition, [it] might be able to slow its own innovative efforts and channel innovations in a way that it controls, thereby entrenching its monopoly power in the future.” This is not a hypothetical risk; AT&T is now known to have turned its back on development of data networks because of the risk that

that make the investment in innovation worthwhile, . . . because their innovations are readily copied or invented around by rivals . . . .”); Baker, supra note 135, at 578.

173 Google’s official corporate history shows innovation at Google—whether product or business innovation—stepping up remarkably in recent years and months, coinciding with Google’s increasing market share. See Google, Corporate Information—Google Milestones, supra note 91.

174 Vise & Malseed, supra note 59, at 18 (“Nowadays, we get much larger competition and it is a bigger challenge for us.” (quoting Larry Page)).

175 Yahoo! has recently incorporated a “quality score” into its advertising pricing; Microsoft recently acquired aQuantive, an ad-serving company that was a competitor of DoubleClick. Microsoft’s acquisition came after Google announced its intention to acquire DoubleClick. See Reserve Prices, posting to Yahoo! Search Marketing Blog, http://www.ysmblog.com/blog/2008/02/26/minimum-bids/ (Feb. 26, 2008); Press Release, Microsoft, Microsoft to Acquire aQuantive, Inc., http://www.microsoft.com/presspass/press/2007/may07/05-18advertising.mspx.

176 See Katz & Shelanski, supra note 153, at 18 (“[A] monopolist may bring product innovations to market more slowly than would a competitor because the monopolist is concerned about cannibalizing its existing business.”).

177 Salop & Romaine, supra note 15, at 623.
such development would create new competition for it. Commentators assume it did so to avoid cannibalizing its telephone service. As the market compresses, Google may rationally behave the same way. Google’s innovation may slow down if it has only to anticipate the actions of one major competitor than if it faces two strong competitors who each might do something different.

A successful, or perfectly operating, serially competitive market must allow for new rivals to displace the old dominant firm. This mechanism, however, is in tension with “innovation by acquisition,” which is the common practice in contemporary firms, particularly technology firms, of absorbing small, innovative companies whose products may complement their own. Merger

178 Written Ex Parte of Professor Mark A. Lemley and Professor Lawrence Lessing, In the Matter of Application for Consent to the Transfer of Control of Licenses MediaOne Group, Inc. to AT&T Corp. at ¶ 27 (FCC Nov. 10, 1999) (CS No. 99-251), available at http://cyber.law.harvard.edu/works/lessig/lemlesd.pdf (“[AT&T’s] views were once memorably summarised in an exasperated outburst from AT&T’s Jack Oysterman after a long discussion with [Paul] Baran. ‘First,’ he said, ‘it can’t possibly work, and if it did, damned if we are going to allow the creation of a competitor to ourselves.’” (quoting JOHN NAUGHTON, A BRIEF HISTORY OF THE FUTURE 107 (1999)).

179 See Katz & Shelanski, supra note 153, at 18; Written Ex Parte of Assistant Prof. James B. Speta, In the Matter of Application for Consent to the Transfer of Control of Licenses MediaOne Group, Inc. to AT&T Corp. at 12 (FCC Dec. 14, 1999) (CS No. 99-251), available at http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&kid_document=6010650449 (“While AT&T would have had the incentive to encourage new uses of its network, it would have had the incentive to impede any innovations that threatened the common carrier business.”). Scholars and commentators generally accept the idea that monopolists or market dominators may be incentivized to suppress innovation because of the potentially negative implications for their dominant position. See Mark Cooper, Open Access to the Broadband Internet: Technical and Economic Discrimination in Closed, Proprietary Networks, 71 U. COLO. L. REV. 1011, 1031 (2000) (“The claims that ‘[m]onopolists generally have no incentive to retard innovation in adjacent markets’ and that ‘AT&T’s acquisition of cable systems does not create incentives for anticompetitive behavior’ are inconsistent with empirically observable behavior.”) (citations omitted); see also id. (noting that AT&T restricted the user of its network from streaming video for what was likely an economic reason: “a desire to prevent services from competing against incumbent businesses”).
enforcement currently does not do much to prevent these sorts of acquisitions, but they threaten serial competition nonetheless.

An even more striking example of innovation by acquisition shutting down serial competition is Google’s acquisition of DoubleClick. Rather than move itself into the banner ad market, Google elected to acquire a company already doing so—a perfectly legitimate move. But the impact of such an acquisition on the serially competitive nature of the market will likely be negative. In taking over DoubleClick, Google did not acquire a technology that it was incapable of or unwilling to develop; after all, serving relevant advertising is what Google does best. Instead, it acquired DoubleClick’s network of users and advertisers, increasing its own market share not by means of a superior product, as the Schumpeterian model requires, but by ensuring that no one else could capture that market share.

A competing theory to Schumpeterian rivalry was expressed by Kenneth Arrow, and it provides additional insights into the shortcomings of serial competition theory. Arrow suggested that monopolists and large firms are less likely to innovate because they have less to gain by doing so. When a monopolist has already captured the majority of the market, innovating at great expense will not have much additional benefit as “it [will] not get

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180 See infra Part V.B.

181 For instance, Google’s acquisitions of Writely and Keyhole (the companies that originally developed the products now known as Google Docs and Google Maps) are not necessarily threatening, but Google’s acquisition of YouTube might be. As the market-dominant provider of web-based movies, YouTube relied on Google’s search engine to publicize its offerings; on the other side, YouTube had the potential to provide Google with an enormous audience for search as well as for advertising. Yet the FTC and Department of Justice gave that deal the OK after an early termination of investigation. BUREAU OF COMPETITION, FED. TRADE COMM’N, LIST OF EARLY TERMINATION NOTICES FOR NOVEMBER 2, 2006, (Nov. 3, 2006), http://www.ftc.gov/bc/earlyterm/2006/11/et061102.pdf.

182 See infra Part V.B.


184 Baker, supra note 135, at 578–79.
much additional business because it already has most of the business there is to get.\textsuperscript{185} Of course, if the monopolist fears a smaller competitor developing a new product that will displace the monopoly product entirely, the Arrow effect will not be strong.\textsuperscript{186}

It is in this last observation that we see that Arrow's theory is not mutually exclusive of Schumpeter's. When large firms or monopolists have captured nearly an entire market and are not afraid of rivals displacing them, a lessening of innovation is rational. However, when the market moves quickly, as technology markets tend to, large firms and monopolists may continue to invest in R&D, even though they may not bring their innovations to market until they feel threatened. In both situations, competition will increase the amount of innovation being brought into the market.\textsuperscript{187}

V. SOLUTIONS

The search advertising industry has competition problems. The network effects, path dependencies, and barriers to entry inherent in the market are exacerbated by Google's insatiable appetite for both vertical and horizontal acquisitions. Google is entrenching itself in a market which is not a true natural monopoly and is defeating serial competition by working very hard to maintain the status quo. It dominates and controls the innovations, and its market share continues to grow because of this dominance and control. Google eats up innovators, both in the search advertising industry and in industries ancillary to it, and current antitrust enforcement is incapable of restricting that appetite.

The competition problems in the search advertising industry can only be addressed by giving the appropriate regulatory

\textsuperscript{185} Id. at 578.

\textsuperscript{186} Id. at 579.

\textsuperscript{187} Additional competition may not affect the investment in R&D; companies like AT&T were widely known to have deep investments in innovations, even though many of those innovations never made it to consumers. If the goal of antitrust law is to increase consumer welfare by preserving competition, innovative products must be developed with the intention of marketing them, not just of having them locked up in a lab. See generally id. (providing a more detailed discussion of the role of antitrust enforcement in increasing innovation).
agencies the freedom to act to stop anticompetitive mergers and acquisitions. Market discipline is not enough, as the market cannot heal itself. We must give the FTC and the Department of Justice the authority to prevent mergers that will exacerbate both the dominance caused by multi-sided network effects and control over innovation.

A. Market Discipline

The simplest solution to the Google problem is to let the market regulate itself. The benefit of this approach is that it recognizes that our perspective is too narrow. For instance, we need more time to determine whether the search advertising industry is serially competitive, though the history of other technology markets suggests it may be. Indeed, many commentators and scholars believe in the power of the market to balance itself.188

For instance, even if Google’s rapacious appetite for acquisitions artificially increases its market share, there will always be niche players who will pick up some of the market and prevent Google from complete dominance.189 Media companies and branded publishers, such as the publisher of Forbes, are therefore beginning to compete directly with Google, by building networks of their own.190 "‘The folks at Forbes really understood our business,’ said Steve Woit, publisher of Xconomy, a blog


190 See id.
within the *Forbes* network. 'A larger network, whether it's Google or others, has to deal with every industry and large consumer sites.'\textsuperscript{191} The existence of these niche markets, therefore, may suggest that, though Google dominates when it comes to general search advertising, it is no monopolist; rather, pockets of the market are simply unavailable to Google because it does not fill the needs of users and advertisers in those pockets. The market, in other words, is healing itself: where Google falls short, competitors arise.

The problem with this view is that while niche players may be competing to provide advertising, they are not competing to displace Google in search advertising or to displace the "Google model" of auction-based relevance-related pay-per-click advertising that almost everyone is now using. They are just doing what small publishers have always done, providing advertising space for firms that want to be associated with them. The fact that the medium is online does not render this innovative, and the niche players are not going to displace the general advertising product that Google (or Yahoo! or Microsoft) provides.

In fact, the most likely source of competition for Google lies in the exploding popularity of social networking sites such as Facebook. Such sites also collect data to attract and retain consumers and advertisers on both sides of a multisided market, and these sites foreshadow the direction in which the search advertising industry is moving: towards all-purpose web portals, offering not only search and information services but also networking and communication services, funded by advertisers and manufacturers on one side, lured by the promise of better conversion of web users to purchasers.\textsuperscript{192} Indeed, Google itself

\textsuperscript{191} Id.
\textsuperscript{192} Cf. Grimmelmann, supra note 5, at 50 ("The real question may be whether one considers near technological neighbors to be good substitutes for centralized search. Reclassifying various technologies—e.g., del.icio.us's social bookmarks or eBay's product search—as 'search' would greatly increase the denominator and reduce relative market shares These near neighbors may also have lower barriers to entry than server-farm-heavy, centralized search.").
continues to add services that compete with social network sites, though it has not experienced much success with them.  

Social networking sites do provide advertising and promise to deliver more relevant page views based on a completely new model. Rather than basing their advertising product on the tie between what people search for and what the advertiser is selling, they base their advertising product on linking people’s social profiles to products. They promise to “predict” what products individuals might purchase based on knowing to what social networks they belong, what sort of events they attend, and with what groups, or schools, or employers they are associated. As online advertising goes, this is a big innovation. But the social networking sites are not quite there yet. For instance, privacy concerns put a big damper on Facebook’s attempt last year to show a user's purchases and other online activities to that user’s friends.

Professors Pasquale and Bracha note in a recent article that “[t]he market discipline argument is based on two key premises: robust competition in the search market and users’ responsiveness to abuse. Unfortunately, both of these premises are highly problematic.” First, robust competition, as the two examples above demonstrate, does not exist in the search advertising industry, since what competition there is is confined to niche markets or has not fully matured into a full-featured advertising solution. Second, users have not yet shown themselves capable of “voting with their feet”; the opposite, indeed, seems to be true, as more users flock to Google every day, and convert their visits to sales for advertisers.

Given the information asymmetries and barriers to entry, the market appears unlikely to “heal itself” without judicial, congressional, or regulatory intervention. The evolution of the

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194 Pasquale & Bracha, supra note 20, at 1180.

195 But see id. (“Even today, despite its overwhelming dominance in the American and global search market, Google worries about competitors. MSN and Yahoo! have a large installed base of users, while Crusty, Ask.com, and
search advertising industry seems to support Professors Pasquale and Bracha's skepticism. The network effects that lock advertisers and users into the current model, and that erect barriers to entry for new competitors, render Google’s downfall by market forces unlikely. Google displaced Lycos and AltaVista in the late 1990s, and has steadily gained market share, and no competitor has appeared capable of displacing it. Moreover, Google gains in every arena it enters, whether by technologically superior products (its email product) or by acquisition (YouTube). The market does not appear to be capable of balancing the strong network effects present in the search advertising industry.

B. Regulatory Adjustments

The FTC is authorized to investigate and enforce the antitrust laws by a variety of federal statutes. The FTC’s organic act, the Federal Trade Commission Act,196 "which prohibits ‘unfair methods of competition,’”197 grants the FTC the power to investigate complaints of all behaviors by entities accused of acting in restraint of trade, including engaging in anticompetitive behavior.198 After receiving a complaint, the FTC may serve notice

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197 Fed. Trade Comm’n, A Guide to the Federal Trade Commission, supra note 14; 15 U.S.C. §§ 45(a)(1) (2000) (“Unfair methods of competition in or affecting commerce and unfair or deceptive acts or practices in or affecting commerce, are hereby declared unlawful.”); id. § 45(a)(2) (“The Commission is hereby empowered and directed to prevent persons, partnerships, or corporations . . . from using unfair methods of competition in or affecting commerce and unfair or deceptive acts or practices in or affecting commerce.”).
198 The FTC actively solicits complaints from consumers. BUREAU OF COMPETITION, FED. TRADE COMM’N, COMPETITION COUNTS: HOW CONSUMERS WIN WHEN BUSINESSES COMPETE 6 (2007) available at, http://www.ftc.gov/competitioncounts (“As an informed shopper, you are in the best position to detect an absence of competition for no apparent reason. If you suspect illegal behavior, please notify federal and state antitrust agencies . . . . The FTC cannot act on behalf of an individual consumer or business, but the information you provide can help expose illegal behavior.”).
upon entities, hold hearings, and issue orders requiring such entities to cease anticompetitive practices.\textsuperscript{199}

The FTC also investigates the potential antitrust implications of mergers and acquisitions under the Clayton Act.\textsuperscript{200}

As the Department of Justice and Federal Trade Commission Horizontal Merger Guidelines explain, transactions that generate market power harm consumers by providing sellers an ability to maintain prices above competitive levels for a significant period of time. In addition, the exercise of market power may harm consumers when it results in diminished quality, selection, or service.\textsuperscript{201}

The FTC investigated Google's acquisition of DoubleClick under this authority.

These regulatory guidelines are often a necessary precursor to effective judicial enforcement against anticompetitive firms. Therefore, while judicial enforcement might be an appropriate means to curb anticompetitive acquisitions in the search advertising industry, such enforcement must be preceded by effective guidelines to merger enforcement. Once such regulatory adjustments are in place, courts can "adopt a special sensitivity for the special needs of innovative markets" and foster the natural course of serial competition.\textsuperscript{202} One recent comment suggested that courts might do so according to the following steps:

1. In the market definition phase, courts should not exclude potential alternatives and nascent competitors in order to best understand the true field of competition.
2. In discerning market power, they should take into account a firm's share of the innovation in the field, as well as aspects of its ability to control such innovation in the future.
3. Finally, when analyzing monopolization conduct, courts should pay close attention to activities where a firm's intent or effect is to inhibit innovation by others, or to secure ultimate control over the pace, source, and expression of such innovations.\textsuperscript{203}

\textsuperscript{200} "That statute prohibits acquisitions or mergers, the effect of which 'may be substantially to lessen competition, or to tend to create a monopoly.'" Google/DoubleClick, \textit{supra} note 3, at 1.
\textsuperscript{201} \textit{Id.} at 1–2.
\textsuperscript{202} McGaraghan, \textit{supra} note 135, at 201.
\textsuperscript{203} \textit{Id.} at 201 (internal numbering added).
If illegitimate behavior is deterred from the beginning by comprehensive regulatory guidelines, it will provide consumers and the government, if necessary, with full access to the courts. The problem is not that we have no remedy under law when companies like Google behave anticompetitively, but is rather that the law we have is difficult to apply to companies like Google. Adjustment to the regulatory regime under which mergers and acquisitions in the search advertising industry are completed would therefore be more useful in establishing when violations of antitrust law have occurred.

1. **Ex Ante Regulation**

Ex ante regulation of the entire industry is an option:

> Enforcement to stop behavior on a case-by-case basis after it has proven harmful (ex post intervention) is very different in purpose and effect from a broad rule that establishes what firms can and cannot do in advance of specific conduct and regardless of the competitive effect of that conduct in a specific instance (ex ante regulation).

In the context of the search advertising industry, one ex ante regulatory solution might be to regulate pricing and access without disturbing that market structure. The Telecommunications Act of 1996 did this for telephone communications networks, assuming that local providers would be monopolies and restricting their ability to raise prices freely. One benefit is that scale economies are preserved, but this benefit is outweighed by the high probability that such ex ante regulation would probably cement Google's dominance at the expense of potential new innovators. Moreover, such regulation is generally designed to ensure that consumers do not pay monopoly prices. Consumers don't pay anything in the search advertising industry, though. They "pay" for search, web-based email, photo sharing, and other services with time, perhaps, but it is difficult to value that "payment" across the

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205 *Id.* at 68 ("[T]he network unbundling and wholesale pricing rules . . . [were] premised on the existence of local exchange monopolies.").
market and determine that consumers are being asked to "pay" too much.

Regulation of the lines of business a firm can enter also makes sense when that firm controls a bottleneck. Google arguably controls a bottleneck from search into advertising since the quality of advertising results it can offer are only made possible by the vast amount of data it collects and has collected, and its subsequent improvement of its proprietary algorithm. This rationale is not solid, though. The algorithm is not a bottleneck; it is not analogous to AT&T's wired network. The user base is not forcibly locked into Google and can even use Google simultaneously with other competitors. If a bottleneck exists, it is perhaps in the advertising platform. Even this, however, is a weak assertion. While each search advertising company uses different mechanisms to allow advertisers to select keywords, etc., those platforms are not entirely incompatible. Although there is no easy import-export function from one platform to the other, the information is text-based and can easily be manually modified for transfer from one platform to the other.

The possible benefits of ex ante regulation of the search advertising industry to consumers, in other words, are negated by the likelihood that such regulation would entrench the dominant firm even further and sacrifice potential new innovative entrants for the sake of maintaining a relatively hale status quo.

2. Modification of Merger Guidelines

Adjusting the merger enforcement guidelines to account for the multi-sided, innovative nature of a market has benefits that extend beyond the competition problems in the search advertising industry. Such an adjustment would require a more fact-intensive inquiry of mergers, thus increasing fairness and neutrality.206

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206 See Katz & Shelanski, Mergers and Innovation, supra note 153, at 30–31 ("[C]onsolidation can cause harm depending on the particular facts of the case, and we think those facts should, therefore, become central to the merger analysis."); see also id. at 6 ("[W]e also recommend that antitrust authorities reduce reliance on defining bright-line (but often illusory) market boundaries and focus more on direct evidence of likely effects on price competition and innovation.").
As noted by Professors Katz and Shelanski, the FTC’s Merger Guidelines provide an “approach to merger review [that] is ‘static’ in nature” and that focuses on “products and markets as they exist at the time of (or within a limited time frame after) a proposed merger and predicts the likely, short-run impact on prices and outputs of those goods as the level of competition changes with the merger.” Concerns related to innovation, including the impact of a merger on research and development, for instance, are absent from consideration under the Merger Guidelines. “This lack of a dynamic approach may cause merger review to miss forms of competition that are not reflected in the structure of current product markets and to miss effects on consumers other than those reflected in short-run price and output levels.” Even innovation market analysis, as discussed above, is incapable here of responding to some anticompetitive mergers in the search advertising industry. Innovation market analysis, though focusing on future products, does not address the potentially anticompetitive effects of mergers creating new markets.

The inability of current merger enforcement to adequately deal with innovative, multi-sided markets is illustrated by the FTC’s recent approval of Google’s acquisition of DoubleClick. Google is the dominant search engine, and the dominant provider of contextually placed text ads. DoubleClick leads the market in serving banner ads. The combination of the two allows Google to provide a full range of advertising services.

Most commentators’ protests about the merger revolved around the vast amounts of user information that Google would control. The FTC, in finding that the merger would not reduce competition, properly noted that privacy concerns cannot inform an antitrust investigation. But the FTC did not look beyond the privacy concerns embodied in that collection of user information to

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207 Id. at 11–12.
208 Id.
209 Id.
210 See supra Part IV.B.
211 See infra notes 217–20 and accompanying text (describing Google’s intention to integrate DoubleClick’s services into its existing advertising platform).
investigate the potential for Google to create an entirely new market, with even broader network effects, path dependencies, and barriers to entry, all built on a now much larger network of users. Instead, the FTC found that search advertising and display advertising do not operate in the same market. While the FTC was correct to note that privacy concerns cannot inform decisions about market share in such a merger, its finding that the two companies’ markets do not overlap ignores the economic realities.

212 Of course, some of this was required by the guidelines the FTC must follow. “According to the U.S. Department of Justice and Federal Trade Commission Horizontal Merger Guidelines . . . product markets are defined as the smallest group of services such that a hypothetical monopoly provider of those services could profitably raise prices above competitive rates.” Hahn & Singer, supra note 147, at 2. See also Hahn & Singer, supra note 147, at 7 (“Based on the evidence presented in Parts III and IV, we conclude that the relevant product market to analyze the competitive effects of Google’s acquisition of DoubleClick is online advertiser tools, consisting of tools used to support both search-based and publisher-based advertisements. The implication of this result is that providers of search and contextual-based advertising compete with providers of graphic-based advertising. Stated differently, search contextual-based advertising likely constrains the price of graphic advertising.”).

213 Although the FTC did not undertake the same sort of market analysis as would be required by an antitrust suit, the process by which they investigated the evidence was very similar and, though they did not express their findings in terms of separate markets—expressing their findings in terms of product substitution—their statement indicates that they believe Google’s advertising model operates entirely independently of DoubleClick’s, and that the two companies exist in two different markets. “The evidence shows that ad intermediation is not a substitute for publishers and advertisers who place display ads into directly acquired ad inventory or vice versa.” Google/DoubleClick, supra note 3, at 4.

214 Id. at 2–3. (“Although such issues may present important policy questions for the Nation, the sole purpose of federal antitrust review of mergers and acquisitions is to identify and remedy transactions that harm competition. Not only does the Commission lack legal authority to require conditions to this merger that do not relate to antitrust, regulating the privacy requirements of just one company could itself pose a serious detriment to competition in this vast and rapidly evolving industry. That said, we investigated the possibility that this transaction could adversely affect non-price attributes of competition, such as consumer privacy. We have concluded that the evidence does not support a conclusion that it would do so. We have therefore concluded that privacy considerations, as such, do not provide a basis to challenge this transaction.”).
First, the multi-sided network effects of each entity\textsuperscript{215} mean that Google does not just gain a new product or a new technology but also gains an entrenched network of users on both sides of the product market. The positive feedback effects\textsuperscript{216} that operate to increase the number of users on both sides of the market may be magnified if the merger creates value to either set of users. Google's acquisition of DoubleClick provides Google with a new set of advertisers, bringing in additional advertising revenue, which Google can then use to attract more consumers. Likewise, the addition of DoubleClick gives Google access to a new set of display-advertising consumers, which increases the value of the Google-DoubleClick advertising products, thus driving more advertisers to Google.\textsuperscript{217}

\begin{footnote}{\textsuperscript{215}} Though this paper has not discussed multi-sided network effects in the display advertising industry, the similarity of that industry to the search advertising industry—in which advertisers seek users, and users seek websites that provide them with the most free content (content funded by advertising)—means that the analysis can be similarly applied to display advertising. The network effects in the display advertising industry will be much stronger on advertisers than on users, even stronger than in the search advertising industry, because of the slightly different structure of display advertising networks. Display advertising is a multi-sided market, however, subject to the same positive feedback loop as the search advertising industry.

Briefly, display advertisers have freedom to choose which websites will display their banner ads. The websites with the best clickthrough rates, and conversion rates, will be selected more often. \textit{See DoubleClick.com, Products—DART for Advertisers, http://www.doubleclick.com/products/dfa/index.aspx} (last visited Oct. 26, 2008) (describing banner advertising management tools that allow advertisers to select their audiences as well as adjust their campaigns "to serve only the best-performing creatives" including by clickthrough rates).

However, DoubleClick, as an advertising management system for banner ads, is not itself the advertising platform for those ads, as Google is for search ads. DoubleClick's multi-sided network is therefore one step removed from users and must therefore rely on website publishers to attract users to the network.

\begin{footnote}{\textsuperscript{216}} \textit{See supra} notes 101–108 and accompanying text.

\begin{footnote}{\textsuperscript{217}} Note that this is almost entirely the result of the multi-sided network effects in the search advertising industry. The network effects create an upward spiral—as long as Google can continue to attract users, it can continue to attract advertisers. The network effect on advertisers is stronger and brings more value than the network effects on users, who may see increased value from more advertising but don't bring as much value to Google other than by sheer numbers. Therefore, Google will act to bring in more users—and its acquisition}
Second, the merger of two entities with high market share in complementary innovative products increases the likelihood that the merged entity will be able to control the direction of further innovation in both product markets, including the convergence of the two products. Google has begun implementing such convergences now that the acquisition of DoubleClick has closed.\(^{218}\) For instance, Google will allow third-party metrics companies' access to AdWords, which it previously did not do, to of DoubleClick does just that. Google now has access to users not only of its search engine but also of every website served by DoubleClick's banner ads. This will bring in more advertisers, and therefore more users, and the path dependencies and lock-in will ensure those advertisers stay with Google.

Before the acquisition closed, Alex Kinnier, Group Project Manager, enumerated four reasons Google acquired DoubleClick:

1. DoubleClick's products and technology are complementary to our search and content-based text advertising business, and give us new opportunities to improve online advertising for consumers, advertisers and publishers.
2. Historically, we've not allowed third parties to serve into Google's AdSense network, which has made it hard for advertisers to get performance metrics. Together, Google and DoubleClick can deliver a more open platform for advertisers, and provide the metrics they need to manage marketing campaigns.
3. By combining Google's infrastructure with DoubleClick's knowledge of agencies and publishers, we can create the next generation of more innovative ad serving technology, one that significantly improves the efficiency and effectiveness of online advertising.
4. To manage ad inventory, some of the largest publishers use DoubleClick DART for Publishers—but a good portion of it goes unsold. It's our view that the combination of DoubleClick and Google will help these publishers succeed by monetizing their unsold inventory.

Why We're Buying DoubleClick, posting of Alex Kinnier, Group Project Manager, to The Official Google Blog, http://googleblog.blogspot.com/2007/06/why-were-buying-doubleclick.html (June 26, 2007). In the months following the deal's close, Google began working towards this integration of the two platforms, and noted on August 7, 2008, that it had implemented a DoubleClick cookie across the Google content platform. New Enhancements on the Google Content Network, posting of Rajas Moonka, Senior Business Product Manager, to The Official Google Blog, http://googleblog.blogspot.com/2008/08/new-enhancements-on-google-content.html (Aug. 7, 2008).
"deliver a more open platform for advertisers" and Google plans to combine its "infrastructure with DoubleClick’s knowledge of agencies and publishers" to "create the next generation of more innovative ad serving technology."

Antitrust agencies must respond to the competition problems in the search advertising—and, likely, most multi-sided innovative markets—by turning away from a "reliance on defining bright-line . . . market boundaries" and recognizing the anticompetitive potential of mergers between such firms. Given the information at hand, it is at least reasonable to presume that a Google/DoubleClick merger will not only dominate a market but may also act to squash innovations that might have rendered the two products substitutes for each other or might have displaced both products.

As Professors Katz and Shelanski have noted:

[A] merger may have substantial effects on competition even if the post-merger product-market share is permissible within the enforcement guidelines. If the merger brings together two imminent technologies that otherwise would have competed, then consumers lose out on rivalry that otherwise would have come to exist absent the merger.

Merger policy should account for the potential reduction in consumer welfare when a merger between multi-sided innovative firms involves both acquisition of a network which feeds the positive feedback loop and thus "create[s] market share" and control of innovation in complementary markets such that the merged entity controls the direction of innovation including the convergence into a single product market.

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219 Why We’re Buying DoubleClick, supra note 218.
220 Id.
221 Katz & Shelanski, supra note 153, at 6.
222 See id. at 12 ("[T]hrough its effects on innovation a merger can generate considerable efficiency and consumer-welfare effects even apart from any direct effects on short-run product-market competition.")
223 Id. at 15 n.33.
224 Professors Katz and Shelanski made very specific recommendations in this vein in a recent article, Mergers and Innovation. They address many of the
The FTC has the authority to protect consumer welfare in the search advertising industry. It is locked into an outdated view of markets, however, that suggests the antitrust problems in the industry are not actionable. Adoption of merger guidelines that adequately account for the multi-sided innovative nature of the industry is both the most logical solution as well as the easiest to implement.

VI. CONCLUSION

The search advertising industry faces serious competition problems. Google, the market leader, has leveraged the multi-sided network effects inherent in this two-sided market to entrench itself at the top of the heap. While dominance alone is insufficient to indicate a competition problem, Google has entrenched itself further by acquiring a long list of companies, both small and large, that provide both advertising services and ancillary products. This series of acquisitions has both enhanced the network effects that keep Google dominant and allowed Google to control the direction of innovation in the market. These acquisitions reduce the overall amount of competition in the market, driving users and advertisers alike increasingly toward Google.

Antitrust enforcement has failed to check this meteoric rise. Merger enforcement is too shortsighted and regulatory agencies view markets in too narrow a way to prevent Google’s continued rise and dominance. Agencies must account for the economic realities of multi-sided innovative markets in order to provide a check to anticompetitive behaviors in such markets without inhibiting the social benefits that may accrue out of them.

concerns I have highlighted regarding the inability of current merger policy to adequately account for innovation. See generally id.