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Google Inc.

Google's mission is to organize the world's information and make it universally accessible and useful.

—Google's mission statement

In January 2010, Google launched the Nexus One mobile device—an elegant touch-screen phone that added comprehensive voice recognition to reduce dependence on keyboard-style text entry. Since the fall of 2008, Google's Android operating system had powered various mobile phones. But Google had extended its role with Nexus One: Google designed the phone and planned to sell it directly to consumers. Was there any limit to Google's aspirations?

Google, based in Mountain View, California, had gross revenues of $21.2 billion and an operating income of $5.5 billion in 2008. As of year-end 2008, the company had 20,164 employees and cash and equivalents of $8.7 billion. (**Exhibit 1** shows Google financials from 1999–2008.) Founded in 1999, the company completed its IPO in August 2004 at $85 per share. Google's share price exceeded $600 in January 2010, giving the company a $189 billion market value. Meanwhile, Google.com enjoyed a 65.6% share of all U.S. searches in November 2009; Yahoo.com, its closest rival, had just 17.5%.[1] (**Exhibit 2** outlines trends in search engine market share.) Outside the United States, Google's lead was even larger, exceeding a 90% share of search queries in numerous countries. (**Exhibit 3** reports market share by country.)

Since its IPO, Google had launched a flurry of products that expanded its domain beyond web search. These included Gmail, Google Maps, Google Books, Google Finance, Google Docs, Google Calendar, Google Checkout, and more. Acquisitions of YouTube and DoubleClick had expanded Google's presence in online video and display advertising. These initiatives fueled speculation about Google's strategic objectives. Products like Gmail and Finance, along with personalization features offered on Google's home page, moved the company toward portals like Yahoo! and Microsoft's MSN. Book Search, Maps, and Checkout suggested that Google was entering the traditional strongholds of e-commerce giants like eBay and Amazon. Finally, Google's ad-supported software, including e-mail, calendaring, and document-management systems, threatened Microsoft's Office and Windows offerings. These many services and diverse competitors raised the question: What should Google do next?

Professor Thomas R. Eisenmann and Smita Bakshi, Sebastien Briens, and Shailendra Singh (MBA 2004) wrote the original version of this case, "Google Inc." 804-141. It was replaced by "Google Inc." 806-105, prepared by Professor Thomas R. Eisenmann and Senior Researcher Kerry Herman, Global Research Group, which is now being replaced by this version prepared by Professors Benjamin Edelman and Thomas R. Eisenmann. This case was developed from published sources. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

Company History

The need for search services grew with the expansion of the World Wide Web. One of the earliest search services, Yahoo!, selected and organized sites into categories by human editors. As the web grew, directory classification became infeasible. AltaVista invented technology that automated search, relying on software "crawlers" that created a searchable index of page contents, along with algorithms that ranked page relevance based on keyword frequency. Yahoo! added AltaVista's algorithmic search engine, but in 1998 Yahoo! replaced AltaVista with Inktomi, which used parallel-processing to offer faster processing and a larger index.

As website developers exploited search algorithms by repeating keywords on their pages, searches increasingly returned irrelevant listings—"spam"—that frustrated users. In 1998, Sergey Brin and Larry Page tackled this problem as graduate students at Stanford. Their PageRank algorithm favored pages that were referenced ("linked to") by other pages. These links signaled that another page's designer thought the focal page deserved attention. The focal page's importance was determined by counting its inbound links, weighting links more heavily when they were cast by pages that Google had previously deemed to be important.

In June 1999, Brin and Page announced first-round funding for their start-up, Google, from elite venture capital firms Sequoia and Kleiner Perkins. A year later, Google's index of one billion web pages surpassed all rivals, and Google replaced Inktomi as Yahoo!'s search engine. At the time, Google was focused solely on algorithmic search; through December 1999, Google's revenues came solely from licensing its search technology to Yahoo! and other sites. Meanwhile, Google.com initially carried no advertising and—eschewing the comprehensiveness of some portals—offered only search results, without content or communication tools. In contrast, many portals offered numerous add-ons to encourage users to linger, yielding more page views and greater advertising revenue.

The Rise of Paid Listings

In the meantime, a robust new model emerged to monetize search: paid listings. Pioneered by Overture (which Yahoo! acquired in 2003), paid listings were concise text ads labeled as "Sponsored Links" that appeared either adjacent to or interspersed with search results. Advertisers bid for keywords, and bids determined the top-to-bottom ordering of ads on search-results pages. Paid listings were typically sold on a "per-click" basis: An advertiser paid only when a user actually clicked on the advertiser's listing.

Overture's success built on several factors. First, from the perspective of marketers, search engine leads were often more effective than banner ads on other websites because search engine users were often researching products and services they planned to purchase soon. Analysts estimated that 70% of e-commerce transactions originated through web search, and 40% of web searches had a commercial motivation.[2]

Second, ordering paid listings according to "cost-per-click" (CPC) auctions yielded substantial revenues to Overture, while meeting many users' needs. For an advertiser, a high position on a search-results page would yield greater visibility, more clicks, and more sales. As a result, advertisers often competed vigorously for top positions, spurring high payments to Overture. Importantly, advertisers paid for each click whether or not a user ultimately made a purchase. So the auction structure encouraged advertisers to focus their bidding on keywords that were closely related to their products so their ads would be relevant to users' requests.

Overture supplied ads to the three largest portals (Yahoo!, MSN, and AOL), which drew thousands of advertisers to Overture's offering. On every resulting click, Overture paid a "revenue share" commission to the partner, keeping the rest for itself.

Paid Listings at Google

In December 1999, Google introduced its first paid listings, which it sold on a cost-per-impression basis. (That is, Google charged an advertiser a fixed amount each time a user viewed an ad, whether or not the user clicked the ad.) In February 2002, Google adopted a variant of Overture's cost-per-click model: Google weighted CPC bids by the ratio of an ad's *actual* click-through rate (CTR) to its *expected* CTR (based on Google's predictions). This weighting helped ensure that relevant ads received the most prominent positions; an ad with a low CTR would suffer a lower effective bid and would be shown less prominently, if at all. The method also maximized Google's revenue, because an ad with a high CPC bid but a low CTR offered low revenue.

Google soon emerged as a serious threat to Overture. By mid-2001, despite spending nothing on marketing, Google.com was the ninth-largest U.S. website, with 24.5 million unique monthly visitors.[3] In May 2002, AOL announced it would switch to Google for both algorithmic search results and paid listings. Google's market share surpassed Yahoo!'s in 2004, then continued to increase, reaching 58.4% by 2007 and 65.6% by 2009, while Yahoo!'s share decreased to 17.5%. (**Exhibit 2** illustrates changes in search engine market share over time.)

In March 2003, Google expanded beyond search advertising by launching "contextual" paid listings, a product that Google named AdSense. Contextual listings presented advertisements on web pages that featured primarily editorial content (e.g., news or blog postings) rather than pages that showed search results. For example, an iVillage.com page about allergies displayed a sponsored link offering a hypnosis program—"safe, fast, and guaranteed"—to end allergy symptoms. Google and other companies with web search technology had advantages in selling such advertising: They could use their index of web page content to map keywords to appropriate editorial pages, and they could sell contextual advertising placements to customers who primarily sought search ads.

Google also developed new services that showed still more search advertisements. For example, in late 2002, Google launched Froogle, a product search service that identified merchants for specific products, along with their prices. Froogle was monetized through paid listings adjacent to search results; merchants did not pay to have their products appear in Froogle's search results, nor did they pay referral fees when users clicked through Froogle's results to the merchant's website. In February 2005, Google launched Google Maps, which offered faster scrolling and browsing than competitors at the time. Maps launched without ads, but Google soon added paid listings related to the areas that users browsed.

In competing to buy placements on partner sites, Google prevailed in a series of key deals. Best known was a 2005 bidding war with Microsoft for the right to show Google's ads on AOL search results. Google's offer included buying a 5% stake in AOL (for $1 billion) and providing AOL with $300 million of credit toward AOL's purchase of ads at Google.[4]

Factors Affecting Paid Listings Revenues

A paid-listing provider's revenue depended on four factors: its coverage rate, click-through rate, average cost per click, and revenue split.

- *Coverage rates*—which referred to the share of queries for which at least one paid listing was sold—were jointly determined by the type of user searches (commercial versus non-commercial terms) and by the size of the paid-listing provider's advertiser base.

- *Click-through rates* tended to increase over time as advertisers improved their keyword targeting techniques.

- *Average CPC* increased with the size of the paid-listing provider's advertiser base; additional bidders drove up keyword prices. In late 2003, Overture's average CPC was estimated to be $0.40, whereas Google's average was $0.30.[5]

- Finally, *revenue splits*—the percentage of ad revenue that listing providers paid to network affiliates—were determined by the parties' relative bargaining strengths and by the intensity of the rivalry among listing providers. For a hard-fought deal such as AOL, the partner might get as much as 90% of revenue, though estimates suggested that ordinary partners received a 60%–70% revenue share.[6]

Improving Search and Advertising

In the early era of searches, at least half of users' requests failed to deliver useful results.[7] To improve performance, Google's engineers constantly fine-tuned search algorithms. For example, in January 2004, Google launched Personalized Search, which ordered results by analyzing a user's prior searches and clicks. Personalized Search also included Search History, which showed an archive of a user's past searches with links to results they had accessed. Other initiatives included local search and vertical search.

In addition, Google expanded efforts to attract more advertisers, especially local advertisers. With more than a dozen U.S. sales offices and 30 international offices, Google sought to reach the 10 million small and medium-sized businesses in the U.S. and beyond. Although most of these businesses focused on local sales, Google's geographic targeting systems could focus their ads on the right regions. The opportunity was large: U.S. small businesses spent $22 billion on local advertising, including $10 billion on printed Yellow Pages listings.

Google improved its advertiser features by offering advertisers free software to optimize paid-listing campaigns. For example, with Google Analytics, advertisers could track which advertising keywords were most likely to yield sales—and then increase their spending on those keywords and reduce others. These and other refinements helped Google earn significantly more than competitors. By late 2005, Google and its partners earned 60% of U.S. paid-listing revenue from 52% of U.S. search queries, which meant that Google earned 38% more revenue per search than Yahoo! As of December 2005, Google searches yielded paid-listing click-throughs twice as often as Yahoo! searches did (21% versus 11%).[8]

Observers cited two reasons for Google's superior performance: First, Google improved on Overture's policy of ranking paid listings solely according to CPC bids; Google also considered listing relevance. Second, by late 2005, Google's paid-listings network had attracted two to three times as many advertisers as Overture's.[9] Advertisers were drawn to Google because its network offered more search traffic and allowed lower minimum CPC bids (1¢ versus Overture's 5¢).

In 2007, Google's $3.1 billion acquisition of DoubleClick positioned Google for increasing strength in placing display ("banner") advertisements, which were DoubleClick's focus. Google expanded

AdSense to show display advertisements as well as text ads. In September 2009, Google announced plans to build an Ad Exchange to expand Google's its role in placing display ads.[10]

Google's Organization

As Google grew, Brin and Page, with guidance from their venture capitalists, sought a seasoned senior executive to help lead the company. In March 2001, Eric Schmidt, formerly chief technology officer of Sun Microsystems and CEO of Novell, joined Google as CEO. Brin and Page took the titles of president of technology and president of products, respectively.

Despite continued success, Google's management resisted a public offering.[11] However, pressure mounted to provide liquidity for investors and to reward employees holding options and, in April 2004, the company announced plans for an IPO. The IPO prospectus included an unusual letter from Page. He wrote: "Google is not a conventional company. We do not intend to become one."[12] The letter explained several distinctive aspects of Google's organization, including its governance structure and corporate values. (See **Exhibit 4** for excerpts from Google's statement of philosophy.)

Governance

Google's IPO prospectus announced dual-class equity, giving 10 votes per share to holders of Class B stock versus one vote per Class A share. Assuming that Brin, Page, and Schmidt retained their Class B shares while VCs and other Class B shareholders (e.g., other Google managers with stock options) eventually sold theirs, Google's top management trio would own roughly one-third of the shares but control over 80% of the votes.[13] This immunized Brin, Page, and Schmidt from replacement by investors second-guessing the company's strategy.

Some observers argued that the dual-class equity structure would encourage strategic risk-taking, but others were concerned that it would dilute their influence over the company's direction.[14] Page defended dual-class stock in his IPO letter:

> We are creating a corporate structure that is designed for stability over long time horizons. By investing in Google, you are placing an unusual long-term bet on the team, especially Sergey and me, and on our innovative approach. We want Google to become an important and significant institution. That takes time, stability and independence. We bridge the media and technology industries, both of which have experienced considerable consolidation and attempted hostile takeovers.
>
> While this structure is unusual for technology companies, it is common in the media business and has had a profound importance there [letting] these companies . . . concentrate on their core, long-term interest in serious news coverage, despite fluctuations in quarterly results.[15]

Corporate Values

Early in Google's history, Page and Brin instilled strong and distinctive corporate values. **Exhibit 4** presents excerpts from Google's statement of philosophy, including (1) don't be evil; (2) technology matters; and (3) we make our own rules. The co-founders also stamped Google with a unique personality. John Battelle, author of a book about Google's approach, explained: "The company's founders are . . . strikingly similar to the persona that Google projected during [its] early years—aloof, supersmart, dismissive of unsolicited advice. They are . . . first and foremost engineers.

And engineers are not the best communicators, nor do they make the best diplomats or business development executives."[16]

Don't be evil. A central tenet of "don't be evil" was Google's refusal to compromise the integrity of search results. Its statement of philosophy clarified: "We never manipulate rankings to put our [advertising or content] partners higher in our search results. No one can buy [a] better PageRank. Our users trust Google's objectivity and no short-term gain could ever justify breaching that trust."

Brin acknowledged that it could be difficult to translate ethical standards into decisions about paid listings: "For example, we don't accept ads for hard liquor, but we accept ads for wine. It's just a personal preference. We don't allow gun ads, and the gun lobby got upset about that. We don't try to put our sense of ethics into the search results, but we do when it comes to advertising."[17]

Schmidt commented on how "don't be evil" became relevant in company debates about policy:

> When I showed up, I said, "You've got to be kidding." Then one day, very early on, I was in a meeting where an engineer said, "That would be evil." . . . The whole conversation stopped, but then people challenged his assumptions. This had to do with how we would link our advertising system into search. We ultimately decided not to do what was proposed, because it *was* evil. That kind of conversation is repeated every hour now with thousands of people.[18]

Technology matters. Google invested heavily in the infrastructure that supported lightning-fast returns on search queries. Google's custom-designed, low-cost, Linux-based server architecture was modular and scaled readily. By late 2007, analysts estimated that Google ran roughly one million servers,[19] using custom hardware installed directly in shipping containers to reduce costs.

We make our own rules. Google's founders had a penchant for unconventional management practices. Their "Owner's Manual" highlighted several examples, including their refusal to provide earnings guidance to Wall Street analysts or to "smooth" earnings to create the appearance of steady growth. Likewise, Google auctioned IPO shares rather than allocating shares at the discretion of underwriters.

Google's management was secretive with outsiders. Page justified the company's stance in his letter: "As a public company, we will of course provide you with all information required by law, and we will also do our best to explain our actions. But we will not unnecessarily disclose all of our strengths, strategies and intentions."[20]

Managing Innovation

In addition to its distinctive governance structure and corporate values, Google adopted unconventional approaches for managing innovation. (See **Exhibit 5** for Google's rules for management.) For example:

- Engineers were encouraged to spend 20% of their time working on projects of their own choosing. This flexibility had spawned many initiatives, including Google News and Orkut, a social networking site.

- To encourage rapid execution, Google engineers typically worked in teams of three to five people. Schmidt noted: "We try to keep it small. You just don't get productivity out of large groups. . . . We try to have as little middle management as possible."[21] The result was a

flexible organization with small teams pursuing hundreds of projects, an approach that "let a thousand flowers bloom."[22]

- With so many projects underway, setting priorities was a challenge. Management used a 70/20/10 rule for allocating engineering efforts, including the discretionary time granted to technical staff. Seventy percent of engineering time was spent on the core business—that is, web search and paid listings. Twenty percent was spent on projects that extended the core, such as Gmail. And ten percent was spent on fundamentally new businesses.[23]

- Google remained willing to invest in promising long shots. In the "Owner's Manual," Page wrote: "We will not shy away from high-risk, high-reward projects because of short-term earnings pressure. . . . For example, we would fund projects that have a 10% chance of earning a billion dollars over the long term. Do not be surprised if we place smaller bets in areas that seem very speculative or even strange."[24]

Pressure on the Core Business

As Google grew, it faced a series of complaints from advertisers, users, and others, as described below.

Advertisers Google advertisers sometimes complained of charges they viewed as improper. Advertisers worried they faced charges for clicks that either didn't occur at all or lacked appropriate user interest. One company could click a competitor's ads, seeking to deplete the latter's budget. Or a hacker could hijack third-party PCs ("zombies") and cause them to repeatedly click ads on the hacker's site, yielding payment to the hacker as a supposed distributor of Google ad placements. Estimates of click fraud varied widely; one source suggested that between 10% and 50% of all paid-listing click-throughs were fraudulent.[25] Advertisers also complained that their ads were appearing on sites they did not approve, such as typosquatting or domain parking sites that were mere placeholders, not the "high quality" placements that Google had promised.

Some companies challenged Google's sale of advertising triggered by searches for trademarks. For example, in 2004, insurance company Geico sued Google for showing competitors' ads when users searched for "Geico." Google claimed that this practice was a permissible "fair use" of the Geico trademark and, in any event, Google said its on-screen labels prevent consumer confusion. Google and Geico ultimately settled the dispute, although similar cases were brought by other trademark holders, including American Airlines. As of the writing of this case, disputes in the U.S. had yielded mixed rulings on Google's liability and were typically followed by confidential settlements. However, French courts typically ruled in favor of trademark holders, and similar litigation had also occurred in Austria, Brazil, China, Germany, Israel, and Italy.

News publishers Online news publishers repeatedly complained that Google used their content impermissibly, particularly on Google News. Google News indexed articles from numerous sites, then referred users to specific articles of interest. Some news publishers sought payment for this use of their articles. In response, Google argued that it offered publishers access to users without charge—suggesting that publishers should be grateful for free links from Google. Google also noted its willingness to remove links to any publisher that declined to participate.

Users Google collected users' full search histories, including all details of user searches and, in many instances, the search results that users clicked. This search and browsing history was sensitive—potentially revealing all manner of user interests. Speaking for Google, CEO Schmidt addressed privacy in an interview with CNBC: "If you have something that you don't want anyone to

know, maybe you shouldn't be doing it in the first place. But if you really need that kind of privacy, the reality is that search engines, including Google, do retain this information for some time. And … we're all subject, in the U.S., to the Patriot Act, and it is possible that that information could be made available to the authorities."[26] Google stated that it retained full search logs for 18 months and took steps to anonymize logs after that.

Some Google advertisements linked to sites that attempted to defraud users—for example, promising "free" ringtones that actually carried a charge. In 2008 litigation, a victim of such overcharges attempted to hold Google responsible for her losses, but Google successfully defended the case—arguing that it was not responsible for ads that came from independent advertisers—and continued running the ads.[27]

New Businesses

Google's subsequent expansions took the company well beyond web search into content hosting, communications applications, productivity applications, and more.

Hosting: Video and Books

Google's hosting efforts began with its $1.65 billion acquisition of YouTube in 2006. Whereas Google's principal search business indexed materials that resided on other companies' sites, its YouTube acquisition placed Google in the role of *content host*—storing materials on Google-owned servers. Hosting presented new legal questions, as evidenced by a series of lawsuits alleging that Google infringed copyrights based on unauthorized videos posted to Google servers. Yet YouTube continued to grow in popularity, reaching 5.9 billion video views in December 2008 alone, singlehandedly serving 41% of all online video.[28] Industry analysis credited Google's decision to withhold advertisements from most YouTube videos pending confirmation of Google's right to show that material, suggesting that this approach shielded Google from copyright liability.[29] But Credit Suisse estimated that YouTube was losing $470 million in 2009 alone—the result of high bandwidth costs plus low advertising revenues.[30]

Google also began hosting and searching digital versions of thousands of books. By 2010, Google Books presented more than one million books that users could search and, in some instances, browse or even download. Some books arrived through the Google Books Partner Program: Publishers and authors authorized Google to present their books—anticipating greater visibility and, ultimately, greater sales. Google obtained other books through its Library Project, which placed automatic book scanners in partner libraries. Google argued that its scanning was fair use, not copyright infringement, both because it would make books easier to find and buy, and because Google showed only brief excerpts of in-copyright books (not full pages). But dissatisfied authors claimed that scanning in-copyright books was copyright infringement, and class-action litigation ensued. In October 2008, Google announced a proposed settlement, creating a book-rights registry to distribute at least $45 million to copyright holders whose works were scanned without permission. The settlement attracted opposition from those who worried it would unduly increase Google's power. For example, the settlement would let Google scan and distribute in-copyright books even if authors or publishers could not be located (so-called "orphan works"), whereas would-be competitors would continue to face copyright liability if they scanned such books without permission. (To date, competitors focused on out-of-copyright books and books with explicit publisher or author permission.) As of January 2010, the Google Books settlement had not achieved final approval. Book-scanning litigation continued in other countries, including a French ruling against Google in December 2009.

Communications Applications

Google's Gmail was launched in 2004 and boasted more than 1GB of storage space, while competing free e-mail providers Yahoo! Mail and Hotmail offered just 2MB to 4MB (less than 1/200 as much) at the time. Gmail also offered advances in user-interface design, using an approach called Asynchronous JavaScript and XML (AJAX) to receive user instructions and show new content without the web browser stopping to load new pages from a server. Competitors largely matched Google's capacity and design, but Gmail's reputation for leadership prevailed.

However, Gmail faced criticism for its advertising. Gmail systems chose advertisements based on the words of users' e-mails—raising questions of privacy. Google's Brin said that privacy concerns were a surprise; he explained, "It's automated. No one is looking."[31] Meanwhile, Gmail's ads contravened the expectations of some e-mail senders and advertisers. If one company sent a user an e-mail (perhaps an order confirmation or occasional newsletter), Gmail might complement that e-mail with an ad for a direct competitor.

Google also expanded into real-time and voice communications. Google's Gchat offered instant messaging within the Gmail interface. Google Voice grafted web management onto the traditional phone system, including transcriptions of voicemails into e-mails or text messages, easy conference calls, and a single number that rang all of a user's phones. Google's most aggressive voice-communications initiative was its 2008 Android platform, a free open-source mobile-phone operating system that featured easy access to Google's web applications. By January 2010, Android ran on 20 models of phone distributed by 59 carriers in 48 countries.[32] Google's 2010 launch of the Nexus One mobile device brought Google into a new role—not just designing mobile phone software, but also specifying and adjusting the phone's hardware and even selling the phone directly to consumers.

Productivity Applications

Google's enormous server base supported "cloud" applications, which were either standalone software clients or browser-based programs that obtained both program code and data over the Internet.[33] Cloud-based applications allowed easy upgrades: A service provider could deliver fresh data, features, or advertising without users pausing to install an upgrade. Cloud applications also easily supported a user's many computers: A cloud application was typically just as usable at home, at work, or on a public or shared computer, without users needing to copy files back and forth. Yet cloud applications brought new challenges. For one, they required fast and reliable Internet connections, because most cloud applications were usable only while a user was connected to the Internet. Cloud applications also made privacy issues more salient: Users' data resided on remote servers where it could be analyzed or even redistributed by an unscrupulous service provider.

Many users were already familiar with cloud applications from web-based e-mail (Gmail and others), but Google used the cloud to offer all manner of other applications. For one, the features on Google's Reader and Personalized Home Page directed users to their personal favorite sites, with user-designated "really simple syndication" (RSS) feeds bringing in headlines from news sites and blogs. Google Photos stored user images on Google servers, making it particularly easy to share photos with friends or the general public. Google Calendar hosted users' schedule obligations with rich support for collaboration, invitations, and RSVPs.

Google's cloud-based productivity applications competed with the Microsoft Windows platform. For example, a user hosting photos on Google Photos would have less need for a Windows PC with a robust photo-album tool. With key applications running in the cloud and accessed through a web

browser, users could forego the wide choice of applications that ran on Windows, instead finding it satisfactory to run an alternative operating system with far fewer applications.

Through 2009, Google's cloud applications served primarily communications and ancillary productivity functions such as calendaring and photo-sharing. But Google Docs threatened to take share from Microsoft's Office mainstay products. In particular, Google Docs provided web-based documents, spreadsheets, and presentations, directly competing with Microsoft Word, Excel, and PowerPoint. Google Docs omitted many of Microsoft's advanced features, but some users felt Docs could satisfy their requirements. Running in the cloud, Docs also streamlined collaboration: Multiple editors could revise a Docs file at the same time, whereas an Office file could ordinarily be edited by only one person at a time. Furthermore, Google Docs files could be referenced by hyperlink, whereas Microsoft Office materials typically needed e-mail attachments, which risked confusion as to which version was most recent. In a widely-watched competitive procurement, Google Docs obtained a contract to serve 34,000 employees of the City of Los Angeles, to the exclusion of Microsoft and others.

Other New Systems

In September 2008, Google launched the first beta of its Chrome web browser, which by January 2010 had grown to nearly 5% of users, achieving third place among web browsers (after Windows Internet Explorer and Mozilla Firefox).[34] Chrome's "omni bar" let users request a website by address (e.g., nytimes.com) or by name ("New York Times"). If Google's systems found the name unambiguous, Chrome would take users directly to the desired site; otherwise, the user would receive Google listings.

In July 2009, Google announced plans for its own operating system, Google Chrome OS, slated to feature "speed, simplicity, and security . . . to get you onto the web in a few seconds."[35] Expected to run exclusively on low-cost "netbook" computers, Chrome OS was expected to support only cloud-based applications, not programs installed on users' computers. As of January 2010, no beta or other public version was available.

Google Checkout allowed users to pay participating merchants. Google brokered the transaction, claiming to protect users from rogue merchants. For example, merchants received Checkout payments without learning a user's credit card number—preventing future unauthorized charges. And Google offered users the option to withhold their e-mail addresses from merchants—preventing unwanted further e-mails.

Public Policy and Competition

In 2008 Google opened a Washington office with the intention of keeping watch over public policy questions of concern to Google. The office head explained: "Washington and its policy debates are important. We can't ignore them."[36]

Google favored communication policies that assured users could access Google services. In particular, Google endorsed network neutrality rules that would prevent ISPs from levying surcharges on certain content providers (e.g., charging a company to make its site load more quickly).[37] Further, in 2007 filings with the Federal Communications Commission (FCC), Google urged that consumers be permitted to use the newly-available wireless spectrum with whatever devices, services, and applications they chose—in sharp contrast to the limited flexibility possible with most mobile-phone carriers.[38]

Google's market share continued to grow; in 2009, its share exceeded 90% of search queries in France, Germany, Spain, Switzerland, and the U.K.,[39] and passed 65% in the U.S.[40] But Google argued that "competition is one click away," noting that consumers could switch to other search engines if they so chose.[41] Critics disagreed. For example, pundit Scott Cleland pointed out that Google's advertising customers could not leave Google, for lack of an equivalent way to reach users on search engines.[42] Consumer Watchdog, a California consumer advocacy organization, obtained Google's competition remarks to various regulators and annotated Google's slides with dozens of pages of stinging critique.[43]

2008 brought a new focus on Google's competitive position. After Microsoft's unsuccessful $44.6 billion bid to acquire Yahoo! in February 2008, Google sought to place its advertisements with Yahoo!'s search results. The U.S. Department of Justice informed Google and Yahoo! that it would file an antitrust lawsuit to block such placements, and the parties abandoned the transaction.[44] But concerns remained. For example, Christine Varney, assistant attorney general for antitrust at the Department of Justice, had repeatedly remarked about Google's "monopoly in Internet online advertising" and its "gathering market power."[45]

Selected Competitors

Yahoo!

As a leading Internet portal with 2008 revenues of $5.2 billion and operating income of $1.2 billion,[46] Yahoo! competed head-to-head with Google in search and paid listings. Yahoo! also offered products that were direct rivals to Google's Local Search, Home Page, Froogle, Gmail, Maps, and Picasa applications.

Yahoo!'s management had recognized the competitive threat from Google and the growth potential for paid listings, in part because Yahoo! was an early investor in Google and had a privileged view of the start-up's success. In response, Yahoo! resolved to end its dependence on third parties for algorithmic search and paid listings. Yahoo! acquired Inktomi and Overture in 2003, for $235 million and $1.6 billion, respectively.

By early 2006, Yahoo! seemed locked in an arms race with Google, with each firm's new product announcement soon matched by an even better version from its rival. Yahoo!'s key advantage was its broad reach: As a full-fledged portal, Yahoo! offered easy access to a broad range of third-party content and related services, organized into "channels" such as Autos, Finance, Games, Health, Kids, Movies, Music, Shopping, Sports, and Travel. Yahoo! also owned HotJobs, the third-largest online recruitment site. Further, Yahoo! built the web's second-largest dating site, hosted over 100,000 stores in its Shopping service, and supplied free websites to millions of community and special-interest groups and mailing lists. But these many areas diverted attention from Yahoo!'s sponsored-link business, where a key upgrade to core infrastructure (necessary to improve pricing, geographic targeting, and overall robustness)[a] was repeatedly delayed. Meanwhile, Yahoo's share of search queries continued to decrease each year.

During 2008–2009, Yahoo! appeared particularly unstable. Its rejection of the Microsoft bid in February 2008 sparked a collapse of Yahoo!'s stock price and ultimately the replacement of then-CEO Jerry Yang. These events drained morale at Yahoo!, leading to the departure of scores of senior staff. A single day in June 2008 brought the resignations of three Yahoo! vice presidents.[47]

[a] The upgrade was called "Panama."

Microsoft

Microsoft's search offering was repeatedly renamed—from MSN to Live Search to Bing. Bing was launched in May 2009 to favorable reviews, which praised, in particular, its integrated presentation of detailed data such as airfares and restaurant reviews. Calling itself a "decision engine," Bing offered shortcuts to help users refine their searches as well as "hover" previews to let users see a portion of a page before loading it in full. Bing also offered a cash-back feature that paid users refunds as large as 20% if they browsed Bing, clicked an advertiser's link, and made a purchase. Microsoft promoted Bing in an $80 million advertising campaign that included banner, television, and radio ads.

Advertisers bought placements on Bing through Microsoft's AdCenter. Beyond standard keyword targeting, AdCenter added demographic targeting, which let advertisers increase their bids for users who matched desired demographic profiles.

Microsoft also continued to operate sites that were branded as MSN sites, featuring portal-style news, entertainment, weather, and more.

Microsoft's unsuccessful 2008 bid to acquire Yahoo! triggered Google's unsuccessful attempt to place Google ads on Yahoo! result pages. After regulatory opposition to that deal, Microsoft and Yahoo! began an extended negotiation that culminated in a July 2009 announcement of a partnership that would place Microsoft ads on Yahoo!'s result pages. If approved by regulators, these placements were expected to begin in late 2010 or 2011.

Microsoft's vision of cloud computing repeatedly changed both in name and conception but, by 2010, plans were increasingly firm. Windows Azure let developers run applications on Microsoft-hosted platforms, while Microsoft Office 2010 was slated to include an "Office Web" version accessible through a web browser. Whereas most cloud-based applications were run in public clouds (e.g., on Google servers), Microsoft promised to let companies install web apps on their own web servers, potentially improving privacy and security.

eBay

Google's initiatives were a threat to eBay. After all, search was the first step in many e-commerce transactions. Customers shopping for a product could visit eBay's marketplace to find a qualified seller, or they could find a vendor through Google. In fact, many of Google's advertisers were also eBay sellers; these small companies carefully compared eBay's transaction fees to the costs of generating leads through search ads.

eBay's PayPal service faced similar competition from Google Checkout. Despite PayPal's historic focus on eBay auction payments and person-to-person payments, both services sought to offer checkout services to third-party retailers.

Others

From Amazon (books, general merchandise, and cloud-computing infrastructure) to Hulu (online video) to the *Washington Post* (news) and Facebook (communications, picture hosting, and app platform), Google's expansion threatened firms in a variety of sectors. Industry pundits issued warnings about the company's ever-expanding scope and its enormous influence. Even foreign governments voiced their concerns. In August 2005, French President Jacques Chirac announced a loan program for the development of a Franco-German multimedia search engine, citing concerns that Google was "a tool of U.S. cultural imperialism."[48] One observer noted that "Google's ever-

expanding agenda has put it on a collision course with nearly every company in the information technology industry: Amazon.com, Comcast, eBay, ... Who's afraid of Google? Everyone."[49]

What Should Google Do?

In 2005, Google's Schmidt had suggested that "it will take, current estimate, 300 years to organize all the world's information."[50] What would Google do next?

One option was to stay focused on Google's distinctive competence: developing superior search solutions and monetizing them through targeted advertising. This approach offered many avenues for growth, especially when search was broadened beyond the World Wide Web to encompass print, video, mobile, and other information sources.

Alternatively, Google could branch into new areas. For example, it could expand into a full portal like Yahoo! or MSN by aggregating content into thematic channels. It could expand its Checkout function for facilitating transactions. It could continue pushing to challenge Microsoft's prevalence on the PC desktop by developing products to compete with Windows and Office.

Any of these initiatives would be an enormous undertaking, with tremendous risks and huge potential rewards. But were they consistent with the company's mission to organize the world's information? And if Google chose to pursue any of these opportunities, would its unique governance structure and its bottom-up approach to managing innovation prove to be assets or liabilities?

Google's top executives were characteristically cryptic about their plans, but Schmidt did dismiss some opportunities. Asked whether Google would become a portal, he replied:

> You're using a tired model … looking at us based on market share for technologies and ideas that were invented 10 years ago. A much better way to ask that is to say, 'Are the things that we're doing consistent with the mission of the company?' We're not in the portal business, we're in the business of making all the world's information accessible and useful.[51]

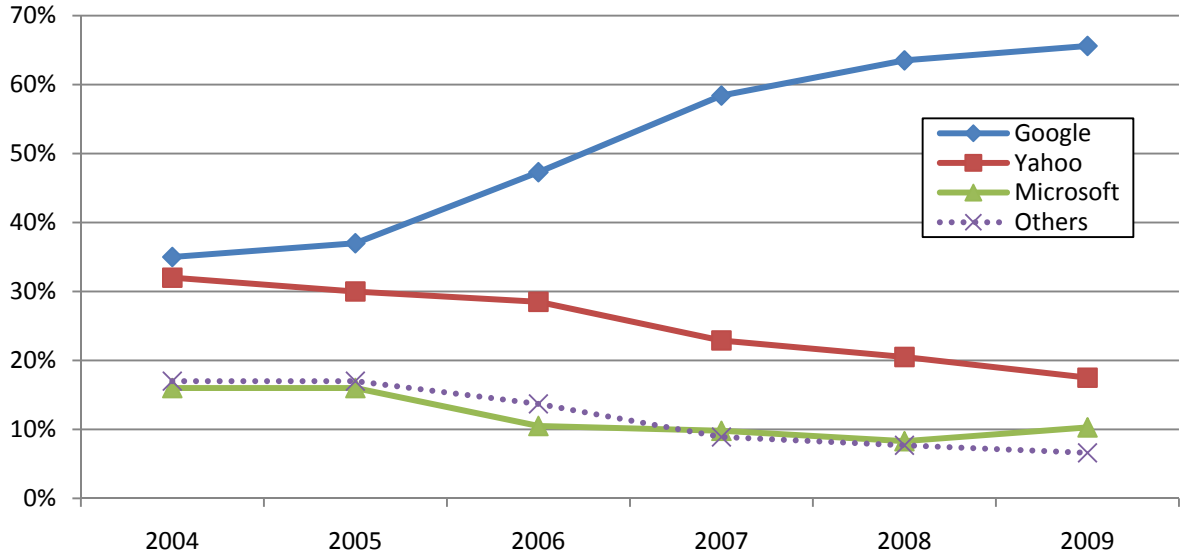
Exhibit 1 Google Financials, 1999–2008 ($ in millions)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Revenue:	$0.2	$19.1	$86.4	$439.5	$1,465.9	$3,189.2	$6,138.6	$10,604.9	$16,594.0	$21,795.6
– Ad revenue										
- Google sites	N/A	N/A	66.0	307.0	792.1	1,589.0	3,377.0	6,332.8	10,624.7	14,413.8
- Network sites	N/A	N/A	--	103.9	628.6	1,554.3	2,688.0	4,159.8	5,787.9	6,714.7
– Licensing and other	N/A	N/A	19.5	28.6	45.3	45.9	73.6	112.3	181.4	667.1
Traffic acquisition cost (for network sites)	--	--	--	94.5	525.6	1,228.7	2,115.0	3,308.8	4,933.9	5,939.0
Cost of net revenue (for data centers, bandwidth, etc.)	0.9	6.1	14.2	37.0	99.3	229.0	456.5	4,225.0	6,649.1	8,621.5
R&D	2.9	10.5	16.5	31.7	91.2	225.6	484.0	1,228.6	2,120.0	2,793.2
Sales and marketing	1.7	10.4	20.1	43.8	120.3	246.3	439.7	849.5	1,461.3	1,946.2
G&A	1.2	4.4	12.3	24.3	56.7	139.7	335.3	751.8	1,279.3	1,802.6
Stock-based compensation	--	2.5	12.4	21.6	229.4	278.7	200.7	458.1	868.6	1,119.8
Yahoo! patent litigation settlement	--	--	--	--	--	201.0	--	--	--	--
Contribution to Google Foundation	--	--	--	--	--	--	90.0	--	--	--
TOTAL EXPENSES	**$6.7**	**$33.8**	**$75.5**	**$253.0**	**$1,123.5**	**$2,549.0**	**$4,121.2**	**$7,054.9***	**$11,509.6***	**$15,163.6***
Income (loss) from operations	**$(6.5)**	**$(14.7)**	**$11.0**	**$186.5**	**$342.4**	**$640.2**	**$2,017.4**	**$3,550.0**	**$5,084.4**	**$6,632.0**
Net income	**$(6.1)**	**$(14.7)**	**$7.0**	**$99.7**	**$105.6**	**$399.1**	**$1,465.4**	**$3,077.4**	**$4,203.7**	**$4,226.9**
Cash and marketable securities, year-end	20.0	19.1	33.6	146.3	334.7	2,132.2	8,034.3	11,234.9	14,218.6	15,845.8
Purchase of property and equipment	N/A	N/A	13.1	37.2	176.8	319.0	838.2	1,902.8	2,402.8	2,358.5
Depreciation and amortization of property and equipment	N/A	N/A	9.8	17.8	43.9	128.5	256.8	494.4	807.7	1,212.2
Acquisitions, net of cash acquired	N/A	N/A	--	--	40.0	22.0	86.5	402.4	906.7	3,320.3
Revenue by geography:										
– United States	N/A	N/A	74.0	275.3	707.9	2,127.1	3,744.5			
– International	N/A	N/A	12.4	72.5	254.0	1,062.2	2,394.0			

Source: Google S1, 2005 10K, and 2008 10K statements.

* - Does not include traffic acquisition cost or stock-based compensation

Exhibit 2 U.S. Search Engine Market Share



Source: Compiled by casewriter from comScore Media Metrix press releases (various).

Note: "Others" includes AOL and Ask.com. Ask.com used its own technology for web search and relied on Google for paid listings.

Exhibit 3 International Search Engine Market Share (selected countries)

Lithuania	98.18%	Colombia	91.00%	Ukraine	72.42%
Latvia	97.95%	United Kingdom	90.39%	New Zealand	72.00%
Belgium	96.00%	Italy	90.00%	United States	67.70%
Hungary	96.00%	Argentina	89.00%	Puerto Rico	57.00%
Romania	95.21%	Brazil	89.00%	Singapore	57.00%
Netherlands	95.00%	Austria	88.00%	Estonia	53.37%
Poland	95.00%	Mexico	88.00%	Iceland	51.00%
Portugal	94.00%	Australia	87.81%	Malaysia	51.00%
Chile	93.00%	India	81.40%	Japan	38.20%
Germany	93.00%	Norway	81.00%	Czech Republic	34.50%
Spain	93.00%	Bulgaria	80.00%	Russia	32.00%
Switzerland	93.00%	Israel	80.00%	China	26.60%
Venezuela	93.00%	Sweden	80.00%	Hong Kong	26.00%
Denmark	92.00%	Canada	78.00%	Taiwan	18.00%
Finland	92.00%	Ireland	76.00%	Korea, South	3.00%
France	91.23%	Slovakia	75.60%		

Source: Adapted by casewriter from Alex Chitu, "Google's Market Share in Your Country," March 13, 2009. Available at http://googlesystem.blogspot.com/2009/03/googles-market-share-in-your-country.html.

Exhibit 4 Google's Statement of Philosophy

Ten things we know to be true

"The perfect search engine," says co-founder Larry Page, "would understand exactly what you mean and give back exactly what you want." When Google began, you would have been pleasantly surprised to enter a search query and immediately find the right answer. Google became successful precisely because we were better and faster at finding the right answer than other search engines at the time. But technology has come a long way since then, and the face of the web has changed…. As we keep looking towards the future, these core principles guide our actions.

1. Focus on the user and all else will follow.

Since the beginning, we've focused on providing the best user experience possible. Whether we're designing a new Internet browser or a new tweak to the look of the homepage, we take great care to ensure that they will ultimately serve you, rather than our own internal goal or bottom line. Our homepage interface is clear and simple, and pages load instantly. Placement in search results is never sold to anyone, and advertising is not only clearly marked as such, it offers relevant content and is not distracting. And when we build new tools and applications, we believe they should work so well you don't have to consider how they might have been designed differently.

2. It's best to do one thing really, really well.

We do search. With one of the world's largest research groups focused exclusively on solving search problems, we know what we do well, and how we could do it better. Through continued iteration on difficult problems, we've been able to solve complex issues and provide continuous improvements to a service that already makes finding information a fast and seamless experience for millions of people. Our dedication to improving search helps us apply what we've learned to new products, like Gmail and Google Maps. Our hope is to bring the power of search to previously unexplored areas, and to help people access and use even more of the ever-expanding information in their lives.

3. Fast is better than slow.

We know your time is valuable, so when you're seeking an answer on the web you want it right away—and we aim to please. We may be the only people in the world who can say our goal is to have people leave our homepage as quickly as possible. By shaving excess bits and bytes from our pages and increasing the efficiency of our serving environment, we've broken our own speed records many times over ….

4. Democracy on the web works.

Google search works because it relies on the millions of individuals posting links on websites to help determine which other sites offer content of value. We assess the importance of every web page using more than 200 signals and a variety of techniques, including our patented PageRank™ algorithm, which analyzes which sites have been "voted" to be the best sources of information by other pages across the web. As the web gets bigger, this approach actually improves, as each new site is another point of information and another vote to be counted. In the same vein, we are active in open source software development, where innovation takes place through the collective effort of many programmers.

5. You don't need to be at your desk to need an answer.

The world is increasingly mobile: people want access to information wherever they are, whenever they need it. We're pioneering new technologies and offering new solutions for mobile services that help people all over the globe to do any number of tasks on their phone, from checking e-mail and calendar events to watching videos, not to mention the several different ways to access Google search on a phone. In addition, we're hoping to fuel greater innovation for mobile users everywhere with Android, a free, open source mobile platform. Android brings the openness that shaped the Internet to the mobile world….

6. You can make money without doing evil.

Google is a business. The revenue we generate is derived from offering search technology to companies and from the sale of advertising displayed on our site and on other sites across the web. Hundreds of thousands of advertisers worldwide use AdWords to promote their products; hundreds of thousands of publishers take advantage of our AdSense program to deliver ads relevant to their site content. To ensure that we're ultimately serving all our users (whether they are advertisers or not), we have a set of guiding principles for our advertising programs and practices:

* We don't allow ads to be displayed on our results pages unless they are relevant where they are shown. And we firmly believe that ads can provide useful information if, and only if, they are relevant to what you wish to find—so it's possible that certain searches won't lead to any ads at all.
* We believe that advertising can be effective without being flashy. We don't accept pop-up advertising, which interferes with your ability to see the content you've requested. We've found that text ads that are relevant to the person reading them draw much higher clickthrough rates than ads appearing randomly. Any advertiser, whether small or large, can take advantage of this highly targeted medium.
* Advertising on Google is always clearly identified as a "Sponsored Link," so it does not compromise the integrity of our search results. We never manipulate rankings to put our partners higher in our search results and no one can buy better PageRank. Our users trust our objectivity and no short-term gain could ever justify breaching that trust.

7. There's always more information out there.

Once we'd indexed more of the HTML pages on the Internet than any other search service, our engineers turned their attention to information that was not as readily accessible. Sometimes it was just a matter of integrating new databases into search, such as adding a phone number and address lookup and a business directory. Other efforts required a bit more creativity, like adding the ability to search news archives, patents, academic journals, billions of images and millions of books….

8. The need for information crosses all borders.

Our company was founded in California, but our mission is to facilitate access to information for the entire world, and in every language. To that end, we have offices in dozens of countries, maintain more than 150 Internet domains, and serve more than half of our results to people living outside the United States. We offer Google's search interface in more than 110 languages …. Using our translation tools, people can discover content written on the other side of the world in languages they don't speak….

9. You can be serious without a suit.

Our founders built Google around the idea that work should be challenging, and the challenge should be fun. We believe that great, creative things are more likely to happen with the right company culture—and that doesn't just mean lava lamps and rubber balls. There is an emphasis on team achievements and pride in individual accomplishments that contributes to our overall success.….

10. Great just isn't good enough.

We see being great at something as a starting point, not an endpoint. We set ourselves goals we know we can't reach yet, because we know that by stretching to meet them we can get further than we expected…. When we launched Gmail, it had more storage space than any e-mail service available. In retrospect, offering that seems obvious—but that's because now we have new standards for e-mail storage. Those are the kinds of changes we seek to make, and we're always looking for new places where we can make a difference. Ultimately, our constant dissatisfaction with the way things are becomes the driving force behind everything we do.

Source: Google 2010, www.google.com, corporate/tenthings.html, accessed January 7, 2010.

Exhibit 5 Google's Ten Golden Rules

Getting the most out of knowledge workers will be the key to business success for the next quarter century. Here's how we do it at Google.

By Eric Schmidt and Hal Varian, December 2, 2005

. . . What follows are seven key principles we use to make knowledge workers most effective. As in most technology companies, many of our employees are engineers, so we will focus on that particular group, but many of the policies apply to all sorts of knowledge workers.

Hire by committee. Virtually every person who interviews at Google talks to at least half-a-dozen interviewers, drawn from both management and potential colleagues. Everyone's opinion counts, making the hiring process more fair and pushing standards higher. Yes, it takes longer, but we think it's worth it. If you hire great people and involve them intensively in the hiring process, you'll get more great people. We started building this positive feedback loop when the company was founded, and it has had a huge payoff.

Cater to their every need. [T]he goal is to "strip away everything that gets in their way." We provide a standard package of fringe benefits, but on top of that are first-class dining facilities, gyms, laundry rooms, massage rooms, haircuts, carwashes, dry cleaning, commuting buses—just about anything a hardworking engineer might want. Let's face it: programmers want to program, they don't want to do their laundry. So we make it easy for them to do both.

Pack them in. Almost every project at Google is a team project, and teams have to communicate. The best way to make communication easy is to put team members within a few feet of each other. The result is that virtually everyone at Google shares an office. This way, when a programmer needs to confer with a colleague, there is immediate access: no telephone tag, no e-mail delay, no waiting for a reply. Of course, there are many conference rooms that people can use for detailed discussion so that they don't disturb their office mates. Even the CEO shared an office at Google for several months after he arrived. Sitting next to a knowledgeable employee was an incredibly effective educational experience.

Make coordination easy. Because all members of a team are within a few feet of one another, it is relatively easy to coordinate projects. In addition to physical proximity, each Googler e-mails a snippet once a week to his work group describing what he has done in the last week. This gives everyone an easy way to track what everyone else is up to, making it much easier to monitor progress and synchronize work flow.

Eat your own dog food. Google workers use the company's tools intensively. The most obvious tool is the Web, with an internal Web page for virtually every project and every task. They are all indexed and available to project participants on an as-needed basis. We also make extensive use of other information-management tools, some of which are eventually rolled out as products. For example, one of the reasons for Gmail's success is that it was beta tested within the company for many months. The use of e-mail is critical within the organization, so Gmail had to be tuned to satisfy the needs of some of our most demanding customers—our knowledge workers.

Encourage creativity. Google engineers can spend up to 20 percent of their time on a project of their choice. There is, of course, an approval process and some oversight, but basically we want to allow creative people to be creative. One of our not-so-secret weapons is our ideas mailing list: a companywide suggestion box where people can post ideas ranging from parking procedures to the next killer app. The software allows for everyone to comment on and rate ideas, permitting the best ideas to percolate to the top.

Strive to reach consensus. Modern corporate mythology has the unique decision maker as hero. We adhere to the view that the "many are smarter than the few," and solicit a broad base of views before reaching any decision. At Google, the role of the manager is that of an aggregator of viewpoints, not the dictator of decisions. Building a consensus sometimes takes longer, but always produces a more committed team and better decisions.

Don't be evil. Much has been written about Google's slogan, but we really try to live by it, particularly in the ranks of management. As in every organization, people are passionate about their views. But nobody throws chairs at Google, unlike management practices used at some other well-known technology companies. We foster an atmosphere of tolerance and respect, not a company full of yes men.

Data drive decisions. At Google, almost every decision is based on quantitative analysis. We've built systems to manage information, not only on the Internet at large, but also internally. We have dozens of analysts who plow through the data, analyze performance metrics and plot trends to keep us as up to date as possible. We have a raft of online "dashboards" for every business we work in that provide up-to-the-minute snapshots of where we are.

Communicate effectively. Every Friday we have an all-hands assembly with announcements, introductions and questions and answers. (Oh, yes, and some food and drink.) This allows management to stay in touch with what our knowledge workers are thinking and vice versa. Google has remarkably broad dissemination of information within the organization and remarkably few serious leaks. Contrary to what some might think, we believe it is the first fact that causes the second: a trusted work force is a loyal work force.

[But] there are several problems that we (and other companies like us) face.

One is "techno arrogance." Engineers are competitive by nature and they have low tolerance for those who aren't as driven or as knowledgeable as they are. But almost all engineering projects are team projects; having a smart but inflexible person on a team can be deadly. If we see a recommendation that says "smartest person I've ever known" combined with "I wouldn't ever want to work with them again," we decline to make them an offer. One reason for extensive peer interviews is to make sure that teams are enthused about the new team member. Many of our best people are terrific role models in terms of team building, and we want to keep it that way.

A related problem is the not-invented-here syndrome. A good engineer is always convinced that he can build a better system than the existing ones, leading to the refrain "Don't buy it, build it." Well, they may be right, but we have to focus on those projects with the biggest payoff. Sometimes this means going outside the company for products and services.

Another issue that we will face in the coming years is the maturation of the company, the industry and our work force. We, along with other firms in this industry, are in a rapid growth stage now, but that won't go on forever. Some of our new workers are fresh out of college; others have families and extensive job experience. Their interests and needs are different. We need to provide benefits and a work environment that will be attractive to all ages.

A final issue is making sure that as Google grows, communication procedures keep pace with our increasing scale. The Friday meetings are great for the Mountain View team, but Google is now a global organization.

We have focused on managing creativity and innovation, but that's not the only thing that matters at Google. We also have to manage day-to-day operations, and it's not an easy task. We are building technology infrastructure that is dramatically larger, more complex and more demanding than anything that has been built in history. Those who plan, implement and maintain these systems, which are growing to meet a constantly rising set of demands, have to have strong incentives, too. At Google, operations are not just an afterthought: they are critical to the company's success, and we want to have just as much effort and creativity in this domain as in new product development.

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