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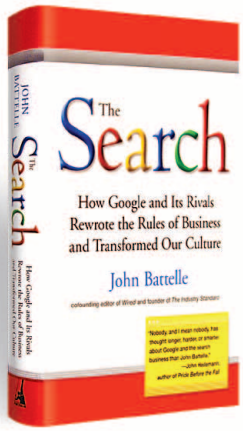

By John Battelle

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How Google and Its Rivals Rewrote the Rules of Business And Transformed Our Culture

THE SEARCH

THE SUMMARY IN BRIEF

Jumping into the game long after Yahoo!, AltaVista, Excite, Lycos and other pioneers, Google offered a radical new approach to search, redefined the idea of viral marketing, survived the dot-com crash, and pulled off the largest and most talked-about initial public offering in the history of Silicon Valley.

But this summary is much more than the inside story of Google's triumph. It also takes a big-picture look at the past, present and future of search technology and the enormous impact it is starting to have on marketing, media, pop culture, job hunting, international law, civil liberties, and just about every other sphere of human interest.

The information contained in this summary draws from interviews with more than 350 people, including Google co-founders Larry Page and Sergey Brin; Google CEO Eric Schmidt; key executives at rivals such as Microsoft, Yahoo! and AOL; early pioneers; scientists working on the future of search; venture capitalists; and even entrepreneurs whose fortunes rise and fall with every tweak in the Google search algorithm.

Through the story of the start and rise of Google, this summary attempts to explain the history of search.

In addition, you will learn:

- ✓ ***Who created Google?***
- ✓ ***How does a search engine work?***
- ✓ ***How did Google and its rivals rewrite the rules of business and transform our culture?***
- ✓ ***What happens to privacy when every word ever written about you is saved forever and searchable?***
- ✓ ***Is the government going to get its hands on search databases?***
- ✓ ***If companies can track every click you make online and send you highly targeted ads, is that a good thing or an invasion of privacy?***
- ✓ ***The founders of Google declared that their motto is "Don't Be Evil" — but do they really act that way when the big money is at stake?***
- ✓ ***Where will search technology be in a few years?***
- ✓ ***What might search tell us about ourselves and our global culture?***

Published by Soundview Executive Book Summaries, P.O. Box 1053, Concordville, PA 19331 USA

The Database of Intentions

By the fall of 2001, the Internet industry was in full retreat. Hundreds of once promising startups lay smoldering in bankruptcy. The dreams of Internet riches, of changing the world of business and reshaping our culture in the process, dreams celebrated in magazine cover stories and TV specials and unheard of stock market valuations, were stone cold dead.

Could the Internet story ever pick itself up off the ground? The answer to that question could possibly be found in the first edition of Google Zeitgeist. Zeitgeist is a clever public relations tool that summarizes search terms that are gaining or losing momentum during a particular period of time. By watching and counting search terms, Zeitgeist provides a fascinating summary of what our culture is looking for or finds interesting, and conversely, what was once popular that is losing cultural momentum.

A Weekly Zeitgeist

Since 2001, Google has maintained a weekly Zeitgeist on its press relations site. In 2001, the fastest declining queries demonstrated how quickly our culture was abandoning frivolity: Pokemon was number one, followed closely by Napster, *Big Brother* (a reality television show), *X-Men*, and the woman who won *Who Wants to Marry a Multi-Millionaire*. Zeitgeist revealed that Google had more than its finger on the pulse of our culture: It was directly jacked into its nervous system. The 2001 Zeitgeist was a glimpse into the "Database of Intentions" — a living artifact of immense power. Google knows what our culture wants! Given the millions upon millions of queries streaming into its servers each hour, the company was sitting on a gold mine of information.

Within Google's rich database lay potential fieldwork for thousands of doctorates in cultural anthropology, psychology, history and sociology. This little company is holding the world by the thoughts.

Maybe the dot-com dream isn't dead; perhaps it was simply hiding behind the implacable facade of a Google search box.

Back in April 2001, Eric Schmidt, a founder of Sun Microsystems, had left his job running Novell, the perpetually struggling networking giant, and accepted the chairman and the CEO role over at Google. The industry was baffled by the move.

But he was onto something big. Google, it seemed, was thriving.

The Billion Dollar Opportunity

Google was a technology business. In an interview at the time, Schmidt said, "We're looking for the next billion-dollar market in technology."

It didn't take long for Google to take its place as a giant in the media landscape. A year later, Schmidt said, "Isn't the media business great?"

In essence, Google and its competitors have created the first application to leverage the Database of Intentions in a commercial manner: paid search. In less than five years, the business has grown from next to nothing to more than $4 billion in revenue, and is predicted to quadruple in another five years.

Along the way, search has moved from a useful service on the edge of most Internet users' experience to the de facto interface for computing in the information age. "As the amount of information available to us explodes, search has become the user's interface metaphor," observes Raymie Stata, a Silicon Valley-based engineer and entrepreneur. "There is now all this information that is possible to get into your hands. Search is our attempt to make sense of it."

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Summarized by arrangement with Portfolio, a member of Penguin Group (USA) Inc. from THE SEARCH by John Battelle. Copyright © John Battelle, 2005.
311 pages. $25.95. ISBN 1-59184-088-0.

For additional information on the author, go to: http://my.summary.com

Published by Soundview Executive Book Summaries (ISSN 0747-2196), P.O. Box 1053, Concordville, PA 19331 USA, a division of Concentrated Knowledge Corp. Published monthly. Subscriptions: $209 per year in the United States, Canada and Mexico, and $295 to all other countries. Periodicals postage paid at Concordville, Pa., and additional offices.

Postmaster: Send address changes to Soundview, P.O. Box 1053, Concordville, PA 19331. Copyright © 2006 by Soundview Executive Book Summaries.

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The Database of Intentions

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Implications

What do Japanese teenagers think is cool this week? What pop star is selling, and who is falling off the charts? Which politician is popular in Iowa, New Hampshire or California, and why? Where do suburban moms get their answers about cancer? Who visits terrorist-related Web sites, and how do they find them? Nearly any question one might frame can be answered in one way or another by mining the implacable Database of Intentions that is building second by second across the Internet.

So what does the emergence of such an artifact auger? What effect might it have on the multibillion dollar marketing and media industries? Why have the governments of China, Germany and France threatened to ban search engines like Yahoo! or Google, and why might our own national security hinge on plumbing the depths of their databases? What, in the end, might search tell us about ourselves and the global culture we are creating together online?

Complicated Territory

The answers to these questions are not simple. Search straddles an increasingly complicated territory of marketing, media, technology, pop culture, international law and civil liberties. It is fraught not only with staggering technological obstacles — imagine the data created by billions of queries each week — but with nearly paralyzing social responsibility. If Google and companies like it know what the world wants, powerful organizations become quite interested in them, and vulnerable individuals see them as a threat. Through companies like Google and the results they serve, an individual's digital identity is immortalized and can be retrieved upon demand. Google's co-founder Sergey Brin assures us that such demands are neither made nor met. But in the face of such power, how long can that stand? ■

Who, What, Where, Why, When and How (Much)

Before taking the journey around the contours and implications of search, it makes sense to get our bearings. Most cub reporters are taught to answer five questions about any topic before writing about it: who, what, where, why and when. If you crammed answers to all those questions into your lead paragraph, then you had essentially done your job.

But to those five questions, it is helpful to add a sixth — how — and a corollary: Who's making the money, and how much? First, let's address the how.

How

So how does a search engine work? There's a very, very long answer to this question, but here is a much shorter one. In essence, a search engine connects words you enter (queries) to a database it has created of Web pages (an index). It then produces a list of URLs (and summaries of content) it believes are most relevant for your query. While there are experimental approaches to search that are not driven by this paradigm, for the most part, every major search engine is driven by this text-based approach.

A search engine consists of three major pieces — the crawl, the index, and the runtime system or query processor, which is the interface and related software that connects a user's queries to the index. All three pieces are integral to the quality and speed of the engine, and there are literally hundreds of factors in each that affect the overall search experience delivered. But the basics are pretty much the same for all the engines. As Tim Bray, a search pioneer now at Sun Microsystems puts it in his excellent series "On Search," "The fact of the matter is that there really hasn't been much progress in the basic science of how to search since the '70s."

Who

Who searches the Web? The simple answer is nearly everyone. We can learn quite a bit from the data collected so far on search habits. In the summer of 2004, the Pew Internet and American Life Project released a research paper on American usage of the Internet. It concluded that of all Americans who use the Internet, about 85 percent use search engines, or more than 107 million people in the United States alone. More than two-thirds of those are active users of search — employing a search engine more than twice a week and averaging more than 30 searches a month.

Pew estimates that on any given day in the United States, 38 million people are using a search engine. All those searches add up to nearly 4 billion queries each month.

So who are these people, the folks using search engines? Are they any different from the average American? Turns out the answer is yes. Pew has found a technology elite that drives usage of the Internet. Thirty-one percent of the U.S. population, Pew claims, are members of this elite. Pew also found that the younger you are or the higher your educational attainment, the more you search.

What

Now that we've established who is searching and how

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For additional information on fun facts about search queries, go to: http://my.summary.com

Who, What, Where, Why, When and How (Much)

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the process works, what are they searching for? Herein lies the beauty and the potential of search: It is driven by the unimaginable complexity inherent in the human language — nearly infinite combinations of dialects, words and numbers. Investment bank Piper Jaffray estimates that the world conducted about 550 million searches each day in 2003, a figure it expects to grow at about 10 to 20 percent a year.

Where and Why

So far we've reviewed how search works, who is searching, and what they're searching for. But where are they going and why are they going there in the first place? In the aggregate, most searchers stick close to home: 85 percent use one of the big four engines — Microsoft, Yahoo!, Google or AOL. And they tend to stick with them once they've started: Market share among these giants has fluctuated in the past years, but even with major moves by both Microsoft and Yahoo! to improve their search engine results, Google remains the market leader.

As to the question of why we search, the answer is more complicated than it might seem. Sure, we search to find information on all manner of things, or to locate something to buy, or to simply find the shortest route to a site we already know exists (the practice of typing in a word you know so as to yield a site you wish to visit, also called a navigational query). In short, we search to find.

When

The rather mundane question of when we search can be boiled down to one straightforward fact: We search from both home and work, with our searches pretty much evenly broken up between them. Search traffic tends to increase in the morning and peaks again in the evening, as we all fire up our home computers and look for movie tickets, homework help, or a local plumber to fix the dripping sink.

The Money Shot

All those searches, and all those searchers, have translated into a major business opportunity, in fact, the fastest growing media business in the history of media. Why the extraordinary growth? In short, paid search works. Lining up short, text-based advertisements against the queries of those hundreds of millions of searchers results in extremely efficient marketing leads. Search, a marketing method that didn't exist a mere five years ago, provides the most efficient and inexpensive way for businesses to find leads. ■

Google Is Born

Search Before Google

As the search economy deepens and proliferates, there will be countless innovations built upon the basic breakthrough of the paid search model. But before we head into the economic implications of Web search, or the story of Google, its brightest star, it's wise to consider a bit of history. For while it seems that the words "Google" and "search" are now nearly one and the same, the truth is, search has been around for decades, in one form or another. Google is currently our culture's grandest declaration of the power of search — but it's by no means the first.

There were other search engines — had their timing been better or their owners wiser — that could have been Google instead. These companies include Lycos, AltaVista, GoTo and Yahoo!. The reason why Google was able to emerge ahead of them was that they had to concentrate on doing search well and not becoming a portal. The Internet bust actually helped them focus on what became one of the best business models on the planet.

Heirs to Tesla

Larry Page always wanted to be an inventor. When he was 12 years old, Page read a biography of Nikola Tesla, one of history's most prodigious inventors. Tesla discovered or developed the foundational technologies for an astonishing array of innovations, from wireless communication and X-rays to solar cells and the modern power grid. But despite his extraordinary invention, Tesla remains a minor figure — in particular when compared to Thomas Edison, a man Tesla worked for, fought with, and competed against for much of his career.

The 12-year-old Page was struck by this fact: Regardless of how brilliant and world-changing Tesla's work had been, the inventor received little long-term fame or fortune for his efforts.

It's fair to say that Page and his partner, Sergey Brin, have managed to avoid Tesla's fate. They've gotten their inventions into the hands of hundreds of millions of people. Along the way, they've made thousands of people very rich, improved the businesses of hundreds of thousands of merchants, and fundamentally changed the relationship between humanity and knowledge. In the process, Page and Brin have become wealthy and famous. And it did not take them a lifetime to do so. It took as long as the average doctorate in computer science — five years, give or take.

It Began With an Argument

Larry Page first met Sergey Brin in the summer of 1995, before he had decided to accept Stanford's offer

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Google Is Born

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of admission. Like most schools, Stanford invites potential recruits to the campus for a tour. But it wasn't on the pastoral campus that Page met Brin — it was on the streets of San Francisco. Brin, a second-year student known to be gregarious, had signed up to be a student guide of sorts. His role that day was to show a group of prospective first years around the City by the Bay.

Page ended up in Brin's group, but it wasn't exactly love at first sight. "Sergey is pretty social; he likes meeting people," Page recalls, contrasting that quality with his own reticence. "I thought he was pretty obnoxious. He had really strong opinions about things, and I guess I did, too."

"We both found each other obnoxious," Brin counters when he is told of Page's response. "But we say it a little bit jokingly. Obviously we spent a lot of time talking to each other, so there was something there. We had a kind of bantering thing going."

The Audacity of Rank

Page says that it had never been his intention to create a search engine — indeed, he and Brin had no idea what useful things the project might turn up.

Page hypothesized BackRub — a system that would discover links on the Web, store them for analysis, then republish them in a way that made it possible for anyone to see who was linking to any given page on the Web.

But in order to create BackRub, Brin and Page had to crawl the Web. Crawling the entire Web to discover the sum of its links is a major undertaking, but simple crawling was not where BackRub's true innovation lay. Page was naturally aware of the concept of ranking in academic publishing, and he theorized that the structure of the Web's graph would reveal not just who was linking to whom, but more critically, the importance of who linked to whom, based on various attributes of the site that was doing the linking.

If BackRub knew the importance of a site, it could give that site a relative ranking. For any given site, one could see not only who was linking to that site, but the ranking of those links as well. Certainly, that might be useful, Page thought.

Being useful was an extremely important aspect of Page and Brin's research (and has become a mantra for all of Google's product development since). They hadn't yet decided that there was a company in BackRub, but the lessons of Tesla were never far from Page's mind. He says, "My goals were to work on something that would be academically real and interesting."

Once Page and Brin had crawled the Web and stored a graph of its links, they needed to determine a ranking methodology. Inspired by citation analysis, Page theorized that a raw count of links to a page would be a useful guide to that page's rank. He also theorized that each link needed its own ranking, based on the link count of its originating page. But such an approach creates a difficult and recursive mathematical challenge — you not only have to count a particular page's links, you also have to count the links attached to the links. Very quickly, the math gets rather complicated.

Math Gifts

Fortunately, Brin's prodigious gifts in mathematics could be applied to the problem. Brin, the Russian-born son of a NASA scientist (his mother) and a university math professor (his father), emigrated to the United States with his family at the age of 6. By the time he was a middle-schooler in suburban Maryland, Brin was a recognized math prodigy.

Page and Brin's breakthrough was to create an algorithm — dubbed PageRank after Page — that manages to take into account both the number of links into a particular site, and the number of links into each of the linking sites. This mirrored the rough approach of academic citation counting, and it worked. This is a simplified view, to be sure, and Page and Brin had to correct for any number of mathematical cul-de-sacs, but the long and the short of it was this: More popular sites rose to the top of their annotation list, and less popular sites fell toward the bottom.

Page and Brin quickly noticed that BackRub's results were superior to those of traditional search engines like AltaVista and Excite, which often returned irrelevant results. And not only was the engine good, Page and Brin realized that it would scale as the Web scaled — PageRank worked by analyzing links, so the bigger the Web got, the better the engine would be. That fact inspired the founders to name their new engine Google, after "googol," the term for the number 1 followed by 100 zeros. They released the first version of Google on the Stanford Web site in August 1996.

Among a small set of Stanford insiders, Google was a hit. Due to its size and scale, the project grew into something of a legend within the computer science department and the campus network administration offices. At one point, the BackRub crawler consumed nearly half of Stanford's entire network bandwidth, an extraordinary fact considering that Stanford was one of the best networked institutions on the planet. And on at least one occasion, the project brought down Stanford's Internet connection altogether.

"We're lucky there were a lot of forward-looking people at Stanford," Page recalls. "They didn't hassle us too much about the resources we were using."

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Google Is Born

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A Company Emerges

As Brin and Page continued experimenting with search, BackRub and its Google implementation were gaining buzz, both on the Stanford campus and within the cloistered world of academic Web research. Back in the early days, Page and Brin weren't sure they wanted to go through the travails of starting and running a company. But as Brin's adviser described it, if Google pans out, then great. If not, come back to school and finish your thesis.

By late 1998, the service was serving more than 10,000 queries a day, and it was clear to Page and Brin that the service would quickly outgrow their ability to beg resources to support it. Starting a company became the only viable alternative. They turned to faculty adviser David Cheriton for advice. He told them to contact Andy Bechtolsheim, a founder of Sun who was active in early-stage investments.

Page and Brin gave a laptop demo to Bechtolsheim at Cheriton's home. Andy then asked many questions. Then he said that he didn't want to waste a lot of time. "I'm sure it'll help you guys if I just write a check." He wrote them a check for $100,000 dollars.

Press coverage of Google often glosses over this fact, but the truth is that the company was bereft of a viable plan for making money until early 2001. "There was a genuine concern about where the revenues were going to come from," said early Google employee Ram Shriram. Mike Moritz, another early Google team member, says, "As 1999 trickled by and we were burning cash without a clearly illuminated path to revenues, there was considerable concern."

The story of how Google found its business model — and its subsequent rise to glory — requires a diversion into the history of another company, GoTo.com. For while Page and Brin struggled with the notion of turning search into a business, the founder of GoTo.com, Bill Gross, saw in search the seeds of an economic revolution. ■

Search Engine Bias

Brin and Page were deeply suspicious of blending advertising and search. In their academic paper introducing Google, they wrote:

"In our prototype search engine one of the top results for [the search term] "cellular phone" is "The Effect of Cellular Phone Use Upon Driver Attention," a study which explains in great detail the distractions and risk associated with conversing on a cell phone while driving. The 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."

Over time, the Google founders have clearly made peace with their reservations about advertising, but back in the early days, they were adamant that their company not fall into the same trap as had the companies that spurned them. Google would never put advertisers ahead of its users.

A Billion Dollars, One Nickel at a Time

Had he just stuck to his guns, he'd be the one hailed as the revolutionary, the one on the cover of every business magazine, no, the cover of *Time* magazine, with a guest chair on *Charlie Rose* to boot: Bill Gross, founder of the company with the most anticipated IPO in the history of Wall Street, the mad genius who rewrote the rules of business and rewired the way our culture understood itself.

Indeed, had Bill Gross not given up his argument, had he just followed his gut, there might not even be a Google. Brin and Page might have sold out to Yahoo! or Excite or Microsoft, or merged with Ask Jeeves or gone the way of AltaVista — sinking slowly into the dark oceans of corporate mergers and acquisitions. Imagine that, *a world with no Google.* A world where Brin and Page are no more than forgotten footnotes in a much grander story — the story of a serial entrepreneur with a mottled past who finally proved himself beyond all possible doubt. Indeed, had this version of history come to pass, this very summary would be talking about how GoTo.com changed everything.

Only it's not. Bill Gross has not created tens of billions of dollars in market value, at least not yet, and the trail of lawsuits and querulous press clippings littering his past are proof he failed in his quest to get each and every one of his investors very, very rich. But Bill Gross can quite legitimately claim to have created the business model that made Google possible, in the process reinventing pretty much the entire economic cardiopulmonary system of the Internet. And at the end of the day, that's certainly something.

Very, Very Rich

Wiry, manic and bespectacled, Gross is philosophical

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A Billion Dollars, One Nickel at a Time

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about the matter. Brimming with a conspiracist's good-natured glee, he's eager to pull you into his confidence. After all, he's very, very rich. And while people have never heard of the man, the company Gross founded later became Overture, a paid-search giant sold to Yahoo! in 2003 for more than $1.6 billion. Not a $30 billion IPO, but not pocket change, either.

Bill Gross is the founder of IdeaLab, an incubator where he manages about a dozen or so startups at a time. What became GoTo.com was a company called Overture. And if Google was a home run, then Overture was a triple ripped through the gap: good, but the base runner didn't quite get home. Overture was a hit, yes, but it might have been Google, or at least it could have tried to be. At the core of Gross' insight was the premise that search was broken, but the portals didn't seem to care.

Gross believed, and this belief fuels the entire search economy, is that the search term, as typed into a search box by an Internet user, is inherently valuable — it can be priced. "All our false starts made me realize that the true value of search lies in the search term," Gross says.

Overture, and then later GoTo, went through many deals and made a lot of money before finally selling out to Yahoo! for $1.6 billion. It was a decision that was made because of market factors and the memory of the quick devaluation of net companies after the net bust.

A World-Class Company

GoTo/Overture may be IdeaLab's greatest success to date, but any triumph Gross claims is overshadowed by what might have been. Gross saw the opportunity first and he built a world-class company to take advantage of it, but in the history of search, Overture will remain a footnote.

Perhaps that's why Bill Gross isn't finished dreaming the next great dream. So what's he working on now? "Basically I have the next paradigm in search," Gross says. "It's the next economic model and the next relevance model."

In the fall of 2004, Gross delivered his answer: SNAP, a new breed of search engine that ranks sites by factors such as how many times they have been clicked on by prior searchers, among many other things. ■

For additional information on what motivates Gross to start again, go to: http://my.summary.com

Google Today, Google Tomorrow

Despite Google doing a number of things wrong on the way to its initial public offering (IPO), it turned out to be quite successful. In the summer of 2004, Google had $3 billion in the bank and a market cap pushing $50 billion. Clearly the company needed a plan. While traditional companies — some might call them mature — have well understood corporate development plans, Google was still flying by the seat of its pants.

As Google looks toward its own future, that responsibility — to shareholders, to employees, and to users — will only increase. Google faces perhaps its most tremendous test in the next few years: Can it continue to innovate in the face of treacherous competition? Can it keep its most productive employees despite their personal wealth? Can it learn to partner with outside companies who find Google's loose approach to business confusing and dangerous? Can they take the company from 3,000 employees to 30,000?

Google's mission of organizing the world's information and making it accessible sets the company up to deliver nothing short of every possible service that might live on top of a computing platform — from mundane applications like word processing and spreadsheets (Microsoft's current bread and butter) to more futuristic services like video on demand, personal media storage, or distance learning. Many experts believe that in the near future, we'll store just about everything that can be digitized — our music, photographs, work documents, videos and mail — on one massive platform: the Google grid.

In other words, Google has, in its seven short years of corporate life, become a canvas upon which we project every application or service that we can imagine might arise in our increasingly digital future. Google as phone company? As cable provider? As university? As eBay, Amazon, Microsoft, Expedia and Yahoo! all rolled into one? It's conceivable, and that, in the end, is what makes the company — and search, the application that spawned it — so fascinating to us all. Nothing beguiles like the promise of unlimited potential. For now, anyway, Google holds that promise. ■

Search, Privacy, Government and Evil

Did you know that Google knows where you live? Worse yet, did you know that Google will give out your address to anyone who asks? Who does it think it is?

Many people have the same revelation: Google knows where you live. In our society, reverse directories are legal. Addresses and phone numbers are presumed to be public information. But while this kind of information is public, it is not widely available. Until Google and others made the digital connection via search, the public could assume it was difficult to do a reverse directory lookup. But what if it was as easy as typing a name into Google? Turns out often it already is.

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Search, Privacy, Government and Evil

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Nearly everyone with a computer will Google someone else. If you are a knowledge worker, chances are you Google someone nearly every day, if not more often. Have a job interview? Google the prospect. It's probably even a good idea to Google yourself often just so that you get a good idea of what picture the world sees of you.

The China Question

Google's mantra of "Don't Be Evil" has been put to the test by the requirements of the nation's PATRIOT Act. Even now, the government is suing the company in order to access the nation's surfing records. But at least we don't live in China. In response to the perceived threat the Internet represents, China has gone to extraordinary lengths to censor the Internet — to the point of building what is known in academic circles as the Great Firewall of China: a technological infrastructure that automatically filters out banned sites — political opposition sites in Taiwan or Tibet, for example — from the walled garden of the Chinese Internet.

A Dilemma for Democratic Businesses

China represents a dilemma for democratic businesses — its political and moral cultures are repugnant, but its market is far too rich to ignore. Google can't afford to not be in China, according to one eminent Chinese expert. "They are facing a hard choice. They really don't want to be seen as doing something that is evil, but no one goes into China on their own terms." In China, Google may have finally found a situation in which its Don't Be Evil motto cannot stand.

It is odd to think that seven years after they started a company to "organize the world's information and make it universally accessible and useful," Brin and Page find themselves pondering a role as the morality police for the global economy. And it's doubly odd to think that the decision that they make will have a significant impact on literally billions of people's lives, not to mention hundreds of billions of dollars in economic value. ■

Perfect Search

Where does Google go from here? Now that Google is public, and revealed to be mortal, now that almost every major media and information technology company in the world has declared search integral to its future, what might come next? Can anything possibly match the cultural thunderclap of the early Web, or the singular epiphany we all felt the first time we used Google?

Of course it can. When it comes to search, as with the Internet itself, the most interesting stuff is yet to come. Search is at best 5 percent solved. We're not even into double digits of its potential. And search itself is changing at such a rapid pace — in the past year important innovations have rolled out once a week, if not faster — that attempts to predict the near future are almost certainly doomed.

So let's instead imagine a world of perfect search. What might that look like?

There are a number of trends that are pointing toward fulfilling at least some part of that larger vision. Those trends are ubiquity, personalized search (the application of your personal Web toward a more perfect answer), the rise of the semantic Web (the tagging of information so as to make it more easily found), domain-specific search, and the Web time axis. But how does it all fit together?

The World at Your Fingertips

Google aside, there's no single moment when all these trends converge. Think back to your first Google epiphany, or if you've been searching the Web for a while, your first AltaVista epiphany. Think about what that felt like — how you suddenly realized that all of the world was at your fingertips. Or maybe it was the time you found the perfect CD due to a recommendation made by Amazon's search algorithms. Or maybe it was the first time you installed a desktop search program and found that obscure e-mail thread that you'd forgotten about.

The Search for Perfection

Whatever your first perfect search moment was, there will be many, many more as the space evolves. Search is no longer a stand-alone application, a useful but impersonal tool for finding something on a new medium called the World Wide Web. Increasingly, search is our mechanism for how we understand ourselves, our world and our place within it. It's how we navigate the one infinite resource that drives human culture: knowledge. Perfect search — every single possible bit of information at our fingertips, perfectly contextualized, perfectly personalized — may never be realized. But the journey to find out if it just might be is certainly going to be fun. ■

SOUNDVIEW RECOMMENDED READING LIST

If you liked *The Search*, you'll also like:

1. ***Does IT Matter?*** **by Nicholas G. Carr.** Carr argues that IT has become a commodity, and because the nature of strategy requires differentiation, IT cannot qualify as a strategic competitive advantage.
2. ***The E-Commerce Arsenal*** **by Alexis D. Gutzman.** Gutzman has put together a tool box containing the technologies you must master to establish a successful Web site.
3. ***e-Profit*** **by Peter S. Cohan.** Cohan offers tips and tactics that allow you to first identify the areas of your business processes that can be transformed by e-commerce technology, then create and implement a plan.
4. ***Business @ the Speed of Thought*** **by Bill Gates with Collins Hemingway.** Gates shows how to maintain flow through a single integrated digital infrastructure that uses digital tools.
5. ***The Clickable Corporation*** **by Jonathan Rosenoer, Douglas Armstrong and J. Russell Gates.** The authors identify and explain eight "value propositions" that companies can offer their customers through the Web.